U.S. Department of the Interior
Bureau of Land Management

Willow Master Development Plan

Environmental Impact Statement

FINAL

Volume 5: Appendices E.3-E.7

August 2020

Prepared by:
U.S. Department of the Interior
Bureau of Land Management

In Cooperation with:
U.S. Army Corps of Engineers
U.S. Environmental Protection Agency
U.S. Fish and Wildlife Service
Native Village of Nuiqsut
Iñupiat Community of the Arctic Slope
City of Nuiqsut
North Slope Borough
State of Alaska

Estimated Total Costs Associated with Developing and Producing this EIS: $6,668,400

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Willow Master Development Plan

Appendix E.3
Air Quality Technical Information

August 2020

Appendix E.3A
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Willow Master Development Plan

Appendix E.3A
Air Quality Technical Information

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List of Acronyms

AAAQS	Alaska Ambient Air Quality Standards
AQRVs	air quality related values
CAP	criteria air pollutant
CASTNET	Clean Air Status and Trends Network
CPAI	ConocoPhillips Alaska, Inc.
dv	deciview
EPA	Environmental Protection Agency
FLM	Federal Land Manager
HAP	hazardous air pollutant
F	Fahrenheit
kg N/ha/year	kilograms nitrogen per hectare per year
kg S/ha/year	kilograms sulfur per hectare per year
km	kilometers
MACT	maximum achievable control technology
m/s	meters per second
NAAQS	National Ambient Air Quality Standards
NADP	National Atmospheric Deposition Program
NH_4^-	ammonium
NO_2	nitrogen dioxide
NO_3^-	nitrate
NOx	nitrogen oxides
NPR-A	National Petroleum Reserve in Alaska
NTN	National Trends Network
NWS	National Weather Service
$PM_{2.5}$	particulate matter less than 2.5 microns in aerodynamic diameter
PM_{10}	particulate matter less than or equal to 10 microns in aerodynamic diameter
Project	Willow Master Development Plan Project
PSD	Prevention of Significant Deterioration
RHR	Regional Haze Rule
SO_2	sulfur dioxide
SO_4^{2-}	sulfate

1.0 Air Quality

The U.S. Environmental Protection Agency (EPA) has determined that 50 kilometers (km) is sufficient to determine whether an emissions source will cause or contribute to exceedances of ambient air quality standards and is the approved distance for regulatory near-field air quality models (40 CFR 51, Appendix W). The far-field (regional) modeling domain is more than 300 km from the Willow Master Development Plan Project (Project) in all directions except south of the Project, where the closest point is approximately 250 km.

1.1 Affected Environment

1.1.1 Regulatory Framework

In Alaska, EPA has delegated authority to the Alaska Department of Environmental Conservation for the implementation and enforcement of the Alaska Air Quality Control Regulations (18 AAC 50) through an EPA-approved State Implementation Plan. The Alaska Ambient Air Quality Standards (AAAQS) were promulgated in 18 AAC 50.010. The National Ambient Air Quality Standards (NAAQS) and AAAQS are provided in Table E.3.1.

Table E.3.1. National and Alaska Ambient Air Quality Standards

Pollutant[a]	Averaging Time	NAAQS[b] Primary	NAAQS[b] Secondary	AAAQS[c,d]	Form
CO	8 hours	9 ppm	N/A	10 mg/m^3	Not to be exceeded more than once per year
CO	1 hour	35 ppm	N/A	40 mg/m^3	Not to be exceeded more than once per year
NO_2	1 hour	100 ppb	N/A	188 µg/m^3	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
NO_2	Annual	53 ppb	53 ppb	100 µg/m^3	Annual mean, not to be exceeded
O_3	8 hours	0.070 ppm	0.070 ppm	0.070 ppm	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
$PM_{2.5}$	Annual	12 µg/m^3	15 µg/m^3	12 µg/m^3	Annual mean, averaged over 3 years
$PM_{2.5}$	24 hours	35 µg/m^3	35 µg/m^3	35 µg/m^3	98th percentile, averaged over 3 years
PM_{10}	24 hours	150 µg/m^3	150 µg/m^3	150 µg/m^3	Not to be exceeded more than once per year on average over three years
SO_2	1 hour	75 ppb	N/A	196 µg/m^3	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
SO_2	3 hours	N/A	0.5 ppm	1,300 µg/m^3	Not to be exceeded more than once per year
SO_2	24 hours	N/A	N/A	365 µg/m^3	Not to be exceeded more than once per year
SO_2	Annual	N/A	N/A	80 µg/m^3	Annual mean, not to be exceeded

Note: AAAQS (Alaska Ambient Air Quality Standards); CO (carbon monoxide); N/A (not applicable); NAAQS (National Ambient Air Quality Standards); NO_2 (nitrogen dioxide); O_3 (ozone); $PM_{2.5}$ (particulate matter less than 2.5 microns in aerodynamic diameter); PM_{10} (particulate matter less than or equal to 10 microns in aerodynamic diameter); ppb (parts per billion); ppm (parts per million); SO_2 (sulfur dioxide); µg/m^3 (micrograms per cubic meter).
[a] Lead and ammonia are not shown as they are not pollutants of concern in the analysis area.
[b] Source: 40 CFR 50
[c] Source: 18 AAC 50.010
[d] All AAAQS are primary except for 3-hour SO_2.

EPA designates geographic areas demonstrating compliance with the NAAQS as “attainment,” while areas that exceed the NAAQS are designated as “nonattainment.” If there is insufficient data to designate an area as “attainment” or “nonattainment,” the area will be designated as “unclassifiable.” The analysis area for air quality is designated as “attainment/unclassifiable” for all criteria air pollutants (CAP).

The closest Class I area to the Project is Denali National Park, which is located more than 700 km (435 miles) south of the Project and is not in the analysis area for air quality. The three assessment areas within the far-field analysis area for air quality are Gates of the Arctic National Park, Noatak National Preserve, and the Arctic National Wildlife Refuge (Figure E.3.1). The Class II prevention of significant deterioration (PSD) increments are presented in Table E.3.2.

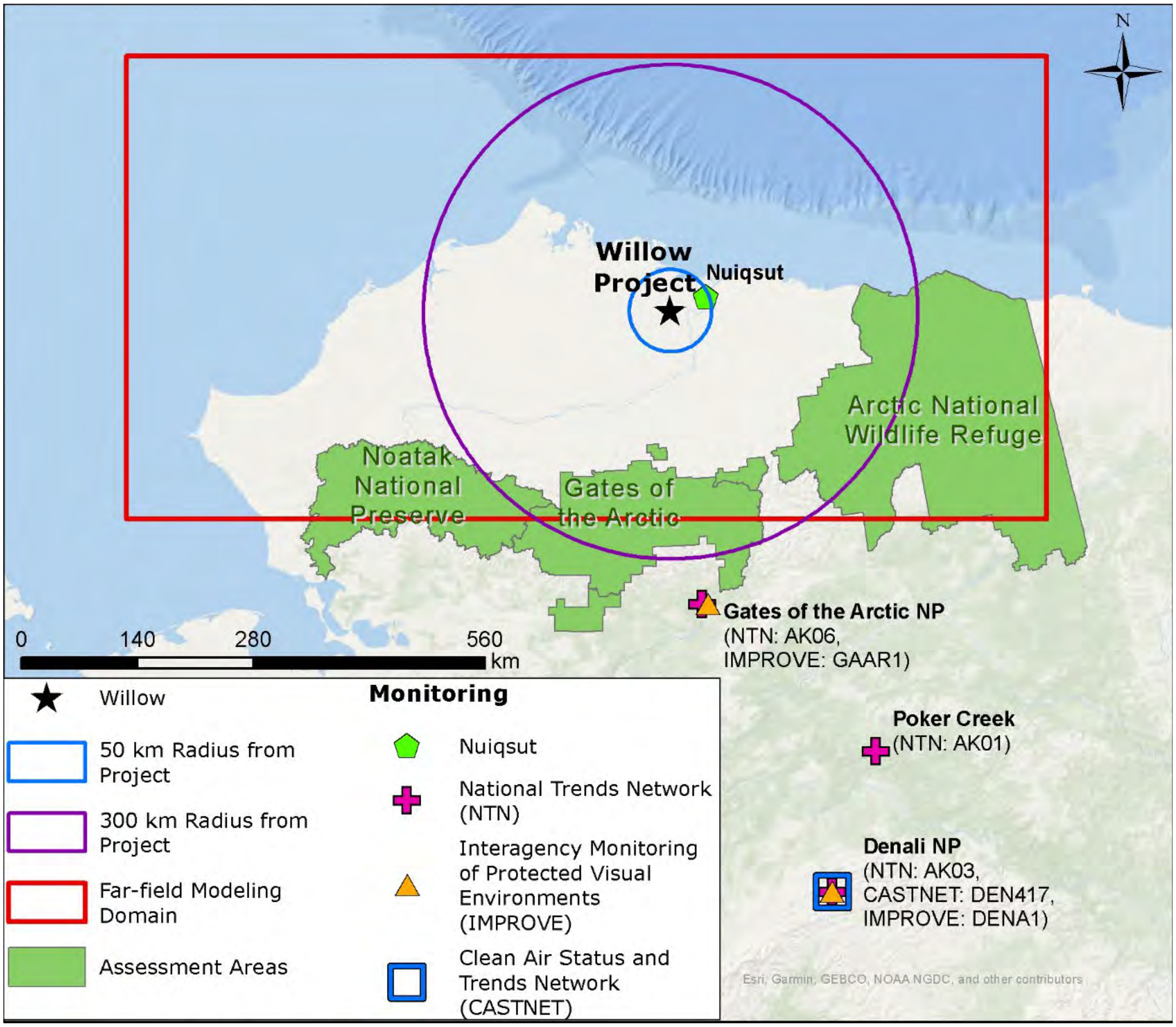


Figure E.3.1. Analysis Areas for Air Quality and Regional Ambient Air Quality Monitors, Three Federally Managed Assessment Areas, and the Far-Field (Regional) Modeling Domain

Table E.3.2. Prevention of Significant Deterioration Increments for Class II Areas

Pollutant	Averaging Time	Class II PSD Increment ($\mu g/m^3$)	Form
NO_2	Annual	25	Annual mean, not to be exceeded
SO_2	3 hours	512	Not to be exceeded more than once per year
SO_2	24 hours	91	Not to be exceeded more than once per year
SO_2	Annual	20	Annual mean, not to be exceeded
$PM_{2.5}$	24 hours	9	Not to be exceeded more than once per year
$PM_{2.5}$	Annual	4	Annual mean, not to be exceeded
PM_{10}	24 hours	30	Not to be exceeded more than once per year
PM_{10}	Annual	17	Annual mean, not to be exceeded

Source: 40 CFR 52.21

Note: NO_2 (nitrogen dioxide); $PM_{2.5}$ (particulate matter less than 2.5 microns in aerodynamic diameter); PM_{10} (particulate matter less than or equal to 10 microns in aerodynamic diameter); PSD (prevention of significant deterioration); SO_2 (sulfur dioxide); $\mu g/m^3$ (micrograms per cubic meter).

The air quality related values (AQRVs) are resources that may be affected by a change in air quality (NPS 2011). The Federal Land Managers' Air Quality Related Values Work Group identifies AQRVs as "visibility or a specific scenic, cultural, physical, biological, ecological, or recreational resource identified by the FLM [federal land manager] for a particular area" (FLAG 2010).

Visibility is a measure of how far and well we can see into the distance and is sensitive to changes in air quality. Visibility impairment (i.e., haze) occurs when sunlight is absorbed or scattered by tiny particles (e.g., sulfates [SO_4^{2-}], nitrates [NO_3^-]) and gases (e.g., nitrogen dioxide [NO_2]) (EPA 2017). The absorption and scattering of light impairs visibility conditions (i.e., visual range, contrast, coloration). Haze causing pollutants can be directly emitted or formed through the reaction of precursor gases emitted into the atmosphere (e.g., formation of SO_4^- from sulfur dioxide [SO_2]). The Regional Haze Rule (RHR) was promulgated in 1999 to improve and protect visibility in Class I areas (40 CFR 51.308). The Project area is not a Class I area; however, the RHR can be treated as a guideline for the Project. The RHR defines reasonable progress goals to improve visibility on the most impaired days and ensure no degradation on the least impaired days, with the goal of attaining natural conditions (i.e., estimated visibility conditions in the absence of human-made air pollution) in each Class I area by 2064. Under the RHR, visibility is quantified using the deciview (dv) haze index, which is derived from light extinction. An incremental change in dv corresponds to a uniform and incremental change in visual perception for the entire range of visibility conditions. Single-source impacts on visibility are assessed by comparing the 98th percentile of the source contribution to the haze index to defined thresholds. A source that exceeds 0.5 dv (approximate 5% change in light extinction) is considered to contribute to visibility impairment, while a source that exceeds 1.0 dv (approximate 10% change in light extinction) is considered to cause visibility impairment (FLAG 2010).

Atmospheric deposition can negatively affect ecosystems and other AQRVs. Dry deposition is continuous while wet deposition can only occur in the presence of precipitation. Potential deposition impacts include, but are not limited to, acidification of soils and waterbodies and nutrient enrichment (FLAG 2010). Wet or dry deposition of acidic pollutants formed from emitted SO_2 and nitrogen oxides (NOx) is referred to as acid rain (EPA 2018b). There are currently no federal standards for atmospheric deposition, but FLMs use critical loads and Deposition Analysis Thresholds for assessing both cumulative impacts and source-specific impacts from new or modified PSD sources. A critical load is the level of deposition below which no harmful effects to an ecosystem are expected. Deposition Analysis Thresholds are screening thresholds that define the additional amount of deposition within an FLM's area below which impacts are considered negligible.

The National Emission Standards for Hazardous Air Pollutants defines maximum achievable control technology (MACT) standards that are technology-based standards for each regulated source category. MACT is applicable to all major sources (potential to emit more than 10 tons per year of a single hazardous air pollutant [HAP] or 25 tons per year of any combination of HAPs) and some area sources (any stationary source of HAPs not classified as a major source) in specific source categories.

1.1.2 Characterization of Existing Air Quality in the Analysis Area

Regional air quality is affected by a variety of factors, including climate, meteorology, and the magnitude and location of air pollutant sources. This section provides descriptions of the regional climate, meteorology, and existing regional sources of air pollution that affect air quality in the analysis area. Existing air quality in the analysis area is assessed through a review of recent ambient air quality monitoring data and AQRVs.

1.1.2.1 Climate and Meteorology

The Project is located on the North Slope within the National Petroleum Reserve in Alaska (NPR-A). Several monitoring stations were used to characterize climate and meteorology in the analysis area. Monthly average precipitation and temperature data were acquired from the National Oceanic and Atmospheric Administration National Weather Service (NWS) stations at Umiat, Kuparuk, Utqiaġvik (Barrow), and Nuiqsut (Figure E.3.2). A monitoring station operated by ConocoPhillips Alaska, Inc. (CPAI) at Nuiqsut was used to characterize prevailing wind patterns.

Table E.3.3 provides summaries of the average monthly temperature and precipitation from the NWS stations shown in Figure E.3.2. The annual average temperature in the NPR-A is approximately 10 degrees Fahrenheit (F), with monthly average maximum temperatures below freezing from October to May (BLM 2012). The coldest temperatures (usually in February) range from -10 degrees to -15 degrees F at the maximum and -25 degrees to -30 degrees F at minimum on average (Table E.3.3). Summer temperatures rise above freezing, with the highest temperatures typically occurring in July. The average maximum and minimum temperatures in July range from 45 degrees F to 65 degrees F and 35 degrees F to 40 degrees F, respectively.

Precipitation in the analysis area is low, with Nuiqsut receiving 2.74 inches of precipitation per year on average (Table E.3.3). Precipitation is highest during summer, with over three-fourths of the total annual precipitation falling between June and September. Although snowfall is sparser during the summer months, it can occur during any month; the highest average snowfall rates occur in October. Snow is generally on the ground from October to May (BLM 2012).

The wind rose in Figure E.3.3 shows the distribution of wind direction and speeds measured at the CPAI Nuiqsut monitoring station, located approximately 46 km (28.5 miles) east-northeast of the Project, from 2013 to 2017. The prevailing wind direction at Nuiqsut was from the northeast with wind speeds averaging 5 meters per second (m/s) (11 miles per hour). The maximum observed wind speed was 22.4 m/s (50 miles per hour) and calm winds were infrequent, occurring for less than 1% of hours during the 5-year period. Figures E.3.4 through E.3.7 provide seasonal wind patterns for the winter, spring, summer, and fall seasons, respectively, for the 5-year period.

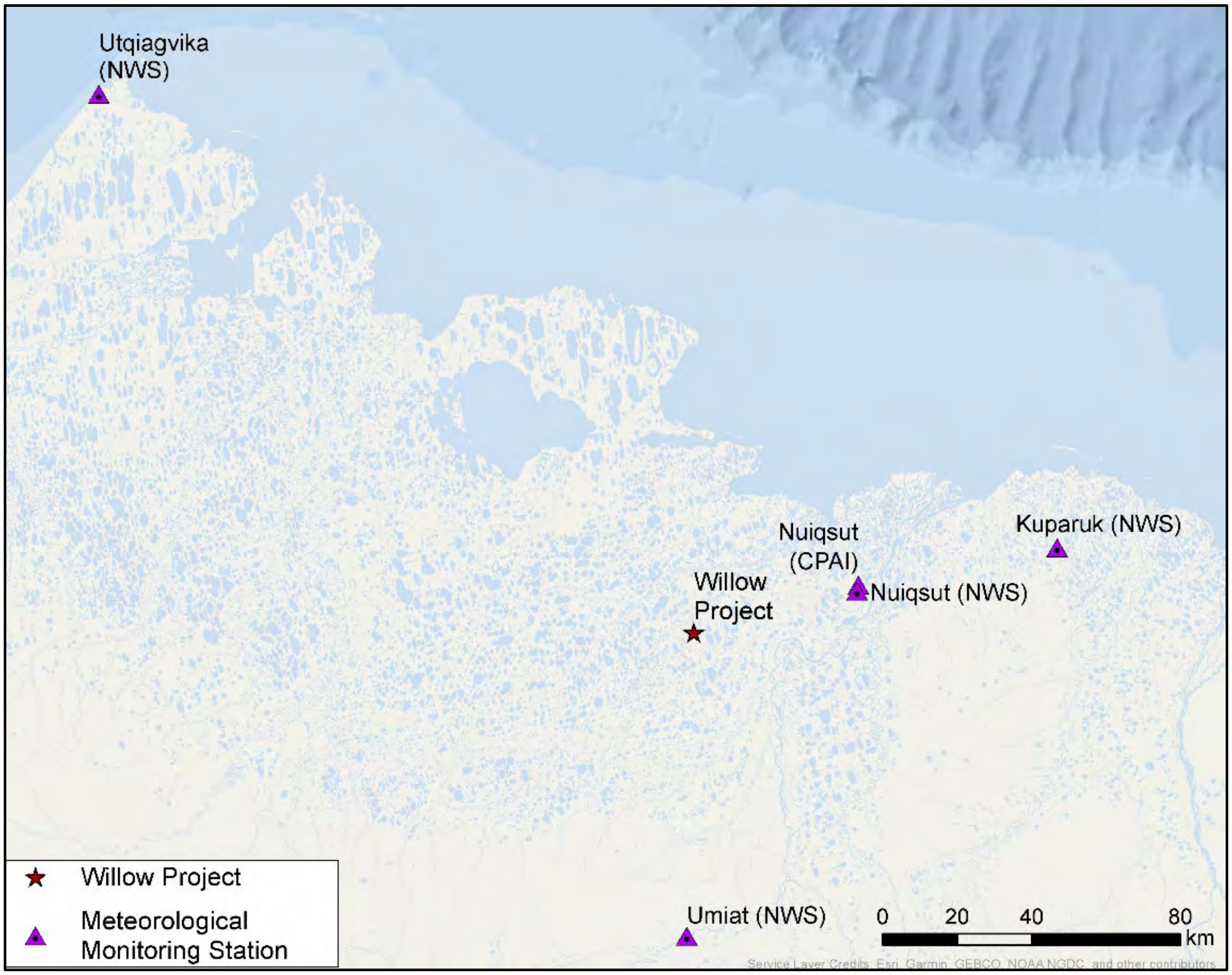


Figure E.3.2. Monitoring Stations Used to Characterize Climate and Meteorology in the Project Area

Table E.3.3. Monthly Climate Summary Data at Monitoring Stations in the Air Quality Analysis Area

Utqiaġvik (Barrow)[a]	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Annual
Average Max. Temperature (degrees F)	-7.4	-10.6	-7.9	7.0	24.7	38.9	45.8	43.3	34.9	20.7	5.8	-4.4	15.9
Average Min. Temperature (degrees F)	-19.9	-22.7	-20.6	-6.8	15.3	30.1	34.1	34	28.2	11.6	-5.4	-16.2	5.1
Average Total Precipitation (in)[b]	0.18	0.17	0.13	0.18	0.17	0.34	0.91	1.02	0.68	0.49	0.25	0.17	4.67
Average Total Snowfall (in)	2.4	2.7	2.0	2.8	2.3	0.6	0.3	0.7	4.0	7.7	4.3	2.8	32.5
Average Snow Depth (in)	9	10	11	11	7	1	0	0	1	4	7	8	6
Kuparuk[a]	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**	**Annual**
Average Max. Temperature (ºF)	-11.3	-10.9	-8.4	8.7	28.1	47.4	56	50.8	39.2	21.5	4.0	-4.7	18.4
Average Min. Temperature (ºF)	-23.9	-24.0	-22.6	-6.3	17.0	33.0	39.0	36.9	28.9	10.9	-8.9	-17.8	5.2
Average Total Precipitation (in)[b]	0.13	0.17	0.08	0.14	0.07	0.32	0.87	1.06	0.48	0.35	0.16	0.13	3.96
Average Total Snowfall (in)	2.6	2.5	2.2	2.8	1.7	0.5	0.0	0.3	3.0	8.4	4.6	3.5	32.0
Average Snow Depth (in)	9	9	9	10	5	0	0	0	0	3	6	7	5
Umiat[a]	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**	**Annual**
Average Max. Temperature (degrees F)	-12.7	-13.8	-6.7	11.5	32.4	57.5	66.2	57.7	41.4	18.2	-0.7	-11.9	19.9
Average Min. Temperature (degrees F)	-28.9	-31.2	-26.8	-11.0	15.7	37.0	42.5	37.2	26.1	2.4	-16.8	-28.0	1.5
Average Total Precipitation (in)[b]	0.38	0.26	0.16	0.21	0.07	0.68	0.79	1.06	0.47	0.68	0.38	0.33	5.46
Average Total Snowfall (in)	4.5	2.4	2.3	1.9	1.2	0.2	0.0	0.2	2.6	8.5	5.2	4.2	33.2
Average Snow Depth (in)	14	16	17	17	9	0	0	0	0	5	9	12	8
Nuiqsut	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**	**Annual**
Average Max. Temperature (ºF)[c]	-7.1	-9.6	-8.4	10.0	29.6	51.1	58.2	51.6	40.1	21.8	5.1	-2.5	20
Average Min. Temperature (ºF)[c]	-22.9	-23.3	-21.5	-6.0	18.2	35.4	41.6	38.7	31.5	14.2	-8.7	-15.7	6.8
Average Total Precipitation (in)[b,d]	0.08	0.05	0.02	0.18	0.19	0.27	0.74	0.88	0.38	0.04	0.05	0.13	2.74

Note: F (Fahrenheit); in (inches); Max. (maximum); Min. (minimum). The sum of the monthly precipitation totals may not equal the annual total because of different data completeness requirements for monthly and annual data.

[a] Source: National Oceanic and Atmospheric Administration (NOAA) National Weather Service (NWS) data, obtained from the Western Regional Climate Center (https://wrcc.dri.edu/summary/Climsmak.html). Period of record: Utqiaġvik (1901 to 2016); Umiat (1945 to 2001); Kuparuk (1983 to 2016). Historical records are under Utqiaġvik's former name of Barrow.

[b] Units of total precipitation are inches of liquid water equivalent.

[c] Source: NOAA NWS data obtained from NOAA National Centers for Environmental Information (https://www.ncdc.noaa.gov/cdo-web/datatools/normals). Period of record: 1981 to 2010.

[d] Source: NOAA NWS data obtained from Natural Resources Conservation Service (http://agacis.rcc-acis.org/?fips=02185). Period of record: 1998 to 2017.

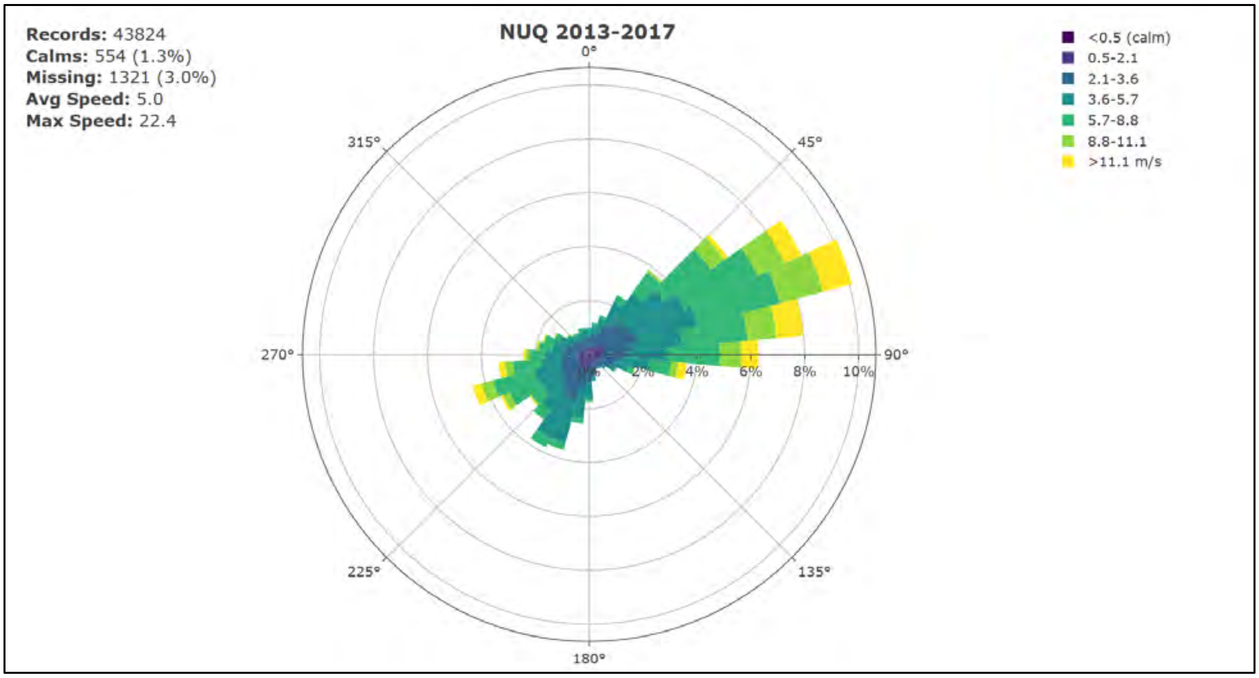


Figure E.3.3. Wind Rose Data from the ConocoPhillips Alaska, Inc. Nuiqsut Monitoring Station for the Period 2013 to 2017

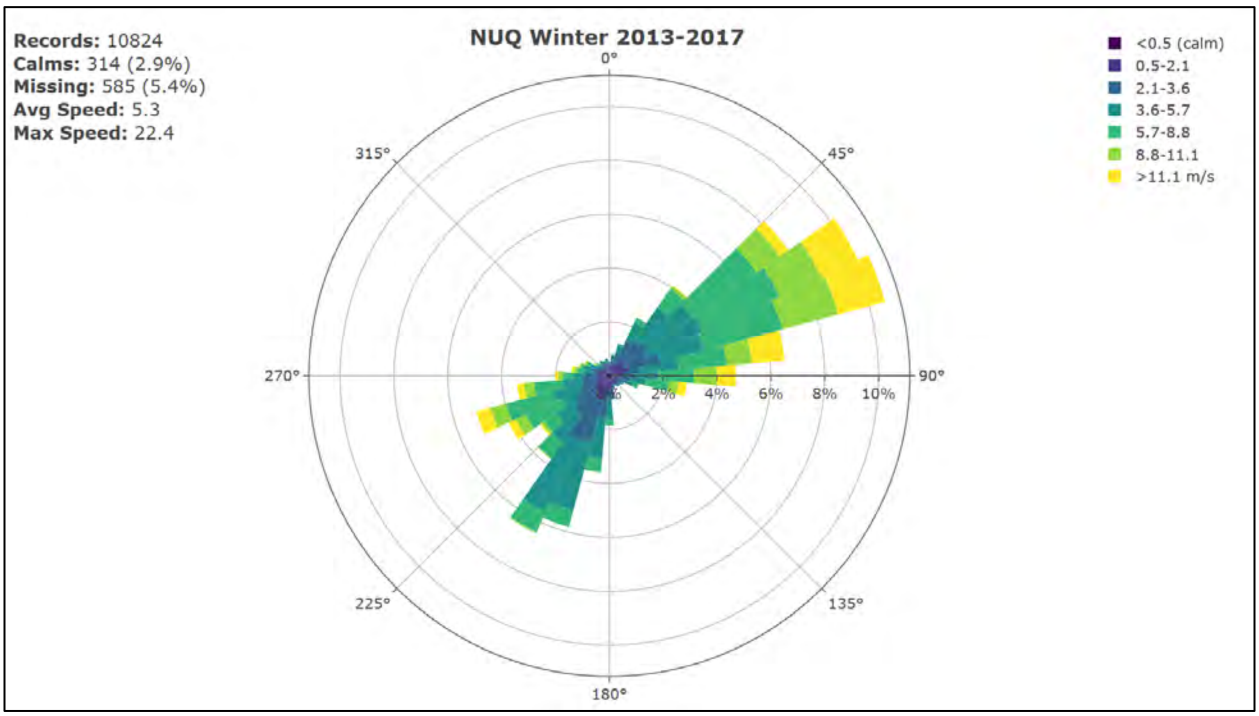


Figure E.3.4. Wind Rose Data from the ConocoPhillips Alaska, Inc. Nuiqsut Monitoring Station for the Winter Months (December, January, and February) during 2013 to 2017

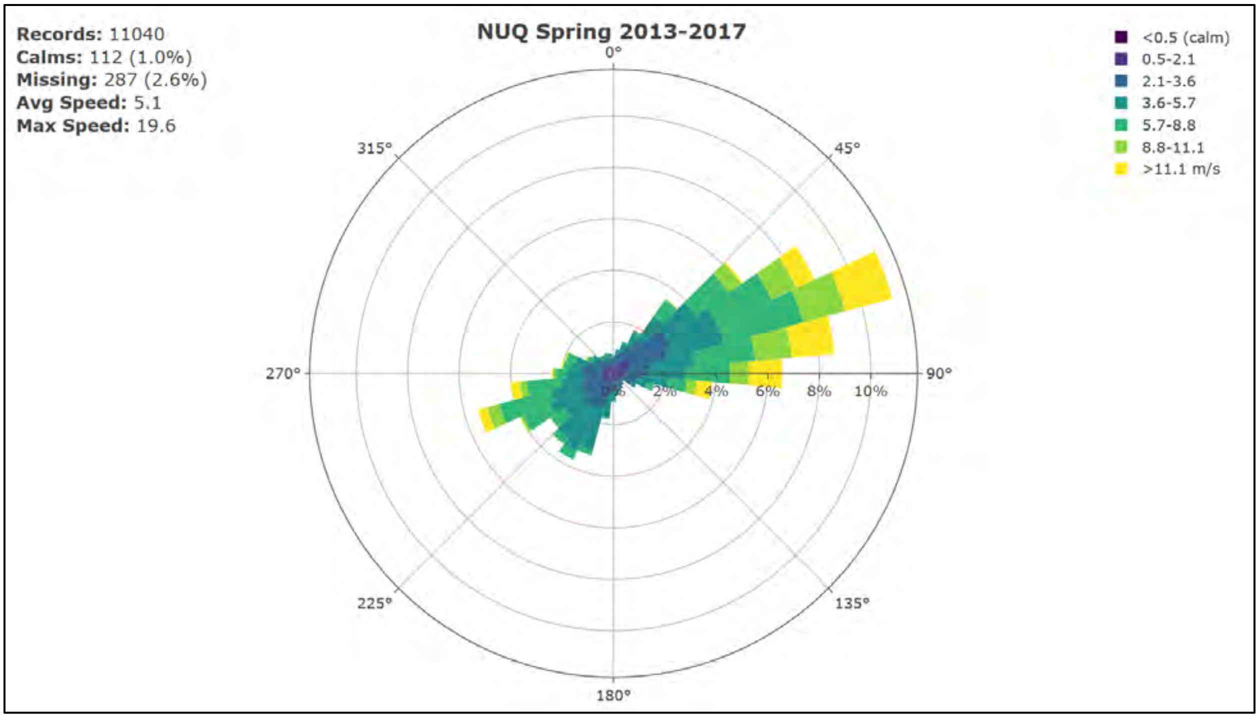


Figure E.3.5. Wind Rose Data from the ConocoPhillips Alaska, Inc. Nuiqsut Monitoring Station for the Spring Months (March, April, and May) during 2013 to 2017

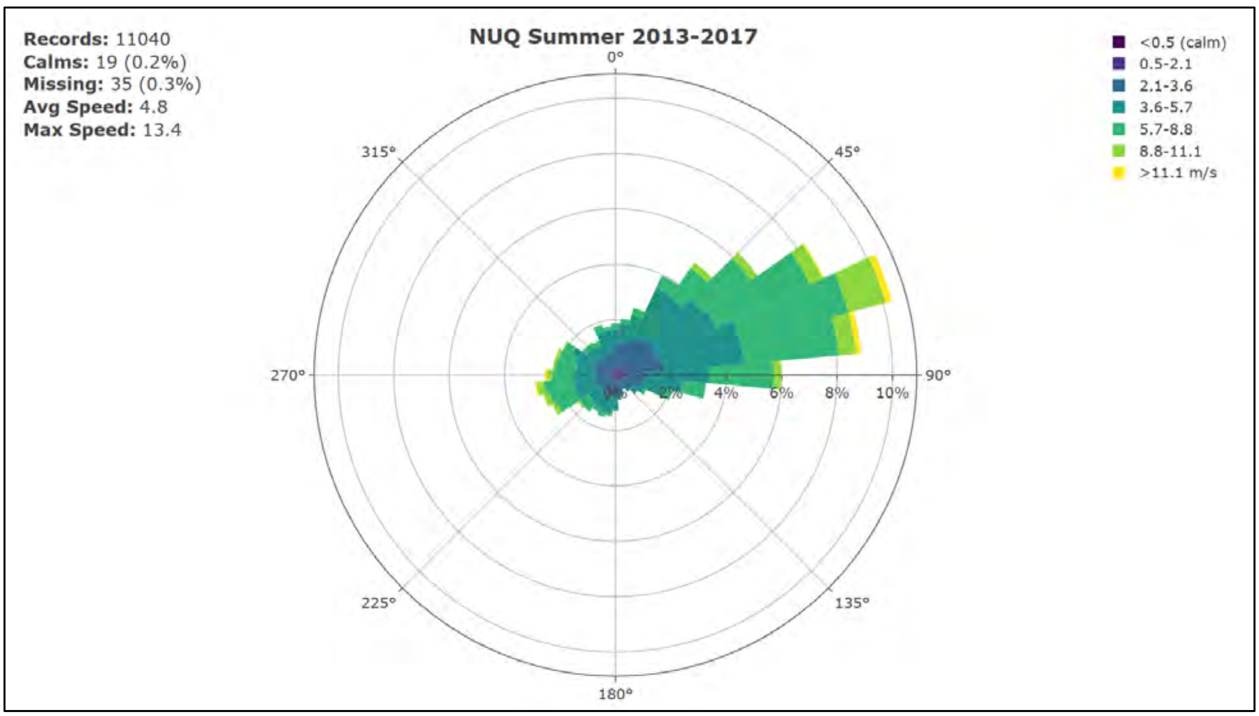


Figure E.3.6. Wind Rose Data from the ConocoPhillips Alaska, Inc. Nuiqsut Monitoring Station for the Summer Months (June, July, and August) during 2013 to 2017

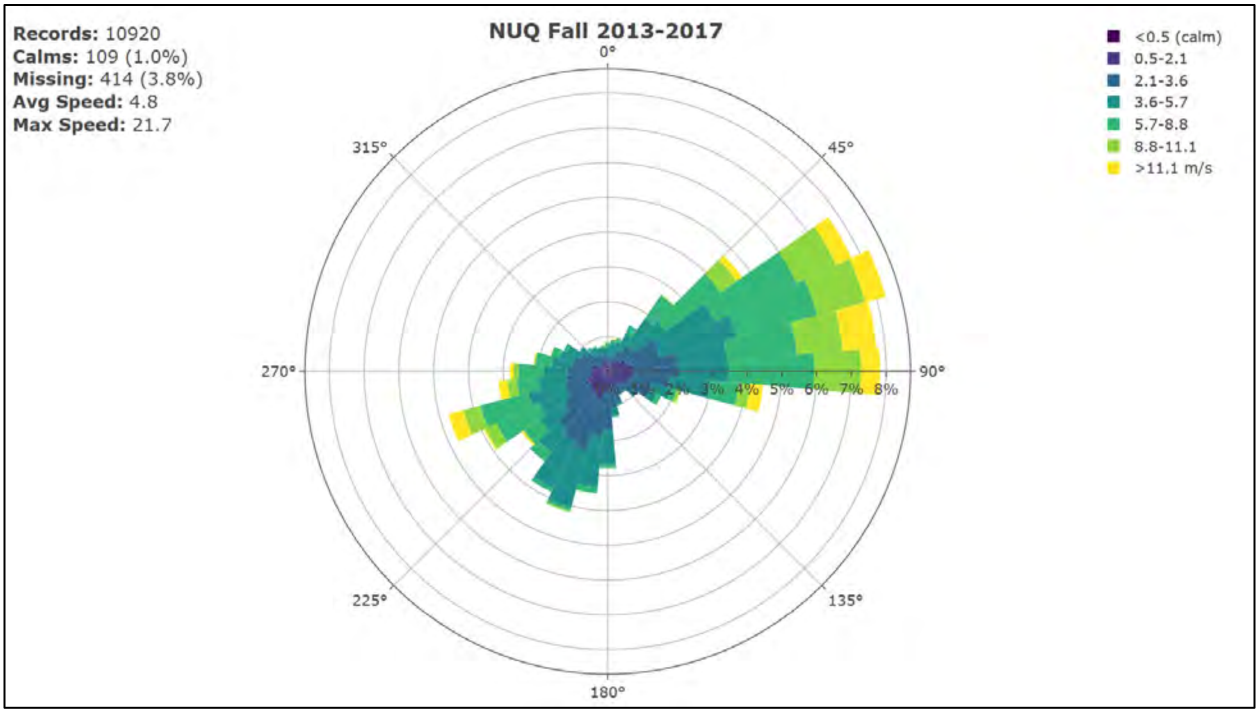


Figure E.3.7. Wind Rose Data from the ConocoPhillips Alaska, Inc. Nuiqsut Monitoring Station for the Fall Months (September, October, and November) during 2013 to 2017

1.1.2.2. Existing Regional Sources of Air Pollution

A summary of existing regional emissions for the North Slope and adjacent waters (Beaufort Sea and Chukchi Sea Planning Areas) is available from the 2012 baseline scenario of the Bureau of Ocean Energy Management *Arctic Air Quality Modeling Study: Emissions Inventory, Final Task Report* (Fields Simms, Billings et al. 2014). Existing emissions from onshore sources (e.g., oil and gas production and exploration, airports, pipelines, non-oil- and gas-related stationary and mobile sources) comprise the majority of the total existing emissions, and emissions from offshore sources (e.g., drilling rigs, survey/drilling vessels and aircraft, commercial vessels) are small in comparison (Fields Simms, Billings et al. 2014). Overall, onshore oil and gas sources comprise the largest fraction of existing emissions for all CAPs except particulate matter less than or equal to 10 microns in aerodynamic diameter (PM_{10}) and particulate matter less than 2.5 microns in aerodynamic diameter ($PM_{2.5}$) for which dust from unpaved roads comprises the largest fraction (Fields Simms, Billings et al. 2014). The major existing sources of HAPs in the region are onshore oil and gas, other nonroad vehicles and equipment, on-road vehicles, and waste incineration, landfills, and other combustion sources.

1.1.3 Air Quality Monitoring

1.1.3.1 Criteria Air Pollutants

CPAI operates the Nuiqsut Monitoring Station, which is the most representative station in the region of the Project (Figure E.3.1) (BLM 2018). Monitoring data from the CPAI Nuiqsut monitoring station are provided in Table E.3.4 for 2015 through 2017. All CAPs are monitored except for lead, for which there are no monitoring stations in the analysis area. All of the monitored concentrations are well below the NAAQS and AAAQS. This is consistent with the existing air quality of the larger analysis area, which is designated as “attainment/unclassifiable” for all CAPs.

Table E.3.4. Measured Criteria Air Pollutant Concentrations at the Nuiqsut Monitoring Station

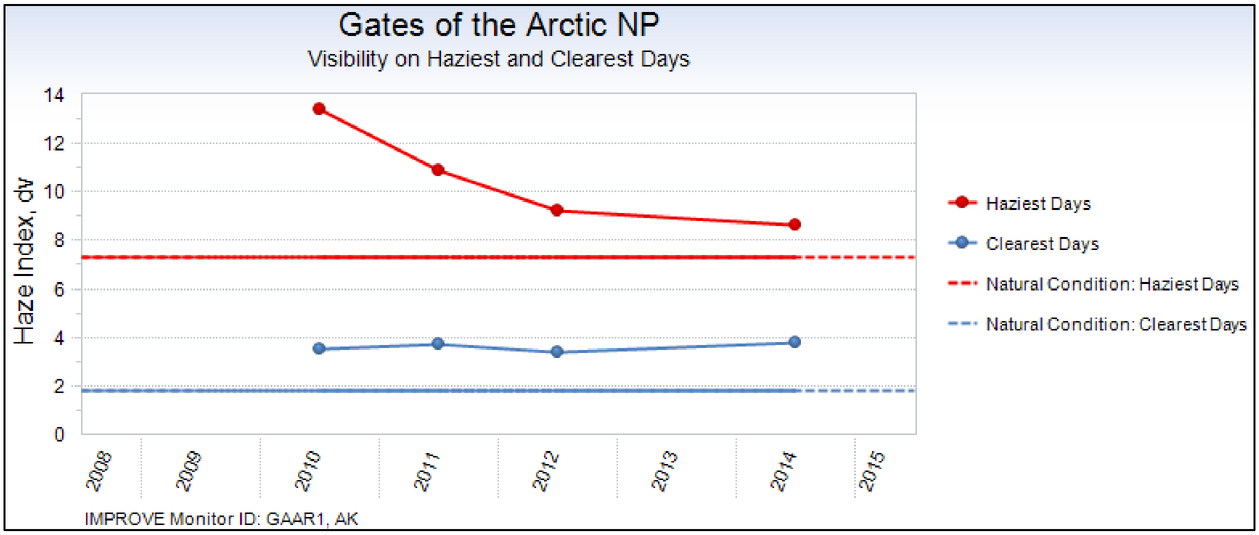
Pollutant (units)	Averaging Period	Rank	2015	2016	2017	Avg.	NAAQS/ AAAQS	Below NAAQS/ AAAQS?
CO (ppm)	1 hour	2nd highest daily max	1	1	1	1	35	Yes
CO (ppm)	8 hours	2nd highest daily max	1	1	1	1	9	Yes
NO_2 (ppb)	1 hour	99th percentile of daily max	23.6	18.0	27.4	23.0	100	Yes
NO_2 (ppb)	Annual	Annual average	2	1	2	2	53	Yes
SO_2 (ppb)	1 hour	99th percentile of daily max	1.2	3.2	3.5	2.6	75	Yes
SO_2 (ppb)	3 hours	2nd highest daily max	1.2	3.4	3.5	2.7	500	Yes
SO_2 (ppb)	24 hours	2nd highest	1.1	3.1	3.4	2.5	139	Yes
SO_2 (ppb)	Annual	Average	0.1	0.8	0.9	0.6	31	Yes
PM_{10} (µg/m^3)	24 hours	2nd highest	98.5	128.8	48.8	92.1	150	Yes
$PM_{2.5}$ (µg/m^3)	24 hours	98th percentile	10.0	5.5	6.9	7.5	35	Yes
$PM_{2.5}$ (µg/m^3)	Annual	Average	2.8	1.3	1.6	1.9	12	Yes
O_3 (ppb)	8 hours	4th highest daily max	46	43	45	44	70	Yes

Note: AAAQS (Alaska Ambient Air Quality Standards); Avg. (average); CO (carbon monoxide); max (maximum); NAAQS (National Ambient Air Quality Standards); NO_2 (nitrogen oxides); O_3 (ozone); PM_{10} (particulate matter less than or equal to 10 microns in aerodynamic diameter); $PM_{2.5}$ (particulate matter less than 2.5 microns in aerodynamic diameter); ppb (parts per billion); ppm (parts per million); SO_2 (sulfur dioxide); µg/m^3 (micrograms per cubic meter). NAAQS/AAAQS for ozone (O_3) were converted from ppm to ppb and sulfur dioxide (SO_2) 24-hour and annual standards were converted from µg/m^3 to ppb. Data used in the table has not been reviewed by the Alaska Department of Environmental Conservation for Prevention of Significant Deterioration quality; however, the selection of the Nuiqsut station for monitoring data was made during the development of the Willow Environmental Impact Statement modeling protocol, which was reviewed by air specialists at the Alaska Department of Environmental Conservation and other agencies.

1.1.3.2 Visibility

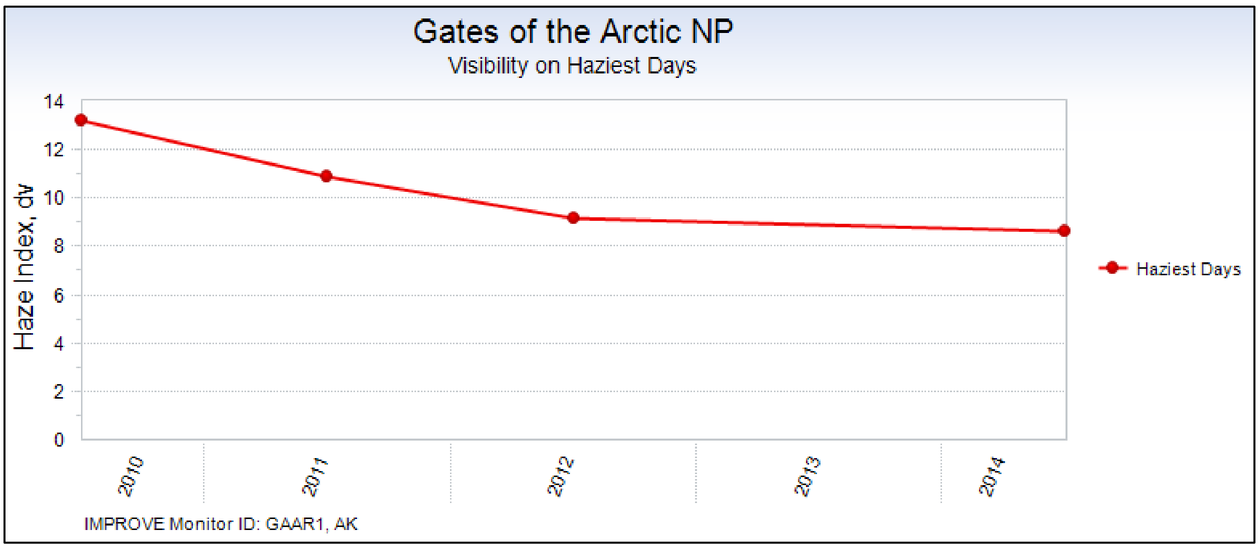
Visibility and air pollutant concentration data is collected by Interagency Monitoring of Protected Visual Environments at monitoring sites close to Class I areas across the country. The two closest monitors to the Project with available data are Gates of the Arctic National Park and Preserve (a Class II area) and Denali National Park (a Class I area) (Figure E.3.1), and data from these monitors are presented in Figures E.3.8 through E.3.13. Denali National Park is outside of the analysis area for air quality but is included here as it is the closest Class I area. Data is shown for the 20% haziest and 20% clearest days. The 20% haziest days include anthropogenic and natural influences following the algorithm of EPA (2003) as revised by IMPROVE in December 2019 and is influenced by natural emission sources such as wildfires. At Gates of the Arctic, the haze index on the haziest days shows a consistent downward trend (through the years of the plot available from IMPROVE) that is near estimated natural visibility conditions[1] of 7.7 dv (visual range of approximately 129 miles), while the haze index on the clearest days has consistently been between 3 and 4 dv, which is slightly above the estimated natural conditions of 2.8 dv (visual range of approximately 349 km [217 miles]). At Denali National Park, the haze index shows generally decreasing trends for both the haziest days and the clearest days, but the haziest days have some outlier years, most notably 2004, likely due to wildfires. Estimated natural visibility conditions[1] at Denali National Park are 7.3 dv (visual range of approximately 209 km [130 miles]) and 1.8 dv (visual range of approximately 360 km [224 miles]) for the haziest and clearest days, respectively. In recent years, the haze index values approach those estimated for natural conditions.

[1] http://vista.cira.colostate.edu/IMPROVE/Data/NaturalConditions/nc2_12_2019_2p.csv



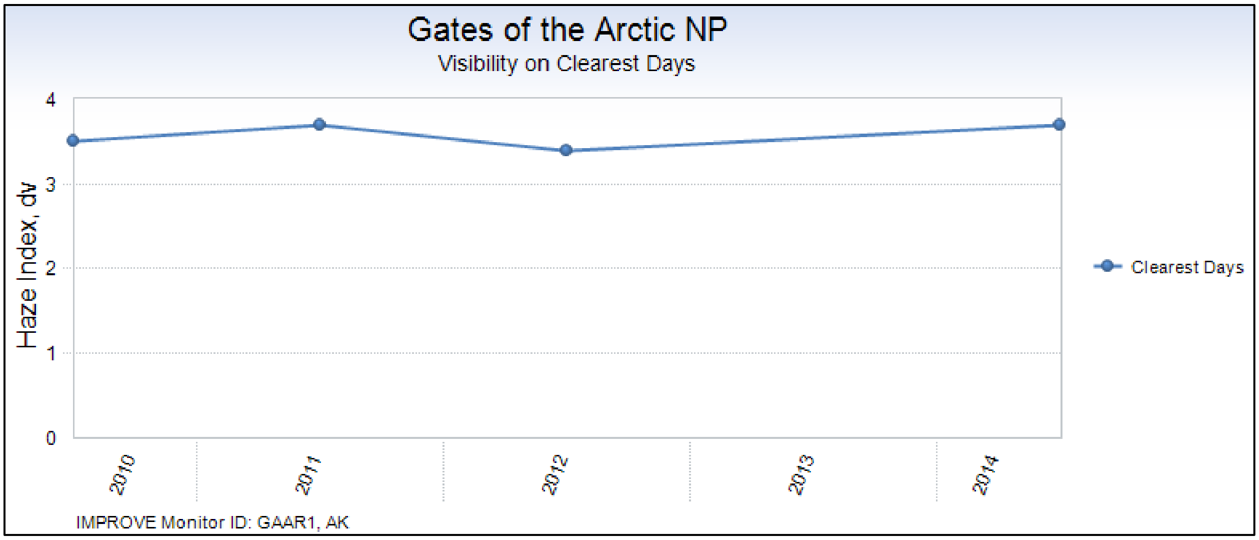
Source: FED 2020

Figure E.3.8. Visibility Data for Gates of the Arctic National Park



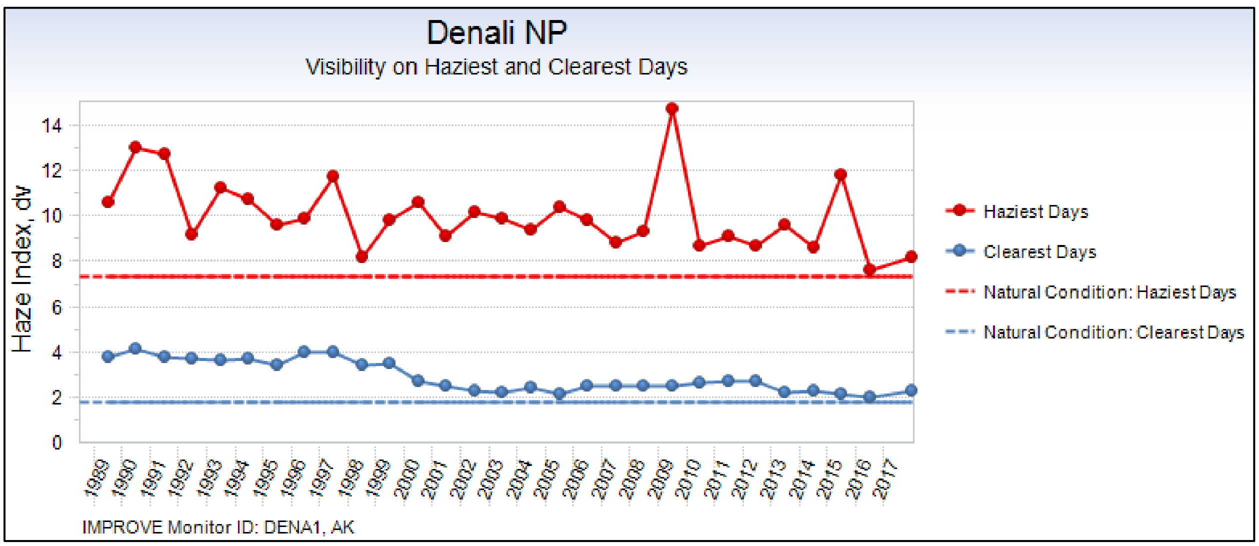
Source: FED 2020

Figure E.3.9. Visibility on the Haziest Days for Gates of the Arctic National Park



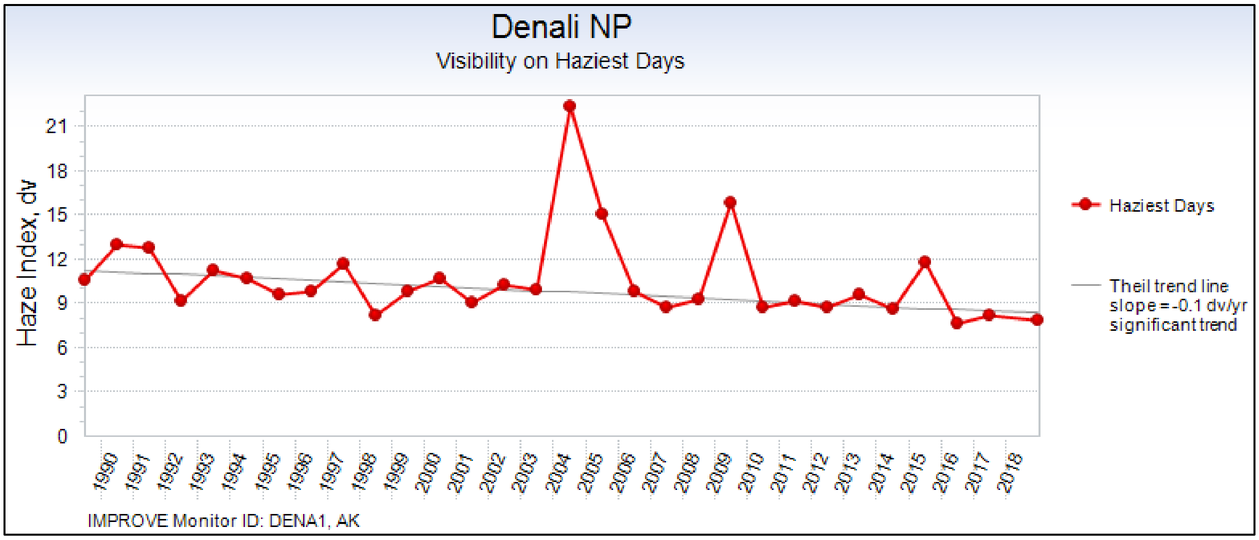
Source: FED 2020

Figure E.3.10. Visibility on the Clearest Days for Gates of the Arctic National Park



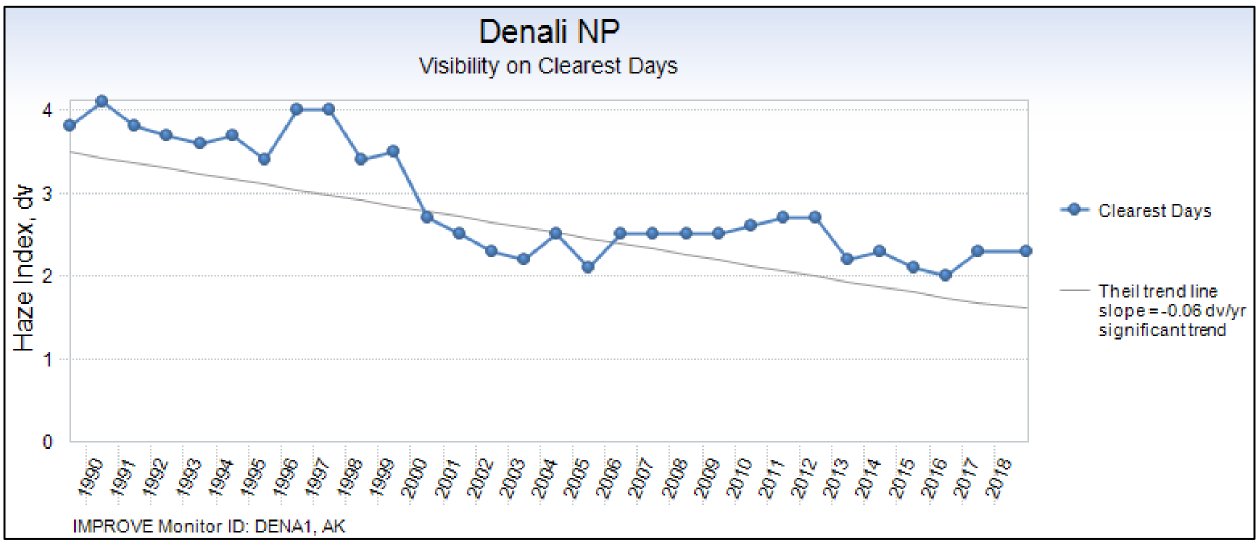
Source: FED 2020

Figure E.3.11. Visibility Data for Denali National Park



Source: FED 2020

Figure E.3.12. Visibility on the Haziest Days for Denali National Park



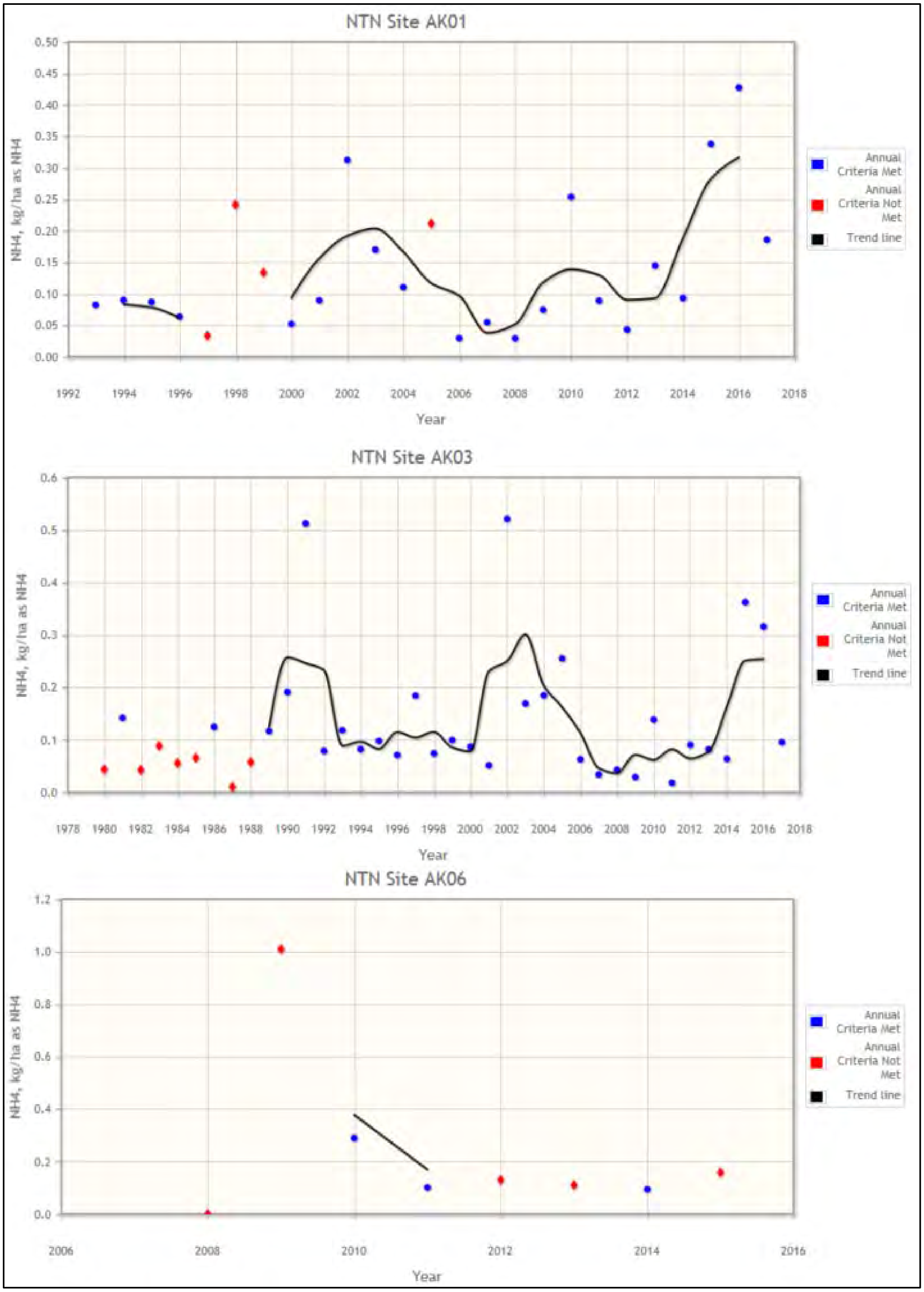
Source: FED 2020

Figure E.3.13. Visibility on the Clearest Days for Denali National Park

1.1.3.3 Acid Deposition

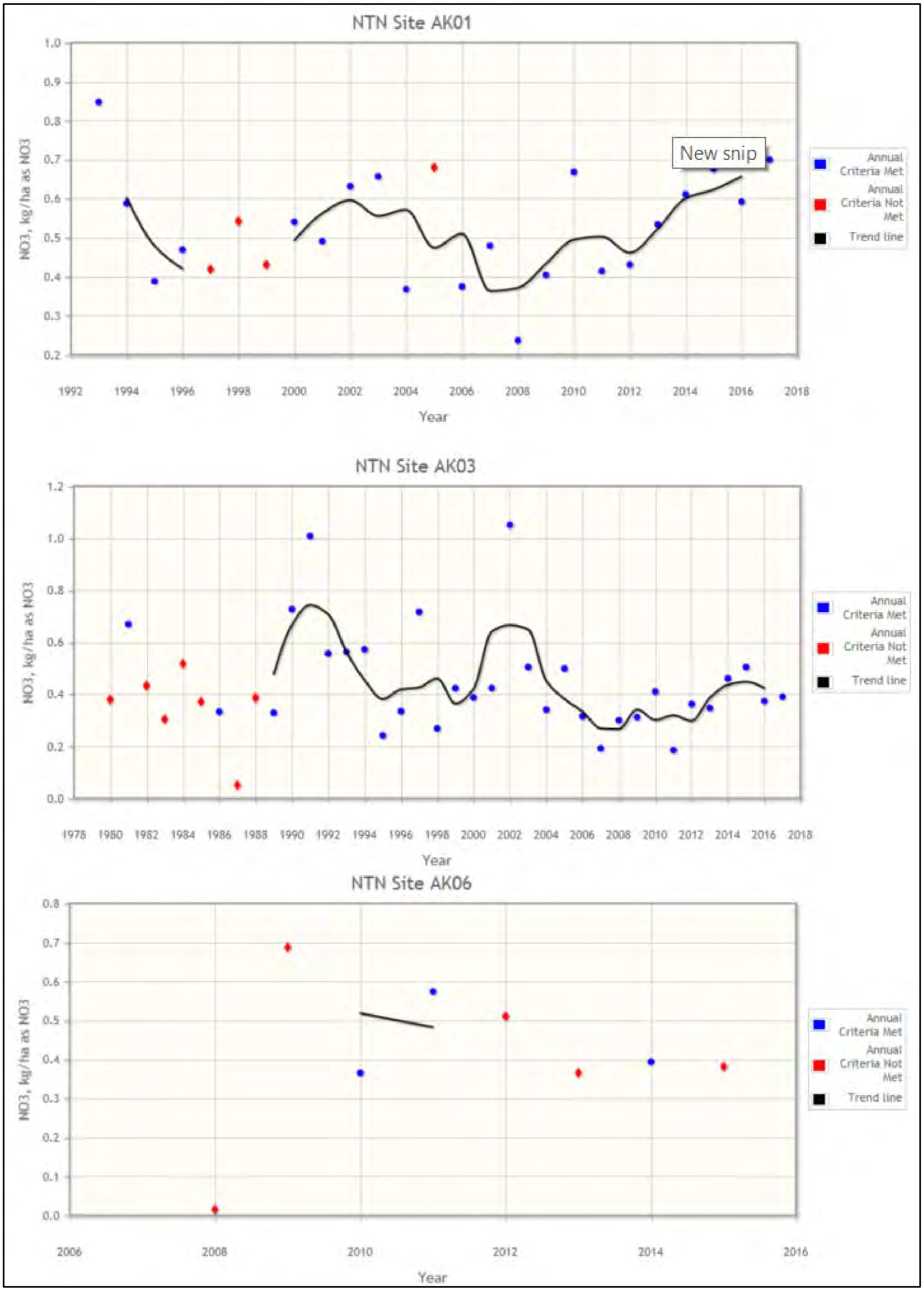
The National Trends Network (NTN) of the National Atmospheric Deposition Program (NADP) has monitoring stations throughout the U.S. that monitor precipitation chemistry and measure wet deposition (NADP 2018). The closest active monitoring stations to the Project are at Gates of the Arctic National Park (NTN Site AK06), Poker Creek (NTN Site AK01), and Denali National Park (NTN Site AK03), as shown in Figure E.3.1. The Toolik Field Station (NTN Site AK96) began collecting acid deposition data in 2017, but no validated data were available at the time of this analysis. Trends in monitored wet deposition fluxes of ammonium (NH_4^-), NO_3^-, and SO_4^{2-} at each site are provided in Figures E.3.14, E.3.15, and E.3.16, respectively. The blue dots on the graphs indicate yearly concentrations that had met the annual completeness criteria, while the red dots indicate that yearly concentrations had not met the annual completeness criteria. Trendlines are also shown in black and represent a 3-year moving average where the minimum data completeness criteria are met for that 3-year period. The wet deposition fluxes of NH_4^-, NO_3^-, and SO_4^{2-} are small at all monitors (most annual values below 1.0 kilogram per hectare per year) with no apparent trend in most cases. However, the wet deposition fluxes of NH_4^- at Poker Creek and Denali National Park and NO_3^- at Poker Creek have shown an upward trend in recent years.

The NADP also provides estimates of total (wet and dry) sulfur and nitrogen deposition for critical load analysis and other ecological studies using a hybrid approach with modeled and monitoring data (NADP 2014). Wet deposition data from NTN, along with air concentration data from networks such as the Clean Air Status and Trends Network (CASTNET), is used (EPA 2018a). The estimated total deposition flux of nitrogen and sulfur is provided in Figure E.3.17 for Denali National Park for 1999 through 2017, which is the only monitor in Alaska with recent CASTNET data (DEN417 in Figure E.3.1). The highest monitored total deposition fluxes of nitrogen and sulfur occurred in 2002 and were 0.741 kilograms of nitrogen per hectare per year (kg N/ha/year) and 0.601 kilograms sulfur per hectare per year (kg S/ha/year), respectively. The mean deposition fluxes of nitrogen and sulfur are 0.285 kg N/ha/year and 0.287 kg S/ha/year, respectively. The total deposition flux of nitrogen was well below the critical load for nitrogen deposition defined by the FLMs for the tundra ecoregion of Alaska (1.0 to 3.0 kg N/ha/year) in all years.



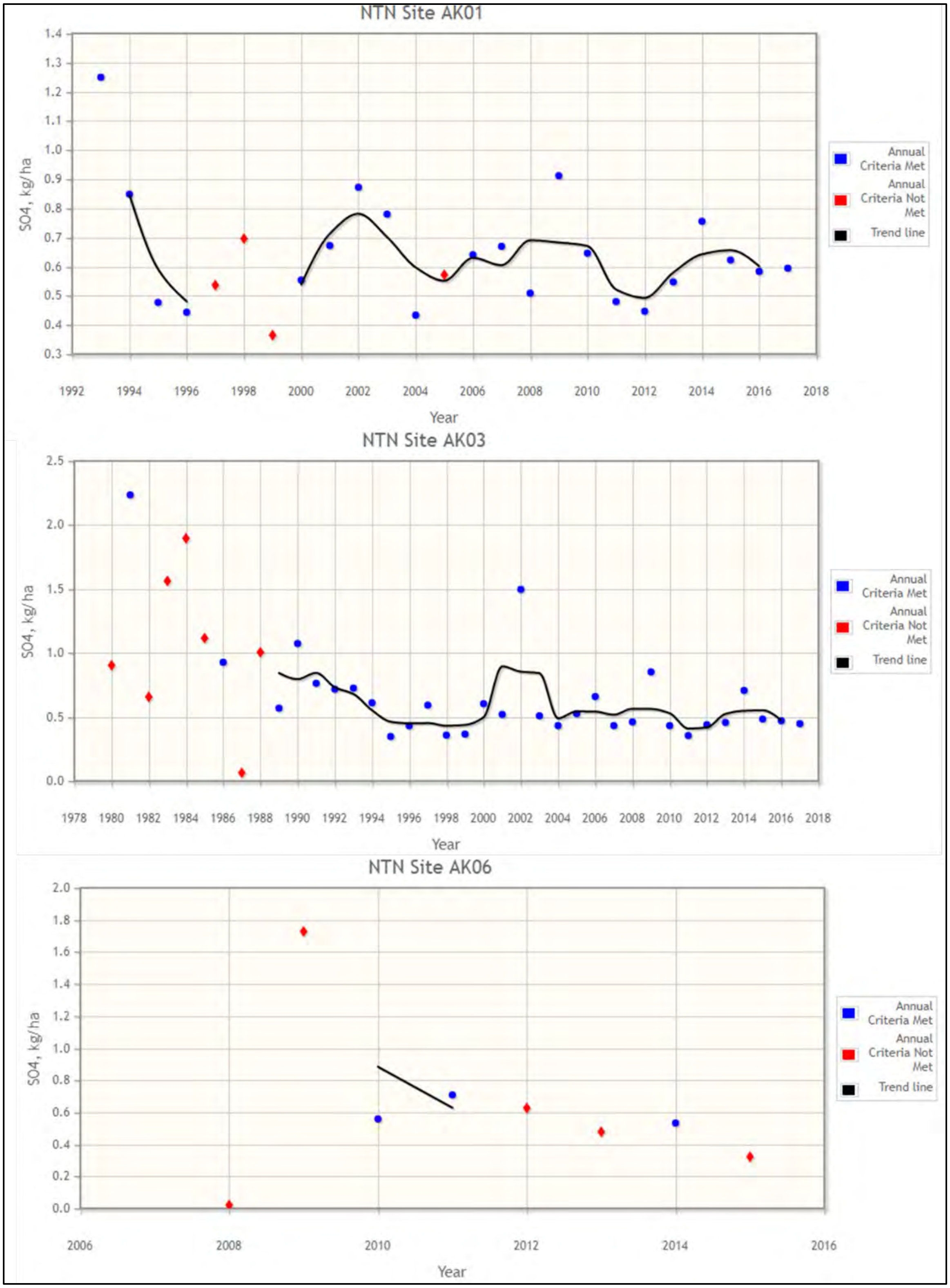
Source: NADP 2018

Figure E.3.14. Trends in Wet Deposition of Ammonium (NH_4^-) at Poker Creek (NTN Site AK01), Denali National Park (NTN Site AK03), and Gates of the Arctic National Park (NTN Site AK06)



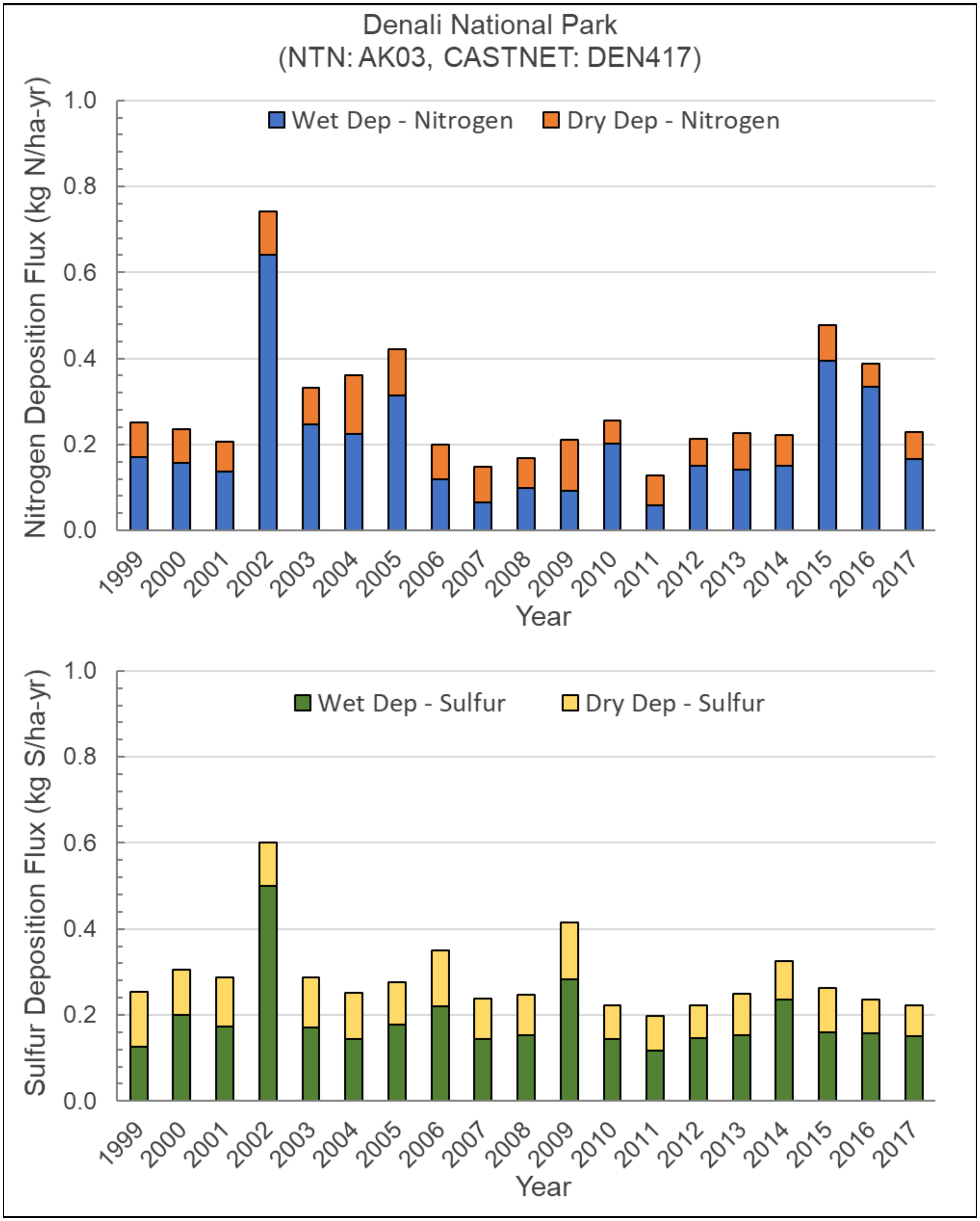
Source: NADP 2018

Figure E.3.15. Trends in Wet Deposition of Nitrates (NO_3^-) at Poker Creek (NTN Site AK01), Denali National Park (NTN Site AK03), and Gates of the Arctic National Park (NTN Site AK06)



Source: NADP 2018

Figure E.3.16. Trends in Wet Deposition of Sulfates (SO_4^{2-}) at Poker Creek (NTN Site AK01), Denali National Park (NTN Site AK03), and Gates of the Arctic National Park (NTN Site AK06)



Source: EPA 2018a

Figure E.3.17. Total Nitrogen and Sulfur Deposition Flux at Denali National Park

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Willow Master Development Plan

Appendix E.3B
Air Quality Technical Support Documents

August 2020

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Willow Master Development Plan
Final Environmental Impact Statement
Air Quality Technical Support Document

Prepared for:

U.S. Bureau of Land Management
Anchorage, AK

Prepared by:

Ramboll US Corporation
7250 Redwood Blvd, Suite 105
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Date:
June 2020

Project Number:
1690016338-004

CONTENTS

ATTACHMENTS

TABLES

FIGURES

ACRONYMS AND ABBREVIATIONS

AAAQS	Alaska Ambient Air Quality Standards
AAB	Ambient Air Boundary
AAQS	Ambient Air Quality Standards
ACF	Alpine Central Processing Facility
ADEC	Alaska Department of Environmental Conservation
ANC	acid neutralizing capacity
ANCSA	Alaska Native Claims Settlement Act
AQRVs	air quality related values
AQTSD	Air Quality Technical Support Document
BLM	Bureau of Land Management
BOEM	Bureau of Ocean Energy Management
BT1	Drill Site BT1
BT2	Drill Site BT2
BT3	Drill Site BT3
BT4	Drill Site BT5
BT5	Drill Site BT5
BTU	Bear Tooth Unit
CAMx	Comprehensive Air Quality Model with Extensions
CCF	cloud cover fraction
CD4N	Colville Delta 4 North
CH_4	methane
CMAQ	Community Multiscale Air Quality
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CPAI	ConocoPhillips Alaska, Inc.
CPF2	Central Processing Facility 2
DAT	deposition analysis threshold
ddv	delta deciview
dv	deciview
DVC	current design values
DVF	future-year design values
EC	elemental carbon
EDGAR	Emissions Database for Global Atmospheric Research
EPS3	Emissions Processing System version 3
EIS	Environmental Impact Statement
FB	fractional bias
FE	fractional error
FLAG	Federal Land Mangers' Air Quality Related Values Work Group
FINN	Fire Inventory
g	gram
GEOS	Goddard Earth Observing System
GIS	Geographical Information System
GHG	greenhouse gas
GMT1	Greater Mooses Tooth – 1
GMT2	Greater Mooses Tooth – 2
GMTU	Greater Mooses Tooth Unit

HAP	hazardous air pollutant
HDD	Horizontal Directional Drilling
HI	Haze Index
IOA	Index of Agreement
ICBC	initial and lateral boundary conditions
IMPROVE	Interagency Monitoring of Protected Visual Environments
IP	infrastructure pad
kbbl/day	thousand barrels per day
kg/ha-yr	kilograms per hectare per year
km	kilometer
kmile	thousand miles
kWe	thousand watts
LSM	land surface model
m/s	meters per second
MCICA	Monte-Carlo Independent Column Approximation
MCY	million cubic yards
MEGAN	Model of Emissions of Gases and Aerosols from Nature
MEI	maximally exposed individual
MI	miscible injectant
mg/m^3	milligrams per cubic meter
MLE	most likely exposure
MISR	Multi-angle Imaging Spectro-Radiometer
Mm-1	inverse megameters
MPE	model performance evaluation
MTI	Module Transfer Island
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NCAR	National Center for Atmospheric Research
NCDC	National Climate Data Center
NEPA	National Environmental Policy Act
NH_4	ammonium
NMB	normalized mean bias
NME	normalized mean error
NO_2	nitrogen dioxide
NO_3	nitrate
NODC	National Oceanographic Data Center
NP	National Park
NSB	North Slope Borough
NPS	National Park Service
NPR-A	National Petroleum Reserve - Alaska
NPRPA	Naval Petroleum Reserve Production Act
NWS	National Weather Service
O_3	ozone
OC	organic carbon
OLM	ozone limiting method
OMI	ozone monitoring system
PBL	planetary boundary layer
PGM	photochemical grid model
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to 10 microns

$PM_{2.5}$	particulate matter with an aerodynamic diameter less than or equal to 2.5 microns
POI	periods of interest
ppb	parts per billion
ppm	parts per million
PRISM	Parameter-elevation Regressions on Independent Slopes Model
PSD	Prevention of Significant Deterioration
QA	quality assurance
QAPP	Quality Assurance Project Plan
QC	quality control
REL	reference exposure level
RfC	Reference Concentrations for Chronic Inhalation
RFD	reasonably foreseeable development
RMSE	root mean square error
RRF	relative response factor
RRTMG	Rapid Radiative Transfer Model for GCMs
SCAS	Spatial Climate Analysis Service
SEIS	Supplemental Environmental Impact Statement
sigma-w	vertical wind speed
sigma-theta	horizontal wind direction
SIP	State Implementation Plan
SMAT-CE	Software for Model Attainment Test - Community Edition
SMOKE	Sparse Matrix Operator Kernel Emissions
SO_2	sulfur dioxide
TOMS	Total Ozone Mapping Spectrometer
tpy	tons per year
TSD	Technical Support Document
TUV	total ultraviolet
URBOPT	urban option
US	United States
USDA	United States Department of Agriculture
USDOI	United States Department of the Interior
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
VMT	vehicle miles traveled
VOC	volatile organic compound
WRF	Weather Research and Forecasting model
Willow MDP	Willow Master Development Plan
TAPS	Trans Alaska Pipeline System
WPF	Willow Processing Facility
WOC	Willow Operations Center
YSU	Yonsei University
$\mu g/m^3$	micrograms per cubic meter

1.0 INTRODUCTION

The Bureau of Land Management (BLM) is preparing an Environmental Impact Statement (EIS) for the Willow Master Development Plan (Willow MDP, or simply 'Project') in compliance with the National Environmental Policy Act (NEPA). The Alaska State Office serves as the lead office for the EIS. The EIS for the Willow MDP analyzes the Project's environmental consequences.

The Willow MDP could result in air emissions from construction, drilling and completion of new wells, operation and maintenance activities, and processing, storage, and transfer of liquid and gas products. Willow MDP's impacts on air quality and air quality related values (AQRVs) are analyzed by Ramboll under the direction of BLM Alaska. This Air Quality Technical Support Document (AQTSD) for the Willow MDP provides a detailed description of the Project's estimated emissions, air quality impact assessment methods, analysis and resulting impacts. The intent of the AQTSD is to supplement the information provided in the EIS.

1.1 Willow Master Development Plan

The Willow MDP is an oil and natural gas development project proposed by ConocoPhillips Alaska, Inc. (CPAI). The CPAI notified BLM that they propose to explore and develop hydrocarbon resources from oil and gas leases owned by CPAI within the Northeast Planning Area of the National Petroleum Reserve – Alaska (NPR-A). The Willow MDP EIS addresses a series of infrastructure components that would be constructed over an approximately 10-year period for oil and gas development in the NPR-A. With the Project area, CPAI may submit permit applications for up to five drill sites, a central processing facility, an operations center (previously referred to as infrastructure pad), gravel access roads, an airstrip, module delivery via sealift barges, import/export pipelines, and gravel mine sites on federal land in the NPR-A. The construction and operation of these facilities require permits from BLM.

CPAI's purpose for the Project is the economic production and transportation to market of oil and gas resources from Bear Tooth Unit (BTU), while protecting important surface resources and ensuring safe operations. To serve this purpose, CPAI needs permit approval to enable construction of drill sites, access and infield roads, pipelines, a processing plant, and other ancillary facilities. The Willow MDP would produce multiphase product (oil, gas, and water) that would be carried by pipeline to new processing facilities at the Willow Processing Facility (WPF). Sales-quality crude oil produced at WPF would be transported to Colville Delta 4 North (CD4N) at Alpine, where it would tie into the existing Alpine Sales Oil Pipeline. From the tie-in point, it would be transported to the Kuparuk Sales Pipeline and to the Trans-Alaska Pipeline System (TAPS) for shipment to market.

The BLM Alaska State Office manages the affected public lands in accordance with the Federal Land Policy and Management Act of 1982 (FLPMA), which mandates that BLM consider multiple uses for the lands it administers. FLPMA requires BLM to consider the land's natural and cultural resources as well as its mineral resources when making land management decisions. BLM's responsibility extends to environmental protection, public health, and safety associated with oil and gas operations on public lands. In compliance with NEPA, BLM evaluates a range of alternatives and analyzes and discloses the environmental effects of the alternatives. For the Willow MDP, BLM has developed four alternatives and three options related to the Module Delivery[1]:

[1] Project modules would be transported to the vicinity of the Project Area by sea barge in the summer and stored until winter when the modules can be transported to the Project area over ice road. The exact location and

- Alternative A (No Action)
- Alternative B (Proponent's Project)
- Alternative C (Disconnected Infield Roads)
- Alternative D (Disconnected Access)
- Module Delivery Option 1 (Atigaru Point Module Transfer Island)
- Module Delivery Option 2 (Point Lonely Module Transfer Island)
- Module Delivery Option 3 (Colville River Crossing)

Action alternatives (B, C, and D) presented in the Final EIS include variations on specific Willow MDP components (e.g., project access). Either of the three module delivery options could be combined with any of the action alternatives to provide the modules for the Project. The range of alternatives was developed to address the resource impact issues and conflicts identified during internal scoping with the BLM Interdisciplinary Team and external scoping with the public and cooperating agencies. The EIS analyzes and discloses impacts that would result from all four alternatives and three module delivery options. This AQTSD supplements information on the air quality and climate change impacts analyses reported in the EIS.

For the purposes of optimizing production efficiency in the future, CPAI is evaluating whether to connect GMT2 with the WPF (CPAI, 2019). The Willow EIS air quality impact analysis accounts for the effect of potentially processing GMT2 produced fluids at the WPF as described below. If the development concept of connecting GMT2 to the WPF is implemented, during Willow construction, new infield pipelines would be constructed between GMT2 and the WPF. Additionally, power and fiber optic cables would be suspended beneath the pipelines from the WPF to GMT2 via messenger cable. There would be an increase in vehicular traffic during construction due to the additional construction of pipelines and vertical support members. The Willow EIS near-field air dispersion modeling accounts for the construction traffic increases to implement the additional processing capacity. There would be no change to the WPF size or to the capacity of fuel burning equipment at the WPF (CPAI, 2019) as the equipment already account for the potential for additional production.

1.1.1 Alternative A (No Action)

Under the No Action Alternative, the Willow MDP would not be constructed; however, oil and gas exploration in the area would continue. The analysis of this alternative is included to provide a baseline for the comparison of impacts of the action alternatives (Section 6.6.2 of BLM NEPA Handbook H-1790-1; 40 CFR 1502.14(d)) (BLM, 2008).

1.1.2 Alternative B (Proponent's Project)

CPAI plans to drill 251 wells over a period of 10 years on five multi-well pads and to conduct drilling and development operations within the Project area on a year-round basis. The Project area shown in Figure 1.1-1 includes the full extent of the BTU and portions of the Greater Mooses Tooth Unit (GMTU) east toward the Colville River and north to include the offshore waters of Harrison Bay. Most of the proposed facilities associated with the Willow MDP are on leased federal lands within the northeastern portion of the NPR-A.

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method to store the modules are not yet finalized. Three module delivery options are assessed as part of the analysis and either option could be selected for any of the analyzed action alternatives.

Supporting infrastructure would be in the GMTU, on un-unitized lands within the NPR-A, on lands owned by the Kuukpik Corporation, the Alaska Native Claims Settlement Act (ANCSA) village corporation for Nuiqsut, and on lands owned and managed by the State of Alaska. The proposed road corridor would tie into the access road in the GMTU to the east. Proposed pipelines would tie into existing pipeline infrastructure at CD4N, the Alpine Central Processing Facility (ACF), and the Kuparuk River Unit Central Processing Facility 2 (CPF2). Proposed pipelines cross lands owned by Kuukpik Corporation and the State of Alaska. A gravel site is proposed on federally managed lands within the GMTU and in un-unitized lands. In addition, infrastructure modules for the Project would be transported to the North Slope via sea barge. The method and location to transport the modules to the Project area is still under development. None of the proposed Willow facilities would be located on or near Native allotments or private land, except that the pipelines would use existing pipeline corridors, some of which are on private land.

Alternative B (Proponent's Project) would extend an all-season gravel road from the CPAI Greater Mooses Tooth-2 (GMT2) development southwest, paralleling Judy Creek toward the Project area (Figure 1.1-1). The access road would end at the WPF, and adjacent to an airstrip and Willow Operation Centre (WOC). Gravel infield roads would extend north and south of the access road to connect drill sites and Project infrastructure. Alternative B would construct 7 bridges (one on the access road extending from GMT2 and six on the infield roads). Infield (multiphase) pipelines would connect individual drill sites to the WPF and export/import pipelines would connect the WPF to existing infrastructure on the North Slope.

The proposed road alignment provides the shortest road access from the existing gravel road network in the GMTU to the Project facilities.

1.1.3 Alternative C (Disconnected Infield Roads)

Alternative C would have the same gravel access road between GMT2 and the Project area as Alternative B but would not include a gravel road connection from the WPF to Drill Site BT1 (BT1) (Figure 1.1-1).

With no gravel infield road between these two facilities, there would be no bridge across Judy Creek. A gravel infield road would connect BT1 with Drill Site BT2 (BT2) and Drill Site BT4 (BT4).

As there would not be a gravel road connection between the northern drill sites (BT1, BT2 and BT4) and the WPF and GMTU, additional equipment and infrastructure would be required under this Alternative. A second operation center (North WOC) and associated airstrip, storage and staging facilities, and camp would be located near BT1 or BT2 to accommodate the personnel and materials transport between the North WOC and BT1, BT2, and BT4. A seasonal ice road would be constructed annually to allow for the movement of large equipment and consumable materials to the northern three drill sites. Infield pipelines would connect all drill sites to the WPF; an import pipeline would connect BT1, BT2, and BT4 to the WPF and export/import lines would connect the WF to existing infrastructure on the North Slope.

Under Alternative C, the WPF, South WOC, and airstrip would be located approximately 5 miles east of their location in Alternative B, near the GMTU and BTU boundary. The gravel access road would end at the WPF and a gravel infield road would continue to BT3, WOC, Project airstrip, and BT5.

1.1.4 Alternative D (Disconnected Access)

Alternative D would not be connected by an all-season gravel access road to GMTU (Figure 1.1-1); however, it would employ the same gravel infield roads as proposed under Alternative B. Under this alternative the WPF is co-located with drill site BT3. All other Project components would be the same as those described under Alternative B (e.g., drill sites, airstrip, water source) with variations to roads and only 6 bridges.

Due to the lack of gravel access road to GMTU, a seasonal ice road would be required to transport materials and supplies into the Project area. Also, since the Project area would not be connected to Alpine, additional facilities including a grind and inject facility; additional warehouse space; a wireline/coil maintenance shop; a light duty fleet shop; storage and equipment laydown space; and biocide, methanol, and corrosion inhibitor tanks at the WOC would be required. There would be two additional Class I injection wells required at the WOC in addition to the two required for all alternatives. Larger permanent gravel pad space would also be required at both the WPF and WOC.

1.1.5 Module Delivery Options

Sealift barges would be used to deliver processing and drill site modules to the North Slope. Two of the three module delivery options analyzed would deliver modules to a nearshore staging area (NSA) referred to as a Module Transfer Island (MTI) west of the Colville River, either at Atigaru Point or Point Lonely, and use ice roads to reach the Willow Development. The third module delivery option (Colville River Crossing) would use existing gravel roads and land-based ice road for delivery.

1.1.5.1 *Option 1: Atigaru Point MTI*

Option 1 (Atigaru Point Module Transfer Island) would include the construction of a gravel MTI, with a design life of 5 to 10 years, near Atigaru Point in Harrison Bay (Figure 1.1-2). The MTI would be in State of Alaska-owned waters approximately 2 miles north of Atigaru Point. Modules would be offloaded onto the MTI and then transported to the Plan Area on ice roads.

1.1.5.2 *Option 2: Point Lonely MTI*

Option 2 (Point Lonely Module Transfer Island) would include the construction of an MTI, with a design life of 5 to 10 years, at Point Lonely (Figure 1.1-2). The MTI would be in State of Alaska-owned waters approximately 15 miles east of Smith Bay near the Point Lonely Distant Early Warning site. Key differences from Option 1 (Atigaru Point Module Transfer Island) include the length of ice road needed to reach the MTI location, and the use of existing gravel at Point Lonely to facilitate module offload.

1.1.5.3 *Option 3: Colville River Crossing*

Option 3 (Colville River Crossing) would use the existing Oliktok Dock for sealift module delivery and then move the modules to the Plan Area via an ice-road crossing of the Colville River near Ocean Point (Figure 1.1-3). Option 3 would use existing gravel roads and land-based ice roads for transporting modules along a southerly route from Oliktok Dock, via Kuparuk drill site 2P (DS2P) and GMT2, to the WPF.

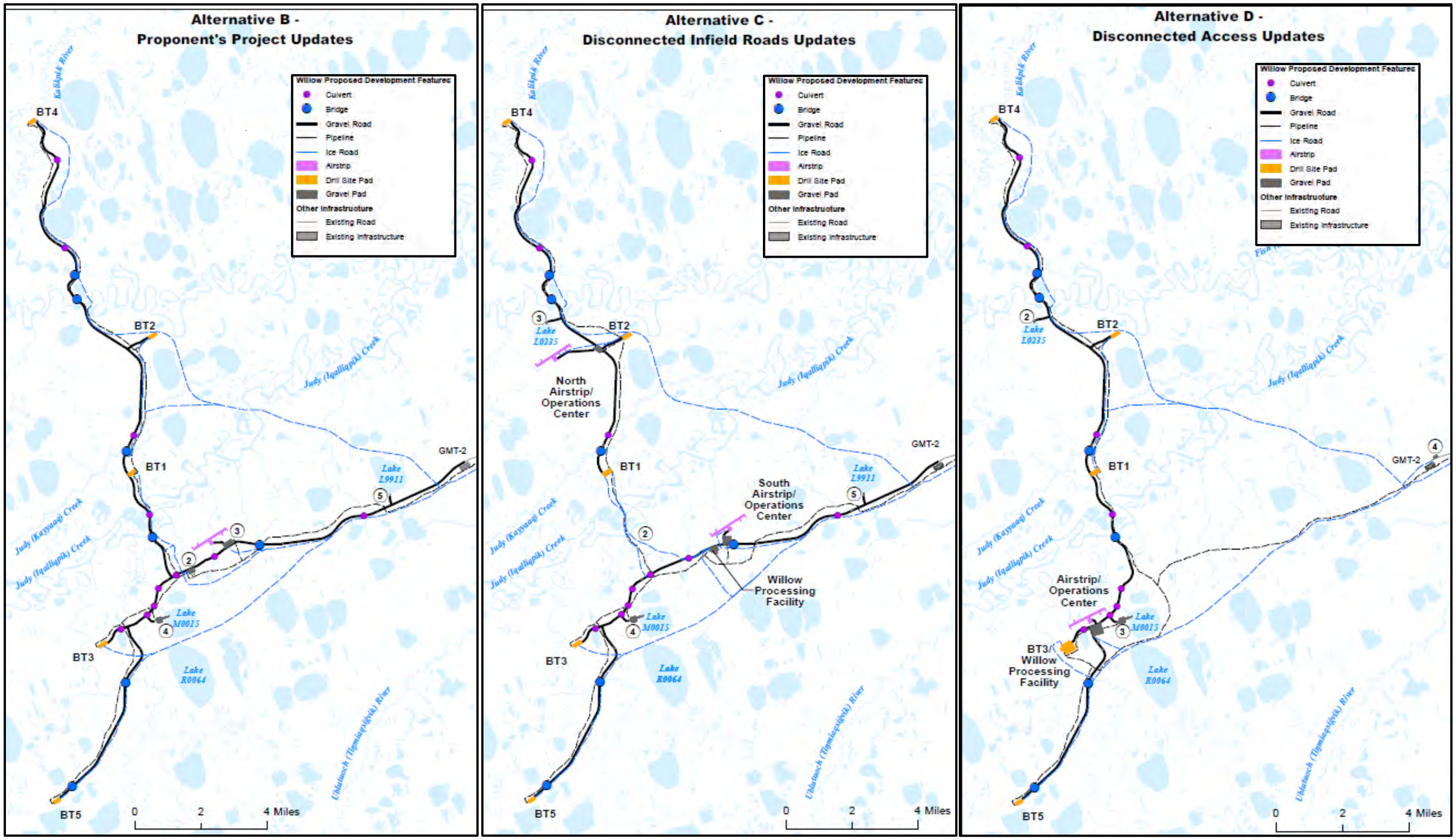

Figure 1.1-1 Project Features Map for Alternatives B, C and D

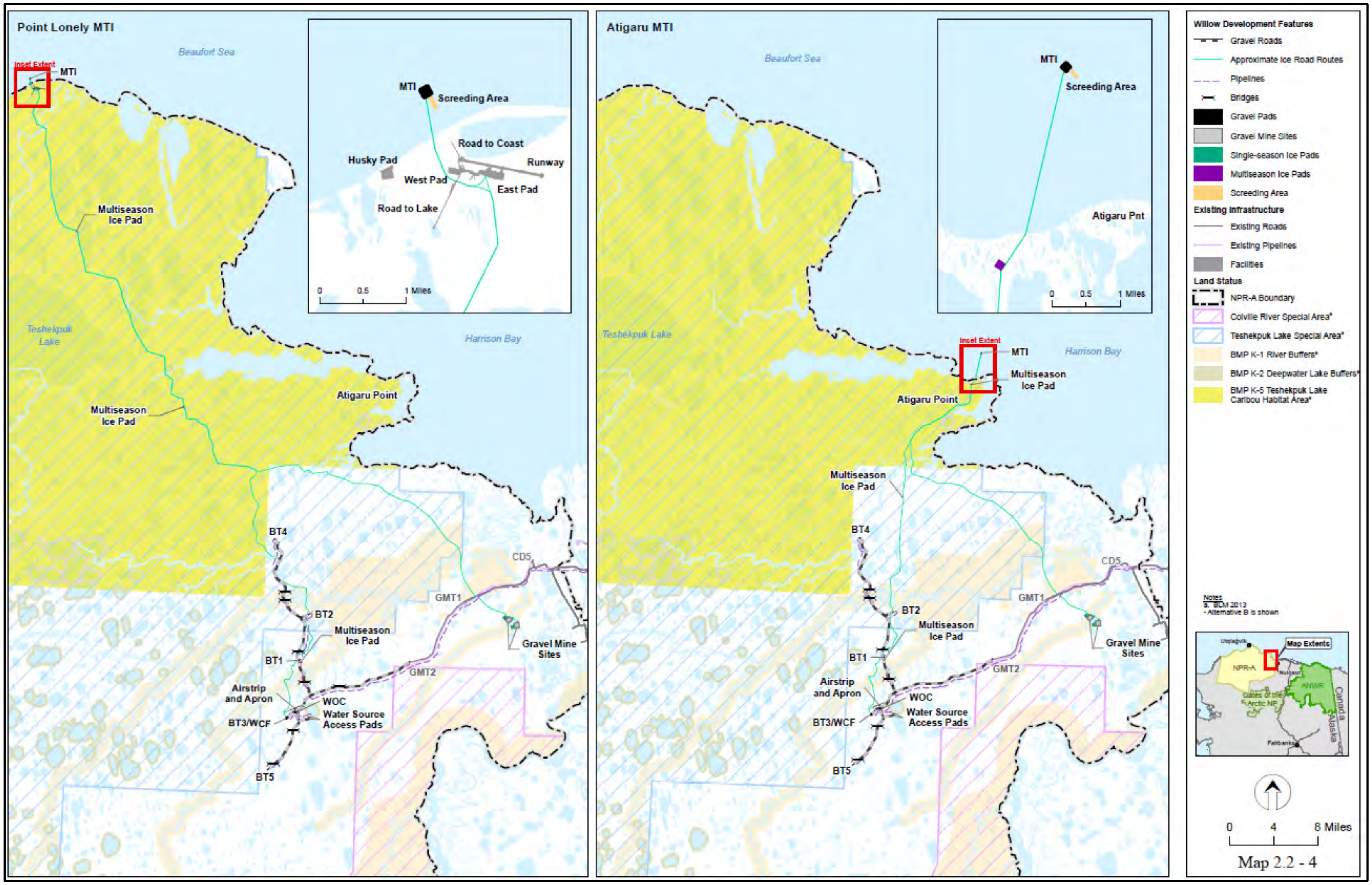

Figure 1.1-2 Module Delivery Options 1 and 2 Map

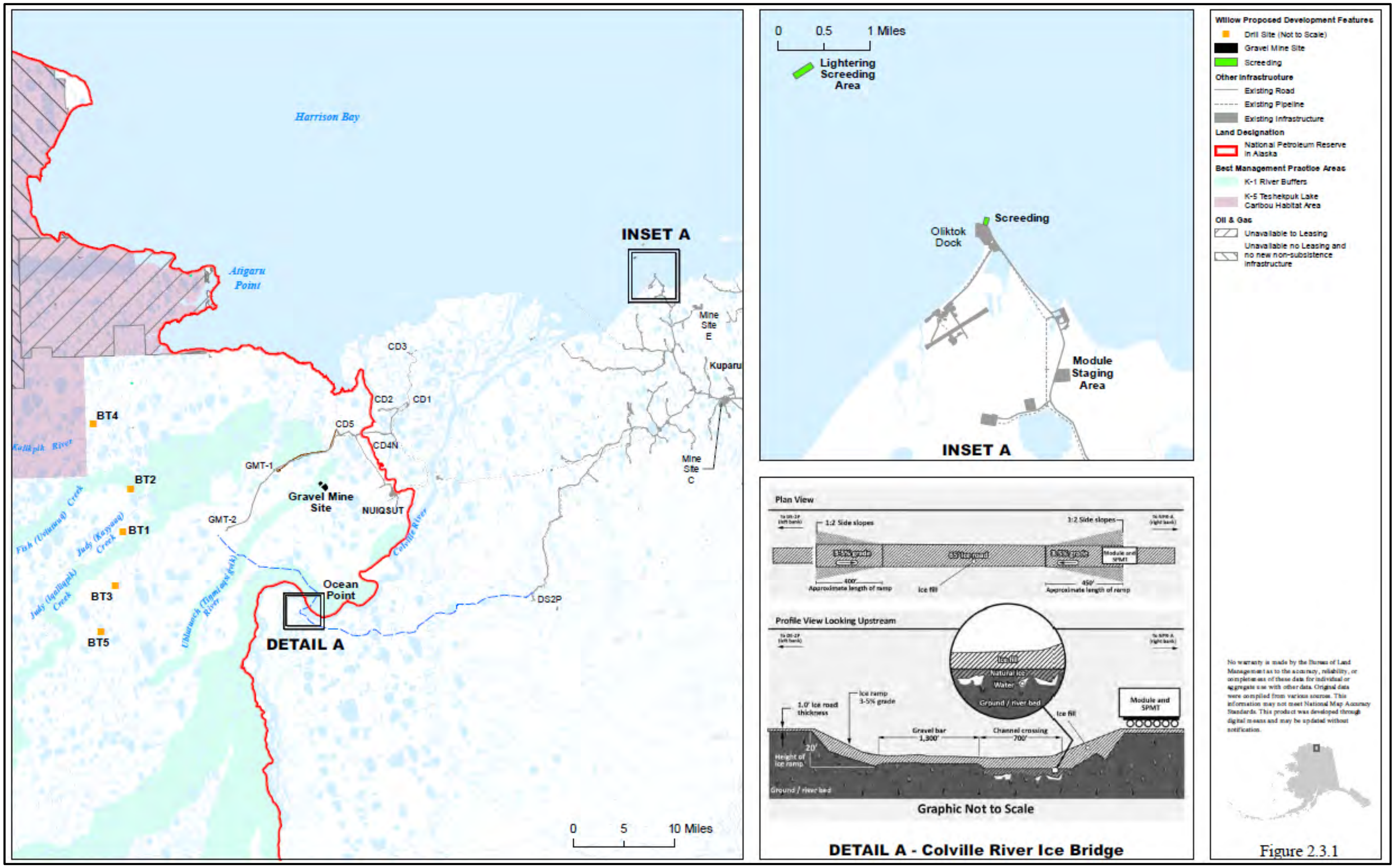

Figure 1.1-3 Module Delivery Options 3 Map

1.2 Air Quality Assessment Overview

BLM Alaska convened Air Resource Specialists at key cooperating agencies to review and comment on the analyses for the Willow MDP EIS. The Agency Air Resource Specialists included representatives from USEPA, National Park Service (NPS), U.S. Fish and Wildlife Service (USFWS), Alaska State Department of Environmental Conservation (ADEC), the Bureau of Ocean Energy Management (BOEM) and others. The Agency Air Resource Specialists reviewed and commented on the Willow MDP Air Modeling and Assessment Protocol, referred to hereafter as "Willow MDP Protocol (Ramboll 2018)". Some air resource specialists also participated in the review of air quality and AQRV impact analyses documented in this AQTSD for the Willow MDP.

As prescribed in the Willow MDP Protocol (Ramboll 2018), the USEPA guideline air quality model, AERMOD, is used to estimate air quality impacts in the near-field (within 50 kilometers (km)) of the Willow MDP while the Comprehensive Air Quality Model with Extensions (CAMx) modeling system is used to estimate regional impacts (approximately within 300 km). AERMOD is used to predict the potential localized impacts while CAMx is to predict the potential impacts on larger spatial scales that reflect the long-range transport and chemical reaction of atmospheric pollutants. This section provides an overview of the modeling objectives and the approach used to assess impacts to air quality and AQRVs for the Willow MDP.

1.2.1 Modeling Objective

The objective of this analysis is to estimate the potential Willow MDP and cumulative air quality and ARQV impacts for each action alternative. Air quality and AQRV impacts were assessed within the vicinity of the Project area, at discrete sensitive receptor locations, and at three federally managed areas with receptor locations of interest, referred to hereafter as the "three assessment areas": Arctic National Wildlife Refuge (ANWR), Gates of the Arctic National Park, and Noatak National Preserve. Specifically, the air quality modeling includes:

- An assessment of air quality impacts for criteria pollutants, including ozone (O_3), particulate matter (PM) with an aerodynamic diameter less than or equal to 2.5 microns ($PM_{2.5}$), PM with an aerodynamic diameter less than or equal to 10 microns (PM_{10}), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and carbon monoxide (CO)
- Hazardous Air Pollutant (HAP) impact assessment of benzene, toluene, ethylbenzene, xylene (collectively referred to as BTEX), n-hexane, and formaldehyde[2]; and
- An AQRV analysis to assess changes in visibility and atmospheric deposition.[3]

The near-field impact assessment is conducted with the AERMOD model to assess criteria pollutants (excluding ozone and lead) and the hazardous air pollutants (HAPs) listed above within 50 km of the Willow MDP. The regional impact assessment is conducted with the CAMx modeling system to assess criteria pollutants (except lead) and AQRVs within the vicinity of the Project area and at three assessment areas within 300 km of the Project area.

[2] These six HAPs were selected for analysis as BTEX and n-hexane are present in the raw natural gas and oil. Formaldehyde is formed from the combustion of small chain alkanes that predominate in natural gas.
[3] An analysis of the change to ANC of sensitive lakes is not conducted since lake data to assess the change in ANC are not currently available.

1.2.2 Modeling Description

1.2.2.1 *Near-Field Modeling*

AERMOD (USEPA 2017 and 2018) is the current USEPA-approved regulatory model to assess near-source effects of primary pollutants. The AERMOD model was developed by the American Meteorological Society/USEPA Regulatory Model Improvement Committee (AERMIC) and was intended to incorporate an improved understanding of the planetary boundary layer (PBL) meteorology into air dispersion calculations. The latest version of AERMOD (v20060) was not available at the time the Project analysis was performed. The version of AERMOD (v19191) used for the Project includes the Plume Rise Model Enhancement building downwash algorithms. The AERMOD modeling system also includes the meteorological preprocessor AERMET. AERMOD is a refined dispersion model for simple and complex terrain for receptors within 50 km of a modeled source. For the Willow MDP EIS, AERMOD has been used to assess near-field impacts of criteria pollutants (except ozone and lead), and a subset of HAPs (as listed in Section 1.2.1 "Modeling Objective") near the Project area for comparison to applicable National Ambient Air Quality Standards (NAAQS) and Alaska Ambient Air Quality Standards (AAAQS) (collectively referred to as Ambient Air Quality Standards [AAQS]) and Prevention of Significant Deterioration (PSD) Class II increments.

All action alternatives (Alternative B, C and D) were modeled in the near-field modeling. The modeled Project features represented the actual features in each alternative with one exception. The proponent (CPAI) included some design changes in Alternatives B and D that resulted in small changes to the locations (moved by 0.25 miles or less) and size, shape and orientation of the WPF, Willow Operations Center (WOC), and airstrip. Following discussions with the Agency Air Resource Specialists, the original configuration was modeled as it was determined that it would provide an acceptable assessment of the revised Project design because the changes were expected to have a minimal effect on the air quality assessment conclusions.

1.2.2.2 *Regional Modeling*

CAMx is a publicly available state-of-the-art photochemical modeling system. It has been used to analyze air quality impacts in previous modeling studies in the U.S., including State Implementation Plans (SIPs), NAAQS assessments (Tyler Fox 2017) and other EISs, and to support USEPA rulemaking. The BOEM Arctic Air Quality Modeling Study (referred to as the BOEM modeling platform or BOEM study) offers a CAMx modeling platform that serves as the starting point to assess regional air quality and AQRVs for the Willow MDP EIS. The BOEM study is intended to facilitate air resource analyses for federal and state stakeholders as part of the NEPA process for offshore oil and gas development activities. The BOEM modeling platform was selected for this project since it provides input photochemical modeling data for the region suitable for this study. The Weather Research and Forecast (WRF) Model and the Sparse Matrix Operator Kernel Emissions (SMOKE) models provide meteorological and emissions inputs respectively to the CAMx photochemical grid model. Collectively, these three models are referred as the CAMx modeling system. The CAMx modeling system applied for this assessment includes:

- WRF (version 3.6.1): State-of-science mesoscale numerical weather prediction system capable of supporting urban- and regional-scale photochemical and regional haze regulatory modeling studies.
- SMOKE (version 3.6): Emissions modeling system that generates hourly, gridded, and speciated emissions inputs of onroad, nonroad, area, point, fire, biogenic emissions and other sources for photochemical grid models.

- CAMx (version 6.5): State-of-science 'One-Atmosphere' photochemical grid model capable of addressing ozone and other criteria pollutants, visibility, and atmospheric deposition.

The CAMx modeling system is applied to model the air quality in the following emissions scenarios:

- **2012 Base Year**. The 2012 Base Year is based on the BOEM emissions inventory, described in more detail in Section 2.3.2 "Regional Emissions Inventories". The 2012 Base Year simulation provides a retrospective assessment of model performance relative to measured 2012 ambient air quality conditions. Results from this simulation are also used in the estimation of future year cumulative visibility impacts (see Section 4.5.4.2 "Cumulative Impacts").
- **Cumulative No Project Scenario**. This is a scenario with all cumulative sources except the Project sources. The Cumulative No Project Scenario is based on the future year scenario developed for the BOEM modeling platform and includes updated estimates of Reasonably Foreseeable Development (RFD) emissions without the contribution from the Project-specific emissions. This scenario includes emissions from all projects other than the Willow MDP to provide a baseline for the comparison of impacts of the action alternatives. The emissions inventory for this analysis is described in more detail in Section 2.2 "Cumulative Emissions for the Willow Alternatives". The effects of long-range transport are modeled through the use of boundary conditions (background concentrations).
- **Cumulative Alternative B (Proponent's Project) Scenario**. CPAI developed a project-specific emissions inventory for the Willow MDP EIS. BLM reviewed and revised the emissions inventory. To assess future cumulative impacts in Alternative B, the Alternative B emissions inventory is modeled along with the RFDs and regional sources included in the Cumulative No Project Scenario. The effects of long-range transport are modeled through the use of the same boundary conditions used in the previous scenario.
- **Cumulative Alternative C (Disconnected Infield Access) Scenario**. BLM developed an emissions inventory for Alternative C (see Section 2.1.4 "Alternative C") based on the emissions inventory for Alternative B. To assess future cumulative impacts for Alternative C, the Alternative C emissions inventory is modeled along with the RFDs and regional sources included in the Cumulative No Project Scenario. The effects of long-range transport are modeled through the use of the same boundary conditions used in the other scenarios.

BLM developed an emissions inventory for Alternative D as well (see Section 2.1.5 "Alternative D"). Willow MDP NOx emissions in Alternative D are lower than Alternative C (see Sections 2.1.4 "Alternative C" and 2.1.5 "Alternative D"). Therefore, as discussed with the Agency Air Resource Specialists, Alternative D was not modeled in the regional modeling and its impacts are expected to be lower than those of Alternative C.

The potential air quality impacts due to the Project are derived using a "brute force" method by subtracting the Cumulative No Project Scenario from the Cumulative Alternative B or C Scenario. The CAMx model results were used to assess Project and cumulative effects on:

1. NAAQS, AAAQS and PSD Class II increments
2. Visibility
3. Atmospheric deposition rates of sulfur (S) and nitrogen (N)

1.2.3 Overview of Modeling Approach and Thresholds for Comparison

1.2.3.1 *National and Alaska Ambient Air Quality Standards*

NAAQS and AAAQS are shown in Table 1.2-1 for all applicable criteria pollutants and averaging periods.[4] Note that the standards are either in parts per million (ppm), parts per billion (ppb), milligrams per cubic meter (mg/m^3) and micrograms per cubic meter (µg/m^3).

Table 1.2-1 NAAQS and AAAQS Values

Pollutant	Average Time	NAAQS[a]	AAAQS[b]	Form of the Standard
CO	1-hour	35 (ppm) (40,000 µg/m^3)	40 (mg/m^3) (40,000 µg/m^3)	Not to be exceeded more than once per year
	8-hour	9 ppm (10,000 µg/m^3)	10 mg/m^3 (10,000 µg/m^3)	Not to be exceeded more than once per year
NO_2	1-hour	100 (ppb) (188 µg/m^3)	188 µg/m^3	98th percentile of 1-hour daily maximum concentrations, averaged over three years
	Annual	53 ppb (100 µg/m^3)	100 µg/m^3	Annual mean
SO_2	1-hour	75 ppb (196 µg/m^3)	196 µg/m^3	99th percentile of 1-hour daily maximum concentrations, averaged over three years
	3-hour	0.5 ppm (1300 µg/m^3)	1300 µg/m^3	Not to be exceeded more than once per year
	24-hour	NA	365 µg/m^3	Not to be exceeded more than once per year
	Annual	NA	80 µg/m^3	Annual mean
Ozone	8-hour	0.070 ppm (137 µg/m^3)	0.070 ppm	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
PM_{10}	24-hour	150 µg/m^3	150 µg/m^3	Not to be exceeded more than once per year on average over three years
$PM_{2.5}$	24-hour	35 µg/m^3	35 µg/m^3	98th percentile avg over three years
	Annual	12 µg/m^3	12 µg/m^3	Annual mean averaged over three years

[a] 40 CFR Part 50
[b] 18 AAC 50.010

1.2.3.2 *Prevention of Significant Deterioration Increments*

Project impacts were assessed relative to PSD increments (shown in Table 1.2-2) for informational purposes. It is important to note that a PSD increment assessment is the jurisdiction of ADEC and the proposed analysis differs from a formal increment consumption assessment in several important ways:

[4] As described in the Willow MDP Protocol (Ramboll 2018), both federal and state ambient air quality standards include lead and state standards include ammonia; however, neither lead nor ammonia was assessed due to low emission rates of these pollutants. Willow MDP combustion sources are either diesel- or natural gas-fired. Diesel fueled combustion sources contain only trace amounts of lead, if any at all. Natural gas fueled combustion sources do not contain any lead. Lastly, the proposed Willow MDP equipment produces negligible ammonia emissions.

1. It has not been determined that Project emissions would trigger PSD permitting requirements. Such an assessment would be conducted as part of the air quality permitting preconstruction process as part of New Source Review Clean Air Act permitting requirements.
2. If PSD permitting and associated modeling analyses are required, the increment consumption analysis would only assess Project emissions that are required to be assessed; however, this assessment of Project impacts includes all Project emissions sources which would result in a conservatively high estimate of potential increment consumption.

Modeled Project impacts due to the action alternatives are compared to PSD increments shown in Table 1.2-2. Near-field Project impacts at the Nuiqsut receptor location and far-field Project impacts at three assessment areas were compared to PSD increments.

Table 1.2-2 PSD Increments for Class II Areas

Pollutant	Average Time	Class II PSD Increment[1]
NO_2	Annual	25 µg/m^3
SO_2	3-hour	512 µg/m^3
	24-hour	91 µg/m^3
	Annual	20 µg/m^3
PM_{10}	24-hour	30 µg/m^3
	Annual	17 µg/m^3
$PM_{2.5}$	24-hour	9 µg/m^3
	Annual	4 µg/m^3

[1]Referenced from 40 CFR Part 52 Subpart A

1.2.3.3 *Hazardous Air Pollutant Thresholds of Comparison*

Model-predicted and background measured 1-hour concentrations of HAPs were assessed against the USEPA Reference Exposure Levels (RELs) shown in Table 1.2-3. Emissions were calculated for benzene, toluene, ethylbenzene, xylenes, n-hexane, and formaldehyde. Acute RELs are defined as concentrations at, or below which, no adverse health effects are expected. No RELs are available for ethylbenzene or n-hexane; instead, Acute Exposure Guideline Levels (AEGLs) have been used as thresholds. In addition, exposures were assessed for 8-hour average impacts. RELs and relevant exposure guidelines were obtained from USEPA's Air Toxics Database (USEPA 2018a).

Table 1.2-3 Air Toxic Acute and Reference Exposure Levels[1]

Select HAPs	Acute REL (mg/m^3)	AEGLs (mg/m^3)
Benzene	0.027	29
Toluene	37	250
Ethyl benzene	--[2]	140[2]
Xylene	22	560
n-Hexane	--[2]	10,000[2]
Formaldehyde	0.055	1.1

1 USEPA Dose-Response Assessment for Assessing Health Risks Associated with Exposure to Hazardous Air Pollutants - Table 2 (USEPA 2018a).
2 No REL available for these HAPs. Values shown are from acute exposure guideline levels for mild or moderate effects (USEPA 2018a).

In addition, modeled long-term (annual) concentrations were assessed against non-carcinogenic RfCs for chronic inhalation (USEPA 2018b). A Reference Concentration for Chronic Inhalation (RfC) is defined by the USEPA as the threshold at which no long-term adverse health effects are expected. Annual modeled air toxic concentrations were compared directly to the non-carcinogenic chronic RfCs shown in Table 1.2-4. For the carcinogenic HAPs being analyzed (benzene, ethylbenzene, and formaldehyde), cancer risks were also calculated and assessed against a 1-in-1 million cancer threshold. The threshold range was determined from the Superfund National Oil and Hazardous Substances Pollution Contingency Plan (U.S. Government Printing Office 2011), which states that "For known or suspected carcinogens, acceptable exposure levels are generally concentration levels that represent an excess upper bound lifetime cancer risk to an individual of between 10^{-4} and 10^{-6} using information on the relationship between dose and response." The thresholds 10^{-4} and 10^{-6} correspond to a level of 1 in 10,000 and 1 in 1 million, respectively.

Cancer inhalation risk due to long-term exposure to respective air toxic was calculated by multiplying the annual modeled concentration by the cancer unit risk factor and multiplying this product by an applicable exposure adjustment factor, as shown in Table 1.2-5. These exposure factors are intended to represent the ratio of projected exposure time to 70 years. The adjustment factors represent two assessments: the maximum exposed individual (MEI) and the maximum likelihood estimate (MLE). To estimate impacts for the MEI, the maximum annual concentration from all modeled meteorological years were used to calculate the cancer inhalation risk while to estimate impacts for the MLE, the average annual concentration from all modeled meteorological years were used to calculate the cancer inhalation risk. The only receptor where the cancer risk was calculated is the community of Nuiqsut where individuals would be potentially exposed on a long-term basis. The calculated cancer risk was compared to a risk range of one in a million (USEPA, 2006a).

Table 1.2-4 Air Toxic Non-Carcinogenic Chronic Reference Concentrations

Select HAPs	Non-Carcinogenic Chronic RfC (mg/m^3)[1]
Benzene	0.03
Toluene	5.0
Ethyl benzene	1.0
Xylenes	0.1
n-Hexane	0.7
Formaldehyde	0.0098

1 USEPA Dose-Response Assessment for Assessing Health Risks Associated with Exposure to Hazardous Air Pollutants - Table 1 (USEPA 2018b).

Table 1.2-5 Cancer Unit Risk factors and Exposure Adjustment Factors for Select HAPs

Pollutant	Cancer Unit Risk Factors ($1/(\mu g/m^3)$)[1]	Exposure Adjustment Factor[2]
Benzene	7.8E-06	0.43
Ethylbenzene	2.5E-06	
Formaldehyde	1.3E-05	

[1]Values referenced from USEPA, 2018b
[2]The MLE scenario assumes the same exposure as the MEI. The MEI scenario assumes that the individual is at home 100% of the time for the life of the Project. The life of the Project is assumed to be 30 years (i.e., an assumed typical life of a project), corresponding to an adjustment factor of 30/70 =0.43

In addition to the individual HAP carcinogenic assessment discussed in above sections, a cumulative carcinogenic assessment was performed. The assessment described in this section is unique in that it considered the potential combined effects of multiple carcinogenic agents emitted. It is possible that cancer risks due to the individual carcinogens emitted (benzene, ethylbenzene, and formaldehyde) may compound and overlap during specific meteorological conditions. The assessment included calculating a total cancer risk (for comparison to the 1-in-1 million threshold). For each HAPs impact assessment modeled configuration, the following process was used with these calculations:

1. For each of the three carcinogenic pollutants (benzene, ethylbenzene, and formaldehyde), the maximum modeled annual concentration over the 5 years modeled at the Nuiqsut receptor was determined.
2. The individual cancer risk for each of the three pollutants was obtained by multiplying the maximum concentration by the pollutant's respective unit risk factors and exposure adjustment factors (found in Table 1.2-5).
3. The individual cancer risks from each pollutant were added to estimate the total cancer risk.

This assessment conservatively takes the highest modeled impact over five years' worth of meteorology data. However, it is important to remember that it is uncertain how cancer risks associated with multiple carcinogens would actually compound (i.e., combine). Here, it is assumed that they would be additive.

1.2.3.4 *Air Quality Related Values*

Cumulative and Project impacts on AQRVs were assessed at three assessment areas with the far-field model.

1.2.3.4.1 Deposition

Project nitrogen and sulfur impacts were compared to Deposition Analysis Thresholds (DAT) of 0.005 kilograms per hectare per year (kg/ha-yr). Cumulative nitrogen deposition impacts were compared to critical load of atmospheric nitrogen deposition thresholds for Alaskan tundra which range from 1.0-3.0 kg/ha-yr (Sullivan 2016). More background information is provided in Section 4.5.5.

1.2.3.4.2 Visibility

Project visibility impacts were compared to 0.5 delta deciview (dv) and 1.0 delta dv consistent with Federal Land Manager Air Quality Related Values Work group (FLAG) guidance (2010). Cumulative visibility impacts are not compared with a specific threshold, rather are qualitatively assessed relative to baseline visibility conditions. More background information is provided in Section 4.5.4 "Visibility".

1.3 AQTSD Organization

The air quality impacts for the Project alternatives are evaluated by estimating the air emissions and using near-field and regional modeling. The model results are then compared with applicable standards and thresholds. The AQTSD presents this information organized in the following chapters:

- **Chapter 2** provides a summary of the emissions inventory for the Willow MDP alternatives and describes how the emissions inventory was prepared for near-field and far-field modeling. This chapter also describes the cumulative and regional emissions inventories used for modeling.

- **Chapter 3** describes the near-field model configuration, meteorological data, scenarios, assessment receptors, emissions rates, and corresponding impact assessment.
- **Chapter 4** provides an overview of the regional system configuration, the domains and assessment areas, meteorological data, emissions inputs, and assessment methods used to derive the air quality and AQRVs impacts.
- **Chapter 5** presents the regional model impacts to ozone, $PM_{2.5}$ and other criteria pollutants. This chapter also provides impacts on visibility as well as atmospheric deposition of nitrogen and sulfur compounds.
- **Chapter 6** provides a complete list of the references cited in the main body of the AQTSD.

2.0 EMISSIONS INVENTORIES

In this section, we describe the emission inventories that were used in the air quality and greenhouse gas impacts analysis. Willow MDP emission inventories are used to estimate impacts to air quality and AQRVs using the near-field model, AERMOD (described in Chapter 3) and the regional, photochemical grid model, Comprehensive Air Quality Model with Extensions (CAMx, described in Chapter 4). In addition, Willow MDP emission inventories include estimates of greenhouse gas (GHG) emissions that are reported in the Section on Climate and Climate Change in the EIS. Emissions inventories developed for the project are shown in Section 2.1, cumulative sources and emissions are described in Section 2.2, and Section 2.3 describes how these emissions are processed for modeling. Note that the project emissions inventories used for near-field modeling are consistent with Section 2.1 while emissions inventories used for regional modeling are described in Section 2.3.

Near-field models and photochemical grid models are used for different air quality analysis purposes and as a result require different information on air emissions. For near-field modeling, only emissions from sources proximate to planned operations are required as input to the model and very detailed information about the activities and surrounding environment is necessary. For photochemical modeling, the analysis incorporates information for a much larger area and requires emissions for all sources included in the modeling domain. Therefore, in addition to the Willow MDP emissions inventory, regional emissions inventories were developed for the CAMx model for the model scenarios: the 2012 Base Year, the Cumulative No Action Alternative, the Cumulative Alternative B Scenario, and the Cumulative Alternative C Scenario (see Chapter 4). The following sections discuss the Willow MDP emissions inventory and the regional inventories.

Emission inventories were developed for Willow MDP Alternatives B, C, and D. Emissions were also developed for the three Module Delivery options because a final determination of Module Delivery transportation routes had not yet been made. An emission inventory was not necessary for Alternative A (No Action).

Willow MDP emissions were developed for criteria pollutants, volatile organic compounds (VOCs), HAPs, and GHGs. Criteria pollutants include NO_x, CO, SO_2, particulate matter less than 10 microns in diameter (PM_{10}), and particulate matter less than 2.5 microns in diameter ($PM_{2.5}$). VOCs include “any compound of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, which participates in atmospheric photochemical reactions”[5].

Lead was not modeled because emissions would be low resulting in very small air quality impacts. The emission inventory includes lead emission estimates from diesel- and natural gas-fueled combustion sources; lead emissions from these sources are small because diesel and natural gas fuel and exhaust contain only trace amounts of lead, if any at all. Likewise, lead emissions from flaring and incinerator activities are expected to be small. The only potential for a lead additive would be in aviation gasoline for piston-engine aircraft. Piston-engine aircraft used in the proposed project and alternatives are not expected to use gasoline with lead additive.

HAPs analyzed include those commonly emitted from oil and gas development – benzene, toluene, ethylbenzene, xylenes, n-hexane, and formaldehyde. The Oil and Natural Gas Production Facilities: National Emission Standards for Hazardous Air Pollutants (NESHAP; 40 CFR Part 63, subpart HH, Table 2)

[5] 40 CFR Part 51.100(s)

includes several additional HAPs[6]; impacts from additional HAPs, not included in this analysis, are expected to be less substantial than those from the six included HAPs.

GHGs analyzed include those commonly emitted from oil and gas development – carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O).

Detailed emission inventory calculation spreadsheets are provided separately.

2.1 Willow Alternatives Emissions Inventories

2.1.1 Emission Inventory Summary

Table 2.1-1, Table 2.1-2, and Table 2.1-3 present total life-of-Project emissions for each alternative by Module Delivery option (Option 1 – Atigaru Point, Option 2 – Point Lonely, and Option 3 – Colville River Crossing). The emissions shown are the sum of Project and Module Delivery emissions. Alternative A (No Action) has zero emissions. For all three Module Delivery Options, Alternative C has the highest emissions across all three action alternatives for all criteria pollutants (except PM_{10}), primarily because of increased equipment and infrastructure requirements required because a gravel road between the Willow Processing Facility (WPF) and drill site Bear Tooth (BT) 1 is not developed under this Alternative. Instead, Alternative C will feature an ice road between BT1 and BT3. In Alternative D, a gravel road is not constructed connecting GMT-2 to the project area. For all three Module Delivery Options, Alternative D has slightly higher PM_{10} emissions than Alternative C as a result of higher routine operations traffic activity for Alternative D and Alternative D has slightly higher emissions (except VOC and HAPs) than Alternative B as a result of the extended Project schedule for Alternative D[7]. A complete description of each Alternative is available in Chapter 2 of the FEIS.

Table 2.1-1 Total Life-of-Project Emissions due to the Project and Module Delivery Option 1 (Atigaru Point) in each Alternative

Alternative	Total Criteria Emissions (tons)						Total HAPs (tons)	Total CO2e (thousand metric tons)
	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$	VOC		
Alternative A (No Action)	0	0	0	0	0	0	0	0
Alternative B (Proponent's Project)	20,270	19,593	1,364	6,549	2,394	16,626	1,911	23,249
Alternative C (Disconnected Infield Roads)	24,328	23,064	1,458	7,213	2,858	17,139	1,927	25,419
Alternative D (Disconnected Access)	20,694	19,743	1,367	7,883	2,575	16,519	1,897	23,356

* Total CO2e emissions due to the Project are zero in the No Action Alternative. Emissions from substitute energy sources are discussed in the EIS Section on Climate Change.

[6] acetaldehyde, carbon disulfide, carbonyl sulfide, ethylene glycol, naphthalene, and 2,2,4-trimethylpentane
[7] The emission inventory for Alternative D was extended one year longer than Alternative B and Alternative C to account for the delayed production schedule for Alternative D

Table 2.1-2 Total Life-of-Project Emissions due to the Project and Module Delivery Option 2 (Point Lonely) in each Alternative

Alternative	Total Criteria Pollutant Emissions (tons)						Total HAPs (tons)	Total CO2e (thousand metric tons)
	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$	VOC		
Alternative A (No Action)	0	0	0	0	0	0	0	0
Alternative B (Proponent's Project)	20,836	20,239	1,365	6,596	2,420	16,719	1,922	23,449
Alternative C (Disconnected Infield Roads)	24,894	23,710	1,460	7,260	2,885	17,233	1,939	25,619
Alternative D (Disconnected Access)	21,260	20,389	1,369	7,930	2,602	16,612	1,909	23,556

* Total CO2e emissions due to the Project are zero in the No Action Alternative. Emissions from substitute energy sources are discussed in the EIS Section on Climate Change.

Table 2.1-3 Total Life-of-Project Emissions due to the Project and Module Delivery Option 3 (Colville River Crossing) in each Alternative

Alternative	Total Criteria Emissions (tons)						Total HAPs (tons)	Total CO2e (thousand metric tons)
	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$	VOC		
Alternative A (No Action)	0	0	0	0	0	0	0	0
Alternative B (Proponent's Project)	19,903	19,131	1,361	6,581	2,382	16,562	1,903	23,148
Alternative C (Disconnected Infield Roads)	23,961	22,601	1,455	7,245	2,846	17,076	1,919	25,318
Alternative D (Disconnected Access)	20,342	19,285	1,364	7,915	2,564	16,457	1,890	23,259

* Total CO2e emissions due to the Project are zero in the No Action Alternative. Emissions from substitute energy sources are discussed in the EIS Section on Climate Change.

Table 2.1-4 shows the key activity metrics for each Project phase (construction, drilling, and routine operations) for each alternative. These activities are the basis for the emissions inventory calculations and resulting emission inventories summarized in Table 2.1-1, Table 2.1-2, and Table 2.1-3 and presented in detail in Section 2.1.2 "Alternative A (No Action)" to Section 2.1.6 "Module Delivery Options".

Table 2.1-4 Activity Inputs by Alternative for each Project Phase

Phase	Activity	Parameter	Alternative B (Proponent's Project)	Alternative C (Disconnected Infield Roads)	Alternative D (Disconnected Access)	Unit
Construction	All Drill Pads	Total Acres	79.9	88.3	62.9	acres
	All Bridge	Total Length	0.22	0.15	0.21	miles
	Gravel Roads, Valve Pads, and Water Access Pads	Total Acres	272	257	208	acres
	Ice Pads*	Total Acres	1,037	1,266	1,341	acres
	Ice Roads	Total Miles	495	650	962	miles
	Total Powerline and Fiber Optics	Total Length	40	40	40	miles
	Pipelines	Total Length	153	206	243	miles
	Willow Processing Facility	Total Acres	23	23	48	acres
	WOC+ Airstrip	Total Acres	73	138	107	acres
	Gravel Mining	Total Gravel Requirement	5,874,260	6,816,260	6,902,260	million cubic yards (MCY)
	Construction Total Traffic	Vehicle Miles Travelled (VMT)	28,031	36,724	39,274	thousand miles (kmile)
	Power at WOC	Total Rating Output of Power Generation	14,600	29,200	14,600	thousand watts (kWe)
Drilling	Total Wells Drilled	Number of Wells	251	251	251	number
	Drilling Total Traffic	VMT	4,815	3,267	3,149	kmile
Operations	All Drill Pads	Number of Well Pads	5	5	5	number
	Willow Processing Facility	Operating Capacity**	200	200	200	thousand barrels per day (kbbl/day)
	All Aircraft	Total Flights	14,522	16,071	21,570	number
	Operations Total Traffic	VMT	13,594	14,957	21,076	kmile
	Power Generation at Willow Processing Facility	Total Rating Output of Power Generation	84,500	84,500	84,500	kWe
	Injection Turbine at Willow Processing Facility	Total Rating of Injection Turbine power	50,579	50,579	50,579	kWe
	Power at WOC	Total Rating Output of Power Generation	14,600	29,200	14,600	kWe

*Ice pad total acres are for all Project years including single season and multi-season ice pads
** This conservatively also includes capacity required to process fluids from GMT2 which is an option being considered by the project proponent (see additional information provided in Section 1.1 of the AQTSD). Willow peak annual production is estimated at 131 kbbl/day.

Table 2.1-5 shows key operational and control inputs for each Project phase (construction, drilling, and routine operations) for each alternative. These operational and control inputs are used in emission inventory calculations and have substantial impacts on emission magnitudes. Comprehensive emission inventory inputs and calculations may be found in emission inventory calculation spreadsheets, which are provided separately.

Table 2.1-5 Key emission inventory operational and control inputs.

Source Category	Source Type	Operational / Control Input	Alternative B	Alternative C	Alternative D
Fugitive Dust (All Phases)					
Fugitive Dust	Wind Erosion	Watering	50%	50%	50%
	Road Dust	Watering	50%	50%	50%
Construction Phase					
Temporary Stationary Engines[a]	Power Generation Turbine	Rated-power (HP)	2 engines X 7376 HP	2 engines X 7376 HP	2 engines X 7376 HP
		Fuel Type	ULSD	ULSD	ULSD
		Annual Activity (hr/engine)	8,760	8,760	8,760
		Certification Level/Control	Dry Low NOx and Inlet Air Conditioning (Pre-Heat)	Dry Low NOx and Inlet Air Conditioning (Pre-Heat)	Dry Low NOx and Inlet Air Conditioning (Pre-Heat)
	Power Generation Reciprocating Internal Combustion Engine	Rated-power (HP)	3 engines X 1609 HP	3 engines X 1609 HP	3 engines X 1609 HP
		Fuel Type	ULSD	ULSD	ULSD
		Annual Activity (hr/engine)	4,380	4,380	4,380
		Certification Level/Control	Tier IV interim	Tier IV interim	Tier IV interim
Traffic	On-road Vehicles	Total trips LOP	1,501,890	1,881,980	1,973,440
		Total miles travelled LOP	28,031,115	36,724,275	39,273,598
	Air Traffic	Total trips LOP	1,943	5,904	4,011
	Ocean-going Vessels	Total trips LOP	319	319	319
Pre- Drilling Phase					
Pre- Drilling Equipment	Primary Engines	Rated-power (HP)	3 engines X 1476 HP	3 engines X 1476 HP	3 engines X 1476 HP
		Fuel Type	ULSD	ULSD	ULSD
		Annual Activity (hr/engine)	8,760	8,760	8,760
		Certification Level/Control	Tier IV gen set	Tier IV gen set	Tier IV gen set
	Cement Pump Units	Rated-power (HP)	2 engines X 241 HP	2 engines X 241 HP	2 engines X 241 HP
		Fuel Type	ULSD	ULSD	ULSD
		Annual Activity (hr/engine)	500	500	500
		Certification Level/Control	Tier IV final	Tier IV final	Tier IV final
	Support Engines	Rated-power (HP)	2 engines X 706 HP 10 engine X 11 HP 1 engine X 71 HP	2 engines X 706 HP 10 engine X 11 HP 1 engine X 71 HP	2 engines X 706 HP 10 engine X 11 HP 1 engine X 71 HP
		Fuel Type	ULSD	ULSD	ULSD
		Annual Activity (hr/engine)	8,760	8,760	8,760
		Certification Level/Control	Tier II or Tier III	Tier II or Tier III	Tier II or Tier III
Hydraulic Fracturing	Well Frac Engines	Rated-power (HP)	1 engine X 120 HP 1 engine X 990 HP 1 engine X 14400 HP	1 engine X 120 HP 1 engine X 990 HP 1 engine X 14400 HP	1 engine X 120 HP 1 engine X 990 HP 1 engine X 14400 HP
		Fuel Type	ULSD	ULSD	ULSD
		Annual Activity (hr/engine)	1,920	1,920	1,920
		Certification Level/Control	Tier IV final	Tier IV final	Tier IV final

Source Category	Source Type	Operational / Control Input	Alternative B	Alternative C	Alternative D
Development Drilling Phase					
Drilling Equipment	Primary Engines	Rated-power (HP)	1 engines X 1476 HP	1 engines X 1476 HP	1 engines X 1476 HP
		Fuel Type	ULSD	ULSD	ULSD
		Annual Activity (hr/engine)	8,760	8,760	8,760
		Certification Level/Control	Tier IV gen set	Tier IV gen set	Tier IV gen set
	Cement Pump Units	Rated-power (HP)	2 engines X 241 HP	2 engines X 241 HP	2 engines X 241 HP
		Fuel Type	ULSD	ULSD	ULSD
		Annual Activity (hr/engine)	500	500	500
		Certification Level/Control	Tier IV final	Tier IV final	Tier IV final
	Support Engines	Rated-power (HP)	2 engines X 706 HP 10 engine X 11 HP 1 engine X 71 HP	2 engines X 706 HP 10 engine X 11 HP 1 engine X 71 HP	2 engines X 706 HP 10 engine X 11 HP 1 engine X 71 HP
		Fuel Type	ULSD	ULSD	ULSD
		Annual Activity (hr/engine)	8,760	8,760	8,760
		Certification Level/Control	Tier II and Tier III	Tier II and Tier III	Tier II and Tier III
Hydraulic Fracturing	Well Frac Engine	Rated-power (HP)	Highline Power Source, Zero Direct Emissions	Highline Power Source, Zero Direct Emissions	Highline Power Source, Zero Direct Emissions
		Number of engines			
		Annual Activity (hr/engine)			
		Tier Standard			
Traffic[b]	On-road Vehicles	Total trips LOP	327,720	401,790	318,360
		Total miles travelled LOP	4,815,054	3,267,163	3,149,251
	Air Traffic	Total trips LOP	1,248	1,875	2,496
Routine Operation Phase					
Fugitive Components		Control	LDAR	LDAR	LDAR
Stationary Engines at WOC[a]	Power Generation Turbine	Rated-power (HP)	2 engines X 7376 HP	2 engines X 7376 HP	2 engines X 7376 HP
		Fuel Type	Fuel Gas	Fuel Gas	Fuel Gas
		Annual Activity (hr/engine)	8,760	8,760	8,760
		Certification Level/Control	Dry Low NOx and Inlet Air Conditioning (Pre-Heat)	Dry Low NOx and Inlet Air Conditioning (Pre-Heat)	Dry Low NOx and Inlet Air Conditioning (Pre-Heat)
	Power Generation Reciprocating Internal Combustion Engine	Rated-power (HP)	3 engines X 1609 HP	3 engines X 1609 HP	3 engines X 1609 HP
		Fuel Type	ULSD	ULSD	ULSD
		Annual Activity (hr/engine)	4,380	4,380	4,380
		Certification Level/Control	Tier IV interim	Tier IV interim	Tier IV interim

Source Category	Source Type	Operational / Control Input	Alternative B	Alternative C	Alternative D
Stationary Engines at WPF	Injection/Compression Turbine	Rated-power (HP)	2 engines X 33900 HP	2 engines X 33900 HP	2 engines X 33900 HP
		Fuel Type	Fuel Gas	Fuel Gas	Fuel Gas
		Annual Activity (hr/engine)	8,760	8,760	8,760
		Certification Level/Control	Dry Low NOx and Inlet Air Conditioning (Pre-Heat)	Dry Low NOx and Inlet Air Conditioning (Pre-Heat)	Dry Low NOx and Inlet Air Conditioning (Pre-Heat)
	Power Generation Turbines	Rated-power (HP)	3 engines X32855 HP	3 engines X32855 HP	3 engines X32855 HP
		Fuel Type	Fuel Gas	Fuel Gas	Fuel Gas
		Annual Activity (hr/engine)	8,760	8,760	8,760
		Certification Level/Control	Dry Low NOx and Inlet Air Conditioning (Pre-Heat)	Dry Low NOx and Inlet Air Conditioning (Pre-Heat)	Dry Low NOx and Inlet Air Conditioning (Pre-Heat)
	Backup Power Generation Turbines (Fuel Gas)	Rated-power (HP)	2 engines X 7376 HP	2 engines X 7376 HP	2 engines X 7376 HP
		Fuel Type	Fuel Gas	Fuel Gas	Fuel Gas
		Annual Activity (hr/engine)	8,260	8,260	8,260
		Certification Level/Control	Dry Low NOx and Inlet Air Conditioning (Pre-Heat)	Dry Low NOx and Inlet Air Conditioning (Pre-Heat)	Dry Low NOx and Inlet Air Conditioning (Pre-Heat)
	Backup Power Generation Turbines (Diesel Fuel)	Rated-power (HP)	2 engines X 7376 HP	2 engines X 7376 HP	2 engines X 7376 HP
		Fuel Type	ULSD	ULSD	ULSD
		Annual Activity (hr/engine)	500	500	500
		Certification Level/Control	Dry Low NOx and Inlet Air Conditioning (Pre-Heat)	Dry Low NOx and Inlet Air Conditioning (Pre-Heat)	Dry Low NOx and Inlet Air Conditioning (Pre-Heat)
	Black Start Engines	Rated-power (HP)	1 engine X 805 HP	1 engine X 805 HP	1 engine X 805 HP
		Fuel Type	ULSD	ULSD	ULSD
		Annual Activity (hr/engine)	500	500	500
		Certification Level/Control	Tier II	Tier II	Tier II
Traffic	On-road Vehicles	Total trips LOP	1,359,300	1,928,740	2,085,090
		Total miles travelled LOP	13,594,275	14,956,585	21,075,829
	Air Traffic	Total trips LOP	11,331	14,705	15,034

[a] For Alternative C, applicable to both the North and South WOC
[b] Includes traffic for pre- and developmental drilling phases

2.1.2 Alternative A (No Action)

Under this alternative, the BLM and/or other federal permitting agencies would not issue permits for the Willow Development, and no development would occur. As a result, no oil in the Project area would be produced in the near future, and no new roads, airstrips, pipelines, or other oil facilities would be constructed. Therefore, there are no direct Project emissions anticipated to result under the No Action Alternative.

2.1.3 Alternative B (Proponent's Project)

Alternative B (Proponent's Project) would consist of the development and operation of 251 wells over a period of 10 years on five multi-well pads and associated facilities in the Project area needed to support extraction of hydrocarbons including a Central Processing Facility, Operations Center, Airstrip, pipelines, roads and bridges, and module transfer island. Section 1.1.2 "Alternative B: Proponent's Project" provides a description of Alternative B.

A general description highlighting emission generating activities and sources under Alternative B is provided below. AECOM (documented the Alternative B emission inventory, which is included as Attachment C to this Air Quality Technical Support Document. A more detailed description of emission generating activities and sources can be found in Attachment C.

Criteria pollutants, VOCs, HAP, and GHG emissions are emitted during construction, drilling, and routine operation Project phases. Emissions would result from activities such as well installation, development, and operation; operation of engines and boilers; and vehicle transportation of equipment and service crews in the Project area. Project emission sources would include non-mobile combustion sources, mobile on-road and nonroad tailpipe combustion sources, fugitive dust sources, fugitive leak sources, venting sources, ships, and aircraft sources.

Emissions estimates presented herein were developed using Willow-specific data and information from CPAI's other North Slope projects including the GMT2 Drill site in the GMTU and the ACF in the Colville River Unit. Willow-specific input design data from CPAI were used where available and these were supplemented by information from the GMT2 EIS emissions inventory (BLM, 2018b). The emissions inventory for the WPF, WOC and module delivery and transport activities are based on similar facilities and activities supporting the construction and operation of the ACF, supplemented by equipment sizing information, newer emissions control and equipment technologies, and other Willow-specific design information developed by CPAI.

CPAI plans to construct 251 wells at five drill sites, approximately evenly split between production and injection wells. Production wells are hydraulically fractured and then undergo a well cleanout process known as a flowback in which the fluids and solids produced during the drilling process are allowed to flow out until no excessive solids or drilling fluids are left. Injection wells only go through the flowback process and are not hydraulically fractured. Gas produced from the flowback will be captured, flared, or vented depending on available infrastructure. Oil, gas, and water extracted from production wells will be sent to the WPF for processing. Injection wells will be used to inject gas, produced water, seawater, and miscible injectant[8] (MI) back into the producing formation.

[8] Miscible Injectant (MI) is a fluid that will be injected into the Willow Development production reservoir as part of the process to enhance oil recovery.

After the wells are developed, processing, transport, and storage of the produced oil and natural gas will emit criteria pollutants, VOCs, HAPs, and GHGs. Heaters, generators, pumps, well intervention (i.e., workover), and other support equipment used at well sites emit criteria pollutants, VOCs, HAPs, and GHGs. Storage tanks and fugitive leaks from valves, flanges, open-ended lines, connectors, and other connection points at well pads will emit VOCs, HAPs, and GHGs.

The WPF would separate and process production fluids and produce sales-quality crude oil. Produced water would be processed at the WPF and reinjected to the subsurface as part of pressure maintenance/water flood for secondary recovery. Emission sources at the WPF would include turbine and internal combustion engine generators, compressors, storage tanks, pumps, and other treating equipment. CPAI is evaluating whether to connect GMT2 with the WPF. As discussed in Section 1.1, the Willow EIS air quality impact analysis accounts for the effect of potentially processing GMT2 produced fluids at the WPF.

The base of operations for the Willow Development would be at the WOC. The WOC would be near to but separated from the WPF and adjacent to the airstrip. Emission sources at the WOC would include internal combustion engine generators, turbines, non-mobile support equipment (e.g., boilers, incinerators), storage tanks, and aircraft from the adjacent airstrip.

Fugitive dust emissions estimates assume a conservative (low) 50% control efficiency for watering, consistent with the BOEM Arctic modeling study (Fields Simms et al 2018, Stoeckenius et al 2017). Fugitive dust emissions are only calculated for months from May through October, consistent with the months for which fugitive dust emissions were estimated in the BOEM Arctic modeling study (Fields Simms et al 2018, Stoeckenius et al 2017). Fugitive dust emissions may also occur in other months, especially during dry snowless conditions or when the ground is dry and frozen. Although fugitive dust emissions during such months may affect air concentrations of particulate matter, these would be to a smaller extent than fugitive dust emitted from May through October when there is much less (or no) snow cover.

Table 2.1-6 shows annual criteria pollutant, VOCs, HAP, and GHG emissions in Alternative B for construction activities by year. The “Year 0” refers to the first year of construction which is a partial year. Table 2.1-7 shows annual Alternative B criteria pollutant, VOCs, HAP, and GHG emissions for drilling (including pre-drilling and developmental drilling) activities. Table 2.1-8 shows annual Alternative B criteria pollutant, VOCs, HAP, and GHG emissions for routine operation activities. Table 2.1-9 shows annual Alternative B criteria pollutant, VOCs, HAP, and GHG emissions summed across all Project activities. Alternative B annual emissions are shown graphically for each criteria pollutant by Project phase in Figure 2.1-1 to Figure 2.1-6.

Construction emissions increase from project start to 2024, then, generally, decrease to the end of construction activities in year 2029. From 2025 to 2026, there is an increase in gaseous pollutant construction emissions and a decrease in particulate matter emissions. Increases in non-vehicle construction phase activities from year 2025 to year 2026 result in increased gaseous emissions while decreases in on-road vehicle activity reduce on-road fugitive dust emissions (the largest particulate matter emissions source category).

The drilling phase includes three different activities: disposal well drilling at the WOC in 2023, pre-drilling from 2024-2025, and developmental drilling from 2026- 2029. For most pollutants, the largest drilling phase emissions occur during pre-drilling when diesel engines are used to power drill rigs, prior to developmental drilling during which highline electricity is used to power drill rigs. PM_{10} and $PM_{2.5}$ emissions are highest in 2027 and 2029 when drilling phase on-road vehicle activity and hence fugitive dust emissions are highest.

Routine operations at the WPF are expected to commence in 4Q 2025 with commissioning of the WPF and the first drill site (BT1). Subsequent drill sites will be commissioned in the following years and continue operating until the end of field life in 2050. Routine operation emissions generally increase as routine operation facilities (e.g., WOC, WPF, and drill sites) are brought online and thereafter remain relatively constant.

Table 2.1-6 Alternative B (Proponent's Project) Annual Emissions from Construction Activities

Project Year	Total Emissions (tons per year [tpy]) Criteria Pollutants						Total Emissions (tons per year [tpy]) HAP						Total Emissions (tons per year [tpy]) GHGs
	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$	VOC	Benzene	Toluene	EthylBenzene	Xylene	n-Hexane	Formaldehyde	CO2e
0 (2020)	20.5	32.7	0.9	1.3	0.5	1.3	0.0	0.0	0.0	0.0	0.0	0.3	3,503
1 (2021)	440.4	376.8	3.8	81.5	20.6	26.5	0.4	0.4	0.1	0.4	0.1	3.2	142,632
2 (2022)	461.7	384.4	4.8	102.3	23.2	26.5	0.4	0.4	0.1	0.4	0.0	3.0	138,742
3 (2023)	535.8	418.4	4.4	212.4	37.6	35.9	0.5	0.6	0.1	0.6	0.1	4.8	169,070
4 (2024)	591.2	431.9	3.5	213.8	41.2	44.6	0.6	0.7	0.1	0.6	0.1	5.2	187,533
5 (2025)	150.6	92.6	1.3	183.2	26.8	16.1	0.4	0.4	0.1	0.3	0.0	3.3	55,912
6 (2026)	166.1	144.8	3.2	109.5	18.4	16.1	0.4	0.4	0.1	0.4	0.1	3.5	55,924
7 (2027)	92.7	92.2	1.9	93.4	13.0	9.6	0.2	0.2	0.0	0.2	0.0	1.9	31,811
8 (2028)	29.5	14.2	0.1	39.7	5.5	3.4	0.1	0.1	0.0	0.1	0.0	0.6	10,810
9 (2029)	6.2	1.8	0.0	0.3	0.2	0.6	0.0	0.0	0.0	0.0	0.0	0.1	1,697
10 (2030)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
11 (2031)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
12 (2032)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
13 (2033)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
14 (2034)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
15 (2035)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
16-30 (2036-2050)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-

Table 2.1-7 Alternative B (Proponent's Project) Annual Emissions from Drilling Activities

Project Year	Total Emissions (tons per year [tpy]) Criteria Pollutants						Total Emissions (tons per year [tpy]) HAP						Total Emissions (tons per year [tpy]) GHGs
	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$	VOC	Benzene	Toluene	EthylBenzene	Xylene	n-Hexane	Formaldehyde	CO2e
0 (2020)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
1 (2021)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
2 (2022)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
3 (2023)	3.8	5.3	0.0	0.3	0.3	0.4	0.0	0.0	0.0	0.0	0.0	0.0	1,728
4 (2024)	142.1	372.1	1.0	106.1	18.5	60.4	0.3	0.1	0.0	0.1	1.5	0.4	88,339
5 (2025)	143.7	372.7	1.0	138.5	21.8	60.6	0.3	0.1	0.0	0.1	1.5	0.4	89,053
6 (2026)	101.9	142.2	0.5	178.3	24.1	45.1	0.1	0.1	0.0	0.0	1.1	0.2	49,098
7 (2027)	106.6	141.3	0.5	291.9	35.7	36.2	0.1	0.1	0.0	0.0	0.8	0.3	50,516
8 (2028)	99.9	138.5	0.5	147.4	20.9	35.3	0.1	0.1	0.0	0.0	0.8	0.2	47,383
9 (2029)	106.6	141.3	0.5	291.9	35.7	36.2	0.1	0.1	0.0	0.0	0.8	0.3	50,516
10 (2030)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
11 (2031)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
12 (2032)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
13 (2033)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
14 (2034)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
15 (2035)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
16-30 (2036-2050)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-

Table 2.1-8 Alternative B (Proponent's Project) Annual Emissions from Routine Operation Activities

Project Year	Total Emissions (tons per year [tpy]) Criteria Pollutants						Total Emissions (tons per year [tpy]) HAP						Total Emissions (tons per year [tpy]) GHGs
	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$	VOC	Benzene	Toluene	EthylBenzene	Xylene	n-Hexane	Formaldehyde	CO2e
0 (2020)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
1 (2021)	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	49
2 (2022)	0.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	86
3 (2023)	1.7	3.1	0.2	0.1	0.1	0.7	0.0	0.0	0.0	0.0	0.0	0.1	502
4 (2024)	5.2	7.3	0.6	2.1	0.5	1.3	0.0	0.0	0.0	0.0	0.0	0.2	1,714
5 (2025)	251.5	238.2	16.8	51.2	30.5	89.8	0.2	0.5	0.7	1.5	3.5	0.7	305,518
6 (2026)	635.7	606.9	52.4	165.0	78.6	405.9	0.5	1.8	5.4	10.7	20.3	2.1	947,941
7 (2027)	643.4	612.7	52.6	169.1	79.4	507.1	0.6	2.0	8.0	15.8	26.6	2.1	952,920
8 (2028)	644.3	613.4	52.6	171.5	79.7	507.1	0.6	2.0	8.0	15.8	26.6	2.1	953,071
9 (2029)	650.1	618.1	52.6	177.7	80.7	587.7	0.7	2.3	10.0	19.8	31.6	2.1	957,174
10 (2030)	654.5	620.7	52.6	178.0	80.9	666.7	0.8	2.5	12.0	23.7	36.5	2.0	960,918
11 (2031)	654.5	620.7	52.6	178.0	80.9	666.7	0.8	2.5	12.0	23.7	36.5	2.0	960,918
12 (2032)	654.5	620.7	52.6	170.0	79.7	666.3	0.8	2.5	12.0	23.7	36.5	2.0	960,918
13 (2033)	654.5	620.7	52.6	170.0	79.7	666.3	0.8	2.5	12.0	23.7	36.5	2.0	960,918
14 (2034)	654.5	620.7	52.6	170.0	79.7	666.3	0.8	2.5	12.0	23.7	36.5	2.0	960,918
15 (2035)	654.5	620.7	52.6	170.0	79.7	666.3	0.8	2.5	12.0	23.7	36.5	2.0	960,918
16-30 (2036-2050)	654.5	620.7	52.6	170.0	79.7	666.3	0.8	2.5	12.0	23.7	36.5	2.0	960,918

Table 2.1-9 Alternative B (Proponent's Project) Annual Emissions from All Project Activities

Project Year	Total Emissions (tons per year [tpy]) Criteria Pollutants						Total Emissions (tons per year [tpy]) HAP						Total Emissions (tons per year [tpy]) GHGs
	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$	VOC	Benzene	Toluene	EthylBenzene	Xylene	n-Hexane	Formaldehyde	CO2e
0 (2020)	20.5	32.7	0.9	1.3	0.5	1.3	0.0	0.0	0.0	0.0	0.0	0.3	3,503
1 (2021)	440.9	377.0	3.8	81.5	20.6	26.5	0.4	0.4	0.1	0.4	0.1	3.2	142,681
2 (2022)	462.2	385.9	4.8	102.4	23.3	26.5	0.4	0.4	0.1	0.4	0.0	3.0	138,828
3 (2023)	541.3	426.8	4.6	212.7	38.0	37.1	0.6	0.6	0.1	0.6	0.1	4.9	171,300
4 (2024)	738.5	811.3	5.1	322.0	60.1	106.4	1.0	0.8	0.1	0.7	1.6	5.8	277,586
5 (2025)	545.7	703.6	19.0	372.9	79.1	166.5	0.9	1.0	0.8	1.9	5.1	4.4	450,483
6 (2026)	903.8	893.9	56.2	452.9	121.1	467.1	1.0	2.2	5.5	11.2	21.4	5.7	1,052,963
7 (2027)	842.7	846.2	55.1	554.3	128.1	552.9	0.9	2.3	8.1	16.1	27.4	4.3	1,035,247
8 (2028)	773.6	766.2	53.2	358.5	106.1	545.8	0.8	2.2	8.0	15.9	27.4	2.9	1,011,263
9 (2029)	762.9	761.1	53.1	469.8	116.6	624.4	0.8	2.4	10.0	19.8	32.3	2.5	1,009,386
10 (2030)	654.5	620.7	52.6	178.0	80.9	666.7	0.8	2.5	12.0	23.7	36.5	2.0	960,918
11 (2031)	654.5	620.7	52.6	178.0	80.9	666.7	0.8	2.5	12.0	23.7	36.5	2.0	960,918
12 (2032)	654.5	620.7	52.6	170.0	79.7	666.3	0.8	2.5	12.0	23.7	36.5	2.0	960,918
13 (2033)	654.5	620.7	52.6	170.0	79.7	666.3	0.8	2.5	12.0	23.7	36.5	2.0	960,918
14 (2034)	654.5	620.7	52.6	170.0	79.7	666.3	0.8	2.5	12.0	23.7	36.5	2.0	960,918
15 (2035)	654.5	620.7	52.6	170.0	79.7	666.3	0.8	2.5	12.0	23.7	36.5	2.0	960,918
16-30 (2036-2050)	654.5	620.7	52.6	170.0	79.7	666.3	0.8	2.5	12.0	23.7	36.5	2.0	960,918

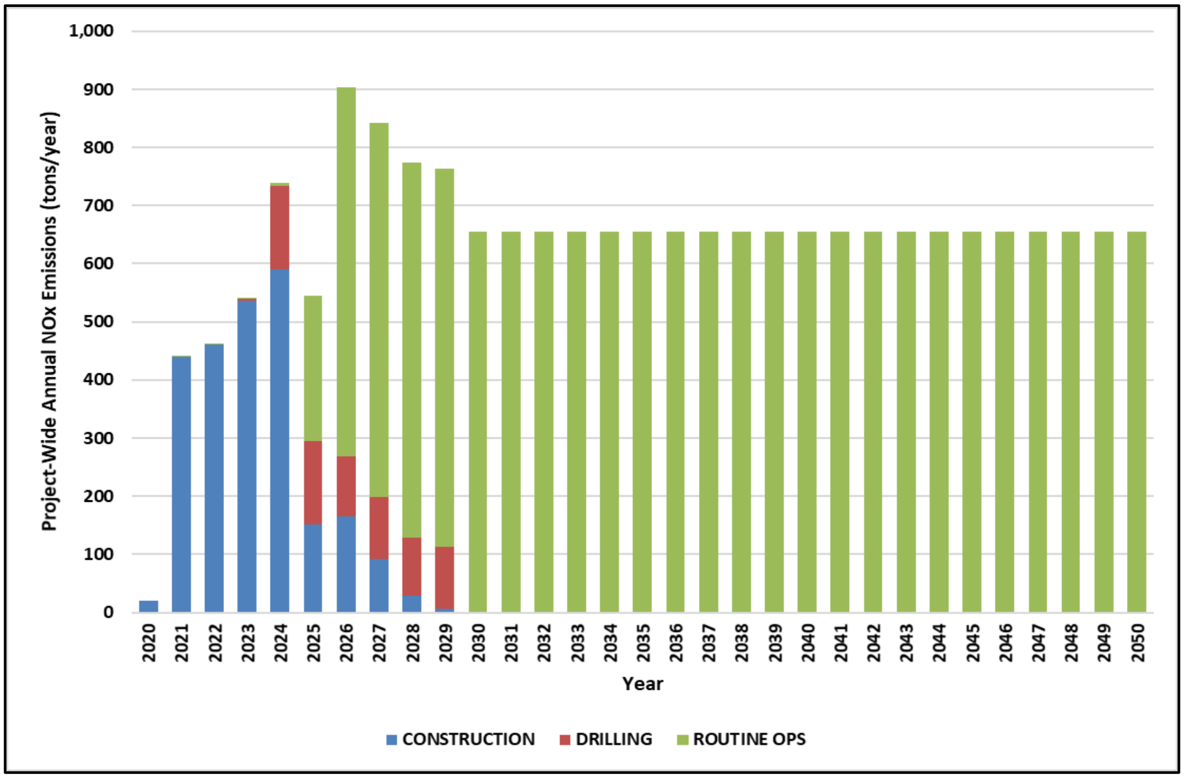

Figure 2.1-1 Alternative B (Proponent's Project) Annual NOx Emissions by Project Phase

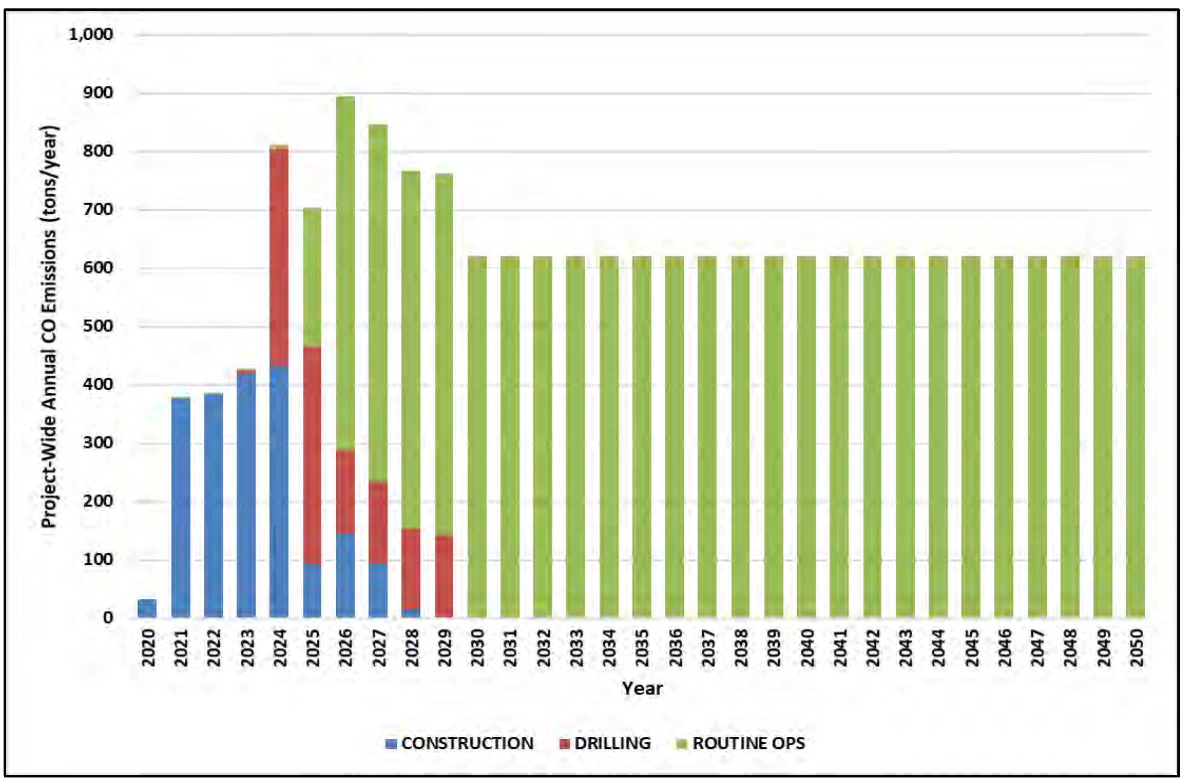

Figure 2.1-2 Alternative B (Proponent's Project) Annual CO Emissions by Project Phase

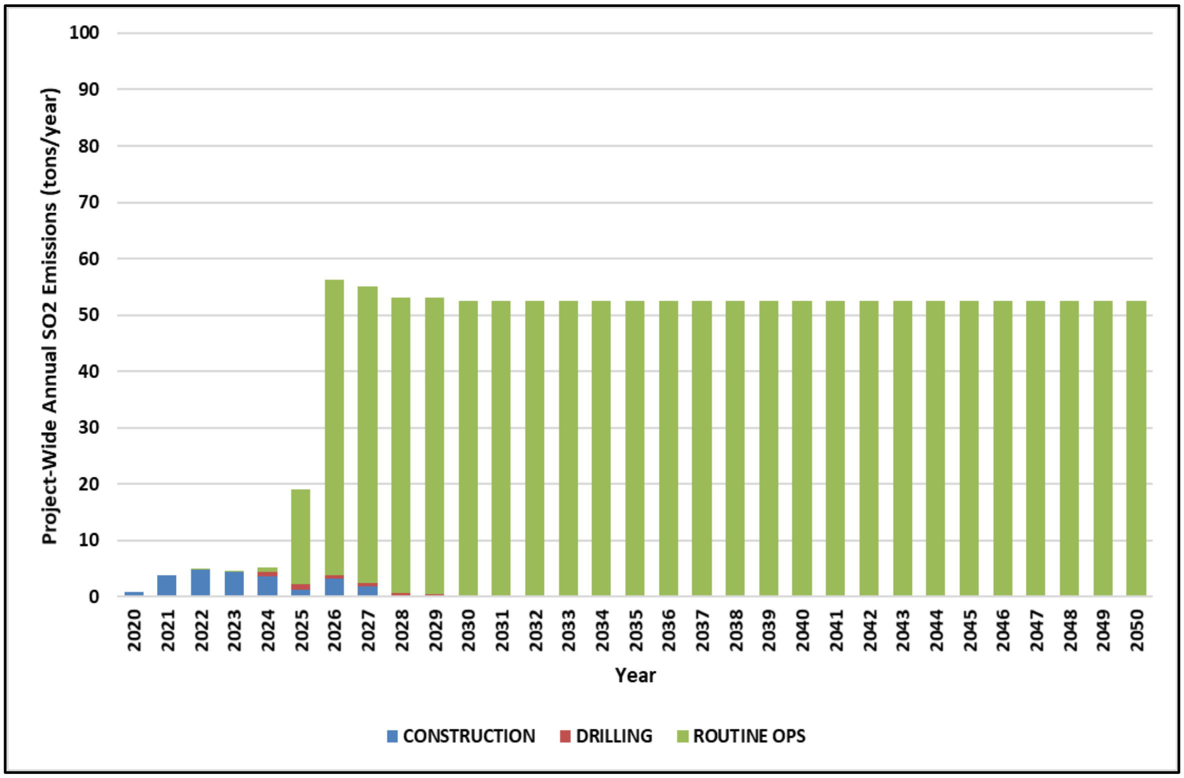

Figure 2.1-3 Alternative B (Proponent's Project) Annual SO_2 Emissions by Project Phase

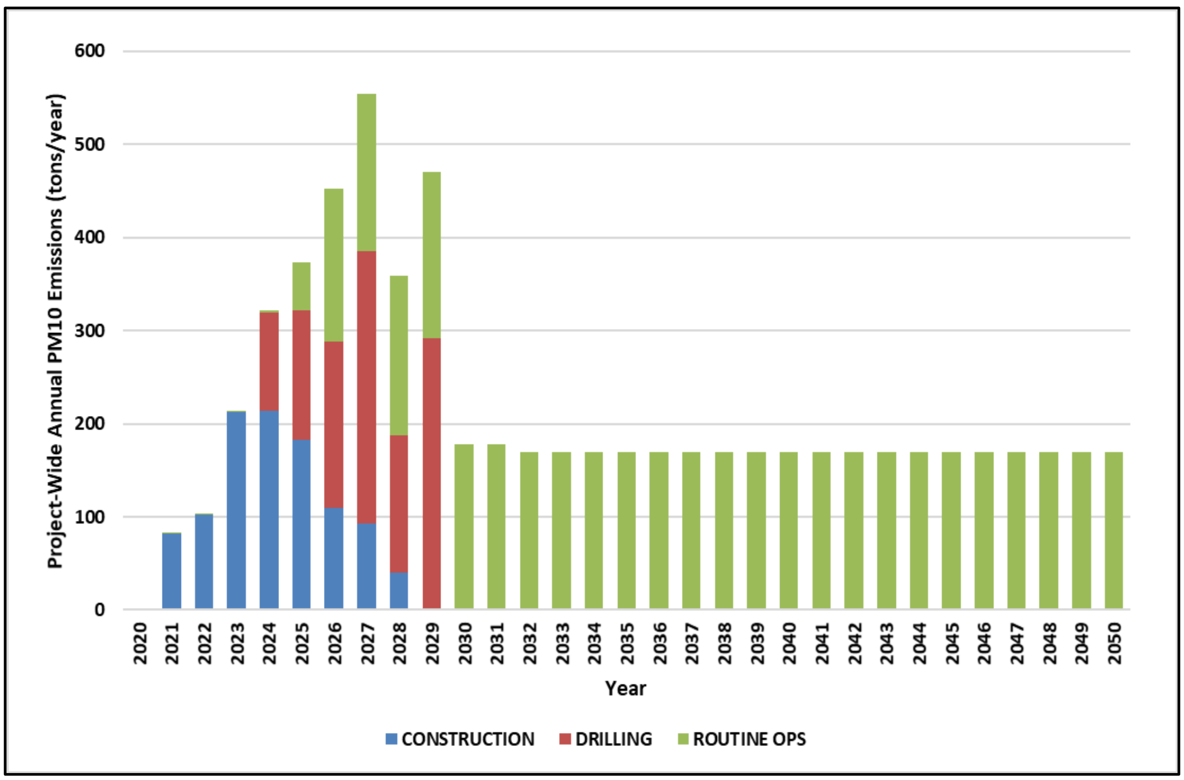

Figure 2.1-4 Alternative B (Proponent's Project) Annual PM_{10} Emissions by Project Phase

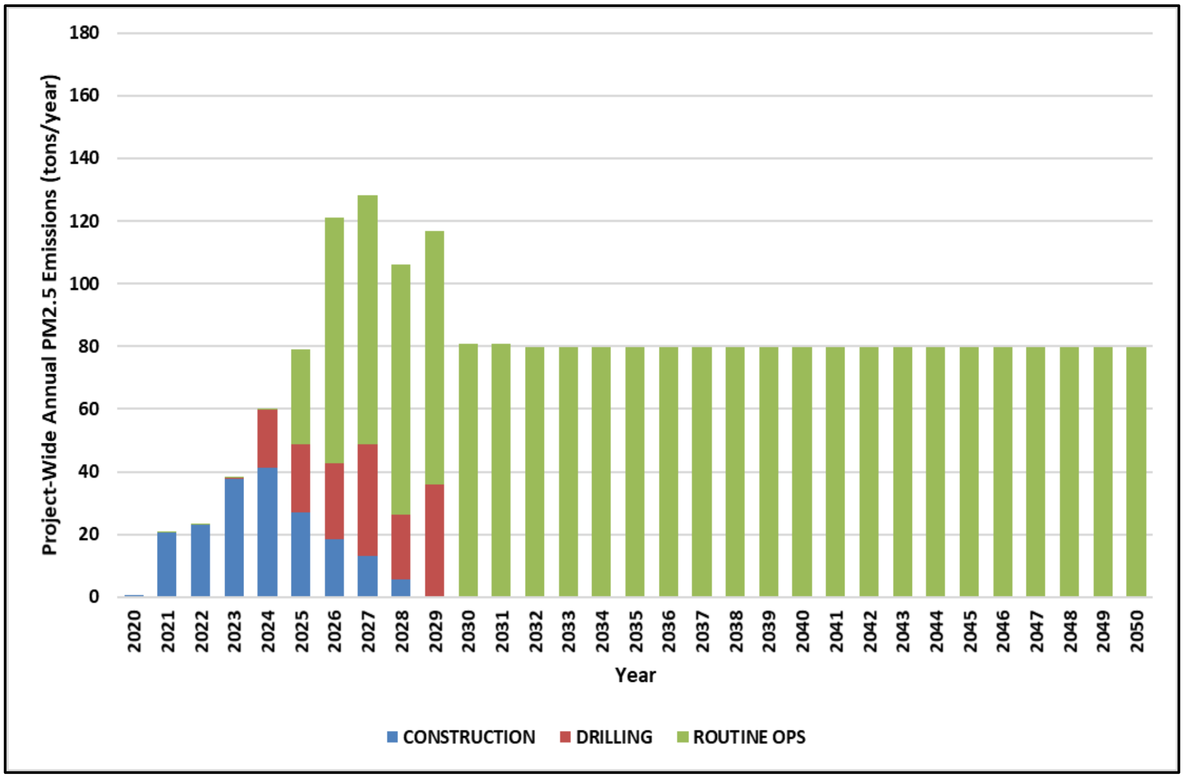

Figure 2.1-5 Alternative B (Proponent's Project) Annual $PM_{2.5}$ Emissions by Project Phase

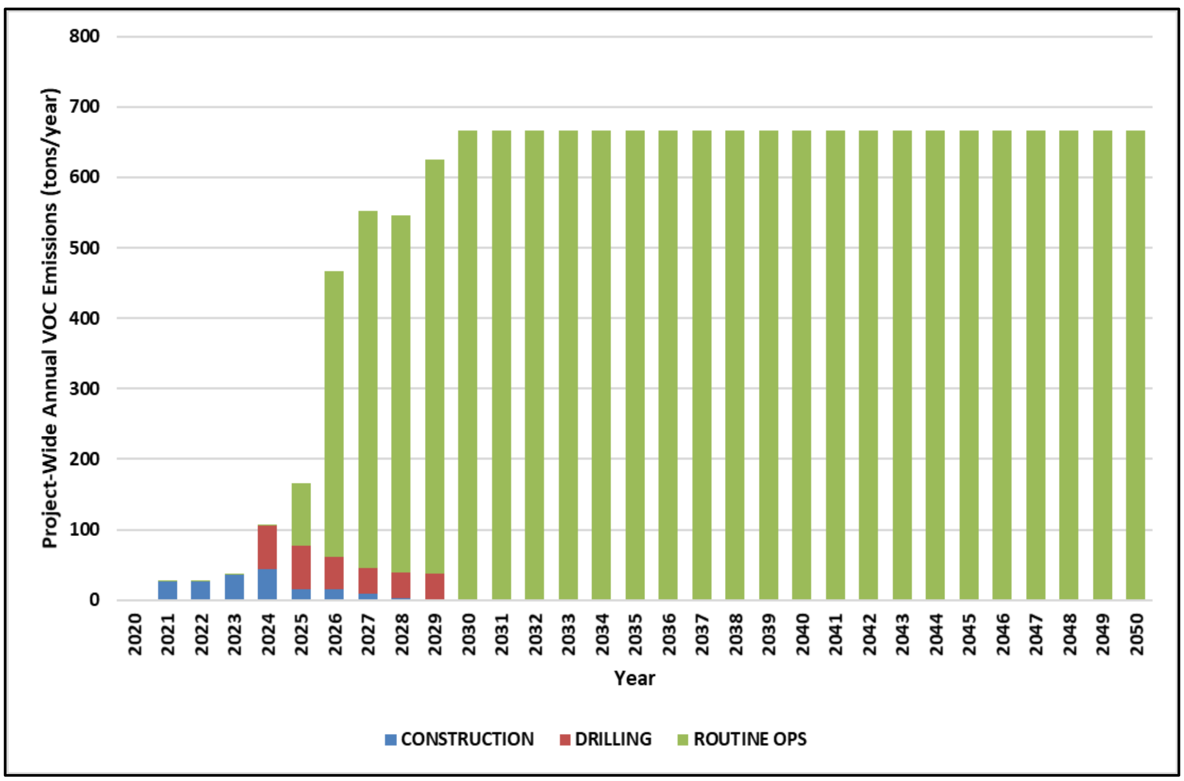

Figure 2.1-6 Alternative B (Proponent's Project) Annual VOC Emissions by Project Phase

2.1.4 Alternative C (Disconnected Infield Roads)

Alternative C would be identical to Alternative B with respect to the number of wells drilled, main Project features, and oil production. The main differences for Alternative C relative to Alternative B are the elimination of a gravel road connection between the WPF and drill site BT1, and the inclusion of a second airstrip, storage and staging facilities and camp near drill site BT1 or drill site BT2. Additionally, the WPF, WOC, and airstrip would be located approximately 5 miles east of their location in Alternative B, near the GMTU and BTU boundary. Section 1.1.3 "Alternative C: Disconnected Infield Roads" provides a description of Alternative C. Alternative B emission inventory spreadsheets were modified with Alternative C inputs provided by the Project proponent and information from the Project description to estimate Alternative C emissions. More information about the Alternative C emissions inventory is provided in Attachment D to this Air Quality Technical Support Document.

Table 2.1-10 shows annual criteria pollutant, VOCs, HAP and GHG emissions for construction activities by year in Alternative C. The "Year 0" refers to the first year of construction which is a partial year. Table 2.1-11 shows annual Alternative C criteria pollutant, VOCs, HAP, and GHG emissions for drilling (including pre-drilling and developmental drilling) activities. Table 2.1-12 shows annual Alternative C criteria pollutant, VOCs, HAP, and GHG emissions for routine operation activities. Table 2.1-13 shows annual Alternative C criteria pollutant, VOCs, HAP, and GHG emissions summed across all Project activities. Alternative C annual emissions are shown graphically for each criteria pollutant by Project phase in Figure 2.1-7 to Figure 2.1-12.

Construction emissions increase from project start to 2024, then, generally, decrease to the end of construction activities in year 2029. There is a substantial decrease in construction emissions from project year 2025 to 2026, due primarily to replacement of construction phase temporary power generation in 2025 with production phase generation in 2026 and the slowing down or completion of several key construction activities such as multi-season ice pads, gravel mining, drill site gravel pad construction, WPF construction, pipeline construction, and bridge construction. Emissions increase again from 2026 to 2027 as several construction activities start again including gravel mining, drill site gravel pad construction, and bridge construction.

The drilling phase includes three different activities: disposal well drilling at the North and South WOC in 2023 and 2024, respectively, pre-drilling activities from 2024-2025, and developmental drilling activity from 2026- 2029. For most pollutants, the largest drilling phase emissions occur during pre-drilling during which diesel engines are used to power drill rigs, prior to developmental drilling during which highline electricity is used to power drill rigs. PM_{10} and $PM_{2.5}$ emissions are highest in 2029 when drilling phase on-road vehicle activity and hence fugitive dust emissions are highest.

Routine operations at the WPF are expected to commence in 4Q 2025 with commissioning of the WPF and the first drill site (BT1). Subsequent drill sites will be commissioned in the following years and continue operating until the end of field life in 2050. Routine operation emissions generally increase as routine operation facilities (e.g., WOC, WPF, and drill sites) are brought online and thereafter remain relatively constant.

Table 2.1-10 Alternative C (Disconnected Infield Roads) Annual Emissions from Construction Activities

Project Year	Total Emissions (tons per year [tpy]) Criteria Pollutants						Total Emissions (tons per year [tpy]) HAP						Total Emissions (tons per year [tpy]) GHGs
	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$	VOC	Benzene	Toluene	EthylBenzene	Xylene	n-Hexane	Formaldehyde	CO2e
0 (2020)	20.4	32.6	0.9	1.2	0.5	1.3	0.0	0.0	0.0	0.0	0.0	0.3	3,475
1 (2021)	434.0	372.1	4.0	65.8	25.6	27.3	0.3	0.3	0.1	0.3	0.0	2.4	137,708
2 (2022)	805.4	642.9	6.2	136.2	49.4	47.9	0.5	0.4	0.1	0.4	0.1	3.2	252,012
3 (2023)	901.3	679.7	5.9	274.5	67.6	59.9	0.7	0.7	0.1	0.7	0.1	5.7	291,495
4 (2024)	913.6	705.2	5.8	301.0	71.2	62.5	0.7	0.6	0.1	0.6	0.1	4.7	289,110
5 (2025)	496.6	375.3	3.3	261.1	49.4	35.1	0.5	0.5	0.1	0.4	0.1	3.8	167,010
6 (2026)	75.5	55.8	1.3	55.9	9.3	7.0	0.2	0.2	0.0	0.2	0.0	1.5	24,441
7 (2027)	124.5	121.5	2.8	170.8	21.1	11.5	0.2	0.3	0.1	0.3	0.0	2.4	37,070
8 (2028)	112.2	93.4	2.0	176.7	21.9	11.2	0.2	0.3	0.1	0.3	0.0	2.3	37,121
9 (2029)	23.0	10.1	0.1	48.1	6.0	2.6	0.1	0.1	0.0	0.1	0.0	0.5	8,650
10 (2030)	2.6	0.7	0.0	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.1	583
11 (2031)	2.6	0.7	0.0	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.1	583
12 (2032)	2.6	0.7	0.0	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.1	583
13 (2033)	2.6	0.7	0.0	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.1	583
14 (2034)	2.6	0.7	0.0	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.1	583
15 (2035)	2.6	0.7	0.0	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.1	583
16-30 (2036-2050)	2.6	0.7	0.0	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.1	583

Table 2.1-11 Alternative C (Disconnected Infield Roads) Annual Emissions from Drilling Activities

Project Year	Total Emissions (tons per year [tpy]) Criteria Pollutants						Total Emissions (tons per year [tpy]) HAP						Total Emissions (tons per year [tpy]) GHGs
	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$	VOC	Benzene	Toluene	EthylBenzene	Xylene	n-Hexane	Formaldehyde	CO2e
0 (2020)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
1 (2021)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
2 (2022)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
3 (2023)	3.8	5.3	0.0	0.3	0.3	0.4	0.0	0.0	0.0	0.0	0.0	0.0	1,728
4 (2024)	146.4	377.6	1.0	118.0	19.9	60.9	0.3	0.1	0.0	0.1	1.5	0.4	90,343
5 (2025)	141.3	371.7	1.0	95.9	17.4	60.3	0.3	0.1	0.0	0.1	1.5	0.4	88,092
6 (2026)	98.2	140.5	0.5	113.0	17.4	44.6	0.1	0.1	0.0	0.0	1.1	0.1	47,587
7 (2027)	99.0	138.1	0.5	134.6	19.6	35.1	0.1	0.1	0.0	0.0	0.8	0.2	47,072
8 (2028)	98.0	137.6	0.5	118.5	18.0	35.0	0.1	0.1	0.0	0.0	0.8	0.2	46,684
9 (2029)	106.7	141.6	0.5	245.3	31.1	36.3	0.1	0.1	0.0	0.1	0.8	0.3	49,890
10 (2030)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
11 (2031)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
12 (2032)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
13 (2033)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
14 (2034)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
15 (2035)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
16-30 (2036-2050)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-

Table 2.1-12 Alternative C (Disconnected Infield Roads) Annual Emissions from Routine Operation Activities

Project Year	Total Emissions (tons per year [tpy]) Criteria Pollutants						Total Emissions (tons per year [tpy]) HAP						Total Emissions (tons per year [tpy]) GHGs
	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$	VOC	Benzene	Toluene	EthylBenzene	Xylene	n-Hexane	Formaldehyde	CO_2e
0 (2020)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
1 (2021)	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	49
2 (2022)	0.5	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	63
3 (2023)	0.8	1.0	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	185
4 (2024)	1.6	3.5	0.2	0.1	0.1	0.5	0.0	0.0	0.0	0.0	0.0	0.1	472
5 (2025)	135.0	139.1	12.6	23.3	15.1	73.9	0.1	0.4	0.7	1.4	3.5	0.6	222,531
6 (2026)	663.1	641.1	55.6	129.9	78.7	409.2	0.6	1.8	5.5	10.8	20.3	2.2	1,008,906
7 (2027)	752.5	717.7	56.1	142.5	89.9	523.3	0.7	2.1	8.0	15.8	26.6	2.2	1,033,261
8 (2028)	755.8	720.1	56.1	166.6	92.4	543.6	0.7	2.2	8.5	16.8	27.9	2.2	1,034,821
9 (2029)	763.4	719.3	56.2	205.7	96.7	623.5	0.8	2.4	10.5	20.8	32.8	2.1	1,039,558
10 (2030)	767.0	721.5	56.3	206.4	97.0	683.0	0.9	2.6	12.1	23.8	36.6	2.1	1,042,527
11 (2031)	767.0	721.5	56.3	206.4	97.0	683.0	0.9	2.6	12.1	23.8	36.6	2.1	1,042,527
12 (2032)	767.0	721.5	56.3	198.8	95.8	683.0	0.9	2.6	12.1	23.8	36.6	2.1	1,042,527
13 (2033)	767.0	721.5	56.3	198.8	95.8	683.0	0.9	2.6	12.1	23.8	36.6	2.1	1,042,527
14 (2034)	767.0	721.5	56.3	198.8	95.8	683.0	0.9	2.6	12.1	23.8	36.6	2.1	1,042,527
15 (2035)	767.0	721.5	56.3	198.8	95.8	683.0	0.9	2.6	12.1	23.8	36.6	2.1	1,042,527
16-30 (2036-2050)	767.0	721.5	56.3	198.8	95.8	683.0	0.9	2.6	12.1	23.8	36.6	2.1	1,042,527

Table 2.1-13 Alternative C (Disconnected Infield Roads) Annual Emissions from All Project Activities

Project Year	Total Emissions (tons per year [tpy]) Criteria Pollutants						Total Emissions (tons per year [tpy]) HAP						Total Emissions (tons per year [tpy]) GHGs
	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$	VOC	Benzene	Toluene	EthylBenzene	Xylene	n-Hexane	Formaldehyde	CO_2e
0 (2020)	20.4	32.6	0.9	1.2	0.5	1.3	0.0	0.0	0.0	0.0	0.0	0.3	3,475
1 (2021)	434.5	372.4	4.0	65.8	25.6	27.3	0.3	0.3	0.1	0.3	0.0	2.4	137,757
2 (2022)	805.9	643.4	6.2	136.2	49.4	48.0	0.5	0.4	0.1	0.4	0.1	3.2	252,075
3 (2023)	905.9	686.1	5.9	274.8	67.8	60.5	0.7	0.7	0.1	0.7	0.1	5.7	293,408
4 (2024)	1061.6	1086.4	6.9	419.0	91.2	124.0	1.0	0.8	0.1	0.7	1.6	5.1	379,925
5 (2025)	772.9	886.2	16.9	380.3	81.9	169.3	0.9	1.0	0.8	1.9	5.1	4.8	477,633
6 (2026)	836.9	837.4	57.4	298.8	105.4	460.8	0.8	2.1	5.5	11.0	21.4	3.8	1,080,934
7 (2027)	976.0	977.2	59.4	448.0	130.6	569.9	1.0	2.5	8.1	16.2	27.4	4.7	1,117,404
8 (2028)	966.0	951.1	58.6	461.8	132.2	589.8	1.1	2.5	8.6	17.1	28.7	4.6	1,118,626
9 (2029)	893.2	870.9	56.8	499.1	133.7	662.4	1.0	2.5	10.6	20.9	33.6	2.9	1,098,098
10 (2030)	769.6	722.2	56.3	206.5	97.1	683.2	0.9	2.6	12.1	23.8	36.6	2.1	1,043,110
11 (2031)	769.6	722.2	56.3	206.5	97.1	683.2	0.9	2.6	12.1	23.8	36.6	2.1	1,043,110
12 (2032)	769.6	722.2	56.3	198.9	95.9	683.2	0.9	2.6	12.1	23.8	36.6	2.1	1,043,110
13 (2033)	769.6	722.2	56.3	198.9	95.9	683.2	0.9	2.6	12.1	23.8	36.6	2.1	1,043,110
14 (2034)	769.6	722.2	56.3	198.9	95.9	683.2	0.9	2.6	12.1	23.8	36.6	2.1	1,043,110
15 (2035)	769.6	722.2	56.3	198.9	95.9	683.2	0.9	2.6	12.1	23.8	36.6	2.1	1,043,110
16-30 (2036-2050)	769.6	722.2	56.3	198.9	95.9	683.2	0.9	2.6	12.1	23.8	36.6	2.1	1,043,110

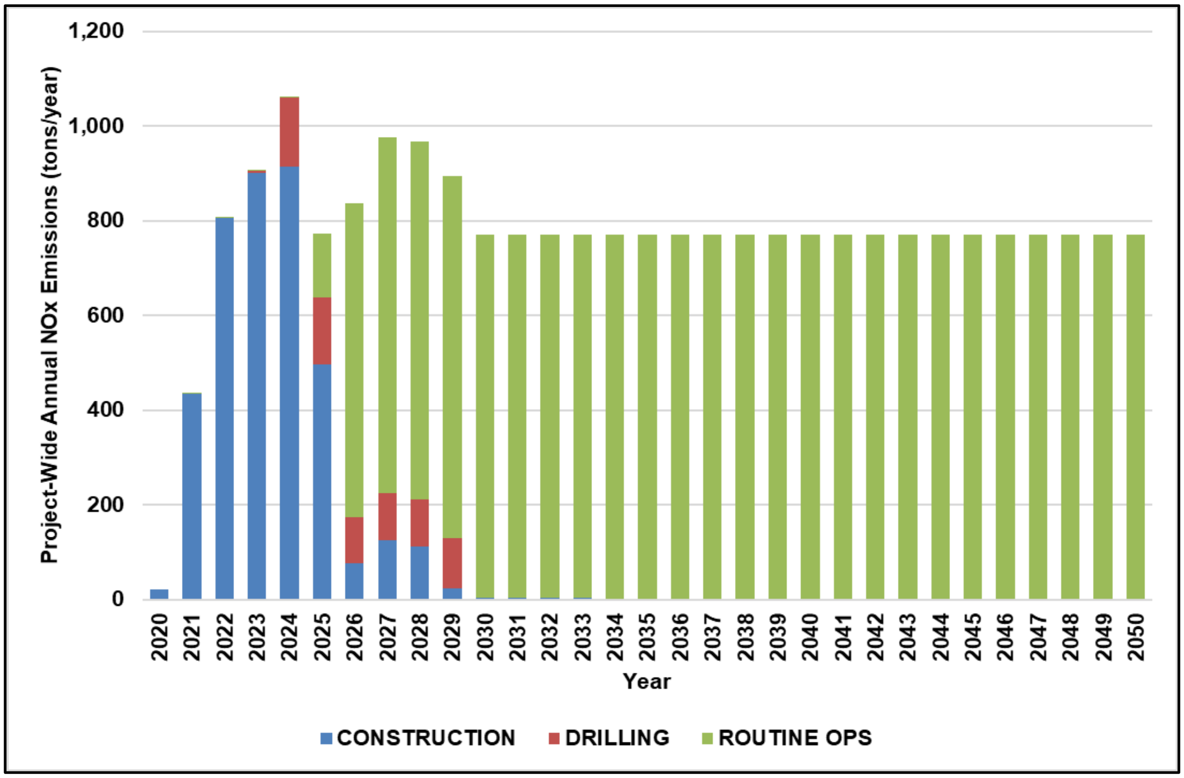

Figure 2.1-7 Alternative C (Disconnected Infield Roads) Annual NOx Emissions by Project Phase

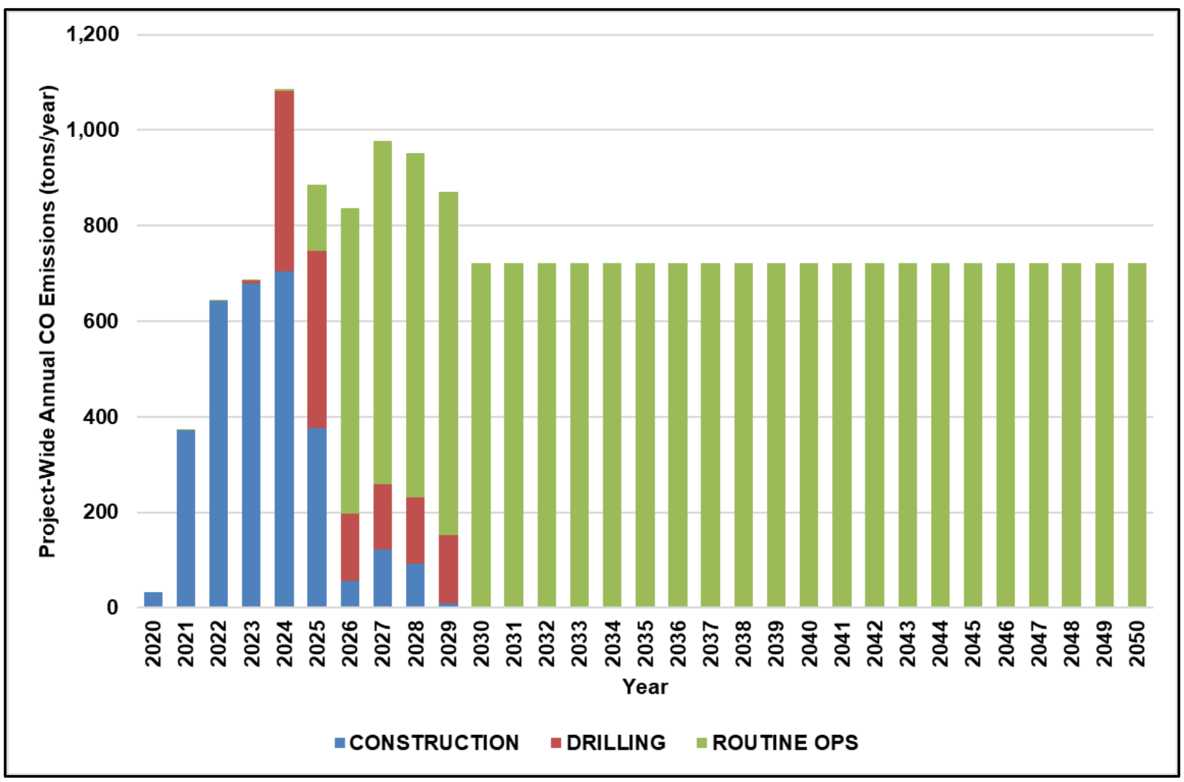

Figure 2.1-8 Alternative C (Disconnected Infield Roads) Annual CO Emissions by Project Phase

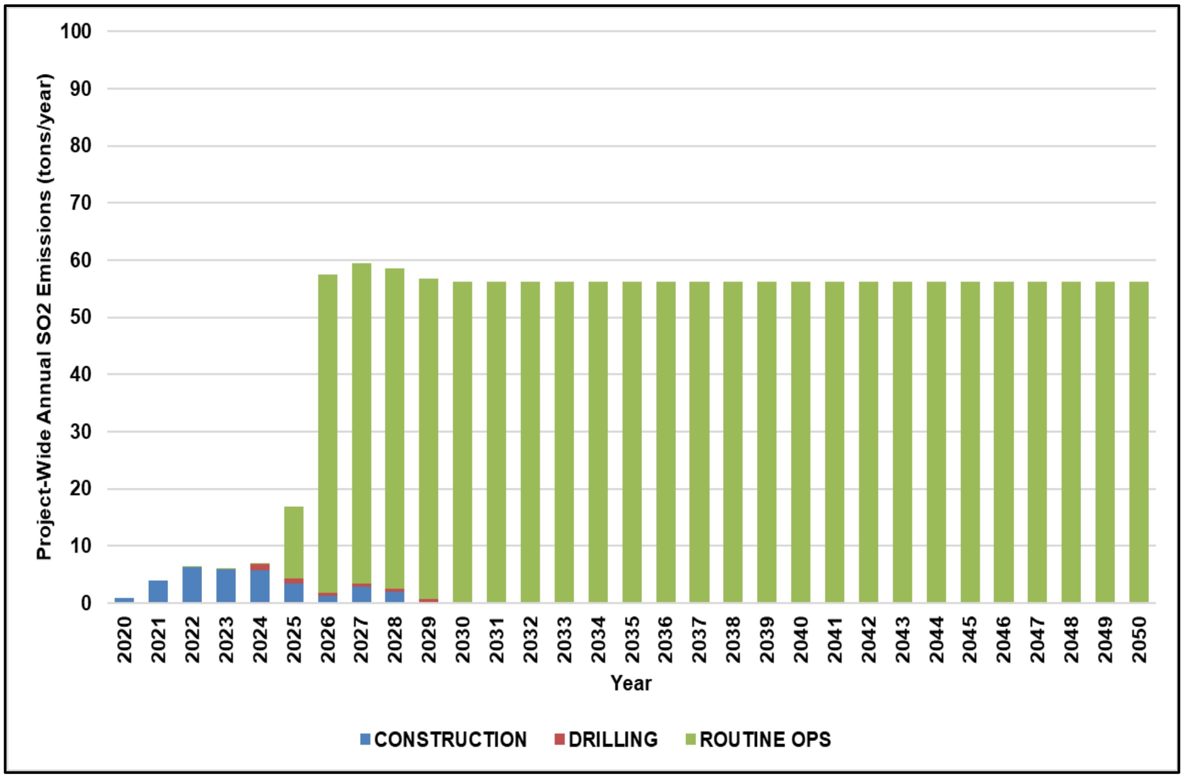

Figure 2.1-9 Alternative C (Disconnected Infield Roads) Annual SO_2 Emissions by Project Phase

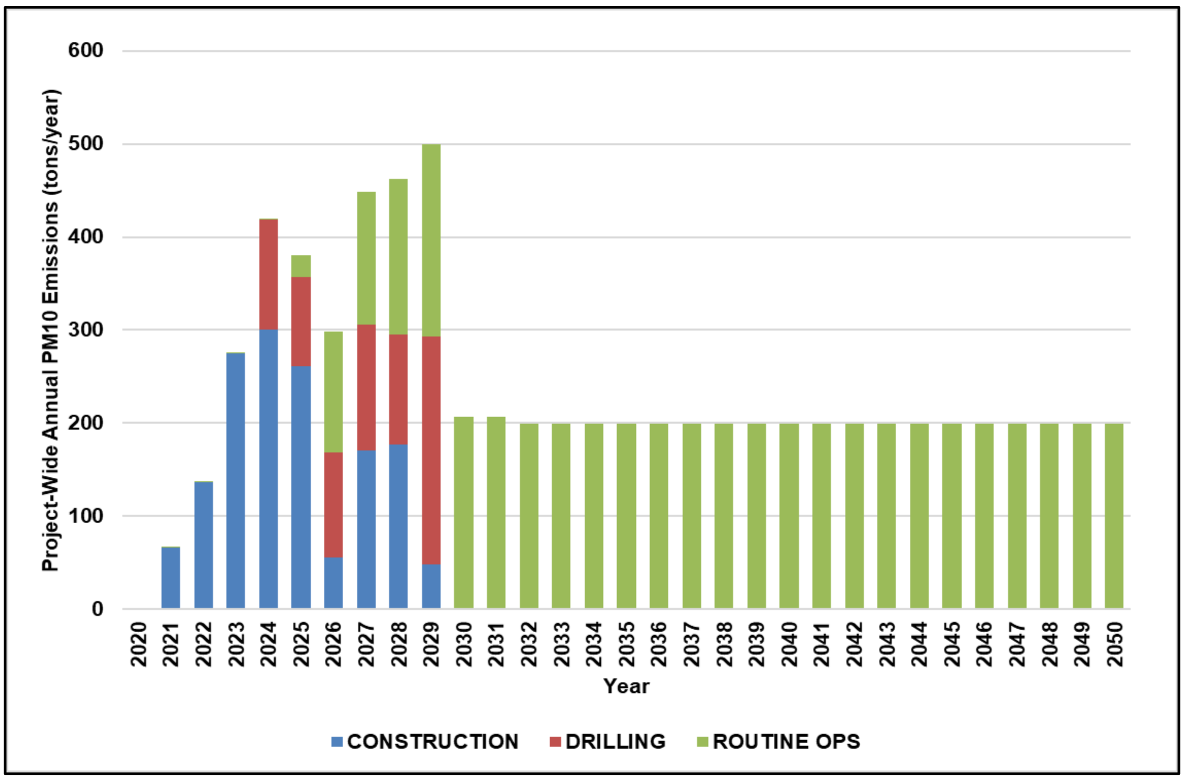

Figure 2.1-10 Alternative C (Disconnected Infield Roads) Annual PM_{10} Emissions by Project Phase

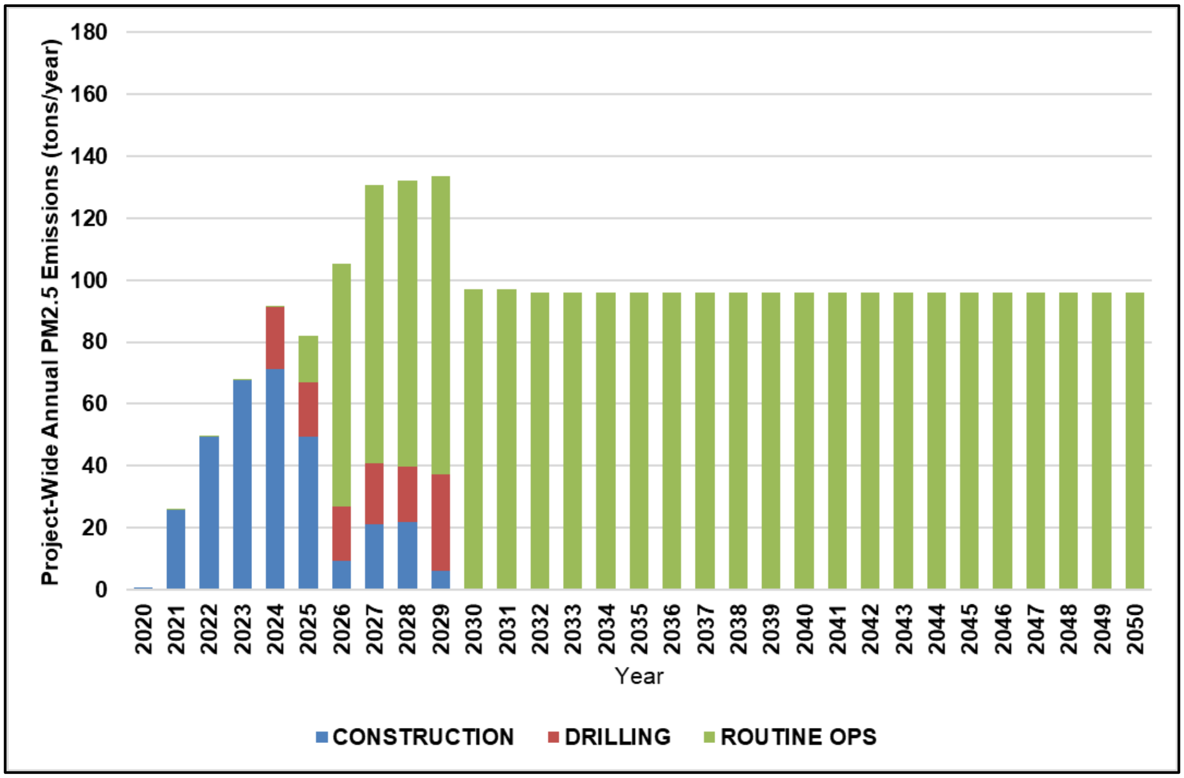

Figure 2.1-11 Alternative C (Disconnected Infield Roads) Annual $PM_{2.5}$ Emissions by Project Phase

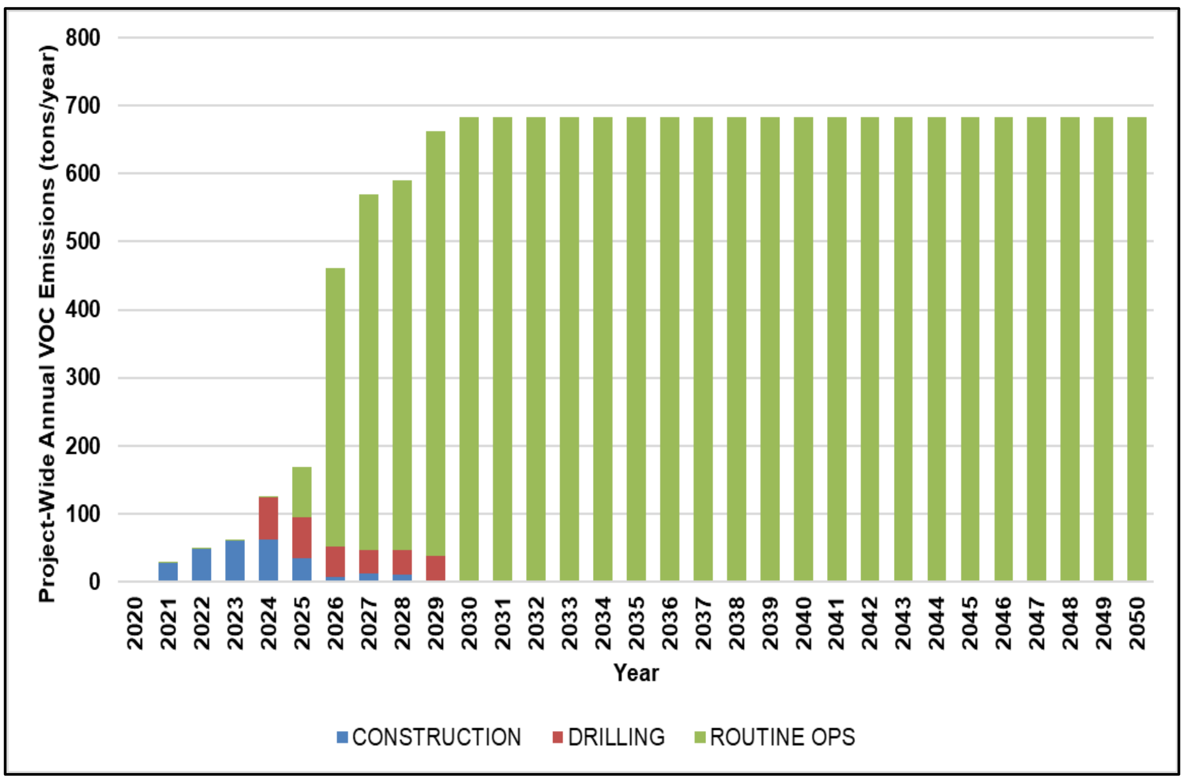

Figure 2.1-12 Alternative C (Disconnected Infield Roads) Annual VOC Emissions by Project Phase

2.1.5 Alternative D (Disconnected Access)

Alternative D would be identical to Alternative B with respect to the number of wells drilled, main Project features, and oil production. The main difference for Alternative D relative to Alternative B is the elimination of all-season gravel access road from the Willow Development Area to GMTU. The emission inventory for Alternative D was extended one year longer than Alternative B and Alternative C to account for the delayed production schedule for Alternative D. Section 1.1.4 "Alternative D: Disconnected Access" provides a description of Alternative D. Alternative B emission inventory spreadsheets were modified with Alternative D inputs provided by the Project proponent and information from the Project description to estimate Alternative D emissions. More information about the Alternative D emissions inventory is provided in Attachment D to this Air Quality Technical Support Document.

Table 2.1-14 shows annual criteria pollutant, VOCs, HAP, and GHG emissions for construction activities by year in Alternative D. The "Year 0" refers to the first year of construction which is a partial year. Table 2.1-15 shows annual Alternative D criteria pollutant, VOCs, HAP, and GHG emissions for drilling (including pre-drilling and developmental drilling) activities. Table 2.1-16 shows annual Alternative D criteria pollutant, VOCs, HAP, and GHG emissions for routine operation activities. Table 2.1-17 shows annual Alternative D criteria pollutant, VOCs, HAP, and GHG emissions summed across all Project activities. Alternative D annual emissions are shown graphically for each criteria pollutant by Project phase in Figure 2.1-13 to Figure 2.1-18.

Construction emissions increase from project start to their peak in 2023 or 2024, then decrease substantially from 2024 to 2025 before increasing to a second, smaller peak in project year 2028, then decreasing to 2030 when most construction activities are complete. Alternative D construction emissions peak in 2023 and 2024 when construction activity is highest and temporary power generators are being used exclusively to generate electricity. In 2025, routine operation phase power generation comes online, replacing construction phase temporary power generation. The cessation of construction phase temporary power generation results in substantial construction phase emissions reductions. Additionally, several key construction activities are slowing or have been completed by 2025: multi-season ice pads, gravel mining, drill site gravel pad construction, WOC construction, and bridge construction. In 2028, construction emissions reach a second peak as several construction activities start again: gravel mining, drill site gravel pad construction, bridge construction. Construction activities and emissions decrease after year 8.

The drilling phase includes three different activities: disposal well drilling at the WOC in 2023, pre-drilling from 2025-2026, and developmental drilling from 2027- 2030. For most pollutants, the largest drilling phase emissions occur during pre-drilling when diesel engines are used to power drill rigs, prior to developmental drilling during which highline electricity is used to power drill rigs. PM_{10} emissions are highest in 2030 when drilling phase on-road vehicle activity and hence fugitive dust emissions are highest.

Routine operations at the WPF are expected to commence in 4Q 2026 with commissioning of the WPF and the first drill site (BT1). Subsequent drill sites will be commissioned in the following years and continue operating until the end of field life in 2050. Routine operation emissions generally increase as routine operation facilities (e.g., WOC, WPF, and drill sites) are brought online and thereafter remain relatively constant.

Table 2.1-14 Alternative D (Disconnected Access) Annual Emissions from Construction Activities

Project Year	Total Emissions (tons per year [tpy]) Criteria Pollutants						Total Emissions (tons per year [tpy]) HAP						Total Emissions (tons per year [tpy]) GHGs
	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$	VOC	Benzene	Toluene	EthylBenzene	Xylene	n-Hexane	Formaldehyde	CO_2e
0 (2020)	22.6	33.3	0.9	1.3	0.6	1.5	0.0	0.0	0.0	0.0	0.0	0.3	4,057
1 (2021)	456.2	379.0	4.0	65.9	26.4	29.7	0.4	0.4	0.1	0.4	0.0	3.0	144,607
2 (2022)	510.8	397.9	4.1	152.0	37.1	34.4	0.5	0.5	0.1	0.5	0.1	3.8	157,681
3 (2023)	595.1	429.8	5.3	255.0	51.1	44.4	0.7	0.7	0.1	0.7	0.1	5.9	190,198
4 (2024)	597.5	422.9	3.9	280.7	54.1	47.2	0.6	0.6	0.1	0.6	0.1	4.9	188,413
5 (2025)	92.5	36.5	0.5	124.8	16.8	10.0	0.2	0.2	0.1	0.2	0.0	2.0	31,833
6 (2026)	61.3	26.5	0.2	95.5	13.0	6.7	0.2	0.2	0.0	0.1	0.0	1.4	23,786
7 (2027)	76.0	55.6	1.3	125.7	16.0	7.2	0.2	0.2	0.0	0.2	0.0	1.4	24,202
8 (2028)	136.5	129.9	2.9	152.9	20.0	12.9	0.3	0.3	0.1	0.3	0.0	2.7	40,787
9 (2029)	116.1	95.8	2.0	183.9	22.7	11.7	0.2	0.3	0.1	0.3	0.0	2.4	38,148
10 (2030)	27.7	11.1	0.1	77.1	9.0	3.0	0.1	0.1	0.0	0.1	0.0	0.6	10,109
11 (2031)	9.0	2.5	0.0	0.3	0.3	0.8	0.0	0.0	0.0	0.0	0.0	0.2	2,025
12 (2032)	9.0	2.5	0.0	0.3	0.3	0.8	0.0	0.0	0.0	0.0	0.0	0.2	2,025
13 (2033)	7.8	2.2	0.0	0.3	0.3	0.7	0.0	0.0	0.0	0.0	0.0	0.2	1,761
14 (2034)	7.8	2.2	0.0	0.3	0.3	0.7	0.0	0.0	0.0	0.0	0.0	0.2	1,761
15 (2035)	7.8	2.2	0.0	0.3	0.3	0.7	0.0	0.0	0.0	0.0	0.0	0.2	1,761
16-31 (2036-2051)	7.8	2.2	0.0	0.3	0.3	0.7	0.0	0.0	0.0	0.0	0.0	0.2	1,761

Table 2.1-15 Alternative D (Disconnected Access) Annual Emissions from Drilling Activities

Project Year	Total Emissions (tons per year [tpy]) Criteria Pollutants						Total Emissions (tons per year [tpy]) HAP						Total Emissions (tons per year [tpy]) GHGs
	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$	VOC	Benzene	Toluene	EthylBenzene	Xylene	n-Hexane	Formaldehyde	CO_2e
0 (2020)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
1 (2021)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
2 (2022)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
3 (2023)	3.8	5.3	0.0	0.3	0.3	0.4	0.0	0.0	0.0	0.0	0.0	0.0	1,728
4 (2024)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
5 (2025)	142.5	372.3	1.0	131.7	21.0	60.5	0.3	0.1	0.0	0.1	1.5	0.4	88,599
6 (2026)	142.5	372.3	1.0	131.7	21.0	60.5	0.3	0.1	0.0	0.1	1.5	0.4	88,599
7 (2027)	98.2	140.6	0.5	129.7	19.0	44.6	0.1	0.1	0.0	0.0	1.1	0.1	47,635
8 (2028)	97.1	137.1	0.5	99.9	16.0	34.9	0.1	0.1	0.0	0.0	0.8	0.1	46,242
9 (2029)	97.7	137.5	0.5	129.7	19.0	35.0	0.1	0.1	0.0	0.0	0.8	0.1	46,600
10 (2030)	98.4	137.9	0.5	146.3	20.7	35.1	0.1	0.1	0.0	0.0	0.8	0.2	46,913
11 (2031)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
12 (2032)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
13 (2033)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
14 (2034)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
15 (2035)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
16-31 (2036-2051)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-

Table 2.1-16 Alternative D (Disconnected Access) Annual Emissions from Routine Operation Activities

Project Year	Total Emissions (tons per year [tpy]) Criteria Pollutants						Total Emissions (tons per year [tpy]) HAP						Total Emissions (tons per year [tpy]) GHGs
	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$	VOC	Benzene	Toluene	EthylBenzene	Xylene	n-Hexane	Formaldehyde	CO_2e
0 (2020)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
1 (2021)	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	49
2 (2022)	0.5	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	62
3 (2023)	2.1	4.2	0.2	0.1	0.1	0.8	0.0	0.0	0.0	0.0	0.0	0.1	661
4 (2024)	2.5	4.5	0.3	2.9	0.5	0.8	0.0	0.0	0.0	0.0	0.0	0.1	780
5 (2025)	119.6	112.5	4.7	17.1	14.7	17.9	0.1	0.1	0.0	0.1	0.0	0.4	84,017
6 (2026)	250.1	238.1	16.9	45.1	29.9	64.9	0.2	0.4	0.1	0.2	1.9	0.8	304,545
7 (2027)	633.8	607.3	52.5	136.2	75.6	331.3	0.5	1.5	3.5	7.0	15.6	2.2	945,272
8 (2028)	637.2	609.4	52.6	136.9	75.9	431.8	0.6	1.8	6.1	12.0	21.9	2.2	948,567
9 (2029)	642.0	613.4	52.6	140.2	76.4	526.2	0.7	2.1	8.5	16.7	27.7	2.2	951,122
10 (2030)	648.5	618.3	52.7	146.3	77.4	606.5	0.8	2.3	10.5	20.7	32.7	2.2	955,453
11 (2031)	653.6	619.7	52.5	240.7	87.2	665.4	0.8	2.5	12.0	23.7	36.4	2.0	959,165
12 (2032)	653.6	619.7	52.5	234.6	86.2	665.0	0.8	2.5	12.0	23.7	36.4	2.0	959,165
13 (2033)	653.6	619.7	52.5	234.6	86.2	665.0	0.8	2.5	12.0	23.7	36.4	2.0	959,165
14 (2034)	653.6	619.7	52.5	234.6	86.2	665.0	0.8	2.5	12.0	23.7	36.4	2.0	959,165
15 (2035)	653.6	619.7	52.5	234.6	86.2	665.0	0.8	2.5	12.0	23.7	36.4	2.0	959,165
16-31 (2036-2051)	653.6	619.7	52.5	234.6	86.2	665.0	0.8	2.5	12.0	23.7	36.4	2.0	959,165

Table 2.1-17 Alternative D (Disconnected Access) Annual Emissions from All Project Activities

Project Year	Total Emissions (tons per year [tpy]) Criteria Pollutants						Total Emissions (tons per year [tpy]) HAP						Total Emissions (tons per year [tpy]) GHGs
	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$	VOC	Benzene	Toluene	EthylBenzene	Xylene	n-Hexane	Formaldehyde	CO_2e
0 (2020)	22.6	33.3	0.9	1.3	0.6	1.5	0.0	0.0	0.0	0.0	0.0	0.3	4,057
1 (2021)	456.7	379.3	4.0	65.9	26.4	29.8	0.4	0.4	0.1	0.4	0.0	3.0	144,656
2 (2022)	511.3	398.2	4.1	152.0	37.1	34.4	0.5	0.5	0.1	0.5	0.1	3.8	157,744
3 (2023)	601.0	439.3	5.5	255.3	51.4	45.6	0.7	0.8	0.1	0.7	0.1	6.0	192,587
4 (2024)	599.9	427.5	4.2	283.6	54.6	47.9	0.6	0.6	0.1	0.6	0.1	5.0	189,193
5 (2025)	354.6	521.2	6.1	273.6	52.5	88.4	0.6	0.5	0.1	0.4	1.5	2.7	204,449
6 (2026)	453.9	636.9	18.0	272.3	63.9	132.1	0.6	0.7	0.1	0.4	3.5	2.6	416,930
7 (2027)	808.1	803.6	54.4	391.7	110.6	383.1	0.7	1.8	3.6	7.1	16.7	3.8	1,017,109
8 (2028)	870.8	876.4	55.9	389.7	111.9	479.6	0.9	2.2	6.1	12.3	22.7	5.0	1,035,596
9 (2029)	855.8	846.7	55.1	453.9	118.2	572.9	1.0	2.4	8.5	17.0	28.5	4.7	1,035,870
10 (2030)	774.5	767.3	53.3	369.6	107.2	644.6	0.9	2.4	10.5	20.8	33.5	2.9	1,012,475
11 (2031)	662.6	622.2	52.5	241.0	87.5	666.2	0.8	2.5	12.0	23.7	36.4	2.2	961,190
12 (2032)	662.6	622.2	52.5	234.9	86.5	665.8	0.8	2.5	12.0	23.7	36.4	2.2	961,190
13 (2033)	661.4	621.9	52.5	234.8	86.5	665.7	0.8	2.5	12.0	23.7	36.4	2.2	960,927
14 (2034)	661.4	621.9	52.5	234.8	86.5	665.7	0.8	2.5	12.0	23.7	36.4	2.2	960,927
15 (2035)	661.4	621.9	52.5	234.8	86.5	665.7	0.8	2.5	12.0	23.7	36.4	2.2	960,927
16-31 (2036-2051)	661.4	621.9	52.5	234.8	86.5	665.7	0.8	2.5	12.0	23.7	36.4	2.2	960,927

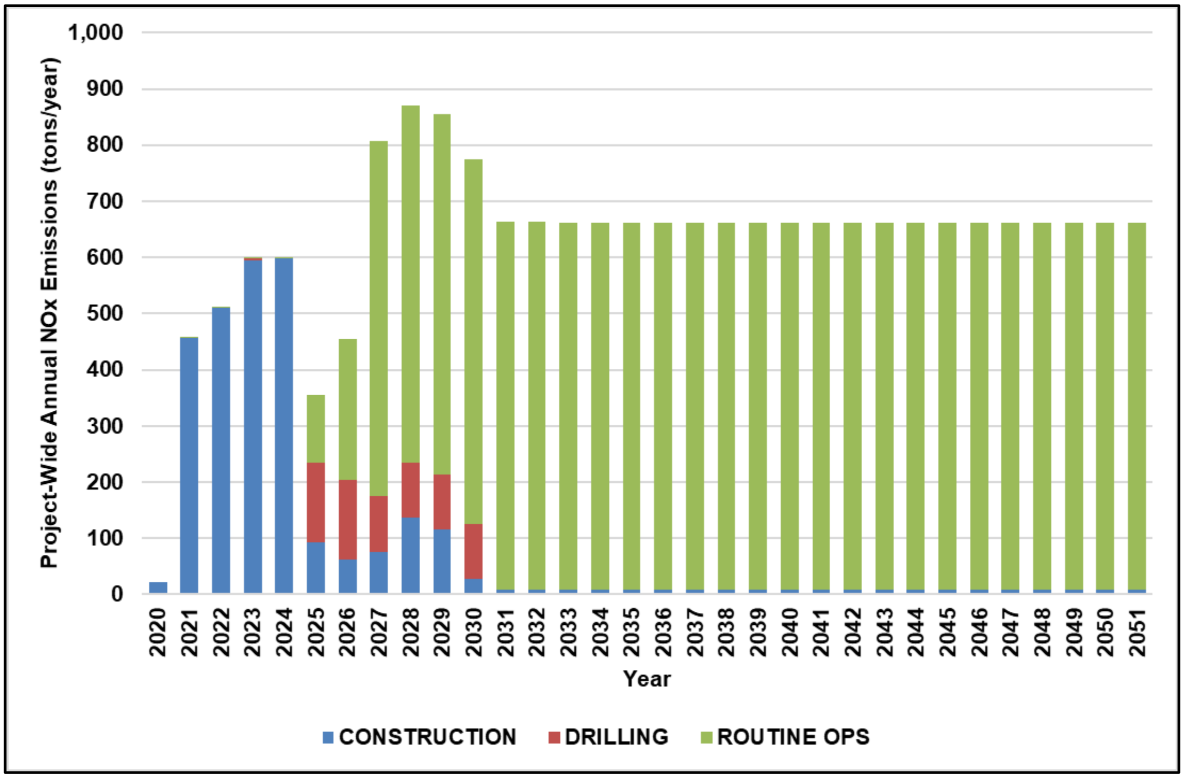

Figure 2.1-13 Alternative D (Disconnected Access) Annual NOx Emissions by Project Phase

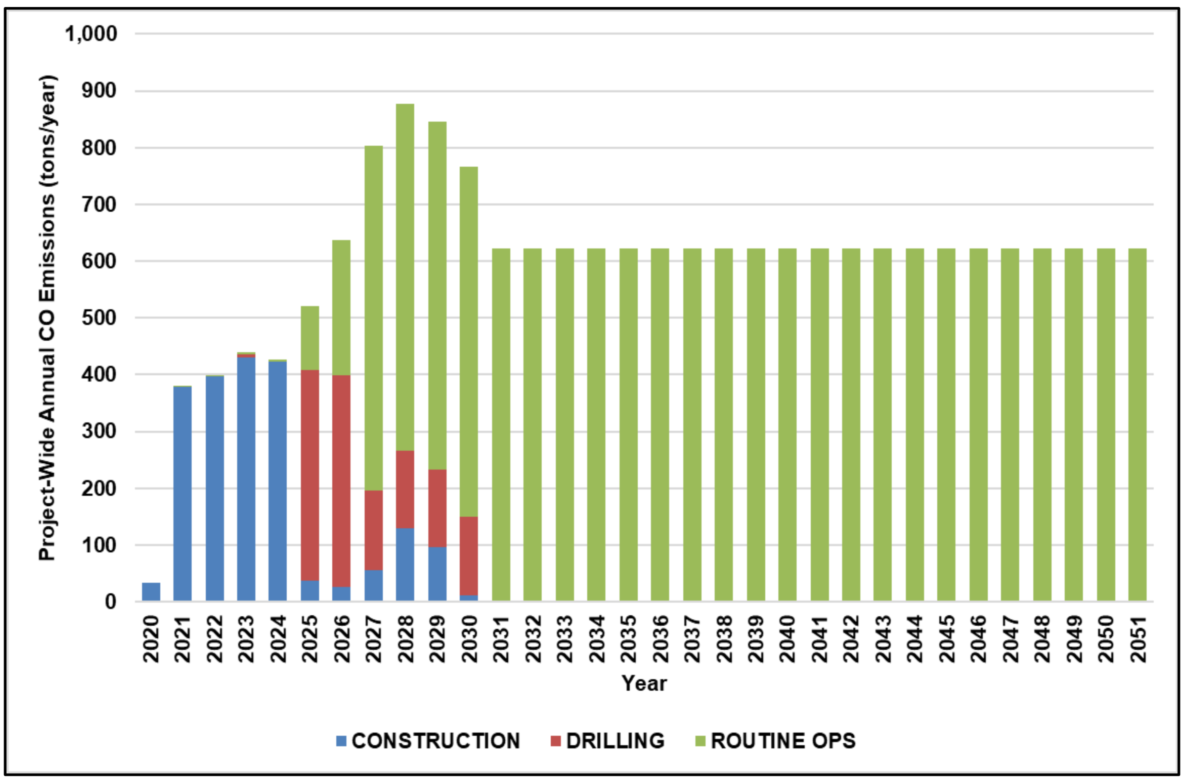

Figure 2.1-14 Alternative D (Disconnected Access) Annual CO Emissions by Project Phase

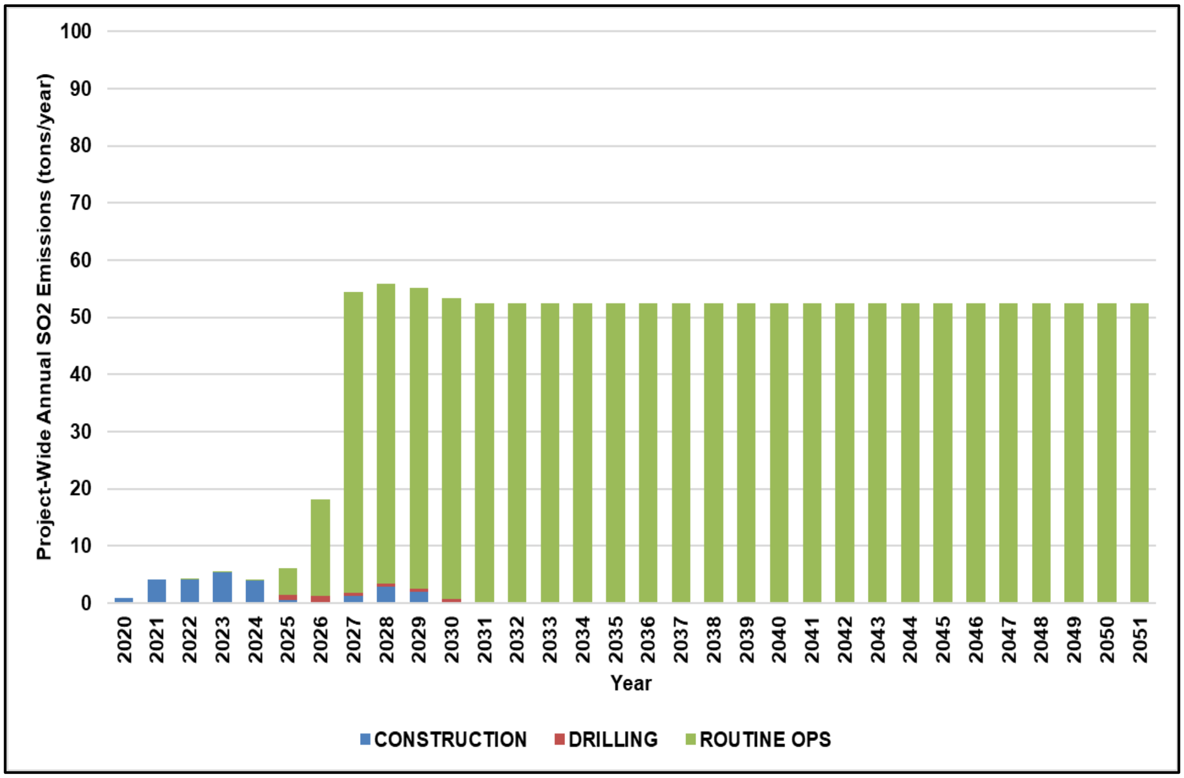

Figure 2.1-15 Alternative D (Disconnected Access) Annual SO_2 Emissions by Project Phase

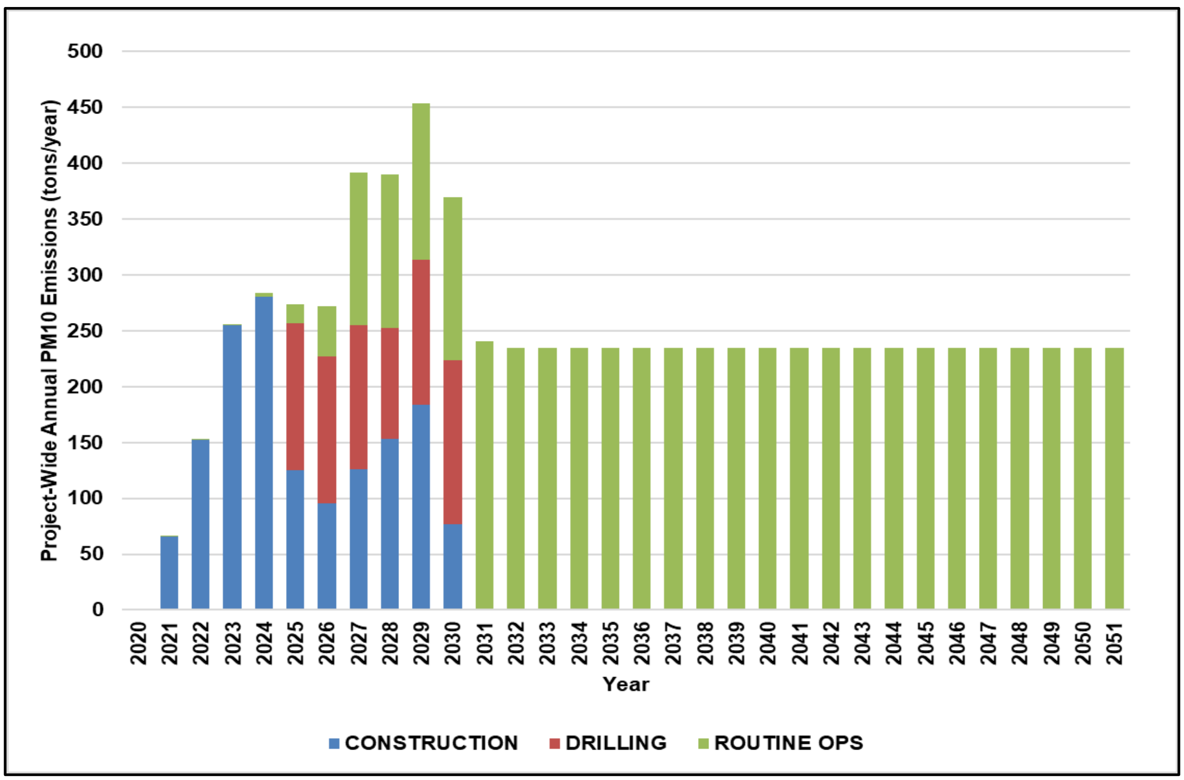

Figure 2.1-16 Alternative D (Disconnected Access) Annual PM_{10} Emissions by Project Phase

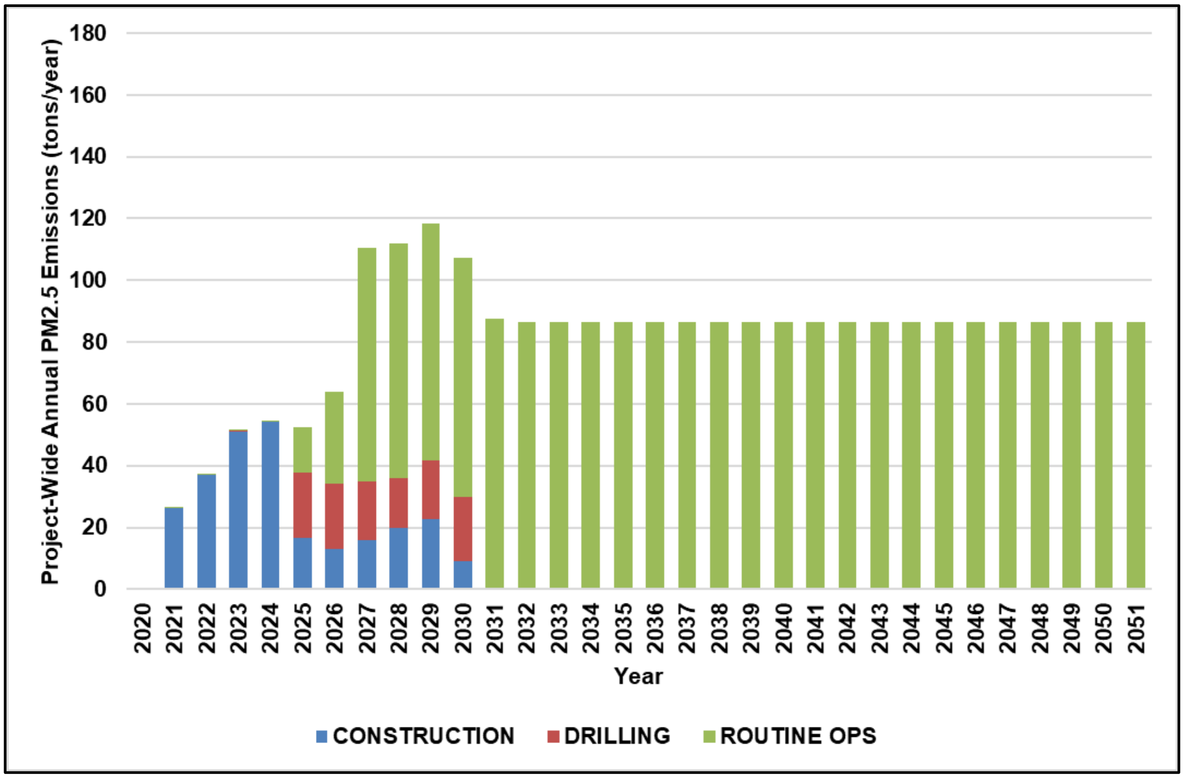

Figure 2.1-17 Alternative D (Disconnected Access) Annual $PM_{2.5}$ Emissions by Project Phase

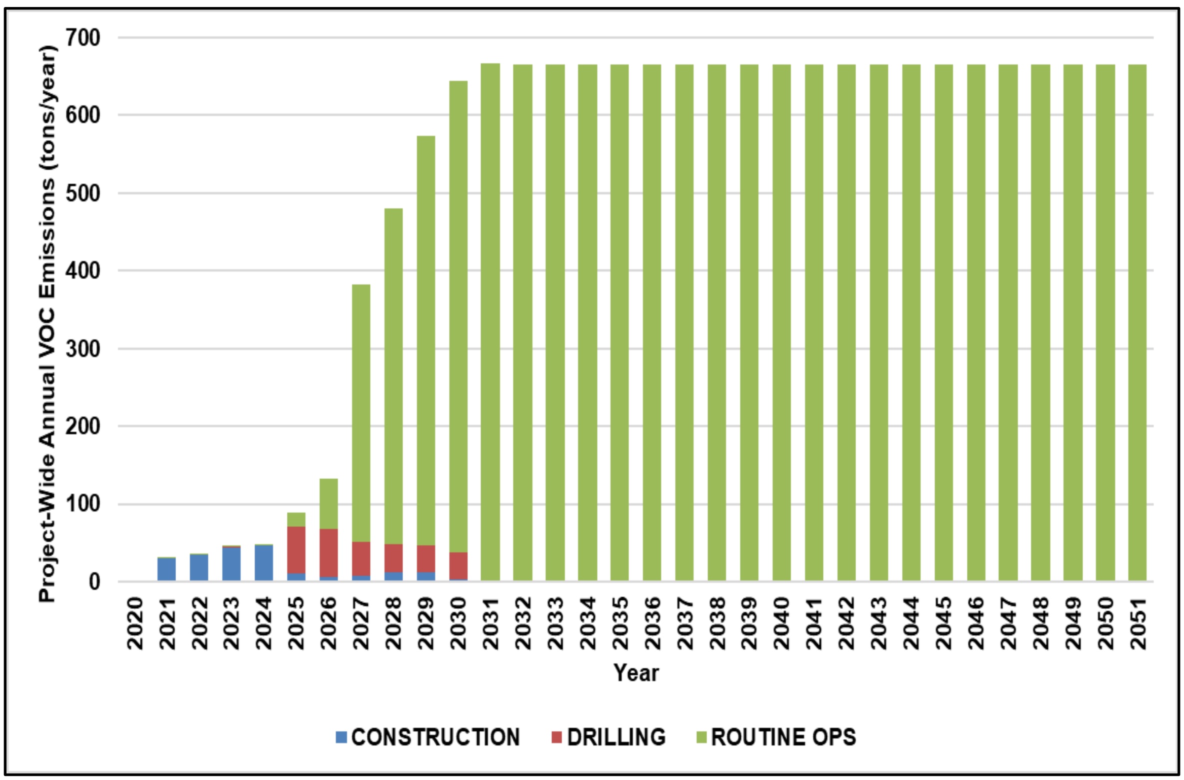

Figure 2.1-18 Alternative D (Disconnected Access) Annual VOC Emissions by Project Phase

2.1.6 Module Delivery Options

Sealift barges would be used to deliver processing and drill site modules near the Willow Development area under Alternatives B, C, and D. At the time that this inventory was developed, all three Module Delivery Options were being considered for Alternatives B, C, and D. Emission inventories were developed for activity associated with three Module Delivery options, Option 1, 2, and 3. Total life-of-Project emissions from the Module Delivery Options are the same under each Alternative except as follows: 1) for Alternative D, the Module Delivery Option schedule is delayed by one year, and 2) for Alternative D, Colville River Crossing (Option 3) requires increased ice road length, resulting in higher emissions for this option for Alternative D compared to Alternatives B and C. Section 1.1.5 “Module Delivery Options” provides a description of Module Delivery Options. Emissions for Module Delivery Options 1 and 2 are described in more detail in Attachment D to this Air Quality Technical Support Document and Module Delivery Option 3 is described in Attachment C.

Table 2.1-18 presents total life-of-Project emissions from each Module Delivery Option. Table 2.1-19 shows activity inputs for each Module Delivery Option. Option 2 emissions are higher than Option 1 and 3 emissions primarily as a result of longer distances required for vehicular travel between the Project area and the Point Lonely module delivery area (Option 2) compared to travel between the Project area and either the Point Atigaru nearshore staging area (Option 1) or Colville River Crossing (Oliktok Dock) (Option 3). Option 3 emissions are smaller than Option 1 emissions for all pollutants (except PM_{10}) because Option 1 includes greater emissions from construction of the module delivery area at Point Atigaru compared to construction emissions at Oliktok Dock. PM_{10} emissions are higher for Option 3 because Option 3 includes more vehicle travel during the months of May to October during which road dust emissions are estimated to occur.

Table 2.1-18 Total Emissions for each Module Delivery Option

Module Delivery Option	Total Criteria Emissions (tons)						Total HAPs (tons)	Total CO_2e (thousand metric tons)
	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$	VOC		
Option 1: Atigaru Point MTI	493	554	4	36	23	79	11	140
Option 2: Point Lonely MTI	1,059	1,200	6	83	50	172	22	341
Option 3 - Alt B/C	126	91	1	68	11	16	3	40
Option 3 - Alt D	141	95	1	68	12	17	3	43

Table 2.1-19 Activity Inputs for each Module Delivery Option

Activity	Parameter	Option 1: Atigaru Point MTI	Option 2: Point Lonely MTI	Option 3 – Alt B/C	Option 3 – Alt D	Unit
Ice Pads	Total Acres	59	128	30	30	acres
Ice Roads	Total Miles	111	225	80	105	miles
Gravel Mining	Total Gravel Requirement	397,000	446,000	118,700	118,700	million cubic yards (MCY)
Construction Total Traffic	Vehicle Miles Travelled (VMT)	91,154	242,621	20,996	20,996	thousand miles (kmile)
All Vessel	Total Sea Traffic	265	265	76	76	number
All Aircraft	Total Flights	680	776	86	86	number

2.1.6.1 *Module Delivery Option 1 (Atigaru Point Module Transfer Island)*

Table 2.1-20 presents annual emissions from Option 1 Module Delivery-related activities for Alternatives B and C and Table 2.1-21 presents annual emissions for Option 1 Module Delivery-related activities for Alternative D.

In Table 2.1-20 and Table 2.1-21 emissions drop substantially in project year 6 for Alternatives B and C and year 7 for Alternative D. Vehicle traffic is the largest emissions source category for all pollutants and vehicle traffic is highest during module transport. Module transport occurs in the winter months after the module has been delivered in the previous summer. The module option schedule for Alternatives B and C indicate that there is no module delivered in the summer of year 5 (year 6 for Alternative D), hence little activity and emissions from module transport in the winter of year 6 (year 7 for Alternative D).

Table 2.1-20 Option 1: Proponent's Module Transfer Island Annual Emissions – Alternatives B and C

Project Year	Total Emissions (tpy) Criteria Pollutants						Total Emissions (tpy) HAP						Total Emissions (tpy) GHGs
	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$	VOC	Benzene	Toluene	EthylBen-zene	Xylene	n-Hexane	Formalde-hyde	CO_2e
0 (2020)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
1 (2021)	1.9	1.6	0.0	0.2	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	830
2 (2022)	25.2	24.0	0.4	1.7	1.0	2.8	0.0	0.0	0.0	0.0	0.0	0.4	7493
3 (2023)	71.5	52.8	1.9	4.4	2.9	7.3	0.1	0.1	0.0	0.1	0.0	1.2	19236
4 (2024)	74.3	77.4	0.6	5.4	3.6	12.0	0.1	0.1	0.0	0.1	0.0	1.2	23745
5 (2025)	139.1	171.3	0.4	10.4	6.7	24.5	0.2	0.2	0.1	0.2	0.1	2.3	45604
6 (2026)	62.7	70.4	0.2	4.6	3.0	10.6	0.1	0.1	0.0	0.1	0.0	1.1	20392
7 (2027)	118.3	156.1	0.3	8.7	5.7	21.5	0.2	0.2	0.1	0.2	0.0	2.0	37294
8 (2028)	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
9 (2029)	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
10 (2030)	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
11+ (2031+)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Table 2.1-21 Option 1: Proponent's Module Transfer Island Annual Emissions – Alternative D (Disconnected Access)

Project Year	Total Emissions (tpy) Criteria Pollutants						Total Emissions (tpy) HAP						Total Emissions (tpy) GHGs
	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$	VOC	Benzene	Toluene	EthylBen-zene	Xylene	n-Hexane	Formalde-hyde	CO_2e
0 (2020)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
1 (2021)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2 (2022)	1.9	1.6	0.0	0.2	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	830.4
3 (2023)	25.2	24.0	0.4	1.7	1.0	2.8	0.0	0.0	0.0	0.0	0.0	0.4	7492.7
4 (2024)	71.5	52.8	1.9	4.4	2.9	7.3	0.1	0.1	0.0	0.1	0.0	1.2	19235.9
5 (2025)	74.3	77.4	0.6	5.4	3.6	12.0	0.1	0.1	0.0	0.1	0.0	1.2	23744.8
6 (2026)	139.1	171.3	0.4	10.4	6.7	24.5	0.2	0.2	0.1	0.2	0.1	2.3	45603.7
7 (2027)	62.7	70.4	0.2	4.6	3.0	10.6	0.1	0.1	0.0	0.1	0.0	1.1	20392.4
8 (2028)	118.3	156.1	0.3	8.7	5.7	21.5	0.2	0.2	0.1	0.2	0.0	2.0	37294.1
9 (2029)	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10 (2030)	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ (2031+)	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

2.1.6.2 *Module Delivery Option 2 (Point Lonely Module Transfer Island)*

Table 2.1-22 presents annual emissions from Option 2 Module Delivery-related activities for Alternatives B and C and Table 2.1-23 presents annual emissions from Option 2 Module Delivery-related activities for Alternative D.

In Table 2.1-22 and Table 2.1-23 emissions drop substantially in project year 6 for Alternative B/C and year 7 for Alternative D. Vehicle traffic is the largest emissions source category for all pollutants and vehicle traffic is highest during module transport. Module transport occurs in the winter months after the module has been delivered in the previous summer. The module option schedule for Alternatives B and C indicate that there is no module delivered in the summer of year 5 (year 6 for Alternative D), hence little activity and emissions from module transport in the winter of year 6 (year 7 for Alternative D).

Table 2.1-22 Option 2: Point Lonely Module Transfer Island Annual Emissions – Alternatives B and C

Project Year	Total Emissions (tpy) Criteria Pollutants						Total Emissions (tpy) HAP						Total Emissions (tpy) GHGs
	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$	VOC	Benzene	Toluene	EthylBe n-zene	Xylene	n-Hexane	Formald e-hyde	CO_2e
0 (2020)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
1 (2021)	3.1	3.0	0.0	0.3	0.2	0.5	0.0	0.0	0.0	0.0	0.0	0.0	1470
2 (2022)	52.9	45.7	0.5	3.9	2.1	6.4	0.1	0.1	0.0	0.1	0.0	0.8	18572
3 (2023)	151.7	106.6	2.2	10.3	6.6	18.1	0.3	0.3	0.1	0.3	0.1	2.7	52506
4 (2024)	145.3	164.4	0.8	11.5	7.0	24.1	0.2	0.2	0.1	0.2	0.1	2.3	51788
5 (2025)	307.8	381.0	0.9	24.9	14.7	53.5	0.4	0.4	0.2	0.4	0.1	4.6	111262
6 (2026)	127.6	150.8	0.4	10.0	6.1	21.8	0.2	0.2	0.1	0.2	0.1	2.1	45356
7 (2027)	270.8	348.0	0.8	21.5	13.0	47.9	0.4	0.3	0.1	0.3	0.1	4.2	94699
8 (2028)	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
9 (2029)	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
10 (2030)	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
11+ (2031+)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Table 2.1-23 Option 2: Point Lonely Module Transfer Island Annual Emissions – Alternative D (Disconnected Access)

Project Year[a]	Total Emissions (tpy) Criteria Pollutants						Total Emissions (tpy) HAP						Total Emissions (tpy) GHGs
	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$	VOC	Benzene	Toluene	EthylBen-zene	Xylene	n-Hexane	Formalde-hyde	CO_2e
0 (2020)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
1 (2021)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2 (2022)	3.1	3.0	0.0	0.3	0.2	0.5	0.0	0.0	0.0	0.0	0.0	0.0	1469.8
3 (2023)	52.9	45.7	0.5	3.9	2.1	6.4	0.1	0.1	0.0	0.1	0.0	0.8	18571.8
4 (2024)	151.7	106.6	2.2	10.3	6.6	18.1	0.3	0.3	0.1	0.3	0.1	2.7	52506.0
5 (2025)	145.3	164.4	0.8	11.5	7.0	24.1	0.2	0.2	0.1	0.2	0.1	2.3	51788.1
6 (2026)	307.8	381.0	0.9	24.9	14.7	53.5	0.4	0.4	0.2	0.4	0.1	4.6	111261.5
7 (2027)	127.6	150.8	0.4	10.0	6.1	21.8	0.2	0.2	0.1	0.2	0.1	2.1	45356.3
8 (2028)	270.8	348.0	0.8	21.5	13.0	47.9	0.4	0.3	0.1	0.3	0.1	4.2	94698.8
9 (2029)	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10 (2030)	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ (2031+)	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

2.1.6.3 *Module Delivery Option 3 (Colville River Crossing)*

Table 2.1-24 presents annual emissions from Option 3 Module Delivery-related activities for Alternatives B and C and Table 2.1-25 presents annual emissions from Option 3 Module Delivery-related activities for Alternative D.

In Table 2.1-24 and Table 2.1-25 emissions drop substantially in project year 6 for Alternative B/C and year 7 for Alternative D. Vehicle traffic is the largest emissions source category for all pollutants and vehicle traffic is highest during module transport. Module transport occurs in the winter months after the module has been delivered in the previous summer. The module option schedule for Alternatives B and C indicate that there is no module delivered in the summer of year 5 (year 6 for Alternative D), hence little activity and emissions from module transport in the winter of year 6 (year 7 for Alternative D).

Table 2.1-24 Option 3: Colville River Crossing Annual Emissions – Alternatives B and C

Project Year[a]	Total Emissions (tpy) Criteria Pollutants						Total Emissions (tpy) HAP						Total Emissions (tpy) GHGs
	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$	VOC	Benzene	Toluene	EthylBen-zene	Xylene	n-Hexane	Formalde-hyde	CO_2e
0 (2020)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
1 (2021)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
2 (2022)	1.2	3.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	137
3 (2023)	7.2	9.6	0.2	53.0	5.6	0.7	0.0	0.0	0.0	0.0	0.0	0.2	2154
4 (2024)	18.4	11.3	0.3	4.5	1.1	2.2	0.0	0.0	0.0	0.0	0.0	0.3	6029
5 (2025)	41.1	27.8	0.1	2.9	1.7	5.3	0.1	0.1	0.0	0.1	0.0	0.6	14920
6 (2026)	16.7	11.1	0.1	4.4	1.0	2.1	0.0	0.0	0.0	0.0	0.0	0.3	5948
7 (2027)	41.0	27.7	0.1	2.9	1.7	5.3	0.1	0.1	0.0	0.1	0.0	0.6	14874
8 (2028)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
9 (2029)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
10 (2030)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
11+ (2031+)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Table 2.1-25 Option 3: Colville River Crossing Annual Emissions – Alternative D (Disconnected Access)

Project Year[a]	Total Emissions (tpy) Criteria Pollutants						Total Emissions (tpy) HAP						Total Emissions (tpy) GHGs
	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$	VOC	Benzene	Toluene	EthylBen-zene	Xylene	n-Hexane	Formalde-hyde	CO_2e
0 (2020)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
1 (2021)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
2 (2022)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
3 (2023)	1.2	3.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	137
4 (2024)	7.2	9.6	0.2	53.0	5.6	0.7	0.0	0.0	0.0	0.0	0.0	0.2	2154
5 (2025)	20.6	11.9	0.4	4.5	1.1	2.4	0.0	0.0	0.0	0.0	0.0	0.3	6529
6 (2026)	46.6	29.3	0.1	3.1	1.9	5.8	0.1	0.1	0.0	0.1	0.0	0.7	16168
7 (2027)	18.9	11.7	0.1	4.4	1.1	2.3	0.0	0.0	0.0	0.0	0.0	0.3	6448
8 (2028)	46.5	29.2	0.1	3.1	1.9	5.8	0.1	0.1	0.0	0.1	0.0	0.7	16123
9 (2029)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
10 (2030)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
11+ (2031+)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

2.2 Cumulative Emissions for the Willow Alternatives

Cumulative emissions for the Willow MDP were developed as part of the DEIS. Cumulative emissions include emissions for the Willow Alternatives and the Greater Willow Potential Drill Sites #1 and #2. The emissions from Greater Willow Potential Drill Sites #1 and #2 would occur as part of any Willow alternative and module delivery option. In addition to the Willow MDP cumulative emissions, emissions from Reasonably Foreseeable Development (RFD) were included in the cumulative modeling analyses. The following sections describe the cumulative emissions inventory development process and the resulting emission estimates.

2.2.1 Greater Willow Potential Drill Sites #1 and #2

Cumulative emissions were estimated for the two Greater Willow Potential drill sites that would be developed after year 2035. The CPAI Environmental Effects Document (CPAI 2019) explains that the potential drill sites are part of the Willow MDP: "To support long-term planning, the Willow MDP also addresses potential future drill sites, the number and location of which depend on the results of potential future exploration activities. These potential future drill sites are addressed in the EED as reasonably foreseeable future developments for the purposes of analyzing cumulative impacts."

The following development phases are included in the cumulative Greater Willow Potential Drill Sites #1 and #2 emissions estimates:

- Construction emissions: Annual average emissions were calculated for BT1, BT2, BT4 and BT5 by calculating the monthly average emissions over all months of construction and multiplying by 12. BT3 construction emissions were not included as it is co-located with the WPF.
- Developmental drilling emissions: Annual emissions were calculated as the total emissions from the year 2032, which was chosen as representative as only one drill rig was operational in that year.
- Non-construction emissions: Annual emissions for BT1, BT2, BT4 and BT5 were calculated as the total emissions from the year 2036, as a representative year with all routine-operation activities occurring during the year.

Table 2.2-1 below summarizes total cumulative annual average emissions from Greater Willow Potential Drill Sites #1 and #2. Emissions from activities that do not occur on the pads, such as materials and personal transportation, are not included in emissions estimates. It is anticipated that routine operation emissions for the final years of the Project shown above in Table 2.1-9 for Alternative B would continue following development of Greater Willow Potential Drill Sites #1 and #2. Routine operation emissions would be in addition to the emissions explicitly calculated for the Greater Willow Potential Drill Sites #1 and #2 (shown below in Table 2.2-1). The GWP Drill sites 1 and 2 are assumed to use the Project WPF and WOC. Peak Project production is estimated to occur in either 2029 or 2030, before the operations of the Potential Drill Sites. The production declines subsequent to peak production, so the WPF and WOC are expected to be able to accommodate additional production from GWP Drill sites 1 and 2.

Table 2.2-1 Annual Emissions from Greater Willow Potential Drill Sites #1 and #2 Combined

Pollutant		Phase		
		Construction	Developmental Drilling	Routine Operations
Criteria Pollutants (tpy)	NO_x	17.0	118.5	13.5
	CO	7.2	115.4	11.2
	SO_2	0.1	0.5	0.3
	PM_{10}	1.6	30.8	1.0
	$PM_{2.5}$	1.3	9.9	0.8
	VOC	2.3	17.7	220.1
HAP (tpy)	Benzene	0.1	0.1	0.2
	Toluene	0.1	0.1	0.6
	Ethylbenzene	0.0	0.0	5.5
	Xylene	0.1	0.0	10.8
	n-Hexane	0.0	0.0	13.6
	Formaldehyde	0.5	0.1	0.0
GHGs (metric tpy)	CO_2e	8,468	48,504	8,476

2.2.2 Reasonably Foreseeable Development

Table 2.2-2 lists the existing sources that have planned modifications, current known RFDs, and projects that were considered but lacked sufficient information and thus were eliminated from further consideration. RFDs were included in the cumulative near-field modeling (routine operations scenario) and cumulative far-field modeling analysis. All RFDs located within the near-field analysis area (defined as being within 50 km of the Willow Alternative B Infrastructure Pad) were included in the near-field analysis. RFDs located within the 4 km resolution far-field model domain are included in the cumulative far-field modeling if the project was not already included as part of the BOEM regional emissions database used for this Project. The locations of the RFDs carried forward in the cumulative near-field and far-field modeling are shown in Figure 2.2-1.

Table 2.2-2 Existing and RFD Sources for Cumulative Assessment

Name of Facility	Miles from Willow Infrastructure Pad	Kilometers from Willow Infrastructure Pad	Included in Near-field Modeling	Included in Far-field Modeling	Notes
Modifications to Existing Sources					
TDX Deadhorse Power Plant	77	124	No	Yes	
ExxonMobil Point Thomson Facility Expansion	133	214	No	Yes	Project is already included in the BOEM Future Year database used in the Willow EIS, so duplicate emissions were not added explicitly to the cumulative far-field modeling analysis
RFD Sources					
Nanushuk Pad (proposed)	41	66	No	Yes	
Nanushuk Drill Site 2 (proposed)	37	60	No	Yes	
Nanushuk Drill Site 3 (proposed)	34	55	No	Yes	
Nanushuk Operations Center (proposed)	41	66	No	Yes	
Eni Nikaitchuq Development	60	97	No	Yes	
Pioneer Oooguruk Development	47	76	No	Yes	
BPXA Liberty	106	171	No	Yes	Project is already included in the BOEM Future Year database used in the Willow EIS, so duplicate emissions were not added explicitly to the cumulative far-field modeling analysis
CPAI GMT1	17	27	Yes	Yes	Project is already included in the BOEM Future Year database used in the Willow EIS, so duplicate emissions were not added explicitly to the cumulative far-field modeling analysis
CPAI GMT2	11	18	Yes	Yes	
Mustang Pad	44	71	No	Yes	

Name of Facility	Miles from Willow Infrastructure Pad	Kilometers from Willow Infrastructure Pad	Included in Near-field Modeling	Included in Far-field Modeling	Notes
Greater Willow Potential Drill Site #1	14	23	Yes	No	Source not anticipated to be operational in 2025, the selected analysis year for the cumulative far-field modeling.
Greater Willow Potential Drill Site #2	8	13	Yes	No	Source not anticipated to be operational in 2025, the selected analysis year for the cumulative far-field modeling.
RFD Sources Considered and Eliminatated					
Nuna					Insufficient information about this project as of November 1, 2018
Brooks Range Petroleum North Shore (source #2)					Project concluded to be cancelled. Project was presented as RFD in GMT1, but removed for GMT2. Web Searches provided no information to indicating project development
Shell Discover Camden Bay (Source #2)					Insufficient information about this project as of November 1, 2018

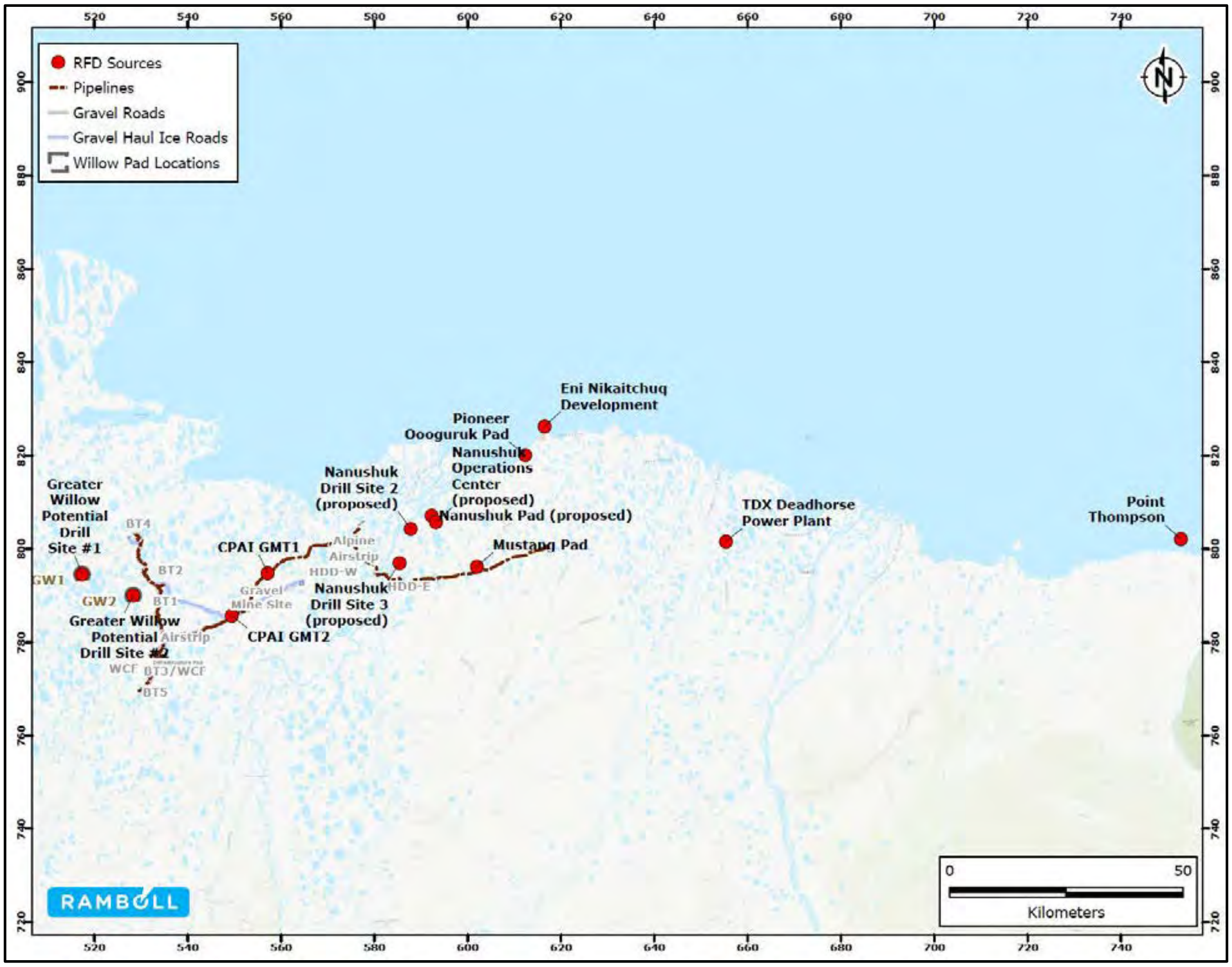

Figure 2.2-1 Locations of RFD Sources Relative to Willow Master Development Plan Project Area.

2.3 Emissions Inventories Prepared for Modeling

The Willow MDP emissions inventories developed for Alternatives B, C, and D as described and reported in Section 2.1 "Willow Alternatives Emissions Inventories" were used for the near-field model. The Willow MDP emissions inventories developed for Alternatives B, C and D as described in the DEIS (Appendix E.3B Section 2.1) were used for the regional photochemical grid model, the reason for which is described in Section 3.3.2.3.2 of the FEIS. The development of these inventories for use in modeling are described in more detail in the following sections.

2.3.1 Near-field Emissions Inventories

The AERMOD model incorporates detailed information about the sources, emission rates over various averaging periods, emission release parameters, and effects of any structures on emission dispersion properties. Information provided as part of the emissions inventory were used to estimate peak emission rates for each modeled source over the averaging periods assessed with the AERMOD model. These averaging periods are based on AAQS and include 1-hour, 3-hour, 8-hour, 24-hour and annual periods. The variation in averaging times based on AAQS affects how the emissions from the emission inventory (described in Section 2.1 "Willow Alternatives Emissions Inventories") is prepared for near-field modeling. For example, for a hypothetical source that operates for only three hours a day, the 1-hour average and 3-hour average emissions rate for that source is calculated based on operation over the period; however, for longer averaging periods the emissions over that averaging period are averaged (i.e., total emissions over a three-hour period are divided by the modeled averaging period).

Other factors are also considered during the development of the near-field emissions inputs including the timing and location of emissions sources. For example, when it is known that emissions sources could not be active simultaneously, these sources are not modeled in the same location at the same time. More detailed information on the near-field emissions inventory input preparation process is provided in Chapter 3.

The AERMOD model also requires detailed information about the emissions release parameters. Release parameters are commonly referred to as "stack parameters" even though in some cases the emissions are not emitted from a "stack". Necessary stack parameters depend on the source. Point sources require inputs such as stack height aboveground, temperature of the exhaust gas, velocity of exhaust gas, and stack diameter. Volume and area sources require information including release height, source height, length and width. Often this type of information is estimated based on the type of source and common best practices. The modeled source locations, stack parameters, and emission rates are included in Attachment A.

2.3.2 Regional Emissions Inventories

This section provides a brief overview of the regional emissions scenarios modeled for the Willow MDP EIS: the 2012 Base Year, the Cumulative No Project scenario, Cumulative Alternative B, and Cumulative Alternative C. Alternative C was selected for the far-field modeling analysis rather than Alternative D because the peak emissions for Alternative C is greater than Alternative D (shown via a comparison of Table 2.1-13 and Table 2.1-17). The Cumulative No Project scenario has all emissions in the Cumulative Alternative B (or C) scenario except for Project emissions. Importantly, regional air quality was not remodeled using the emissions inventory developed for the Project in this Final EIS because the regional air impact assessment for the Draft EIS showed that cumulative and Project-specific impacts were below all applicable thresholds throughout the modeling domain. Additionally, Project emissions of CAPs are small relative to regional emissions (up to 6.0 % of regional emissions depending on pollutant) and changes to Project emissions between Draft EIS and Final EIS are an even smaller fraction of regional emissions (up to 4.3% depending on pollutant). For background information on the emissions, see the emissions inventories discussed in Sections 2.3.2.2 and 2.3.2.3 of this AQTSD and in Chapter 2 of the AQTSD for the Draft EIS.

The maximum NOx emissions year was selected for far-field modeling analysis based on input from the Willow MDP EIS Air Quality Technical Workgroup. For both Alternative B and C, the peak NO_X emissions year based on the emissions inventory for the Draft EIS is Project Year 5, which corresponds with calendar year 2025, so 2025 was used for the Alternative A (No Action) and C regional emissions.

Willow MDP emissions scenarios were modeled with the CAMx modeling system to estimate cumulative and Project-specific impacts to ambient air quality and AQRVs as described in Chapter 4. The SMOKE model was used to prepare and process emissions inputs into the format required by CAMx. An emissions inventory for all sources within the model domains is required for regional modeling (a map of the model domains is provided in Chapter 4). A complete emissions inventory for photochemical modeling includes point sources, area sources, nonroad and on-road mobile sources, as well as sea salt, dust, biogenic emissions, lightning-related emissions, and fire emissions. These emissions were developed for year 2012 and, are from the BOEM modeling platform (Fields Simms et al 2018, Stoeckenius et al 2017), described in Section 1.2.2.2 "Regional Modeling". Windblown dust emissions are not included in the BOEM modeling platform (and therefore the Willow EIS) as well as other typical regional photochemical applications. Not including windblown dust emissions might ordinarily have a potential to result in an underestimate in model results; however, this is unlikely as noted below because soil (dust) concentrations are still overestimated in the model as discussed below. The BOEM modeling platform sea salt and regional unpaved road dust emissions were revised for the Willow MDP EIS due to observable overestimates noted in the BOEM study as discussed below and subsequent analyses conducted for the Willow MDP EIS (see below and Attachment B for more information).

The BOEM study (Fields Simms et al 2018) reported an overestimation of the sea salt emissions that resulted in an overestimation of particulate nitrate. Updated sea salt emissions were subsequently developed by BOEM for sensitivity analyses (Stoeckenius et al 2017). For the Willow MDP EIS the updated sea salt emissions were applied throughout all scenarios including the 2012 Base Year, model performance evaluation and future year scenarios. Estimates of the magnitude of road dust emissions were highly uncertain in the BOEM study emissions inventory due mainly to the necessary use of non-local data for estimating emissions (Fields Simms et al., 2014). As discussed in Attachment B "Willow MDP Model Performance Evaluation" Section B.2.5, it was determined that modeled ground-level dust concentrations due to the BOEM regional unpaved road dust emissions were considerably overestimated relative to monitored dust concentrations and therefore, the regional unpaved road dust emissions from the BOEM modeling platform revised downwards; the revised model performance improved considerably as a result of the correction. See Attachment B "Willow MDP Model Performance Evaluation" Section B.2.5 for more information regarding the revisions to the regional unpaved road dust emissions and the associated improvement in the model performance. For the future year analyses, three emissions inventories were developed and processed with SMOKE. The Cumulative No Project scenario emissions inventory was developed based on the BOEM modeling platform with the RFD emissions sources updated to be consistent with the most recent available sources of information, as described in Section 2.2.2 "Reasonably Foreseeable Development". The Cumulative Willow MDP emissions include two potential drill sites that are part of the Willow Master Development Plan, as described in Section 2.2.1 "Greater Willow Potential Drill Sites #1 and #2". The potential future drill sites are not anticipated to begin development until after 2035. Therefore, the Greater Willow Potential Drill Sites #1 and #2 are not included in the regional cumulative emissions inventory (but modeled in the near-field cumulative analysis).

The Cumulative Alternative B Alternative emissions inventory was developed by combining the Alternative B 2025 emissions inventory with the Cumulative No Project scenario inventory. The Cumulative Alternative C Alternative emissions inventory was developed by combining the Alternative C 2025 emissions inventory with the Cumulative No Project scenario inventory.

2.3.2.1 *2012 Base Year*

Table 2.3-1 through 2.3-3 below shows the 2012 4 km domain Base Year emissions including the emissions for key source groups. Table 2.3-1 shows the BOEM modeling platform 4 km resolution domain emissions (Fields Simms et al 2018, Stoeckenius et al 2017) prior to sea salt and unpaved road dust modifications. Sodium (Na) emissions are provided to disclose changes to the sea salt emissions.

Table 2.3-2 shows the 2012 Willow MDP Base Year emissions modeled in the far-field model which include reductions to sea salt and unpaved road dust. Table 2.3-3 shows the difference between the

2012 Willow MDP Base Year 4 km domain emissions and the BOEM 4 km domain emissions. The 2012 4 km domain Base Year emissions spatial distribution used for the far-field modeling is shown in Figure 2.3-1.

Table 2.3-1 BOEM 4 km Domain Base Year Emissions Inventory

Source Sector	BOEM 4 km Domain 2012 Base Year Emissions (tpy)						
	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$	VOC	Na
North Slope Borough Baseline Emissions Excluding Oil and Gas	2,221	3,598	165	34,441	3,599	818	9
North Slope Borough Baseline Oil and Gas	45,509	10,748	1,119	1,243	1,203	2,241	-
Emissions Outside North Slope Borough	25,055	550	22	13,774	11,269	127	102,407
Biogenic	1,782	25,106	-	-	-	150,967	-
Fire	482	8,829	88	392	1,207	392	-
Total 4 km Domain	**75,049**	**48,831**	**1,394**	**49,850**	**17,278**	**154,545**	**102,416**

Table 2.3-2 Willow MDP EIS 4 km Domain Base Year Emissions Inventory

Source Sector	Willow 4 km Domain 2012 Base Year Emissions (tpy)						
	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$	VOC	Na
North Slope Borough Baseline Emissions Excluding Oil and Gas	2,221	3,598	165	3,607	513	818	2
North Slope Borough Baseline Oil and Gas	45,509	10,748	1,119	1,243	1,203	2,241	-
Emissions Outside North Slope Borough	25,147	573	24	3,929	1,423	130	6,130
Biogenic	1,782	25,106	-	-	-	150,967	-
Fire	482	8,829	88	392	1,207	392	-
Total 4 km Domain	**75,141**	**48,854**	**1,396**	**9,171**	**4,346**	**154,548**	**6,132**

Table 2.3-3. Emission Differences between Willow and BOEM 4 km Domain Base Year Emissions

Source Sector	Willow 4 km Domain 2012 Base Year Emissions Minus BOEM 2012 Emiss. (tpy)						
	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$	VOC	Na
North Slope Borough Baseline Emissions Excluding Oil and Gas	0	0	0	-30,834	-3,086	0	-7
North Slope Borough Baseline Oil and Gas	0	0	0	0	0	0	-
Emissions Outside North Slope Borough	91	23	3	-9,845	-9,846	3	-96,277
Biogenic	0	0	-	-	-	0	-
Fire	0	0	0	0	0	0	-
Total 4 km Difference[a]	**91**	**23**	**3**	**-40,679**	**-12,932**	**3**	**-96,284**

[a] Small differences of less than 1 percent of the 4 km domain emissions occur due to updated species mapping used for the Willow MDP emissions processing

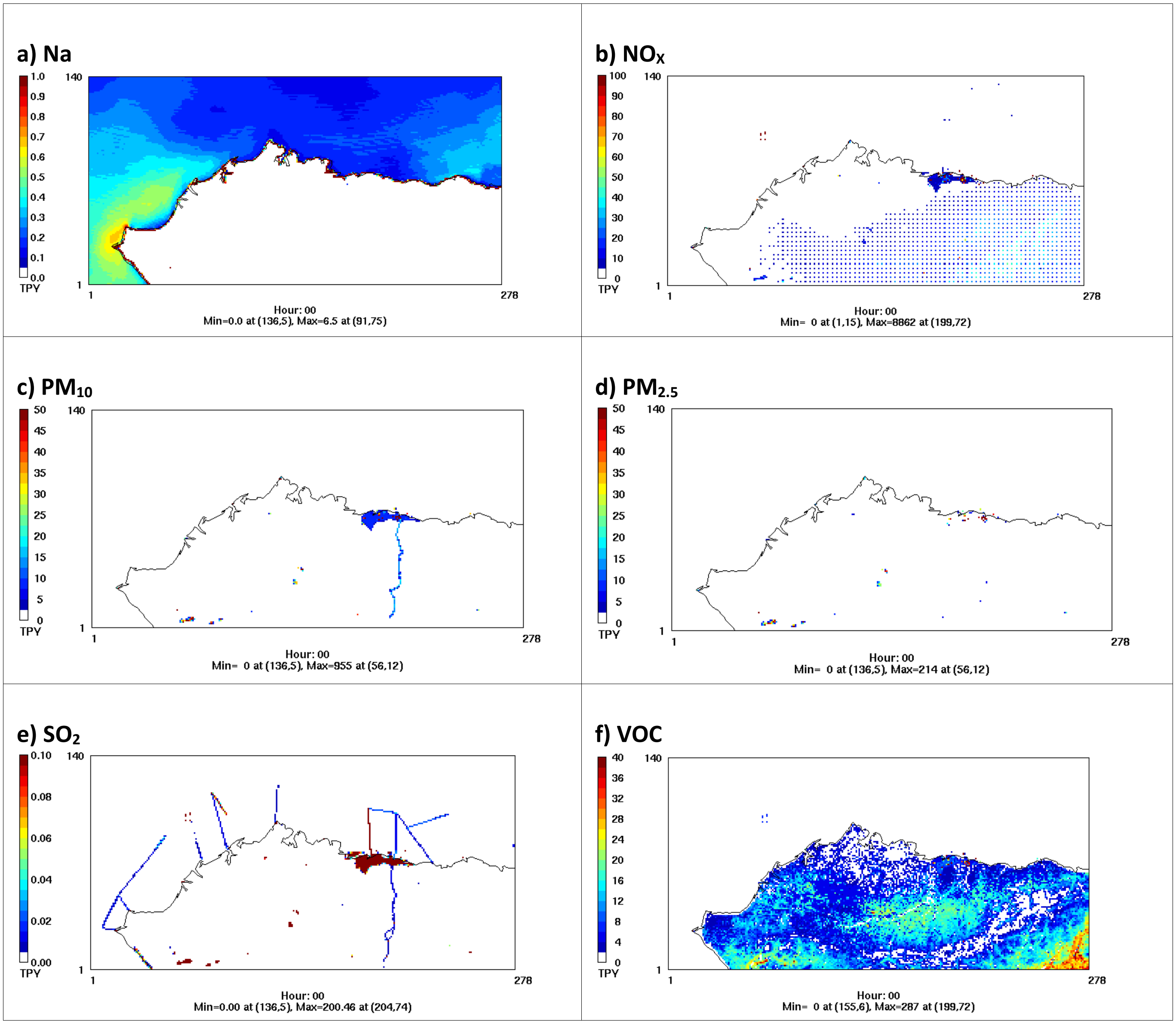

Figure 2.3-1 Willow Base Year Emissions a) Na, b) NO_X, c) PM_{10}, d) $PM_{2.5}$, e) SO_2, f) VOC

2.3.2.2 *Cumulative 2025 No Project Scenario*

Table 2.3-4 though Table 2.3-6 below shows the Cumulative 2025 No Project emissions including the emissions for key source groups. Table 2.3-4 shows the BOEM modeling platform 2020 4 km resolution domain emissions (Fields Simms et al 2018, Stoeckenius et al 2017) prior to sea salt and unpaved road dust modifications. Table 2.3-5 shows the Cumulative 2025 No Project emissions modeled in the far-field model which include revisions reductions to sea salt and unpaved road dust and additions of new RFD sources (described in Section 2.2.2 "Reasonably Foreseeable Development"). Table 2.3-6 shows the difference between the Cumulative 2025 No Project 4 km domain emissions and the BOEM modeling platform 2020 4 km domain emissions. The Cumulative 2025 No Project 4 km domain emissions spatial distribution used for the far-field modeling is shown with Alternative B in Figure 2.3-2.

Table 2.3-4 BOEM 4 km Domain 2020 Future Year Emissions Inventory

Source Sector	BOEM 4 km Domain 2020 Future Year Emissions (tpy)						
	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$	VOC	Na
North Slope Borough Baseline Emissions Excluding Oil and Gas	2,368	3,651	103	34,442	3,600	826	9
North Slope Borough Baseline Oil and Gas	45,627	11,942	1,130	1,260	1,220	2,302	0
BOEM 2020 Oil and Gas Development	30,751	7,829	1,955	1,860	1,433	1,769	0
Non-Oil and Gas Emissions Outside North Slope Borough	24,680	510	18	13,758	11,254	40	102,407
Biogenic	1,782	25,106	-	-	-	150,967	-
Fire	482	8,829	88	392	1,207	392	-
Total 4 km	**105,690**	**57,867**	**3,294**	**51,712**	**18,714**	**156,296**	**102,416**

Table 2.3-5 Willow 4 km Domain 2025 No Project Emissions Inventory

Source Sector	Willow 4 km Domain 2025 Future Year (No Project) Emissions (tpy)						
	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$	VOC	Na
North Slope Borough Baseline Emissions Excluding Oil and Gas	2,368	3,651	103	3,649	555	826	2
North Slope Borough Baseline Oil and Gas	45,627	11,942	1,130	1,260	1,220	2,302	0
BOEM 2020 Oil and Gas Development	35,757	7,829	2,509	3,041	1,708	2,612	0
Non-Oil and Gas Emissions Outside North Slope Borough	24,668	510	16	3,908	1,405	37	6,130
Biogenic	1,782	25,106	-	-	-	150,967	-
Fire	482	8,829	88	392	1,207	392	-
Total 4 km	**110,684**	**57,867**	**3,846**	**12,250**	**6,095**	**157,136**	**6,132**

Table 2.3-6 Differences between Willow 4 km Domain 2025 No Project Emissions and BOEM 4 km Domain 2020 Emissions

Source Sector	Willow 4 km Domain 2025 Future Year (No Project) Emissions-BOEM 2020 (tpy)						
	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$	VOC	Na
North Slope Borough Baseline Emissions Excluding Oil and Gas	0	0	0	-30,793	-3,046	0	-7
North Slope Borough Baseline Oil and Gas	0	0	0	0	0	0	0
BOEM 2020 Oil and Gas Development	5,005	0	554	1,181	275	843	0
Non-Oil and Gas Emissions Outside North Slope Borough	-11	0	-1	-9,850	-9,849	-2	-96,277
Biogenic	0	0	-	-	-	0	-
Fire	0	0	0	0	0	0	-
Total 4 km Difference[a]	**4,994**	**0**	**553**	**-39,462**	**-12,620**	**841**	**-96,284**

[a] Small differences of less than 1 percent of the 4 km domain emissions occur due to updated species mapping used for the Willow MDP emissions processing

2.3.2.3 *Cumulative 2025 Alternative B (Proponent's Project)*

Table 2.3-6 shows the Alternative B annual emissions processed in SMOKE.[9] The emissions at the drill sites, the WPF, IP, Willow airstrip, gravel mine and horizontal directional drilling under the Colville River were modeled as point sources at the pad center. All other Project emissions such as general construction, mobile sources, pigging, and fugitive dust emissions were modeled as area sources and allocated to the Project area using a combination of linear features (i.e., roads) and all Project features. Note that the Project fugitive dust emissions of PM_{10} and $PM_{2.5}$ used in the modeling shown below for Alternative B (as well as Alternative C) were based on the emissions inventory developed for the Willow MDP Draft EIS which included a fugitive dust control (reduction) efficiency of 76% resulting from watering and a vehicle speed limit of 35 miles per hour (described in Attachment C to the Air Quality Technical Support Document, Appendix E.3B in the Willow MDP Draft EIS). The near field air dispersion modeling uses a lower dust control efficiency of 50% to estimate dust impacts within 50 km of the Project. The impacts on dust (particulate matter) concentrations due to the choice of control efficiency are expected to be minimal beyond this distance and therefore are not considered in the regional modeling. Table 2.3-7 shows the total Cumulative 2025 Alternative B emissions obtained by combining Alternative B emissions with the Cumulative 2025 No Project emissions described in Section 2.3.2.2 "Cumulative 2025 No Project Scenario".

The Cumulative 2025 Alternative B 4 km domain emissions spatial distribution used for the far-field modeling is shown in Figure 2.3-2. The Willow MDP PM_{10} and SO_2 emissions can be distinguished from other cumulative emissions sources, but other criteria pollutants are not visible relative to regional sources.

Table 2.3-6 Willow 4 km Domain 2025 Alternative B (Proponent's Project) Emissions

Source Type	Willow 4 km Domain Alt B Project Emissions (tpy)						
	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$	VOC	Na
Area sources	71	27	0	87	12	8	0
Point sources	811	772	54	81	79	597	0
Total Alternative B	**882**	**799**	**55**	**168**	**91**	**605**	**0**

Table 2.3-7 Cumulative 2025 Alternative B (Proponent's Project) Emissions

Emissions	Willow 4 km Domain 2025 Future Year Alt B Project Emissions (tpy)						
	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$	VOC	Na
2025 Future Year No Project	109,427	57,809	3,845	12,237	6,087	157,135	6,132
Project – Alternative B	882	799	55	168	91	605	0
Cumulative Alternative B	**110,306**	**58,607**	**3,899**	**12,405**	**6,177**	**157,736**	**6,132**

[9] Note that as described in Section 2.3.2, the regional modeling was not revised for the Final EIS because the regional air impact assessment for the Draft EIS showed that cumulative and Project-specific impacts were found to be below all applicable thresholds throughout the modeling domain. Air emissions presented and described for the far-field modeling correspond with the Project emissions inventory developed for the Draft EIS.

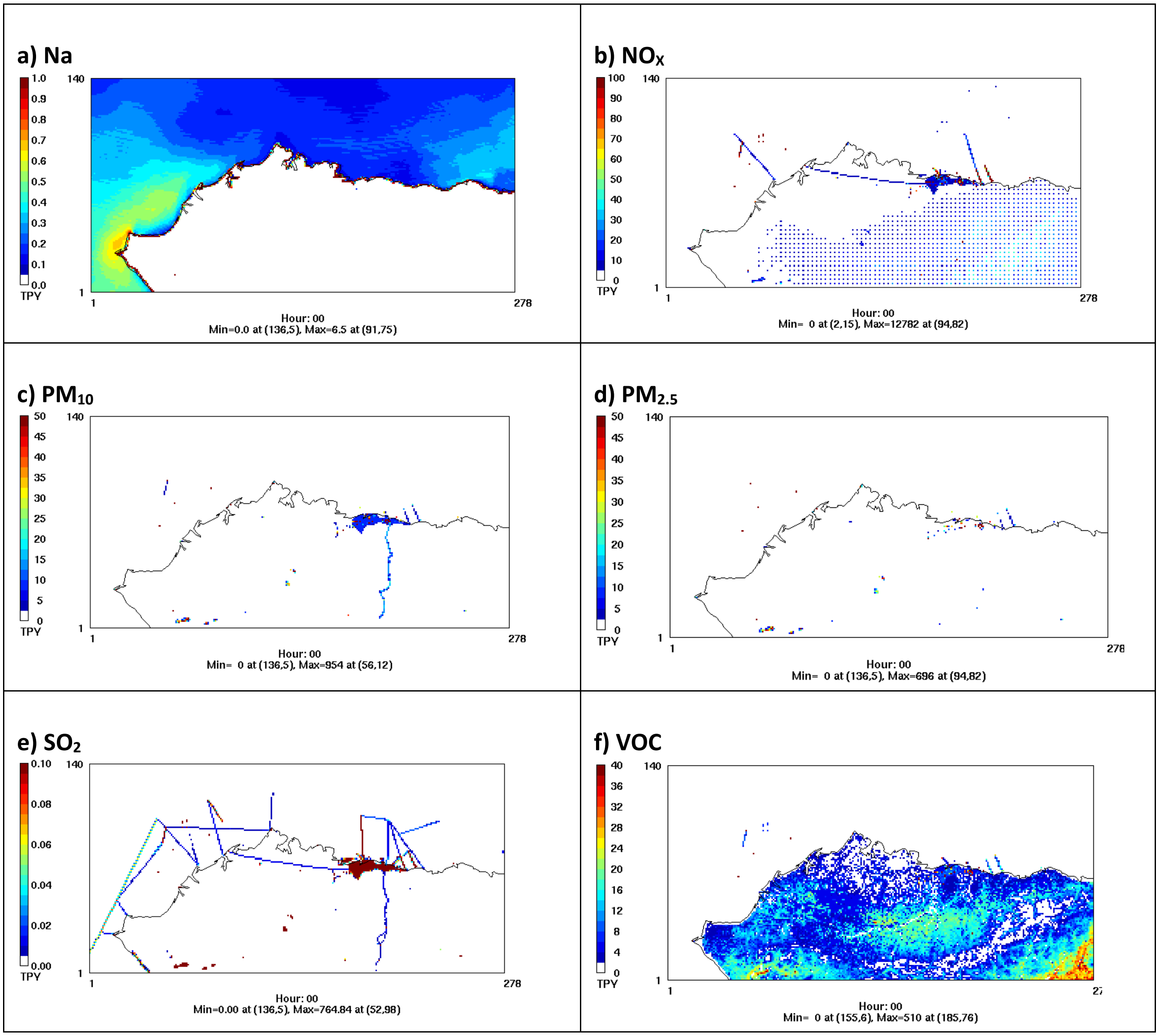

Figure 2.3-2 Willow 2025 Future Year Alternative B (Proponent's Project) Emissions a) Na, b) NO_X, c) PM_{10}, d) $PM_{2.5}$, e) SO_2, f) VOC

2.3.2.4 *Cumulative 2025 Alternative C (Disconnected Infield Roads)*

Table 2.3-8 shows the Alternative C annual emissions processed in SMOKE.[10] The emissions at the drill sites, the WPF, WOC North, WOC South, North Airstrip, South Airstrip, gravel mine and horizontal directional drilling under the Colville River were modeled as point sources at the center of each pad. All other Project emissions such as general construction, mobile sources, pigging, and fugitive dust emissions were modeled as area sources and allocated to the Project area using a combination of linear

[10] Note that as described in Section 2.3.2, the regional modeling was not revised for the Final EIS because the regional air impact assessment for the Draft EIS showed that cumulative and Project-specific impacts were found to be below all applicable thresholds throughout the modeling domain. Air emissions presented and described for the far-field modeling correspond with the Project emissions inventory developed for the Draft EIS.

features (i.e., roads) and all Project features. Table 2.3-9 shows the total Cumulative 2025 Alternative C emissions obtained by combining Alternative C emissions with the Cumulative 2025 No Project emissions described Section 2.3.2.2 “Cumulative 2025 No Project Scenario”.

The Cumulative 2025 Alternative C 4 km domain emissions spatial distribution used for the far-field modeling is shown in Figure 2.3-3. The Willow MDP PM_{10}, $PM_{2.5}$ and SO_2 emissions can be distinguished from other cumulative emissions sources, but other criteria pollutants are not visible relative to the regional source signal.

Table 2.3-8 Willow 4 km Domain 2025 Alternative C (Disconnected Infield Roads) Emissions

Source Type	Willow 4 km Domain Alternative C Project Emissions (tpy)						
	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$	VOC	Na
Area sources	56	19	0	67	10	5	0
Point sources	1,103	968	55	98	95	479	0
Total Alternative C	1,159	987	55	165	105	484	0

Table 2.3-9 Cumulative 2025 Alternative C (Disconnected Infield Roads) Emissions

Source Sector	Willow 4 km Domain 2025 Future Year Alt C Project Emissions (tpy)						
	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$	VOC	Na
2025 Future Year No Project	109,427	57,809	3,845	12,237	6,087	157,135	6,132
Project - Alt C	1,159	987	55	165	105	484	0
Cumulative Alternative C	**110,586**	**58,796**	**3,899**	**12,401**	**6,192**	**157,619**	**6,132**

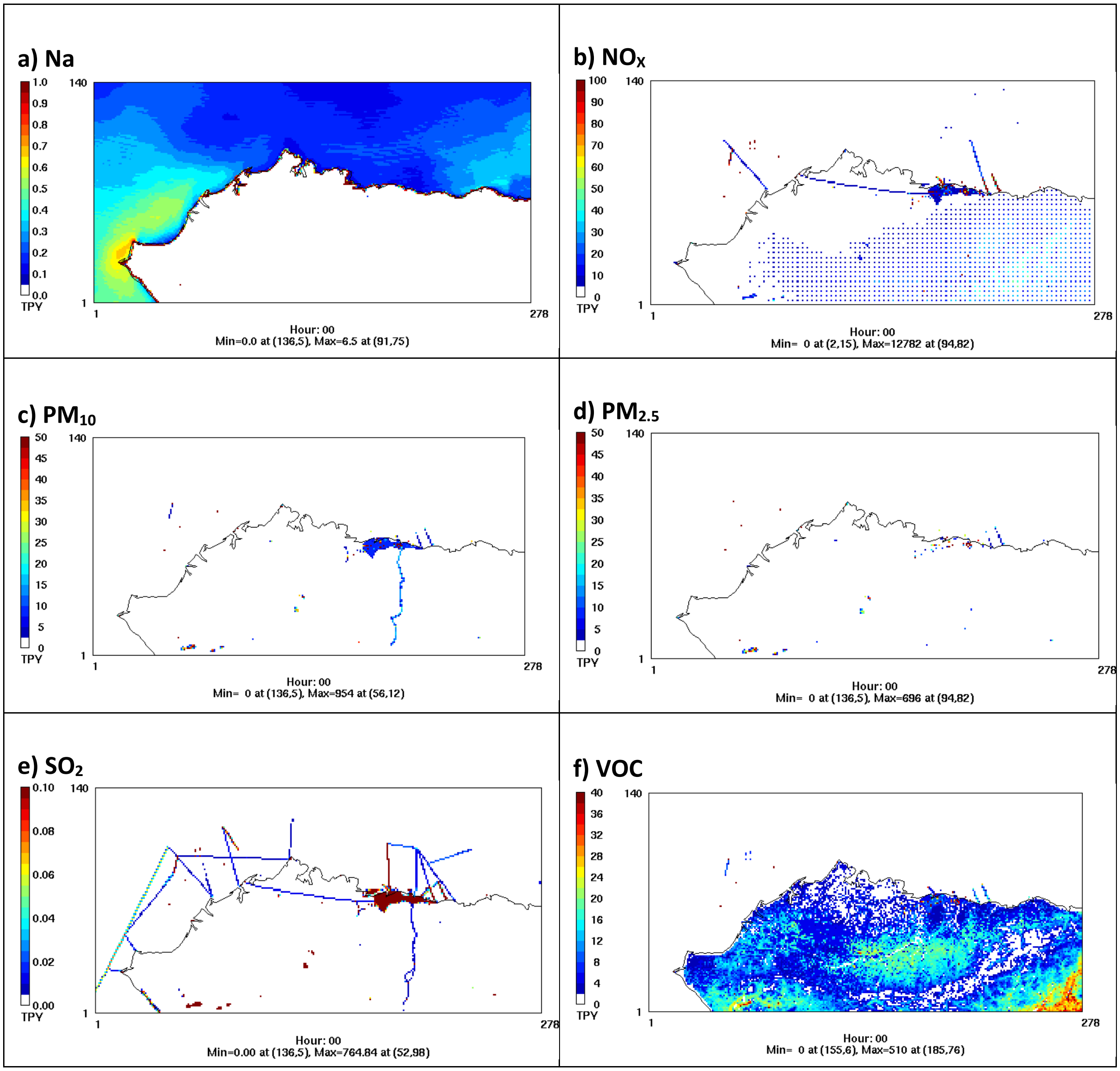

Figure 2.3-3 Willow 2025 Future Year Alternative C (Disconnected Infield Roads) Emissions a) Na, b) NO_X, c) PM_{10}, d) $PM_{2.5}$, e) SO_2, f) VOC

3.0 NEAR-FIELD MODELING ANALYSES

This chapter presents the near-field modeling approach, scenarios analyzed, development of model inputs, and model-predicted impacts.

3.1 Approach Overview and Results Summary

The USEPA regulatory air dispersion model, AERMOD, was used to assess near-field Project impacts and cumulative impacts within 50 km of the proposed Willow MDP. As described in Section 1.2.3 "Overview of Modeling Approach and Thresholds for Comparison", AERMOD model results, which provide an estimate of air quality concentrations from the Project and RFD sources, are added to background ambient air concentrations from existing emissions sources to calculate the total air quality concentrations. Total air quality concentrations are compared to the applicable air quality standards (both the NAAQS and AAAQS) and averaging periods shown in Table 1.2-1 to assess Project and cumulative impacts for criteria pollutants.

In addition to assessing impacts on criteria pollutants, the hazardous air pollutants benzene, toluene, ethylbenzene, xylenes, n-hexane, and formaldehyde are assessed with the AERMOD model. Model results are compared to non-cancer acute and chronic pollutant specific threshold levels shown in Table 1.2-3 and Table 1.2-4, respectively. Chronic cancer risk is calculated for the analyzed HAPs that have published cancer risk factors and risk from the Project is compared to a one-in-one million risk threshold.

Scenarios were developed to characterize potential peak localized impacts from the Project for various pollutants or spatial locations. The near-field modeling scenarios were selected to capture high impacts with careful consideration of peak emissions, spatial and temporal emissions variations, and in consultation with air quality specialists at key cooperating agencies. Based on the anticipated emissions activities, source types, and development schedule, five near-field scenarios are analyzed for each alternative:

1. Construction
2. Bear Tooth (BT)1 Pre-drilling
3. BT1 and BT2 Pre-drilling
4. Development Drilling
5. Routine Operations

The Construction scenario models the maximum annual construction emissions for each alternative and assesses impacts from key activities expected to occur during the construction phase, including gravel mining and horizontal directional drilling to install pipelines under the Coleville River. The Pre-drill scenario assesses impacts associated with concurrent diesel-fired drilling and hydraulic fracturing activities before electricity is available for electric drill rigs to operate. The Pre-drill BT1 scenario assesses two diesel-fired drill rigs, hydraulic fracturing units, and supporting ancillary equipment at BT1. The Pre-drill BT1 and BT2 scenario assesses a single diesel-fired drill rig, hydraulic fracturing units, and ancillary equipment operating concurrently at BT1 and BT2. Once the Willow Processing Facility is operational and is generating electric power, diesel-fired drilling activities would no longer occur and electric drill rigs and hydraulic fracturing units would be used. Impacts associated with concurrent operation of two electric drill rigs, hydraulic fracturing units, drill site facilities installation, as well as operation of the WPF and all other routine operations are assessed as part of the Development Drilling scenario. The Development Drilling scenario analyzes concurrent drilling, facility construction, and operations for the peak emissions year for each alternative. The Routine Operations scenario assesses impacts from Project operational emissions after temporary and transient activities associated with construction and drilling are complete.

The impacts associated with Module Delivery Options are also assessed. Peak year emissions for Option 1 (Atigaru Point Module Transfer Island) occur in year 2025 and 2026 (depending on Alternative) and are lower than peak year emissions for Option 2 (Point Lonely Module Transfer Island). Impacts for Option 1 Atigaru Point are expected to be lower than impacts for Option 2; therefore, Option 1 is not assessed quantitatively.

The near-field impact assessment method, data, and results are detailed for each alternative and scenario in the following sections. Table 3.1-1 shows a summary of the modeled Willow MDP impacts on air quality and hazardous air pollutants for all alternatives and scenarios analyzed. Impacts on air quality and HAPs are below all applicable standards and thresholds for all alternatives and scenarios.

Table 3.1-1 Summary of Near-field Air Quality and HAPs Impacts

Alternative	Development Scenario	Criteria Air Pollutants	HAPs
Alternative A (No Action)	Not Applicable	No impacts to criteria air pollutants. Pollutant concentrations would be similar to existing background levels.	No impacts to HAPs. Pollutant concentrations would be similar to current levels.
Alternative B (Proponent's Project)	Construction	Impacts would be below all ambient air quality standards.	HAPs impacts were not directly assessed with a model because HAPs emissions from these activities would be lower than Routine Operations.
	BT1 Pre-Drill	Impacts would be below all ambient air quality standards. Impacts would be identical to Alternative D.	HAPs impacts were not directly assessed with a model because HAPs emissions from these activities would be lower than Routine Operations.
	BT1 and BT2 Pre-Drill	Impacts would be below all ambient air quality standards. Impacts would be identical to Alternative D.	HAPs impacts were not directly assessed with a model because HAPs emissions from these activities would be lower than Routine Operations.
	Development Drilling	Impacts would be below all ambient air quality standards.	HAPs emissions from Development Drilling are comparable to Routine Operations. Since the HAPs impacts were well below thresholds for Routine Operations, HAPs were not directly assessed for this scenario.
	Routine Operations	Impacts would be below all ambient air quality standards.	*Non-carcinogenic:* All analyzed HAPs would be below respective Reference Exposure Levels (RELs) and Reference Concentrations (RfCs). *Carcinogenic:* Cancer risks for individual HAPs as well as total cancer risk across all pollutants were modeled to be less than a 1-in-1 million risk for all carcinogenic HAPS analyzed.

Alternative	Development Scenario	Criteria Air Pollutants	HAPs
Alternative C (Disconnected Infield Roads)	Construction	Impacts would be below all ambient air quality standards.	HAPs impacts were not directly assessed with a model because HAPs emissions from these activities would be lower than Routine Operations.
	BT1 Pre-Drill	Impacts would be below all ambient air quality standards.	HAPs impacts were not directly assessed with a model because HAPs emissions from these activities would be lower than Routine Operations.
	BT1 and BT2 Pre-Drill	Impacts would be below all ambient air quality standards.	HAPs impacts were not directly assessed with a model because HAPs emissions from these activities would be lower than Routine Operations.
	Development Drilling	Impacts would be below all ambient air quality standards.	HAPs emissions from these activities are comparable to Routine Operations. Since the HAPs impacts were well below thresholds for Routine Operations, HAPs were not directly assessed for this scenario.
	Routine Operations	Impacts would be below all ambient air quality standards.	*Non-carcinogenic:* All analyzed HAPs would be below respective RELs and RfCs. *Carcinogenic:* Cancer risks for individual HAPs as well as total cancer risk across all pollutants were modeled to be less than a 1-in-1 million risk for all carcinogenic HAPS analyzed.
Alternative D (Disconnected Access)	Construction	Impacts would be below all ambient air quality standards.	HAPs impacts were not directly assessed with a model because HAPs emissions from these activities would be lower than Routine Operations.
	BT1 Pre-Drill	Impacts would be below all ambient air quality standards.	HAPs impacts were not directly assessed with a model because HAPs emissions from these activities would be lower than Routine Operations.
	BT1 and BT2 Pre-Drill	Impacts would be below all ambient air quality standards. Impacts would be identical to Alternative B.	HAPs impacts were not directly assessed with a model because HAPs emissions from these activities would be lower than Routine Operations.
	Development Drilling	Impacts would be below all ambient air quality standards.	HAPs emissions from these activities are comparable to Routine Operations. Since the HAPs impacts were well below thresholds for Routine Operations, HAPs were not directly assessed for this scenario.
	Routine Operations	Impacts would be below all ambient air quality standards.	*Non-carcinogenic:* All analyzed HAPs would be below respective RELs and RfCs. *Carcinogenic:* Cancer risks for individual HAPs as well as total cancer risk across all pollutants were modeled to be less than a 1-in-1 million risk for all carcinogenic HAPS analyzed.

Alternative	Development Scenario	Criteria Air Pollutants	HAPs
Module Delivery	Option 1: Atigaru Point MTI	Onshore impacts are not directly assessed. Impacts are anticipated to be lower than Option 2: Point Lonely MTI and below all ambient air quality standards.	HAPs impacts were not directly assessed with a model because HAPs emissions from MTI activities would be lower than Routine Operations under Alternatives B, C, and D.
	Option 2: Point Lonely MTI	Onshore impacts would be below all ambient air quality standards and higher than Option 1: Atigaru Point MTI.	HAPs impacts were not directly assessed with a model because HAPs emissions from these activities would be lower than Routine Operations under Alternatives B, C, and D.
	Option 3: Colville River Crossing	Onshore impacts would be below all ambient air quality standards.	HAPs impacts were not directly assessed with a model because HAPs emissions from these activities would be lower than Routine Operations under Alternatives B, C, and D.

3.2 Modeling Approach

This section describes the dispersion model, inputs and settings used to analyze impacts from Alternatives B, C, and D. Model inputs and settings used to analyze impacts from Module Delivery Option 2 and Option 3 are presented in Section 3.6 and 3.7, respectively.

3.2.1 Dispersion Model

The most recent version of AERMOD available (version 19191) is used for the near-field analysis.

3.2.2 Applicable Air Quality Standards and Hazardous Air Pollutant Thresholds

Modeling results were compared to applicable NAAQS and AAAQS, collectively referred to as AAQS (shown in Table 1.2-1). AAQS represent the total concentrations of a given pollutant allowed to protect public health. Table 1.2-1 does not include AAQS for lead and ammonia because the Project is not anticipated to emit lead or ammonia and hence these pollutants are not issues of concern. Pollutants analyzed are based on the form of the AAQS, PSD Class II increments or HAPs thresholds as shown in Table 1.2-1 though Table 1.2-5. Near-field modeled Project impacts due to the action alternatives are compared to PSD increments at only the Nuiqsut receptor location.

AERMOD was used to assess the near-field impacts for the following criteria pollutants and averaging periods:

- CO for 1-hour and 8-hour averaging periods
- NO_2 for 1-hour and annual averaging periods
- $PM_{2.5}$ for 24-hour and annual averaging periods
- PM_{10} for 24-hour and annual averaging periods
- SO_2 for 1-hour, 3-hour, 24-hour and annual averaging periods.

The 1-hour NO_2, 1-hour SO_2, and 24-hour $PM_{2.5}$ standards are based on three-year average concentrations. For these standards, yearly maximum impacts were estimated for each of the five years of meteorological data and the top three values were averaged to calculate a value for comparison to the applicable AAQS.

While the regional modeling analysis conducted with CAMx includes estimates of all emissions sources including naturally occurring emissions, the near-field modeling analysis conducted with AERMOD evaluates only anthropogenic emissions sources within 50 km of the Willow MDP. The AERMOD model is configured to assess Willow MDP activities for various alternatives in combination with existing emissions sources. For routine activities anticipated to extend into the future for typical operations, the modeling analysis included emissions from all RFDs within the modeling domain in addition to Willow MDP sources. RFD emission sources are described in Section 2.2 "Cumulative Emissions for the Willow Alternatives".

To estimate total ambient air quality conditions with AERMOD, modeled impacts are added to representative background concentrations. The background concentrations representative of the Project area are discussed in Section 3.2.6 "Ambient Background Data". Ozone impacts and secondary $PM_{2.5}$ ($PM_{2.5}$ formed in the atmosphere from chemical reactions) impacts are assessed with the CAMx model. These pollutants are not assessed using the AERMOD model because the model does not include the necessary chemical reactions to estimate concentrations of pollutants not directly emitted from sources. In order to estimate the contribution of secondary $PM_{2.5}$ to near-field impacts, results from the regional CAMx model were used. The secondary $PM_{2.5}$ concentrations from CAMx were derived by removing chemical species that are primary emissions sources. The secondary $PM_{2.5}$ calculated here is the total $PM_{2.5}$ without the contributions of primary organic aerosol, fine crustal particulate matter, fine other primary particulate matter with a diameter less than 2.5 microns and primary elemental carbon. This methodology likely provides an over-estimate of secondary $PM_{2.5}$ since some species included as completely secondary $PM_{2.5}$, like sulfate, can be emitted directly as primary $PM_{2.5}$.

The estimated secondary $PM_{2.5}$ concentrations resulting from Project alternative emissions were derived from the CAMx regional modeling described in Chapter 4 of this Technical Support Document (TSD) for the far field modeling. For Alternative B and Alternative C scenarios, the maximum 24-hour $PM_{2.5}$ daily average and the annual average $PM_{2.5}$ concentrations were calculated for each CAMx grid cell in area that surrounds the Project which is consistent with the modeling domain where near-field impacts are assessed (see Figure 3.2-1 for the study area). The maximum 24-hour and annual values from each alternative were selected. The maximum 24-hour 98th percentile value over all the grid cells over 365 days is 0.47902 $\mu g/m^3$. This value is used to estimate the maximum potential secondary 24-hour $PM_{2.5}$ impact in the near-field modeling domain of the Willow MDP. For annual average concentrations the value of 0.04831 $\mu g/m^3$ is the maximum annual average secondary $PM_{2.5}$ impact in the near-field modeling domain of the Willow MDP. These values are added to all near-field AERMOD modeled PM_{10} and $PM_{2.5}$ concentrations presented for all Alternatives below.

Note that the CAMx performance analysis indicated that $PM_{2.5}$ concentrations were biased low overall, and therefore the secondary $PM_{2.5}$ impacts, although low, could potentially be higher than predicted based on the findings from the performance analysis.

Emissions for benzene, toluene, ethylbenzene, xylenes, n-hexane, and formaldehyde are modeled for a 1-hour average to compare to the acute reference exposure limits (REL) shown in Table 1.2-3, 8-hour average to compare to the Acute Exposure Guideline Levels (AEGLs) shown in Table 1.2-3, and an annual average period to compare to the non-cancer RfC shown in Table 1.2-4 and chronic carcinogenic exposure to compare to the one-in-one million risk threshold. No ambient air background levels were added to the HAP model results. Based on analysis of the HAP emissions inventory, HAP emissions from construction and drilling activities are lower than operations. Therefore, impacts to HAPs are only assessed for the Routine Operations scenario for all Alternatives.

3.2.3 Meteorological Data

Meteorological data for the AERMOD modeling system were prepared using the AERMET meteorological processor applied to representative surface and regional upper air observations. USEPA modeling guidance recommends either five years of National Weather Service (NWS) hourly surface observations or at least one year of onsite/site-specific meteorological observations. As such, five years (2013 -2017) of available meteorological data from the Nuiqsut monitoring station, and upper data from Utqiaġvik, Alaska were processed with AERMET and were used for the near-field modeling analysis. This 5-year dataset is a more recent time period than was used for the GMT2 SEIS, which used the 2011-2015 data.

The meteorological observation dataset collected at the CPAI Nuiqsut monitoring site were the only source of hourly surface data for the AERMOD simulations. These data meet USEPA modeling guidance for calendar quarter 90 percent data recovery for wind speed and direction, solar radiation, and differential temperature measurements. The surface data and upper data from Utqiaġvik were processed with AERMET into AERMOD surface and profile data formats using AERMET default options and surface parameters data as described in the Willow MDP Protocol (Ramboll 2018).

The Nuiqsut site shown in Figure 3.2-1 is located at the northern edge of the City of Nuiqsut approximately 41 km (26 miles) east northeast of the Willow Bear Tooth (BT)3 pad. The Nuiqsut data were collected in a physical setting geographically similar to the proposed Willow MDP Drill Pads and in the absence of intervening terrain are considered to be representative of surface meteorological conditions in the Project area. The Utqiaġvik station location used for the upper air data is also shown in Figure 3.2-1. The Nuiqsut surface data and Utqiaġvik upper air data were also used for the dispersion modeling analyses supporting the GMT1 and GMT2 projects approved by ADEC.

The Nuiqsut site collects hourly horizontal wind speed, wind direction, vertical wind speed, temperature, differential temperature (between 2 meters and 10 meters in height and on an hourly basis), and solar radiation data (on an hourly basis). The wind observations are measured at about 10 m above the surface. In addition, turbulence parameters are also calculated at the site. The supplemental data include the standard deviation of the vertical wind speed (sigma-w) and standard deviation of horizontal wind direction (sigma-theta). The instrumentation, quality assurance (QA), and quality control (QC) procedures meet the requirements of USEPA guidance for PSD regulatory modeling (SLR, 2016) and are performed according to an ADEC-approved Quality Assurance Project Plan (QAPP) (SLR, 2012).

Figure 3.2-2 below shows a wind rose constructed from the Nuiqsut site surface observations. The winds at Nuiqsut show the characteristic east-northeast to west-southwest bimodal pattern commonly observed on the North Slope. The average wind speed during 2013-2017 was 5 meters per second (m/s) and calm winds were infrequent, occurring for less than 1 percent of hours during the five-year period.

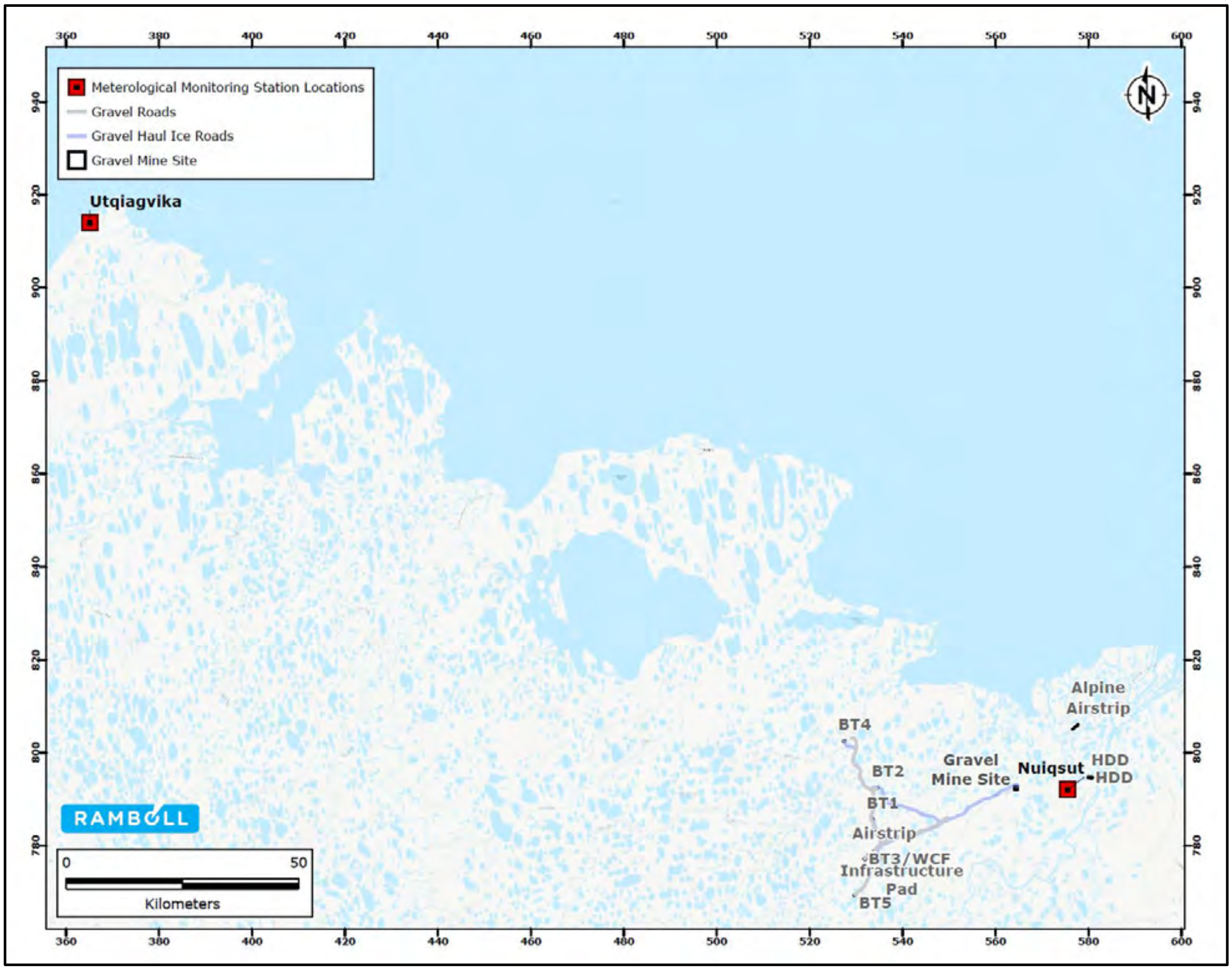

Figure 3.2-1 Meteorological Monitoring Stations used for AERMET

3.2.4 Building Downwash

Downwash effects from buildings and structures were included for the Development Drilling and Routine Operations scenarios for all Alternatives (see Sections 3.3.1 “Alternative B - Overview of Scenarios”, 3.4.1 “Alternative C – Overview of Scenarios”, and 3.5.1 “Alternative D – Overview of Scenarios” for a description of model scenarios for all action alternatives). During construction and pre-drilling activities, buildings and structures are not onsite, therefore, building downwash is not included in Construction, BT1 Pre-Drill, and BT1 and BT2 Pre-Drill scenarios. To estimate downwash effects, dimensions of buildings and structures were input into BPIP-PRIME (version 04274) in combination with source locations for each action alternative. The BPIP-PRIME results were then included in the AERMOD modeling for Development Drilling and Routine Operation scenarios.

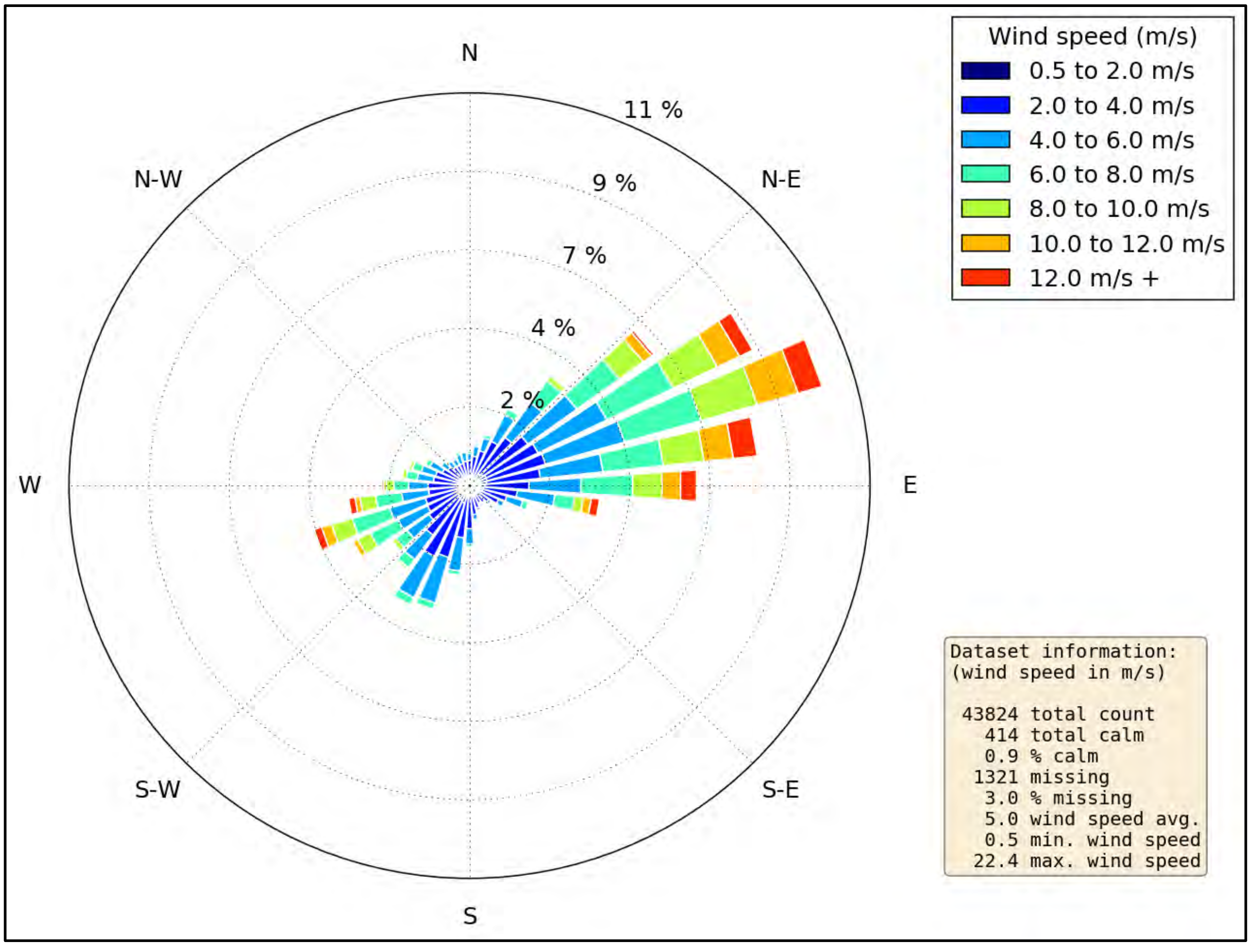

Figure 3.2-2 Nuiqsut Air Monitoring Station 2013-2017 Wind Rose

3.2.5 Model Options

AERMOD model options were set to their regulatory default values, unless otherwise noted below in additional subsections of this chapter related to meteorological data processing and NO_2 modeling.

3.2.5.1 Urban vs Rural

None of the area in the vicinity of the Project is classified as urban; therefore, the urban option (URBOPT) keyword was not used in AERMOD.

3.2.5.2 Adjusted U-star

Due to the use of turbulence parameters collected at Nuiqsut meteorological station, adjusted u-star option is not used.

3.2.5.3 NO_2 Modeling Approach

For modeling NO_2, the Ozone Limiting Method (OLM) is used to estimate the NO_x to NO_2 conversion. The hourly ozone data measured at Nuiqsut shown in Figure 3.2-3 are used for the same calendar years as the meteorological data presented in Section 3.2.3 "Meteorological Data". The in-stack ratios are shown for the various types of equipment in Table 3.2-1 below and an equilibrium ratio of 0.9 was used for all sources. Unless noted, the ratios were derived from data contained in a spreadsheet available from

ADEC with approved in-stack ratio values (ADEC, 2013). Data were averaged over all loads available for similar equipment to what would be used in the Project. The USEPA also has an in-stack ratio database (USEPA, n.d.); however, most of the data contained in this database for the emission sources in Table 3.2-1 were from the ADEC spreadsheet. In the absence of any available data, the USEPA default value of 0.5 was used (USEPA, 2011).

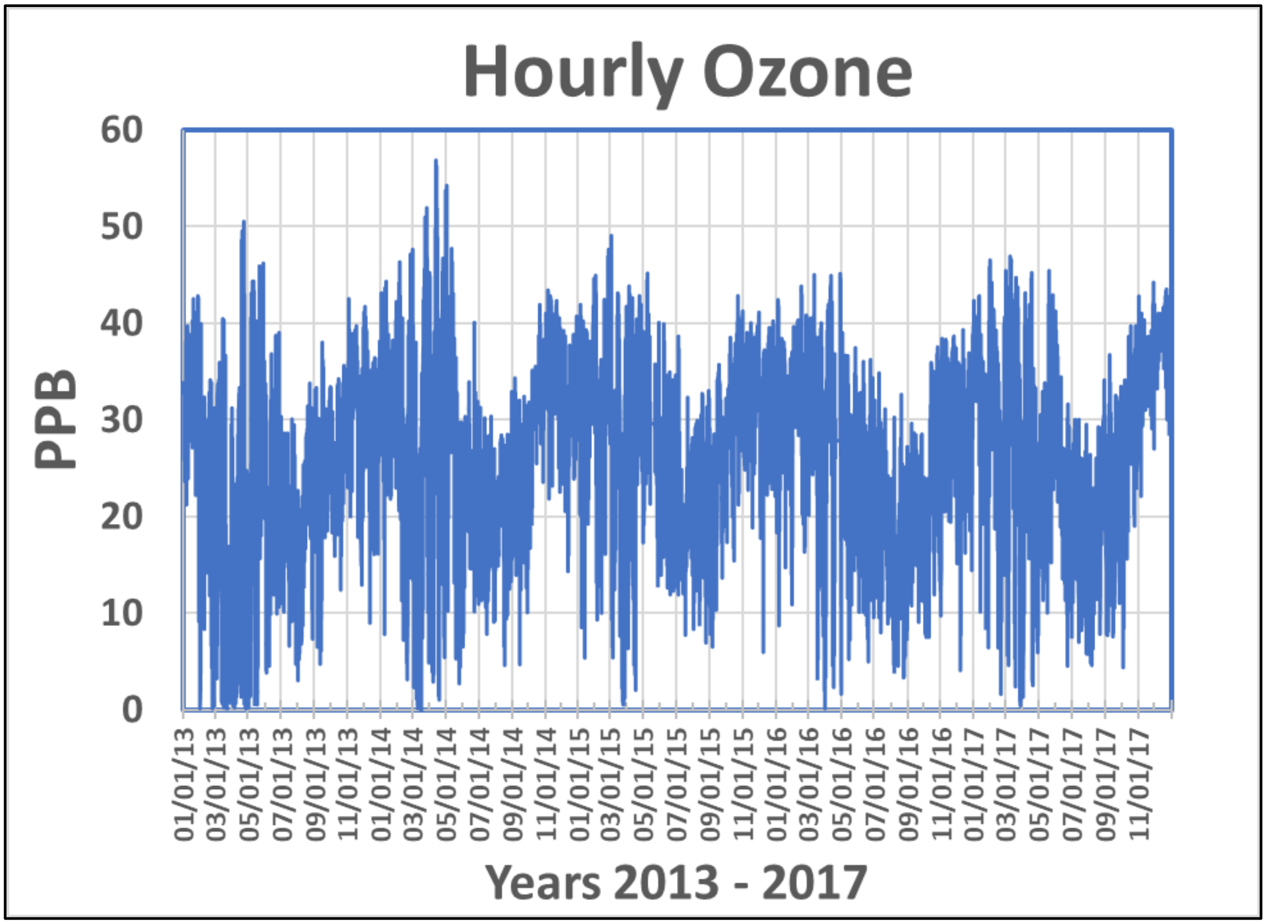

Figure 3.2-3 Hourly ozone data at Nuiqsut monitoring station in years between 2013 to 2017.

Table 3.2-1 In-Stack NO_2/NOx Ratios for use with OLM.

Type of Emission Source	NO2/NOx Ratio	Source of Data for Ratio
Diesel Engines	0.1	Average rounded to the nearest tenth of data from Trident Akutan, Tok Power Generation Station, Dutch Harbor Power Plant, Dillingham Power Plant, Peter Pan Seafoods, and DU-JBER Services engines (ADEC, 2013)
Diesel fueled heaters and boiler	0.05	Ambient Demonstration for the North Slope Portable Oil and Gas Operation Simulation report (AECOM, 2017)
Flares	0.5	USEPA default value (USEPA, 2011)
Natural gas heaters	0.05	Data for natural gas-fired heaters and boilers from EPA and ADEC NO-to-NO2 instack ratio database (ADEC, 2013; EPA, n.d.)
Diesel tailpipe from nonroad equipment	0.2	GMT1 and GMT2 value
Diesel tailpipe from on-road vehicles	0.15	GMT1 and GMT2 value
Natural-gas-fired turbines	0.3	In-stack ratio used for natural-gas fired turbines in Nanushuk EIS AQIA (SLR, 2017a)
Cumulative Sources	Variable	Were based on the values contained in this table and the predominant source at each facility

3.2.6 Ambient Background Data

The ambient air monitoring stations closest to the proposed Project are the Nuiqsut Monitoring Station, a station at the CD1 Facility, and a station at the CD5 Pad. As discussed in the Willow MDP Protocol (Ramboll 2018), the Nuiqsut Monitoring Station is representative of ambient air background concentrations anticipated for the Project. The Nuiqsut Monitoring Station is located at the north end of Nuiqsut approximately 400 meters north west of the Nuiqsut Power Plant and approximately 41 km (26 miles) east northeast of the Willow BT3 pad. The monitoring program, which began in 1999, is being conducted primarily to address community concerns in Nuiqsut. The Nuiqsut Monitoring Station also collects wind direction and speed, among other meteorological data as discussed in Section 3.2.3 “Meteorological Data”. Based on the wind rose (Figure 3.2-2) from data collected at the Nuiqsut Monitoring Station, the wind predominately blows from the east north east and east directions (SLR, 2015b, 2016, 2017b).

Background concentrations at the Nuiqsut Monitoring Station are calculated using approaches defined in Kleinfelder, 2017, and are discussed below. Data for CO, NO_x, nitric oxide (NO), NO_2, SO_2, O_3, particulate matter less than $PM_{2.5}$, and PM_{10} are provided.

Many of the NAAQS are based on a three-year average and thus three years of background data are needed to calculate values used in the near-field impact analysis. Three years of Nuiqsut Monitoring Station data were used to calculate background data and hourly ozone data was processed for OLM modeling (see Section 3.2.5.3 “NO_2 Modeling Approach”). Table 3.2-2 shows the values from 2015 – 2017 along with the final background value and the form of the data value chosen. The values in Table 3.2-2 are referenced directly from the Annual Data Reports (ADRs) (SLR, 2015, 2016, 2017) except for SO_2, NO_2 and PM_{10}.[11]

[11] Negative values were retained as reported since the report and underlying data have undergone quality assurance and quality control procedures and been approved by USEPA.

SO_2, NO_2 and PM_{10} concentrations have been revised as described below. For SO_2, after review by the USEPA of the 2014 data, it was noted that the background value was calculated incorrectly (USEPA, 2017) and the values were adjusted in Kleinfelder and Ramboll Environ, 2017b. The values reported in Table 3.2-2 are consistent with the final values in Kleinfelder and Ramboll Environ (2017b) except that they are converted to units of ppb. Consistent with USEPA guidance, a constant background value representative of each pollutant and averaging time was added to the model results except for 1-hour NO_2 and 24-hour PM_{10}. For 1-hour background NO_2 values, a seasonally-varying hourly concentration is determined based on 2015-2017 monitoring data following USEPA's March 1, 2011 Memorandum "Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-hour NO_2 National Ambient Air Quality Standard" (EPA, 2011) for modeling assessments of 1-hour NO_2 impacts. For this analysis the 3rd highest hourly values were determined for each season and averaged for each hour of day and season over the 3-year period. Table 3.2-3 shows the 3rd highest NO_2 value for each hour of each day within each of the seasons for 2015, 2016, and 2017, and a three-year average for each hour of each season. Season 1 is December, January, and February; Season 2 is March, April, and May; Season 3 is June, July, and August; and Season 4 is September, October, and November in Table 3.2-3. Since NO_2 3rd highest values are determined for each year and are dependent on the number of days with valid data for each season, we show the percentage of valid observations of hourly NO_2 by hour and season in Table 3.2-4. To ensure that outliers and inaccurate data are excluded, only sufficiently valid observations were averaged. Since Hour 4 of Season 3 during 2015 only had 37% valid observations, its 3rd highest value was not included in the three-year average.

Table 3.2-2 Ambient Background Concentrations at Nuiqsut

Pollutant	Average Time	2015	2016	2017	Final Value	Data Value
CO	1-hour[a]	1 ppm/ 1,259 µg/m³	1 ppm/ 1,160 µg/m³	1 ppm/ 1,296 µg/m³	1 ppm/ 1,296 µg/m³	Maximum second high value from three years of data
	8-hour[a]	1 ppm/ 1,259 µg/m³	1 ppm/ 1,160 µg/m³	1 ppm/ 1,296 µg/m³	1 ppm/ 1,296 µg/m³	Maximum second high value from three years of data
NO_2	1-hour	-	-	-	-	See Table 3.2-3 for the 3-year average seasonally-varying hourly background concentrations
	Annual	2 ppb / 3.2µg/m³	1 ppb/ 2.7µg/m³	2 ppb/ 3.0µg/m³	2 ppb/ 3.2µg/m³	Maximum value from three years of data
SO_2	1-hour	1.2 ppb / 3.1µg/m³	3.2 ppb/ 8.4µg/m³	3.5 ppb/ 9.2µg/m³	2.6 ppb/ 6.9µg/m³	99th percentile of daily 1-hr maximum averaged over three years
	3-hour	1.2 ppb / 3.1µg/m³	3.4 ppb/ 9.0µg/m³	3.5 ppb/ 9.1µg/m³	3.5 ppb/ 6.9µg/m³	Maximum second high value from three years of data
	24-hour	1.1 ppb/ 2.9µg/m³	3.1 ppb/ 8.1µg/m³	3.4 ppb/ 8.9µg/m³	3.4 ppb/ 9.1µg/m³	Maximum second high value from three years of data
	Annual	0.1 ppb/ 0.3µg/m³	0.8 ppb/ 2.0µg/m³	0.9 ppb/ 2.4µg/m³	0.9 ppb/ 2.4µg/m³	Maximum value from three years of data
PM_{10}	24-hour	-	-	-	-	See Table 3.2-6 for the 3-year average monthly background concentrations
$PM_{2.5}$	24-hour	10 µg/m³	6 µg/m³	7.5 µg/m³	7.7 µg/m³	98th percentile averaged over three years
	Annual	2.8 µg/m³	1.3 µg/m³	1.6 µg/m³	1.9 µg/m³	Annual mean averaged over three years

Data from SLR 2015b, SLR 2016, and SLR 2017b. Values from reports that are presented in units of ppb are also provided in units of µg/m³ for consistency with values and units used in the modeling analyses.
[a] 1-hour and 8-hour CO values are reported as the same value based on precision in the report.

The PM_{10} data collected at Nuiqsut during 2015 through 2017 were analyzed to determine a background level representative of the Project area as the monitor at the Nuiqsut Monitoring Station is known to capture PM_{10} from the Nigliq Channel during high wind events (AECOM, 2013). The Nuiqsut Monitoring Station and community of Nuiqsut are located near large exposed areas comprised of fine sediments along the Nigliq Channel in the Colville River Delta. Ambient monitoring here has captured periods of elevated particulate matter from windblown dust (PM_{10}). A previous analysis in SECOR (2002), prepared for ConocoPhillips Alaska Inc. and submitted to the State of Alaska, examined the meteorological conditions resulting in elevated PM_{10} values at the Nuiqsut Monitoring Station. Based on this analysis, elevated PM_{10} values are due in part to the monitoring station's proximity to the exposed silt banks of the Nigliq Channel. High wind events that entrain silt from the Nigliq Channel lead to elevated concentrations of PM_{10} that are not reasonably controllable or preventable and are a natural event. These high wind events are excluded from background concentrations. The PM_{10} data from the Nuiqsut Monitoring Station coupled with wind speed and direction data were looked at in detail to determine a more representative background for the Project area.

For previous projects including GMT1 (AECOM 2013), GMT2 SEIS (Kleinfelder and Ramboll Environ 2017b), the hours where high wind events caused unrepresentative hourly and daily readings were excluded from background calculations. For this analysis a similar analysis was performed to determine if there were high wind events during 2015-2017 period that caused unrepresentative hourly and daily PM_{10} measurements. Table 3.2-5 shows the days that were excluded along with the daily average, annual wind speed and the maximum PM_{10} concentration measured on that day. Table 3.2-6 shows the highest first high PM_{10} background values by month used for monthly background concentrations.

Consistent with 40 CFR Part 50 Appendix K, the average of the highest first high PM_{10} (H1H) background values for each month are rounded to the nearest 1 $\mu g/m^3$, and then rounded to the nearest 10 $\mu g/m^3$ for the purposes of determining exceedances (40 CFR Part 50 Appendix K 4.2(b)), the monthly background values in the Average PM_{10} H1H Background Value are rounded to nearest ten $\mu g/m^3$. These monthly values, provided in Table 3.2-6 , were added to AERMOD modeled 24-hour PM_{10} impacts from Project and cumulative sources.

For the use of OLM for NO_2 modeling, raw ozone data from the Nuiqsut Monitoring Station ADR reports (SLR, 2015, 2016, 2017) were used. For days and hours when ozone values are missing due to missing data, calibration, or sampling, the average ozone value from that month was used to fill in the missing hours.

Table 3.2-3 3rd Highest Hourly NO_2 Values by Hour and Season (ppb)

3-Year Average	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Season 1	10.03	11.00	14.87	11.20	10.77	13.23	13.27	12.57	14.20	11.90	15.73	12.63	12.20	17.13	15.47	16.90	13.83	17.07	15.90	14.27	13.27	12.80	12.17	9.47
Season 2	13.17	14.13	15.13	12.47	10.50	12.73	10.10	9.20	8.67	8.67	6.33	5.30	6.37	4.80	4.87	5.43	5.43	7.27	7.63	9.30	10.70	10.10	11.53	10.60
Season 3	8.03	7.30	6.23	6.70	4.53	4.83	4.97	4.60	4.13	3.43	3.57	3.10	3.37	3.93	3.97	3.63	2.87	3.63	4.70	4.90	5.20	6.10	7.83	8.17
Season 4	4.53	4.93	4.87	5.17	5.20	4.90	5.63	4.90	5.90	5.87	6.10	5.53	5.40	5.37	5.93	5.33	5.13	5.50	5.13	4.70	6.77	5.93	4.50	4.30
2015	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**
Season 1	12.20	12.00	14.30	10.70	11.70	17.70	14.60	11.10	17.40	14.10	18.40	9.00	10.30	15.20	15.80	20.30	11.60	14.30	17.00	11.70	16.00	14.50	12.90	10.40
Season 2	11.30	11.80	13.70	7.80	9.60	10.50	9.20	6.00	6.60	7.80	7.20	7.50	8.00	3.70	4.30	4.50	4.80	5.50	8.90	7.50	7.60	9.10	8.20	10.20
Season 3	6.90	5.80	4.90	--	3.90	4.70	5.00	3.90	3.80	2.90	2.90	2.90	3.00	4.20	3.80	3.80	2.70	3.50	3.80	5.30	5.40	5.00	5.60	5.90
Season 4	4.30	4.00	4.50	3.00	4.90	5.20	6.40	5.70	7.10	5.70	6.40	5.40	5.90	4.70	5.00	6.20	4.50	5.30	5.90	5.00	6.80	4.90	3.10	3.50
2016	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**
Season 1	8.30	9.70	11.20	9.20	9.70	10.80	11.10	14.20	10.50	10.70	12.10	12.70	13.60	14.90	14.60	11.80	12.00	18.00	12.10	10.40	8.70	10.40	9.90	7.50
Season 2	8.50	11.80	10.00	15.10	11.00	12.20	7.50	7.30	6.00	10.30	5.40	4.30	4.10	4.00	4.30	4.50	4.90	6.20	6.40	8.10	6.10	7.60	6.20	6.90
Season 3	8.90	8.90	9.30	7.70	4.60	4.70	5.10	5.10	4.10	3.30	4.60	3.60	4.00	4.30	4.10	3.90	3.30	4.10	5.10	3.50	4.40	7.20	10.30	9.80
Season 4	5.00	4.70	5.80	6.60	6.30	4.20	6.40	5.20	5.20	6.00	5.90	5.20	6.30	5.00	5.00	4.60	4.90	5.80	5.40	4.80	8.60	7.10	5.90	5.00
2017	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**
Season 1	9.60	11.30	19.10	13.70	10.90	11.20	14.10	12.40	14.70	10.90	16.70	16.20	12.70	21.30	16.00	18.60	17.90	18.90	18.60	20.70	15.10	13.50	13.70	10.50
Season 2	19.70	18.80	21.70	14.50	10.90	15.50	13.60	14.30	13.40	7.90	6.40	4.10	7.00	6.70	6.00	7.30	6.60	10.10	7.60	12.30	18.40	13.60	20.20	14.70
Season 3	8.30	7.20	4.50	5.70	5.10	5.10	4.80	4.80	4.50	4.10	3.20	2.80	3.10	3.30	4.00	3.20	2.60	3.30	5.20	5.90	5.80	6.10	7.60	8.80
Season 4	4.30	6.10	4.30	5.90	4.40	5.30	4.10	3.80	5.40	5.90	6.00	6.00	4.00	6.40	7.80	5.20	6.00	5.40	4.10	4.30	4.90	5.80	4.50	4.40

For 2015, hour 4 of season 3 is not included in the 3-year average (37% valid observations)

Table 3.2-4 Valid Observations of Hourly NO_2 by Hour and Season

2015	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Season 1	99%	99%	99%	83%	99%	99%	99%	99%	99%	97%	97%	96%	98%	98%	98%	98%	98%	99%	99%	99%	99%	99%	99%	99%
Season 2	88%	88%	88%	67%	88%	87%	88%	88%	87%	88%	88%	87%	87%	87%	86%	86%	86%	85%	86%	86%	86%	87%	87%	87%
Season 3	93%	93%	95%	37%	88%	93%	91%	92%	88%	88%	85%	87%	87%	87%	90%	91%	90%	90%	91%	91%	91%	91%	91%	92%
Season 4	93%	93%	92%	60%	91%	92%	92%	91%	90%	89%	88%	87%	89%	89%	89%	89%	89%	90%	91%	92%	93%	93%	92%	92%
2016	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**
Season 1	100%	100%	99%	84%	100%	100%	100%	100%	99%	96%	96%	93%	95%	96%	97%	98%	99%	99%	100%	100%	100%	100%	100%	100%
Season 2	92%	92%	92%	79%	92%	92%	92%	92%	89%	88%	90%	89%	90%	90%	90%	89%	90%	91%	91%	91%	92%	92%	92%	92%
Season 3	100%	100%	100%	86%	100%	100%	98%	97%	97%	96%	95%	97%	97%	97%	98%	97%	99%	100%	100%	100%	100%	100%	100%	100%
Season 4	100%	100%	99%	86%	100%	100%	100%	100%	98%	97%	98%	97%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
2017	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**
Season 1	100%	100%	98%	86%	100%	100%	98%	99%	99%	99%	99%	100%	100%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	100%
Season 2	100%	100%	100%	86%	99%	100%	100%	98%	98%	98%	100%	99%	98%	99%	99%	99%	100%	100%	100%	100%	100%	100%	100%	100%
Season 3	98%	98%	98%	85%	99%	97%	100%	97%	100%	99%	98%	97%	97%	97%	98%	99%	98%	100%	99%	98%	100%	97%	99%	95%
Season 4	100%	100%	98%	82%	100%	100%	99%	100%	99%	98%	97%	98%	98%	98%	99%	100%	99%	100%	100%	98%	99%	100%	98%	100%

Table 3.2-5 Days and Meteorology Removed from PM_{10} Background Analysis

Date	PM_{10} Maximum Daily Value (µg/m³)	Average Daily Wind Speed (m/s)	Average Annual Wind Speed (m/s)
July 22, 2015	145.0	8.2	4.8
July 6, 2015	99.0	5.3	4.8
July 24, 2016	149.8	7.8	5.0
November 3, 2016	128.8	12.0	5.0
August 5, 2016	116.1	8.1	5.0
October 13, 2016	62.0	9.4	5.0
June 28, 2017	336.0	9.9	8.0

Table 3.2-6 Highest First High PM_{10} Background Values by Month

Month	2015 PM_{10} H1H Background Value (µg/m³)	2016 PM_{10} H1H Background Value (µg/m³)	2017 PM_{10} H1H Background Value (µg/m³)	Average PM_{10} H1H Background Value (µg/m³)	Average PM_{10} H1H Background Value to nearest ten (µg/m³)
January	10.5	9.5	10.3	10.1	10
February	15.1	10.7	10.3	12.0	10
March	11.5	15.4	10.9	12.6	10
April	9.0	14.7	19.3	14.3	10
May	11.4	44.0	29.7	28.4	30
June	43.7	42.6	48.8	45.0	50
July	51.5	36.1	45.1	44.2	40
August	11.2	28.8	16.8	18.9	20
September	39.6	44.6	10.3	31.5	30
October	11.7	34.7	9.9	18.8	20
November	9.7	25.4	9.5	14.8	10
December	14.1	13.5	21.2	16.3	20

3.2.7 Receptors

An ambient air boundary and receptor grid was developed to assess near-field impacts for each modeling scenario. Each scenario required different ambient air boundaries and receptors based on the actives occurring with each scenario. In particular, the access to pads during construction activities uses ice roads in a different location than the gravel road that is used once the pads are constructed and operational. In general, the approach for developing ambient boundaries for Willow MDP are:

- Drill sites and other pads (Willow Processing Facility (WPF), Willow Operations Centers (WOC), airstrip) use the edge of the gravel pad.
- The mine uses the mine edge in combination with the surrounding ice pads.
- Roads use 1-plume width from either side of the center line of the road, following the approach for GMT2 (Kleinfelder and Ramboll Environ, 2017b).

Receptors were placed around the ambient air boundaries using the following spacing:

- 10 meter spacing along the ambient air boundary
- 25 meter spacing from the ambient air boundary to 100 meters
- 100 meter spacing from 100m to 1km
- 250 meter spacing from 1 km to 2 km
- 500 meter spacing from 2 km to 5 km
- 1,000 meter spacing from 5 km to 50 km

All receptors were in the UTM NAD83 Zone 5N coordinate system.

Receptors along the access road section were placed at the spacing noted above; however, receptors were at a minimum distance of one volume source width from the road volume sources due to model instabilities when the receptors are placed too close to volume sources. It should be noted that while roads exist throughout the development, road emissions were evaluated within 100 meters of the pads where proximity to other sources would have the maximum impact.

To capture cumulative source impacts that may interact with the Willow MDP impacts, the receptors with a grid spacing of 1,000 meters extended up to 50km from the center of the Project area. Because the intent was not to specifically analyze individual non-Willow source impacts, but rather any interaction of the cumulative sources with Willow MDP impacts, the coarse grid receptors were not placed closer than 200 meters to any cumulative source. An additional discrete modeling receptor was placed at Nuiqsut to characterize impacts to sensitive receptors for both criteria pollutant impacts and the six selected HAPs.

The area surrounding the proposed Willow MDP drill sites and infrastructure pads (including WPF) is generally flat on a local scale, with the terrain sloping downward generally to the north. There are not any prominent elevation features surrounding the proposed Willow MDP. The proposed WOC would be at the highest elevation when compared to the cumulative sources and the town of Nuiqsut with the greatest elevation difference being roughly 26 m between the proposed WOC and the lowest cumulative source, which would be approximately 35 km away. Because of the relatively small elevation difference over this large distance, flat terrain was assumed for all receptors and cumulative source elevations.

All emissions sources have a base elevation value established based on the location of the gravel pad or road and the estimated gravel thickness of that pad or road as documented in the Willow MDP Environmental Effect Document (CPAI 2019).

3.3 Alternative B (Proponent's Project)

This section describes the selection of scenarios designed to characterize the potential impacts anticipated under Alternative B, the modeled receptors, source types, emissions, and resulting impacts.

3.3.1 Overview of Scenarios

Based on Alternative B emissions activities, source types, and development phases, five scenarios are analyzed:

1. Construction
2. Pre-drilling activities at Bear Tooth (BT)1
3. Pre-drilling activities at BT1 and BT2
4. Development drilling
5. Routine Operations

All scenarios include emissions of criteria pollutants, HAPs and GHGs. As shown in Section 2.1 "Willow Alternatives Emissions Inventories", HAPs from construction and drilling activities are substantially lower than routine operations. Therefore, HAP impacts are explicitly modeled for Routine Operations only and HAP impacts from all other scenarios would be lower than Routine Operations.

Modeled sources include point source emissions, area sources, and volume sources. Equipment modeled as point sources include stationary sources, such as engines and heaters, as well as large portable equipment and nonroad engines. Groupings of similar low-level equipment were generally aggregated as area sources. Fugitive dust and mobile sources tailpipe emissions were modeled as volume sources. For example, the gravel access road was modeled as a series of volume sources to represent dust or tailpipe emissions from vehicle traffic. Point source stack parameters were provided by CPAI for most stationary sources, for those sources without stack parameter information, stack parameters are selected to be consistent with stack parameters used for modeling GMT2 or other public information. For area and volume sources release heights, initial vertical dimensions, and initial horizontal dimensions were based on the equipment as well as Table 3-2 from the AERMOD User's Guide (USEPA, 2019).

Based on AERMOD/ISCST guidance for modeling (USEPA 2019), road segment volume source dimensions are based on the road width and placed along the road segments at calculated spacing intervals. Therefore, volume source dimensions and spacing are calculated as follows:

- For gravel haul roads 24 feet (7.32 m) wide, volume sources are spaced 14.63 meters (48 feet) apart, use a sigma-y of 6.80 m (14.63/2.15) and exclude receptors along 15 meters on each side of the road. For gravel haul roads 32 feet (9.75 m) wide volume sources are spaced 19.51 meters (64 feet) apart, use a sigma-y of 9.07 m (19.51/2.15), and exclude receptors along 20 meters on each side of the road.
- For the gravel haul ice roads 50 feet (15.24 m) wide, volume sources are spaced 30.48 meters apart, use a sigma-y of 14.18 m (30.48/2.15) and exclude receptors within 30 meters on each side of the road.
- For the module delivery ice roads 60 feet (18.29 m) wide, volume sources are spaced 36.58 meters apart, use a sigma-y of 17.01 m (36.58/2.15) and exclude receptors within 35 meters on each side of the road.

See Attachment A for detailed information about the sources included in each scenario. All sources modeled for each scenario are shown in figures in Attachment A depicting the layout of the sources relative to ambient air boundaries, structures, roads, and other Project features. In addition, Attachment A includes detailed tables that provide a description of each modeled source, source emissions rates for all modeled pollutants and averaging periods, in-stack NO_2-to-NOx ratio, modeled location, and stack parameters.

3.3.1.1 Construction

The construction of Willow MDP is on a seven-year schedule beginning in late 2020 and completing in 2029. This nine-year period will include construction of five drill sites, processing facility, Willow Operations Center, airstrip, gravel access roads, pipelines, communications facilities, living quarters and other infrastructure to support long-term operations. In addition, construction and cooperation of temporary facilities including a gravel mine, seasonal ice roads, single-season and multi-season ice pads, and temporary camp facilities for worker housing to support construction activities are proposed in the Willow MDP. Two mine sites within the Tiŋmiaqsiuġvik Area (located about 20 miles from the Willow Operations Center) are proposed to supply the gravel needed to construct the Willow Development. The gravel mines would be accessed seasonally via ice road and the mine pit would be opened during winter construction seasons to support construction of the drill sites, the WPF, Willow Operations Center, MTI, airstrip, and associated roads.

As shown in Section 2.1 “Willow Alternatives Emissions Inventories”, the annual criteria pollutant emissions totals during construction phases are expected to peak during year 2024 when emissions activities occur during construction of WPF, Willow Operation Center, BT1 drill site, BT2 drill site, BT3 drill site along with installation of major pipeline and roads/bridges. Therefore, emissions activities occurring in year 2024 are modeled for the Alternative B construction scenario. In year 2024, BT4 and BT5 are not yet under construction so those drill sites are not included in the construction scenario. Although Alternative B could be authorized with either Module Delivery Option, emissions activities involving module delivery requiring trucking trips through Project areas are independent of the module delivery Option selected and are thus included as part of the construction scenario.

3.3.1.2 BT1 Pre-drill

Willow MDP is proposing to construct 251 wells at the five proposed drill sites (BT1 – BT5). It is estimated that it will take approximately 15-30 days to drill each well and drill all wells consecutively beginning in 2024 at the BT1 drill site. While drilling operations are anticipated to be conducted predominantly with drill rigs operating on highline supplied electrical power, highline power would not be available during BT1 construction and initial drilling until the WPF is fully operational. Therefore, two diesel-fired drill rigs, hydraulic fracturing units, and associated ancillary support equipment two drill rigs will operate at BT1 until highline power is available. Drilling activities may include emissions from the operation of the drill rig engine, rig boiler, and associated drilling equipment. Drilling and hydraulic fracturing activities could occur at a single drill site concurrently. Hydraulic fracturing activities includes emissions from hydraulic fracturing units, including hydraulic fracturing performed to increase fluid movement from the rock into the well bore, flaring, and vehicle emissions.

3.3.1.3 BT1 and BT2 Pre-drill

BT1 and BT2 Pre-drill scenario is similar to BT1 Pre-drill scenario with the exception that a single diesel-fired drill rig and hydraulic fracturing equipment operate at both BT1 and BT2 pads concurrently.

3.3.1.4 Development Drilling

Starting in 2026 drilling and hydraulic fracturing equipment would operate on highline power. The Development Drilling scenario is designed to assess potential peak short-term and annual air quality impacts from drilling and hydraulic fracturing operations occurring at the same time as localized construction and operational activities throughout the rest of the Project area. This modeling scenario is based on electric drill rigs and hydraulic fracturing units operating concurrently at BT2 and BT3 as these well sites are in closest proximity to each other spatially and are likely to be drilled concurrently based on the drilling schedule in the Environmental Evaluation Document (Revision No. 3): Willow Master Development Plan (CPAI 2019). Modeled activities would be similar to the Routine Operation scenario with the addition of drilling activities conducted with electric drill rigs and hydraulic fracturing units at BT2 and BT3 and construction activities occurring at BT2 and BT3. Since drilling would be complete by 2029 in Alternative B, impacts from Development Drilling would not occur after 2029.

3.3.1.5 Routine operation and production of wells

Routine operation and production emissions include well pad production equipment; product storage, transfer, and transport; product processing and disposal facilities; as well as vehicle traffic for routine inspection and maintenance. These types of activities are associated with the planned production and processing of oil, gas, and produced water. The annual criteria pollutant emissions for production and operations will steadily increase and reach the highest starting in year 2030 as shown in Section 2.1 “Willow Alternatives Emissions Inventories”. During production operations, produced water and oil from wells would be stored in tanks on processing facilities. The Routine Operation scenario also includes RFD sources to assess expected cumulative long-term impacts.

3.3.2 Construction

3.3.2.1 Receptors and Source Configurations

See Attachment A for detailed information regarding the modeled sources, emission rates, locations, and in-stack NO_2-to-NOx ratios.

The ambient air boundaries and receptors (consistent with Section 3.2.7 “Receptors”) are shown in in Attachment E.

3.3.2.2 Emissions Calculations

Emission rates for all modeled sources are provided in Attachment A. Emission rates used in the model were based on maximum hourly or average annual emissions depending on the ambient air threshold for the pollutant of interest. For example, 1-hour NO_2 was modeled using maximum hourly potential emissions as calculated in the approved emissions inventory. Most emission sources were assumed to operate 24 hours per day, 7 days per week, and 52 weeks per year unless the emissions inventory includes information indicating a shorter period of operation. Fugitive dust emissions are estimated for months from May through October, consistent with the months for which fugitive dust emissions were estimated in the BOEM Arctic modeling study (Fields Simms et al 2018, Stoeckenius et al 2017). Fugitive dust may also occur in other months, especially during dry snowless conditions and from dry and frozen roads. Thus, fugitive dust emissions outside May through October may affect air concentrations of particulate matter, but likely to a smaller extent than fugitive dust emitted during May through October when there is much less (or no) snow cover. Likewise, some operations would only be expected to occur during daytime hours. Appropriate adjustments to the gram (g) per second emission rates were made for sources that do not operate continuously. Emission rates for activities that operate exclusively during specific periods were “turned on” and “turned off” to match the expected seasonality as appropriate. Annual emissions for sources that do not occur year-round were “annualized” to the period that the model is turned on. For example, if a source in the model is turned on for 4,380 hours per year, the source’s annual emissions will be converted to gram per second by using 4,380 hours per year.

In general, for nonroad equipment operating during construction a category specific utilization factor was applied to approximate the fraction of the nonroad equipment that would be operating simultaneously at a given time. The utilization factor accounts for the fact that not all the equipment operates simultaneously within the same hour. The factor is derived using average operating hours of equipment spread over a 24 hours period. The factor is calculated as the fleet-wide average of fractional hours of operation per day and applied hourly emissions. This utilization factor is not applied to all nonroad sources that are treated as point sources including heaters, off-highway-trucks (B-70s), air compressors, generator sets, pumps, and bore/drill rigs unless explicitly stated below.

BT1 Facilities Installation, Pipeline Installation, and Vertical Support Member Construction Nonroad Equipment – Individual hourly emission and annual rates are calculated using the general approach outlined above and by applying its respective nonroad utilization factor to hourly emissions. A category-wide emission rate is then calculated for hourly and annual emissions by summing emission rates of all nonroad equipment not treated explicitly as point sources across its respective category.

BT2 and BT3 Pad Construction Nonroad Equipment – Hourly and annual emission rates are initially calculated using the general approach outlined above. Monthly emission factors are then applied to annual emission rates to allocate emissions to each month of the year based on based on the level of pad construction activity occurring during that month. For all sources not treated explicitly as point sources a utilization factor is applied to hourly emission rates. A category-wide emission rate is then calculated for hourly and annual emissions by summing these individual nonroad equipment emission rates in its respective category.

Gravel Mining Nonroad Equipment - Individual hourly emission and annual rates are calculated using the general approach outlined above and by applying the respective nonroad utilization factor to hourly emissions. A category-wide emission rate is then calculated for hourly and annual emissions by summing emission rates of all nonroad equipment not treated explicitly as point sources across its respective category. These hourly and annual emission rates are then split into nine (9) equivalent volume sources.

Ice Road Construction Nonroad Equipment – Individual hourly and annual emissions rates are calculated using the general approach outlined above. The equipment needed by Willow is scaled up or down from equipment needed by GMT1 based on the ratio of annual ice road needed to be constructed annually in Willow vs ice road constructed in GMT1 based on ice road mileage needed in Willow. Thus, a Willow/GMT1 annual activity scaling factor based on the ice road constructed annually to ice road constructed in GMT1 is applied to account for fluctuations in annual activity. For all sources not treated explicitly as point sources a utilization factor is applied to hourly emission rates. A category-wide emission rate is then calculated for hourly and annual emissions by summing these individual nonroad equipment emission rates in its respective category. These nonroad emissions are then scaled based on the ratio of total length of the ice road within the modeling domain to the total ice road length constructed in 2024 and split into four (4) equivalent volume sources.

Single Season Ice Pad Construction Nonroad Equipment – Individual hourly and annual emissions rates are calculated using the general approach outlined above. A Willow/GMT1 annual activity scaling factor based on the ice pad constructed annually to ice pad constructed in GMT1 is then applied to account for the fluctuations in annual activity. For all sources not treated explicitly as point sources a utilization factor is applied to hourly emission rates. A category-wide emission rate is then calculated for hourly and annual emissions by summing these individual nonroad equipment emission rates in its respective category. These nonroad emissions are then placed on six different locations within the ice pad scaled based on the ratio of total acreage of the ice pad within the modeling domain to the total ice pad acreage constructed in 2024 and split into the. The locations are broken down as follows:

- Housing Construction Equipment at the mine – 1 equivalent volume sources
- Organic Stockpile at the mine – 44 volume sources
- Inorganic Stockpile at the mine – 44 equivalent volume sources
- Ice Pad Perimeter at the mine – 44 equivalent volume sources
- HDD Pad #1 – 1 volume source
- HDD Pad #2 – 1 volume sources

<u>Multi-Season Ice Pad Construction Nonroad Equipment</u> – Individual hourly and annual emissions rates are calculated using the general approach outlined above. A Willow/GMT1 annual activity scaling factor based on the ice pad constructed annually to ice pad constructed in GMT1 is then applied to account for the fluctuations in annual activity. For all sources not treated explicitly as point sources a utilization factor is applied to hourly emission rates. A category-wide emission rate is then calculated for hourly and annual emissions by summing these individual nonroad equipment emission rates in its respective category. All sources associated with multi-season ice pad construction are conservatively assumed to operate at the mine site, WOC, and GMT2 multi-season ice pads.

<u>Willow and Alpine Airstrip Aircraft Activity</u> – Hourly and annual emission rates are calculated by extracting takeoff and landing emission factors for each aircraft type. Emission factors for each aircraft type are then multiplied by the number of flights for each aircraft type in the model year, 2024. Since each flight constitutes one takeoff and one landing the takeoff and landing emission rates are summed across their respective aircraft type. The total aircraft emission rates are then calculated by summing across the aircraft types and converted to g/s. The total emission rates are split into three separate areas, based on release height, and divided by the respective airstrip area.

<u>Blasting Emissions</u> – Hourly emission rates are calculated using the emission rate extracted from the emissions inventory. Emission rates in lbs/day are divided by the number of hours in a day and converted to g/s to get hourly emission rates. Annual emission rates are then calculated using the same method as the general approach outlined above using weeks of operation instead of hours of operation. Short-term blasting is modeled using hourly emission rates while long-term blasting is modeled using annual emission rates.

<u>Willow Operations Center Temporary Power Generation Turbine</u> – Hourly and annual emission rates are calculated using the general approach outlined above. Monthly emission factors are applied to hourly and annual emission rates to account for fluctuations in emission rates. Monthly fluctuations in emission rates are caused by variations in ambient temperatures affecting the air density which affects fuel capacity into the turbine at full load.

<u>Willow Operations Center and WPF Facilities Installation Nonroad Equipment</u> – Individual hourly emission and annual rates are calculated using the general approach outlined above and by applying its respective nonroad utilization factor to hourly emissions. A category-wide emission rate is then calculated for hourly and annual emissions by summing emission rates of all nonroad equipment not treated explicitly as point sources across its respective category. Monthly emission factors are then applied to annual emission rates to allocate emissions to each month of the year based on based on the level of facilities installation activity occurring during that month.

Mobile Tailpipe Emissions – Hourly and annual emission rates are calculated by extracting the running and idling emission factors for each vehicle type. Running emission factors are then multiplied by annual mileage travelled for each vehicle type to get the total running emissions per year. Idling emission factors are multiplied by the total idling hours per year to get total idling emissions per year. Emissions are then converted into g/s by assuming operation through all hours of the operating months. Hourly and annual emission rates are then scaled within their "respective modeling area" by applying the ratio of the one-way trip mileage within in the modeling domain to the total mileage per one-way trip. The "respective modeling area" here and below refers to the pad or drill site activity with which the emissions are associated in the modeling. Running and idling emission rates are summed across all vehicle types for their respective modeling area and split in the following manner:

- BT1-3 – 4 equivalent volume sources
- Willow Operations Center – 4 equivalent volume sources
- WPF – 4 equivalent volumes sources
- Gravel Mine – 4 equivalent volume sources

Mobile Equipment Fugitive Dust – Hourly and annul emission rates are calculated by extracting the fugitive dust emission factors for each vehicle type. Fugitive dust emission factors are then multiplied by annual vehicle miles travelled to get total fugitive dust emissions per year and converted to g/s by assuming operation through all hours of the operating months. Hourly and annual emission rates are then scaled within their respective modeling area by applying the ratio of the one-way trip mileage within in the modeling domain to the total mileage per one-way trip. Fugitive dust emission rates are summed across all vehicle types for their respective modeling area and split in the same manner as their tailpipe equivalent.

Gravel Road Construction, Pipeline Installation, Vertical Member Support Construction, and Fiber Optics Installation Nonroad Equipment – Individual hourly emission and annual rates are calculated using the general approach outlined above. and by applying its respective nonroad utilization factor to hourly emissions. A category-wide emission rate is then calculated for hourly and annual emissions by summing emission rates of all nonroad equipment not treated explicitly as point sources across its respective category. These hourly and annual emission rates are then scaled within their respective modeling area by applying the ratio of the segment road length within the modeling domain to the total road length constructed in 2024. Hourly and annual emissions rates are then split into four equivalent volume sources. Gravel road construction is assumed to be occurring at BT2 and BT3.

Bridge Installation Nonroad Equipment - Individual hourly emission and annual rates are calculated using the general approach outlined above. and by applying its respective nonroad utilization factor to hourly emissions. A category-wide emission rate is then calculated for hourly and annual emissions by summing emission rates of all nonroad equipment not treated explicitly as point sources across its respective category. Hourly and annual emission rates for all sources associated with bridge installation are then divided by the number of bridges based on the assumption only one bridge is being installed at any moment.

Willow Operations Center Snowmelters and Portable Heaters – Hourly and annual emissions are calculated using the general approach outlined above. Emissions are then summed and treated as a single volume source.

Off-Highway Trucks (B-70s) – Individual hourly emission and annual rates are calculated using the general approach outlined above. Emission rates are then scaled down to a per unit basis. Two B-70 trucks are then placed on BT2, BT3, the gravel mine, and the gravel road split into 4 equivalent volume sources for the pads and 9 equivalent volume sources for the mine. The B-70s along the gravel road are scaled based on the ratio road length in the modeling domain to total road length constructed in 2024 and split into 4 equivalent volume sources along the gravel road segment along BT2 and the road segment along BT3.

3.3.2.3 Criteria Pollutant Impacts

Table 3.3-1 shows the modeled impacts to air quality everywhere in the model domain and Table 3.3-2 shows the model impacts at Nuiqsut. Representative background concentrations are added to model results prior to comparing the total concentration to applicable AAQS. As shown, impacts would be below applicable AAQS for all criteria pollutants and averaging periods.

Table 3.3-1 Construction Activity AAQS Impacts – Alternative B (Proponent's Project)

Pollutant	Averaging Time	Maximum Modeled Concentration (μg/m³)	Background Concentration (μg/m³)	Total Concentration (μg/m³)	NAAQS (μg/m³)	AAAQS (μg/m³)	Percent of NAAQS	Percent of AAAQS
CO	1-Hour	526.4	1296.7	1823.1	40,000	40,000	5%	5%
	8-Hour	390.0	1296.7	1686.7	10,000	10,000	17%	17%
NO_2	1-Hour	111.4	21.8	133.1	188	188	71%	71%
	Annual	17.0	3.2	20.2	100	100	20%	20%
SO_2	1-Hour	3.6	6.9	10.5	196	196	5%	5%
	3-Hour	5.2	9.1	14.2	1,300	1,300	1%	1%
	24-Hour	1.2	8.9	10.1	--	365	--	3%
	Annual	0.1	2.4	2.5	--	80	--	3%
PM_{10}	24-Hour	61.9	20.0	81.9	150	150	55%	55%
$PM_{2.5}$	24-Hour	11.6	7.7	19.3	35	35	55%	55%
	Annual	2.6	1.9	4.5	12	12	37%	37%

Notes:
Modeled highest second-high values from 5 modeled years shown for all short-term averaging times, with the exception of the following:
NO2 1-hour value is calculated as the 3-year average of the 8th highest daily maximum 1-hour concentrations, and the background value shown is the average of the 1-hour values that are paired in time with the modeled values;
SO2 1-hour value is calculated as the 3-year average of the 4th highest daily maximum 1-hour concentrations;
PM10 24-hour value is the 6th highest value from 5-year modeling period; and
PM2.5 24-hour value is calculated as the 3-year average of the 8th highest values.
Maximum annual values are shown for NO2 and SO2 and the PM2.5 annual value is the annual mean averaged over the maximum 3 years.
PM10 and PM2.5 24-hour, and PM2.5 annual modeled impacts include secondary PM2.5 impacts (0.48 μg/m3 - 24-hour and 0.05 μg/m3 - annual) from CAMx modeling.

Table 3.3-2 Construction Activity AAQS Impacts at Nuiqsut – Alternative B (Proponent's Project)

Pollutant	Averaging Time	Maximum Modeled Concentration (μg/m³)	Background Concentration (μg/m³)	Total Concentration (μg/m³)	NAAQS (μg/m³)	AAAQS (μg/m³)	Percent of NAAQS	Percent of AAAQS
CO	1-Hour	45.1	1296.7	1341.9	40,000	40,000	3%	3%
	8-Hour	15.2	1296.7	1311.9	10,000	10,000	13%	13%
NO_2	1-Hour	31.4	16.0	47.4	188	188	25%	25%
	Annual	0.41	3.2	3.6	100	100	4%	4%
SO_2	1-Hour	0.73	6.9	7.6	196	196	4%	4%
	3-Hour	0.46	9.1	9.5	1,300	1,300	1%	1%
	24-Hour	0.095	8.9	9.0	--	365	--	2%
	Annual	0.0024	2.4	2.4	--	80	--	3%
PM_{10}	24-Hour	1.0	10.0	11.0	150	150	7%	7%
$PM_{2.5}$	24-Hour	0.75	7.7	8.5	35	35	24%	24%
	Annual	0.074	1.9	2.0	12	12	17%	17%

Notes:
Modeled highest second-high values from 5 modeled years shown for all short-term averaging times, with the exception of the following:
NO_2 1-hour value is calculated as the 3-year average of the 8th highest daily maximum 1-hour concentrations, and the background value shown is the average of the 1-hour values that are paired in time with the modeled values;
SO_2 1-hour value is calculated as the 3-year average of the 4th highest daily maximum 1-hour concentrations;
PM_{10} 24-hour value is the 6th highest value from 5-year modeling period; and
$PM_{2.5}$ 24-hour value is calculated as the 3-year average of the 8th highest values.
Maximum annual values are shown for NO_2 and SO_2 and the $PM_{2.5}$ annual value is the annual mean averaged over the maximum 3 years.
PM_{10} and $PM_{2.5}$ 24-hour, and $PM_{2.5}$ annual modeled impacts include secondary $PM_{2.5}$ impacts (0.48 μg/m³ - 24-hour and 0.05 μg/m³ - annual) from CAMx modeling.

3.3.3 BT1 Pre-Drill

3.3.3.1 Receptors and Source Configurations

See Attachment A for detailed information regarding the modeled sources, emission rates, locations, and in-stack NO_2-to-NOx ratios.

See Attachment E for the ambient air boundaries and receptors.

3.3.3.2 *Emissions Calculations*

Emission rates for all modeled sources are provided in Attachment A.

Mobile Tailpipe Emissions - Hourly and annual emission rates are calculated by extracting the running emission factors. Running emission factors are then multiplied by annual mileage travelled for each vehicle type to get the total running emissions per year. Emissions are then converted into g/s by assuming operation through all hours of the operating months. Hourly and annual emission rates are then scaled within their respective modeling area by applying the ratio of the one-way trip mileage within in the modeling domain to the total mileage per one-way trip. Running emission rates are summed across all vehicle types for their respective modeling area and split into nine (9) equal volume sources at its respective modeling domain.

Mobile Equipment Fugitive Dust – Hourly and annul emission rates are calculated by extracting the fugitive dust emission factors for each vehicle type. Fugitive dust emission factors are then multiplied annual vehicle miles travelled to get total fugitive dust emissions per year and converted to g/s by assuming operation through all hours of the operating months. Hourly and annual emission rates are then scaled within their respective modeling area by applying the ratio of the one-way trip mileage within in the modeling domain to the total mileage per one-way trip. Mobile fugitive dust emissions are then split into volume sources equivalent to mobile tailpipe.

Snowmelters and Portable Heaters – Hourly and annual emissions are calculated using the general approach outlined above. Emissions are then summed and treated as a single volume source. Monthly emission factors are then applied. No operation is assumed during summer months (June-August).

Drill Rigs and Drilling Support Equipment – Hourly and annual emissions are calculated using the general approach outlined above and two drill rigs are active at BT1 during Pre-Drill.

Hydraulic Fracturing Engines – Hourly emission rates are calculated by extracting from the emission inventory. Hourly emission rates are then halved under the assumption fracturing engines will operate at 50% load for sixteen hours instead of 100% load for eight hours for 120 days per year. Annual emission rates are then calculated by smearing hourly emissions over the entire year based on a sixteen hour work day. Hourly emission factors are then applied to annual emissions to allocated emissions during operational hours (5 am – 9 pm). Hourly emission factors are calculated in consideration of two concurrent drill rigs active at BT1 during Pre-Drill.

Well Flowback and Flaring – Hourly and annual emissions are calculated using the general approach outlined above and two drill rigs are active at BT1 during Pre-Drill.

3.3.3.3 Criteria Pollutant Impacts

Table 3.3-3 shows the modeled impacts to air quality everywhere in the model domain and Table 3.3-4 shows the model impacts at Nuiqsut. Representative background concentrations are added to model results prior to comparing the total concentration to applicable AAQS. As shown, impacts would be below applicable AAQS for all criteria pollutants and averaging periods.

Table 3.3-3 BT1 Pre-Drill Activity AAQS Impacts – Alternative B (Proponent's Project)

Pollutant	Averaging Time	Maximum Modeled Concentration (µg/m³)	Background Concentration (µg/m³)	Total Concentration (µg/m³)	NAAQS (µg/m³)	AAAQS (µg/m³)	Percent of NAAQS	Percent of AAAQS
CO	1-Hour	1483.3	1296.7	2780.0	40,000	40,000	7%	7%
	8-Hour	1103.9	1296.7	2400.6	10,000	10,000	24%	24%
NO_2	1-Hour	64.3	22.9	87.2	188	188	46%	46%
	Annual	10.8	3.2	14.0	100	100	14%	14%
SO_2	1-Hour	4.2	6.9	11.1	196	196	6%	6%
	3-Hour	3.6	9.1	12.6	1,300	1,300	1%	1%
	24-Hour	2.0	8.9	10.9	--	365	--	3%
	Annual	0.2	2.4	2.6	--	80	--	3%
PM_{10}	24-Hour	16.7	30.0	46.7	150	150	31%	31%
$PM_{2.5}$	24-Hour	10.0	7.7	17.8	35	35	51%	51%
	Annual	2.0	1.9	3.9	12	12	33%	33%

Notes:
Modeled highest second-high values from 5 modeled years shown for all short-term averaging times, with the exception of the following:
NO_2 1-hour value is calculated as the 3-year average of the 8th highest daily maximum 1-hour concentrations, and the background value shown is the average of the 1-hour values that are paired in time with the modeled values;
SO_2 1-hour value is calculated as the 3-year average of the 4th highest daily maximum 1-hour concentrations;

PM_{10} 24-hour value is the 6th highest value from 5-year modeling period; and
$PM_{2.5}$ 24-hour value is calculated as the 3-year average of the 8th highest values.
Maximum annual values are shown for NO_2 and SO_2 and the $PM_{2.5}$ annual value is the annual mean averaged over the maximum 3 years.
PM_{10} and $PM_{2.5}$ 24-hour, and $PM_{2.5}$ annual modeled impacts include secondary $PM_{2.5}$ impacts (0.48 µg/m^3 - 24-hour and 0.05 µg/m^3 - annual) from CAMx modeling.

Table 3.3-4 BT1 Pre-Drill Activity AAQS Impacts at Nuiqsut – Alternative B (Proponent's Project)

Pollutant	Averaging Time	Maximum Modeled Concentration (µg/m^3)	Background Concentration (µg/m^3)	Total Concentration (µg/m^3)	NAAQS (µg/m^3)	AAAQS (µg/m^3)	Percent of NAAQS	Percent of AAAQS
CO	1-Hour	26	1,297	1,323	40,000	40,000	3%	3%
	8-Hour	3.4	1,297	1,300	10,000	10,000	13%	13%
NO_2	1-Hour	3.3	23	27	188	188	14%	14%
	Annual	0.018	3.2	3.2	100	100	3%	3%
SO_2	1-Hour	0.071	6.9	7.0	196	196	4%	4%
	3-Hour	0.037	9.1	9.1	1,300	1,300	1%	1%
	24-Hour	0.0060	8.9	8.9	--	365	--	2%
	Annual	1.4E-04	2.4	2.4	--	80	--	3%
PM_{10}	24-Hour	0.51	10	11	150	150	7%	7%
$PM_{2.5}$	24-Hour	0.49	7.7	8.2	35	35	23%	23%
	Annual	0.050	1.9	2.0	12	12	16%	16%

Notes:
Modeled highest second-high values from 5 modeled years shown for all short-term averaging times, with the exception of the following:
NO_2 1-hour value is calculated as the 3-year average of the 8th highest daily maximum 1-hour concentrations, and the background value shown is the average of the 1-hour values that are paired in time with the modeled values;
SO_2 1-hour value is calculated as the 3-year average of the 4th highest daily maximum 1-hour concentrations;
PM_{10} 24-hour value is the 6th highest value from 5-year modeling period; and
$PM_{2.5}$ 24-hour value is calculated as the 3-year average of the 8th highest values.
Maximum annual values are shown for NO_2 and SO_2 and the $PM_{2.5}$ annual value is the annual mean averaged over the maximum 3 years.
PM_{10} and $PM_{2.5}$ 24-hour, and $PM_{2.5}$ annual modeled impacts include secondary $PM_{2.5}$ impacts (0.48 µg/m^3 - 24-hour and 0.05 µg/m^3 - annual) from CAMx modeling.

3.3.4 BT1 and BT2 Pre-Drill

Pre-drilling at BT1 and BT2 pads is similar to the pre-drilling activities planned for BT1.

3.3.4.1 Receptors and Source Configurations

See Attachment A for detailed information regarding the modeled sources, emission rates, locations, and in-stack NO_2-to-NOx ratios.

See Attachment E for the ambient air boundaries and receptors.

3.3.4.2 *Emissions Calculations*

Emission rates for all modeled sources are provided in Attachment A.

Mobile Tailpipe Emissions - Hourly and annual emission rates are calculated by extracting the running emission factors. Running emission factors are then multiplied by annual mileage travelled for each vehicle type to get the total running emissions per year. Emissions are then converted into g/s by assuming operation through all hours of the operating months. Hourly and annual emission rates are then scaled within their respective modeling area by applying the ratio of the one-way trip mileage within in the modeling domain to the total mileage per one-way trip. Running emission rates are summed across all vehicle types for their respective modeling area and split into nine (9) equal volume sources at BT1 and six (6) at BT2.

Mobile Equipment Fugitive Dust – Hourly and annul emission rates are calculated by extracting the fugitive dust emission factors for each vehicle type. Fugitive dust emission factors are then multiplied annual vehicle miles travelled to get total fugitive dust emissions per year and converted to g/s by assuming operation through all hours of the operating months. Hourly and annual emission rates are then scaled within their respective modeling area by applying the ratio of the one-way trip mileage within in the modeling domain to the total mileage per one-way trip. Mobile fugitive dust emissions are then split into volume sources equivalent to mobile tailpipe.

Snowmelters and Portable Heaters – Hourly and annual emissions are calculated using the general approach outlined above. Emissions are then summed and treated as a single volume source. Monthly emission factors are then applied. No operation is assumed during summer months (June-August).

Hydraulic Fracturing Engines – Hourly emission rates are calculated by extracting from the emission inventory. Hourly emission rates are then halved under the assumption fracturing engines will operate at 50% load for sixteen hours instead of 100% load for eight hours for 120 days per year. Annual emission rates are then calculated by smearing hourly emissions over the entire year based on a sixteen-hour day. Hourly emission factors are then applied to annual emissions to allocated emissions during operational hours (5 am – 9 pm).

3.3.4.3 Criteria Pollutant Impacts

Table 3.3-5 shows the modeled impacts to air quality everywhere in the model domain and Table 3.3-6 shows the model impacts at Nuiqsut. Representative background concentrations are added to model results prior to comparing the total concentration to applicable AAQS. As shown, impacts would be below applicable AAQS for all criteria pollutants and averaging periods.

Table 3.3-5 BT1 and BT2 Pre-Drill Activity AAQS Impacts – Alternative B (Proponent's Project)

Pollutant	Averaging Time	Maximum Modeled Concentration (µg/m³)	Background Concentration (µg/m³)	Total Concentration (µg/m³)	NAAQS (µg/m³)	AAAQS (µg/m³)	Percent of NAAQS	Percent of AAAQS
CO	1-Hour	833.2	1296.7	2130.0	40,000	40,000	5%	5%
	8-Hour	641.0	1296.7	1937.7	10,000	10,000	19%	19%
NO_2	1-Hour	55.8	20.1	75.9	188	188	40%	40%
	Annual	6.7	3.2	9.9	100	100	10%	10%
SO_2	1-Hour	3.1	6.9	10.0	196	196	5%	5%
	3-Hour	2.8	9.1	11.8	1,300	1,300	1%	1%
	24-Hour	1.3	8.9	10.2	--	365	--	3%
	Annual	0.1	2.4	2.5	--	80	--	3%
PM_{10}	24-Hour	17.1	30.0	47.1	150	150	31%	31%
$PM_{2.5}$	24-Hour	7.5	7.7	15.2	35	35	43%	43%
	Annual	0.9	1.9	2.9	12	12	24%	24%

Notes:
Modeled highest second-high values from 5 modeled years shown for all short-term averaging times, with the exception of the following:

NO_2 1-hour value is calculated as the 3-year average of the 8th highest daily maximum 1-hour concentrations, and the background value shown is the average of the 1-hour values that are paired in time with the modeled values;
SO_2 1-hour value is calculated as the 3-year average of the 4th highest daily maximum 1-hour concentrations;
PM_{10} 24-hour value is the 6th highest value from 5-year modeling period; and
$PM_{2.5}$ 24-hour value is calculated as the 3-year average of the 8th highest values.
Maximum annual values are shown for NO_2 and SO_2 and the $PM_{2.5}$ annual value is the annual mean averaged over the maximum 3 years.
PM_{10} and $PM_{2.5}$ 24-hour, and $PM_{2.5}$ annual modeled impacts include secondary $PM_{2.5}$ impacts (0.48 μg/m^3 - 24-hour and 0.05 μg/m^3 - annual) from CAMx modeling.

Table 3.3-6 BT1 and BT2 Pre-Drill Activity AAQS Impacts at Nuiqsut – Alternative B (Proponent's Project)

Pollutant	Averaging Time	Maximum Modeled Concentration (μg/m^3)	Background Concentration (μg/m^3)	Total Concentration (μg/m^3)	NAAQS (μg/m^3)	AAAQS (μg/m^3)	Percent of NAAQS	Percent of AAAQS
CO	1-Hour	18	1296.7	1314.4	40,000	40,000	3%	3%
	8-Hour	3.7	1296.7	1300.4	10,000	10,000	13%	13%
NO_2	1-Hour	2.4	18.0	20.4	188	188	11%	11%
	Annual	0.018	3.2	3.2	100	100	3%	3%
SO_2	1-Hour	0.051	6.9	6.9	196	196	4%	4%
	3-Hour	0.032	9.1	9.1	1,300	1,300	1%	1%
	24-Hour	0.0055	8.9	8.9	--	365	--	2%
	Annual	1.4E-04	2.4	2.4	--	80	--	3%
PM_{10}	24-Hour	0.50	10.0	10.5	150	150	7%	7%
$PM_{2.5}$	24-Hour	0.49	7.7	8.2	35	35	23%	23%
	Annual	0.050	1.9	2.0	12	12	16%	16%

Notes:
Modeled highest second-high values from 5 modeled years shown for all short-term averaging times, with the exception of the following:
NO_2 1-hour value is calculated as the 3-year average of the 8th highest daily maximum 1-hour concentrations, and the background value shown is the average of the 1-hour values that are paired in time with the modeled values;
SO_2 1-hour value is calculated as the 3-year average of the 4th highest daily maximum 1-hour concentrations;
PM_{10} 24-hour value is the 6th highest value from 5-year modeling period; and
$PM_{2.5}$ 24-hour value is calculated as the 3-year average of the 8th highest values.
Maximum annual values are shown for NO_2 and SO_2 and the $PM_{2.5}$ annual value is the annual mean averaged over the maximum 3 years.
PM_{10} and $PM_{2.5}$ 24-hour, and $PM_{2.5}$ annual modeled impacts include secondary $PM_{2.5}$ impacts (0.48 μg/m^3 - 24-hour and 0.05 μg/m^3 - annual) from CAMx modeling.

3.3.5 Development Drilling

3.3.5.1 Receptors and Source Configurations

See Attachment A for detailed information regarding the modeled sources, emission rates, locations, and in-stack NO_2-to-NOx ratios.

See Attachment E for the ambient air boundaries and receptors.

3.3.5.2 Emissions Calculations

Emission rates for all modeled sources are provided in Attachment A. The emissions development methods for Development Drilling drill rigs and hydraulic fracturing activities follows an approach identical to that described for BT1 Pre-Drilling in Section 3.3.3.2 "Emissions Calculations". The underlying emission rates are different from the BT1 Pre-Drilling (as shown via a comparison of emission rates provided in Attachment A); however, the methodology is identical. Hydraulic Fracturing Engines –

Hourly and annual emissions for hydraulic fracturing engines are zero due to highline power being used rather than diesel engines. Similarly, the emissions development methods for the operational activities included in Development Drilling are identical to Routine Operations in Section 3.3.6.2 "Emissions Calculations". Construction emissions from facility installation activities at BT2 and BT3 are also included in this scenario. Sources associated with facility installation activities included heaters, shop heaters, generator sets, non-road equipment, B-70s, and fugitive dust at BT2 and BT3.

3.3.5.3 Criteria Pollutant Impacts

Table 3.3-7 shows the modeled impacts to air quality everywhere in the model domain and Table 3.3-8 shows the model impacts at Nuiqsut. Representative background concentrations are added to model results prior to comparing the total concentration to applicable AAQS. As shown, impacts would be below applicable AAQS for all criteria pollutants and averaging periods.

Table 3.3-7 Development Drilling Activity AAQS Impacts– Alternative B (Proponent's Project)

Pollutant	Averaging Time	Maximum Modeled Concentration (µg/m³)	Background Concentration (µg/m³)	Total Concentration (µg/m³)	NAAQS (µg/m³)	AAAQS (µg/m³)	Percent of NAAQS	Percent of AAAQS
CO	1-Hour	1389.5	1296.7	2686.2	40,000	40,000	7%	7%
	8-Hour	921.7	1296.7	2218.4	10,000	10,000	22%	22%
NO_2	1-Hour	138.5	17.6	156.1	188	188	83%	83%
	Annual	24.9	3.2	28.1	100	100	28%	28%
SO_2	1-Hour	17.9	6.9	24.8	196	196	13%	13%
	3-Hour	16.6	9.1	25.6	1,300	1,300	2%	2%
	24-Hour	10.2	8.9	19.0	--	365	--	5%
	Annual	0.8	2.4	3.2	--	80	--	4%
PM_{10}	24-Hour	65.6	20.0	85.6	150	150	57%	57%
$PM_{2.5}$	24-Hour	22.6	7.7	30.4	35	35	87%	87%
	Annual	4.2	1.9	6.2	12	12	51%	51%

Notes:
Modeled highest second-high values from 5 modeled years shown for all short-term averaging times, with the exception of the following:
NO_2 1-hour value is calculated as the 3-year average of the 8th highest daily maximum 1-hour concentrations, and the background value shown is the average of the 1-hour values that are paired in time with the modeled values;
SO_2 1-hour value is calculated as the 3-year average of the 4th highest daily maximum 1-hour concentrations;
PM_{10} 24-hour value is the 6th highest value from 5-year modeling period; and
$PM_{2.5}$ 24-hour value is calculated as the 3-year average of the 8th highest values.
Maximum annual values are shown for NO_2 and SO_2 and the $PM_{2.5}$ annual value is the annual mean averaged over the maximum 3 years.
PM_{10} and $PM_{2.5}$ 24-hour, and $PM_{2.5}$ annual modeled impacts include secondary $PM_{2.5}$ impacts (0.48 µg/m³ - 24-hour and 0.05 µg/m³ - annual) from CAMx modeling.

Table 3.3-8 Development Drilling Activity AAQS Impacts at Nuiqsut – Alternative B (Proponent's Project)

Pollutant	Averaging Time	Maximum Modeled Concentration (µg/m³)	Background Concentration (µg/m³)	Total Concentration (µg/m³)	NAAQS (µg/m³)	AAAQS (µg/m³)	Percent of NAAQS	Percent of AAAQS
CO	1-Hour	30	1,296.7	1,327.1	40,000	40,000	3%	3%
	8-Hour	9.4	1,296.7	1,306.1	10,000	10,000	13%	13%
NO_2	1-Hour	19	20.9	40.0	188	188	21%	21%
	Annual	0.18	3.2	3.4	100	100	3%	3%
SO_2	1-Hour	0.86	6.9	7.7	196	196	4%	4%
	3-Hour	0.51	9.1	9.6	1,300	1,300	1%	1%
	24-Hour	0.14	8.9	9.0	--	365	--	2%
	Annual	0.0079	2.4	2.4	--	80	--	3%
PM_{10}	24-Hour	1.4	10.0	11.4	150	150	8%	8%
$PM_{2.5}$	24-Hour	0.63	7.7	8.4	35	35	24%	24%
	Annual	0.065	1.9	2.0	12	12	17%	17%

Notes:
Modeled highest second-high values from 5 modeled years shown for all short-term averaging times, with the exception of the following:
NO_2 1-hour value is calculated as the 3-year average of the 8th highest daily maximum 1-hour concentrations, and the background value shown is the average of the 1-hour values that are paired in time with the modeled values;
SO_2 1-hour value is calculated as the 3-year average of the 4th highest daily maximum 1-hour concentrations;
PM_{10} 24-hour value is the 6th highest value from 5-year modeling period; and
$PM_{2.5}$ 24-hour value is calculated as the 3-year average of the 8th highest values.
Maximum annual values are shown for NO_2 and SO_2 and the $PM_{2.5}$ annual value is the annual mean averaged over the maximum 3 years.
PM_{10} and $PM_{2.5}$ 24-hour, and $PM_{2.5}$ annual modeled impacts include secondary $PM_{2.5}$ impacts (0.48 µg/m³ - 24-hour and 0.05 µg/m³ - annual) from CAMx modeling.

3.3.6 Routine Operations

3.3.6.1 Receptors and Source Configurations

See Attachment A for detailed information regarding the modeled sources, emission rates, locations, and in-stack NO_2-to-NOx ratios.

See Attachment E for the ambient air boundaries and receptors.

3.3.6.2 *Emission Calculations*

Emission rates for all modeled sources are provided in Attachment A.

Gravel Pad Routine Operations Non-Mobile Support Equipment – Individual emission rates are extracted from the emissions inventory and converted to g/s. A category-wide emission rate is then calculated by summing the individual nonroad equipment hourly emission rates in its respective category. A category-wide annual emission rate is then quantified using the hourly emission rate and assuming equipment operates continuously across all hours of operating months. Emissions are allocated within each modeling domain by dividing hourly and annual emission rates by the acreage of the modeling domain.

Gravel Pad Well Intervention Non-Mobile Support Equipment – see *Gravel Pad Routine Operations Non-Mobile Support*, above, for calculation method. A minor difference relative to the Gravel Pad Routine Operations Non-Mobile Support is that total engine emissions are not included in summation and treated as separate point sources.

WOC Internal Combustion Equipment, Nonroad Engines – *see Gravel Pad Routine Operations Non-Mobile Support for calculation method.* Equipment defined as internal combustion equipment includes pumps, light plants, snowmelter boilers, and other engines.

WOC Portable External Combustion Equipment – *see Gravel Pad Routine Operations Non-Mobile Support for calculation method.* Equipment defined as portable external combustion equipment includes heaters, heater engine fans, and snowmelter engines.

WOC Stationary External Combustion Equipment – *see Gravel Pad Routine Operations Non-Mobile Support for calculation method.* Equipment defined as stationary external combustion equipment include non-portable natural gas heaters.

Mobile Tailpipe Emissions – See mobile tailpipe emissions in section 3.3.3.2. Additional emission volumes sources are added to WOC and adjacent airstrip road.

Mobile Equipment Fugitive Dust - See mobile equipment fugitive dust in section 3.3.3.2. Additional emission volumes sources are added to WOC and adjacent airstrip road.

WPF Injection and Power Generation Turbines - Hourly and annual emission rates are initially calculated using the general approach outlined above. Extracted emissions rates are taken as an annual average so monthly emission factors are applied to hourly and annual emission rates to account for fluctuations in emission rates. Monthly fluctuations in emission rates are caused by variations in ambient temperatures affecting the air density which affects fuel capacity into the turbine at full load.

WPF Internal Combustion Equipment, Small Nonroad Engines - Individual emission rates are extracted from the emissions inventory and converted to g/s. Equipment defined as small nonroad engines include pumps, compressors, light plants, pressure washers, and other engines under 140 horsepower. A category-wide emission rate is then calculated by summing the individual nonroad equipment hourly emission rates in its respective category. A category-wide annual emission rate is then quantified using the hourly emission rate and assuming equipment operates continuously across all hours of operating months. Emissions are split into seven equal area sources and divided by the acreage of the modeling domain.

WPF Portable External Combustion Equipment – See *WPF Internal Combustion Equipment, Small Nonroad Engines* for calculation method. Equipment defined as portable external combustion equipment includes heaters, heater engine fans, and aircraft de-icers.

WPF Stationary External Combustion Equipment – *See WPF Internal Combustion Equipment, Small Nonroad Engines* for calculation method. Equipment defined as stationary external combustion equipment include non-portable natural gas heaters.

Willow Airstrip Aircraft Activity – Hourly and annual emission rates are calculated by extracting takeoff and landing emission factors for each aircraft type. Emission factors for each aircraft type are then multiplied by the number of flights for each aircraft type in the model year, 2033. Since each flight constitutes one takeoff and one landing, the takeoff and landing emission rates are summed across their respective aircraft type. Total aircraft emission rates are then calculated by summing across the aircraft types and converted to g/s. The total emission rates are split into three separate areas, based on release height, and divided by the respective airstrip area.

3.3.6.3 *Structure Locations and Building Downwash*

See Attachment A for figures depicting the structure locations relative to emissions sources.

3.3.6.4 Criteria Pollutant Impacts

Table 3.3-9 shows the modeled impacts to air quality everywhere in the domain (the analysis area) while Table 3.3-10 shows the modeled impacts at Nuiqsut. Representative background concentrations are added to model results prior to comparing the total concentration to applicable AAQS. As shown, impacts would be below applicable AAQS for all criteria pollutants and averaging periods. Table 3.3-11 provides the modeled impacts at Nuiqsut for comparison to PSD Class II increments. Impacts at Nuiqsut are below applicable PSD increments for all pollutants and averaging times. It is important to note that a PSD increment assessment is the jurisdiction of ADEC and the proposed analysis differs from a formal increment consumption assessment in several important ways. See Section 1.2.3.2 for more information. With regards to the $PM_{2.5}$ analysis shown here and for the other alternatives, the secondary $PM_{2.5}$ concentration from CAMx (see footnote of Table 3.3-9) was added to the AERMOD primary $PM_{2.5}$ modeled concentration prior to comparison with the AAQS. Thus, the $PM_{2.5}$ concentration would be affected by potential biases in the secondary nitrate and sulfate.

Table 3.3-9 Routine Operations AAQS Impacts – Alternative B (Proponent's Project)

Pollutant	Averaging Time	Maximum Modeled Concentration (μg/m³)	Background Concentration (μg/m³)	Total Concentration (μg/m³)	NAAQS (μg/m³)	AAAQS (μg/m³)	Percent of NAAQS	Percent of AAAQS
CO	1-Hour	1389.5	1296.7	2686.2	40,000	40,000	7%	7%
	8-Hour	921.7	1296.7	2218.4	10,000	10,000	22%	22%
NO_2	1-Hour	138.5	17.6	156.1	188	188	83%	83%
	Annual	24.9	3.2	28.1	100	100	28%	28%
SO_2	1-Hour	17.9	6.9	24.8	196	196	13%	13%
	3-Hour	16.6	9.1	25.6	1,300	1,300	2%	2%
	24-Hour	10.2	8.9	19.0	--	365	--	5%
	Annual	0.8	2.4	3.2	--	80	--	4%
PM_{10}	24-Hour	65.6	20.0	85.6	150	150	57%	57%
$PM_{2.5}$	24-Hour	22.6	7.7	30.4	35	35	87%	87%
	Annual	4.2	1.9	6.2	12	12	51%	51%

Notes:
Modeled highest second-high values from 5 modeled years shown for all short-term averaging times, with the exception of the following:
NO_2 1-hour value is calculated as the 3-year average of the 8th highest daily maximum 1-hour concentrations, and the background value shown is the average of the 1-hour values that are paired in time with the modeled values;
SO_2 1-hour value is calculated as the 3-year average of the 4th highest daily maximum 1-hour concentrations;
PM_{10} 24-hour value is the 6th highest value from 5-year modeling period; and
$PM_{2.5}$ 24-hour value is calculated as the 3-year average of the 8th highest values.
Maximum annual values are shown for NO_2 and SO_2 and the $PM_{2.5}$ annual value is the annual mean averaged over the maximum 3 years.
PM_{10} and $PM_{2.5}$ 24-hour, and $PM_{2.5}$ annual modeled impacts include secondary $PM_{2.5}$ impacts (0.48 μg/m³ - 24-hour and 0.05 μg/m³ - annual) from CAMx modeling.

Table 3.3-10 Routine Operations AAQS Impacts at Nuiqsut – Alternative B (Proponent's Project)

Pollutant	Averaging Time	Maximum Modeled Concentration (µg/m³)	Background Concentration (µg/m³)	Total Concentration (µg/m³)	NAAQS (µg/m³)	AAAQS (µg/m³)	Percent of NAAQS	Percent of AAAQS
CO	1-Hour	29.7	1296.7	1326.4	40,000	40,000	3%	3%
	8-Hour	9.6	1296.7	1306.4	10,000	10,000	13%	13%
NO_2	1-Hour	18.9	20.9	39.9	188	188	21%	21%
	Annual	0.2	3.2	3.3	100	100	3%	3%
SO_2	1-Hour	0.9	6.9	7.7	196	196	4%	4%
	3-Hour	0.5	9.1	9.6	1,300	1,300	1%	1%
	24-Hour	0.1	8.9	9.0	--	365	--	2%
	Annual	0.0	2.4	2.4	--	80	--	3%
PM_{10}	24-Hour	1.4	10.0	11.4	150	150	8%	8%
$PM_{2.5}$	24-Hour	0.6	7.7	8.4	35	35	24%	24%
	Annual	0.1	1.9	2.0	12	12	17%	17%

Notes:
Modeled highest second-high values from 5 modeled years shown for all short-term averaging times, with the exception of the following:
NO_2 1-hour value is calculated as the 3-year average of the 8th highest daily maximum 1-hour concentrations, and the background value shown is the average of the 1-hour values that are paired in time with the modeled values;
SO_2 1-hour value is calculated as the 3-year average of the 4th highest daily maximum 1-hour concentrations;
PM_{10} 24-hour value is the 6th highest value from 5-year modeling period; and
$PM_{2.5}$ 24-hour value is calculated as the 3-year average of the 8th highest values.
Maximum annual values are shown for NO_2 and SO_2 and the $PM_{2.5}$ annual value is the annual mean averaged over the maximum 3 years.
PM_{10} and $PM_{2.5}$ 24-hour, and $PM_{2.5}$ annual modeled impacts include secondary $PM_{2.5}$ impacts (0.48 µg/m³ - 24-hour and 0.05 µg/m³ - annual) from CAMx modeling.

Table 3.3-11 Routine Operation Activity PSD Increment Impacts at Nuiqsut – Alternative B (Proponent's Project)

Pollutant	Average Time [a]	Modeled Concentration[b] (µg/m³)	Class II PSD Increment (µg/m³)
NO_2	Annual	0.16	25
SO_2	3-hour	0.51	512
	24-hour	0.14	91
	Annual	0.01	20
PM_{10}	24-hour	1.49	30
	Annual	0.11	17
$PM_{2.5}$	24-hour	0.81	9
	Annual	0.06	4

Notes:
[a] For comparison to annual PSD increments, the maximum annual arithmetic mean value from any of 5-years of modeled impacts were used. For comparison to short-term (3- and 24-hour) PSD increments, the maximum 2nd high value from any of 5-years of modeled.
[b] PM_{10} and $PM_{2.5}$ 24-hour, and $PM_{2.5}$ annual modeled impacts include secondary $PM_{2.5}$ impacts (0.48 µg/m³ - 24-hour and 0.05 µg/m³ - annual) from CAMx modeling.

3.3.6.5 HAPs Impacts

For comparison to RELs and RfCs, toxic modeling was conducted and evaluated for the 6 HAPs shown in Table 3.3-12. The evaluations against the RELs and RfCs were done using the HAP emission rates documented in Attachment A. Cancer risk was evaluated for the Nuiqsut community using the procedures discussed in Chapter 1. As shown in Table 3.3-12, the concentrations of all HAPs everywhere in the analysis area are well below their respective RELs on an hourly period, and RfCs on an annual period. As shown in Table 3.3-13, the estimated cancer risk due to the Project is much less than the threshold of one in one million (1.0e-06) at Nuiqsut. Note that the HAPs considered for this analysis only include those most commonly emitted from oil and gas development (benzene, toluene, ethylbenzene, xylenes, n-hexane, and formaldehyde) and that the Total HAPs reported in Table 3.3-13 are the sum of only a subset of HAPs.

Table 3.3-12 Routine Operation Activity Acute and Non-carcinogenic HAPs Impacts – Alternative B (Proponent's Project)

Pollutant	Max 1-hour in analysis area (µg/m^3)	Acute REL (µg/m^3)	Max 8-hour in analysis area (µg/m^3)	AEGLs (µg/m^3)	Max Annual in analysis area (µg/m^3)	RfC (µg/m^3)
Benzene	8.8	27.0	6.0	29000.0	0.2	30.0
Ethylbenzene	230.7	140000.0	155.4	140000.0	5.0	1000.0
Formaldehyde	1.4	55.0	0.8	1100.0	0.0	9.8
n-hexane	562.9	10000000.0	379.1	10000000.0	12.1	700.0
Toluene	25.7	37000.0	17.3	250000.0	0.6	5000.0
Xylene	454.5	22000.0	306.2	560000.0	9.8	100.0

Notes:
[1] No REL available for these air toxics. Values shown are Acute Exposure Guideline Levels for mild effects (AELG-1) (ethyl benzene) and moderate effects (AEGL-2) (n-hexane).

Table 3.3-13 Routine Operation Activity Carcinogenic HAPs Impacts – Alternative B)

Pollutant	Max Annual (µg/m^3)	Cancer Unit Risk Factor thresholds (1/(µg/m^3))	Exposure Adjustment Factor	Cancer Risks
Benzene	9.70E-04	7.80E-06	4.30E-01	3.25E-09
Ethylbenzene	3.97E-03	2.50E-06		4.27E-09
Formaldehyde	3.70E-04	1.30E-05		2.07E-09
Total Cancer Risk:				9.6.E-09

3.4 Alternative C (Disconnected Infield Roads)

This section describes the selection of scenarios designed to characterize the potential impacts anticipated under Alternative C, the modeled receptors, source types, emissions, and resulting impacts.

3.4.1 Overview of Scenarios

Based on Alternative C emissions activities, source types, and development phases, five scenarios are analyzed:

1. Construction
2. Pre-drilling activities at BT1
3. Pre-drilling activities at BT1 and BT2
4. Development drilling
5. Routine Operations

As in the case of Alternative B, all scenarios consider emission of criteria pollutants, HAPs and GHGs. As shown in Section 2.1 "Willow Alternatives Emissions Inventories", HAPs from construction and drilling activities are substantially lower than routine operations. Therefore, HAP impacts are explicitly modeled for Routine Operations and HAP impacts from all other scenarios would be lower than Routine Operations.

Modeled sources include point source emissions, area sources, and volume sources. Equipment modeled as point sources include stationary sources, such as engines and heaters, as well as large portable equipment and nonroad engines. Groupings of similar low-level equipment were generally aggregated as area sources. Fugitive dust and mobile sources tailpipe emissions were modeled as volume sources. For example, the gravel access road was modeled as a series of volume sources to represent dust or tailpipe emissions from vehicle traffic. Point source stack parameters were provided by CPAI for most stationary sources, for those sources without stack parameter information, stack parameters are selected to be consistent with stack parameters used for modeling GMT2 or other public information. For area and volume sources release heights, initial vertical dimensions, and initial horizontal dimensions were based on the equipment as well as Table 3-2 from the AERMOD User's Guide (USEPA, 2019).

See Attachment A for detailed information about the sources included in each scenario. All sources modeled for each scenario are shown in figures in Attachment A depicting the layout of the sources relative to ambient air boundaries, structures, roads, and other Project features. In addition, Attachment A includes detailed tables that provide a description of each modeled source, source emissions rates for all modeled pollutants and averaging periods, in-stack NO_2-to-NOx ratio, modeled location, and stack parameters.

3.4.1.1 Construction

The construction of Willow MDP is similar to Alternative B except that due to the disconnected access of the northern portion of the Project area from the southern portion Alternative C includes construction of additional operational facilities, including a WOC North and WOC South (which consists of the same functions as the WOC in Alternatives B and D), and a northern airstrip in addition to the southern airstrip included in Alternatives B and D.

3.4.1.2 BT1 Pre-drilling

Alternative C BT1 pre-drilling phase is identical to Alternative B with the exception of the number of mobile tailpipe and mobile fugitive dust volume sources due to change in modeled road length along BT1.

3.4.1.3 BT1 and BT2 Pre-drilling

Alternative C BT1 and BT2 pre-drilling phase identical to Alternative B BT1 and BT2 Pre-drill with the exception that BT2 has a larger pad size for Alternative C than Alternative B, so the impacts for Alternative C BT1 and BT2 Pre-Drill are explicitly modeled. This scenario is similar to BT1 Pre-drilling with the exception that the drill rig and hydraulic fracturing equipment are active at both BT1 and BT2 pads. Development Drilling

The development drilling under Alternative C would consist of drilling on highline power at BT2 and BT3 and would be identical to development drilling for Alternative B except for the drill sites and infrastructure differences.

3.4.1.4 Routine operation and production of wells

Routine operations under Alternative C would be similar to the types of sources modeled in Alternative B except that due to the disconnected infield access, additional facilities operate, including WOC North and WOC South (which has the same functions as the WOC in Alternatives B and D), and a northern airstrip in addition to the southern airstrip included in Alternatives B and D.

3.4.2 Construction

3.4.2.1 Receptors and Source Configurations

See Attachment A for detailed information regarding the modeled sources, emission rates, locations, and in-stack NO_2-to-NOx ratios.

See Attachment E for the ambient air boundaries and receptors.

3.4.2.2 Emissions Calculations

Emissions calculations were identical to Alternative B Construction except for the 1) exclusion of BT2 pad construction; 2) relocation of sources from WOC to WOC North and WOC South; 3) select sources from Alternative B Routine Operations that did not operate during construction, would operate during construction for Alternative C; and 4) there would be increased road lengths due to road alignments along the pads. Specifically,

1. BT3 Pad Construction Nonroad Equipment is included in the Alternative C Construction scenario while BT1 and BT2 Pad Construction Nonroad Equipment is not because for Alternative C, BT3 Pad Construction occurs during the model year, 2024, and BT1 Pad Construction occurs during 2023 and BT2 Pad Construction occurs during 2025. Emissions calculations for BT3 Pad Construction Nonroad Equipment are identical to those described for BT3 Pad Construction Nonroad Equipment in Section 3.3.2.2 ”Emissions Calculations”.
2. Alternative C involves the construction of WOC North and WOC South rather than one WOC. Sources located at the WOC in Alternative B, including sources related to facilities installation nonroad equipment, power generation, pipeline installation, vertical member support construction, drill rigs, drilling non-mobile support equipment, aircraft activity, mobile tailpipe emissions, ice road construction, mobile equipment fugitive dust, and wind erosion fugitive dust, are re-located to WOC North and WOC South. Emissions calculation methods are identical to those described in section 3.3.2.2 except emissions for wind erosion fugitive dust at WOC South are scaled by the respective pad sizes at WOC North and WOC South to obtain emissions for wind erosion fugitive dust at WOC North. Additionally, sources related to fiber optics installation are located at the WPF for Alternative B Construction. For Alternative C, these sources occur at WOC North and WOC South rather than the WPF. The emissions associated with fiber optics installation are split in half and then allocated to WOC North and WOC South because the total emissions remain the same despite the installation occurring at two different locations. Additionally, sources associated with disposal well drilling at the WOC North including drill rigs engines, boilers, heaters, and drilling nonmobile support equipment were added and emissions rates were calculated using the general approach.
3. Certain sources only included in Routine Operations for Alternative B, including WOC internal Combustion Equipment - Nonroad Engines, WOC Portable External Combustion Equipment,

WOC Stationary External Combustion Equipment, and two incinerators, are included in the Alternative C Construction scenario. Description of emission calculations for these sources is in Section 3.3.6.2 “Emission Calculations”.

4. For Alternative B Construction, Pipeline Installation, Vertical Member Support Construction, Fiber Optics Installation, and WPF Mobile Equipment are split into various volume sources. For Alternative C, these sources are split into differing equivalent volume sources due to the change in the road lengths and alignment relative to the gravel pads. See figures of sources in Attachment A for a visual depiction.

Description of emissions calculations for all other sources is included in Section 3.3.2.2 “Emission Calculations”.

3.4.2.3 Criteria Pollutant Impacts

Table 3.4-1 shows the modeled impacts to air quality everywhere in the model domain and Table 3.4-2 shows the model impacts at Nuiqsut. Representative background concentrations are added to model results prior to comparing the total concentration to applicable AAQS. As shown, impacts would be below applicable AAQS for all criteria pollutants and averaging periods everywhere in the model domain and, in particular, at Nuiqsut.

Table 3.4-1 Construction Activity AAQS Impacts – Alternative C (Disconnected Infield Roads)

Pollutant	Averaging Time	Maximum Modeled Concentration (μg/m³)	Background Concentration (μg/m³)	Total Concentration (μg/m³)	NAAQS (μg/m³)	AAAQS (μg/m³)	Percent of NAAQS	Percent of AAAQS
CO	1-Hour	643.2	1296.7	1940.0	40,000	40,000	5%	5%
	8-Hour	488.1	1296.7	1784.8	10,000	10,000	18%	18%
NO_2	1-Hour	136.0	16.2	152.2	188	188	81%	81%
	Annual	35.4	3.2	38.5	100	100	39%	39%
SO_2	1-Hour	4.3	6.9	11.2	196	196	6%	6%
	3-Hour	5.2	9.1	14.2	1,300	1,300	1%	1%
	24-Hour	1.3	8.9	10.2	--	365	--	3%
	Annual	0.2	2.4	2.7	--	80	--	3%
PM_{10}	24-Hour	90.4	30.0	120.4	150	150	80%	80%
$PM_{2.5}$	24-Hour	16.7	7.7	24.4	35	35	70%	70%
	Annual	5.4	1.9	7.4	12	12	61%	61%

Notes:
Modeled highest second-high values from 5 modeled years shown for all short-term averaging times, with the exception of the following:
NO_2 1-hour value is calculated as the 3-year average of the 8th highest daily maximum 1-hour concentrations, and the background value shown is the average of the 1-hour values that are paired in time with the modeled values;
SO_2 1-hour value is calculated as the 3-year average of the 4th highest daily maximum 1-hour concentrations;
PM_{10} 24-hour value is the 6th highest value from 5-year modeling period; and
$PM_{2.5}$ 24-hour value is calculated as the 3-year average of the 8th highest values.
Maximum annual values are shown for NO_2 and SO_2 and the $PM_{2.5}$ annual value is the annual mean averaged over the maximum 3 years.
PM_{10} and $PM_{2.5}$ 24-hour, and $PM_{2.5}$ annual modeled impacts include secondary $PM_{2.5}$ impacts (0.48 μg/m³ - 24-hour and 0.05 μg/m³ - annual) from CAMx modeling.

Table 3.4-2 Construction Activity AAQS Impacts at Nuiqsut – Alternative C (Disconnected Infield Roads)

Pollutant	Averaging Time	Maximum Modeled Concentration (µg/m^3)	Background Concentration (µg/m^3)	Total Concentration (µg/m^3)	NAAQS (µg/m^3)	AAAQS (µg/m^3)	Percent of NAAQS	Percent of AAAQS
CO	1-Hour	45.1	1296.7	1341.8	40,000	40,000	3%	3%
	8-Hour	15.1	1296.7	1311.9	10,000	10,000	13%	13%
NO_2	1-Hour	31.9	18.7	50.6	188	188	27%	27%
	Annual	0.49	3.2	3.7	100	100	4%	4%
SO_2	1-Hour	0.83	6.9	7.7	196	196	4%	4%
	3-Hour	0.51	9.1	9.6	1,300	1,300	1%	1%
	24-Hour	0.116	8.9	9.0	--	365	--	2%
	Annual	0.0028	2.4	2.4	--	80	--	3%
PM_{10}	24-Hour	1.0	10.0	11.0	150	150	7%	7%
$PM_{2.5}$	24-Hour	0.75	7.7	8.5	35	35	24%	24%
	Annual	0.076	1.9	2.0	12	12	17%	17%

Notes:
Modeled highest second-high values from 5 modeled years shown for all short-term averaging times, with the exception of the following:
NO_2 1-hour value is calculated as the 3-year average of the 8th highest daily maximum 1-hour concentrations, and the background value shown is the average of the 1-hour values that are paired in time with the modeled values;
SO_2 1-hour value is calculated as the 3-year average of the 4th highest daily maximum 1-hour concentrations;
PM_{10} 24-hour value is the 6th highest value from 5-year modeling period; and
$PM_{2.5}$ 24-hour value is calculated as the 3-year average of the 8th highest values.
Maximum annual values are shown for NO_2 and SO_2 and the $PM_{2.5}$ annual value is the annual mean averaged over the maximum 3 years.
PM_{10} and $PM_{2.5}$ 24-hour, and $PM_{2.5}$ annual modeled impacts include secondary $PM_{2.5}$ impacts (0.48 µg/m^3 - 24-hour and 0.05 µg/m^3 - annual) from CAMx modeling.

3.4.3 BT1 Pre-Drill

Alternative C BT1 pre-drilling phase is similar to Alternative B

3.4.3.1 Receptors and Source Configurations

See Attachment A for detailed information regarding the modeled sources, emission rates, locations, and in-stack NO_2-to-NOx ratios.

See Attachment E for the ambient air boundaries and receptors.

3.4.3.2 Emissions Calculations

Emissions calculations procedures were identical to Alternative B. See Attachment A for the emissions rates.

3.4.3.3 Criteria Pollutant Impacts

Table 3.4-3 shows the modeled impacts to air quality everywhere in the model domain and Table 3.4-4 shows the model impacts at Nuiqsut. Representative background concentrations are added to model results prior to comparing the total concentration to applicable AAQS. As shown, impacts would be below applicable AAQS for all criteria pollutants and averaging periods.

Table 3.4-3 BT1 Pre-Drill Activity AAQS Impacts – Alternative C (Disconnected Infield Roads)

Pollutant	Averaging Time	Maximum Modeled Concentration (µg/m³)	Background Concentration (µg/m³)	Total Concentration (µg/m³)	NAAQS (µg/m³)	AAAQS (µg/m³)	Percent of NAAQS	Percent of AAAQS
CO	1-Hour	1471.5	1296.7	2768.2	40,000	40,000	7%	7%
	8-Hour	1128.2	1296.7	2424.9	10,000	10,000	24%	24%
NO_2	1-Hour	65.7	19.9	85.7	188	188	46%	46%
	Annual	12.7	3.2	15.9	100	100	16%	16%
SO_2	1-Hour	4.2	6.9	11.1	196	196	6%	6%
	3-Hour	4.1	9.1	13.2	1,300	1,300	1%	1%
	24-Hour	2.2	8.9	11.1	--	365	--	3%
	Annual	0.2	2.4	2.6	--	80	--	3%
PM_{10}	24-Hour	18.0	10.0	28.0	150	150	19%	19%
$PM_{2.5}$	24-Hour	11.4	7.7	19.1	35	35	55%	55%
	Annual	2.3	1.9	4.2	12	12	35%	35%

Notes:
Modeled highest second-high values from 5 modeled years shown for all short-term averaging times, with the exception of the following:
NO_2 1-hour value is calculated as the 3-year average of the 8th highest daily maximum 1-hour concentrations, and the background value shown is the average of the 1-hour values that are paired in time with the modeled values;
SO_2 1-hour value is calculated as the 3-year average of the 4th highest daily maximum 1-hour concentrations;
PM_{10} 24-hour value is the 6th highest value from 5-year modeling period; and
$PM_{2.5}$ 24-hour value is calculated as the 3-year average of the 8th highest values.
Maximum annual values are shown for NO_2 and SO_2 and the $PM_{2.5}$ annual value is the annual mean averaged over the maximum 3 years.
PM_{10} and $PM_{2.5}$ 24-hour, and $PM_{2.5}$ annual modeled impacts include secondary $PM_{2.5}$ impacts (0.48 µg/m³ - 24-hour and 0.05 µg/m³ - annual) from CAMx modeling.

Table 3.4-4 BT1 Pre-Drill Activity AAQS Impacts at Nuiqsut – Alternative C (Disconnected Infield Roads)

Pollutant	Averaging Time	Maximum Modeled Concentration (µg/m³)	Background Concentration (µg/m³)	Total Concentration (µg/m³)	NAAQS (µg/m³)	AAAQS (µg/m³)	Percent of NAAQS	Percent of AAAQS
CO	1-Hour	26	1296.7	1322.8	40,000	40,000	3%	3%
	8-Hour	3.4	1296.7	1300.1	10,000	10,000	13%	13%
NO_2	1-Hour	3.318	23.2	26.6	188	188	14%	14%
	Annual	0.018	3.2	3.2	100	100	3%	3%
SO_2	1-Hour	0.071	6.9	7.0	196	196	4%	4%
	3-Hour	0.037	9.1	9.1	1,300	1,300	1%	1%
	24-Hour	0.0060	8.9	8.9	--	365	--	2%
	Annual	1.4E-04	2.4	2.4	--	80	--	3%
PM_{10}	24-Hour	0.5	10.0	10.5	150	150	7%	7%
$PM_{2.5}$	24-Hour	0.49	7.7	8.2	35	35	23%	23%
	Annual	0.050	1.9	2.0	12	12	16%	16%

Notes:
Modeled highest second-high values from 5 modeled years shown for all short-term averaging times, with the exception of the following:
NO_2 1-hour value is calculated as the 3-year average of the 8th highest daily maximum 1-hour concentrations, and the background value shown is the average of the 1-hour values that are paired in time with the modeled values;
SO_2 1-hour value is calculated as the 3-year average of the 4th highest daily maximum 1-hour concentrations;
PM_{10} 24-hour value is the 6th highest value from 5-year modeling period; and
$PM_{2.5}$ 24-hour value is calculated as the 3-year average of the 8th highest values.

Maximum annual values are shown for NO_2 and SO_2 and the $PM_{2.5}$ annual value is the annual mean averaged over the maximum 3 years.
PM_{10} and $PM_{2.5}$ 24-hour, and $PM_{2.5}$ annual modeled impacts include secondary $PM_{2.5}$ impacts (0.48 µg/m^3 - 24-hour and 0.05 µg/m^3 - annual) from CAMx modeling.

3.4.4 BT1 and BT2 Pre-Drill

Alternative C BT1 and BT2 pre-drilling phase is similar to Alternative B.

3.4.4.1 Receptors and Source Configurations

See Attachment A for detailed information regarding the modeled sources, emission rates, locations, and in-stack NO_2-to-NOx ratios.

See Attachment E for the ambient air boundaries and receptors.

3.4.4.2 *Emissions Calculations*

Emissions calculations procedures were identical to Alternative B. See Attachment A for emissions rates.

3.4.4.3 Criteria Pollutant Impacts

Table 3.4-5 shows the modeled impacts to air quality everywhere in the model domain and Table 3.4-6 shows the model impacts at Nuiqsut. Representative background concentrations are added to model results prior to comparing the total concentration to applicable AAQS. As shown, impacts would be below applicable AAQS for all criteria pollutants and averaging periods.

Table 3.4-5 BT1 and BT2 Pre-Drill Activity AAQS Impacts – Alternative C (Disconnected Infield Roads)

Pollutant	Averaging Time	Maximum Modeled Concentration (µg/m^3)	Background Concentration (µg/m^3)	Total Concentration (µg/m^3)	NAAQS (µg/m^3)	AAAQS (µg/m^3)	Percent of NAAQS	Percent of AAAQS
CO	1-Hour	826.4	1296.7	2123.1	40,000	40,000	5%	5%
	8-Hour	635.7	1296.7	1932.5	10,000	10,000	19%	19%
NO_2	1-Hour	57.6	13.1	70.7	188	188	38%	38%
	Annual	12.6	3.2	15.7	100	100	16%	16%
SO_2	1-Hour	4.2	6.9	11.1	196	196	6%	6%
	3-Hour	4.1	9.1	13.2	1,300	1,300	1%	1%
	24-Hour	1.8	8.9	10.6	--	365	--	3%
	Annual	0.2	2.4	2.6	--	80	--	3%
PM_{10}	24-Hour	17.9	10.0	27.9	150	150	19%	19%
$PM_{2.5}$	24-Hour	11.4	7.7	19.1	35	35	55%	55%
	Annual	2.3	1.9	4.2	12	12	35%	35%

Notes:
Modeled highest second-high values from 5 modeled years shown for all short-term averaging times, with the exception of the following:
NO_2 1-hour value is calculated as the 3-year average of the 8th highest daily maximum 1-hour concentrations, and the background value shown is the average of the 1-hour values that are paired in time with the modeled values;
SO_2 1-hour value is calculated as the 3-year average of the 4th highest daily maximum 1-hour concentrations;
PM_{10} 24-hour value is the 6th highest value from 5-year modeling period; and
$PM_{2.5}$ 24-hour value is calculated as the 3-year average of the 8th highest values.
Maximum annual values are shown for NO_2 and SO_2 and the $PM_{2.5}$ annual value is the annual mean averaged over the maximum 3 years.

PM_{10} and $PM_{2.5}$ 24-hour, and $PM_{2.5}$ annual modeled impacts include secondary $PM_{2.5}$ impacts (0.48 μg/m^3 - 24-hour and 0.05 μg/m^3 - annual) from CAMx modeling.

Table 3.4-6 BT1 and BT2 Pre-Drill Activity AAQS Impacts at Nuiqsut – Alternative C (Disconnected Infield Roads)

Pollutant	Averaging Time	Maximum Modeled Concentration (μg/m^3)	Background Concentration (μg/m^3)	Total Concentration (μg/m^3)	NAAQS (μg/m^3)	AAAQS (μg/m^3)	Percent of NAAQS	Percent of AAAQS
CO	1-Hour	22	1,297	1,319	40,000	40,000	3%	3%
	8-Hour	3.4	1,297	1,300	10,000	10,000	13%	13%
NO_2	1-Hour	3.0	18	21	188	188	11%	11%
	Annual	0.018	3.2	3.2	100	100	3%	3%
SO_2	1-Hour	0.051	6.9	6.9	196	196	4%	4%
	3-Hour	0.027	9.1	9.1	1,300	1,300	1%	1%
	24-Hour	0.0056	8.9	8.9	--	365	--	2%
	Annual	1.4E-04	2.4	2.4	--	80	--	3%
PM_{10}	24-Hour	0.50	10	11	150	150	7%	7%
$PM_{2.5}$	24-Hour	0.49	7.7	8.2	35	35	23%	23%
	Annual	0.050	1.9	2.0	12	12	16%	16%

Notes:
Modeled highest second-high values from 5 modeled years shown for all short-term averaging times, with the exception of the following:
NO_2 1-hour value is calculated as the 3-year average of the 8th highest daily maximum 1-hour concentrations, and the background value shown is the average of the 1-hour values that are paired in time with the modeled values;
SO_2 1-hour value is calculated as the 3-year average of the 4th highest daily maximum 1-hour concentrations;
PM_{10} 24-hour value is the 6th highest value from 5-year modeling period; and
$PM_{2.5}$ 24-hour value is calculated as the 3-year average of the 8th highest values.
Maximum annual values are shown for NO_2 and SO_2 and the $PM_{2.5}$ annual value is the annual mean averaged over the maximum 3 years.
PM_{10} and $PM_{2.5}$ 24-hour, and $PM_{2.5}$ annual modeled impacts include secondary $PM_{2.5}$ impacts (0.48 μg/m^3 - 24-hour and 0.05 μg/m^3 - annual) from CAMx modeling.

3.4.5 Development Drilling

3.4.5.1 Receptors and Source Configurations

See Attachment A for detailed information regarding the modeled sources, emission rates, locations, and in-stack NO_2-to-NOx ratios.

See Attachment E for the ambient air boundaries and receptors.

3.4.5.2 *Emissions Calculations*

Emissions calculations procedures were identical to Alternative B. See Attachment A for emissions rates.

3.4.5.3 Criteria Pollutant Impacts

Table 3.4-7 shows the modeled impacts to air quality everywhere in the model domain and Table 3.4-8 shows the model impacts at Nuiqsut. Representative background concentrations are added to model results prior to comparing the total concentration to applicable AAQS. As shown, impacts would be below applicable AAQS for all criteria pollutants and averaging periods.

Table 3.4-7 Developmental Drilling Activity AAQS Impacts – Alternative C (Disconnected Infield Roads)

Pollutant	Averaging Time	Maximum Modeled Concentration (µg/m³)	Background Concentration (µg/m³)	Total Concentration (µg/m³)	NAAQS (µg/m³)	AAAQS (µg/m³)	Percent of NAAQS	Percent of AAAQS
CO	1-Hour	1308.0	1296.7	2604.7	40,000	40,000	7%	7%
	8-Hour	930.9	1296.7	2227.6	10,000	10,000	22%	22%
NO_2	1-Hour	147.6	21.5	169.0	188	188	90%	90%
	Annual	23.4	3.2	26.6	100	100	27%	27%
SO_2	1-Hour	19.3	6.9	26.2	196	196	13%	13%
	3-Hour	16.9	9.1	25.9	1,300	1,300	2%	2%
	24-Hour	10.4	8.9	19.3	--	365	--	5%
	Annual	0.9	2.4	3.4	--	80	--	4%
PM_{10}	24-Hour	91.3	20.0	111.3	150	150	74%	74%
$PM_{2.5}$	24-Hour	18.0	7.7	25.8	35	35	74%	74%
	Annual	5.0	1.9	6.9	12	12	57%	57%

Notes:
Modeled highest second-high values from 5 modeled years shown for all short-term averaging times, with the exception of the following:
NO_2 1-hour value is calculated as the 3-year average of the 8th highest daily maximum 1-hour concentrations, and the background value shown is the average of the 1-hour values that are paired in time with the modeled values;
SO_2 1-hour value is calculated as the 3-year average of the 4th highest daily maximum 1-hour concentrations;
PM_{10} 24-hour value is the 6th highest value from 5-year modeling period; and
$PM_{2.5}$ 24-hour value is calculated as the 3-year average of the 8th highest values.
Maximum annual values are shown for NO_2 and SO_2 and the $PM_{2.5}$ annual value is the annual mean averaged over the maximum 3 years.
PM_{10} and $PM_{2.5}$ 24-hour, and $PM_{2.5}$ annual modeled impacts include secondary $PM_{2.5}$ impacts (0.48 µg/m³ - 24-hour and 0.05 µg/m³ - annual) from CAMx modeling.

Table 3.4-8 Development Drilling Activity AAQS Impacts at Nuiqsut – Alternative C (Disconnected Infield Roads)

Pollutant	Averaging Time	Maximum Modeled Concentration (µg/m³)	Background Concentration (µg/m³)	Total Concentration (µg/m³)	NAAQS (µg/m³)	AAAQS (µg/m³)	Percent of NAAQS	Percent of AAAQS
CO	1-Hour	35	1,296.7	1,332.2	40,000	40,000	3%	3%
	8-Hour	9.4	1,296.7	1,306.1	10,000	10,000	13%	13%
NO_2	1-Hour	20	18.4	38.3	188	188	20%	20%
	Annual	0.16	3.2	3.3	100	100	3%	3%
SO_2	1-Hour	0.86	6.9	7.7	196	196	4%	4%
	3-Hour	0.51	9.1	9.6	1,300	1,300	1%	1%
	24-Hour	0.14	8.9	9.0	--	365	--	2%
	Annual	0.0081	2.4	2.4	--	80	--	3%
PM_{10}	24-Hour	1.0	30.0	31.0	150	150	21%	21%
$PM_{2.5}$	24-Hour	0.59	7.7	8.3	35	35	24%	24%
	Annual	0.067	1.9	2.0	12	12	17%	17%

Notes:
Modeled highest second-high values from 5 modeled years shown for all short-term averaging times, with the exception of the following:
NO_2 1-hour value is calculated as the 3-year average of the 8th highest daily maximum 1-hour concentrations, and the background value shown is the average of the 1-hour values that are paired in time with the modeled values;
SO_2 1-hour value is calculated as the 3-year average of the 4th highest daily maximum 1-hour concentrations;
PM_{10} 24-hour value is the 6th highest value from 5-year modeling period; and
$PM_{2.5}$ 24-hour value is calculated as the 3-year average of the 8th highest values.

Maximum annual values are shown for NO_2 and SO_2 and the $PM_{2.5}$ annual value is the annual mean averaged over the maximum 3 years. PM_{10} and $PM_{2.5}$ 24-hour, and $PM_{2.5}$ annual modeled impacts include secondary $PM_{2.5}$ impacts (0.48 µg/m^3 - 24-hour and 0.05 µg/m^3 - annual) from CAMx modeling.

3.4.6 Routine Operations

3.4.6.1 Receptors and Source Configurations

See Attachment A for detailed information regarding the modeled sources, emission rates, locations, and in-stack NO_2-to-NOx ratios.

See Attachment E for the ambient air boundaries and receptors.

3.4.6.2 Emissions Calculations

Emissions calculations were identical to Alternative B Construction except for 1) relocation of sources from WOC to WOC North and WOC South, and 2) increased road lengths due to road alignments along the pads. Specifically,

1. Alternative C involves operations at WOC North and WOC South rather than at one Operating Center. Sources located at the WOC in Alternative B, including sources related to gravel pad routine operations nonroad equipment, power generation, aircraft activity, mobile tailpipe emissions, mobile equipment fugitive dust, and wind erosion fugitive dust, are re-located to WOC North and WOC South. Emissions calculation methods are identical to those described in Section 3.3.2.2 “Emissions Calculations” except emissions for wind erosion fugitive dust at WOC South are scaled by the respective pad sizes at WOC North and WOC South to obtain emissions for wind erosion fugitive dust at WOC North.
2. For Alternative C, mobile tailpipe emissions and mobile fugitive dust emissions at WPF, WOC North, and WOC South are split into a number of equivalent volume sources differing from Alternative B due to increased road segment associated with the road alignment along gravel pads. See Attachment A for a visual depiction.

Description of emissions calculations for all other sources is included in Section 3.3.2.2 “Emissions Calculations”.

3.4.6.3 *Structure Locations and Building Downwash*

See Attachment A for figures depicting the structure locations relative to emissions sources.

3.4.6.4 Criteria Pollutant Impacts

Table 3.4-9 shows the modeled impacts to air quality everywhere in the model domain. Representative background concentrations are added to model results prior to comparing the total concentration to applicable AAQS. All pollutants are below the applicable AAQS. Table 3.4-10 shows the modeled impacts at Nuiqsut for comparisons to applicable AAQS and Table 3.4-11 provides the impacts at Nuiqsut for comparison to applicable PSD Class II increments. Impacts at Nuiqsut are below AAQS and PSD increments for all pollutants and averaging times. It is important to note that a PSD increment assessment is the jurisdiction of ADEC and the proposed analysis differs from a formal increment consumption assessment in several important ways. See Section 1.2.3.2 for more information.

Table 3.4-9 Routine Operation AAQS Impacts – Alternative C (Disconnected Infield Roads)

Pollutant	Averaging Time	Maximum Modeled Concentration (µg/m³)	Background Concentration (µg/m³)	Total Concentration (µg/m³)	NAAQS (µg/m³)	AAAQS (µg/m³)	Percent of NAAQS	Percent of AAAQS
CO	1-Hour	1308.0	1296.7	2604.7	40,000	40,000	7%	7%
	8-Hour	930.9	1296.7	2227.6	10,000	10,000	22%	22%
NO_2	1-Hour	147.6	21.5	169.0	188	188	90%	90%
	Annual	24.0	3.2	27.2	100	100	27%	27%
SO_2	1-Hour	19.2	6.9	26.1	196	196	13%	13%
	3-Hour	16.9	9.1	25.9	1,300	1,300	2%	2%
	24-Hour	10.4	8.9	19.3	--	365	--	5%
	Annual	0.9	2.4	3.4	--	80	--	4%
PM_{10}	24-Hour	77.8	50.0	127.8	150	150	85%	85%
$PM_{2.5}$	24-Hour	19.0	7.7	26.7	35	35	76%	76%
	Annual	5.0	1.9	6.9	12	12	57%	57%

Notes:
Modeled highest second-high values from 5 modeled years shown for all short-term averaging times, with the exception of the following:
NO_2 1-hour value is calculated as the 3-year average of the 8th highest daily maximum 1-hour concentrations, and the background value shown is the average of the 1-hour values that are paired in time with the modeled values;
SO_2 1-hour value is calculated as the 3-year average of the 4th highest daily maximum 1-hour concentrations;
PM_{10} 24-hour value is the 6th highest value from 5-year modeling period; and
$PM_{2.5}$ 24-hour value is calculated as the 3-year average of the 8th highest values.
Maximum annual values are shown for NO_2 and SO_2 and the $PM_{2.5}$ annual value is the annual mean averaged over the maximum 3 years.
PM_{10} and $PM_{2.5}$ 24-hour, and $PM_{2.5}$ annual modeled impacts include secondary $PM_{2.5}$ impacts (0.48 µg/m³ - 24-hour and 0.05 µg/m³ - annual) from CAMx modeling.

Table 3.4-10 Routine Operations AAQS Impacts at Nuiqsut – Alternative C (Disconnected Infield Roads)

Pollutant	Averaging Time	Maximum Modeled Concentration (µg/m³)	Background Concentration (µg/m³)	Total Concentration (µg/m³)	NAAQS (µg/m³)	AAAQS (µg/m³)	Percent of NAAQS	Percent of AAAQS
CO	1-Hour	33.6	1296.7	1330.3	40,000	40,000	3%	3%
	8-Hour	11.4	1296.7	1308.1	10,000	10,000	13%	13%
NO_2	1-Hour	19.9	18.4	38.3	188	188	20%	20%
	Annual	0.2	3.2	3.4	100	100	3%	3%
SO_2	1-Hour	0.9	6.9	7.7	196	196	4%	4%
	3-Hour	0.5	9.1	9.6	1,300	1,300	1%	1%
	24-Hour	0.1	8.9	9.0	--	365	--	2%
	Annual	0.0	2.4	2.4	--	80	--	3%
PM_{10}	24-Hour	1.5	10.0	11.5	150	150	8%	8%
$PM_{2.5}$	24-Hour	0.6	7.7	8.4	35	35	24%	24%
	Annual	0.1	1.9	2.0	12	12	17%	17%

Notes:
Modeled highest second-high values from 5 modeled years shown for all short-term averaging times, with the exception of the following:
NO_2 1-hour value is calculated as the 3-year average of the 8th highest daily maximum 1-hour concentrations, and the background value shown is the average of the 1-hour values that are paired in time with the modeled values;
SO_2 1-hour value is calculated as the 3-year average of the 4th highest daily maximum 1-hour concentrations;
PM_{10} 24-hour value is the 6th highest value from 5-year modeling period; and
$PM_{2.5}$ 24-hour value is calculated as the 3-year average of the 8th highest values.
Maximum annual values are shown for NO_2 and SO_2 and the $PM_{2.5}$ annual value is the annual mean averaged over the maximum 3 years.

PM_{10} and $PM_{2.5}$ 24-hour, and $PM_{2.5}$ annual modeled impacts include secondary $PM_{2.5}$ impacts (0.48 μg/m^3 - 24-hour and 0.05 μg/m^3 - annual) from CAMx modeling.

Table 3.4-11 Routine Operation Activity PSD Increment Impacts at Nuiqsut – Alternative C (Disconnected Infield Roads)

Pollutant	Average Time [a]	Modeled Concentration[b] (μg/m^3)	Class II PSD Increment (μg/m^3)
NO_2	Annual	0.17	25
SO_2	3-hour	0.51	512
	24-hour	0.14	91
	Annual	0.01	20
PM_{10}	24-hour	1.56	30
	Annual	0.11	17
$PM_{2.5}$	24-hour	0.88	9
	Annual	0.07	4

Notes:
[a] For comparison to annual PSD increments, the maximum annual arithmetic mean value from any of 5-years of modeled impacts were used. For comparison to short-term (3- and 24-hour) PSD increments, the maximum 2[nd] high value from any of 5-years of modeled.
[b] PM_{10} and $PM_{2.5}$ 24-hour, and $PM_{2.5}$ annual modeled impacts include secondary $PM_{2.5}$ impacts (0.48 μg/m^3 - 24-hour and 0.05 μg/m^3 - annual) from CAMx modeling.

3.4.6.5 HAPs Impacts

For comparison to RELs and RfCs, toxic modeling was conducted and evaluated for the six HAPs shown in Table 3.4-12. The evaluations against the RELs and RfCs were done using the HAP emission rates documented in Attachment A. Cancer risk was evaluated for the Nuiqsut community using the procedures discussed in Chapter 1. As shown in Table 3.4-12, the concentrations of all HAPs are well below their respective RELs on an hourly period, and RfCs on an annual period. As shown in Table 3.4-13, the estimated cancer risk is much less than the threshold of one in one million (1.0E-06) at Nuiqsut. Note that the HAPs considered for this analysis only include those most commonly emitted from oil and gas development (benzene, toluene, ethylbenzene, xylenes, n-hexane, and formaldehyde) and that the Total HAPs reported in Table 3.4-13 are the sum of only a subset of HAPs.

Table 3.4-12 Routine Operation Activity Acute and Non-carcinogenic HAPs Impacts – Alternative C (Disconnected Infield Roads)

Pollutant	Max 1-hour in analysis area (μg/m^3)	Acute REL (μg/m^3)	Max 8-hour in analysis area (μg/m^3)	AEGLs (μg/m^3)	Max Annual in analysis area (μg/m^3)	RfC (μg/m^3)
Benzene	8.7	27.0	5.9	29000.0	0.2	30.0
Ethylbenzene	226.8	140000.0	152.5	140000.0	4.8	1000.0
Formaldehyde	1.4	55.0	0.8	1100.0	0.0	9.8
n-hexane	553.3	10000000.0	372.0	10000000.0	11.6	700.0
Toluene	25.3	37000.0	17.0	250000.0	0.5	5000.0
Xylene	446.8	22000.0	300.4	560000.0	9.4	100.0

Notes:
[1] No REL available for these air toxics. Values shown are Acute Exposure Guideline Levels for mild effects (AELG-1) (ethyl benzene) and moderate effects (AEGL-2) (n-hexane).

Table 3.4-13 Routine Operation Activity Carcinogenic HAPs Impacts – Alternative C (Disconnected Infield Roads)

Pollutant	Max Annual (µg/m^3)	Cancer Unit Risk Factor thresholds (1/(µg/m^3))	Exposure Adjustment Factor	Cancer Risks
Benzene	1.03E-03	7.80E-06	4.30E-01	3.45E-09
Ethylbenzene	3.97E-03	2.50E-06		4.27E-09
Formaldehyde	3.80E-04	1.30E-05		2.12E-09
Total Cancer Risk:				9.8.E-09

3.5 Alternative D (Disconnected Access)

This section describes the scenarios designed to characterize the potential impacts anticipated under Alternative D, the modeled receptors and source types, emissions, and resulting impacts.

3.5.1 Overview of Scenarios

Based on Alternative D emissions activities, source types, and development phases, five scenarios are analyzed:

1. Construction
2. Pre-drilling activities at BT1
3. Pre-drilling activities at BT1 and BT2
4. Development drilling
5. Routine Operations

All scenarios consider emission of criteria pollutants, HAPs and GHGs. As shown in Section 2.1 "Willow Alternatives Emissions Inventories", HAPs from construction and drilling activities are substantially lower than routine operations. Therefore, HAP impacts are explicitly modeled for Routine Operations only; HAP impacts from all other scenarios would be lower than Routine Operations.

Modeled sources include point source emissions, area sources, and volume sources. Equipment modeled as point sources include stationary sources, such as engines and heaters, as well as large portable equipment and nonroad engines. Groupings of similar low-level equipment were generally aggregated as area sources. Fugitive dust and mobile sources tailpipe emissions were modeled as volume sources. For example, the gravel access road was modeled as a series of volume sources to represent dust or tailpipe emissions from vehicle traffic. Point source stack parameters were provided by CPAI for most stationary sources, for those sources without stack parameter information, stack parameters are selected to be consistent with stack parameters used for modeling GMT2 or other public information. For area and volume sources release heights, initial vertical dimensions, and initial horizontal dimensions were based on the equipment as well as Table 3-2 from the AERMOD User's Guide (USEPA, 2019).

See Attachment A for detailed information about the sources included in each scenario. All sources modeled for each scenario are shown in figures in Attachment A depicting the layout of the sources relative to ambient air boundaries, structures, roads, and other Project features. In addition, Attachment A includes detailed tables that provide a description of each modeled source, source emissions rates for all modeled pollutants and averaging periods, in-stack NO_2-to-NOx ratio, modeled location, and stack parameters.

3.5.1.1 Construction

The construction of Willow MDP is similar to Alternative B except that due to the disconnected access the Alternative D construction phase takes longer to complete.

3.5.1.2 BT1 Pre-drilling

Alternative D BT1 pre-drilling phase is identical to Alternative B and so is not re-evaluated further. See Section 3.3.3 "BT1 Pre-Drill" for more information about BT1 Pre-drilling.

3.5.1.3 BT1 and BT2 Pre-drilling

Alternative D BT1 and BT2 pre-drilling phase is identical to Alternative B BT1 and BT2 pre-drilling and so is not re-evaluated further. See Section 3.3.4 "BT1 and BT2 Pre-Drill" for more information about BT1 and BT2 Pre-drilling.

3.5.1.4 Development Drilling

The development drilling under Alternative D is identical to Alternative B except that the WPF is located further to the west and collocated with BT3. The WPF/BT3 and WOC pad boundary is larger under Alternative D to provide additional storage capacity necessary without access to the rest of the North Slope.

3.5.1.5 Routine operation and production of wells

Routine operations under Alternative D would be identical to Alternative B except that due to the disconnected access to the rest of the North Slope it takes longer to construct the Project area and as a result production from BT2 through BT5 comes on-line later and the overall Project lifetime is extended to 2052. In addition, the WPF is located further to the west and collocated with BT3. The WPF/BT3 and WOC pad boundaries are larger under Alternative D to provide additional storage capacity necessary without access to the rest of the North Slope.

3.5.2 <u>Construction</u>

3.5.2.1 Receptors and Source Configurations

See Attachment A for detailed information regarding the modeled sources, emission rates, locations, and in-stack NO_2-to-NOx ratios.

See Attachment E for the ambient air boundaries and receptors.

3.5.2.2 Emissions Calculations

3.5.2.3 Emissions development methods are identical to those presented for Alternative B Construction (see Section 3.3.2.2 "Emissions Calculations" for details) except that 1) BT1 facilities, pipeline, and VSM installation is not occurring in year 2024; and 2) WCF facilities installation and associated mobile source emissions are not occurring in year

2024. These activities would start in 2025 under Alternative D. Criteria Pollutant Impacts

Table 3.5-1 shows the modeled impacts to air quality everywhere in the model domain and Table 3.5-2 shows the model impacts at Nuiqsut. Representative background concentrations are added to model results prior to comparing the total concentration to applicable AAQS. As shown, impacts would be below applicable AAQS for all criteria pollutants and averaging periods everywhere in the model domain and, in particular, at Nuiqsut.

Table 3.5-1 Construction Activity AAQS Impacts – Alternative D (Disconnected Access)

Pollutant	Averaging Time	Maximum Modeled Concentration (µg/m^3)	Background Concentration (µg/m^3)	Total Concentration (µg/m^3)	NAAQS (µg/m^3)	AAAQS (µg/m^3)	Percent of NAAQS	Percent of AAAQS
CO	1-Hour	528.1	1296.7	1824.8	40,000	40,000	5%	5%
	8-Hour	390.1	1296.7	1686.8	10,000	10,000	17%	17%
NO_2	1-Hour	111.5	21.8	133.3	188	188	71%	71%
	Annual	15.6	3.2	18.8	100	100	19%	19%
SO_2	1-Hour	3.6	6.9	10.5	196	196	5%	5%
	3-Hour	5.2	9.1	14.3	1,300	1,300	1%	1%
	24-Hour	1.2	8.9	10.1	--	365	--	3%
	Annual	0.1	2.4	2.5	--	80	--	3%
PM_{10}	24-Hour	102.8	20.0	122.8	150	150	82%	82%
$PM_{2.5}$	24-Hour	9.2	7.7	16.9	35	35	48%	48%
	Annual	2.4	1.9	4.3	12	12	36%	36%

Notes:
Modeled highest second-high values from 5 modeled years shown for all short-term averaging times, with the exception of the following:
NO_2 1-hour value is calculated as the 3-year average of the 8th highest daily maximum 1-hour concentrations, and the background value shown is the average of the 1-hour values that are paired in time with the modeled values;
SO_2 1-hour value is calculated as the 3-year average of the 4th highest daily maximum 1-hour concentrations;
PM_{10} 24-hour value is the 6th highest value from 5-year modeling period; and
$PM_{2.5}$ 24-hour value is calculated as the 3-year average of the 8th highest values.
Maximum annual values are shown for NO_2 and SO_2 and the $PM_{2.5}$ annual value is the annual mean averaged over the maximum 3 years.
PM_{10} and $PM_{2.5}$ 24-hour, and $PM_{2.5}$ annual modeled impacts include secondary $PM_{2.5}$ impacts (0.48 µg/m^3 - 24-hour and 0.05 µg/m^3 - annual) from CAMx modeling.

Table 3.5-2 Construction Activity AAQS Impacts at Nuiqsut – Alternative D (Disconnected Access)

Pollutant	Averaging Time	Maximum Modeled Concentration (µg/m³)	Background Concentration (µg/m³)	Total Concentration (µg/m³)	NAAQS (µg/m³)	AAAQS (µg/m³)	Percent of NAAQS	Percent of AAAQS
CO	1-Hour	45.2	1296.7	1342.0	40,000	40,000	3%	3%
	8-Hour	15.2	1296.7	1311.9	10,000	10,000	13%	13%
NO_2	1-Hour	31.4	16.0	47.4	188	188	25%	25%
	Annual	0.40	3.2	3.6	100	100	4%	4%
SO_2	1-Hour	0.73	6.9	7.6	196	196	4%	4%
	3-Hour	0.46	9.1	9.5	1,300	1,300	1%	1%
	24-Hour	0.095	8.9	9.0	--	365	--	2%
	Annual	0.0014	2.4	2.4	--	80	--	3%
PM_{10}	24-Hour	1.0	10.0	11.0	150	150	7%	7%
$PM_{2.5}$	24-Hour	0.75	7.7	8.5	35	35	24%	24%
	Annual	0.074	1.9	2.0	12	12	17%	17%

Notes:
Modeled highest second-high values from 5 modeled years shown for all short-term averaging times, with the exception of the following:
NO_2 1-hour value is calculated as the 3-year average of the 8th highest daily maximum 1-hour concentrations, and the background value shown is the average of the 1-hour values that are paired in time with the modeled values;
SO_2 1-hour value is calculated as the 3-year average of the 4th highest daily maximum 1-hour concentrations;
PM_{10} 24-hour value is the 6th highest value from 5-year modeling period; and
$PM_{2.5}$ 24-hour value is calculated as the 3-year average of the 8th highest values.
Maximum annual values are shown for NO_2 and SO_2 and the $PM_{2.5}$ annual value is the annual mean averaged over the maximum 3 years.
PM_{10} and $PM_{2.5}$ 24-hour, and $PM_{2.5}$ annual modeled impacts include secondary $PM_{2.5}$ impacts (0.48 µg/m³ - 24-hour and 0.05 µg/m³ - annual) from CAMx modeling.

3.5.3 BT1 Pre-Drill

Alternative D BT1 pre-drilling phase is identical to Alternative B and so modeled impacts are anticipated to be identical to impacts presented in Table 3.3-3 and Table 3.3-4.

3.5.4 BT1 and BT2 Pre-Drill

Alternative D BT1 and BT2 pre-drilling phase is identical to Alternative B and so modeled impacts are anticipated to be identical to impacts presented in Table 3.3-5 and Table 3.3-6.

3.5.5 Development Drilling

3.5.5.1 Receptors and Source Configurations

See Attachment A for detailed information regarding the modeled sources, emission rates, locations, and in-stack NO_2-to-NOx ratios.

See Attachment E for the ambient air boundaries and receptors.

3.5.5.2 Emissions Calculations

Emissions development methods are identical to those presented for Alternative B Development Drilling, with the only difference being the changes to the WPF/BT3 and WOC pad layout and source locations. See Section 3.3.5.2 "Emissions Calculations" for details regarding the emissions preparation approach and Attachment A for visual depictions of the source layout and locations.

3.5.5.3 Criteria Pollutant Impacts

Table 3.5-3 shows the modeled impacts to air quality everywhere in the model domain and Table 3.5-4 shows the model impacts at Nuiqsut. Representative background concentrations are added to model results prior to comparing the total concentration to applicable AAQS. As shown, impacts would be below applicable AAQS for all criteria pollutants and averaging periods.

Table 3.5-3 Developmental Drilling Activity AAQS Impacts – Alternative D (Disconnected Access)

Pollutant	Averaging Time	Maximum Modeled Concentration (µg/m³)	Background Concentration (µg/m³)	Total Concentration (µg/m³)	NAAQS (µg/m³)	AAAQS (µg/m³)	Percent of NAAQS	Percent of AAAQS
CO	1-Hour	1535.5	1296.7	2832.2	40,000	40,000	7%	7%
	8-Hour	599.7	1296.7	1896.4	10,000	10,000	19%	19%
NO_2	1-Hour	150.7	24.0	174.6	188	188	93%	93%
	Annual	23.6	3.2	26.8	100	100	27%	27%
SO_2	1-Hour	18.0	6.9	24.9	196	196	13%	13%
	3-Hour	15.6	9.1	24.7	1,300	1,300	2%	2%
	24-Hour	12.2	8.9	21.1	--	365	--	6%
	Annual	0.9	2.4	3.3	--	80	--	4%
PM_{10}	24-Hour	66.6	30.0	96.6	150	150	64%	64%
$PM_{2.5}$	24-Hour	21.1	7.7	28.8	35	35	82%	82%
	Annual	5.1	1.9	7.1	12	12	59%	59%

Notes:
Modeled highest second-high values from 5 modeled years shown for all short-term averaging times, with the exception of the following:
NO_2 1-hour value is calculated as the 3-year average of the 8th highest daily maximum 1-hour concentrations, and the background value shown is the average of the 1-hour values that are paired in time with the modeled values;
SO_2 1-hour value is calculated as the 3-year average of the 4th highest daily maximum 1-hour concentrations;
PM_{10} 24-hour value is the 6th highest value from 5-year modeling period; and
$PM_{2.5}$ 24-hour value is calculated as the 3-year average of the 8th highest values.
Maximum annual values are shown for NO_2 and SO_2 and the $PM_{2.5}$ annual value is the annual mean averaged over the maximum 3 years.
PM_{10} and $PM_{2.5}$ 24-hour, and $PM_{2.5}$ annual modeled impacts include secondary $PM_{2.5}$ impacts (0.48 µg/m³ - 24-hour and 0.05 µg/m³ - annual) from CAMx modeling.

Table 3.5-4 Development Drilling Activity AAQS Impacts at Nuiqsut – Alternative D (Disconnected Access)

Pollutant	Averaging Time	Maximum Modeled Concentration (µg/m³)	Background Concentration (µg/m³)	Total Concentration (µg/m³)	NAAQS (µg/m³)	AAAQS (µg/m³)	Percent of NAAQS	Percent of AAAQS
CO	1-Hour	30	1,296.7	1,327.2	40,000	40,000	3%	3%
	8-Hour	8.9	1,296.7	1,305.6	10,000	10,000	13%	13%
NO_2	1-Hour	15	14.6	30.1	188	188	16%	16%
	Annual	0.17	3.2	3.3	100	100	3%	3%
SO_2	1-Hour	0.87	6.9	7.8	196	196	4%	4%
	3-Hour	0.51	9.1	9.6	1,300	1,300	1%	1%
	24-Hour	0.14	8.9	9.0	--	365	--	2%
	Annual	0.0079	2.4	2.4	--	80	--	3%

Pollutant	Averaging Time	Maximum Modeled Concentration (µg/m³)	Background Concentration (µg/m³)	Total Concentration (µg/m³)	NAAQS (µg/m³)	AAAQS (µg/m³)	Percent of NAAQS	Percent of AAAQS
PM_{10}	24-Hour	1.4	10.0	11.4	150	150	8%	8%
$PM_{2.5}$	24-Hour	0.62	7.7	8.4	35	35	24%	24%
	Annual	0.064	1.9	2.0	12	12	17%	17%

Notes:
Modeled highest second-high values from 5 modeled years shown for all short-term averaging times, with the exception of the following:
NO_2 1-hour value is calculated as the 3-year average of the 8th highest daily maximum 1-hour concentrations, and the background value shown is the average of the 1-hour values that are paired in time with the modeled values;
SO_2 1-hour value is calculated as the 3-year average of the 4th highest daily maximum 1-hour concentrations;
PM_{10} 24-hour value is the 6th highest value from 5-year modeling period; and
$PM_{2.5}$ 24-hour value is calculated as the 3-year average of the 8th highest values.
Maximum annual values are shown for NO_2 and SO_2 and the $PM_{2.5}$ annual value is the annual mean averaged over the maximum 3 years.
PM_{10} and $PM_{2.5}$ 24-hour, and $PM_{2.5}$ annual modeled impacts include secondary $PM_{2.5}$ impacts (0.48 µg/m³ - 24-hour and 0.05 µg/m³ - annual) from CAMx modeling.

3.5.6 Routine Operations

3.5.6.1 Receptors and Source Configurations

See Attachment A for detailed information regarding the modeled sources, emission rates, locations, and in-stack NO_2-to-NOx ratios.

See Attachment E for the ambient air boundaries and receptors.

3.5.6.2 Emissions Calculations

Emissions development methods are identical to those presented for Alternative B Routine Operations, with the only difference being the change to the WPF/BT3 and WOC pad layout and source locations. See Section 3.3.6.2 "Emission Calculations" for details regarding the emissions preparation approach and Attachment A for visual depictions of the source layout and locations.

3.5.6.3 *Structure Locations and Building Downwash*

See Attachment A for figures depicting the structure locations relative to emissions sources.

3.5.6.4 Criteria Pollutant Impacts

Table 3.5-5 shows the modeled impacts to air quality everywhere in the model domain and Table 3.5-6 shows the model impacts at Nuiqsut. Representative background concentrations are added to model results prior to comparing the total concentration to applicable AAQS. As shown, impacts would be below applicable AAQS and PSD increments for all criteria pollutants and averaging periods. Table 3.5-7 provides the modeled impacts at Nuiqsut for comparison to PSD Class II increments. Impacts at Nuiqsut are below applicable PSD increments for all pollutants and averaging times. It is important to note that a PSD increment assessment is the jurisdiction of ADEC and the proposed analysis differs from a formal increment consumption assessment in several important ways. See Section 1.2.3.2 for more information.

Table 3.5-5 Routine Operations Activity AAQS Impacts – Alternative D (Disconnected Access)

Pollutant	Averaging Time	Maximum Modeled Concentration (µg/m³)	Background Concentration (µg/m³)	Total Concentration (µg/m³)	NAAQS (µg/m³)	AAAQS (µg/m³)	Percent of NAAQS	Percent of AAAQS
CO	1-Hour	1,535	1,297	2,832	40,000	40,000	7%	7%
	8-Hour	566	1,297	1,863	10,000	10,000	19%	19%
NO_2	1-Hour	144	18	162	188	188	86%	86%
	Annual	22	3.2	25	100	100	25%	25%
SO_2	1-Hour	18	6.9	25	196	196	13%	13%
	3-Hour	15	9.1	24	1,300	1,300	2%	2%
	24-Hour	12	8.9	21	--	365	--	6%
	Annual	0.81	2.4	3.2	--	80	--	4%
PM_{10}	24-Hour	64	30	94	150	150	63%	63%
$PM_{2.5}$	24-Hour	19	7.7	26	35	35	75%	75%
	Annual	3.9	1.9	5.8	12	12	49%	49%

Notes:
Modeled highest second-high values from 5 modeled years shown for all short-term averaging times, with the exception of the following:
NO_2 1-hour value is calculated as the 3-year average of the 8th highest daily maximum 1-hour concentrations, and the background value shown is the average of the 1-hour values that are paired in time with the modeled values;
SO_2 1-hour value is calculated as the 3-year average of the 4th highest daily maximum 1-hour concentrations;
PM_{10} 24-hour value is the 6th highest value from 5-year modeling period; and
$PM_{2.5}$ 24-hour value is calculated as the 3-year average of the 8th highest values.
Maximum annual values are shown for NO_2 and SO_2 and the $PM_{2.5}$ annual value is the annual mean averaged over the maximum 3 years.
PM_{10} and $PM_{2.5}$ 24-hour, and $PM_{2.5}$ annual modeled impacts include secondary $PM_{2.5}$ impacts (0.48 µg/m³ - 24-hour and 0.05 µg/m³ - annual) from CAMx modeling.

Table 3.5-6 Routine Operations AAQS Impacts at Nuiqsut – Alternative D (Disconnected Access)

Pollutant	Averaging Time	Maximum Modeled Concentration (µg/m³)	Background Concentration (µg/m³)	Total Concentration (µg/m³)	NAAQS (µg/m³)	AAAQS (µg/m³)	Percent of NAAQS	Percent of AAAQS
CO	1-Hour	29.7	1296.7	1326.4	40,000	40,000	3%	3%
	8-Hour	7.7	1296.7	1304.4	10,000	10,000	13%	13%
NO_2	1-Hour	14.4	19.1	33.6	188	188	18%	18%
	Annual	0.15	3.2	3.3	100	100	3%	3%
SO_2	1-Hour	0.91	6.9	7.8	196	196	4%	4%
	3-Hour	0.51	9.1	9.6	1,300	1,300	1%	1%
	24-Hour	0.14	8.9	9.0	--	365	--	2%
	Annual	0.0078	2.4	2.4	--	80	--	3%
PM_{10}	24-Hour	1.4	10.0	11.4	150	150	8%	8%
$PM_{2.5}$	24-Hour	0.62	7.7	8.3	35	35	24%	24%
	Annual	0.063	1.9	2.0	12	12	17%	17%

Notes:
Modeled highest second-high values from 5 modeled years shown for all short-term averaging times, with the exception of the following:
NO_2 1-hour value is calculated as the 3-year average of the 8th highest daily maximum 1-hour concentrations, and the background value shown is the average of the 1-hour values that are paired in time with the modeled values;
SO_2 1-hour value is calculated as the 3-year average of the 4th highest daily maximum 1-hour concentrations;
PM_{10} 24-hour value is the 6th highest value from 5-year modeling period; and
$PM_{2.5}$ 24-hour value is calculated as the 3-year average of the 8th highest values.
Maximum annual values are shown for NO_2 and SO_2 and the $PM_{2.5}$ annual value is the annual mean averaged over the maximum 3 years.
PM_{10} and $PM_{2.5}$ 24-hour, and $PM_{2.5}$ annual modeled impacts include secondary $PM_{2.5}$ impacts (0.48 µg/m³ - 24-hour and 0.05 µg/m³ - annual) from CAMx modeling.

Table 3.5-7 Routine Operation Activity PSD Increment Impacts at Nuiqsut – Alternative D (Disconnected Access)

Pollutant	Average Time [a]	Modeled Concentration[b] (µg/m³)	Class II PSD Increment (µg/m³)
NO_2	Annual	0.15	25
SO_2	3-hour	0.51	512
	24-hour	0.14	91
	Annual	0.01	20
PM_{10}	24-hour	1.42	30
	Annual	0.10	17
$PM_{2.5}$	24-hour	0.73	9
	Annual	0.06	4

Notes:
[a] For comparison to annual PSD increments, the maximum annual arithmetic mean value from any of 5-years of modeled impacts were used. For comparison to short-term (3- and 24-hour) PSD increments, the maximum 2nd high value from any of 5-years of modeled.
[b] PM_{10} and $PM_{2.5}$ 24-hour, and $PM_{2.5}$ annual modeled impacts include secondary $PM_{2.5}$ impacts (0.48 µg/m³ - 24-hour and 0.05 µg/m³ - annual) from CAMx modeling.

3.5.6.5 HAPs Impacts

For comparison to RELs and RfCs, toxic modeling was conducted and evaluated for the six HAPs shown in Table 3.5-8. The evaluations against the RELs and RfCs were done using the HAP emission rates documented in Attachment A. Cancer risk was evaluated for the Nuiqsut community using the procedures discussed in Chapter 1. As shown in Table 3.5-8, the concentrations of all HAPs are well below their respective RELs on an hourly period, and RfCs on an annual period. As shown in Table 3.5-9, the cancer risk is much less than the threshold of one in one million (1.0E-06) at Nuiqsut. Note that the HAPs considered for this analysis only include those most commonly emitted from oil and gas development (benzene, toluene, ethylbenzene, xylenes, n-hexane, and formaldehyde) and that the Total HAPs reported in Table 3.3-9 are the sum of only a subset of HAPs.

Table 3.5-8 Routine Operation Activity Acute and Non-carcinogenic HAPs Impacts – Alternative D (Disconnected Access)

Pollutant	Max 1-hour in analysis area (µg/m³)	Acute REL (µg/m³)	Max 8-hour in analysis area (µg/m³)	AEGLs (µg/m³)	Max Annual in analysis area (µg/m³)	RfC (µg/m³)
Benzene	8.8	27.0	5.9	29000.0	0.2	30.0
Ethylbenzene	232.3	140000.0	155.4	140000.0	5.0	1000.0
Formaldehyde	1.4	55.0	0.8	1100.0	0.0	9.8
n-hexane	566.7	10000000.0	379.1	10000000.0	12.1	700.0
Toluene	25.9	37000.0	17.3	250000.0	0.6	5000.0
Xylene	457.7	22000.0	306.2	560000.0	9.8	100.0

Notes:
1 No REL available for these air toxics. Values shown are Acute Exposure Guideline Levels for mild effects (AELG-1) (ethyl benzene) and moderate effects (AEGL-2) (n-hexane).

Table 3.5-9 Routine Operation Activity Carcinogenic HAPs Impacts – Alternative D (Disconnected Access)

Pollutant	Max Annual (µg/m³)	Cancer Unit Risk Factor thresholds (1/(µg/m³))	Exposure Adjustment Factor	Cancer Risks
Benzene	1.00E-03	7.80E-06	4.30E-01	3.35E-09
Ethylbenzene	3.96E-03	2.50E-06		4.26E-09
Formaldehyde	3.70E-04	1.30E-05		2.07E-09
Total Cancer Risk:				9.7.E-09

3.6 Module Delivery Option 2

Sections 3.6 and 3.7 describe the analysis of scenarios designed to characterize the potential impacts anticipated from transport of process and drill site modules to the North Slope via sealift barges. These sections also describe the modeled receptors, source types, emissions, and resulting impacts.

3.6.1 Overview of Scenario

Three options are analyzed for delivery of modules to the North Slope, any of which may be authorized with any of the action alternatives presented in the previous sections of this chapter:

1. Option 1 (Atigaru Point Module Transfer Island) – not modeled due to emissions being lower than Option 2 as explained below
2. Option 2 (Point Lonely Module Transfer Island)
3. Option 3 (Colville River Crossing) – modeling described in Section 3.7

In this section, Option 1 and Option 2 will be discussed and presented, while Option 3 is further described in Section 3.7.

As described in earlier sections, sealift barges would be used to deliver processing and drillsite modules to the North Slope as part of the module delivery options. Module Delivery Option 1 and Option 2 would deliver modules to an MTI west of the Colville River, either at Atigaru Point or Point Lonely, and use ice roads to reach the Willow Development (See Figure 3.6-1 below).

The emissions for Module Delivery Options are shown in Section 2.1 "Willow Alternatives Emissions Inventories" (Table 2.1-20 and Table 2.1-22) for Option 1 (Atigaru Point Module Transfer Island) and Option 2 (Point Lonely Module Transfer Island). Peak year emissions for Option 1 (Atigaru Point Module Transfer Island) occur in year 2025 and 2026 (depending on Alternative) and are lower than peak year emissions for Option 2 (Point Lonely Module Transfer Island). As such, the Point Lonely option (MTI Option 2) was selected for a conservatively high quantitative analysis of potential air quality impacts.

This section provides a summary of the near-field modeling analysis that was performed to estimate the potential air quality impacts that could result from the construction and operation of a module transfer island (MTI). The AERMOD (version 18081) dispersion model was used to estimate criteria pollutant (CO, NO_2, SO_2, PM_{10} and $PM_{2.5}$) impacts from the construction and operation of the Point Lonely MTI. Version 18081 was the latest version of AERMOD available when the modeling was conducted. The change of model version would not change the impact analysis conclusions for the Point Lonely MTI. The meteorological data, model options, modeled receptors and source types and emissions utilized, and resulting impacts are described below.

As shown below, modeled impacts for Option 2 (Point Lonely) diminish with distance from the MTI and are negligible 25 km away. Modeled criteria air pollutant impacts are lower than the NAAQS and AAAQS. Impacts for HAPs were not directly modeled for Module Delivery Options because HAPs emissions (and hence impacts) from these activities would be substantially lower than the Routine Operations scenario in all action alternatives.

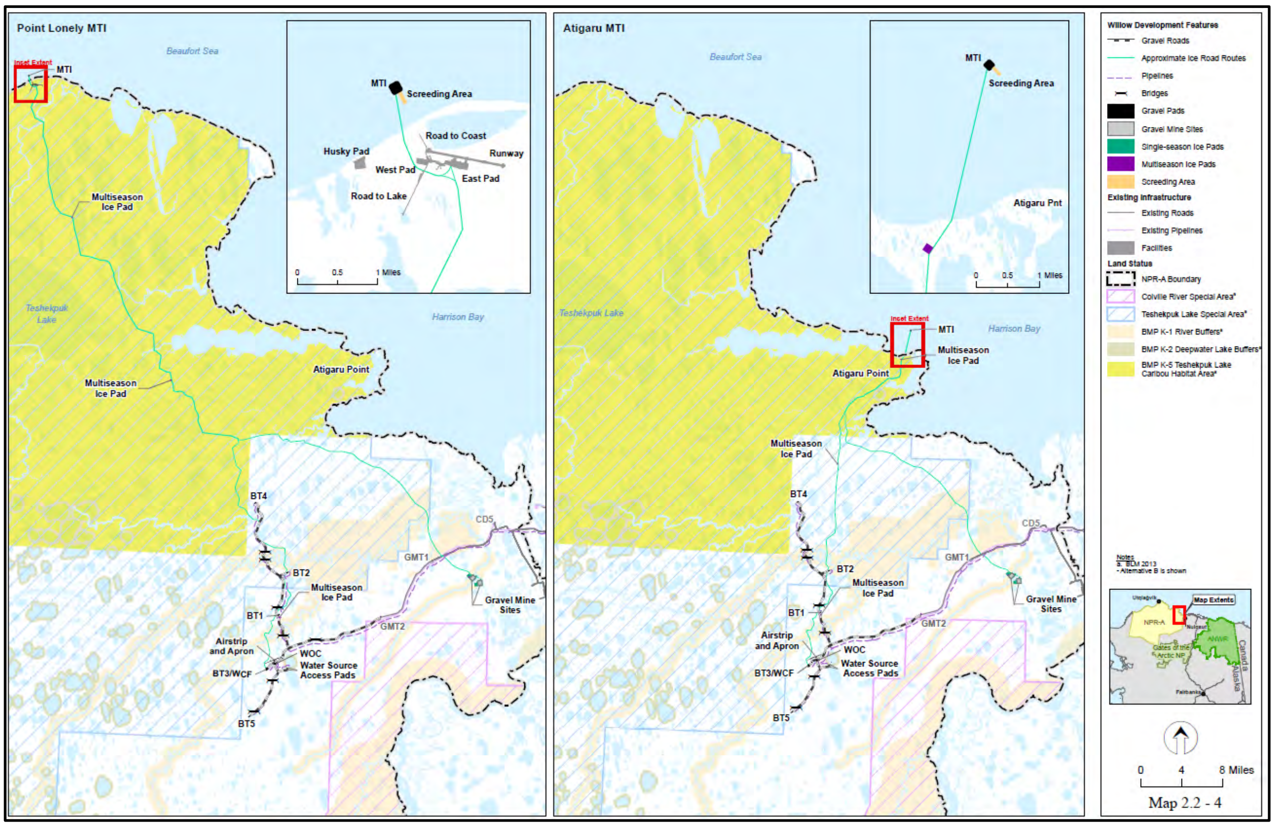

Figure 3.6-1 Module Transport Options Map: Options 1 and 2

3.6.2 Meteorological Data

Meteorological data for AERMOD were prepared using the Mesoscale Model Interface (MMIF) Program (Version 3.4.1) to extract five years (2009-2013) of AERMOD hourly surface and profile meteorological data sets for the Point Lonely MTI location from a Weather Research and Forecasting (WRF) model run for the North Slope of Alaska. This WRF model meteorological dataset was prepared for the Bureau of Ocean Energy Management (BOEM) to be utilized for air quality (AQ) modeling analyses in the Arctic (Ramboll 2016, 2017).

Figure 3.6-2 below shows a wind rose constructed from the Point Lonely location. The winds show the characteristic east-northeast to west-southwest bimodal pattern commonly observed on the North Slope. The average wind speed during 2009-2013 was 5.3 meters per second (m/s) and calm winds were infrequent, occurring for less than 1 percent of hours during the five-year period.

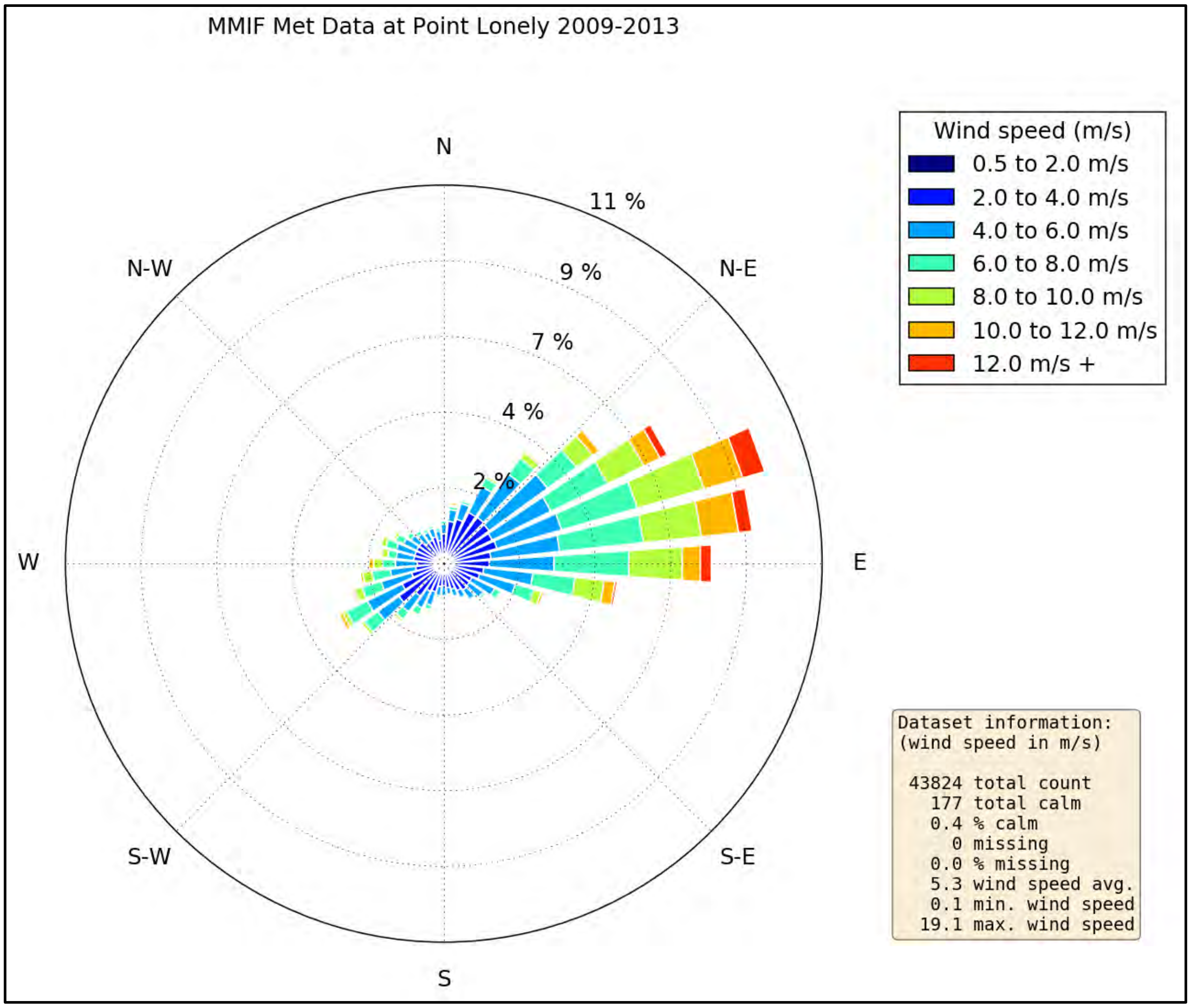

Figure 3.6-2. Point Lonely Location 2009-2013 Wind Rose

3.6.3 AERMOD Model Options

Regulatory default model settings were used, with the exception of the Ozone Limiting Method (OLM) model option, which was used for modeling NO_2 concentration estimates. Hourly ozone data is required to implement OLM. Since the best available meteorological dataset is not available for the period with the most current ozone measurements used for the AERMOD analyses described in Section 3.2.6, seasonal diurnal ozone concentration profiles were used instead of measurements that were concurrent with the meteorological data period. The seasonal diurnal ozone values used with OLM to analyze the Module Delivery impacts on NO_2 were developed using hourly ozone data measured at Nuiqsut during 2015-2017. These are the same calendar years that were used for developing the background NO_2 data presented in Section 3.2.6. The seasonal diurnal ozone data are shown in Table 3.6-1.

Downwash effects from buildings and structures were not considered in the analysis due to the large distance from the structures on the MTI and the closest onshore receptors.

Table 3.6-1 Nuiqsut 2015-2017 Seasonal Diurnal Ozone Concentrations (ppb)

Hour	Winter	Spring	Summer	Fall
01	40.2	38.8	26.1	36.7
02	40.4	38.4	26.1	37.0
03	39.8	38.4	25.5	36.9
04	39.8	37.9	24.2	36.5
05	40.0	38.1	25.0	37.0
06	40.2	38.2	25.4	36.7
07	40.0	38.3	26.0	36.6
08	40.0	38.7	26.4	36.8
09	40.0	38.2	27.1	36.7
10	40.2	38.5	28.3	36.8
11	39.8	39.2	28.3	36.7
12	39.4	39.1	28.3	36.6
13	39.5	39.3	29.1	36.4
14	39.5	39.2	29.1	36.6
15	39.5	39.5	30.4	36.3
16	39.3	39.6	30.3	36.8
17	39.6	40.5	30.0	36.6
18	39.2	40.9	30.2	36.5
19	39.6	40.1	29.6	36.6
20	39.9	39.2	29.2	36.6
21	39.7	39.2	28.5	36.3
22	39.6	38.9	27.5	36.5
23	39.8	39.7	27.2	36.8
24	39.8	39.1	26.2	36.9

3.6.4 Analysis Area and Model Receptors

The MTI analysis area is a 2,500 square kilometer area centered on the MTI. Model receptors were placed at 500-meter increments along the coast line and at inland locations extending to the southern edge of the analysis area. The receptors are shown in Figure F.1-1 of Attachment F. Flat terrain was assumed for all receptors.

3.6.5 Sources and Emissions

The Point Lonely MTI would include the construction of a gravel island with a design life of 5 to 10 years. Sources and emissions are described in the AQTSD under Section 2.1.6.

Modeled sources include point source emissions and volume sources. Equipment modeled as point sources include generator engines and heaters. Tug and barge, gravel island construction fugitive dust, and mobile sources tailpipe emissions were modeled as volume sources. A section along gravel access road was modeled as a series of volume sources to represent dust or tailpipe emissions from vehicle traffic. Stack parameters and volume sources characteristics selected are consistent with the parameters used for modeling Project Construction and Routine Operations activities.

Module Delivery Option 2 source locations are shown in Figure F.1-2 of Attachment F. Source descriptions and in-stack NO2/NOx ratios, stack parameters, and sources emissions rates for all modeled pollutants and averaging periods are included in Tables F.1-1, F.1-2, and F.1-3, respectively, within Attachment F.

3.6.6 Criteria Pollutant Impacts

Table 3.6-2 shows the modeled impacts to air quality anywhere in the analysis area for Module Delivery Option 2. Representative background concentrations are added to model results prior to comparing the total concentration to applicable AAQS. As shown, impacts would be below applicable AAQS for all criteria pollutants and averaging periods.

Table 3.6-2 Module Delivery Option 2 AAQS Impacts

Pollutant	Averaging Time	Maximum Modeled Concentration ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)	AAAQS ($\mu g/m^3$)	Percent of NAAQS	Percent of AAAQS
CO	1-Hour	474.0	1296.7	1770.7	40,000	40,000	4%	4%
	8-Hour	106.8	1296.7	1403.5	10,000	10,000	14%	14%
NO_2	1-Hour	125.9	12.0	138.6	188	188	74%	74%
	Annual	0.6	3.2	3.8	100	100	4%	4%
SO_2	1-Hour	1.6	6.9	8.5	196	196	4%	4%
	3-Hour	1.1	9.1	10.1	1,300	1,300	1%	1%
	24-Hour	0.2	8.9	9.1	--	365	--	2%
	Annual	0.002	2.4	2.4	--	80	--	3%
PM_{10}	24-Hour	5.1	20.0	25.1	150	150	17%	17%
$PM_{2.5}$	24-Hour	2.1	7.7	9.9	35	35	28%	28%
	Annual	0.09	1.9	2.0	12	12	17%	17%

Notes:
Modeled highest second-high values from 5 modeled years shown for all short-term averaging times, with the exception of:
NO_2 1-hour value is calculated as the 3-year average of the 8th highest daily maximum 1-hour concentrations, and the background value shown is the average of the 1-hour values that are paired in time with the modeled values;
SO_2 1-hour value is calculated as the 3-year average of the 4th highest daily maximum 1-hour concentrations;
PM_{10} 24-hour value is the 6th highest value from 5-year modeling period; and
$PM_{2.5}$ 24-hour value is calculated as the 3-year average of the 8th highest values.
Maximum annual values are shown for NO_2 and SO_2 and the $PM_{2.5}$ annual value is the annual mean averaged over the maximum 3 years.
PM_{10} and $PM_{2.5}$ 24-hour, and $PM_{2.5}$ annual modeled impacts include secondary $PM_{2.5}$ impacts (0.48 $\mu g/m^3$ - 24-hour and 0.05 $\mu g/m^3$ - annual) from CAMx modeling.

3.7 Module Delivery Option 3

3.7.1 Overview of Scenario

Module Delivery Option 3 would make use of the existing Oliktok Dock for module delivery to the north slope by sealift barges. From Oliktok Dock, the modules would be transported to an existing 12-acre gravel staging pad approximately two miles south of the Dock for storage during and after sealift barge delivery. Modules would later be transported along existing gravel roads to Kuparuk DS2P. The modules would then travel on a heavy-haul ice road to GMT2, crossing the Colville River via grounded ice in the area of Ocean Point. From GMT2 to the WPF, the modules would be transported on the Willow access road under Alternatives B and C. Under Alternative D modules would be transported via the seasonal ice road between GMT2 and the WPF.

As stated in section 3.6.1, the Module Delivery Option 3 modeling scenario considers only emissions of criteria air pollutants. Impacts for HAPs were not directly modeled for module delivery options because HAP emissions and subsequent impacts from these activities would be substantially lower than the routine operations scenario in all action alternatives. Modeled sources include point source emissions and volume sources. Equipment modeled as point sources include stationary sources, such as engines and heaters, as well as large portable equipment and nonroad engines. Fugitive dust and mobile sources tailpipe emissions were modeled as volume sources.

Further information regarding sources of emissions can be found in Section 3.7.5; figures showing modeled sources relative to ambient air boundaries, structures, roads, and other Project features are presented in Attachment F. In addition, Attachment F includes detailed tables that provide a description of each modeled source, source emissions rates for all modeled pollutants and averaging periods, in-stack NO2-to-NOx ratio, modeled location, and stack- or volume-specific source parameters.

3.7.2 Meteorological Data

Meteorological data for Option 3 modeling was prepared using identical methods to Option 2 (see Section 3.6.2) but processed for the Oliktok Dock location (latitude of 70.51283, longitude of -149.86681).

Figure 3.7-1 below shows a wind rose constructed from the Oliktok location. The winds show the characteristic east-northeast to west-southwest bimodal pattern commonly observed on the North Slope. The average wind speed during 2009-2013 was 5.7 meters per second (m/s) and calm winds were infrequent, occurring for less than 1 percent of hours during the five-year period.

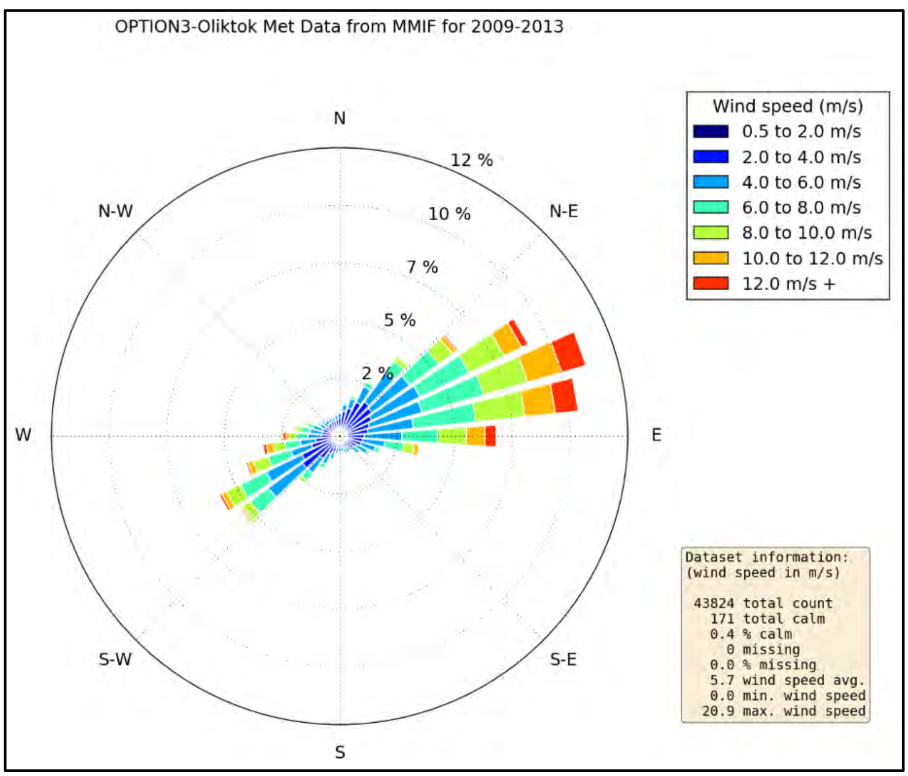

Figure 3.7-1 Oliktok Location 2009-2013 Wind Rose

3.7.3 AERMOD Model Options

Model options for Module Delivery Option 3 are identical to those used in Option 2 modeling except that a newer version of AERMOD (v19191) was used to estimate the criteria pollutant (CO, NO_2, SO_2, PM_{10} and $PM_{2.5}$) impacts during the modules transfer. For details on all model options, refer to Section 3.6.3.

3.7.4 Analysis Area and Model Receptors

The Module Delivery Option 3 analysis area is a 2,500 square kilometer area centered on Oliktok Dock. Model receptors were placed around the ambient air boundaries following the same spacing as the modeling for Project alternatives:

- 10 meter spacing along the ambient air boundary of Oliktok Dock and Staging Pad areas.
- 25 meter spacing from the ambient air boundary of Oliktok Dock and Staging Pad to 100 meters inland locations.
- 100 meter spacing from 100m of the ambient air boundary of Oliktok Dock and Staging Pad to 1km
- 250 meter spacing from 1 km of the ambient air boundary of Oliktok Dock and Staging Pad to 2 km
- 500 meter spacing from 2 km of the ambient air boundary of Oliktok Dock and Staging Pad to 5 km, as well as along the coastline
- 1,000 meter spacing from 5 km of the ambient air boundary of Oliktok Dock and Staging Pad at inlad locations extending to the southern edge of the analysis area

Flat terrain was assumed for all receptors. Receptor locations are shown in Figures F.2-1 to F.2-3 of Attachment F.

3.7.5 Sources and Emissions

Module Delivery Option 3 involves utilization of the existing Oliktok Dock for module offloading from sealift barges, as well as existing gravel roads and an existing 12-acre staging pad approximately two miles south of the dock. Minor improvements to gravel roads and the gravel staging pad are required, involving the addition of approximately 118,700 cubic yards of gravel to cover various roads and the staging pad. Additional gravel would also be required to raise the height of Oliktok Dock. Emissions from non-road construction equipment (including heater) and fugitive dust are modeled as volume sources at construction locations. Approximately 532 meters of roadway is modeled (100 meters exiting the dock offload area, plus 216 meters each to the north and south of the gravel staging pad), representing segments of road in the vicinity of construction and operational activities. Roadway sources are represented as series of separated volume sources, and include emissions of vehicle exhaust, module transport equipment exhaust, and fugitive road dust. Fugitive dust from the gravel staging pad is represented as a single volume source.

Emissions from vessel traffic are represented as distinct sources for each vessel type (Harbor Assist Tugs, Support Vessels, and Ocean-Going Vessels); all vessel traffic emissions are represented as series of separated volume sources. AERMOD source parameters were reviewed in publicly available dispersion modeling studies for marine sources. AERMOD release parameters for modeling Willow Option 3 are based on modeling of harbor craft and ocean-going vessels (LAHD, 2019). Dispersion parameters such as release heights, volume source spacing, initial lateral dimension (sigma y) and vertical dimension (sigma z) for ocean tugs/barges modeled for Willow Option 3 were assumed to be similar to those of cargo vessels. Similarly, the modeling parameters for assist tugs and support vessels in Willow Option 3 were assumed to be equivalent to harbor assist.

As a conservative approach, maximum-year emissions across all Option 3 activities were modeled. This includes construction improvements to gravel roads, staging pad, and Oliktok Dock in 2023; Vessel traffic in 2024; vehicle exhaust in 2025; staging pad fugitive dust from 2024; and module transport from 2024 into 2025. As additional conservative measure, fugitive road dust was modeled assuming emissions from both 2023 (during roadway construction activity) and 2026 (module transport operations).

Module Delivery Option 3 source locations are shown in Figure F.2-4 through F.2-9 of Attachment F. Source descriptions and in-stack NO2/NOx ratios, stack parameters, and sources emissions rates for all modeled pollutants and averaging periods are included in Tables F.2-1, F.2-2, and F.2-3, respectively, within Attachment F.

3.7.6 Criteria Pollutant Impacts

Table 3.7-1 shows the modeled impacts to air quality anywhere in the Option 3 analysis area. Representative background concentrations are added to model results prior to comparing the total concentration to applicable AAQS. As shown, impacts would be below applicable AAQS for all criteria pollutants and averaging periods.

Table 3.7-1 Module Delivery Option 3 Activity AAQS Impacts

Pollutant	Averaging Time	Maximum Modeled Concentration (µg/m³)	Background Concentration (µg/m³)	Total Concentration (µg/m³)	NAAQS (µg/m³)	AAAQS (µg/m³)	Percent of NAAQS	Percent of AAAQS
CO	1-Hour	255.6	1296.7	1552.3	40,000	40,000	4%	4%
	8-Hour	117.6	1296.7	1414.3	10,000	10,000	14%	14%
NO_2	1-Hour	112.6	9.2	121.8	188	188	65%	65%
	Annual	3.3	3.2	6.5	100	100	6%	6%
SO_2	1-Hour	1.4	6.9	8.3	196	196	4%	4%
	3-Hour	1.0	9.1	10.1	1,300	1,300	1%	1%
	24-Hour	0.4	8.9	9.3	--	365	--	3%
	Annual	0.1	2.4	2.5	--	80	--	3%
PM_{10}	24-Hour	23.4	40.0	63.4	150	150	42%	42%
$PM_{2.5}$	24-Hour	6.3	7.7	14.0	35	35	40%	40%
	Annual	0.4	1.9	2.3	12	12	19%	19%

Notes:
Modeled highest second-high values from 5 modeled years shown for all short-term averaging times, with the exception of:
NO_2 1-hour value is calculated as the 3-year average of the 8th highest daily maximum 1-hour concentrations, and the background value shown is the average of the 1-hour values that are paired in time with the modeled values;
SO_2 1-hour value is calculated as the 3-year average of the 4th highest daily maximum 1-hour concentrations;
PM_{10} 24-hour value is the 6th highest value from 5-year modeling period; and
$PM_{2.5}$ 24-hour value is calculated as the 3-year average of the 8th highest values.
Maximum annual values are shown for NO_2 and SO_2 and the $PM_{2.5}$ annual value is the annual mean averaged over the maximum 3 years.
PM_{10} and $PM_{2.5}$ 24-hour, and $PM_{2.5}$ annual modeled impacts include secondary $PM_{2.5}$ impacts (0.48 µg/m³ - 24-hour and 0.05 µg/m³ - annual) from CAMx modeling.

3.8 Speed Limit Change Analysis

In the Willow near-field modeling, the estimated impacts of Project activities were analyzed using emissions developed with a road speed limit of 25 mph throughout the Willow Project area. However, there are some roads in the Project area that would have a 35 mph speed limit. As a result, the modeled impacts described above are re-assessed in this section in consideration of the expected emissions changes. Shown below are the emissions increases that would potentially occur as well as a discussion of how those changes could influence the estimated air quality impacts.

3.8.1 Emission Rate Changes

The emissions that would increase due to the higher speed limit are vehicle tailpipe emissions that are based on emission rates from the MOVES model. Fugitive dust emissions are not affected because those are calculated using the AP-42 emission factor for industrial unpaved roads which depend on silt content and vehicle weight and not speed (USEPA, 2006b). For the emissions inventory for this project, the MOVES 2014a model was run in on-road emission factor mode for each pollutant of interest, vehicle type of interest, all averaging speeds, and all processes. The MOVES output result was then aggregated across processes to determine the emission factor for each averaging speed based on vehicle type and pollutant. To account for increased emissions for vehicles driving at 35 mph instead of 25 mph, the percent increase in the emissions factor was first calculated for each pollutant; these are shown in Table 3.8-1. A weighted average percent increase for the vehicle fleet calculated based on the vehicle miles travelled (VMT) (shown in Table 3.8-2) in 2024 for the construction scenario for all alternatives and 2026 for all other scenarios for Alternative B and C and 2027 for Alternative D. The resulting VMT-weighted average percent emissions increases for the on-road tailpipe emissions are shown in Table 3.8-3. These are a conservative over-estimate of actual emissions increases as it assumes that the speed limit on all Project roads is 35 mph.

Table 3.8-1. Percent Increase in On-Road Vehicle Tailpipe Emission Factors by Vehicle Type

Vehicle Type	Pollutant														
	VOC	CO	NOX	PM10	PM2.5	SO2	CO2	CH4	N2O	Benzene	Toluene	Ethylbenzene	Xylenes	n-Hexane	Formaldehyde
Passenger Truck	18%	18%	13%	20%	23%	10%	10%	18%	25%	18%	18%	18%	18%	17%	18%
Light Commercial Truck	17%	23%	15%	14%	19%	10%	10%	19%	25%	18%	18%	18%	18%	16%	19%
Intercity Bus	17%	13%	12%	42%	30%	9%	9%	25%	25%	22%	20%	20%	21%	15%	25%
Single Unit Short-haul Truck	21%	14%	17%	40%	28%	15%	15%	24%	25%	22%	22%	22%	23%	20%	23%
Combination Short-haul Truck	14%	12%	11%	14%	11%	7%	7%	18%	25%	17%	15%	15%	16%	12%	18%

Table 3.8-2. Vehicle Miles Traveled by Vehicle Type

Vehicle Type	Scenario					
	Alt B Construction - 2024	Alt B All Non-construction - 2026	Alt C Construction - 2024	Alt C All Non-construction - 2026	Alt D Construction – 2024	Alt D All Non-construction - 2027
Passenger Truck	2107420	204,727	2,468,620	102,872	2,340,380	177,040
Light Commercial Truck	228900	72,234	226,100	39,647	187,320	43,768
Intercity Bus	495880	77,248	554,680	34,356	524,720	33,263
Single Unit Short-haul Truck	2069830	302,742	2,521,330	135,270	2,848,440	172,219
Combination Short-haul Truck	322000	571,586	317,800	396,973	169,540	442,238

Table 3.8-3. Percent Increase in On-Road Vehicle Tailpipe Emissions Rates

Alternative and Model Scenario	Pollutant														
	VOC	CO	NOX	PM10	PM2.5	SO2	CO2	CH4	N2O	Benzene	Toluene	Ethylbenzene	Xylenes	n-Hexane	Formaldehyde
Alt B Construction - 2024	19%	16%	14%	29%	25%	12%	12%	21%	25%	20%	20%	20%	20%	18%	21%
Alt B All Non-Construction Scenarios - 2026	17%	14%	13%	23%	19%	10%	10%	20%	25%	19%	18%	18%	18%	15%	20%
Alt C Construction - 2024	19%	16%	14%	30%	25%	12%	12%	21%	25%	20%	20%	20%	20%	18%	21%
Alt C All Non-Construction Scenarios - 2026	17%	14%	13%	21%	18%	9%	9%	20%	25%	18%	17%	17%	18%	15%	20%
Alt D Construction - 2024	19%	16%	15%	31%	26%	12%	12%	21%	25%	20%	20%	20%	20%	18%	21%
Alt D All Non-Construction Scenarios – 2027	17%	14%	13%	22%	18%	10%	10%	20%	25%	18%	18%	18%	18%	15%	20%

3.8.2 Potential Speed Adjusted Impacts

A conservatively high screening assessment was conducted to assess if a 35 mph speed limit affects the conclusions drawn from the air quality impact modeling analyses presented in Section 3.3 through 3.5. Through the screening assessment for all alternatives and scenarios and a refined assessment for a subset of model scenarios discussed below, it is determined that a speed limit of 35 mph would not change the conclusions of the near-field modeling analysis.

The conservatively high screening assessment was performed by applying the emissions rate changes for a 35mph speed limit (shown above in Table 3.8-3) to the maximum modeled concentrations that occur anywhere in the analysis area. The screening assessment assumes that the total Project impact would increase due to the increase in vehicle speed, not just the fraction of the maximum impact that is due to the on-road tailpipe emissions. This screening assessment was performed for all scenarios and alternatives. The resulting impacts are shown in Table 3.8-4 through Table 3.8-16 for criteria pollutants and Table 3.8-17 through Table 3.8-22 for hazardous air pollutants. This screening assessment results in an over-estimate of actual impacts because on-road tailpipe emissions contribute to only a portion of the total Project impacts. With regards to greenhouse gas (GHG) emissions, the estimated GHG emissions from on-road vehicle tailpipe emissions at the Project would be potentially higher by up to the percent increases shown for CO_2, CH_4 and N_2O in Table 3.8-3 due to increase in speed from 25 mph to 35 mph.

When using this conservatively high screening assessment, criteria pollutant cumulative impacts were below the NAAQS and AAAQS for all scenarios except four scenarios for which a refined assessment was conducted, as explained below. The four scenarios for which a refined assessment was conducted are: Alternative C Development Drilling 1-hour NO_2, Alternative C Routine Operations 1-hour NO_2, Alternative D Construction 24-hour PM_{10}, and Alternative D Development Drilling 1-hour NO_2. The refined assessment analyzes the impacts of increasing the emissions for just the mobile source impacts. For these four alternative/scenario combinations, as discussed below, all impacts would be well below the NAAQS and AAQS with a 35mph speed limit. When using the conservatively high screening assessment, hazardous air pollutant impacts continue to be below relevant health-based thresholds with the change in speed limit from 25 mph to 35 mph.

The criteria pollutant impacts attributed to just on-road mobile sources were analyzed explicitly for those alternative/scenario/pollutant cases where the screening assessment showed values higher than the AAQS, i.e., Alternative C Development Drilling 1-hour NO_2, Alternative C Routine Operations 1-hour NO_2, Alternative D Construction 24-hour PM_{10}, and Alternative D Development Drilling 1-hour NO_2 by determining the on-road source contribution to receptors within 100 meters of the pads with maximum impacts. Then the on-road impacts were adjusted based on the emissions rates in Table 3.8-3 to evaluate the overall increase to the impacts.

For Alternative C Development Drilling, on-road sources contribute a maximum of 0.175 and 0.183 $\mu g/m^3$ to the three-year 1-hour NO_2 values in the vicinity of the WPF and South WOC, respectively. Increasing the traffic speed to 35mph (a 13% increase in emissions for this scenario as shown in Table 3.8-3) has a negligible effect on the maximum concentrations. The maximum increase in 1-hour NO_2 impacts under Alternative C Development Drilling would be approximately 0.023 $\mu g/m^3$ and 0.024 $\mu g/m^3$ at the WCF and South WOC, respectively. This shows that overall impacts for Alternative C Development Drilling, when adjusted for speed increases, would be well below NAAQS and AAAQS. The maximum 1-hour NO_2 impact for Alternative C Routine Operations is identical to Alternative C

Development Drilling and thus the overall impacts for Alternative C Routine Operations, when adjusted for speed increases, would also be well below NAAQS and AAAQS.

For Alternative D Construction, on-road sources contribute a maximum of 7.02, 7.89 and 0.25 ug/m^3 to the three-year average 24-hour PM_{10} values in the vicinity of the BT2, WPF-BT3 and WOC, respectively. Increasing the traffic speed to 35mph (a 31% increase in emissions for this scenario as shown in Table 3.8-3) has an insignificant effect on the maximum concentrations. The maximum increase in 24-hour PM_{10} impacts under Alternative D Construction would be approximately 2.11, 2.37 and 0.08 ug/m3 at the BT2, WPF-BT3 and WOC, respectively. This demonstrates that overall impacts for Alternative D Construction, when adjusted for speed increases, would be well below NAAQS and AAAQS.

For Alternative D Development Drilling, on-road sources contribute a maximum of 0.353 and 0.048 ug/m^3 to the three-year average 1-hour NO_2 values in the vicinity of the WPF-BT3 and WOC, respectively. Increasing the traffic speed to 35mph (a 13% increase in emissions for this scenario as shown in Table 3.8-3) has a negligible effect on the maximum concentrations. The maximum increase in 1-hour NO2 impacts under Alternative D Development Drilling would be approximately 0.046 ug/m3 and 0.006 ug/m3 at the WPF-BT3 and WOC, respectively. The shows that overall impacts for Alternative D Development Drilling, when adjusted for speed increases, would be well below NAAQS and AAAQS.

In summary, as discussed above, all air quality impacts in all alternatives and scenarios would be below the NAAQS and AAAQS even with a 35 mph speed limit. This is shown either with the screening assessment in Table 3.8-4 through Table 3.8-16, or a detailed analysis of the on-road source contribution at peak receptors. Hazardous air pollutant impacts, shown in Table 3.8-17 through Table 3.8-22, would be below relevant health-based thresholds.

Table 3.8-4. Screening Test: BT1 Pre-Drill Activity AAQS Impacts with Speed Adjustment in Alternative B*

Pollutant	Averaging Time	Maximum Modeled Concentration (μg/m^3)	Speed Adjusted Concentration* (μg/m^3)	Background Concentration (μg/m^3)	Total Concentration* (μg/m^3)	NAAQS (μg/m^3)	AAAQS (μg/m^3)	Percent of NAAQS*	Percent of AAAQS*
CO	1-Hour	1483.3	1716.0	1296.7	3012.8	40,000	40,000	8%	8%
	8-Hour	1103.9	1277.1	1296.7	2573.8	10,000	10,000	26%	26%
NO_2	1-Hour	64.3	73.5	22.9	96.4	188	188	51%	51%
	Annual	10.8	12.4	3.2	15.6	100	100	16%	16%
SO_2	1-Hour	4.2	4.7	6.9	11.5	196	196	6%	6%
	3-Hour	3.6	4.0	9.1	13.1	1,300	1,300	1%	1%
	24-Hour	2.0	2.3	8.9	11.1	--	365	--	3%
	Annual	0.2	0.2	2.4	2.6	--	80	--	3%
PM_{10}	24-Hour	16.7	21.5	30	51.5	150	150	34%	34%
$PM_{2.5}$	24-Hour	10.0	12.4	7.7	20.1	35	35	58%	58%
	Annual	2.0	2.5	1.9	4.4	12	12	37%	37%

Numbers may not add exactly due to rounding
* Values are an over-estimate of actual impacts because only a fraction of the total Project impact is due to tailpipe emissions but in this screening test, the total Project impact is conservatively increased by the percent increase for each pollutant due to the speed increase

Table 3.8-5. Screening Test: BT1 and BT2 Pre-Drill Activity AAQS Impacts with Speed Adjustment in Alternative B*

Pollutant	Averaging Time	Maximum Modeled Concentration (µg/m³)	Speed Adjusted Concentration (µg/m³)	Background Concentration (µg/m³)	Total Concentration (µg/m³)	NAAQS (µg/m³)	AAAQS (µg/m³)	Percent of NAAQS	Percent of AAAQS
CO	1-Hour	833.2	964.0	1296.7	2260.7	40,000	40,000	6%	6%
	8-Hour	641.0	741.6	1296.7	2038.3	10,000	10,000	20%	20%
NO_2	1-Hour	55.8	63.8	21.8	85.6	188	188	46%	46%
	Annual	6.7	7.6	3.2	10.8	100	100	11%	11%
SO_2	1-Hour	3.1	3.4	6.9	10.3	196	196	5%	5%
	3-Hour	2.8	3.1	9.1	12.2	1,300	1,300	1%	1%
	24-Hour	1.3	1.4	8.9	10.3	--	365	--	3%
	Annual	0.1	0.1	2.4	2.5	--	80	--	3%
PM_{10}	24-Hour	17.1	22.0	20	42.0	150	150	28%	28%
$PM_{2.5}$	24-Hour	7.5	9.2	7.7	17.0	35	35	48%	48%
	Annual	0.9	1.2	1.9	3.1	12	12	26%	26%

Numbers may not add exactly due to rounding
* Values shown are an over-estimate of actual impacts because only a fraction of the total Project impact is due to tailpipe emissions but in this screening test, the total Project impact is conservatively increased by the percent increase for each pollutant due to the speed increase.

Table 3.8-6 Screening Test: Routine Operations Activity AAQS Impacts with Speed Adjustment in Alternative B*

Pollutant	Averaging Time	Maximum Modeled Concentration (µg/m³)	Speed Adjusted Concentration (µg/m³)	Background Concentration (µg/m³)	Total Concentration (µg/m³)	NAAQS (µg/m³)	AAAQS (µg/m³)	Percent of NAAQS	Percent of AAAQS
CO	1-Hour	1389.5	1585.2	1296.7	2881.9	40,000	40,000	7%	7%
	8-Hour	921.7	1051.5	1296.7	2348.2	10,000	10,000	23%	23%
NO_2	1-Hour	138.5	156.9	17.6	174.4	188	188	93%	93%
	Annual	24.9	28.2	3.2	31.3	100	100	31%	31%
SO_2	1-Hour	17.9	19.7	6.9	26.6	196	196	14%	14%
	3-Hour	16.6	18.2	9.1	27.3	1,300	1,300	2%	2%
	24-Hour	10.2	11.2	8.9	20.1	--	365	--	5%
	Annual	0.8	0.9	2.4	3.3	--	80	--	4%
PM_{10}	24-Hour	65.6	80.7	20	100.7	150	150	67%	67%
$PM_{2.5}$	24-Hour	22.6	26.9	7.7	34.6	35	35	99%	99%
	Annual	4.2	5.0	1.9	6.9	12	12	58%	58%

Numbers may not add exactly due to rounding
* Values shown are an over-estimate of actual impacts because only a fraction of the total Project impact is due to tailpipe emissions but in this screening test, the total Project impact is conservatively increased by the percent increase for each pollutant due to the speed increase.

Table 3.8-7. Screening Test: Construction Activity AAQS Impacts with Speed Adjustment in Alternative B*

Pollutant	Averaging Time	Maximum Modeled Concentration (μg/m³)	Speed Adjusted Concentration (μg/m³)	Background Concentration (μg/m³)	Total Concentration (μg/m³)	NAAQS (μg/m³)	AAAQS (μg/m³)	Percent of NAAQS	Percent of AAAQS
CO	1-Hour	526.4	609.0	1296.7	1905.7	40,000	40,000	5%	5%
	8-Hour	390.0	451.2	1296.7	1747.9	10,000	10,000	17%	17%
NO_2	1-Hour	111.4	127.4	21.8	149.1	188	188	79%	79%
	Annual	17.0	19.4	3.2	22.6	100	100	23%	23%
SO_2	1-Hour	3.6	4.0	6.9	10.9	196	196	6%	6%
	3-Hour	5.2	5.8	9.1	14.9	1,300	1,300	1%	1%
	24-Hour	1.2	1.4	8.9	10.3	--	365	--	3%
	Annual	0.1	0.1	2.4	2.5	--	80	--	3%
PM_{10}	24-Hour	61.9	80.0	20	100.0	150	150	67%	67%
$PM_{2.5}$	24-Hour	11.6	14.3	7.7	22.0	35	35	63%	63%
	Annual	2.6	3.2	1.9	5.1	12	12	42%	42%

Numbers may not add exactly due to rounding
* Values shown are an over-estimate of actual impacts because only a fraction of the total Project impact is due to tailpipe emissions but in this screening test, the total Project impact is conservatively increased by the percent increase for each pollutant due to the speed increase. See refined analysis in Section 3.8.2 for scenarios/pollutants where screening values are higher than AAQS.

Table 3.8-8. Screening Test: Development Drilling Activity AAQS Impacts with Speed Adjustment in Alternative B*

Pollutant	Averaging Time	Maximum Modeled Concentration (μg/m³)	Speed Adjusted Concentration (μg/m³)	Background Concentration (μg/m³)	Total Concentration (μg/m³)	NAAQS (μg/m³)	AAAQS (μg/m³)	Percent of NAAQS	Percent of AAAQS
CO	1-Hour	1389.5	1585.2	1296.7	2881.9	40,000	40,000	7%	7%
	8-Hour	921.7	1051.5	1296.7	2348.2	10,000	10,000	23%	23%
NO_2	1-Hour	138.5	156.9	17.6	174.4	188	188	93%	93%
	Annual	24.9	28.2	3.2	31.4	100	100	31%	31%
SO_2	1-Hour	17.9	19.7	6.9	26.6	196	196	14%	14%
	3-Hour	16.6	18.2	9.1	27.3	1,300	1,300	2%	2%
	24-Hour	10.2	11.2	8.9	20.1	--	365	--	5%
	Annual	0.8	0.9	2.4	3.3	--	80	--	4%
PM_{10}	24-Hour	65.6	80.8	20	100.8	150	150	67%	67%
$PM_{2.5}$	24-Hour	22.6	26.9	7.7	34.6	35	35	99%	99%
	Annual	4.2	5.0	1.9	7.0	12	12	58%	58%

Numbers may not add exactly due to rounding
* Values shown are an over-estimate of actual impacts because only a fraction of the total Project impact is due to tailpipe emissions but in this screening test, the total Project impact is conservatively increased by the percent increase for each pollutant due to the speed increase. See refined analysis in Section 3.8.2 for scenarios/pollutants where screening values are higher than AAQS.

Table 3.8-9. Screening Test: BT1 Pre-Drill Activity AAQS Impacts with Speed Adjustment in Alternative C*

Pollutant	Averaging Time	Maximum Modeled Concentration (µg/m³)	Speed Adjusted Concentration (µg/m³)	Background Concentration (µg/m³)	Total Concentration (µg/m³)	NAAQS (µg/m³)	AAAQS (µg/m³)	Percent of NAAQS	Percent of AAAQS
CO	1-Hour	1471.5	1702.0	1296.7	2998.7	40,000	40,000	7%	7%
	8-Hour	1128.2	1304.9	1296.7	2601.6	10,000	10,000	26%	26%
NO_2	1-Hour	65.7	75.2	19.9	95.2	188	188	51%	51%
	Annual	12.7	14.6	3.2	17.7	100	100	18%	18%
SO_2	1-Hour	4.2	4.7	6.9	11.6	196	196	6%	6%
	3-Hour	4.1	4.6	9.1	13.7	1,300	1,300	1%	1%
	24-Hour	2.2	2.4	8.9	11.3	--	365	--	3%
	Annual	0.2	0.3	2.4	2.7	--	80	--	3%
PM_{10}	24-Hour	18.0	23.2	10	33.2	150	150	22%	22%
$PM_{2.5}$	24-Hour	11.4	14.2	7.7	21.9	35	35	63%	63%
	Annual	2.3	2.9	1.9	4.8	12	12	40%	40%

Numbers may not add exactly due to rounding
* Values shown are an over-estimate of actual impacts because only a fraction of the total Project impact is due to tailpipe emissions but in this screening test, the total Project impact is conservatively increased by the percent increase for each pollutant due to the speed increase. See refined analysis in Section 3.8.2 for scenarios/pollutants where screening values are higher than AAQS.

Table 3.8-10. Screening Test: BT1 and BT2 Pre-Drill Activity AAQS Impacts with Speed Adjustment in Alternative C*

Pollutant	Averaging Time	Maximum Modeled Concentration (µg/m³)	Speed Adjusted Concentration (µg/m³)	Background Concentration (µg/m³)	Total Concentration (µg/m³)	NAAQS (µg/m³)	AAAQS (µg/m³)	Percent of NAAQS	Percent of AAAQS
CO	1-Hour	826.4	955.9	1296.7	2252.6	40,000	40,000	6%	6%
	8-Hour	635.7	735.3	1296.7	2032.0	10,000	10,000	20%	20%
NO_2	1-Hour	57.6	65.9	16.2	82.0	188	188	44%	44%
	Annual	12.6	14.4	3.2	17.6	100	100	18%	18%
SO_2	1-Hour	4.2	4.7	6.9	11.5	196	196	6%	6%
	3-Hour	4.1	4.6	9.1	13.7	1,300	1,300	1%	1%
	24-Hour	1.8	2.0	8.9	10.9	--	365	--	3%
	Annual	0.2	0.2	2.4	2.7	--	80	--	3%
PM_{10}	24-Hour	17.9	23.1	30	53.1	150	150	35%	35%
$PM_{2.5}$	24-Hour	11.4	14.1	7.7	21.8	35	35	62%	62%
	Annual	2.3	2.8	1.9	4.8	12	12	40%	40%

Numbers may not add exactly due to rounding
* Values shown are an over-estimate of actual impacts because only a fraction of the total Project impact is due to tailpipe emissions but in this screening test, the total Project impact is conservatively increased by the percent increase for each pollutant due to the speed increase. See refined analysis in Section 3.8.2 for scenarios/pollutants where screening values are higher than AAQS.

Table 3.8-11. Screening Test: Routine Operations Activity AAQS Impacts with Speed Adjustment in Alternative C*

Pollutant	Averaging Time	Maximum Modeled Concentration (μg/m³)	Speed Adjusted Concentration (μg/m³)	Background Concentration (μg/m³)	Total Concentration (μg/m³)	NAAQS (μg/m³)	AAAQS (μg/m³)	Percent of NAAQS	Percent of AAAQS
CO	1-Hour	1308.0	1488.5	1296.7	2785.2	40,000	40,000	7%	7%
	8-Hour	930.9	1059.4	1296.7	2356.1	10,000	10,000	24%	24%
NO_2	1-Hour	147.6	166.6	21.5	188.0	188	188	100%	100%
	Annual	24.0	27.1	3.2	30.3	100	100	30%	30%
SO_2	1-Hour	19.2	21.0	6.9	27.9	196	196	14%	14%
	3-Hour	16.9	18.5	9.1	27.5	1,300	1,300	2%	2%
	24-Hour	10.4	11.4	8.9	20.3	--	365	--	6%
	Annual	0.9	1.0	2.4	3.4	--	80	--	4%
PM_{10}	24-Hour	77.8	94.2	20	114.2	150	150	76%	76%
$PM_{2.5}$	24-Hour	19.0	22.3	7.7	30.0	35	35	86%	86%
	Annual	5.0	5.8	1.9	7.7	12	12	65%	65%

Numbers may not add exactly due to rounding
* Values shown are an over-estimate of actual impacts because only a fraction of the total Project impact is due to tailpipe emissions but in this screening test, the total Project impact is conservatively increased by the percent increase for each pollutant due to the speed increase. See refined analysis in Section 3.8.2 for scenarios/pollutants where screening values are higher than AAQS.

Table 3.8-12. Screening Test: Construction Activity AAQS Impacts with Speed Adjustment in Alternative C*

Pollutant	Averaging Time	Maximum Modeled Concentration (μg/m³)	Speed Adjusted Concentration (μg/m³)	Background Concentration (μg/m³)	Total Concentration (μg/m³)	NAAQS (μg/m³)	AAAQS (μg/m³)	Percent of NAAQS	Percent of AAAQS
CO	1-Hour	643.2	744.0	1296.7	2040.7	40,000	40,000	5%	5%
	8-Hour	488.1	564.5	1296.7	1861.2	10,000	10,000	19%	19%
NO_2	1-Hour	136.0	155.6	16.2	171.8	188	188	91%	91%
	Annual	35.4	40.5	3.2	43.6	100	100	44%	44%
SO_2	1-Hour	4.3	4.8	6.9	11.7	196	196	6%	6%
	3-Hour	5.2	5.8	9.1	14.8	1,300	1,300	1%	1%
	24-Hour	1.3	1.5	8.9	10.3	--	365	--	3%
	Annual	0.2	0.3	2.4	2.7	--	80	--	3%
PM_{10}	24-Hour	90.4	117.3	30	147.3	150	150	98%	98%
$PM_{2.5}$	24-Hour	16.7	20.7	7.7	28.5	35	35	81%	81%
	Annual	5.4	6.8	1.9	8.7	12	12	72%	72%

Numbers may not add exactly due to rounding
* Values shown are an over-estimate of actual impacts because only a fraction of the total Project impact is due to tailpipe emissions but in this screening test, the total Project impact is conservatively increased by the percent increase for each pollutant due to the speed increase.

Table 3.8-13. Screening Test: Development Drilling Activity AAQS Impacts with Speed Adjustment in Alternative C*

Pollutant	Averaging Time	Maximum Modeled Concentration (μg/m³)	Speed Adjusted Concentration (μg/m³)	Background Concentration (μg/m³)	Total Concentration (μg/m³)	NAAQS (μg/m³)	AAAQS (μg/m³)	Percent of NAAQS	Percent of AAAQS
CO	1-Hour	1308.0	1488.5	1296.7	2785.2	40,000	40,000	7%	7%
	8-Hour	930.9	1059.4	1296.7	2356.1	10,000	10,000	24%	24%
NO_2	1-Hour	147.6	166.6	21.5	188.0	188	188	100%*	100%*
	Annual	24.1	27.2	3.2	30.4	100	100	30%	30%
SO_2	1-Hour	19.3	21.1	6.9	28.0	196	196	14%	14%
	3-Hour	16.9	18.5	9.1	27.5	1,300	1,300	2%	2%
	24-Hour	10.4	11.4	8.9	20.3	--	365	--	6%
	Annual	0.9	1.0	2.4	3.4	--	80	--	4%
PM_{10}	24-Hour	91.4	110.6	20	130.6	150	150	87%	87%
$PM_{2.5}$	24-Hour	19.0	22.3	7.7	30.0	35	35	86%	86%
	Annual	5.0	5.8	1.9	7.8	12	12	65%	65%

Numbers may not add exactly due to rounding
* Values shown are an over-estimate of actual impacts because only a fraction of the total Project impact is due to tailpipe emissions but in this screening test, the total Project impact is conservatively increased by the percent increase for each pollutant due to the speed increase. See refined analysis in Section 3.8.2 for scenarios/pollutants where screening values are higher than AAQS.

Table 3.8-14. Screening Test: Routine Operations Activity AAQS Impacts with Speed Adjustment in Alternative D*

Pollutant	Averaging Time	Maximum Modeled Concentration (μg/m³)	Speed Adjusted Concentration (μg/m³)	Background Concentration (μg/m³)	Total Concentration (μg/m³)	NAAQS (μg/m³)	AAAQS (μg/m³)	Percent of NAAQS	Percent of AAAQS
CO	1-Hour	1535.5	1752.1	1296.7	3048.8	40,000	40,000	8%	8%
	8-Hour	566.0	645.9	1296.7	1942.6	10,000	10,000	19%	19%
NO_2	1-Hour	143.6	162.2	24.0	186.2	188	188	99%	99%
	Annual	22.1	25.0	3.2	28.2	100	100	28%	28%
SO_2	1-Hour	17.9	19.6	6.9	26.5	196	196	14%	14%
	3-Hour	15.1	16.6	9.1	25.6	1,300	1,300	2%	2%
	24-Hour	11.8	13.0	8.9	21.8	--	365	--	6%
	Annual	0.8	0.9	2.4	3.3	--	80	--	4%
PM_{10}	24-Hour	63.9	77.5	30	107.5	150	150	72%	72%
$PM_{2.5}$	24-Hour	18.5	21.8	7.7	29.5	35	35	84%	84%
	Annual	3.9	4.6	1.9	6.5	12	12	54%	54%

Numbers may not add exactly due to rounding
* Values shown are an over-estimate of actual impacts because only a fraction of the total Project impact is due to tailpipe emissions but in this screening test, the total Project impact is conservatively increased by the percent increase for each pollutant due to the speed increase.

Table 3.8-15. Screening Test: Construction Activity AAQS Impacts with Speed Adjustment in Alternative D*

Pollutant	Averaging Time	Maximum Modeled Concentration (μg/m³)	Speed Adjusted Concentration (μg/m³)	Background Concentration (μg/m³)	Total Concentration (μg/m³)	NAAQS (μg/m³)	AAAQS (μg/m³)	Percent of NAAQS	Percent of AAAQS
CO	1-Hour	528.1	610.3	1296.7	1907.0	40,000	40,000	5%	5%
	8-Hour	390.1	450.8	1296.7	1747.6	10,000	10,000	17%	17%
NO_2	1-Hour	111.5	127.9	21.8	149.7	188	188	80%	80%
	Annual	15.6	17.9	3.2	21.1	100	100	21%	21%
SO_2	1-Hour	3.6	4.0	6.9	10.9	196	196	6%	6%
	3-Hour	5.2	5.8	9.1	14.9	1,300	1,300	1%	1%
	24-Hour	1.2	1.4	8.9	10.3	--	365	--	3%
	Annual	0.1	0.1	2.4	2.5	--	80	--	3%
PM_{10}	24-Hour	102.8	134.5	20	154.5	150	150	103%*	103%*
$PM_{2.5}$	24-Hour	9.2	11.4	7.7	19.1	35	35	55%	55%
	Annual	2.4	3.0	1.9	5.0	12	12	41%	41%

Numbers may not add exactly due to rounding
* Values shown are an over-estimate of actual impacts because only a fraction of the total Project impact is due to tailpipe emissions but in this screening test, the total Project impact is conservatively increased by the percent increase for each pollutant due to the speed increase. See refined analysis in Section 3.8.2 for scenarios/pollutants where screening values are higher than AAQS.

Table 3.8-16. Screening Test: Development Drilling Activity AAQS Impacts with Speed Adjustment in Alternative D*

Pollutant	Averaging Time	Maximum Modeled Concentration (μg/m³)	Speed Adjusted Concentration (μg/m³)	Background Concentration (μg/m³)	Total Concentration (μg/m³)	NAAQS (μg/m³)	AAAQS (μg/m³)	Percent of NAAQS	Percent of AAAQS
CO	1-Hour	1535.5	1752.2	1296.7	3048.9	40,000	40,000	8%	8%
	8-Hour	599.7	684.3	1296.7	1981.0	10,000	10,000	20%	20%
NO_2	1-Hour	150.7	170.2	24.0	194.2	188	188	103%	103%
	Annual	23.6	26.7	3.2	29.9	100	100	30%	30%
SO_2	1-Hour	18.0	19.7	6.9	26.6	196	196	14%	14%
	3-Hour	15.6	17.1	9.1	26.2	1,300	1,300	2%	2%
	24-Hour	12.2	13.4	8.9	22.3	--	365	--	6%
	Annual	0.9	0.9	2.4	3.3	--	80	--	4%
PM_{10}	24-Hour	66.6	80.8	30	110.8	150	150	74%	74%
$PM_{2.5}$	24-Hour	21.1	24.8	7.7	32.5	35	35	93%	93%
	Annual	5.1	6.1	1.9	8.0	12	12	66%	66%

Numbers may not add exactly due to rounding
* Values shown are an over-estimate of actual impacts because only a fraction of the total Project impact is due to tailpipe emissions but in this screening test, the total Project impact is conservatively increased by the percent increase for each pollutant due to the speed increase. See refined analysis in Section 3.8.2 for scenarios/pollutants where screening values are higher than AAQS.

Table 3.8-17. Screening Test: Routine Operation Activity Acute and Non-carcinogenic HAPs Impacts with Speed Adjustment– Alternative B*

Pollutant	Max 1-hour (µg/m³)	Speed Adjusted Max 1-hour Concentration (ug/m3)	Acute REL (µg/m³)	Max 8-hour (µg/m³)	Speed Adjusted Max 8-hour Concentration (ug/m3)	Sub-Chronic AEGLs (µg/m³)	Max Annual (µg/m³)	Speed Adjusted max Annual Concentration (ug/m3)	RfC (µg/m³)
Benzene	8.8	10.4	27.0	6.0	7.1	29000.0	0.2	0.2**	30.0
Ethylbenzene	230.7	272.1	140000.0	155.4	183.3	140000.0	5.0	5.8	1000.0
Formaldehyde	1.4	1.7	55.0	0.8	0.9	1100.0	0.0	0.0	9.8
n-hexane	562.9	648.4	10000000.0	379.1	436.8	10000000.0	12.1	13.9	700.0
Toluene	25.7	30.3	37000.0	17.3	20.4	250000.0	0.6	0.7	5000.0
Xylene	454.5	538.4	22000.0	306.2	362.7	560000.0	9.8	11.6	100.0

Numbers may not add exactly due to rounding
* Values shown are an over-estimate of actual impacts because only a fraction of the total Project impact is due to tailpipe emissions but in this screening test, the total Project impact is conservatively increased by the percent increase for each pollutant due to the speed increase.
**The max annual concentration with and without the speed impact are the same because of rounding.

Table 3.8-18. Screening Test: Routine Operation Activity Carcinogenic HAPs Impacts with Speed Adjustment in Alternative B*

Pollutant	Max Annual (µg/m³)	Speed Adjustment Annual Concentration (ug/m3)	RfC (µg/m³)	Max Annual as a % of RfC	Cancer Unit Risk Factor thresholds (1/(µg/m³))	Exposure Adjustment Factor	Cancer Risk
Benzene	9.70E-04	1.15E-03	3.00E+01	0.0%	7.80E-06	4.30E-01	3.86E-09
Ethylbenzene	3.97E-03	4.68E-03	1.00E+03	0.0%	2.50E-06		5.03E-09
Formaldehyde	3.70E-04	4.44E-04	9.80E+00	0.0%	1.30E-05		2.48E-09
Total Cancer Risk:							1.1E-08

Numbers may not add exactly due to rounding
* Values shown are an over-estimate of actual impacts because only a fraction of the total Project impact is due to tailpipe emissions but in this screening test, the total Project impact is conservatively increased by the percent increase for each pollutant due to the speed increase.

Table 3.8-19. Screening Test: Routine Operation Activity Acute and Non-carcinogenic HAPs Impacts with Speed Adjustment– Alternative C*

Pollutant	Max 1-hour (μg/m³)	Speed Adjusted max 1-hour Concentration (ug/m3)	Acute REL (μg/m³)	Max 8-hour (μg/m³)	Speed Adjusted max 8-hour Concentration (ug/m3)	Sub-Chronic AEGLs (μg/m³)	Max Annual (μg/m³)	Speed Adjusted max Annual Concentration (ug/m3)	RfC (μg/m³)
Benzene	8.7	10.2	27.0	5.9	6.9	29000.0	0.2	0.2**	30.0
Ethylbenzene	226.8	266.3	140000.0	152.5	179.1	140000.0	4.8	5.6	1000.0
Formaldehyde	1.4	1.7	55.0	0.8	0.9	1100.0	0.0	0.0	9.8
n-hexane	553.3	633.9	10000000.0	372.0	426.2	10000000.0	11.6	13.3	700.0
Toluene	25.3	29.7	37000.0	17.0	20.0	250000.0	0.5	0.6	5000.0
Xylene	446.8	527.1	22000.0	300.4	354.4	560000.0	9.4	11.1	100.0

Numbers may not add exactly due to rounding
* Values shown are an over-estimate of actual impacts because only a fraction of the total Project impact is due to tailpipe emissions but in this screening test, the total Project impact is conservatively increased by the percent increase for each pollutant due to the speed increase.
**The max annual concentration with and without the speed impact are the same because of rounding.

Table 3.8-20. Screening Test: Routine Operation Activity Carcinogenic HAPs Impacts with Speed Adjustment in Alternative C*

Pollutant	Max Annual (μg/m³)	Speed Adjustment Annual Concentration (ug/m3)	RfC (μg/m³)	Max Annual as a % of RfC	Cancer Unit Risk Factor thresholds (1/(μg/m³))	Exposure Adjustment Factor	Cancer Risk
Benzene	1.03E-03	1.22E-03	3.00E+01	0.0%	7.80E-06	4.30E-01	4.08E-09
Ethylbenzene	3.97E-03	4.66E-03	1.00E+03	0.0%	2.50E-06		5.01E-09
Formaldehyde	3.80E-04	4.55E-04	9.80E+00	0.0%	1.30E-05		2.54E-09
Total Cancer Risk:							1.2E-08

Numbers may not add exactly due to rounding
* Values shown are an over-estimate of actual impacts because only a fraction of the total Project impact is due to tailpipe emissions but in this screening test, the total Project impact is conservatively increased by the percent increase for each pollutant due to the speed increase.

Table 3.8-21. Screening Test: Routine Operation Activity Acute and Non-carcinogenic HAPs Impacts with Speed Adjustment– Alternative D*

Pollutant	Max 1-hour (µg/m³)	Speed Adjusted max 1-hour Concentration (ug/m3)	Acute REL (µg/m³)	Max 8-hour (µg/m³)	Speed Adjusted max 8-hour Concentration (ug/m3)	Sub-Chronic AEGLs (µg/m³)	Max Annual (µg/m³)	Speed Adjusted max Annual Concentration (ug/m3)	RfC (µg/m³)
Benzene	8.8	10.5	27.0	5.9	7.0	29000.0	0.2	0.2**	30.0
Ethylbenzene	232.3	273.1	140000.0	155.4	182.7	140000.0	5.0	5.8	1000.0
Formaldehyde	1.4	1.7	55.0	0.8	0.9	1100.0	0.0	0.0	9.8
n-hexane	566.7	651.2	10000000.0	379.1	435.6	10000000.0	12.1	13.9	700.0
Toluene	25.9	30.4	37000.0	17.3	20.3	250000.0	0.6	0.7	5000.0
Xylene	457.7	540.2	22000.0	306.2	361.4	560000.0	9.8	11.5	100.0

Numbers may not add exactly due to rounding
* Values shown are an over-estimate of actual impacts because only a fraction of the total Project impact is due to tailpipe emissions but in this screening test, the total Project impact is conservatively increased by the percent increase for each pollutant due to the speed increase.
**The max annual concentration with and without the speed impact are the same because of rounding.

Table 3.8-22. Screening Test: Routine Operation Activity Carcinogenic HAPs Impacts with Speed Adjustment in Alternative D*

Pollutant	Max Annual (µg/m³)	Speed Adjustment Annual Concentration (ug/m3)	RfC (µg/m³)	Max Annual as a % of RfC	Cancer Unit Risk Factor thresholds (1/(µg/m³))	Exposure Adjustment Factor	Cancer Risk
Benzene	1.00E-03	1.18E-03	3.00E+01	0.0%	7.80E-06	4.30E-01	3.97E-09
Ethylbenzene	3.96E-03	4.65E-03	1.00E+03	0.0%	2.50E-06		5.00E-09
Formaldehyde	3.70E-04	4.42E-04	9.80E+00	0.0%	1.30E-05		2.47E-09
Total Cancer Risk:							1.1E-08

Numbers may not add exactly due to rounding
* Values shown are an over-estimate of actual impacts because only a fraction of the total Project impact is due to tailpipe emissions but in this screening test, the total Project impact is conservatively increased by the percent increase for each pollutant due to the speed increase.

4.0 REGIONAL MODEL CONFIGURATION AND ASSESSMENT METHODS

4.1 Overview and Modeling Domains

The photochemical grid model (PGM) CAMx was used to conduct the far-field analysis in this study. PGMs calculate the time-varying air quality concentrations of various pollutants in a spatial grid using emissions and meteorological data inputs. A PGM is a three-dimensional Eulerian model (horizontal and vertical) that simulates both chemical and physical (transport and removal) processes in the atmosphere. PGMs can be used to estimates source impacts for pollutants that are both directly emitted and those formed in the atmosphere through chemical reactions. The schematic in Figure 4.1-1 shows the various components in the regional modeling platform proposed for this study.

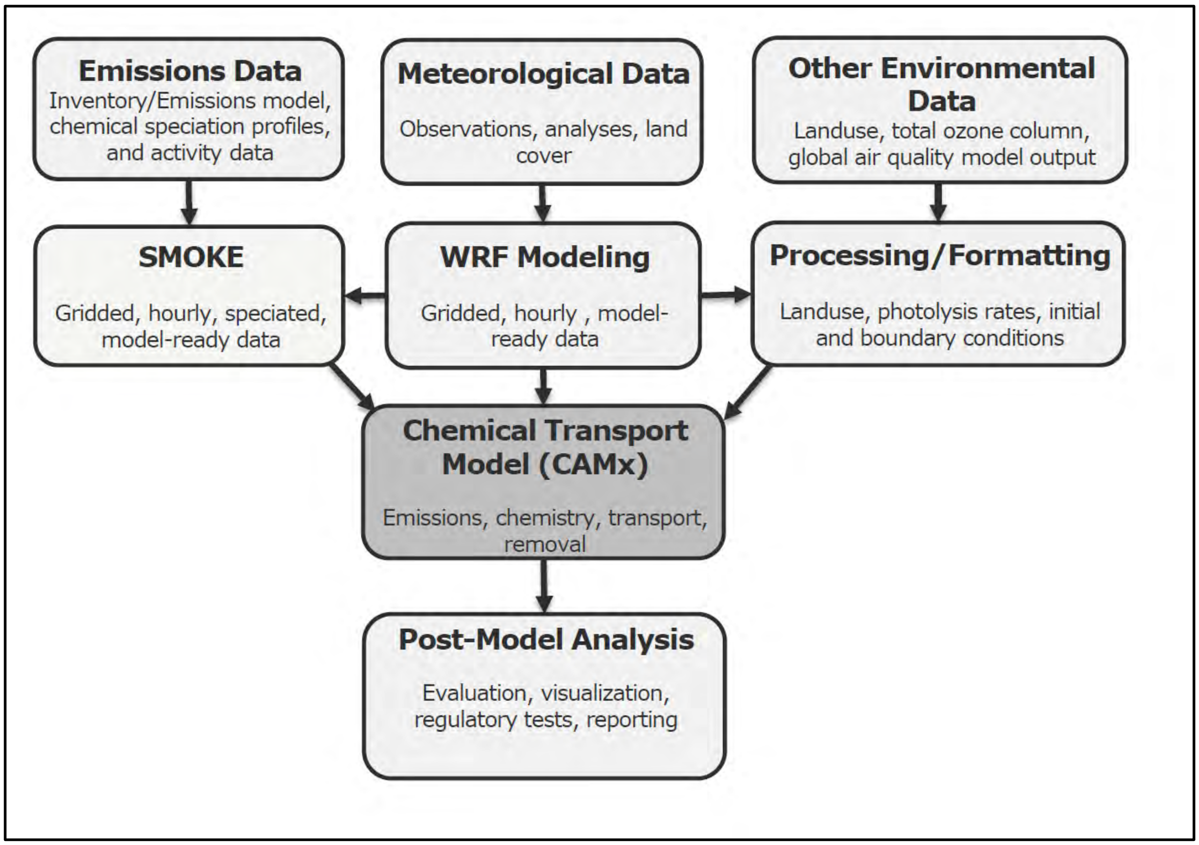

Figure 4.1-1 Schematic showing the overall regional modeling approach.

The CAMx regional air quality modeling methods and results for the Willow MDP Draft EIS were used for the Final EIS as well; the reasons are provided in Section 5.1. The CAMx air quality modeling was conducted on the same 4 km and 12 km grid resolution domains used in the BOEM Arctic modeling study (BOEM, 2017). The BOEM study included a model performance evaluation for ozone, $PM_{2.5}$ and precursors. The 4 km domain is centered on the northern Alaska coast, encompassing the North Slope Borough, and the 12 km domain includes the northern portion of Alaska and the Beaufort and Chukchi Seas as shown in Figure 4.1-2. The 4 km domain covers almost roughly 300 km distance from the Willow drill sites in the north-south direction and more than 300 km in the east-west direction. Table 4.1-1 provides the 12 km and 4 km modeling domain horizontal definitions. The WRF model was run using 33 layers in the vertical dimension; these layers are collapsed to 24 layers in CAMx to improve computational efficiency (Table 4.1-2).

Table 4.1-1. CAMx and WRF Domain Definitions for 12 km and 4 km Domains

Resolution	Origin (lower-left corner)	Dimension
CAMx – 12 km	(-930 km, -822 km)	146 x 119
CAMx – 4 km	(-550 km, -238 km)	278 x 140
WRF – 12 km	(-990 km, -882 km)	157 x 130
WRF – 4 km	(-570km, -258 km)	289 x 151

Polar stereographic projection: 70°N, 155°W with true latitudes at 70°N

Table 4.1-2 Vertical Layer Interface Definition for WRF Simulations and the Layer-Collapsing Scheme for the CAMx Layers.

WRF					CAMx		
Layer Interface	Eta (η)	Pressure (mb)	Height (m)	Thickness (m)	Layer	Height (m)	Thickness (m)
33	0	100	15725.8	1208.7	24	15725.8	2449.2
32	0.027	124	14517	1240.5			
31	0.06	154	13276.6	1266.3	23	13276.6	2600.3
30	0.1	190	12010.2	1333.9			
29	0.15	235	10676.3	1140.8	22	10676.3	2141.6
28	0.2	280	9535.5	1000.8			
27	0.25	325	8534.8	894.2	21	8534.8	1704.2
26	0.3	370	7640.6	810			
25	0.35	415	6830.5	741.8	20	6830.5	1492.7
24	0.4	460	6088.8	750.9			
23	0.455	510	5337.9	814.8	19	5337.9	1508.6
22	0.52	568	4523.1	693.8			
21	0.58	622	3829.3	646.7	18	3829.3	1252.7
20	0.64	676	3182.6	606.1			
19	0.7	730	2576.5	384.2	17	2576.5	754
18	0.74	766	2192.3	369.8			
17	0.78	802	1822.5	356.6	16	1822.5	616
16	0.82	838	1465.9	259.4			

WRF					CAMx		
Layer Interface	Eta (η)	Pressure (mb)	Height (m)	Thickness (m)	Layer	Height (m)	Thickness (m)
15	0.85	865	1206.5	252.9	15	1206.5	252.9
14	0.88	892	953.6	165.2	14	953.6	165.2
13	0.9	910	788.4	122.2	13	788.4	122.2
12	0.915	924	666.2	120.7	12	666.2	120.7
11	0.93	937	545.5	79.7	11	545.5	79.7
10	0.94	946	465.8	79.1	10	465.8	79.1
9	0.95	955	386.7	78.5	9	386.7	78.5
8	0.96	964	308.2	77.9	8	308.2	77.9
7	0.97	973	230.3	77.3	7	230.3	77.3
6	0.98	982	152.9	53.8	6	152.9	53.8
5	0.987	988	99.2	38.2	5	99.2	38.2
4	0.992	993	60.9	22.9	4	60.9	22.9
3	0.995	996	38	15.2	3	38	15.2
2	0.997	997	22.8	11.4	2	22.8	11.4
1	0.9985	999	11.4	11.4	1	11.4	11.4
0	1	1000	0				

By convention, a 300 km distance from the Project is chosen for identifying areas of interest and assessing impacts from these sources. There are no Class I areas within 300 km of the Willow MDP; the nearest one is Denali National Park which is over 700 km away. Two federally managed areas that are within 300 km – the Gates of the Arctic National Park and Preserve, and the Arctic National Wildlife Refuge – have been previously identified by cooperating agencies for the previous GMT1 and GMT2 far-field analysis; these two areas were likewise evaluated for the Willow far-field analysis. In addition, a third area, the Noatak National Preserve, portions of which are within 300 km, has also been added for analysis. These three assessment areas are Class II areas, as is any area in Alaska that is not a designated Class I area. The assessment areas are shown in Figure 4.1-2. As shown Figure 4.1-2, the 4 km domain does not completely include the 300 km assessment area; however, all three assessment areas that are within 300 km of the project are partially within the 4 km domain. Therefore, only the 4 km domain was modeled and impacts for each of the three assessment areas within the 4 km domain were reported. Table 4.1-3 provides the list of the three assessment areas that are within 300 km of Willow (and thus also inside the 4 km modeling domain).

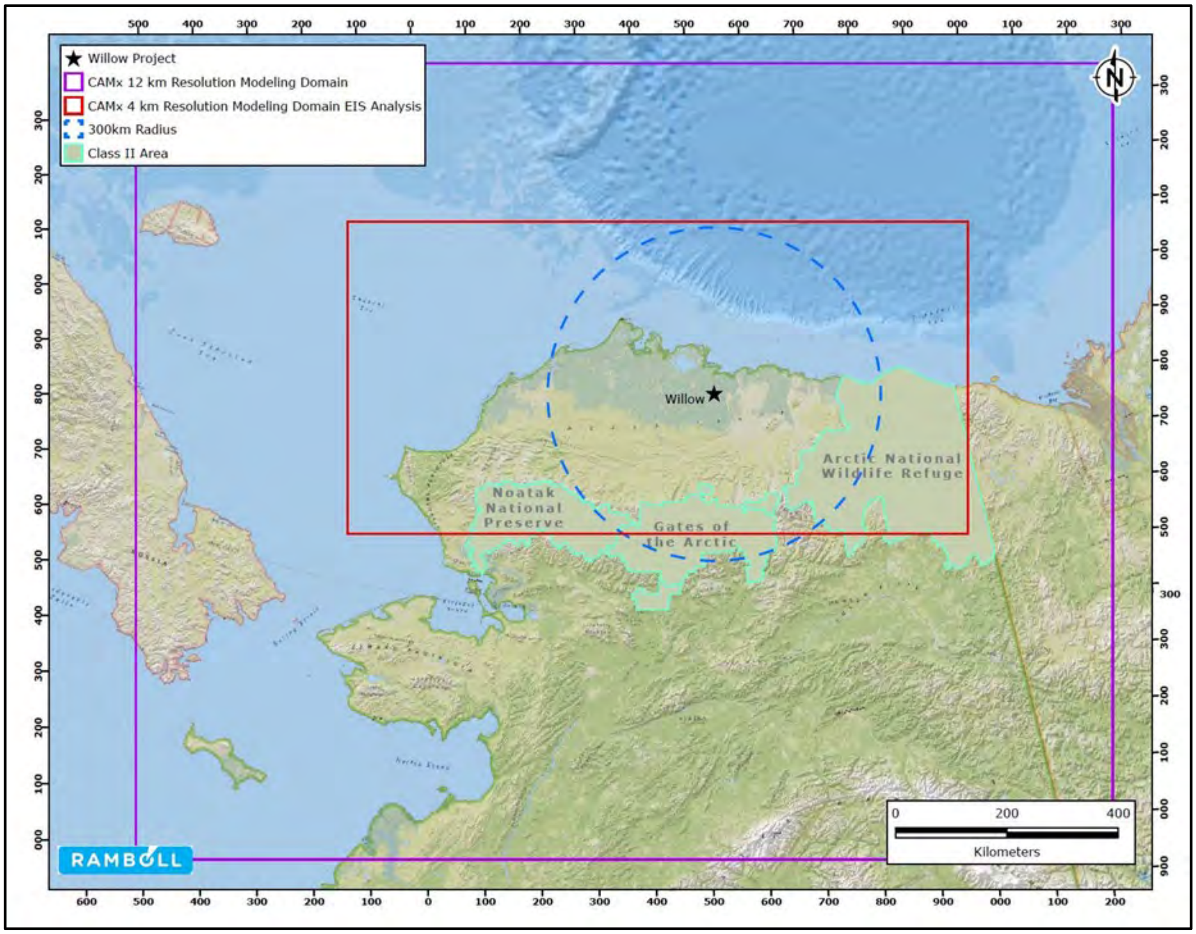

Figure 4.1-2 4 km and 12 km resolution model domains and three assessment areas analyzed.

Table 4.1-3 Three assessment areas considered for air quality analysis.

Area	Administrative Agency
Arctic National Wildlife Refuge	USFWS
Gates of the Arctic National Park	NPS
Noatak National Preserve	NPS

4.2 Meteorological Data

The BOEM Arctic study meteorological data were used for this modeling assessment. WRF v3.6.1 was used for the 4 km and 12 km domains, both these grids were defined on a Polar secant stereographic projection centered at 70°N, 155°W with true latitudes at 70°N. As stated in Brashers et al. (2016), version 3.6.1 of WRF was developed to improve the arctic modeling capabilities. Key physics options selected for the BOEM WRF modeling are shown in Table 4.2-1.

Table 4.2-1 Physics options used in BOEM Arctic WRF modeling

Physics	Parameterization Scheme	Description
Long/Shortwave Radiation	Rapid Radiative Transfer Model for GCM (RRTMG)	Scheme with the MCICA method of random cloud overlap
Micro physics	Thompson	Scheme with ice, snow and graupel processes suitable for high-resolution simulations
Cumulus physics	Grell-Freitas	Scheme that tries to smooth the transition to the cloud-resolving scales
PBL	Yonsei University (YSU)	Scheme with explicit entrainment layer and parabolic K profile in unstable mixed layer
Land surface model (LSM)	Noah land surface model with Polar WRF modifications	Scheme with soil temperature and moisture in four layers, fractional snow cover and frozen soil physics

The model performance of the BOEM Arctic WRF simulation was evaluated using METSTAT tool for both onshore and offshore analysis during 2009-2013 at a 4 km resolution (Brashers et al., 2016). The model BOEM Arctic WRF simulation provides outputs for onshore and offshore wind direction, humidity, wind speed, and temperature. These results are compared against the global-scale National Climate Data Center (NOAA-NCDC, 2014, 2015) DS-3505 observational data for onshore and data from the NOAA National Oceanographic Data Center (NOAA-NODC, 2014) database for offshore. METSTAT uses results for wind direction, humidity, wind speed, and temperature from the BOEM Arctic WRF simulation, NCDC datasets, and NODC datasets to calculate statistical performance metrics (bias, error) for the BOEM Arctic WRF simulation. These metrics were then compared against meteorological model performance benchmarks for simple and complex conditions as an indicator for model performance. Table 4.2-2 provides the simple and complex conditions from literature for various meteorological parameters. Onshore modeling for wind direction and humidity performed very well for all months within simple conditions benchmark. Onshore modelling for wind speed and temperature performed well with most months falling within complex conditions benchmark and several months falling within simple conditions benchmark. Overall, the WRF performed well when compared to onshore surface observations for wind speed, wind direction, humidity, and temperatures for all months of the 2009-2013 simulation period. For 2012, overall the model performance is good and only one or two-month parameter combinations fell outside the complex condition benchmark.

Offshore modeling for humidity performed very well for all open-water months within the simple conditions benchmark. Offshore modeling for wind direction performed satisfactory with most months displaying a slight positive bias and average direction error of 20-45 degree. Temperature performance was also satisfactory with slight negative bias and suggesting that in the warmer months WRF is underpredicting temperatures. The model had difficulties modeling wind speed in the transition month of October, however performed satisfactory in all other months. Overall, the WRF offshore performance did not perform as well as the onshore model. The METSTAT performance discrepancy can be partially attributed to the difficulty of taking offshore measurements due to size and limited number of available buoys for data collection when compared to onshore stations.

The WRF estimated precipitation data was compared with the Parameter-elevation Regressions on Independent Slopes Model (PRISM) datasets, which are spatial maps of climate elements across the United States built by the Spatial Climate Analysis Service (SCAS-OSU, 2001). The high resolution Alaska PRISM contains 30 year average monthly precipitation for the entire onshore Alaska area at 400 m resolution which are compared with the 5 year average WRF precipitation. Overall WRF is able to reflect the spatial trend similar to PRISM and performed well. However, WRF slightly underpredicted winter-spring precipitation totals throughout much of the Brooks Mountain Range (southern border of North

Slope) and underpredicted precipitation totals at areas with highest rainfall over more complex conditions.

For upper–air model evaluation, WRF performs well representing temperature and moisture vertical profiles of the atmosphere including the surface and subsidence-type inversion when compared with upper air data from Point Barrow (Nuvuk) radiosonde dataset. WRF estimated cloud cover fraction (CCF) reasonably well when compared with the Multi-angle Imaging Spectro-Radiometer (MISR) instrument satellite cloud retrievals and overall on average WRF CCF over land appear to show 5 – 15 % high bias.

Table 4.2-2 Meteorological Model Performance Benchmarks for Simple and Complex Conditions

Parameter	Emery et al. (2001)	Kemball-Cook et al., 2005; McNally et al., 2009
Conditions	Simple	Complex
Temperature Bias	⩽ ±0.5 K	⩽ ±1.0 K
Temperature Error	⩽ 2.0 K	⩽ 3.0 K
Temperature IOA	0.8	0.8
Humidity Bias	⩽ ±1.0 g/kg	⩽ ±1.0 g/kg
Humidity Error	⩽ 2.0 g/kg	⩽ 2.0 g/kg
Humidity IOA	0.6	0.6
Wind Speed Bias	⩽ ±0.5 m/s	⩽ ±1.5 m/s
Wind Speed Root Mean Square Error (RMSE)	⩽ 2.0 m/s	⩽ 2.5 m/s
Wind Speed IOA	0.6	0.6
Wind Dir. Bias	⩽ ±10 degrees	⩽ ±10 degrees
Wind Dir. Error	⩽ 30 degrees	⩽ 55 degrees

The WRF model output files were processed in the BOEM study using WRFCAMx v4.4 processor to generate CAMx model-ready meteorological data (Brashers et al., 2016). The Willow EIS used the same meteorological data. Some of the key updates in WRFCAMx v4.4 are the KVPATCH method that improves the surface layer ozone and an option to process sub-grid clouds.

4.3 Emissions Processing

The development and preparation of the regional emissions is described in Section 2.3.2 “Regional Emissions Inventories”. In brief, the non-Willow emissions are based on data developed in the BOEM Arctic study (Field Simms et al., 2014) and the data sources for the regional emissions and natural emissions are summarized in Table 4.3-1. As described in Field Simms et al. (2014), the future year emissions are representative of full build-out scenarios that are based on the projections of anticipated development. The BOEM emissions were adjusted to reduce sea salt and unpaved road dust and to incorporate additional emissions for onshore RFD.

Table 4.3-1 Data Sources for BOEM Emission Inventory Platform

Emission sector	Data Source
North Slope Borough (NSB), Chukchi and Beaufort Sea Anthropogenic Emissions	BOEM Arctic Air Quality study developed for Onshore and Offshore sources.
Anthropogenic emissions for Canada	US EPA 2011 based modeling platform v6.2
Anthropogenic emissions outside US and Canada	GEOS-Chem global model (retrospective inventory and EDGAR inventory)

Emission sector	Data Source
Biogenic	Model of Emissions of Gases and Aerosols from Nature (MEGAN) version 2.03
Fire	Day-specific Fire Inventory (FINN) from the National Center for Atmospheric Research (NCAR) processed using Emissions Processing System version 3 (EPS3) model
Sea Salt emissions	The seasalt emissions are processed using revised seasalt v3.3 processor.
Lightning emissions	Inline lightning emissions derived from Community Multiscale Air Quality (CMAQ) model using the convective precipitation rate from meteorological data

The SMOKE system (version 3.6) was used to generate model ready emissions for the regional emissions shown in Section 2.3.2 “Regional Emissions Inventories” to develop hourly, speciated and gridded CAMx-ready emission inputs.

4.4 Regional Model Configuration

The CAMx photochemical grid model was applied over the 12 km and 4 km modeling domains shown in Figure 4.4-1. The NEPA analysis area for far-field air quality impacts is the spatial extent of the 4 km domain which is approximately 300 km north-south from Willow and farther out in the east-west directions. CAMx version 6.5 was applied with the CB6r4 gas phase mechanism. The CAMx model setup options for this modeling assessment are summarized in Table 4.4-1.

As described in Section 1.2.2.2 “Regional Modeling”, CAMx was used to simulate various future year scenarios. Each Cumulative Alternative scenario includes all the cumulative sources detailed in Section 2.2 “Cumulative Emissions for the Willow Alternatives” as well as those sources specific to the Willow MDP alternatives. Willow MDP impacts are estimated using the difference between the cumulative 2025 Alternative (B or C) simulation and the Cumulative 2025 No Project simulation. The impacts derived using this approach are referred as using the “Brute Force” method. The cumulative No Action Alternative simulation includes all the cumulative sources except those specific to each Willow MDP alternative. The only purpose of the Cumulative 2025 No Project simulation is to derive those impacts and no other modeling results from that simulation are reported here. The simulations were conducted over the spatial extent of the 4 km resolution modeling domain. The cumulative effects for NEPA were obtained directly from the Cumulative Alternative B (Proponent’s Project) and C (Disconnected Infield Roads) Scenarios.

Table 4.4-1 CAMx Model Setup Configuration and Description

Science option	Configuration	Description
Gas phase chemistry	CB6r4	Updated isoprene chemistry; heterogeneous hydrolysis of organic nitrates; active methane chemistry and ECH4 excess methane tracer species (Ruiz and Yarwood, 2013).
Aerosol phase chemistry	SOAP2.1+ISORROPIA	Updated photolysis rates in SOAP2.1
Photolysis Rate	TUV V4.8 preprocessor	Clear-sky photolysis rates based on day-specific Total Ozone Mapping Spectrometer (TOMS) data; CAMx in-line adjustment based on modeled aerosol loading
Horizontal Diffusion	Explicit horizontal diffusion	Spatially varying horizontal diffusivities determined based on the methods of Smagorinsky (1963)

Science option	Configuration	Description
Vertical Diffusion	K-theory 1st-order closure	Vertical diffusivities from WRFCAMx and KVPATCH; land-use dependent minimum diffusivity (minimum vertical eddy diffusivity = 0.1 to 1.0 square meters/second)
Dry Deposition	ZHANG03	Dry deposition scheme by Zhang et al. (2001; 2003)
Wet deposition	CAMx-specific formulation	Scavenging model for gases and aerosols (Seinfeld and Pandis, 1998)

The initial and lateral boundary conditions (ICBC) for the 4 km modeling domain for all scenarios were derived from the 3-D model outputs of corresponding 12 km simulations. Note that for the 4 km Base Year scenario the ICBC are derived from the corresponding 12 km 2012 simulation, while the future year simulations are derived from a 12 km 2020 simulation. The hourly varying boundary conditions for the 4 km domain are generated for each day in the modeling period. The CAMx simulations were conducted by splitting the runs into four quarters and initializing the runs with a 10-day spin-up period as is conventionally done.

The day specific ozone column data were based on the TOMS data measured using the Ozone Monitoring Instrument (OMI) satellite. The in-line photolysis rates were calculated using Tropospheric Ultraviolet Visible (TUV) v4.8 preprocessor to generate day-specific lookup tables. The cloud cover and aerosol loadings effects on photolysis rates are crucial, so CAMx was configured to use in-line TUV with these adjustments. The same clear-sky rates were used for both base and future years.

The EIS did not include any Source Apportionment model runs. Instead impacts for each alternative were derived via “brute force” modeling methods by difference between scenarios and the No Action Alternative impacts directly from the first modeling scenario. Cumulative impacts were derived from the total concentrations estimated in the Cumulative Alternative B (Proponent’s Project) and C (Disconnected Infield Roads) scenarios.

A model performance evaluation (MPE) was conducted on the 2012 Base Year scenario in the 4 km domain. The model data were compared with the ambient observational data at the monitoring sites available in the 4 km domain. As mentioned in previous reports (ADEC, 2011; BOEM, 2017) the ambient data available near the Arctic region is very limited and sparse. Table 4-8 lists the air monitoring sites in the 4 km domain and the chemical species that were evaluated. Figure 4.1-1 shows the locations of the monitoring sites. The sites are in coastal portions of the North Slope and were originally established to satisfy PSD permitting requirements for new major sources. The monitoring data at these sites are from the BOEM study (BOEM 2017); additionally, Nuiqsut, Deadhorse and Wainwright sites have been included in the analysis. Additional details on how the MPE was conducted can be found in Attachment B.

Table 4.4-2 Monitoring Sites Used in Model Performance Evaluation

Site Name	Site ID	Source[a]	Lat	Lon	Species
APAD	02185APAD	AK Permit Data	70.26611	-148.7563	O_3
DS1F	02185DS1F	AK Permit Data	70.29917	-149.6847	O_3
BRW	02185XBRW	NOAA	71.323	-156.6114	O_3
CCP	02185XCCP	AK Permit Data	70.31936	-148.5166	O_3, $PM_{2.5}$
Nuiqsut		CPAI	70.22361	-150.9996	$PM_{2.5}$

Site Name	Site ID	Source[a]	Lat	Lon	Species
Deadhorse		ADEC	70.22201	-148.4223	$PM_{2.5}$ components (Nitrate [NO3], SO4, EC, Organic Carbon (OC), Ammonium [NH4])
Wainwright		ADEC	70.64111	-160.007	$PM_{2.5}$ components (NO3, SO4, EC, OC, NH4)

[a] AK Permit Data from ADEC air quality permit files as supplied for use in BOEM study by the ADEC; NOAA ESRL published data for the Barrow Atmospheric Baseline Observatory (http://www.esrl.noaa.gov/gmd/obop/brw/); ConocoPhillips Alaska, Inc. (CPAI)

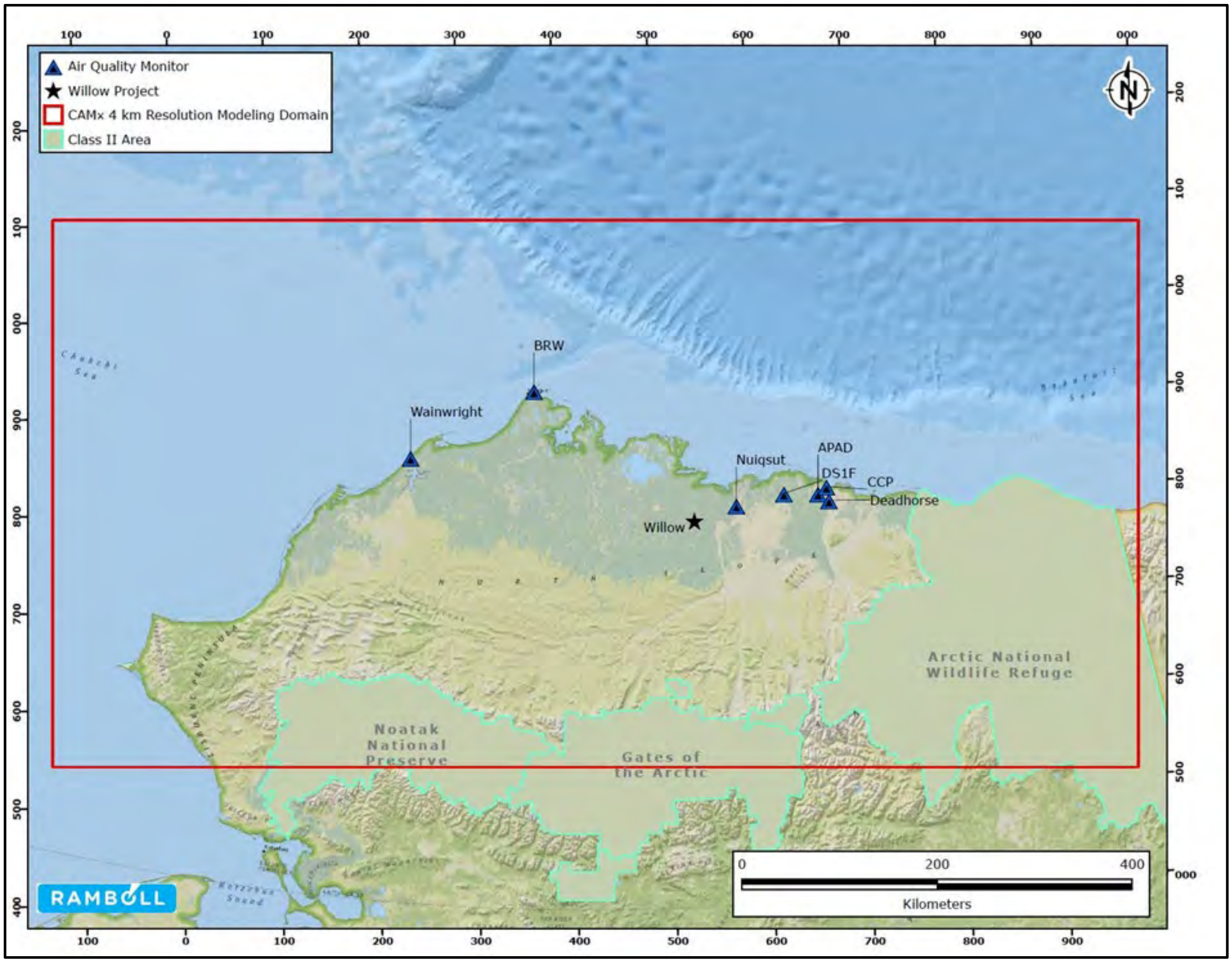

Figure 4.4-1 4 km model domain and the monitoring sites considered for the MPE analysis.

The CAMx model data were spatially and temporally paired with the monitoring data. As performed in BOEM study, the model data were averaged over the 9-grid cell block centered on the individual monitoring site and were used to conduct the site-by-site comparison. The paired model and observational data were used to calculate the Normalized Mean Bias, Normalized Mean Error, Fractional Bias and Fractional Error statistical metrics as shown in Table 4.4-3. These metrics were compared with the photochemical modeling performance goals and criteria standards shown in

Table 4.4-4 for O_3 and $PM_{2.5}$ (Emery et al., 2017) to understand the model performance in this Arctic region. The benchmark "Goal" indicates the performance that the best current models are expected to achieve, and the "Criteria" indicates the performance most of the models have achieved. These goals and criteria standards are developed mainly for model applications within the continental US, but as no other information exists the same standards were applied to this arctic modeling application. In the EIS, plots were provided for the sites listed in Table 4.4-2 to document the model performance for the 4 km domain. Model performance for the speciated $PM_{2.5}$ components listed in Table 4.4-2 were evaluated using the criteria in

Table 4.4-4 from Emery et al. (2017) and by using the "bugle plots" of Boylan and Russell (2006).

Table 4.4-3 Normalized Mean Bias and Error Statistical Metrics Formulae

Statistical Measure	Mathematical Expression
Normalized Mean Error (NME) (%)	$\frac{\sum_{i=1}^{N}\lvert P_i - O_i\rvert}{\sum_{i=1}^{N} O_i}$
Normalized Mean Bias (NMB) (%)	$\frac{\sum_{i=1}^{N}(P_i - O_i)}{\sum_{i=1}^{N} O_i}$
Fractional Bias (FB)	$\frac{2}{N}\sum\frac{(P_j - O_j)}{(P_j + O_j)} \times 100$
Fractional Error (FE)	$\frac{2}{N}\sum\frac{\lvert P_j - O_j\rvert}{(P_j + O_j)} \times 100$

Table 4.4-4 Photochemical Model Performance Goals and Criteria from Emery et al., 2017.

Species	Normalized Mean Bias Goal	Normalized Mean Bias Criteria	Normalized Mean Error Goal	Normalized Mean Error Criteria
1-hr or MDA8 Ozone	< ±5%	< ±15%	< 15%	< 25%
24-hr $PM_{2.5}$, SO_4, NH_4	< ±10%	< ±30%	< 35%	< 50%
24-hour NO_3	< ±15%	< ±65%	< 65%	< 115%
24-hour OC	< ±15%	< ±50%	< 45%	< 65%
24-hour EC	< ±20%	< ±40%	< 50%	< 75%

4.5 Assessment Methods

The CAMx modeling system was used to estimate the potential cumulative air quality and AQRV impacts in the three assessment areas in Table 4.1-3 as well as the overall 4 km domain. Model predicted concentrations were further post-processed in the form of the NAAQS for multiple pollutants and for visibility impairment from particulate matter and nitrogen and sulfur deposition. The modeled hourly values were carefully averaged to the appropriate time range for comparison with standards and criteria.

4.5.1 Air Quality Impacts

CAMx simulation outputs were processed to analyze the air quality impacts with respect to the NAAQS, PSD increments and AQRV metrics. Presented below is the description for each analysis. These metrics were processed for analyzing both the cumulative effects and the project specific impacts.

Impacts for the three assessment areas have been derived using Geographical Information Systems (GIS) and by intersecting the three assessment areas with the modeling domain to extract the 4 km model grid-cells that lie in these areas. The impacts are predicted for the three assessment areas by considering the air quality impacts from these modeling grids.

4.5.2 NAAQS and AAAQS

The cumulative and project air quality impacts were calculated from the CAMx modeling results for the criteria pollutants CO, O_3, $PM_{2.5}$, PM_{10}, NO_2 and SO_2 and compared to the NAAQS primary and secondary standards and the AAAQS. The primary NAAQS protect public health including sensitive populations and the secondary NAAQS protect public welfare. The photochemical grid model provides hourly concentrations for multiple pollutants at each grid cell in the modeling domain. To provide model predictions consistent with the NAAQS and AAAQS, these model results are post-processed and summarized in tables. The criteria pollutants concentrations for each grid cell in the modeling domain are compared with the respective species' AAQS standard to evaluate the impacts due to each alternative plus other cumulative sources. Tabulated results and spatial plots of concentrations are provided in Chapter 5 in the form of the applicable AAQS.

For ozone, there is one averaging period to evaluate and the level of the standard is identical for both primary and secondary NAAQS and the AAAQS. The following steps were conducted to process model results for comparison to the ozone standard. First the maximum daily 8-hour average (MDA8) is calculated for each day in the annual simulation, then the fourth-highest concentration (H4MDA8) is determined for each grid cell in the modeling domain. Finally, the cumulative values reported for the three assessment areas correspond to the maximum H4MDA8 from the collection of modeling grid cells that lie in these areas. As mentioned above project impacts are derived using the brute force method. For ozone, this is performed by calculating the difference between the cumulative H4MDA8 values of the action alternative and the No Action Alternative. Note that the difference is performed over the maximum H4MDA8 without matching cumulative values in either space (different cells) or time (different days).

For CO, there are two averaging times to evaluate for comparison to NAAQS and AAAQS; both of the averaging periods are primary standards. The 8-hour standard is calculated from the hourly concentrations using non-overlapping 8-hour averages (3 values for each day). After this averaging is performed the second-highest value for the annual simulations is saved for each grid cell in the modeling domain. The 1-hour standard is calculated by first keeping the 1-hour maximum for each day and then selecting the second-highest value for the annual simulations for each grid cell in the modeling domain. Finally, the cumulative values reported for the three assessment areas correspond to the maximum value for each standard for those model grid cells that lie in these areas. Project impacts are derived using the brute force method.

For NO_2, there are two averaging times to evaluate for comparison to NAAQS and AAAQS: a 1-hr averaging time, which is a primary NAAQS, and an annual averaging time, which is both a primary and secondary NAAQS. The 1-hr standard is calculated by first calculating the 1-hour maximum for each day and then selecting the eighth-highest value for the annual simulations (equivalent to the 98th percentile) for each grid cell in the modeling domain. The annual standard is calculated from the annual average of hourly concentrations for each grid cell in the modeling domain. Finally, the cumulative values reported for the three assessment areas correspond to the maximum value for each standard for those model grid cells that lie in these areas. Project impacts are derived using the brute force method.

For $PM_{2.5}$ there are two averaging times to evaluate for comparison to NAAQS and AAAQS: a 24-hour averaging time, which is both a primary and secondary NAAQS, and an annual averaging time, which is has two separate NAAQS. The primary annual $PM_{2.5}$ NAAQS is of 12 $\mu g/m^3$ and the secondary annual $PM_{2.5}$ NAAQS is 15 $\mu g/m^3$. The annual average results are compared to the annual average of hourly concentrations for each cell in the domain. The 24-hr average results are calculated from the hourly concentrations by first producing daily 24-hr averages and then selecting the eighth-highest value (equivalent to the 98th percentile) for each grid cell in the modeling domain. Finally, the cumulative values reported for the three assessment areas correspond to the maximum value for each standard for those model grid cells that lie in these areas. Project impacts are derived using the brute force method.

For PM_{10} averaging period to evaluate and the level of the standard is identical for both primary and secondary NAAQS and the AAAQS. The 24-hr average results are calculated from the hourly concentrations by first producing daily 24-hr averages and then selecting the second-highest value for each grid cell in the modeling domain. Finally, the cumulative values reported for the three assessment areas correspond to the maximum value for each standard for those model grid cells that lie in these areas. Project impacts are derived using the brute force method.

For SO_2 there are four averaging periods to evaluate for comparison to NAAQS and AAAQS: a 1-hour averaging time, which is a primary NAAQS; a 3-hour averaging time, which is a secondary NAAQS; a 24-hour averaging time, which is only an AAAQS; and an annual averaging time, which is only an AAAQS. The 1-hr average results are calculated by first keeping the 1-hour maximum for each day and then selecting the fourth-highest value for the annual simulations (equivalent to the 99th percentile) for each modeling grid cell. The 3-hr average results are calculated from the hourly concentrations using non-overlapping 3-hours averages (8 values for each day). After this averaging is performed the second-highest value over the full annual simulation is reported for each cell in the modeling domain. For the Alaska, the 24-hr average results are calculated by selecting the second-highest value from the daily 24-hr averages, while the annual average results are calculated from the annual average of hourly concentrations for each cell in the modeling domain. Finally, the cumulative values reported for the three assessment areas correspond to the maximum value for each standard for those model grid cells that lie in these areas. Project impacts are derived using the brute force method.

4.5.3 PSD Impacts

Project impacts at the three assessment areas are compared with PSD Class II increments listed in Table 4.2-1. The comparison to the Class II increments does not represent a regulatory PSD increment consumption analysis and is presented for information only. Note that PSD increments are reported in $\mu g/m^3$ and when the species is a gaseous pollutant the mixing ratio has been converted to concentration using standard ambient temperature and pressure.[12]

[12] T= 298K, P= 1 atm

For NO_2 the PSD increment is calculated from the annual average of hourly concentrations for each cell in the modeling domain. Finally, the cumulative values reported for the three assessment areas correspond to the maximum value for those model grid cells that lie in these areas.

For both the 24-hour PM_{10} and $PM_{2.5}$ PSD increment, the hourly concentrations are first averaged to daily 24-hr averages and then the second-highest value selected for each modeling grid cell in the computational domain. The annual PM_{10} and $PM_{2.5}$ PSD increment is calculated from the annual average of hourly concentrations for each cell in the modeling domain. Finally, the cumulative values reported for the three assessment areas correspond to the maximum value for those model grid cells that lie in these areas.

For the 3-hr SO_2 PSD increment, hourly concentrations are averaged using non-overlapping 3-hours periods (8 values for each day). After this averaging is performed the second-highest value for the annual simulations is saved for each cell in the computational domain. For the 24-hr SO_2 PSD increment, the hourly concentrations are first averaged to daily 24-hr averages and then the second-highest value selected for each modeling grid cell in the computational domain. The annual SO_2 PSD increment is calculated from the annual average of hourly concentrations for each cell in the modeling domain. Finally, the cumulative values reported for the three assessment areas correspond to the maximum value for those model grid cells that lie in these areas.

4.5.4 <u>Visibility</u>

4.5.4.1 Project Impacts

Particulate matter concentrations in the atmosphere contribute to the visibility degradation by both scattering and absorption of visible light. The combined effect of scattered and absorbed light is called light extinction. Changes in the light extinction for each modeling scenario was calculated at the three assessment areas. The visibility metric used in this analysis is called Haze Index (HI) which is measured in dv units and is defined as follows:

$$HI = 10 \times \ln [b_{ext}/10]$$

Where b_{ext} is the atmospheric light extinction measured in inverse megameters (Mm^{-1}) and is calculated primarily from atmospheric concentrations of particulates.

The project's contribution is determined by calculating the incremental changes in the extinction from background concentrations due to the project emissions. This quantity that measures the extinction changes in the Haze Index is referred to as "delta deciview" (Δdv):

$$\Delta dv = 10 \times \ln[b_{ext(SC+background)}/10] - 10 \times \ln[b_{ext(background)}/10]$$

$$\Delta dv = 10 \times \ln[b_{ext(SC+background)}/b_{ext(background)}]$$

Here $b_{ext(SC+background)}$ refers to atmospheric light extinction due to impacts from the source category plus background concentrations, and $b_{ext(background)}$ refers to atmospheric light extinction due to natural background concentrations only.

For this study we calculated the project impacts on visibility from the CAMx modeling results using a brute force method. These are the overall steps followed in calculating the visibility impacts:

1. The project impacts are derived from the difference in the hourly modeling results between the Cumulative B Scenario and the No Action Alternative Scenario. The differences are then averaged to daily concentrations in the 4 km modeling domain.
2. The concentration differences in (1) are extracted from the grid cells that fall in the three assessment areas.
3. The Interagency Monitoring of Protected Visual Environments (IMPROVE) equation is used to calculate reconstructed extinction for the impacts (b_{ext_SC}) following the FLAG (2010) procedures at the three assessment areas.
4. The natural (background) monthly extinction ($b_{ext\_background}$) is calculated using the IMPROVE equation and the relative humidity adjustment factors reported in FLAG (2010) tables 5 to 9.
5. With the results in (2) and (3) delta deciviews are calculated using the Δdv formula above. The highest Δdv across all grid cells overlapping an assessment area is selected to represent the daily value at each of the three assessment areas.
6. Results in (5) are sorted from lowest to highest Δdv and then the maximum, the 98th percentile (eighth-highest value) and the number of days with a Δdv greater than 0.5 and 1.0 are reported for each assessment area. Also, the 20th percentile and 80th percentiles are reported and used to represent the 20% best days (B20) and 20% worst days (W20) respectively.

Note that the relative humidity adjustment factors reported in FLAG (2010) tables 5 and 9 are only provided for Class I areas. The calculations described in this section rely on the adjustment factors for Denali National Park (NP) which is the closest Class I area to the project but located outside the 4 km computational domain.

4.5.4.2 Cumulative Impacts

For this analysis cumulative visibility design values are assessed using the Software for Model Attainment Test- Community Edition (SMAT-CE) version 1.2 (South China University of Technology, 2015). SMAT-CE provides model-adjusted visibility design values that are consistent with USEPA's "Modeling Guidance for Demonstrating Air Quality Goals for Ozone, $PM_{2.5}$, and Regional Haze" (USEPA 2018). Photochemical models are affected by biases, i.e., model results are a simplification of natural phenomena and, as such, model results tend to over- or under-estimate particulate matter concentrations. The use of SMAT-CE aids in mitigating model bias for visibility calculations by pairing model estimates with actual measured concentrations.

SMAT-CE calculates baseline and future-year visibility levels for both the 20 percent best and 20 percent most impaired days for each of the 156 Class I Areas. To do this, SMAT-CE adjusts the modeled air quality concentrations based on measured air quality concentrations to account for possible model bias utilizing the relative response factor approach described below. Within SMAT-CE, model-predicted concentrations of chemical compounds that scatter or absorb light are converted to estimates of light extinction using the IMPROVE equation (Hand and Malm 2006). The IMPROVE equation reflects empirical relationships derived between measured mass of PM components and measurements of light extinction at IMPROVE monitoring sites in Class I areas. The IMPROVE equation calculates light extinction as a function of relative humidity for large and small particulate matter. As a final step in SMAT-CE, light extinction values are converted into dv, a measure for describing the ability for the human eye to perceive changes in visibility.

The USEPA guidance for estimating future-year visibility levels recommends using the photochemical grid model results in a relative sense to scale the visibility current design values (DVC). The visibility DVCs are based on a 5-year average of monitored IMPROVE data centered on the typical modeling year. For this analysis, the Typical Year is 2012, so the 5-year period centered on 2012 is 2010 through 2014.

Scaling factors, called relative response factors (RRFs), are calculated from the modeling results. RRFs are applied to the DVC to predict future-year design values (DVF) at a given monitoring location using the following equation:

$$DVF = DVC \times \text{Relative Response Factor (RRF)}$$

RRFs are the ratio between the model-predicted concentrations in the future-year modeling scenario and the Typical Year modeling scenario. RRFs are calculated for each individual chemical component that contributes to light extinction based on the model grid cells surrounding a monitoring site.

SMAT-CE depends on IMPROVE monitors to assess visibility impacts. Note that there are no Class I areas within the 4 km computational domain. So the Denali NP IMPROVE monitor was selected for this analysis. The following steps indicate how the analysis was performed for each assessment area in the study:

1. Hourly concentrations of modeled particulate matter were averaged to daily values for each component of the IMPROVE equation for all the grid cells in the 4 km domain. This is step is performed for both the 2012 Base scenario and the corresponding Cumulative Alternative scenario modeling results.
2. Modeled concentrations from (1) were extracted for a 3x3 matrix centered around the corresponding assessment area centroid. The centroid was determined by the area left within the 4 km domain using GIS.
3. The latitude and longitude values that correspond to the IMPROVE monitor at Denali and the surrounding 3x3 points at a 4 km distance to the monitor were assigned to the modeled concentrations in step (2).
4. The files in step 3 were used as the model input for SMAT-CE Denali NP data.

All the steps described above are applied to all the three assessment areas for this study.

SMAT-CE was configured using the settings provided in Table 4.5-1 and was run with the modeling results for each of the future-year 2025 modeling scenarios. The changes in Table 4.5-1 from SMAT-CE defaults and other changes necessary to accurately incorporate the model year selected for the Typical Year and other data that is dependent on the Typical Year.

Table 4.5-1 SMAT-CE Configuration Settings

Option	Main category	Setting	Default	This Study
Desired Output	Scenario Name	Name		
	Forecast	Temporally-adjust visibility levels at class 1 area	Yes	Yes
		Improve algorithm	use new version	use new version
		Use model grid cells at monitors	Yes	Yes
		Use model grid cells at class 1 area centroid	No	No
	Actions on run completion	Automatically extract all selected output files	Yes	Yes
Data Input	Monitor data	File name	Classlareas_NEWIMPROVEALG_2000to2015_2017feb13_TOTAL.csv	Classlareas_NEWIMPROVEALG_2000to2015_2017april27_IMPARIMENT.csv[a]
	Model data	Baseline file	SMAT.PM.Large.12.SE_US2.2011eh.camx.grid.csv	Willow base output 2012[b]
		Forecast file	SMAT.PM.Large.12.SE_US2.2017eh.camx.grid.csv	Willow Run 3 output Year 2025[c]
	Using model data	Temporal adjustment at monitor	3x3	3x3
Filtering	Choose visibility data years	Start monitor year	2009	2010[d]
		End monitor year	2013	2014[d]
		Base model year	2011	2012[d]
	Valid visibility monitors	Minimum years required for valid monitor	3	3

[a] Monitor data that selects the 20% most impaired days is used instead of the 20% worst days
[b] Baseline file changed from default (2011) to the Year (2012) base modeling year.
[c] Forecast file changed from default year to the modeled future-year (2025) scenario for this analysis. SMAT-CE was run three times once for the three assessment areas since the model data required translating for SMAT program to spatially match an IMPROVE monitor (Denali) with co-located model data.
[d] The values for the Start, End and Base model years are set to reflect a year centered on the Base Year (2012) and to perform the current deciview calculation with the 5-year period surrounding this year (2010 to 2014).

4.5.5 Deposition

Model-predicted fluxes of total sulfur (S) and nitrogen (N) compounds have been used to estimate the deposition impacts at the three assessment areas for this project. Total deposition includes the sum of wet and dry deposition fluxes for all modeled sulfur and nitrogen containing compounds presented in Table 4.5-2. Total nitrogen and sulfur deposition cumulative model estimates are derived by adding the hourly model output to annual totals for each individual grid cell in the computational domain. This study reports both the maximum and the average total deposition from all the cells in a given assessment area.

Table 4.5-2. List of Modeled Species Included in Calculation of Total Nitrogen and Sulfur Deposition

Deposition	Species Included
Nitrogen	NO: Nitric oxide NO2: Nitrogen dioxide PAN: Peroxyacetyl nitrate NO3: Nitrate radical N2O5: Dinitrogen pentoxide PNA: Peroxynitric acid HONO: Nitrous acid HNO3: Nitric Acid NTR1: Simple organic nitrate NTR2: Multi-functional organic nitrates PANX: C3 and higher peroxyacyl nitrate NH3: Ammonia OPAN: Peroxyacyl nitrate (PAN compound) from peroxyacyl radical from Aromatic ring opening product (unsaturated dicarbonyl) PNH4: Particulate ammonium PNO3: Particulate nitrate
Sulfur	SO2: Sulfur dioxide SULF: Sulfur acid (gaseous) PSO4: Particulate sulfate

Cumulative assessment is performed by comparing the modeled predictions for total nitrogen deposition from all sources with critical loads derived by NPS. A critical load is the level of deposition below which no harmful effects are expected to an ecosystem. The critical load values available from the NPS website (NPS, 2018) for Alaska are protective of the tundra ecoregion and range from 1.0 to 3.0 kg/ha-yr.

The project impacts, annual nitrogen and sulfur deposition fluxes due to each alternative at the three assessment areas is compared with the DAT developed by the NPS and USFWS of 0.005 kg/ha-yr for nitrogen and sulfur deposition as specified by FLAG (2010). Note that the deposition analysis threshold is not an adverse impact threshold; rather, it is an approximate value of the naturally occurring deposition where values below are considered negligible. The project impacts are derived from the difference in total deposition between each Cumulative Alternative scenario and the No Action Alternative scenario.

4.5.5.1 *Acid Neutralizing Capacity*

Previous studies in the region such as GMT2 did not include an analysis of the effect on the acid neutralizing capacity (ANC) of sensitive lakes due to the lack of ANC data. Since the necessary ANC data are not available for sensitive lakes in the region, the change in ANC was not calculated for this study.

5.0 REGIONAL AIR QUALITY IMPACT ASSESSMENT RESULTS

CAMx simulation outputs were processed to analyze the air quality impacts with respect to NAAQS and AAAQS metrics, Prevention of Significant Deterioration (PSD) increments and AQRV metrics. These metrics were processed for analyzing Project impacts in Alternative B and Alternative C as well as Cumulative Effects. The Project impacts were obtained via "brute force" modeling method by difference between the Cumulative No Action Alternative scenario and the Cumulative Alternative scenario. Cumulative impacts were derived from the total concentrations estimated in the Cumulative scenario, i.e., the CAMx run with all regional sources included.

Impacts at the three assessment areas shown in Figure 4.1-2 were obtained using GIS and intersecting the three assessment areas evaluated within the modeling domain (Arctic National Wildlife Refuge, Gates of the Arctic National Park and Preserve, and Noatak National Preserve) to identify the 4 km model grid cells that lie in these areas. The impacts are predicted for the three assessment areas by considering the air quality impacts from these modeling grid cells.

The cumulative and Project air quality impacts were calculated from the CAMx modeling results for the criteria pollutants CO, O_3, $PM_{2.5}$, PM_{10}, NO_2 and SO_2 and compared to the NAAQS and AAAQS standards in Table 1.2-1. The criteria pollutants concentrations for each grid cell in the modeling domain are compared with the respective NAAQS metric to evaluate the impacts due to the Project plus other cumulative sources. Tabulated results and figures are provided below to illustrate the spatial representation of the overall modeled impacts in terms of the standards.

Project impacts at the three assessment areas (shown in Figure 4.1-2) were also compared with PSD Class II increments listed in Table 1.2-2. The comparison to the Class II increments does not represent a regulatory PSD increment consumption analysis and is presented for information only. Sulfur and Nitrogen deposition values are calculated as described in Chapter 4 and are compared with the Critical loads and Deposition Analysis Thresholds (DATs).

5.1 Summary of Air Quality and Air Quality Related Value Impacts

The following is a summary of impacts; this summary is applicable to both Alternative B and Alternative C. Modeling was performed with the Willow MDP emissions inventories developed during the DEIS. Remodeling with updated emissions inventories for the FEIS was not necessary and therefore not performed for the reasons discussed below. The air concentrations modeled in the DEIS due to all cumulative sources were below applicable air quality thresholds. The modeled air concentrations due to Project sources alone were well below the ambient air quality standards anywhere in the modeling domain and the cumulative concentrations are primarily due to other regional sources rather than Project emissions. Emissions from the Project are responsible for a very small fraction of regional emissions (up to 6.0% depending on pollutant). Also, changes to Project emissions between those modeled in the DEIS and the FEIS emissions inventory constitute a very small fraction of regional emissions (up to 4.3% depending on pollutant). For details, see the emissions inventories discussed in Chapter 2 of this AQTSD and in Chapter 2 of the AQTSD for the Draft EIS.

The cumulative and Project-specific impacts were compared with the NAAQS and AAAQS standards for criteria pollutants and were found to be below all standards throughout the modeling domain. The cumulative air quality impacts at the three assessment areas are well below the NAAQS and AAAQS standards. The Project-specific impacts are higher near the Willow MDP area and drop off rapidly with distance from the Project. The Project impacts are below the PSD increment thresholds for all criteria pollutants at all three assessment areas. Project-specific impacts of both nitrogen and sulfur deposition at three assessment areas are below the 0.005 kg/ha-yr DATs. The nitrogen cumulative deposition impacts were compared with the critical loads value of 1.0 – 3.0 kg/ha-yr and were found to be below or within this range at all three assessment areas. Visibility was examined for Project specific impacts with the FLAG (2010) screening method and also cumulatively using the SMAT-CE tool. At all three assessment areas examined, the Project visibility impairment impacts did not exceed either 1 or 0.5 delta deciview thresholds. With regards to cumulative visibility impairment, modeled results show that among the three assessment areas examined the area with the worst cumulative visibility during the 20 percent best days is Noatak, while Gates of the Arctic has the worst cumulative visibility during the 20 percent most impaired days. Alternative D impacts would likely be lower than those in Alternative C due to lower emissions in the former in general.

5.2 Base Year Model Performance Evaluation

The CAMx 2012 Base Case simulation at 4 km resolution was evaluated for maximum daily 8-hour ozone (MDA8) and 24-hr averaged $PM_{2.5}$ and $PM_{2.5}$ species (sulfate, nitrate, ammonium, elemental carbon (EC), organic carbon (OC), crustal soil, and sodium). Details of the model performance evaluation (MPE) are provided in Attachment B.

Overall, the model performs reasonably well, with the best annual-based performances for MDA8 ozone and the worst annual-based performance for crustal soil. Specifically, annual-based NMB for ozone fall within the goal range listed in Emery, et al. (2017) of ±5%. However, the model presents temporal biases for MDA8 ozone and $PM_{2.5}$ with underprediction in the colder months and overprediction in the warmer months, especially when observations are very low. The performance for these species during individual quarters is worse than the annual-based performance, and annual-based errors are generally higher than annual-based biases because the opposing signs of the biases throughout the year cancel each other out. For example, the annual-based NMB for MDA8 ozone falls within the goal range listed in Emery, et al (2017) while the annual-based and quarterly-based NME values for MDA8 ozone fall outside the criteria value of 25% listed in Emery, et al. (2017). These and other criteria discussed here are not bright-line (pass/fail) thresholds. A similar trend is observed for $PM_{2.5}$, with annual NMB values falling within the criteria range for $PM_{2.5}$ listed in Emery, et al. (2017) of ±30% but NMB values for each quarter, excluding the 2nd quarter (Q2) for the domain-wide analysis, falling outside the criteria range and annual-based NME values above the criteria value of 30%.

For $PM_{2.5}$ species, the model performs best for nitrate and ammonium with MFE and MFB values throughout the year at Deadhorse and Wainwright within criteria ranges established in bugle plots. Most of the MFB and MFE values for EC and sodium fall within criteria ranges. MFB and MFE results for sulfate and crustal soil are more mixed. Similar to $PM_{2.5}$, speciated data like sulfate, nitrate, and ammonium are biased high in quarter 3 when observational data tends to be very low. Crustal soil is generally overpredicted in the year. OC is systematically biased low with all MFB and MFE values falling outside criteria ranges.

In summary, the model performs reasonably well excluding difficulties reproducing very low observational data and systematic biases for OC and soil. Details of the model performance evaluation are provided in Attachment B.

5.3 Alternative B (Proponent's Project)

This section presents the analysis for Project and cumulative impacts for Alternative B. The model outputs are processed following the methodology discussed in Chapter 4. The concentrations are compared with NAAQS and AAAQS standards, PSD increments and deposition thresholds for the full domain and at the three assessment areas.

5.3.1 NAAQS and AAAQS Analysis

Table 5.3-1 provides a summary of maximum ambient air quality concentrations from the cumulative scenario for all criteria pollutants at all assessment areas. In the modeling domain, the air quality concentrations for all criteria pollutants are below the NAAQS and AAAQS.

Table 5.3-2 shows the maximum Project impacts for all criteria pollutants in terms of the standards. The Project impacts for all pollutants are well below the NAAQS and AAAQS standards and show negligible contribution to the cumulative air quality concentrations.

Table 5.3-1 Comparison of Modeled Cumulative Concentrations under Alternative B (Proponent's Project) with AAQS

Concentration	CO 8 hours ppm	CO 1 hour ppm	NO_2 1 hour ppb	NO_2 Annual ppb	O_3 8 hours ppb	$PM_{2.5}$ Annual µg/m³	$PM_{2.5}$ 24 hours µg/m³	PM_{10} 24 hours µg/m³	SO_2 1 hour ppb	SO_2 3 hours ppm	SO_2 24 hours ppm	SO_2 Annual ppm
Primary NAAQS and AAAQS[a, b]	9	35	100	53	70	12	35	150	75	0.5	0.14	0.03
Secondary NAAQS[b]	NA	NA	NA	53	70	15	35	150	NA	0.5	NA	NA
Modeled Concentrations												
Full Domain[1]	3.1	0.9	72.4	22.0	55.5	10.1	31.4	121.3	58.1	0.057	0.035	0.009
Arctic National Wildlife Refuge	0.6	0.4	21.0	1.6	55.5	2.5	7.3	30.5	0.7	0.002	0.001	0.000
Gates of the Arctic	0.2	0.2	1.2	0.2	53.4	1.4	3.9	9.9	0.7	0.001	0.001	0.000
Noatak National Preserve	3.1	0.9	13.0	0.5	46.8	2.6	8.8	105.6	3.2	0.010	0.002	0.000

NA indicates “not applicable”
1 Full Domain values represent the maximum modeled concentration in the numerical form of the air quality standard in the entire domain.
[a] AAAQS are presented in units consistent with the Primary NAAQS to assist with comparison to modeled impacts.
[b] The methods to prepare model results for comparison to the primary and secondary NAAQS and AAAQS are described in Chapter 4.

Table 5.3-2 Comparison of Modeled Project Concentrations under Alternative B (Proponent's Project) with AAQS

Concentration	CO 8 hours ppm	CO 1 hour ppm	NO_2 1 hour ppb	NO_2 Annual ppb	O_3 8 hours ppb	$PM_{2.5}$ Annual µg/m³	$PM_{2.5}$ 24 hours µg/m³	PM_{10} 24 hours µg/m³	SO_2 1 hour ppb	SO_2 3 hours ppm	SO_2 24 hours ppm	SO_2 Annual ppm
Primary NAAQS and AAAQS[a, b]	9	35	100	53	70	12	35	150	75	0.5	0.14	0.03
Secondary NAAQS[b]	NA	NA	NA	53	70	15	35	150	NA	0.5	NA	NA
Modeled Concentrations												
Full Domain[1]	0.0	0.0	7.1	2.6	1.1	0.7	0.3	2.3	0.2	0.0	0.0	0.0
Arctic National Wildlife Refuge	0.0000	0.0000	0.0000	0.0004	0.0000	0.0007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Gates of the Arctic	0.0000	0.0000	0.0000	0.0003	0.0014	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Noatak National Preserve	0.0000	0.0000	0.0006	0.0002	0.0000	0.0002	0.0000	0.0029	0.0000	0.0000	0.0000	0.0000

NA indicates "not applicable"
1 Full Domain values represent the maximum modeled concentration in the numerical form of the air quality standard in the entire domain.
[a] AAAQS are presented in units consistent with the Primary NAAQS to assist with comparison to modeled impacts.
[b] The methods to prepare model results for comparison to the primary and secondary NAAQS and AAAQS are described in Chapter 4.

Figure 5.3-1 through Figure 5.3-6 show the spatial distribution of cumulative and Project impacts for O_3, NO_2, $PM_{2.5}$, PM_{10}, SO_2 and CO concentrations respectively.

The 4th highest 8-hour cumulative O_3 impacts (Figure 5.3-1(left)) are below the NAAQS throughout the domain and the maximum of 55.5 ppb is modeled near the Arctic National Wildlife Refuge. The Project contribution to this maximum is negligible at this location. The maximum Project impact in the modeling domain is 1.1 ppb (Figure 5.3-1 (right)) and is modeled near the Project Area. Some of the Project impacts ranging from 0.1-1 ppb occurred further downwind south of the Project area. The Project has little to no impact on O_3 concentrations for the vast majority of the modeling domain, including within the three assessment areas.

The spatial maximum of annual average and 8th highest daily average $PM_{2.5}$ cumulative impacts (Figure 5.3-2, left) are 10.1 and 31.4 $\mu g/m^3$ respectively. Both of these maximum impacts are below NAAQS and occurred near the northern coastline close to Wainwright monitoring station. The annual $PM_{2.5}$ cumulative concentrations are less than 2 $\mu g/m^3$ for the vast majority of the modeling domain, including the three assessment areas, although certain areas near the coast and along roadways show concentrations between 2 to 4 $\mu g/m^3$. The cumulative 8th highest daily average $PM_{2.5}$ near the Project area falls in the range of 4 to 6 $\mu g/m^3$. Overall the Project area and all three assessment areas are well below the NAAQS. The annual average and 8th highest daily average $PM_{2.5}$ Project impacts (Figure 5.3-2, right) from Alternative B shows a spatial maxima of 0.7 $\mu g/m^3$ and 0.3 $\mu g/m^3$ respectively. The Project impacts are the highest near the Willow MDP and decrease in magnitude rapidly with distance. For the rest of the modeling domain, including the three assessment areas, the impacts from the Project are essentially negligible.

The maximum second-highest daily cumulative PM_{10} of 121.3 $\mu g/m^3$ is modeled near the Noatak National Preserve as shown in Figure 5.3-3; this value is below the NAAQS of 150 $\mu g/m^3$. The maximum Project impact of 2.3 $\mu g/m^3$ is modeled near the Project area. The high PM_{10} concentrations modeled near Noatak are due to the emissions from wildland fires as modeled in the BOEM base case 2012 regional inventory. The modeled maximum cumulative concentrations of the annual average NO_2 and 8th highest (98th percentile) daily maximum NO_2 are 22 ppb and 72.4 ppb respectively and occurred near coastline and off the coast as shown in Figure 5.3-4. These high values are mainly due to the offshore oil and gas emissions sources and shipping activity in the Chukchi Sea. Near the Project area, the cumulative concentrations for annual average NO_2 and 8th highest daily max NO_2 are in the range of 2-5 ppb and 5-20 ppb and the Project impacts from Alternative B show spatial maxima of 2.6 ppb and 7.1 ppb for annual mean and 98th percentile, respectively. The Project impacts maximum occurred mainly near the Project area and decrease with distance from the Project area. The 8th highest 1-hour NO_2 spatial distribution shows some Project impacts offshore in the Beaufort Sea (up to approximately 0.8 ppb) and southwest of the Project area (up to approximately 7 ppb).

The spatial maxima of the cumulative impacts of the annual average SO_2 (9.1 ppb), second-highest 24-hour SO_2 (34.6 ppb), second-highest 3-hour SO_2 (57.4 ppb) and fourth-highest daily maximum 1-hour SO_2 (58.1 ppb) occurred off the coast and well away from the Project area. Cumulative SO_2 concentrations in the inland portion of the modeling domain, including near the Project area and the three assessment areas, are generally less than 2 ppb. The maximum Project impacts of SO_2 occur southwest of the Willow MDP area and the maximum increases are less than 0.2 ppb.

The spatial distributions of cumulative impacts on 1-hour and 8-hour CO concentrations are shown in Figure 5.3-6**.** The spatial maxima of the second-highest 1-hour and 8-hour CO are 3.1 ppm and 0.9 ppm, both are well below the corresponding NAAQS (35 ppm for 1-hour and 9 ppm for 8-hour). These high CO concentrations are modeled near Noatak and are due to the emissions from wildland fires as modeled in the BOEM base case 2012 regional inventory. The Project impacts from Alternative B are almost negligible with zero impacts farther away from the Project.

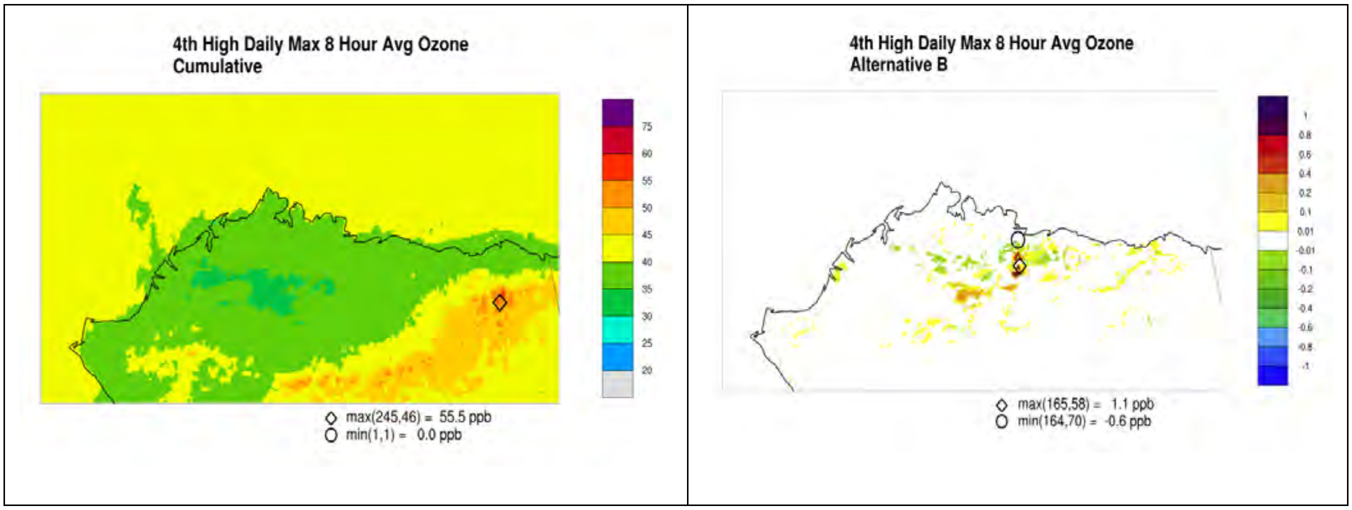

Figure 5.3-1 Alternative B (Proponent's Project): Fourth-Highest Daily Maximum 8-hour Ozone Cumulative (left) and Project Impacts (right)

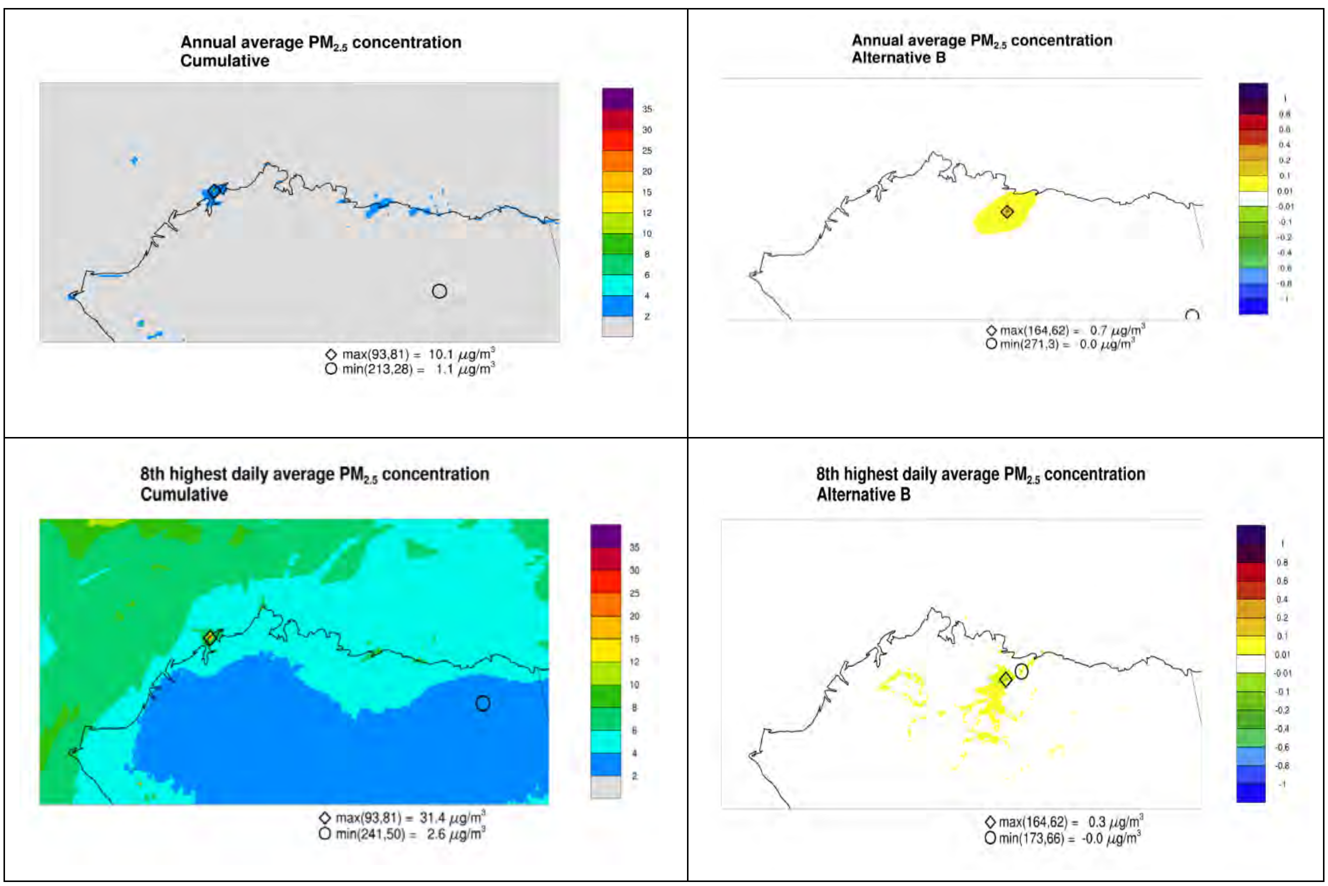

Figure 5.3-2 Alternative B (Proponent's Project): Annual Average (top) and 8th Highest Daily Average (bottom) $PM_{2.5}$ Cumulative (left) and Project (right) Impacts

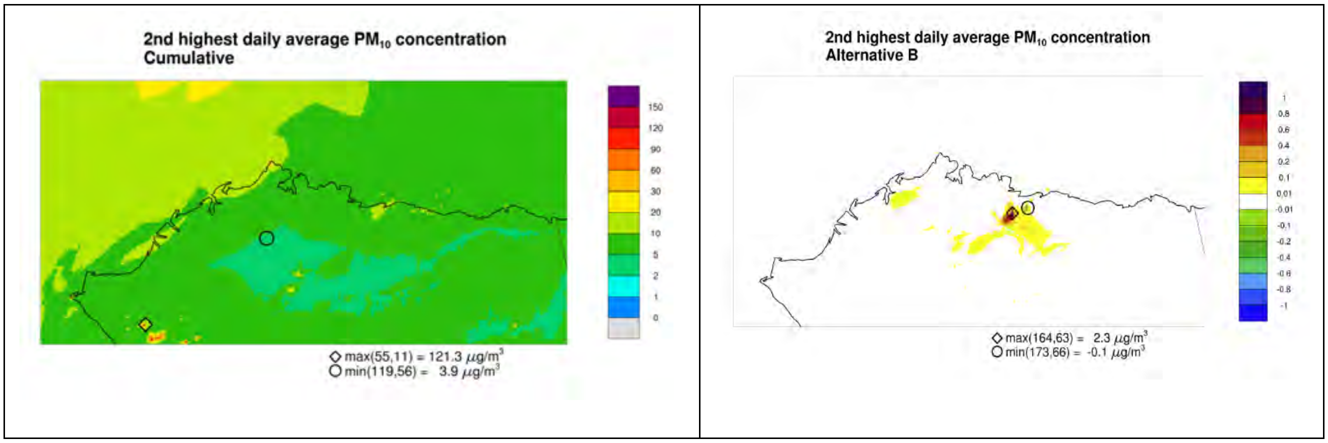

Figure 5.3-3 Alternative B (Proponent's Project): 2nd Highest Daily Average PM_{10} Cumulative (left) and Project (right) Impacts

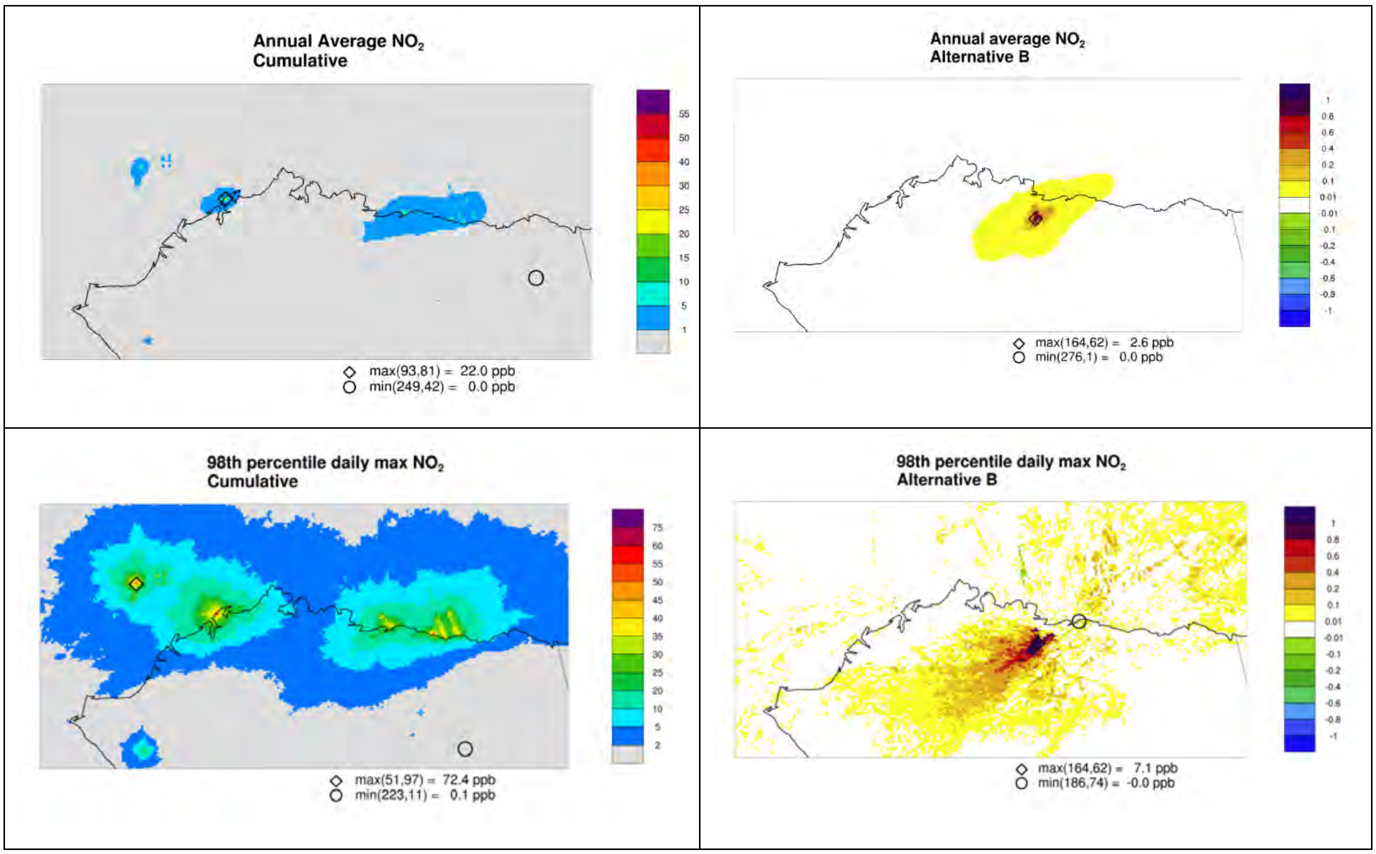

Figure 5.3-4 Alternative B (Proponent's Project): Annual Average (top) and 8th Highest 1-hr Daily Maximum (bottom) NO_2 Cumulative (left) and Project (right) Impacts

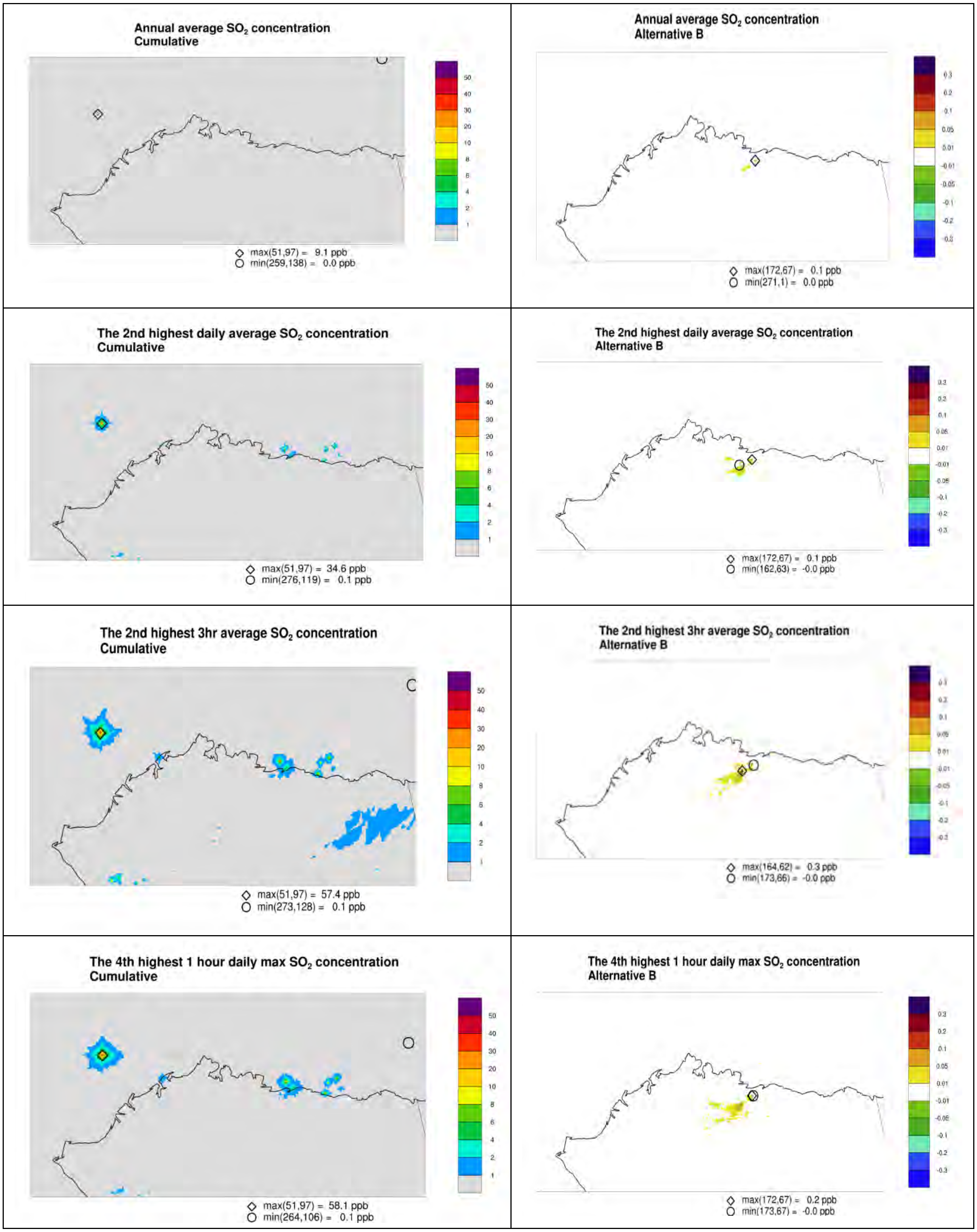

Figure 5.3-5 Alternative B (Proponent's Project): Annual Average, 2nd Highest Daily Average, 2nd Highest 3-hr Average and 4th Highest 1-hr Daily Maximum SO_2 Cumulative (left) and Project (right) Impacts

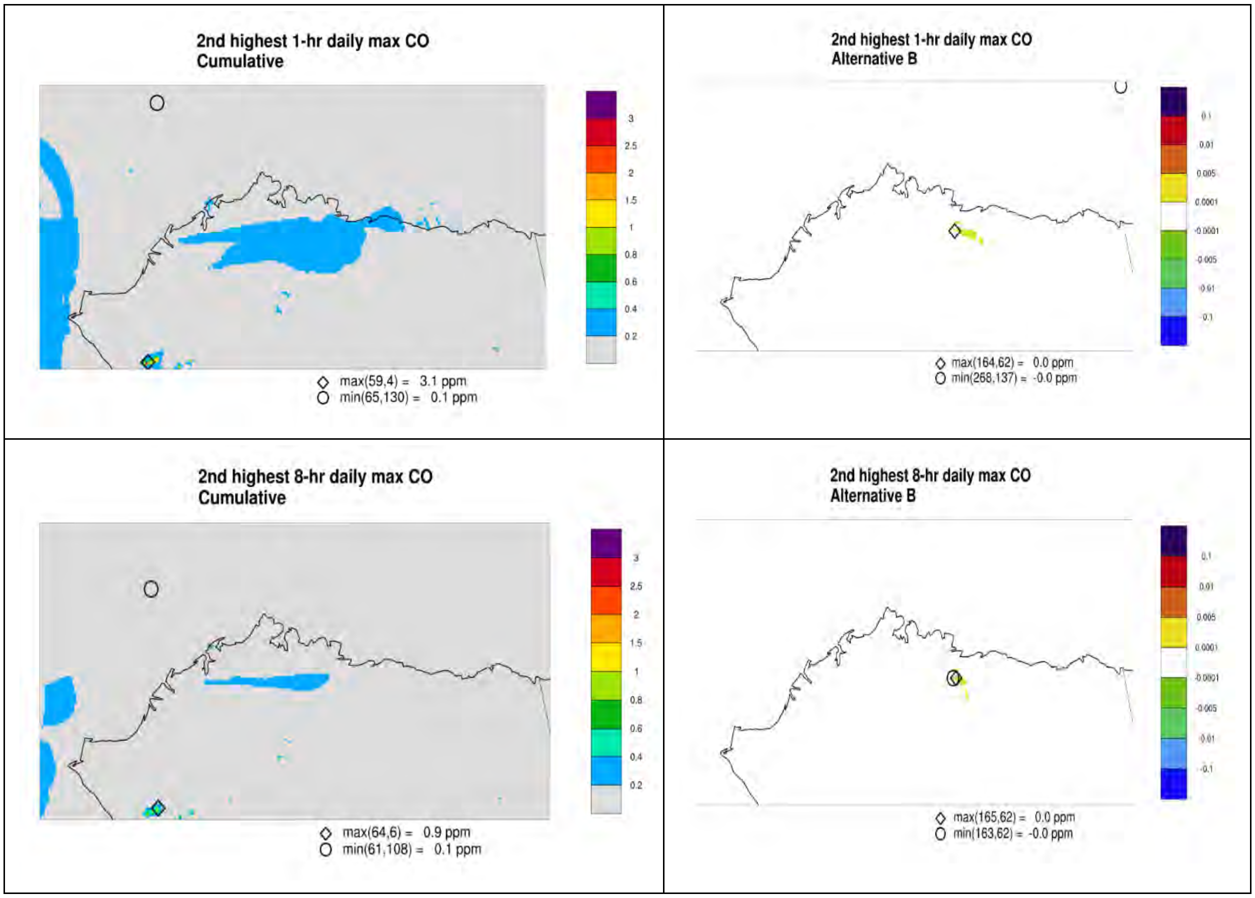

Figure 5.3-6 Alternative B (Proponent's Project): 2nd Highest 1-hr and 8-hr Average Daily Maximum CO Cumulative (left) and Project (right) Impacts

5.3.2 PSD Increments

The PSD regulations are established to prevent significant deterioration of air quality in the areas that already meet the NAAQS. In this section we compare the Alternative B Project modeled impacts at the three assessment areas and for the full domain with the respective Class II area PSD increments. As shown in Table 5.3-3 throughout the modeling domain and at the three assessment areas, the Alternative B maximum Project increments for all pollutants (NO_2, PM_{10}, $PM_{2.5}$, SO_2) are significantly below the PSD increments. Near the three assessment areas the impacts ranges between 0.0001 – 0.02 µg/m^3. Overall the modeled PSD increments indicate that the Project impacts are very small and are unlikely to deteriorate the air quality values at the three assessment areas.

Table 5.3-3 Alternative B (Proponent's Project) Model-Predicted Project Maximum Impacts Compared with Class II Area PSD Increments

Alternative B	NO_2 Annual	PM_{10} 24-hour	PM_{10} Annual	PM_{25} 24-hour	PM_{25} Annual	SO_2 3-hour	SO_2 24-hour	SO_2 Annual
PSD Class II Increment (µg/m^3)								
Standard	25	30	17	9	4	512	91	20
Modeled Concentrations								
Full Domain[1]	4.86	5.45	1.06	1.84	0.65	1.55	0.71	0.14
Arctic National Wildlife Refuge	0.0053	0.0288	0.0017	0.0287	0.0015	0.0116	0.0047	0.0003

Alternative B	NO_2 Annual	PM_{10} 24-hour	PM_{10} Annual	PM_{25} 24-hour	PM_{25} Annual	SO_2 3-hour	SO_2 24-hour	SO_2 Annual
Gates of the Arctic	0.0022	0.0233	0.0011	0.0192	0.0009	0.0067	0.0041	0.0002
Noatak National Preserve	0.0029	0.0115	0.0008	0.0114	0.0008	0.0098	0.0043	0.0002

[1] Full Domain values represent the maximum modeled concentration in the numerical form of the air quality standard in the entire domain.

5.3.3 Deposition Analysis

The modeled deposition fluxes were processed as discussed in Chapter 4 to estimate the total annual nitrogen (N) and sulfur (S) values at each of the three assessment areas. Table 5.3-4 and Table 5.3-5 show the summary of the spatial maximum and average across each of the three assessment areas for cumulative impacts and Project impacts. As shown in Table 5.3-4 the nitrogen cumulative impacts are below or within the critical load range at all three assessment areas. Annual cumulative nitrogen deposition varies from 0.5 -1.1 kg/ha-yr across these three assessment areas when considering the spatial maximum and varies from 0.3-0.5 kg/ha-yr when considering the average of each area. Annual cumulative sulfur deposition varies from 0.6 -1.5 kg/ha-yr across these three assessment areas when considering the spatial maximum and varies from 0.3 – 0.6 kg/ha-yr when considering the average of each area. Among the three assessment areas, Noatak National Preserve is modeled to experience the highest nitrogen deposition and sulfur deposition due to cumulative impacts.

Table 5.3-5 shows the maximum and average Alternative B Project impacts for nitrogen and sulfur impacts. These Project impacts are below the DAT of 0.005 kg/ha-yr. Overall both the maximum and average Project impacts at all three assessment areas are small and contribute little to the total cumulative impacts.

Figure 5.3-7 presents the spatial distribution of the cumulative and Project impacts for sulfur and nitrogen deposition. The Alternative B cumulative sulfur deposition (Figure 5.3-7, top-left) maximum impact of 15.2 kg/ha-yr is modeled off the coast due to offshore oil and gas activity. Overall, the rest of the domain shows impacts in the range of 0.2 – 1.2 kg/ha-yr. The cumulative nitrogen deposition maximum impact of 2.1 kg/ha-yr occurred close to Noatak National Preserve. Both of these cumulative maximum impacts occurred far away from the Project area. Project impacts on nitrogen deposition and sulfur deposition are highest near the Willow MDP and decrease rapidly as we move away from the Project area.

Table 5.3-4 Alternative B (Proponent's Project) Nitrogen and Sulfur Deposition Cumulative Impacts: Spatial Maximum and Average

Assessment Area	Nitrogen (kg N/ha-yr)			Sulfur (kg S/ha-yr)	
	Maximum	Average	Below/Within/Above Critical Load Range (1.0-3.0 kg/ha-yr)	Maximum	Average
Arctic National Wildlife Refuge	0.71	0.34	Below	0.71	0.31
Gates of the Arctic	0.59	0.38	Below	0.68	0.37
Noatak National Preserve	1.12	0.49	Within/Below	1.58	0.61

Table 5.3-5 Alternative B (Proponent's Project) Nitrogen and Sulfur Deposition Project Impacts: Spatial Maximum and Average

Assessment Area	Nitrogen (kg N/ha-yr)			Sulfur (kg S/ha-yr)		
	Maximum	Average	Below Deposition Analysis Threshold (0.005 kg/ha-yr)	Maximum	Average	Below Deposition Analysis Threshold (0.005 kg/ha-yr)
Arctic National Wildlife Refuge	3.6E-03	4.5E-04	Yes	1.50E-05	3.93E-05	Yes
Gates of the Arctic	8.7E-04	5.0E-04	Yes	1.40E-05	5.27E-05	Yes
Noatak National Preserve	3.2E-03	8.6E-04	Yes	4.09E-05	8.06E-05	Yes

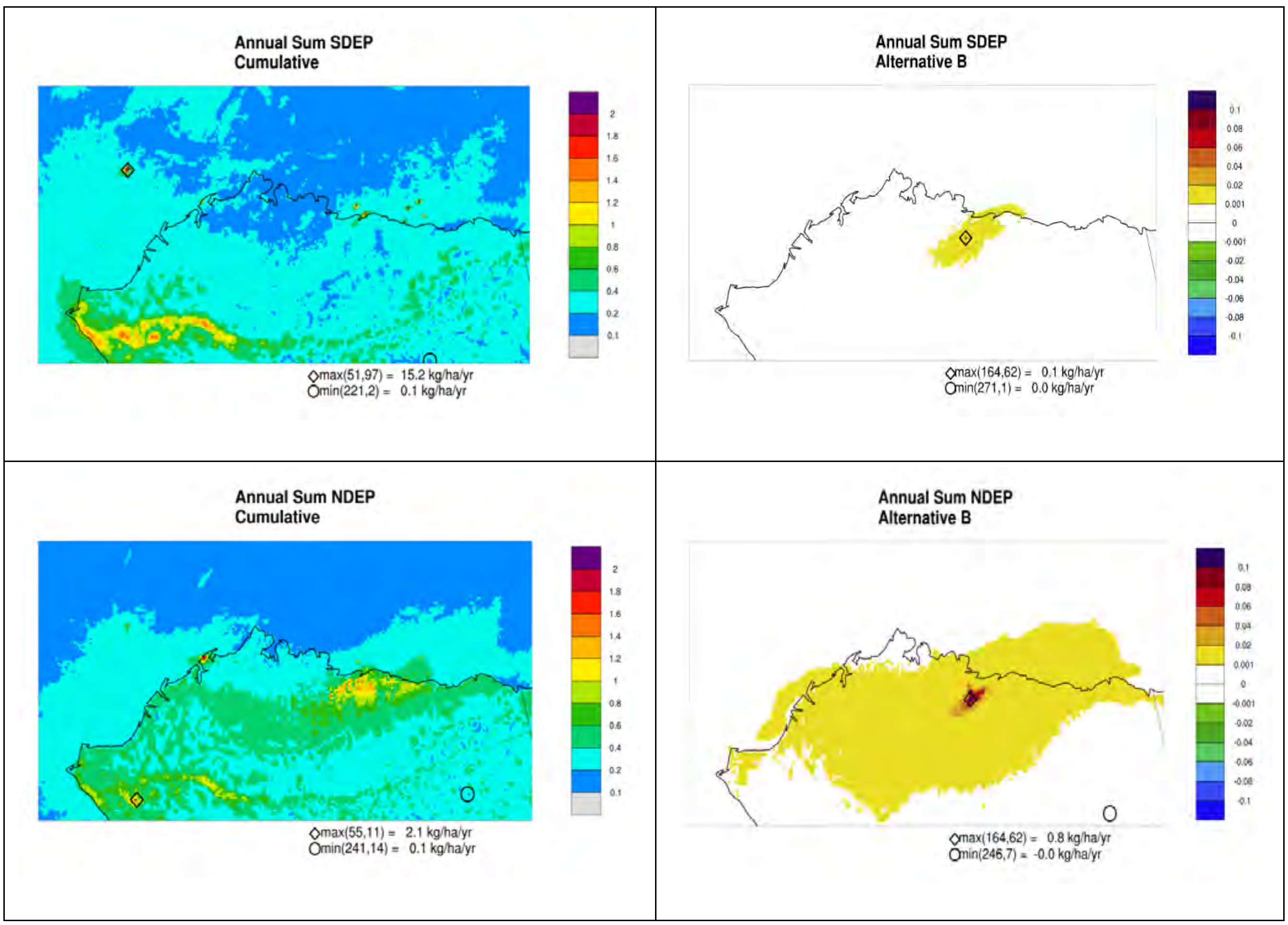

Figure 5.3-7 Alternative B (Proponent's Project): Annual Sum of Sulfur (S) (top) and Nitrogen (N) (bottom) Deposition Cumulative (left) and Project (right) Impacts

5.3.4 Visibility Analysis

The analysis of the effects on visibility from this Project follows the approach explained in detail in Chapter 4. The cumulative impacts on visibility were calculated using the SMAT-CE tool, while Project impacts are assessed following the FLAG (2010) screening method.

Table 5.3-6 shows the cumulative visibility design values estimated for Alternative B at each of the three assessment areas. As described in Chapter 4, these values are derived from the monitoring data at Denali NP and therefore the Base Year design value is unchanged among all the areas. For both the 20 percent best and the 20 percent most impaired days the projected visibility will slightly degrade from current values at all three assessment areas. The area with the worst cumulative visibility during the 20 percent best days is Noatak National Preserve, while Gates of the Arctic has the worst cumulative visibility during the 20 percent most impaired days. The design values account for the cumulative visibility changes in the whole domain between the base and future year and thus reflects not only the Project contributions but also the contributions from all other sources.

Table 5.3-6 Alternative B (Proponent's Project): Base (2012) and Future (2025) Cumulative Visibility Impacts for the 20 Best and Most Impaired Days

Assessment Area	20 Percent Best Days (dv)		20 Percent Most Impaired Days (dv)	
	Base Year	Future Year	Base Year	Future Year
Arctic National Wildlife Refuge	2.671	2.682	7.245	7.248
Gates of the Arctic		2.684		7.279
Noatak National Preserve		2.739		7.249

Table 5.3-7 shows the Willow MDP impacts on visibility when compared to natural background conditions under the Alternative B. These estimates indicate that the direct visibility impacts under Alternative B are all small and would not significantly degrade visibility at any of the three assessment areas. None of the three assessment areas exceeds either the 1 and 0.5 delta deciview thresholds, furthermore the largest impacts observed at Arctic National Wildlife Refuge are only half of the 0.5 delta deciview threshold. Modeling results indicate that the impacts are more likely to be observed during the spring as both Arctic National Wildlife Refuge and the Noatak National Preserve experience the peak delta deciview values in April. The visibility impacts during the 20 percent worst days are generally an order of magnitude lower than the maximum values.

Table 5.3-7 Alternative B (Proponent's Project): Project Visibility Impacts

Assessment Area	Δdv (Max)	Δdv (98th percentile)	Δdv (W20)	Δdv (B20)	Number of Days	
					Δdv > 1	Δdv > 0.5
Arctic National Wildlife Refuge	0.36026	0.11401	0.03110	0.00009	0	0
Gates of the Arctic	0.17987	0.05501	0.01170	0.00001	0	0
Noatak National Preserve	0.08118	0.04246	0.01074	0.00001	0	0

5.4 Alternative C (Disconnected Infield Roads)

This section presents the Project and cumulative impacts for Alternative C. The model outputs are processed following the methodology discussed in Chapter 4. The concentrations are compared with NAAQS and AAAQS standards, PSD increments and deposition thresholds for the full domain and at the three assessment areas.

5.4.1 NAAQS Analysis

Table 5.4-1 provides a summary of maximum ambient air quality concentrations from the cumulative Alternative C scenario for all criteria pollutants at the assessment areas. Air concentrations for all criteria pollutants are below the NAAQS and AAAQS anywhere in the modeling domain.

Table 5.4-2 shows the maximum Project impacts for all criteria pollutants in terms of the standards. For all pollutants, the Project impacts are well below the NAAQS and AAAQS and show negligible contribution to the cumulative air quality concentrations.

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Table 5.4-1 Comparison of Modeled Cumulative Concentrations under Alternative C (Disconnected Infield Roads) with AAQS

Concentrations	CO 8 hours ppm	CO 1 hour ppm	NO_2 1 hour ppb	NO_2 Annual ppb	O_3 8 hours ppb	PM_{25} Annual µg/m³	PM_{25} 24 hours µg/m³	PM_{10} 24 hours µg/m³	SO_2 1 hour ppb	SO_2 3 hours ppm	SO_2 24 hours ppm	SO_2 Annual ppm
Primary NAAQS and AAAQS[a, b]	9	35	100	53	70	12	35	150	75	0.5	0.14	0.03
Secondary NAAQS[b]	NA	NA	NA	53	70	15	35	150	NA	0.5	NA	NA
Modeled Concentrations												
Full Domain[1]	3.1	0.9	72.4	22.0	55.5	10.1	31.4	121.3	58.1	0.1	0.0	0.0
Arctic National Wildlife Refuge	0.6	0.4	21.0	1.6	55.5	2.5	7.3	30.5	0.74	0.002	0.001	0.000
Gates of the Arctic	0.2	0.2	1.2	0.2	53.4	1.4	3.9	9.9	0.68	0.001	0.001	0.000
Noatak National Preserve	3.1	0.9	13.0	0.5	46.8	2.6	8.8	105.6	3.17	0.010	0.002	0.000

NA indicates "not applicable"
[1] Full Domain values represent the maximum modeled concentration seen in the entire domain.
[a] AAAQS are presented in units consistent with the Primary NAAQS to assist with comparison to modeled impacts.
[b] The methods to prepare model results for comparison to the primary and secondary NAAQS and AAAQS are described in Chapter 4.

Table 5.4-2 Comparison of Modeled Project Concentrations under Alternative C (Disconnected Infield Roads) with AAQS

Concentrations	CO 8 hours ppm	CO 1 hour ppm	NO_2 1 hour ppb	NO_2 Annual ppb	O_3 8 hours ppb	PM_{25} Annual µg/m³	PM_{25} 24 hours µg/m³	PM_{10} 24 hours µg/m³	SO_2 1 hour ppb	SO_2 3 hours ppm	SO_2 24 hours ppm	SO_2 Annual ppm
Primary NAAQS and AAAQS[a, b]	9	35	100	53	70	12	35	150	75	0.5	0.14	0.03
Secondary NAAQS[b]	NA	NA	NA	53	70	15	35	150	NA	0.5	NA	NA
Modeled Concentrations												
Full Domain[1]	0.0	0.0	11.0	4.4	1.4	0.9	0.6	2.1	0.1	0.0	0.0	0.0
Arctic National Wildlife Refuge	0.0000	0.0000	0.0000	0.0004	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Gates of the Arctic	0.0000	0.0000	0.0001	0.0004	0.0011	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Noatak National Preserve	0.0000	0.0000	0.0001	0.0003	0.0000	0.0002	0.0000	0.0033	0.0000	0.0000	0.0000	0.0000

[1] Full Domain values represent the maximum modeled concentration in the numerical form of the air quality standard in the entire domain.

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Figure 5.4-1 through Figure 5.4-6 show the spatial distribution of cumulative and Project impacts for all O_3, NO_2, $PM_{2.5}$, PM_{10}, SO_2 and CO respectively.

The 4th highest 8-hour cumulative O3 impacts (Figure 5.4-1 (left)) are below the NAAQS throughout the domain and the maximum of 55.5 ppb is modeled to occur near the Arctic National Wildlife Refuge. The Project contribution to this maximum is negligible at this location. The maximum Project impact anywhere in the analysis area is 1.4 ppb (Figure 5.4-1 (right)) and is modeled near the Willow MDP area. Some of the Project impacts ranging from 0.1-1 ppb occurred further downwind south of the Project area. The Project has little to no impact on O3 concentrations for the vast majority of the modeling domain, including within the three assessment areas.

The spatial maximum of annual average and 8th highest daily average $PM_{2.5}$ cumulative impacts (Figure 5.4-2, left) are 10.1 and 31.4 µg/m^3 respectively. Both these maximum impacts are below the NAAQS and occurred near the northern coastline near Wainwright. The annual $PM_{2.5}$ cumulative concentrations are less than 2 µg/m^3 for the vast majority of the modeling domain, including the three assessment areas, although certain areas near the coast and along roadways show concentrations ranging from 2 to 4 µg/m^3. The cumulative 8th highest daily average $PM_{2.5}$ near the Project area falls in the range of 4 to 6 µg/m^3. Overall the Project area and all three assessment areas are well below the NAAQS. The maximum Project impacts (Figure 5.4-2, top-right) on annual $PM_{2.5}$ concentrations ranges between 0.1 and 0.7 µg/m^3. The annual average and 8th highest daily average $PM_{2.5}$ Project impacts show spatial maxima of 0.9 µg/m^3 and 0.6 µg/m^3 respectively. The Project impacts are the highest within the Willow MDP area and decrease in magnitude rapidly with distance. Project impacts in the rest of the modeling domain, including the three assessment areas, range from extremely small to negligible.

The maximum second-highest daily cumulative PM_{10} of 121.3 µg/m^3 is modeled near the Noatak National Preserve as shown in Figure 5.4-3; this is below the NAAQS of 150 µg/m^3. The high PM_{10} concentrations modeled near Noatak are due to the emissions from wildland fires as modeled in the BOEM base case 2012 regional inventory. The maximum Project impact of 2.3 µg/m^3 is modeled near the Project area and impacts appear to be less in the vicinity of the Project area.

The modeled maximum cumulative concentrations of the annual average NO_2 and 8th highest (98th percentile) daily maximum NO_2 are 22 ppb and 72.4 ppb respectively and are near coastline and off the coast as shown in Figure 5.4-4. These high values are mainly due to the offshore oil and gas emissions sources and shipping activity in the Chukchi Sea. Near the Project area the cumulative concentrations for annual average NO_2 and 8th highest daily max NO_2 are in the range of 2-5 ppb and 5-20 ppb and the Project impacts from Alternative C shows a spatial maxima of 4.4 ppb and 11.0 ppb respectively. The Project impacts maximum occurred mainly near the Project area and decreases moving away from the Project area. The 8th highest 1-hour NO_2 shows some Project impacts offshore in the Beaufort Sea (up to approximately 0.8 ppb) and south-west of the Project area (up to approximately 11 ppb).

The cumulative impact spatial maxima of the annual average SO_2 (9.1 ppb), second-highest 24-hour SO_2 (34.6 ppb), second-highest 3-hour SO_2 (57.4 ppb) and fourth-highest daily maximum 1-hour SO_2 (58.1 ppb) are modeled off the coast and away from the Project area as shown in Figure 5.4-5. Cumulative SO_2 concentrations in the inland portion of the modeling domain, including near the Project area and the three assessment areas, are generally less than 2 ppb. The maximum Project impacts of SO_2 occur southwest of the Willow MDP area and the maximum increases are less than 0.2 ppb.

The spatial distributions of cumulative impacts on 1-hour and 8-hour CO concentrations are shown in Figure 5.4-6**.** The spatial maxima of the second-highest 1-hour and 8-hour CO are 3.1 ppm and 0.9 ppm, both are well below the corresponding NAAQS (35 ppm for 1-hour and 9 ppm for 8-hour). The high PM_{10} concentrations modeled near Noatak are due to the emissions from wildland fires as modeled in the BOEM base case 2012 regional inventory. The Project impacts from Alternative C are extremely small away from the Project area.

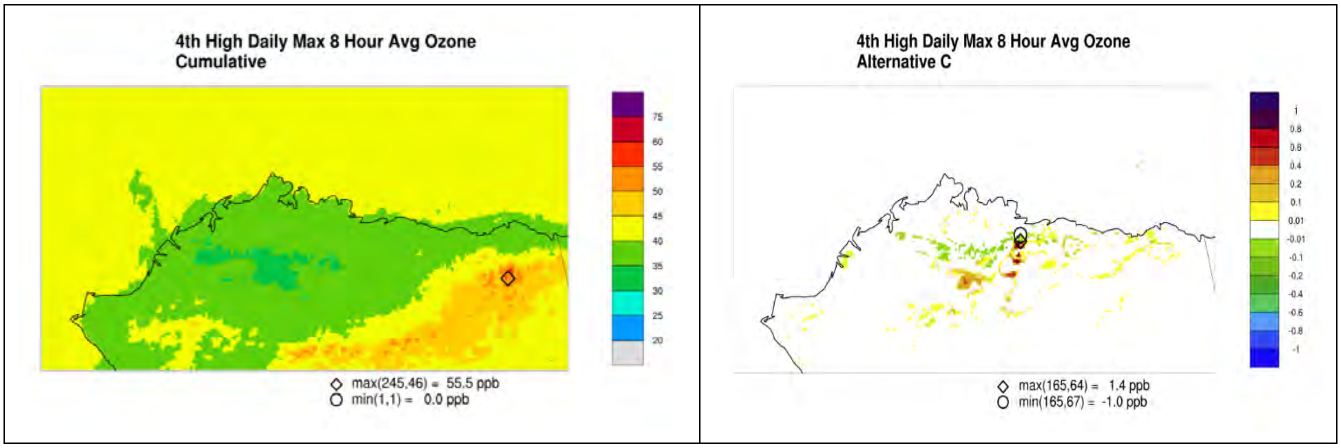

Figure 5.4-1 Alternative C (Disconnected Infield Roads): Fourth-Highest Daily Maximum 8-hour Ozone Cumulative (left) and Project Impacts (right)

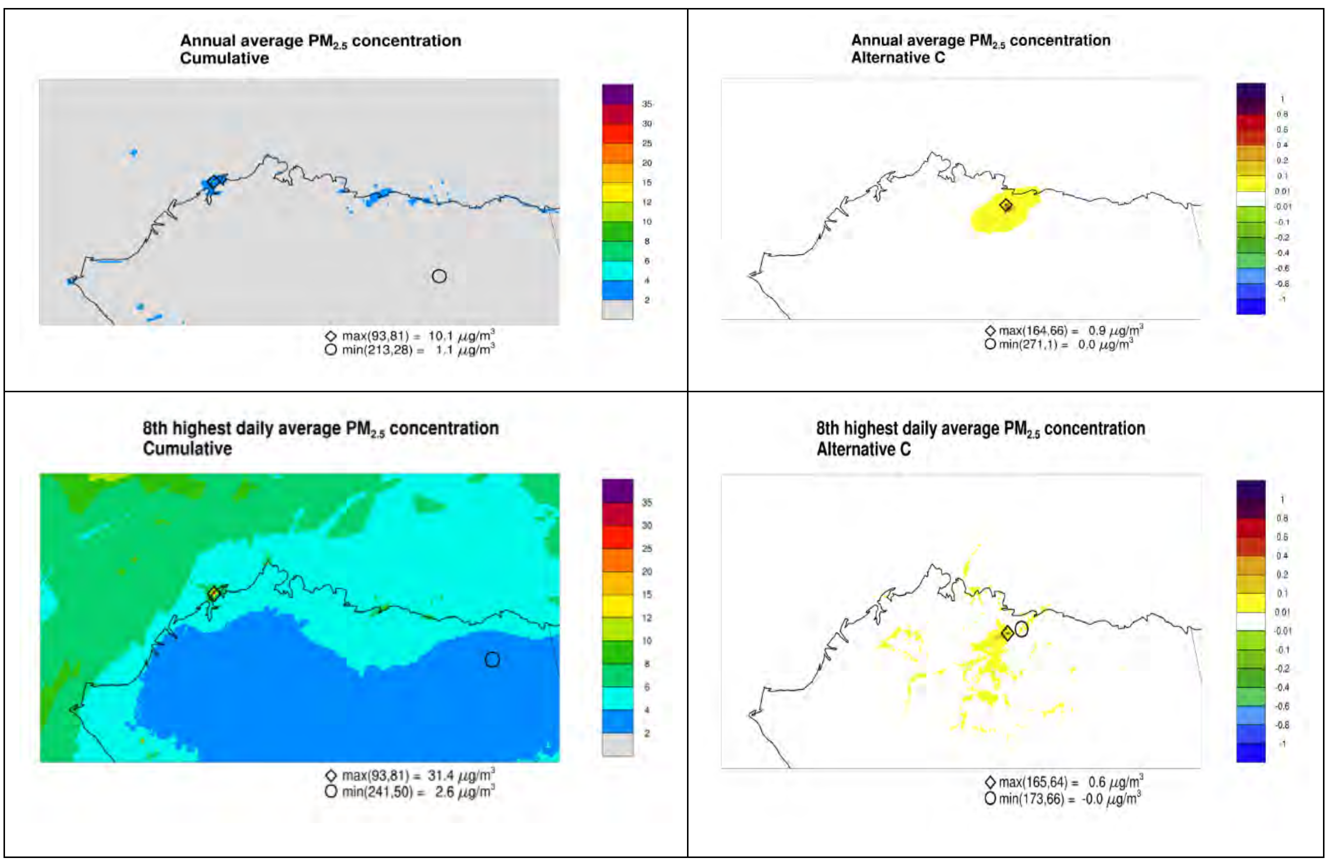

Figure 5.4-2 Alternative C (Disconnected Infield Roads): Annual Average (top) and 8th Highest Daily Average (bottom) $PM_{2.5}$ Cumulative (left) and Project (right) Impacts

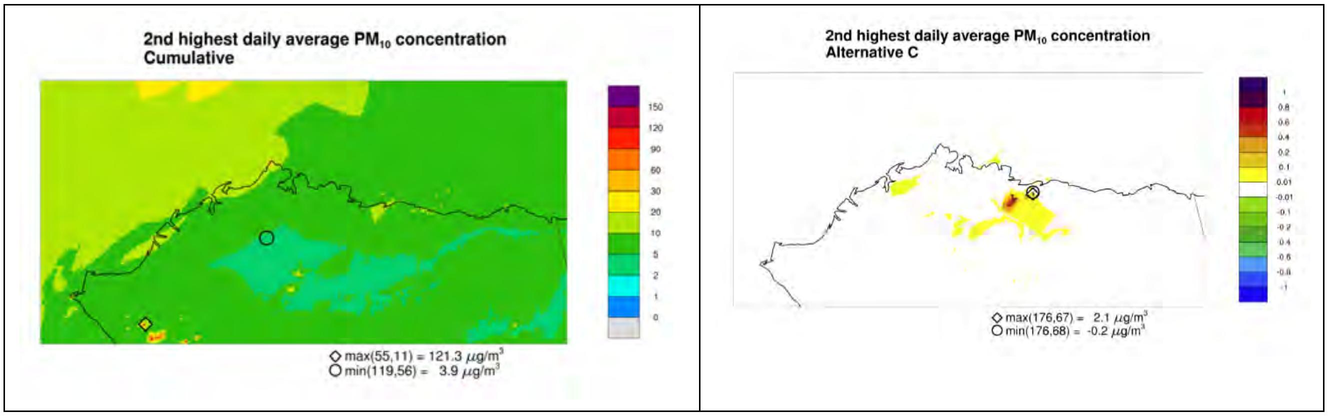

Figure 5.4-3 Alternative C (Disconnected Infield Roads): 2nd Highest Daily Average PM_{10} Cumulative (left) and Project (right) Impacts

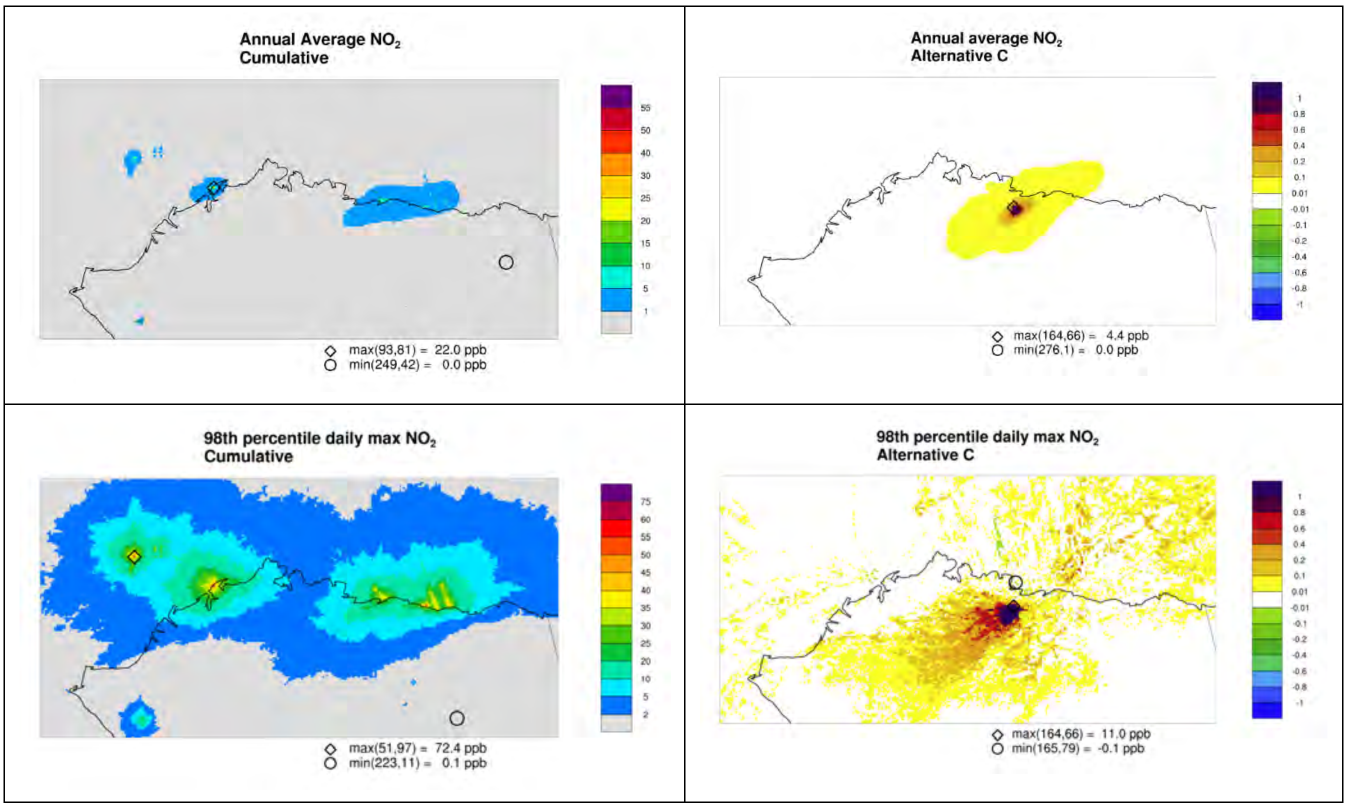

Figure 5.4-4 Alternative C (Disconnected Infield Roads): Annual Average (top) and 8th Highest 1-hr Daily Maximum (bottom) NO_2 Cumulative (left) and Project (right) Impacts

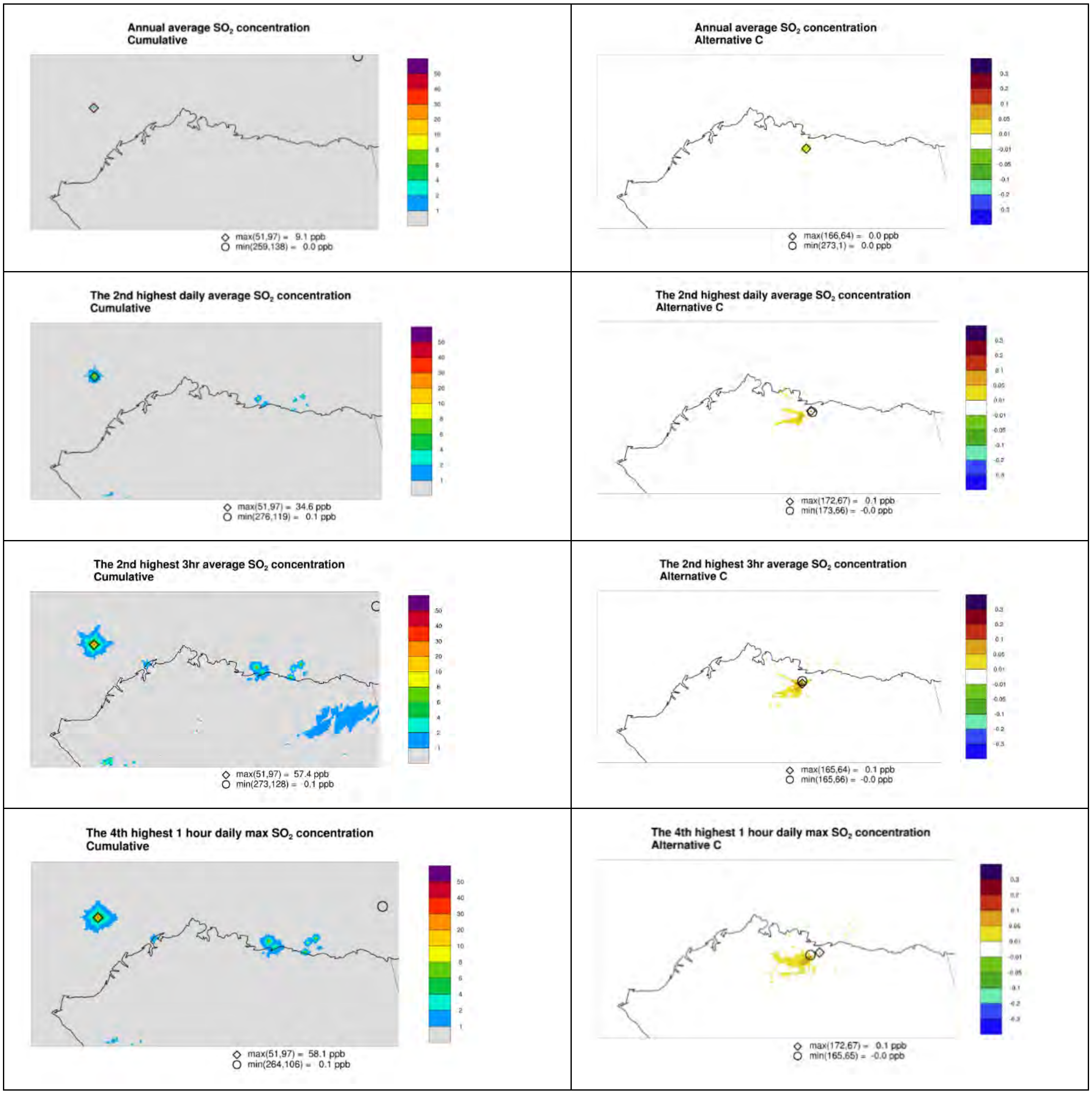

Figure 5.4-5 Alternative C (Disconnected Infield Roads): Annual average, 2nd Highest Daily Average, 2nd highest 3-hr Average and 4th Highest 1-hr Daily Maximum SO_2 Cumulative (left) and Project (right) Impacts

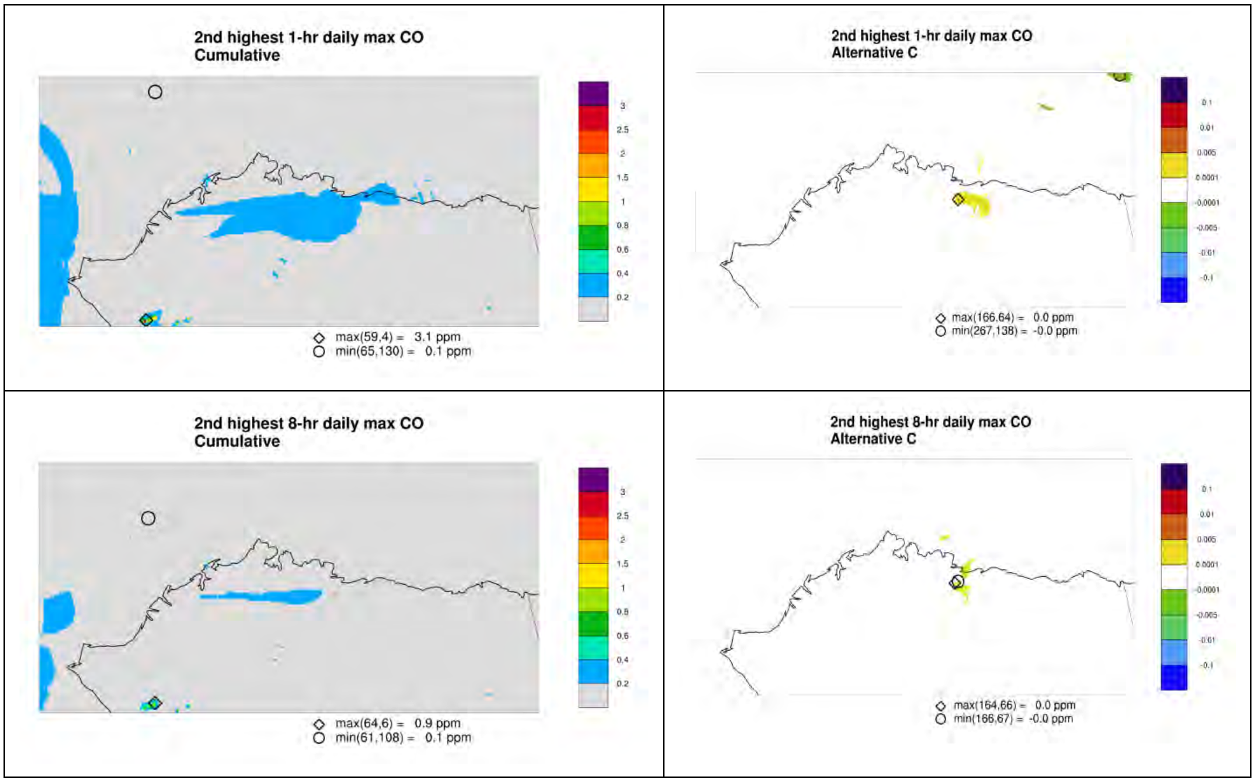

Figure 5.4-6 Alternative C (Disconnected Infield Roads): 2nd Highest 1-hr and 8-hr Average Daily Maximum CO Cumulative (left) and Project (right) Impacts

5.4.2 PSD Increments

The Alternative C Project modeled impacts at the three assessment areas and in the whole domain were compared with the respective Class II area PSD increments. As shown in Table 5.4-3 throughout the modeling domain and three assessment areas, the Alternative C maximum Project increments for all pollutants (NO_2, PM_{10}, $PM_{2.5}$, SO_2) are well below the PSD increments. Near the three assessment areas the impacts range from 0.0001 to 0.03 micrograms per cubic meter (µg/m^3). Overall the PSD increments indicate that the Project impacts are very small and are unlikely to deteriorate the air quality values at the three assessment areas.

Table 5.4-3 Alternative C (Disconnected Infield Roads) Modeled Project Impacts Compared with Class II Area PSD Increments

Alternative C	NO_2 Annual	PM_{10} 24-hour	PM_{10} Annual	PM_{25} 24-hour	PM_{25} Annual	SO_2 3-hour	SO_2 24-hour	SO_2 Annual
PSD Class II Increment (µg/m^3)								
Standard	25	30	17	9	4	512	91	20
Modeled Concentrations								
Full Domain[1]	8.25	3.50	1.12	3.27	0.89	1.31	0.65	0.12
Arctic National Wildlife Refuge	0.0065	0.0299	0.0018	0.0298	0.0016	0.0126	0.0041	0.0003
Gates of the Arctic	0.0026	0.0210	0.0011	0.0198	0.0010	0.0065	0.0042	0.0001
Noatak National Preserve	0.0033	0.0123	0.0009	0.0122	0.0008	0.0090	0.0039	0.0002

1 Full Domain values represent the maximum modeled concentration in the numerical form of the air quality standard in the entire domain.

5.4.3 Deposition Analysis

Table 5.4-4 and Table 5.4-5 provide a summary of maximum and average cumulative impacts and Project impacts at the three assessment areas. As shown in Table 5.4-4 the nitrogen deposition cumulative impacts are below or within the critical load range at all three assessment areas. The annual cumulative nitrogen deposition varies from 0.59 – 1.12 kg/ha-yr across these three assessment areas when considering the spatial maximum and from 0.34 – 0.49 kg/ha-yr when considering the average for each area. Annual cumulative sulfur deposition varies from 0.7 – 1.6 kg/ha-yr across these three assessment areas when considering the spatial maximum and from 0.3 – 0.6 kg/ha-yr when considering the average of each area. Among the three assessment areas, Noatak National Preserve is modeled to experience the highest nitrogen deposition and sulfur deposition due to cumulative impacts.

Table 5.4-5 shows the maximum and average nitrogen and sulfur Project impacts for Alternative C. These Project impacts are below the DAT of 0.005 kg/ha-yr. In general, the Project impacts at all three assessment areas have a very small contribution to the total cumulative deposition values.

Table 5.4-7 shows the spatial extent of the sulfur and nitrogen deposition cumulative and Project impacts. The Alternative C cumulative sulfur deposition (Table 5.4-7, top-left) maximum impact of 15.2 kg/ha-yr occurs in the ocean and is related to offshore oil and gas activities in the Chukchi Sea region; for the rest of the domain cumulative impacts range between 0.2 and 1.8 kg/ha-yr (Figure 5.4-7). The maximum cumulative nitrogen deposition maximum of 2.1 kg/ha-yr occurs at the location of maximum impacts from the Project area. The Project contributes to almost 50 percent of the cumulative nitrogen deposition, but this effect decreases substantially with distance with impacts of less than 0.02 kg/ha-yr beyond the 300 km radius around the Project. Maximum sulfur impacts for 0.01 kg/ha-yr occur within the Project area and substantially decrease to values in the range of 0.001 – 0.02 kg/ha-yr.

Table 5.4-4 Alternative C (Disconnected Infield Roads): Nitrogen and Sulfur Deposition Cumulative Impacts – Spatial Maximum and Average

Assessment Area	Nitrogen (kg N/ha-yr)			Sulfur (kg S/ha-yr)	
	Maximum	Average	Below/Within/Above Critical Load Range (1.0-3.0 kg/ha-yr)	Maximum	Average
Arctic National Wildlife Refuge	0.71	0.34	Below	0.71	0.31
Gates of the Arctic	0.59	0.38	Below	0.68	0.37
Noatak National Preserve	1.12	0.49	Within/Below	1.58	0.61

Table 5.4-5 Alternative C (Disconnected Infield Roads): Nitrogen and Sulfur Deposition Project Impacts – Spatial Maximum and Average

Assessment Area	Nitrogen (kg N/ha-yr) Maximum	Nitrogen (kg N/ha-yr) Average	Nitrogen (kg N/ha-yr) Below Deposition Analysis Threshold (0.005 kg/ha-yr)	Sulfur (kg S/ha-yr) Maximum	Sulfur (kg S/ha-yr) Average	Sulfur (kg S/ha-yr) Below Deposition Analysis Threshold (0.005 kg/ha-yr)
Arctic National Wildlife Refuge	4.7E-03	5.8E-04	Yes	1.4E-05	3.8E-05	Yes
Gates of the Arctic	1.1E-03	6.4E-04	Yes	1.4E-05	5.0E-05	Yes
Noatak National Preserve	3.9E-03	1.1E-03	Yes	3.9E-05	7.6E-05	Yes

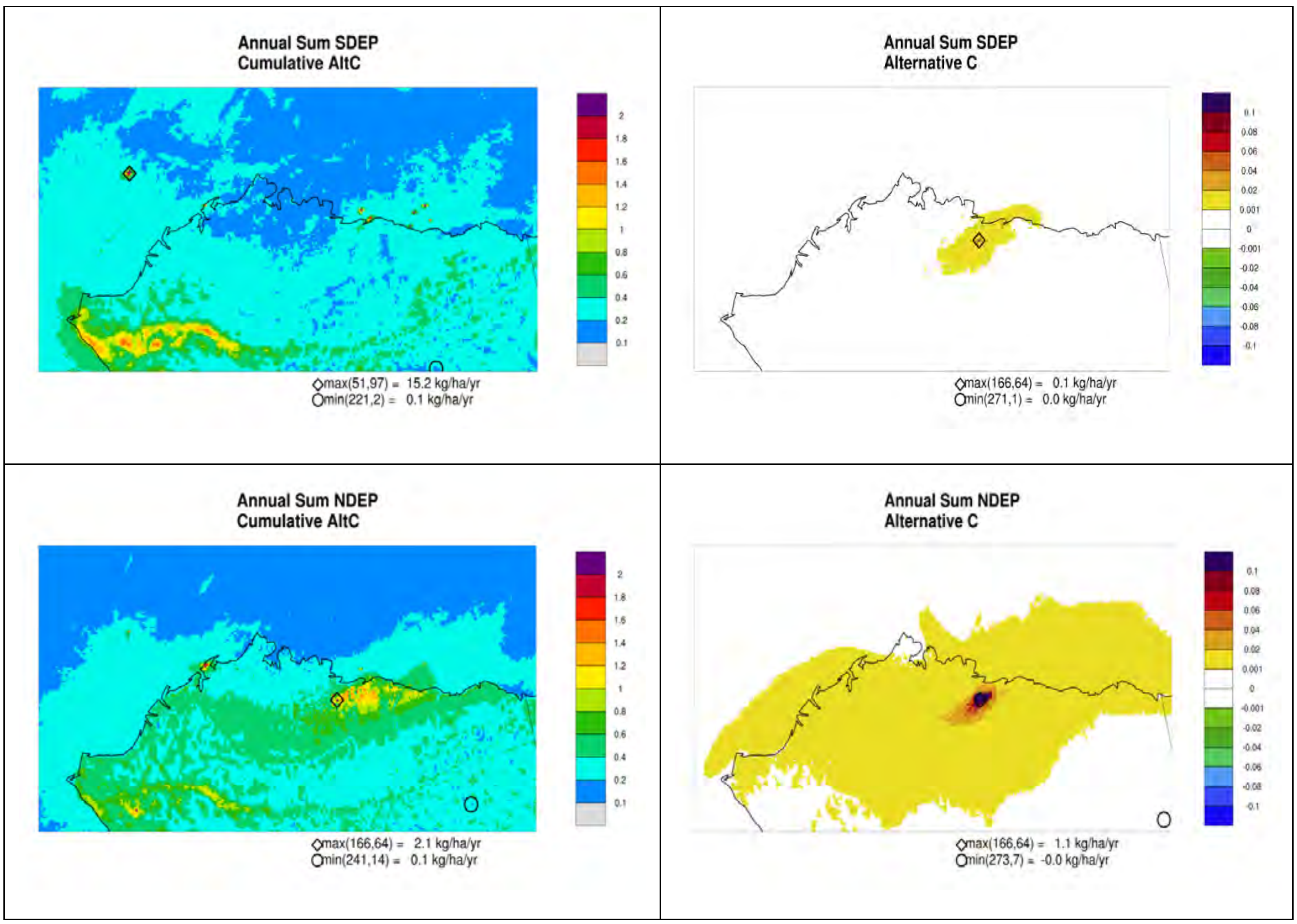

Figure 5.4-7 Alternative C (Disconnected Infield Roads): Annual Sum of Sulfur (S) (top) and Nitrogen (N) (bottom) Deposition: Cumulative (left) and Project (right) Impacts

5.4.4 Visibility Analysis

The analysis of the effects on visibility from Alternative C is similar to that of Alternative B and follows the approach explained in detail in Chapter 4. The cumulative impacts on visibility were calculated using the SMAT-CE tool, while Project impacts are assessed following the FLAG (2010) screening method.

Table 5.4-6 shows the cumulative visibility design values estimated for Alternative C at the three assessment areas. As described in Chapter 4, these values are derived from the monitoring data at Denali NP and therefore the Base Year design value is unchanged among all the areas. For both 20 percent best and 20 percent most impaired days the cumulative visibility will slightly degrade from current values at all three assessment areas. The area with the worst cumulative visibility during the 20 percent best days is Noatak National Preserve, while Gates of the Arctic has the worst cumulative visibility during the 20 percent most impaired days. As in the case of Alternative B, the design values account for the cumulative visibility changes in the whole domain between the base and future year and reflect the contributions from all sources.

Table 5.4-6 Alternative C (Disconnected Infield Roads): Base (2012) and Future (2025) Cumulative Visibility Impacts for the 20 Best and Most Impaired Days

Assessment Area	20 Percent Best Days (dv) Base Year	20 Percent Best Days (dv) Future Year	20 Percent Most Impaired Days (dv) Base Year	20 Percent Most Impaired Days (dv) Future Year
Arctic National Wildlife Refuge	2.671	2.682	7.245	7.248
Gates of the Arctic		2.684		7.281
Noatak National Preserve		2.741		7.253

Table 5.4-7 shows the Project specific impacts on visibility when compared to natural background conditions under Alternative C. These estimates indicate that the direct visibility impacts under Alternative C are all small and would have little contribution to visibility degradation at the three assessment areas. None of the three assessment areas exceeds either the 1 and 0.5 delta deciview thresholds. The largest impacts are modeled at the Arctic National Wildlife Refuge; these impacts are 60 percent of the 0.5 delta deciview threshold. Modeling results indicate that the higher impacts are more likely during the spring as both Arctic National Wildlife Refuge and Noatak show maximum delta deciview values in April. The delta deciview impacts during the 20 percent worst days are generally an order of magnitude lower than the maximum values.

Table 5.4-7 Alternative C (Disconnected Infield Roads): Project Visibility Impacts

Assessment Area	Δdv (Max)	Δdv (98th percentile)	Δdv (W20)	Δdv (B20)	Number of Days	
					Δdv > 1	Δdv > 0.5
Arctic National Wildlife Refuge	0.30573	0.11276	0.03223	0.00009	0	0
Gates of the Arctic	0.23194	0.06161	0.01126	0.00001	0	0
Noatak National Preserve	0.08033	0.04192	0.01016	0.00001	0	0

5.5 Comparison between Alternative B (Proponent's Project) and C (Disconnected Infield Roads)

In general, the direct impacts to AQ and AQRV from both alternatives are very small and therefore the comparison of cumulative concentrations and other AQRVs shows very little difference between Alternative B and C. A comparison of Project specific impacts between Alternative B and C for pollutants subject to the NAAQS indicates in general that Alternative C has larger domain-wide impacts than Alternative B but these large impacts occur in the immediate vicinity of the Project area. The most noticeable difference can be observed for NO_2 and $PM_{2.5}$ as the larger total annual NOx emissions for Alternative C lead to larger impacts to both NO_2 and particulate nitrate. For ozone the domain-wide maximum is larger for Alternative C compared to Alternative B but the difference is small (0.3 ppb). The spatial distribution of ozone due to either alternatives is very similar and the effect on ozone from both alternatives is same. The main driver of PM_{10} impacts is related to primary particulates. In case of PM_{10}, the emissions for Alternative C are smaller than Alternative B and therefore the impacts are also smaller for Alternative C. The impacts at the three assessment areas from both alternatives are extremely low for all pollutants with no noticeable differences modeled between the two alternatives.

Regarding PSD increments, a similar conclusion to NAAQS is observed in that increased NO_2 emissions in Alternative C lead to higher impact for both NO_2 and $PM_{2.5}$. The lower emission of PM_{10} in Alternative C lead to lower PM_{10} impacts compared to Alternative B. SO_2 impacts are similar in both alternatives as the emissions are similar in both.

Nitrogen deposition related impacts for Alternative C are slightly larger compared to those for Alternative B. However, the main impacts occur within the Project area for both alternatives. Sulfur deposition impacts for both alternatives are very similar and show no distinct differences with the largest impacts occurring within the Project area for both.

The location of the three assessment areas is far from the Project and therefore Project specific maximum deposition impacts are very similar between the two alternatives. In both cases, no alternative will exceed the 0.5 Δdv threshold on any day. The cumulative visibility impacts are very similar between these two alternatives. However, Alternative C shows slightly higher impacts during the 20% most impaired days at Gates of the Arctic and the Noatak National Preserve. The key differences between Alternative B and C that were discussed above are tabulated in Table 5.5-1.

Table 5.5-1 Comparison of Regional Modeling Impacts Across Alternatives

Metric	Impact
NAAQS and AAAQS	Domain-wide impacts for $PM_{2.5}$ and NO_2 are higher for Alternative C compared to Alternative B. Both alternatives show similar impacts for ozone. All pollutants analyzed are below the NAAQS and AAAQS for both alternatives. Alternative D is also anticipated to be below all standards because its emissions are between Alternatives B and C or lower than both of them.
PSD Increment	Domain-wide impacts for $PM_{2.5}$ and NO_2 are higher for Alternative C compared to Alternative B. All pollutants analyzed are below the PSD increment thresholds for both alternatives. Alternative D is also anticipated to be below all PSD increments because its emissions are between Alternatives B and C or lower than both of them.
Deposition	Nitrogen deposition is larger for Alternative C relative to Alternative B. Sulfur deposition for both alternatives is similar. The nitrogen and sulfur deposition for both alternatives are below the Deposition Analysis Thresholds. Alternative D is also anticipated to be below the DATs because its emissions are between Alternatives B and C or lower than both of them.
Visibility	Impacts for both alternatives are similar. Both are well below 0.5 delta dv threshold, so they do not contribute to visibility impairment. Alternative D is also anticipated to be below visibility thresholdsbecause its emissions are between Alternatives B and C or lower than both of them.

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Willow Master Development Plan

Attachment A
Near-field Source Locations and Modeled Emission Rates

June 2020

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A.1 Alternative B

A.1.1 Scenario 1: Construction

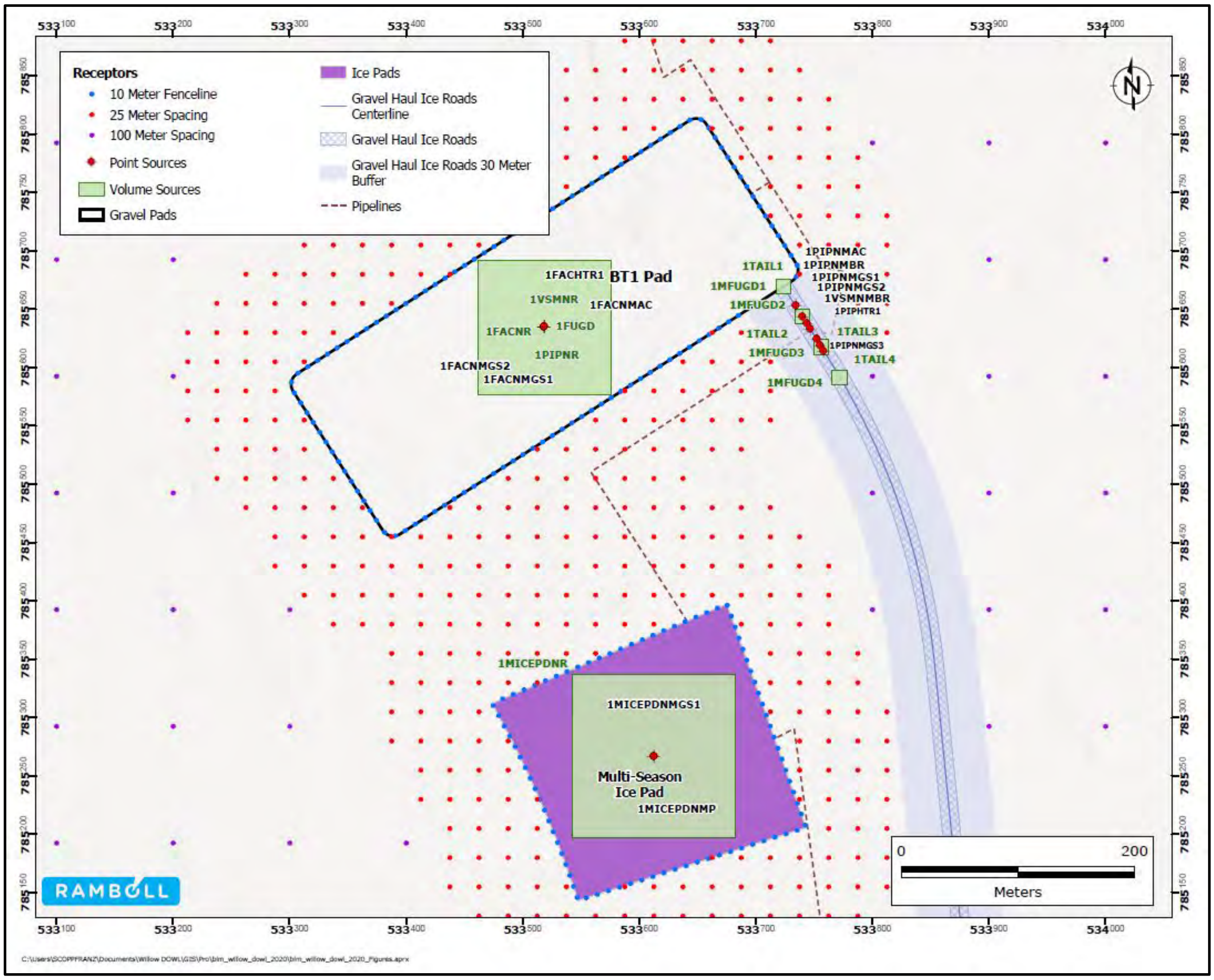

Figure A.1-1. Alternative B Near-field Model Scenario 1 Source Locations at BT1 with Ice Pad.

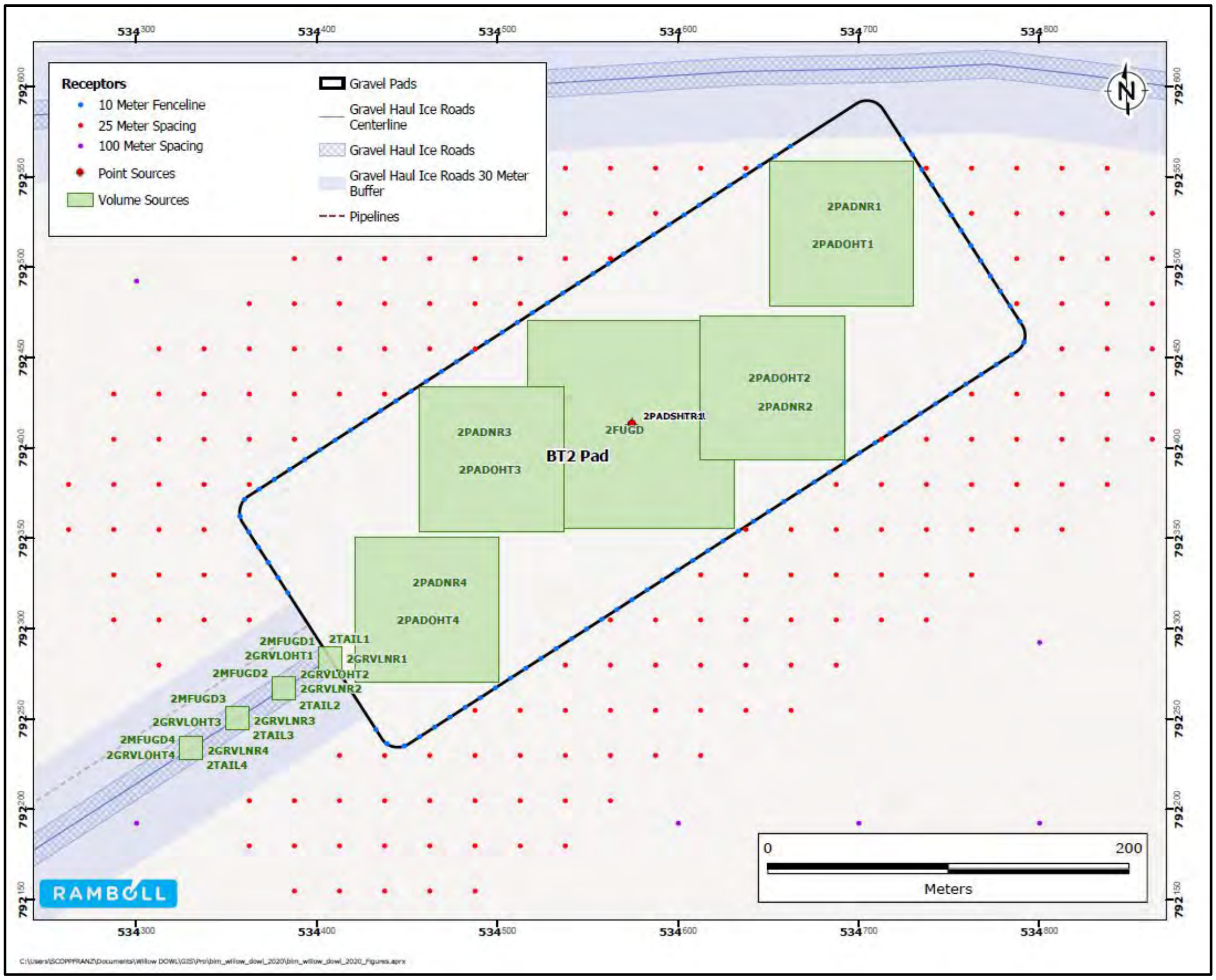

Figure A.1-2. Alternative B Near-field Model Scenario 1 Source Locations at BT2.

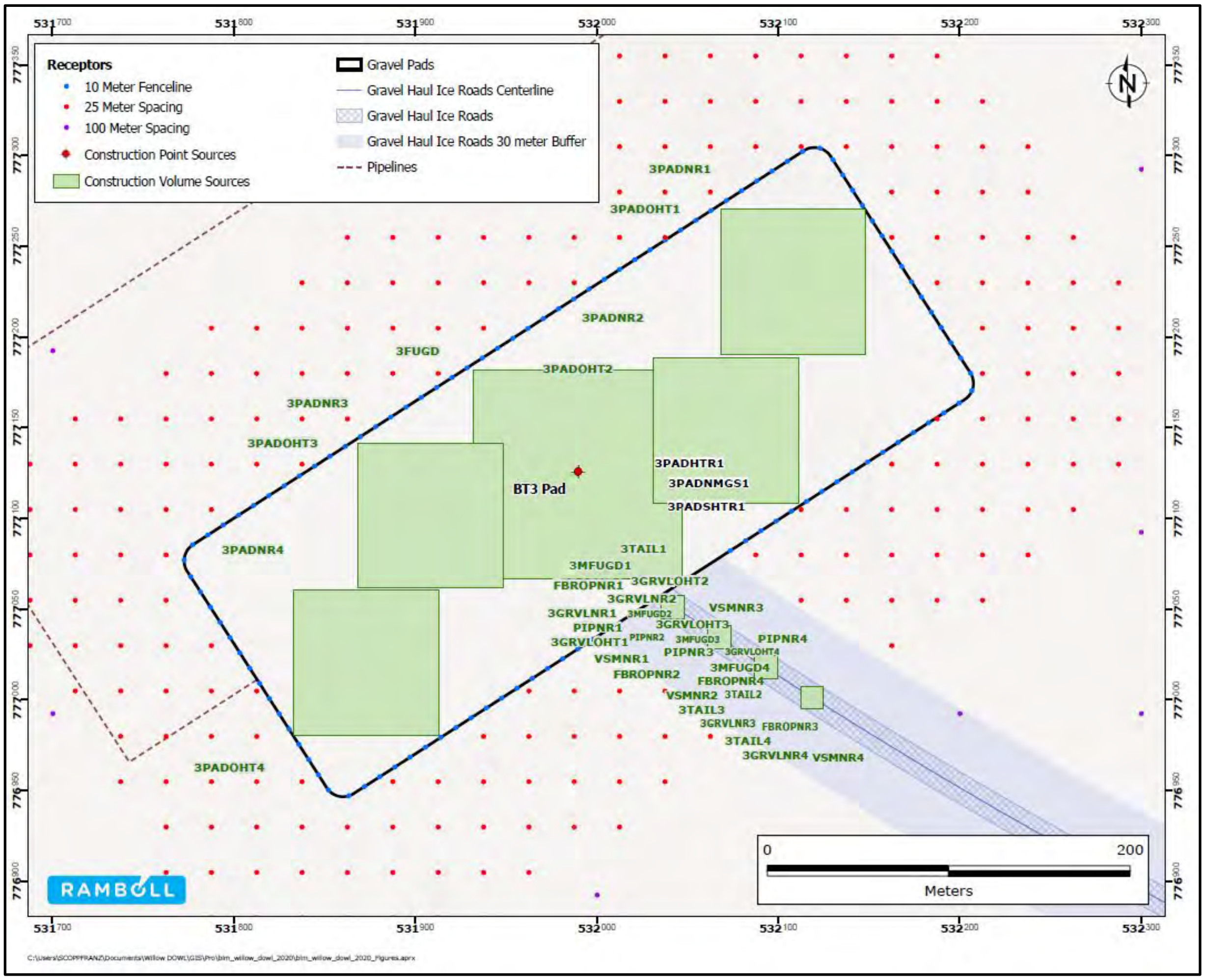

Figure A.1-3. Alternative B Near-field Model Scenario 1 Source Locations at BT3.

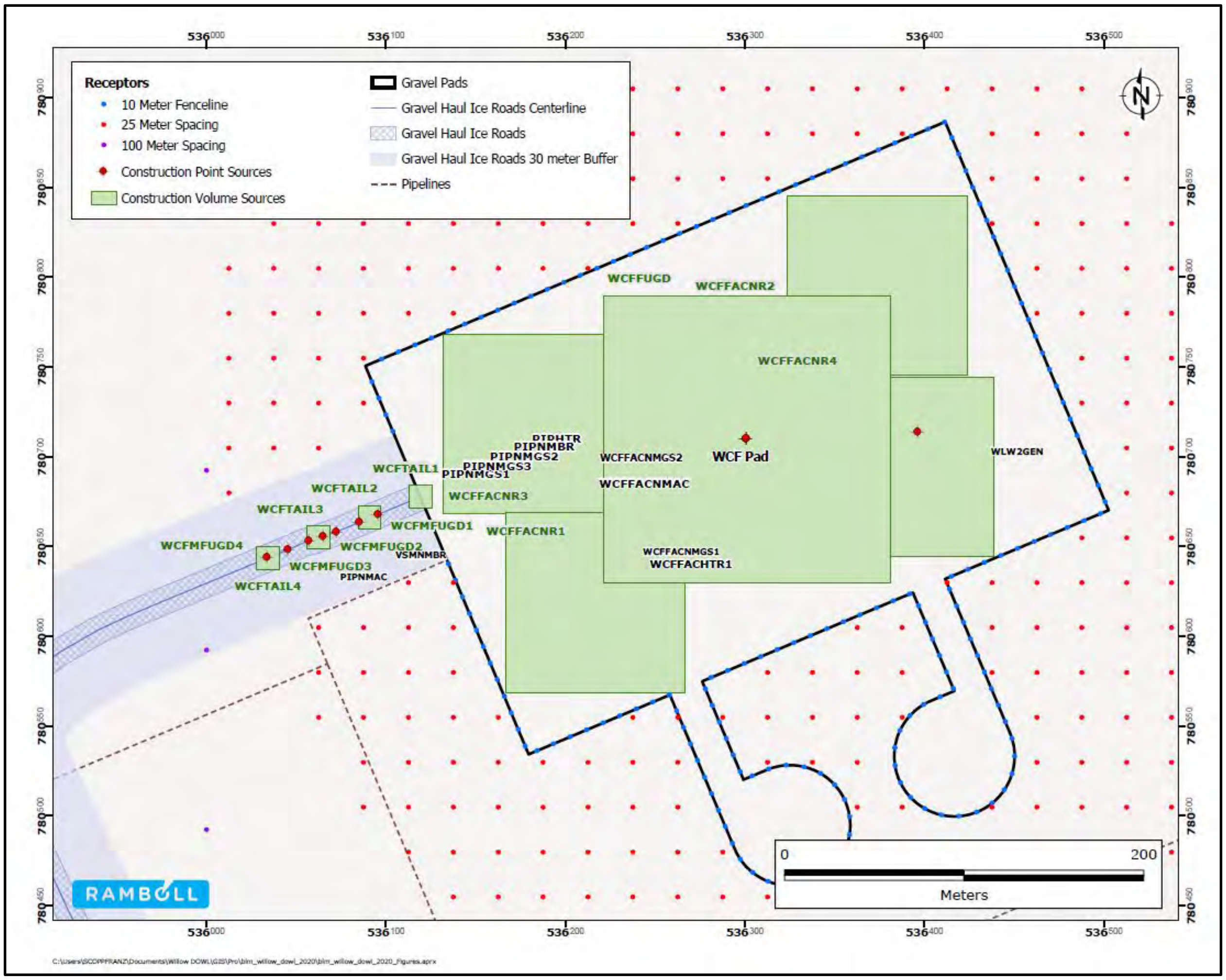

Figure A.1-4. Alternative B Near-field Model Scenario 1 Source Locations at WPF.

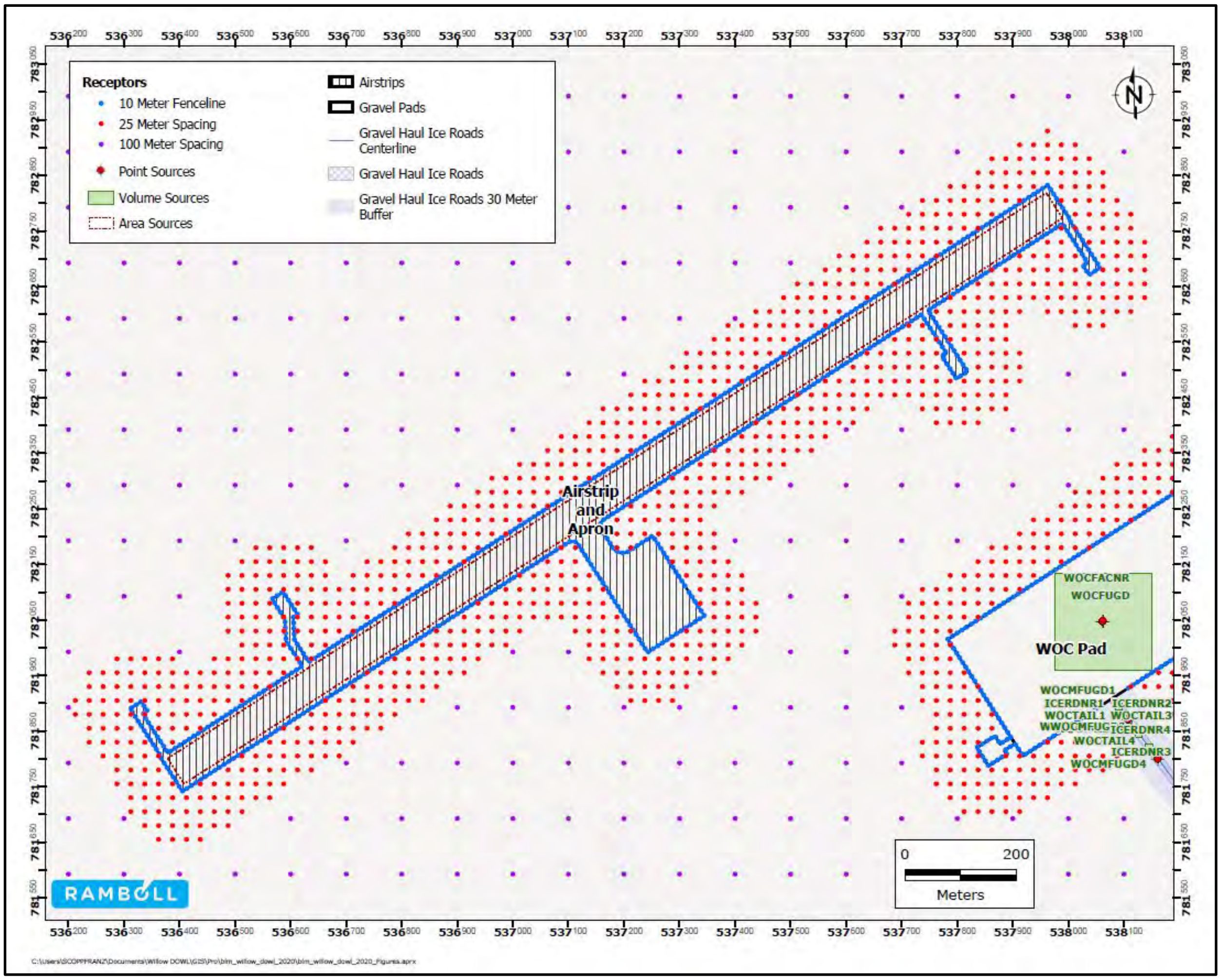

Figure A.1-5. Alternative B Near-field Model Scenario 1 Source Locations at Airstrip/Willow Operations Center.

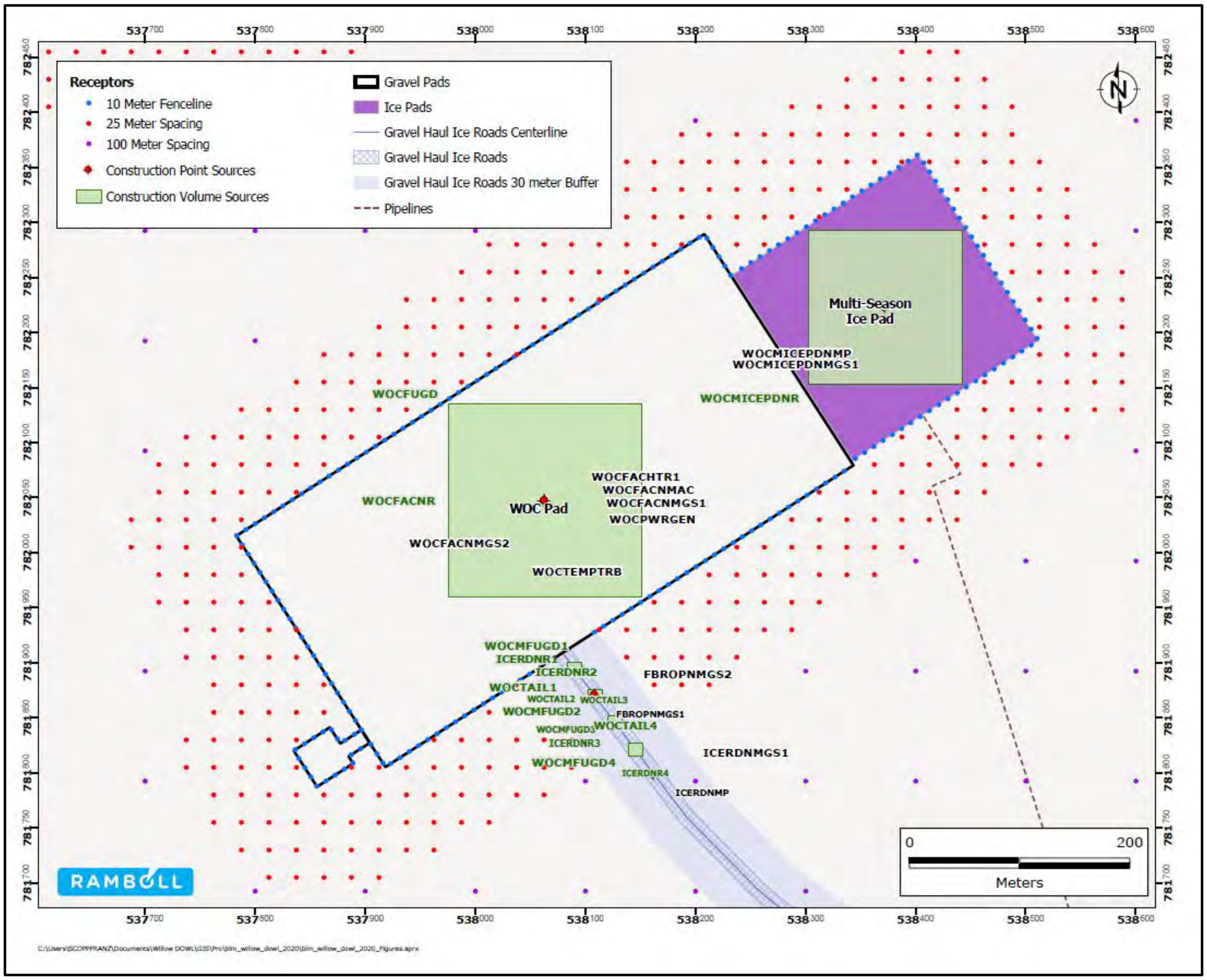

Figure A.1-6. Alternative B Near-field Model Scenario 1 Source Locations at WOC with Ice Pad.

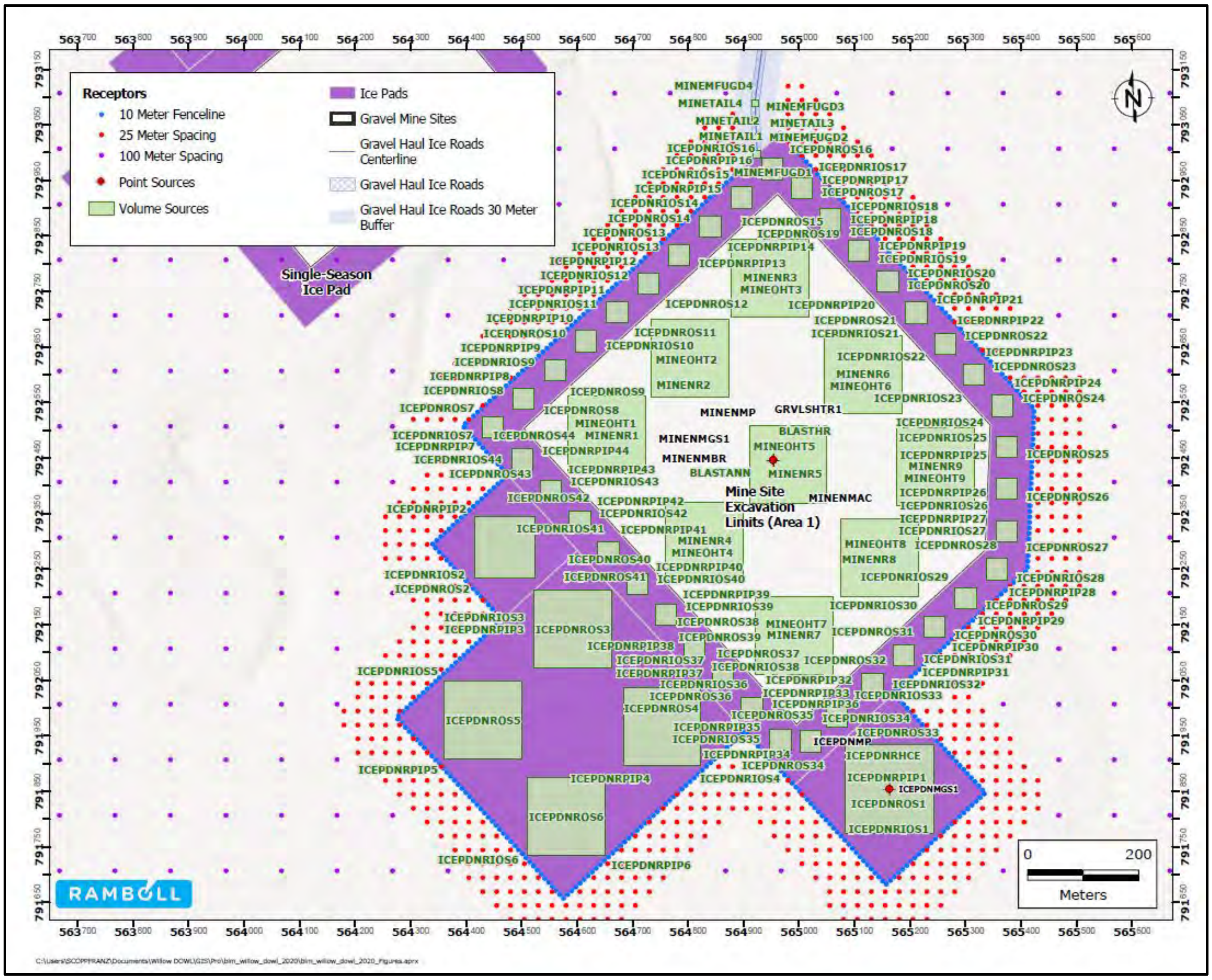

Figure A.1-7. Alternative B Near-field Model Scenario 1 Source Locations at Gravel Mine Site.

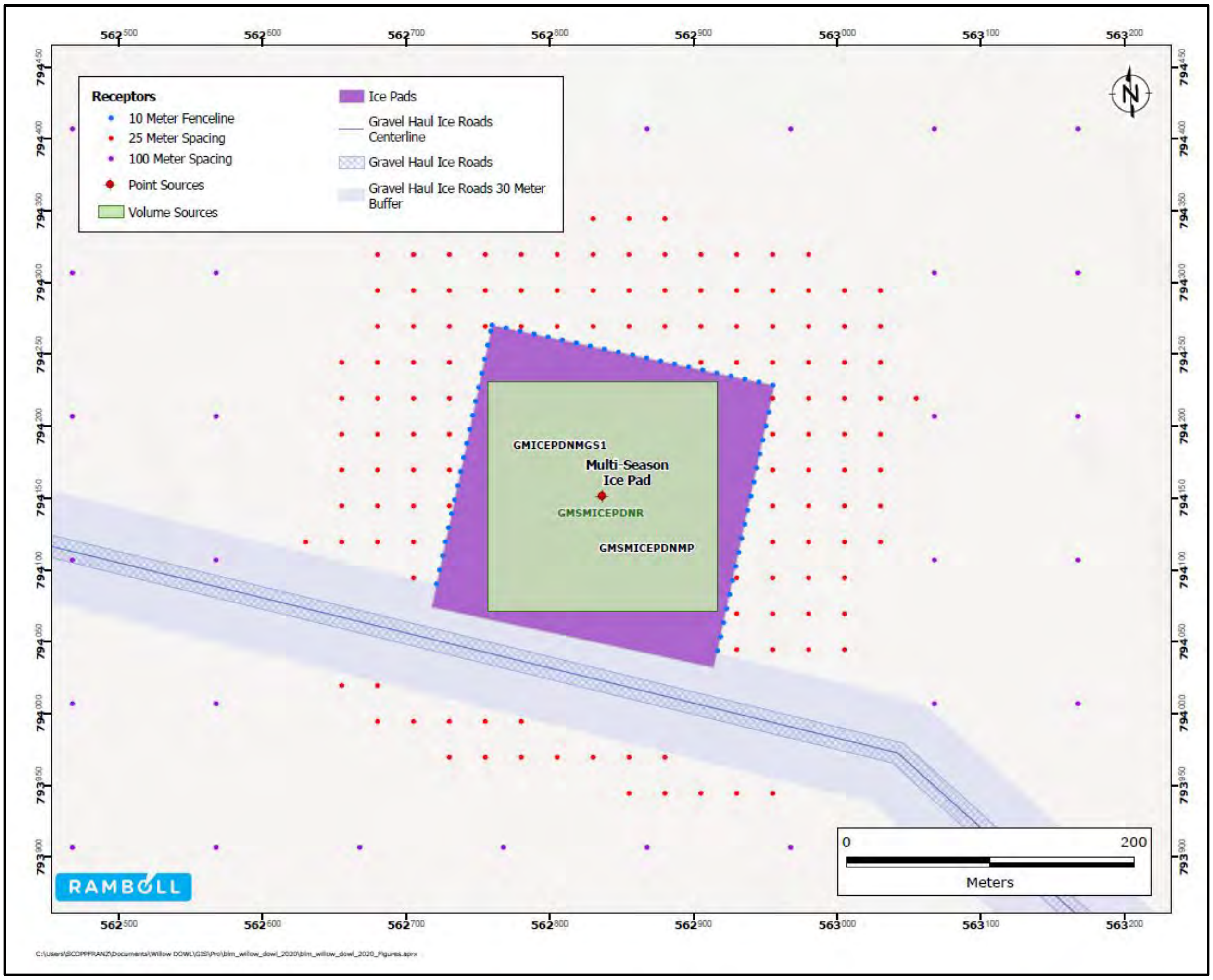

Figure A.1-8. Alternative B Near-field Model Scenario 1 Source Locations at Mine Camp.

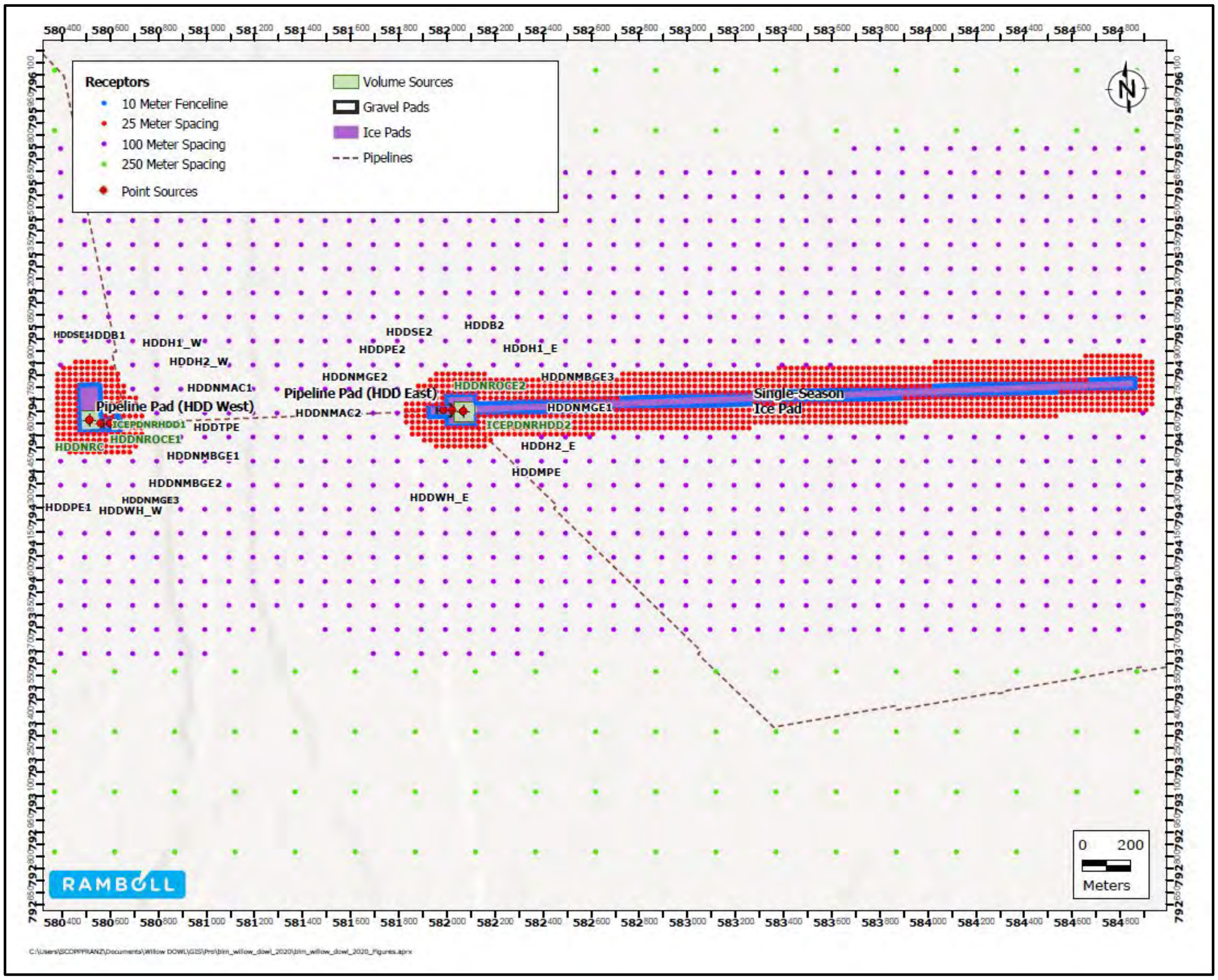

Figure A.1-9. Alternative B Near-field Model Scenario 1 Source Locations at HDD (wide view).

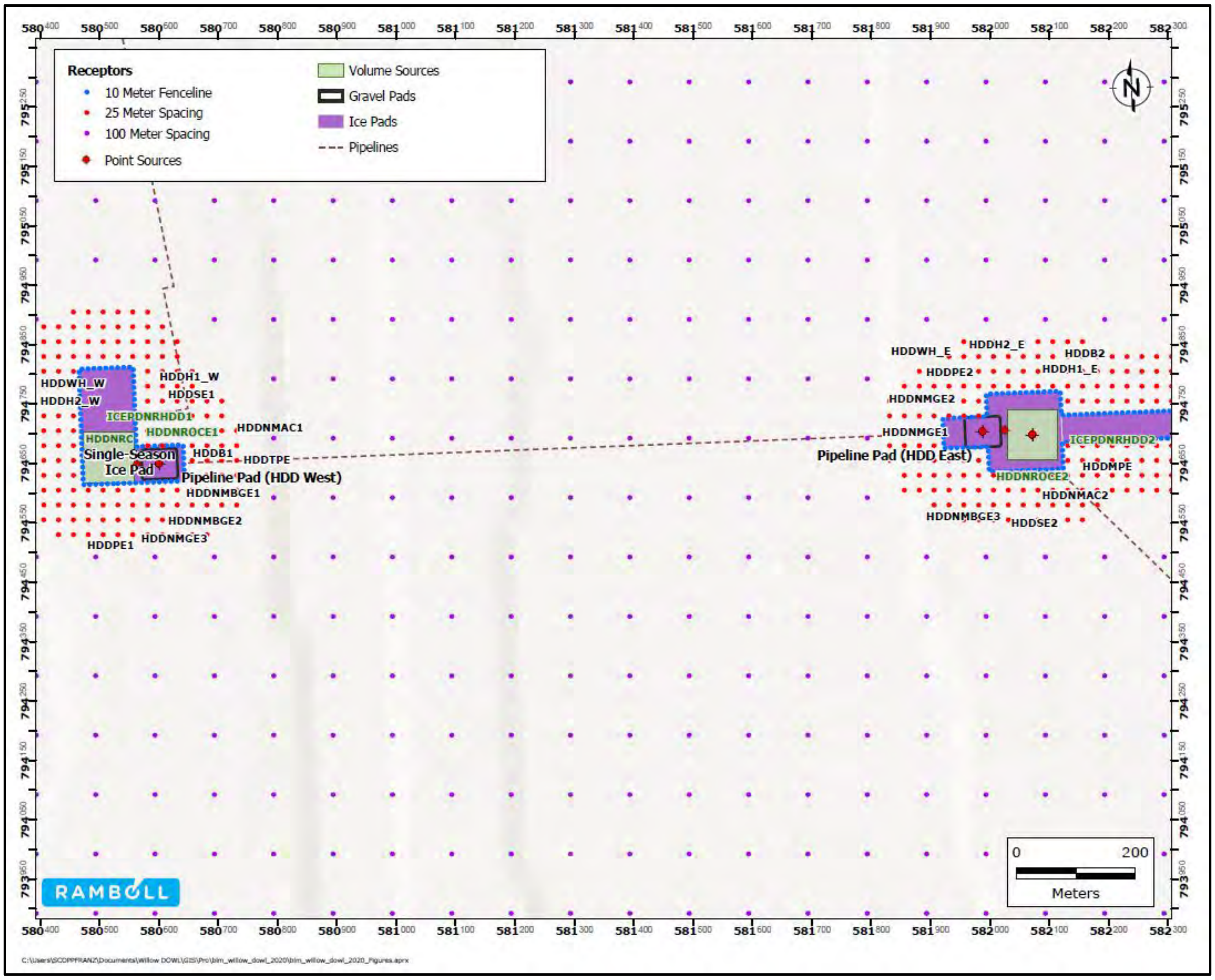

Figure A.1-10. Alternative B Near-field Model Scenario 1 Source Locations at HDD (close-up view).

Table A.1-1. Alternative B Near-field Model Scenario 1 Emissions Source Descriptions and In-stack Ratios.

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
1FACHTR1	POINT	BT1 - Willow Facilities Installation - Construction Heaters	0.05	Diesel or natural gas heaters, or boiler
1FACNMAC	POINT	BT1 - Willow Facilities Installation - Air Compressors	0.1	Diesel engines
1FACNR	VOLUME	BT1 - Willow Facilities Installation - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
1FACNMGS1	POINT	BT1 - Willow Facilities Installation - Generator Sets	0.1	Diesel engines
1FACNMGS2	POINT	BT1 - Willow Facilities Installation - Generator Sets	0.1	Diesel engines
1PIPHTR1	POINT	BT1 - Pipeline Installation - Wellsite to WPF - Construction Heaters	0.05	Diesel or natural gas heaters, or boiler
1PIPNMAC	POINT	BT1 - Pipeline Installation - Wellsite to WPF - Air Compressors	0.1	Diesel engines
1PIPNR	VOLUME	BT1 - Pipeline Installation - Wellsite to WPF - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
1PIPNMBR	POINT	BT1 - Pipeline Installation - Wellsite to WPF - Bore/Drill Rigs	0.2	Diesel tailpipe from non-road equipment
1PIPNMGS1	POINT	BT1 - Pipeline Installation - Wellsite to WPF - Generator Sets	0.1	Diesel engines
1PIPNMGS2	POINT	BT1 - Pipeline Installation - Wellsite to WPF - Generator Sets	0.1	Diesel engines
1PIPNMGS3	POINT	BT1 - Pipeline Installation - Wellsite to WPF - Generator Sets	0.1	Diesel engines
1VSMNR	VOLUME	BT1 - Vertical Support Member (VSM) Construction - Wellsite to WPF - Nonroad Equipment	0.2	Diesel engines
1VSMNMBR	POINT	BT1 - Vertical Support Member (VSM) Construction - Wellsite to WPF - Bore/Drill Rigs	0.2	Diesel tailpipe from non-road equipment
1FUGD	VOLUME	BT1 - Wind Erosion Fugitive Dust - Wind Erosion Fugitive Dust	-	-
2PADHTR1	POINT	BT2 - Pad Construction - Construction Heaters	0.05	Diesel or natural gas heaters, or boiler
2PADSHTR1	POINT	BT2 - Pad Construction - Construction Shop Heaters	0.05	Diesel or natural gas heaters, or boiler
2PADNMGS1	POINT	BT2 - Pad Construction - Generator Sets	0.1	Diesel engines
2FUGD	VOLUME	BT2 - Wind Erosion Fugitive Dust - Wind Erosion Fugitive Dust	-	-
3PADHTR1	POINT	BT3 - Pad Construction - Construction Heaters	0.05	Diesel or natural gas heaters, or boiler
3PADSHTR1	POINT	BT3 - Pad Construction - Construction Shop Heaters	0.05	Diesel or natural gas heaters, or boiler

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
3PADNMGS1	POINT	BT3 - Pad Construction - Generator Sets	0.1	Diesel engines
3FUGD	VOLUME	BT3 - Wind Erosion Fugitive Dust - Wind Erosion Fugitive Dust	-	-
ALPAIR1	AREAPOLY	Aircraft Activity (Alpine Airstrip) - Release Height 50.8m	0.5	USEPA default value
ALPAIR2	AREAPOLY	Aircraft Activity (Alpine Airstrip) - Release Height 152.4m	0.5	USEPA default value
ALPAIR3	AREAPOLY	Aircraft Activity (Alpine Airstrip) - Release Height 254m	0.5	USEPA default value
BDGHTR1	POINT	Bridge Installation - Construction Heater #1	0.05	Diesel or natural gas heaters, or boiler
BDGHTR2	POINT	Bridge Installation - Construction Heater #2	0.05	Diesel or natural gas heaters, or boiler
BDGNMAC1	POINT	Bridge Installation - Air Compressors	0.1	Diesel engines
BDGNMAC2	POINT	Bridge Installation - Air Compressors	0.1	Diesel engines
BDGNR	VOLUME	Bridge Installation - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
BDGNMBR	POINT	Bridge Installation - Bore/Drill Rigs	0.2	Diesel tailpipe from non-road equipment
BDGNMGS1	POINT	Bridge Installation - Generator Sets	0.1	Diesel engines
BDGNMGS2	POINT	Bridge Installation - Generator Sets	0.1	Diesel engines
MINENMAC	POINT	Gravel Mining - Air Compressors	0.1	Diesel engines
MINENMBR	POINT	Gravel Mining - Bore/Drill Rigs	0.2	Diesel tailpipe from non-road equipment
MINENMGS1	POINT	Gravel Mining - Generator Sets	0.1	Diesel engines
MINENMP	POINT	Gravel Mining - Pumps	0.2	Diesel tailpipe from non-road equipment
BLASTANN	VOLUME	Blasting Emissions - Blasting Long Term	0.5	USEPA default value
BLASTHR	VOLUME	Blasting Emissions - Blasting Short Term	0.5	USEPA default value
GRVLHTR1	POINT	Gravel Roads Construction - Construction Heaters	0.05	Diesel or natural gas heaters, or boiler
GRVLSHTR1	POINT	Gravel Roads Construction - Construction Shop Heaters	0.05	Diesel or natural gas heaters, or boiler
GRVLNMGS1	POINT	Gravel Roads Construction - Generator Sets	0.1	Diesel engines
ICERDNMGS1	POINT	Seasonal Ice Road Construction - Generator Sets	0.1	Diesel engines
ICERDNMP	POINT	Seasonal Ice Road Construction - Pumps	0.2	Diesel tailpipe from non-road equipment

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
ICEPDNMGS1	POINT	Single Season Ice Pad Construction - Generator Sets	0.1	Diesel engines
ICEPDNMP	POINT	Single Season Ice Pad Construction - Pumps	0.2	Diesel tailpipe from non-road equipment
1MICEPDNR	VOLUME	Multi-Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
1MICEPDNMGS1	POINT	Multi-Season Ice Pad Construction - Generator Sets	0.1	Diesel engines
1MICEPDNMP	POINT	Multi-Season Ice Pad Construction - Pumps	0.2	Diesel tailpipe from non-road equipment
WOCMICEPDNR	VOLUME	Multi-Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
WMICEPDNMGS1	POINT	Multi-Season Ice Pad Construction - Generator Sets	0.1	Diesel engines
WOCMICEPDNMP	POINT	Multi-Season Ice Pad Construction - Pumps	0.2	Diesel tailpipe from non-road equipment
GMSMICEPDNR	VOLUME	Multi-Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
GMICEPDNMGS1	POINT	Multi-Season Ice Pad Construction - Generator Sets	0.1	Diesel engines
GMSMICEPDNMP	POINT	Multi-Season Ice Pad Construction - Pumps	0.2	Diesel tailpipe from non-road equipment
STCKPL	VOLUME	Stockpile Fugitive Dust - Stockpile	-	-
FBROPHTR	POINT	Fiber Optic Line Installation - Construction Heaters	0.05	Diesel or natural gas heaters, or boiler
FBROPNMGS1	POINT	Fiber Optic Line Installation - Generator Sets	0.1	Diesel engines
FBROPNMGS2	POINT	Fiber Optic Line Installation - Generator Sets	0.1	Diesel engines
PIPHTR	POINT	Pipeline Installation - Construction Heaters	0.05	Diesel or natural gas heaters, or boiler
PIPNMAC	POINT	Pipeline Installation - Air Compressors	0.1	Diesel engines
PIPNMBR	POINT	Pipeline Installation - Bore/Drill Rigs	0.2	Diesel tailpipe from non-road equipment
PIPNMGS1	POINT	Pipeline Installation - Generator Sets	0.1	Diesel engines
PIPNMGS2	POINT	Pipeline Installation - Generator Sets	0.1	Diesel engines
PIPNMGS3	POINT	Pipeline Installation - Generator Sets	0.1	Diesel engines
VSMNMBR	POINT	Vertical Support Member Construction - Bore/Drill Rigs	0.2	Diesel tailpipe from non-road equipment

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
HDDPE1	POINT	Boring Equipment - Primary Power Engine #1	0.2	Diesel tailpipe from non-road equipment
HDDPE2	POINT	Boring Equipment - Primary Power Engine #2	0.2	Diesel tailpipe from non-road equipment
HDDSE1	POINT	Boring Equipment - Secondary Power Engine #1	0.2	Diesel tailpipe from non-road equipment
HDDSE2	POINT	Boring Equipment - Secondary Power Engine #2	0.2	Diesel tailpipe from non-road equipment
HDDMPE	POINT	Boring Equipment - Mud Pump Engine	0.2	Diesel tailpipe from non-road equipment
HDDTPE	POINT	Boring Equipment - Transfer Pump Engine	0.2	Diesel tailpipe from non-road equipment
HDDB1	POINT	Boring Equipment - Boiler #1	0.05	Diesel or natural gas heaters, or boiler
HDDB2	POINT	Boring Equipment - Boiler #2	0.05	Diesel or natural gas heaters, or boiler
HDDH1_W	POINT	Boring Equipment - Heater #1 - West	0.1	Diesel engines
HDDH1_E	POINT	Boring Equipment - Heater #1 - East	0.1	Diesel engines
HDDH2_W	POINT	Boring Equipment - Heater #2 - West	0.1	Diesel engines
HDDH2_E	POINT	Boring Equipment - Heater #2 - East	0.1	Diesel engines
HDDWH_W	POINT	Boring Equipment - Water Heater - West	0.1	Diesel engines
HDDWH_E	POINT	Boring Equipment - Water Heater - East	0.1	Diesel engines
HDDNMGE1	POINT	Non-Mobile Support Equipment - Generator Sets	0.1	Diesel engines
HDDNMGE2	POINT	Non-Mobile Support Equipment - Generator Sets	0.1	Diesel engines
HDDNMGE3	POINT	Non-Mobile Support Equipment - Generator Sets	0.1	Diesel engines
HDDNMBGE1	POINT	Non-Mobile Support Equipment - Backup Generator Sets	0.1	Diesel engines
HDDNMBGE2	POINT	Non-Mobile Support Equipment - Backup Generator Sets	0.1	Diesel engines
HDDNMBGE3	POINT	Non-Mobile Support Equipment - Backup Generator Sets	0.1	Diesel engines
HDDNMAC1	POINT	Non-Mobile Support Equipment - Air Compressors #1	0.1	Diesel engines
HDDNMAC2	POINT	Non-Mobile Support Equipment - Air Compressors #2	0.1	Diesel engines
HDDNROCE1	VOLUME	Non-Mobile Support Equipment - Other Construction Equipment #1	0.2	Diesel tailpipe from non-road equipment

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
HDDNROCE2	VOLUME	Non-Mobile Support Equipment - Other Construction Equipment #2	0.2	Diesel tailpipe from non-road equipment
HDDNRC	VOLUME	Non-Mobile Support Equipment - Cranes	0.2	Diesel tailpipe from non-road equipment
WOCPWRGEN	POINT	Temporary Power Generation - Power Generation	0.1	Diesel engines
WOCTEMPTRB	POINT	Temporary Power Generation - Power Generation Turbine	0.3	Natural gas-fired turbines
WOCFACHTR1	POINT	Facilities Installation-WOC - Heaters	0.05	Diesel or natural gas heaters, or boiler
WOCFACNMAC	POINT	Facilities Installation-WOC - Air Compressors	0.1	Diesel engines
WOCFACNR	VOLUME	Facilities Installation-WOC - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
WOCFACNMGS1	POINT	Facilities Installation-WOC - Generator Sets	0.1	Diesel engines
WOCFACNMGS2	POINT	Facilities Installation-WOC - Generator Sets	0.1	Diesel engines
WOCFUGD	VOLUME	Construction Fugitive Dust-WOC - Wind Erosion Fugitive Dust	-	-
WCFFACHTR1	POINT	Facilities Installation-WPF - Heaters	0.05	Diesel or natural gas heaters, or boiler
WCFFACNMAC	POINT	Facilities Installation-WPF - Air Compressors	0.1	Diesel engines
WCFFACNMGS1	POINT	Facilities Installation-WPF - Generator Sets	0.1	Diesel engines
WCFFACNMGS2	POINT	Facilities Installation-WPF - Generator Sets	0.1	Diesel engines
WCFFUGD	VOLUME	Construction Fugitive Dust-WPF - Wind Erosion Fugitive Dust	-	-
WILLOWAIR1	AREAPOLY	Aircraft Activity (Willow Airstrip) - Release Height 50.8m	0.5	USEPA default value
WILLOWAIR2	AREAPOLY	Aircraft Activity (Willow Airstrip) - Release Height 152.4m	0.5	USEPA default value
WILLOWAIR3	AREAPOLY	Aircraft Activity (Willow Airstrip) - Release Height 254m	0.5	USEPA default value
2TAIL1	VOLUME	Mobile Support Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL2	VOLUME	Mobile Support Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL3	VOLUME	Mobile Support Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL4	VOLUME	Mobile Support Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
3TAIL1	VOLUME	Mobile Support Equipment Tailpipe - BT3	0.15	Diesel tailpipe from on-road vehicles

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
3TAIL2	VOLUME	Mobile Support Equipment Tailpipe - BT3	0.15	Diesel tailpipe from on-road vehicles
3TAIL3	VOLUME	Mobile Support Equipment Tailpipe - BT3	0.15	Diesel tailpipe from on-road vehicles
3TAIL4	VOLUME	Mobile Support Equipment Tailpipe - BT3	0.15	Diesel tailpipe from on-road vehicles
1TAIL1	VOLUME	Mobile Support Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL2	VOLUME	Mobile Support Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL3	VOLUME	Mobile Support Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL4	VOLUME	Mobile Support Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL1	VOLUME	Mobile Support Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL2	VOLUME	Mobile Support Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL3	VOLUME	Mobile Support Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL4	VOLUME	Mobile Support Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL1	VOLUME	Mobile Support Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL2	VOLUME	Mobile Support Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL3	VOLUME	Mobile Support Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL4	VOLUME	Mobile Support Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
MINETAIL1	VOLUME	Mobile Support Equipment Tailpipe - MINE	0.15	Diesel tailpipe from on-road vehicles

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
MINETAIL2	VOLUME	Mobile Support Equipment Tailpipe - MINE	0.15	Diesel tailpipe from on-road vehicles
MINETAIL3	VOLUME	Mobile Support Equipment Tailpipe - MINE	0.15	Diesel tailpipe from on-road vehicles
MINETAIL4	VOLUME	Mobile Support Equipment Tailpipe - MINE	0.15	Diesel tailpipe from on-road vehicles
1MFUGD1	VOLUME	Mobile Support Equipment Fugitive Dust - BT1	-	-
1MFUGD2	VOLUME	Mobile Support Equipment Fugitive Dust - BT1	-	-
1MFUGD3	VOLUME	Mobile Support Equipment Fugitive Dust - BT1	-	-
1MFUGD4	VOLUME	Mobile Support Equipment Fugitive Dust - BT1	-	-
2MFUGD1	VOLUME	Mobile Support Equipment Fugitive Dust - BT2	-	-
2MFUGD2	VOLUME	Mobile Support Equipment Fugitive Dust - BT2	-	-
2MFUGD3	VOLUME	Mobile Support Equipment Fugitive Dust - BT2	-	-
2MFUGD4	VOLUME	Mobile Support Equipment Fugitive Dust - BT2	-	-
3MFUGD1	VOLUME	Mobile Support Equipment Fugitive Dust - BT3	-	-
3MFUGD2	VOLUME	Mobile Support Equipment Fugitive Dust - BT3	-	-
3MFUGD3	VOLUME	Mobile Support Equipment Fugitive Dust - BT3	-	-
3MFUGD4	VOLUME	Mobile Support Equipment Fugitive Dust - BT3	-	-
WCFMFUGD1	VOLUME	Mobile Support Equipment Fugitive Dust - WPF	-	-
WCFMFUGD2	VOLUME	Mobile Support Equipment Fugitive Dust - WPF	-	-
WCFMFUGD3	VOLUME	Mobile Support Equipment Fugitive Dust - WPF	-	-
WCFMFUGD4	VOLUME	Mobile Support Equipment Fugitive Dust - WPF	-	-
WOCMFUGD1	VOLUME	Mobile Support Equipment Fugitive Dust - WOC	-	-
WOCMFUGD2	VOLUME	Mobile Support Equipment Fugitive Dust - WOC	-	-
WOCMFUGD3	VOLUME	Mobile Support Equipment Fugitive Dust - WOC	-	-
WOCMFUGD4	VOLUME	Mobile Support Equipment Fugitive Dust - WOC	-	-
MINEMFUGD1	VOLUME	Mobile Support Equipment Fugitive Dust - MINE	-	-
MINEMFUGD2	VOLUME	Mobile Support Equipment Fugitive Dust - MINE	-	-
MINEMFUGD3	VOLUME	Mobile Support Equipment Fugitive Dust - MINE	-	-
MINEMFUGD4	VOLUME	Mobile Support Equipment Fugitive Dust - MINE	-	-
2GRVLNR1	VOLUME	Gravel Roads Construction - BT2 Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
2GRVLNR2	VOLUME	Gravel Roads Construction - BT2 Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
2GRVLNR3	VOLUME	Gravel Roads Construction - BT2 Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
2GRVLNR4	VOLUME	Gravel Roads Construction - BT2 Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
3GRVLNR1	VOLUME	Gravel Roads Construction - BT3 Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
3GRVLNR2	VOLUME	Gravel Roads Construction - BT3 Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
3GRVLNR3	VOLUME	Gravel Roads Construction - BT3 Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
3GRVLNR4	VOLUME	Gravel Roads Construction - BT3 Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRHCE	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS1	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS2	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS3	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS4	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS5	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS6	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS7	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS8	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
ICEPDNROS9	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS10	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS11	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS12	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS13	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS14	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS15	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS16	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS17	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS18	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS19	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS20	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS21	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS22	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS23	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS24	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
ICEPDNROS25	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS26	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS27	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS28	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS29	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS30	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS31	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS32	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS33	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS34	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS35	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS36	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS37	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS38	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS39	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS40	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
ICEPDNROS41	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS42	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS43	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS44	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	1.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS1	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS2	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS3	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS4	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS5	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS6	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS7	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS8	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS9	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS10	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS11	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS12	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
ICEPDNRIOS13	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS14	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS15	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS16	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS17	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS18	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS19	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS20	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS21	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS22	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS23	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS24	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS25	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS26	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS27	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS28	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
ICEPDNRIOS29	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS30	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS31	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS32	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS33	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS34	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS35	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS36	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS37	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS38	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS39	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS40	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS41	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS42	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS43	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS44	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
ICEPDNRPIP1	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP2	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP3	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP4	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP5	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP6	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP7	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP8	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP9	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP10	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP11	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP12	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP13	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP14	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP15	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP16	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
ICEPDNRPIP17	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP18	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP19	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP20	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP21	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP22	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP23	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP24	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP25	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP26	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP27	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP28	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP29	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP30	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP31	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP32	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
ICEPDNRPIP33	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP34	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP35	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP36	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP37	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP38	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP39	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP40	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP41	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP42	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP43	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP44	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRHDD1	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRHDD2	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICERDNR1	VOLUME	Seasonal Ice Road Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICERDNR2	VOLUME	Seasonal Ice Road Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
ICERDNR3	VOLUME	Seasonal Ice Road Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICERDNR4	VOLUME	Seasonal Ice Road Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
PIPNR1	VOLUME	Pipeline Installation - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
PIPNR2	VOLUME	Pipeline Installation - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
PIPNR3	VOLUME	Pipeline Installation - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
PIPNR4	VOLUME	Pipeline Installation - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
VSMNR1	VOLUME	Vertical Support Member Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
VSMNR2	VOLUME	Vertical Support Member Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
VSMNR3	VOLUME	Vertical Support Member Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
VSMNR4	VOLUME	Vertical Support Member Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
FBROPNR1	VOLUME	Fiber Optic Line Installation - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
FBROPNR2	VOLUME	Fiber Optic Line Installation - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
FBROPNR3	VOLUME	Fiber Optic Line Installation - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
FBROPNR4	VOLUME	Fiber Optic Line Installation - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
2PADNR1	VOLUME	BT2 - Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
2PADNR2	VOLUME	BT2 - Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
2PADNR3	VOLUME	BT2 - Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
2PADNR4	VOLUME	BT2 - Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
3PADNR1	VOLUME	BT3 - Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
3PADNR2	VOLUME	BT3 - Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
3PADNR3	VOLUME	BT3 - Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
3PADNR4	VOLUME	BT3 - Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
MINENR1	VOLUME	Gravel Mining - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
MINENR2	VOLUME	Gravel Mining - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
MINENR3	VOLUME	Gravel Mining - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
MINENR4	VOLUME	Gravel Mining - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
MINENR5	VOLUME	Gravel Mining - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
MINENR6	VOLUME	Gravel Mining - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
MINENR7	VOLUME	Gravel Mining - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
MINENR8	VOLUME	Gravel Mining - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
MINENR9	VOLUME	Gravel Mining - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
2PADOHT1	VOLUME	BT2 - Pad Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
2PADOHT2	VOLUME	BT2 - Pad Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
2PADOHT3	VOLUME	BT2 - Pad Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
2PADOHT4	VOLUME	BT2 - Pad Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
3PADOHT1	VOLUME	BT3 - Pad Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
3PADOHT2	VOLUME	BT3 - Pad Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
3PADOHT3	VOLUME	BT3 - Pad Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
3PADOHT4	VOLUME	BT3 - Pad Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
2GRVLOHT1	VOLUME	Gravel Roads Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
2GRVLOHT2	VOLUME	Gravel Roads Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
2GRVLOHT3	VOLUME	Gravel Roads Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
2GRVLOHT4	VOLUME	Gravel Roads Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
3GRVLOHT1	VOLUME	Gravel Roads Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
3GRVLOHT2	VOLUME	Gravel Roads Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
3GRVLOHT3	VOLUME	Gravel Roads Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
3GRVLOHT4	VOLUME	Gravel Roads Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
MINEOHT1	VOLUME	Gravel Mining - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
MINEOHT2	VOLUME	Gravel Mining - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
MINEOHT3	VOLUME	Gravel Mining - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
MINEOHT4	VOLUME	Gravel Mining - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
MINEOHT5	VOLUME	Gravel Mining - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
MINEOHT6	VOLUME	Gravel Mining - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
MINEOHT7	VOLUME	Gravel Mining - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
MINEOHT8	VOLUME	Gravel Mining - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
MINEOHT9	VOLUME	Gravel Mining - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
WCFFACNR1	VOLUME	Facilities Installation-WPF - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
WCFFACNR2	VOLUME	Facilities Installation-WPF - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
WCFFACNR3	VOLUME	Facilities Installation-WPF - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
WCFFACNR4	VOLUME	Facilities Installation-WPF - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
WLW2GEN	POINT	Stationary Combustion Sources - WPF - WPF Internal Combustion Equipment Non-Road Engines >140 HP	0.1	Diesel engines

Table A.1-2. Alternative B Near-field Model Scenario 1 Emissions Stack Parameters

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
1FACHTR1	POINT	2.7432	12.2	0.94	5.7	529	-	-	-	-	-
1FACNMAC	POINT	2.7432	13.3	0.4	10.5	614	-	-	-	-	-
1FACNR	VOLUME	2.7432	3.66	-	-	-	26.74419	3.38	-	-	-
1FACNMGS1	POINT	2.7432	6.1	0.46	15.1	795	-	-	-	-	-
1FACNMGS2	POINT	2.7432	6.5	0.2	47	761	-	-	-	-	-
1PIPHTR1	POINT	2.1336	12.2	0.94	5.7	529	-	-	-	-	-
1PIPNMAC	POINT	2.1336	13.3	0.4	10.5	614	-	-	-	-	-
1PIPNR	VOLUME	2.7432	3.66	-	-	-	26.74419	3.38	-	-	-
1PIPNMBR	POINT	2.1336	13.3	0.4	10.5	614	-	-	-	-	-
1PIPNMGS1	POINT	2.1336	6.1	0.46	15.1	795	-	-	-	-	-
1PIPNMGS2	POINT	2.1336	6.5	0.2	47	761	-	-	-	-	-
1PIPNMGS3	POINT	2.1336	6.5	0.2	47	761	-	-	-	-	-
1VSMNR	VOLUME	2.7432	3.66	-	-	-	26.74419	3.38	-	-	-
1VSMNMBR	POINT	2.7432	13.3	0.4	10.5	614	-	-	-	-	-
1FUGD	VOLUME	2.7432	3.66	-	-	-	26.74419	3.38	-	-	-
2PADHTR1	POINT	2.7432	12.2	0.94	5.7	529	-	-	-	-	-
2PADSHTR1	POINT	2.7432	12.2	0.94	5.7	529	-	-	-	-	-
2PADNMGS1	POINT	2.7432	6.5	0.2	47	761	-	-	-	-	-
2FUGD	VOLUME	2.7432	3.66	-	-	-	26.74419	3.38	-	-	-
3PADHTR1	POINT	2.7432	12.2	0.94	5.7	529	-	-	-	-	-
3PADSHTR1	POINT	2.7432	12.2	0.94	5.7	529	-	-	-	-	-
3PADNMGS1	POINT	2.7432	6.5	0.2	47	761	-	-	-	-	-
3FUGD	VOLUME	3.6576	3.66	-	-	-	26.74419	3.38	-	-	-
ALPAIR1	AREAPOLY	3.6576	50.8	-	-	-	-	23.63	-	-	-
ALPAIR2	AREAPOLY	3.6576	152.4	-	-	-	-	23.63	-	-	-
ALPAIR3	AREAPOLY	3.6576	254	-	-	-	-	23.63	-	-	-
BDGHTR1	POINT	2.1336	12.2	0.94	5.7	529	-	-	-	-	-
BDGHTR2	POINT	2.1336	12.2	0.94	5.7	529	-	-	-	-	-
BDGNMAC1	POINT	2.1336	13.3	0.4	10.5	614	-	-	-	-	-
BDGNMAC2	POINT	2.1336	13.3	0.4	10.5	614	-	-	-	-	-
BDGNR	VOLUME	2.1336	3.66	-	-	-	11.62791	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
BDGNMBR	POINT	2.1336	13.3	0.4	10.5	614	-	-	-	-	-
BDGNMGS1	POINT	2.1336	6.1	0.46	15.1	795	-	-	-	-	-
BDGNMGS2	POINT	2.1336	6.5	0.2	47	761	-	-	-	-	-
MINENMAC	POINT	0	13.3	0.4	10.5	614	-	-	-	-	-
MINENMBR	POINT	0	13.3	0.4	10.5	614	-	-	-	-	-
MINENMGS1	POINT	0	6.5	0.2	47	761	-	-	-	-	-
MINENMP	POINT	0	13.3	0.4	10.5	614	-	-	-	-	-
BLASTANN	VOLUME	0	50	-	-	-	11.62791	11.63	-	-	-
BLASTHR	VOLUME	0	50	-	-	-	11.62791	11.63	-	-	-
GRVLHTR1	POINT	2.1336	12.2	0.94	5.7	529	-	-	-	-	-
GRVLSHTR1	POINT	2.1336	12.2	0.94	5.7	529	-	-	-	-	-
GRVLNMGS1	POINT	2.1336	6.5	0.2	47	761	-	-	-	-	-
ICERDNMGS1	POINT	1.5	6.5	0.2	47	761	-	-	-	-	-
ICERDNMP	POINT	1.5	13.3	0.4	10.5	614	-	-	-	-	-
ICEPDNMGS1	POINT	1.5	6.5	0.2	47	761	-	-	-	-	-
ICEPDNMP	POINT	1.5	13.3	0.4	10.5	614	-	-	-	-	-
1MICEPDNR	VOLUME	3.048	3.66	-	-	-	32.55814	3.38	-	-	-
1MICEPDNMGS1	POINT	3.048	6.5	0.2	47	761	-	-	-	-	-
1MICEPDNMP	POINT	3.048	13.3	0.4	10.5	614	-	-	-	-	-
WOCMICEPDNR	VOLUME	3.048	3.66	-	-	-	32.55814	3.38	-	-	-
WMICEPDNMGS1	POINT	3.048	6.5	0.2	47	761	-	-	-	-	-
WOCMICEPDNMP	POINT	3.048	13.3	0.4	10.5	614	-	-	-	-	-
GMSMICEPDNR	VOLUME	3.048	3.66	-	-	-	37.2093	3.38	-	-	-
GMICEPDNMGS1	POINT	3.048	6.5	0.2	47	761	-	-	-	-	-
GMSMICEPDNMP	POINT	3.048	13.3	0.4	10.5	614	-	-	-	-	-
STCKPL	VOLUME	1.52	3.66	-	-	-	46.51163	3.38	-	-	-
FBROPHTR	POINT	2.1336	12.2	0.94	5.7	529	-	-	-	-	-
FBROPNMGS1	POINT	2.1336	6.1	0.46	15.1	795	-	-	-	-	-
FBROPNMGS2	POINT	2.1336	6.5	0.2	47	761	-	-	-	-	-
PIPHTR	POINT	2.1336	12.2	0.94	5.7	529	-	-	-	-	-
PIPNMAC	POINT	2.1336	13.3	0.4	10.5	614	-	-	-	-	-
PIPNMBR	POINT	2.1336	13.3	0.4	10.5	614	-	-	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
PIPNMGS1	POINT	2.1336	6.1	0.46	15.1	795	-	-	-	-	-
PIPNMGS2	POINT	2.1336	6.5	0.2	47	761	-	-	-	-	-
PIPNMGS3	POINT	2.1336	6.5	0.2	47	761	-	-	-	-	-
VSMNMBR	POINT	2.1336	13.3	0.4	10.5	614	-	-	-	-	-
HDDPE1	POINT	1.5	13.3	0.4	10.5	614	-	-	-	-	-
HDDPE2	POINT	1.5	13.3	0.4	10.5	614	-	-	-	-	-
HDDSE1	POINT	1.5	13.3	0.4	10.5	614	-	-	-	-	-
HDDSE2	POINT	1.5	13.3	0.4	10.5	614	-	-	-	-	-
HDDMPE	POINT	1.5	10.4	0.13	43.5	750	-	-	-	-	-
HDDTPE	POINT	1.5	10.4	0.13	43.5	750	-	-	-	-	-
HDDB1	POINT	1.5	11.9	0.279	11.7	450	-	-	-	-	-
HDDB2	POINT	1.5	11.9	0.279	11.7	450	-	-	-	-	-
HDDH1_W	POINT	1.5	10.5	0.3	3.2	533	-	-	-	-	-
HDDH1_E	POINT	1.5	10.5	0.3	3.2	533	-	-	-	-	-
HDDH2_W	POINT	1.5	10.5	0.3	3.2	533	-	-	-	-	-
HDDH2_E	POINT	1.5	10.5	0.3	3.2	533	-	-	-	-	-
HDDWH_W	POINT	1.5	10.5	0.3	3.2	533	-	-	-	-	-
HDDWH_E	POINT	1.5	10.5	0.3	3.2	533	-	-	-	-	-
HDDNMGE1	POINT	1.5	6.1	0.46	15.1	795	-	-	-	-	-
HDDNMGE2	POINT	1.5	6.1	0.46	15.1	795	-	-	-	-	-
HDDNMGE3	POINT	1.5	6.1	0.46	15.1	795	-	-	-	-	-
HDDNMBGE1	POINT	1.5	6.1	0.46	15.1	795	-	-	-	-	-
HDDNMBGE2	POINT	1.5	6.1	0.46	15.1	795	-	-	-	-	-
HDDNMBGE3	POINT	1.5	6.1	0.46	15.1	795	-	-	-	-	-
HDDNMAC1	POINT	1.5	13.3	0.4	10.5	614	-	-	-	-	-
HDDNMAC2	POINT	1.5	13.3	0.4	10.5	614	-	-	-	-	-
HDDNROCE1	VOLUME	1.5	0	-	-	-	19.76744	8.7	-	-	-
HDDNROCE2	VOLUME	1.5	0	-	-	-	19.76744	8.7	-	-	-
HDDNRC	VOLUME	1.5	0	-	-	-	19.76744	8.7	-	-	-
WOCPWRGEN	POINT	3.048	8.6	0.3	20	760	-	-	-	-	-
WOCTEMPTRB	POINT	3.048	25	2	30	550	-	-	-	-	-
WOCFACHTR1	POINT	3.048	12.2	0.94	5.7	529	-	-	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
WOCFACNMAC	POINT	3.048	13.3	0.4	10.5	614	-	-	-	-	-
WOCFACNR	VOLUME	3.048	3.66	-	-	-	40.69767	3.38	-	-	-
WOCFACNMGS1	POINT	3.048	6.1	0.46	15.1	795	-	-	-	-	-
WOCFACNMGS2	POINT	3.048	6.5	0.2	47	761	-	-	-	-	-
WOCFUGD	VOLUME	3.048	3.66	-	-	-	40.69767	3.38	-	-	-
WCFFACHTR1	POINT	3.6576	12.2	0.94	5.7	529	-	-	-	-	-
WCFFACNMAC	POINT	3.6576	13.3	0.4	10.5	614	-	-	-	-	-
WCFFACNMGS1	POINT	3.6576	6.1	0.46	15.1	795	-	-	-	-	-
WCFFACNMGS2	POINT	3.6576	6.5	0.2	47	761	-	-	-	-	-
WCFFUGD	VOLUME	3.6576	3.66	-	-	-	37.2093	3.38	-	-	-
WILLOWAIR1	AREAPOLY	3.6576	50.8	-	-	-	-	23.63	-	-	-
WILLOWAIR2	AREAPOLY	3.6576	152.4	-	-	-	-	23.63	-	-	-
WILLOWAIR3	AREAPOLY	3.6576	254	-	-	-	-	23.63	-	-	-
2TAIL1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2TAIL2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2TAIL3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2TAIL4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
3TAIL1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
3TAIL2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
3TAIL3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
3TAIL4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
1TAIL1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
1TAIL2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
1TAIL3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
1TAIL4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
WOCTAIL1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
WOCTAIL2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
WOCTAIL3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
WOCTAIL4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
WCFTAIL1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
WCFTAIL2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
WCFTAIL3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
WCFTAIL4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
MINETAIL1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
MINETAIL2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
MINETAIL3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
MINETAIL4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
1MFUGD1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
1MFUGD2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
1MFUGD3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
1MFUGD4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2MFUGD1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2MFUGD2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2MFUGD3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2MFUGD4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
3MFUGD1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
3MFUGD2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
3MFUGD3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
3MFUGD4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
WCFMFUGD1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
WCFMFUGD2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
WCFMFUGD3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
WCFMFUGD4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
WOCMFUGD1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
WOCMFUGD2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
WOCMFUGD3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
WOCMFUGD4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
MINEMFUGD1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
MINEMFUGD2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
MINEMFUGD3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
MINEMFUGD4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2GRVLNR1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2GRVLNR2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2GRVLNR3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
2GRVLNR4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
3GRVLNR1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
3GRVLNR2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
3GRVLNR3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
3GRVLNR4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
ICEPDNRHCE	VOLUME	2.1336	3.66	-	-	-	37.21	3.38	-	-	-
ICEPDNROS1	VOLUME	2.1336	3.66	-	-	-	37.21	3.38	-	-	-
ICEPDNROS2	VOLUME	2.1336	3.66	-	-	-	25.58	3.38	-	-	-
ICEPDNROS3	VOLUME	2.1336	3.66	-	-	-	32.56	3.38	-	-	-
ICEPDNROS4	VOLUME	2.1336	3.66	-	-	-	32.56	3.38	-	-	-
ICEPDNROS5	VOLUME	2.1336	3.66	-	-	-	32.56	3.38	-	-	-
ICEPDNROS6	VOLUME	2.1336	3.66	-	-	-	32.56	3.38	-	-	-
ICEPDNROS7	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS8	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS9	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS10	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS11	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS12	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS13	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS14	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS15	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS16	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS17	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS18	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS19	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS20	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS21	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS22	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS23	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS24	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS25	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS26	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
ICEPDNROS27	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS28	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS29	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS30	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS31	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS32	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS33	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS34	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS35	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS36	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS37	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS38	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS39	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS40	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS41	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS42	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS43	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS44	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS1	VOLUME	2.1336	3.66	-	-	-	37.21	3.38	-	-	-
ICEPDNRIOS2	VOLUME	2.1336	3.66	-	-	-	25.58	3.38	-	-	-
ICEPDNRIOS3	VOLUME	2.1336	3.66	-	-	-	32.56	3.38	-	-	-
ICEPDNRIOS4	VOLUME	2.1336	3.66	-	-	-	32.56	3.38	-	-	-
ICEPDNRIOS5	VOLUME	2.1336	3.66	-	-	-	32.56	3.38	-	-	-
ICEPDNRIOS6	VOLUME	2.1336	3.66	-	-	-	32.56	3.38	-	-	-
ICEPDNRIOS7	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS8	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS9	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS10	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS11	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS12	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS13	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS14	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
ICEPDNRIOS15	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS16	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS17	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS18	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS19	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS20	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS21	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS22	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS23	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS24	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS25	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS26	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS27	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS28	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS29	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS30	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS31	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS32	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS33	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS34	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS35	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS36	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS37	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS38	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS39	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS40	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS41	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS42	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS43	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS44	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP1	VOLUME	2.1336	3.66	-	-	-	37.21	3.38	-	-	-
ICEPDNRPIP2	VOLUME	2.1336	3.66	-	-	-	25.58	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
ICEPDNRPIP3	VOLUME	2.1336	3.66	-	-	-	32.56	3.38	-	-	-
ICEPDNRPIP4	VOLUME	2.1336	3.66	-	-	-	32.56	3.38	-	-	-
ICEPDNRPIP5	VOLUME	2.1336	3.66	-	-	-	32.56	3.38	-	-	-
ICEPDNRPIP6	VOLUME	2.1336	3.66	-	-	-	32.56	3.38	-	-	-
ICEPDNRPIP7	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP8	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP9	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP10	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP11	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP12	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP13	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP14	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP15	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP16	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP17	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP18	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP19	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP20	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP21	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP22	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP23	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP24	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP25	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP26	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP27	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP28	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP29	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP30	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP31	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP32	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP33	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP34	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
ICEPDNRPIP35	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP36	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP37	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP38	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP39	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP40	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP41	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP42	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP43	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP44	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRHDD1	VOLUME	2.1336	3.66	-	-	-	19.76744	3.38	-	-	-
ICEPDNRHDD2	VOLUME	2.1336	3.66	-	-	-	19.76744	3.38	-	-	-
ICERDNR1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
ICERDNR2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
ICERDNR3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
ICERDNR4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
PIPNR1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
PIPNR2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
PIPNR3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
PIPNR4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
VSMNR1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
VSMNR2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
VSMNR3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
VSMNR4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
FBROPNR1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
FBROPNR2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
FBROPNR3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
FBROPNR4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2PADNR1	VOLUME	2.7432	3.66	-	-	-	18.60465	3.38	-	-	-
2PADNR2	VOLUME	2.7432	3.66	-	-	-	18.60465	3.38	-	-	-
2PADNR3	VOLUME	2.7432	3.66	-	-	-	18.60465	3.38	-	-	-
2PADNR4	VOLUME	2.7432	3.66	-	-	-	18.60465	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
3PADNR1	VOLUME	2.7432	3.66	-	-	-	18.60465	3.38	-	-	-
3PADNR2	VOLUME	2.7432	3.66	-	-	-	18.60465	3.38	-	-	-
3PADNR3	VOLUME	2.7432	3.66	-	-	-	18.60465	3.38	-	-	-
3PADNR4	VOLUME	2.7432	3.66	-	-	-	18.60465	3.38	-	-	-
MINENR1	VOLUME	0	3.66	-	-	-	32.56	3.38	-	-	-
MINENR2	VOLUME	0	3.66	-	-	-	32.56	3.38	-	-	-
MINENR3	VOLUME	0	3.66	-	-	-	32.56	3.38	-	-	-
MINENR4	VOLUME	0	3.66	-	-	-	32.56	3.38	-	-	-
MINENR5	VOLUME	0	3.66	-	-	-	32.56	3.38	-	-	-
MINENR6	VOLUME	0	3.66	-	-	-	32.56	3.38	-	-	-
MINENR7	VOLUME	0	3.66	-	-	-	32.56	3.38	-	-	-
MINENR8	VOLUME	0	3.66	-	-	-	32.56	3.38	-	-	-
MINENR9	VOLUME	0	3.66	-	-	-	32.56	3.38	-	-	-
2PADOHT1	VOLUME	2.7432	3.66	-	-	-	18.60465	3.38	-	-	-
2PADOHT2	VOLUME	2.7432	3.66	-	-	-	18.60465	3.38	-	-	-
2PADOHT3	VOLUME	2.7432	3.66	-	-	-	18.60465	3.38	-	-	-
2PADOHT4	VOLUME	2.7432	3.66	-	-	-	18.60465	3.38	-	-	-
3PADOHT1	VOLUME	2.7432	3.66	-	-	-	18.60465	3.38	-	-	-
3PADOHT2	VOLUME	2.7432	3.66	-	-	-	18.60465	3.38	-	-	-
3PADOHT3	VOLUME	2.7432	3.66	-	-	-	18.60465	3.38	-	-	-
3PADOHT4	VOLUME	2.7432	3.66	-	-	-	18.60465	3.38	-	-	-
2GRVLOHT1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2GRVLOHT2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2GRVLOHT3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2GRVLOHT4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
3GRVLOHT1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
3GRVLOHT2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
3GRVLOHT3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
3GRVLOHT4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
MINEOHT1	VOLUME	0	3.66	-	-	-	32.56	3.38	-	-	-
MINEOHT2	VOLUME	0	3.66	-	-	-	32.56	3.38	-	-	-
MINEOHT3	VOLUME	0	3.66	-	-	-	32.56	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
MINEOHT4	VOLUME	0	3.66	-	-	-	32.56	3.38	-	-	-
MINEOHT5	VOLUME	0	3.66	-	-	-	32.56	3.38	-	-	-
MINEOHT6	VOLUME	0	3.66	-	-	-	32.56	3.38	-	-	-
MINEOHT7	VOLUME	0	3.66	-	-	-	32.56	3.38	-	-	-
MINEOHT8	VOLUME	0	3.66	-	-	-	32.56	3.38	-	-	-
MINEOHT9	VOLUME	0	3.66	-	-	-	32.56	3.38	-	-	-
WCFFACNR1	VOLUME	3.6576	3.66	-	-	-	23.25581	3.38	-	-	-
WCFFACNR2	VOLUME	3.6576	3.66	-	-	-	23.25581	3.38	-	-	-
WCFFACNR3	VOLUME	3.6576	3.66	-	-	-	23.25581	3.38	-	-	-
WCFFACNR4	VOLUME	3.6576	3.66	-	-	-	23.25581	3.38	-	-	-
WLW2GEN	POINT	3.66	10.4	0.13	43.5	750	-	-	-	-	-

Table A.1-3. Alternative B Near-field Model Scenario 1 Emissions Rates

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
1FACHTR1	2.65E-02	1.06E-01	2.75E-02	1.26E-02	1.13E-02	2.93E-03	1.13E-03	1.13E-03	2.93E-04	378.56
1FACNMAC	1.17E-02	1.78E-02	1.15E-03	1.53E-03	1.48E-03	9.62E-05	4.42E-05	4.42E-05	2.87E-06	94.64
1FACNR	5.85E-02	8.92E-02	4.91E-02	8.08E-03	7.83E-03	4.54E-03	1.43E-04	1.43E-04	7.69E-05	VARIES
1FACNMGS1	1.60E-02	5.78E-02	1.50E-02	3.46E-03	3.35E-03	8.69E-04	6.82E-05	6.82E-05	1.77E-05	378.56
1FACNMGS2	2.59E-02	4.89E-02	1.27E-02	3.84E-03	3.73E-03	9.67E-04	4.18E-05	4.18E-05	1.08E-05	378.56
1PIPHTR1	3.51E-03	1.40E-02	5.65E-03	1.67E-03	1.49E-03	6.02E-04	1.49E-04	1.49E-04	6.02E-05	882
1PIPNMAC	1.19E-02	3.77E-02	1.14E-02	1.76E-03	1.70E-03	5.15E-04	6.37E-05	6.37E-05	1.93E-05	661.5
1PIPNR	8.10E-03	2.90E-02	2.10E-02	1.24E-03	1.20E-03	8.69E-04	9.20E-05	9.20E-05	6.57E-05	VARIES
1PIPNMBR	6.35E-03	2.57E-02	7.77E-03	1.36E-03	1.32E-03	3.97E-04	3.18E-05	3.18E-05	9.60E-06	661.5
1PIPNMGS1	5.08E-03	1.24E-02	4.99E-03	7.82E-04	7.59E-04	3.06E-04	1.06E-05	1.06E-05	4.29E-06	882
1PIPNMGS2	2.75E-03	2.84E-03	1.14E-03	2.56E-04	2.49E-04	1.00E-04	2.44E-06	2.44E-06	9.84E-07	882
1PIPNMGS3	5.14E-03	9.69E-03	3.90E-03	7.62E-04	7.39E-04	2.98E-04	8.29E-06	8.29E-06	3.34E-06	882
1VSMNR	6.81E-03	1.81E-02	1.69E-02	9.64E-04	9.35E-04	9.24E-04	3.53E-05	3.53E-05	3.13E-05	VARIES
1VSMNMBR	7.12E-03	2.99E-02	9.46E-03	1.48E-03	1.44E-03	4.55E-04	3.74E-05	3.74E-05	1.18E-05	693
1FUGD	0.00E+00	0.00E+00	0.00E+00	2.88E-02	4.32E-03	4.32E-03	0.00E+00	0.00E+00	0.00E+00	4380
2PADHTR1	1.35E-02	5.41E-02	4.98E-02	6.44E-03	5.76E-03	5.31E-03	5.76E-04	5.76E-04	5.31E-04	4704

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
2PADSHTR1	4.67E-03	1.87E-02	1.72E-02	2.22E-03	1.99E-03	1.83E-03	1.99E-04	1.99E-04	1.83E-04	4704
2PADNMGS1	1.32E-02	2.49E-02	2.29E-02	1.96E-03	1.90E-03	1.75E-03	2.13E-05	2.13E-05	1.96E-05	4704
2FUGD	0.00E+00	0.00E+00	0.00E+00	2.88E-02	4.32E-03	4.32E-03	0.00E+00	0.00E+00	0.00E+00	4380
3PADHTR1	1.35E-02	5.41E-02	4.98E-02	6.44E-03	5.76E-03	5.31E-03	5.76E-04	5.76E-04	5.31E-04	4704
3PADSHTR1	4.67E-03	1.87E-02	1.72E-02	2.22E-03	1.99E-03	1.83E-03	1.99E-04	1.99E-04	1.83E-04	4704
3PADNMGS1	1.32E-02	2.49E-02	2.29E-02	1.96E-03	1.90E-03	1.75E-03	2.13E-05	2.13E-05	1.96E-05	4704
3FUGD	0.00E+00	0.00E+00	0.00E+00	2.88E-02	4.32E-03	4.32E-03	0.00E+00	0.00E+00	0.00E+00	4380
ALPAIR1	5.89E-09	5.93E-09	5.93E-09	1.67E-10	1.67E-10	1.67E-10	7.72E-10	7.72E-10	7.72E-10	8760
ALPAIR2	5.89E-09	5.93E-09	5.93E-09	1.67E-10	1.67E-10	1.67E-10	7.72E-10	7.72E-10	7.72E-10	8760
ALPAIR3	5.89E-09	5.93E-09	5.93E-09	1.67E-10	1.67E-10	1.67E-10	7.72E-10	7.72E-10	7.72E-10	8760
BDGHTR1	1.17E-03	4.67E-03	1.51E-03	5.55E-04	4.97E-04	1.61E-04	4.97E-05	4.97E-05	1.61E-05	708.75
BDGHTR2	3.50E-03	1.40E-02	4.53E-03	1.67E-03	1.49E-03	4.83E-04	1.49E-04	1.49E-04	4.83E-05	708.75
BDGNMAC1	8.97E-04	1.37E-03	2.95E-04	1.18E-04	1.14E-04	2.46E-05	3.40E-06	3.40E-06	7.34E-07	472.5
BDGNMAC2	1.79E-03	2.73E-03	5.90E-04	2.35E-04	2.28E-04	4.93E-05	6.80E-06	6.80E-06	1.47E-06	472.5
BDGNR	9.62E-03	3.13E-02	7.52E-03	1.42E-03	1.38E-03	3.16E-04	7.52E-05	7.52E-05	1.66E-05	472.5
BDGNMBR	1.46E-03	6.15E-03	1.33E-03	3.05E-04	2.95E-04	6.37E-05	7.69E-06	7.69E-06	1.66E-06	472.5
BDGNMGS1	4.23E-03	1.03E-02	4.45E-03	6.50E-04	6.31E-04	2.72E-04	8.85E-06	8.85E-06	3.82E-06	945
BDGNMGS2	3.42E-03	6.44E-03	2.78E-03	5.07E-04	4.92E-04	2.12E-04	5.51E-06	5.51E-06	2.38E-06	945
MINENMAC	3.11E-03	4.32E-02	3.98E-02	4.43E-04	4.30E-04	3.96E-04	4.05E-05	4.05E-05	3.73E-05	2688
MINENMBR	6.88E-02	2.45E-01	2.25E-01	1.03E-02	1.00E-02	9.22E-03	2.85E-04	2.85E-04	2.63E-04	2688
MINENMGS1	2.51E-02	4.74E-02	4.36E-02	3.73E-03	3.62E-03	3.33E-03	4.05E-05	4.05E-05	3.73E-05	2688
MINENMP	1.35E-02	6.76E-02	6.23E-03	2.35E-03	2.28E-03	2.10E-04	6.01E-05	6.01E-05	5.54E-06	268.8
BLASTANN	0.00E+00	0.00E+00	1.26E+00	0.00E+00	0.00E+00	7.38E-03	0.00E+00	0.00E+00	0.00E+00	680
BLASTHR	8.79E+00	2.23E+00	0.00E+00	2.26E-01	1.30E-02	0.00E+00	2.62E-01	2.62E-01	1.49E-01	680
GRVLHTR1	1.02E-02	4.10E-02	3.77E-02	4.87E-03	4.36E-03	4.02E-03	4.36E-04	4.36E-04	4.02E-04	2688
GRVLSHTR1	3.53E-03	1.41E-02	1.30E-02	1.68E-03	1.51E-03	1.39E-03	1.51E-04	1.51E-04	1.39E-04	2688
GRVLNMGS1	1.00E-02	1.88E-02	1.74E-02	1.48E-03	1.44E-03	1.32E-03	1.61E-05	1.61E-05	1.48E-05	2688
ICERDNMGS1	3.43E-01	2.11E-01	2.39E-02	5.09E-02	4.93E-02	5.57E-03	5.53E-04	5.53E-04	6.25E-05	464.7698
ICERDNMP	8.54E-01	1.05E+00	1.18E-01	1.29E-01	1.25E-01	1.41E-02	3.71E-03	3.71E-03	4.19E-04	464.7698
ICEPDNMGS1	5.18E-02	6.91E-02	3.37E-02	7.69E-03	7.46E-03	3.64E-03	8.36E-05	8.36E-05	4.08E-05	1858.032
ICEPDNMP	1.29E-01	3.43E-01	1.67E-01	1.95E-02	1.89E-02	9.22E-03	5.62E-04	5.62E-04	2.74E-04	1858.032
1MICEPDNR	9.68E-04	7.04E-02	6.48E-02	1.26E-04	1.22E-04	1.13E-04	4.41E-06	4.41E-06	3.45E-06	92.4
1MICEPDNMGS1	1.92E-03	6.91E-02	1.25E-03	2.85E-04	2.76E-04	5.00E-06	3.10E-06	3.10E-06	5.60E-08	92.4

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
1MICEPDNMP	4.78E-03	3.43E-01	6.19E-03	7.22E-04	7.01E-04	1.27E-05	2.08E-05	2.08E-05	3.76E-07	92.4
WOCMICEPDNR	9.68E-04	7.04E-02	6.48E-02	1.26E-04	1.22E-04	1.13E-04	4.41E-06	4.41E-06	3.45E-06	92.4
WMICEPDNMGS1	1.92E-03	6.91E-02	1.25E-03	2.85E-04	2.76E-04	5.00E-06	3.10E-06	3.10E-06	5.60E-08	92.4
WOCMICEPDNMP	4.78E-03	3.43E-01	6.19E-03	7.22E-04	7.01E-04	1.27E-05	2.08E-05	2.08E-05	3.76E-07	92.4
GMSMICEPDNR	9.68E-04	7.04E-02	6.48E-02	1.26E-04	1.22E-04	1.13E-04	4.41E-06	4.41E-06	3.45E-06	92.4
GMICEPDNMGS1	1.92E-03	6.91E-02	1.25E-03	2.85E-04	2.76E-04	5.00E-06	3.10E-06	3.10E-06	5.60E-08	92.4
GMSMICEPDNMP	4.78E-03	3.43E-01	6.19E-03	7.22E-04	7.01E-04	1.27E-05	2.08E-05	2.08E-05	3.76E-07	92.4
STCKPL	0.00E+00	0.00E+00	0.00E+00	5.64E-01	8.54E-02	8.54E-02	0.00E+00	0.00E+00	0.00E+00	0
FBROPHTR	1.95E-02	7.79E-02	5.38E-02	9.27E-03	8.30E-03	2.15E-03	8.30E-04	8.30E-04	5.73E-04	1512
FBROPNMGS1	2.35E-02	5.73E-02	1.98E-02	3.62E-03	3.51E-03	9.09E-04	4.93E-05	4.93E-05	1.70E-05	756
FBROPNMGS2	1.90E-02	3.59E-02	2.48E-02	2.82E-03	2.74E-03	7.08E-04	3.07E-05	3.07E-05	2.12E-05	1512
PIPHTR	6.23E-02	2.49E-01	1.00E-01	2.97E-02	2.65E-02	1.07E-02	2.65E-03	2.65E-03	1.07E-03	882
PIPNMAC	2.11E-01	6.69E-01	2.02E-01	3.12E-02	3.03E-02	9.14E-03	1.13E-03	1.13E-03	3.42E-04	661.5
PIPNMBR	1.13E-01	4.56E-01	1.38E-01	2.41E-02	2.34E-02	7.05E-03	5.64E-04	5.64E-04	1.71E-04	661.5
PIPNMGS1	9.03E-02	2.20E-01	8.87E-02	1.39E-02	1.35E-02	5.43E-03	1.89E-04	1.89E-04	7.62E-05	882
PIPNMGS2	4.88E-02	5.04E-02	2.03E-02	4.55E-03	4.41E-03	1.78E-03	4.34E-05	4.34E-05	1.75E-05	882
PIPNMGS3	9.13E-02	1.72E-01	6.93E-02	1.35E-02	1.31E-02	5.29E-03	1.47E-04	1.47E-04	5.93E-05	882
VSMNMBR	4.49E-02	1.89E-01	5.97E-02	9.34E-03	9.06E-03	2.87E-03	2.36E-04	2.36E-04	7.46E-05	693
HDDPE1	3.51E-01	6.42E-01	6.42E-01	2.01E-02	2.01E-02	2.01E-02	6.64E-04	6.64E-04	6.64E-04	2190
HDDPE2	2.73E-01	4.98E-01	4.98E-01	1.56E-02	1.56E-02	1.56E-02	5.15E-04	5.15E-04	5.15E-04	2190
HDDSE1	3.51E-01	6.42E-01	6.42E-02	2.01E-02	2.01E-02	2.01E-03	6.64E-04	6.64E-04	6.64E-05	219
HDDSE2	1.30E-01	2.46E-01	2.46E-02	7.46E-03	7.46E-03	7.46E-04	2.47E-04	2.47E-04	2.47E-05	219
HDDMPE	3.51E-01	6.42E-01	6.42E-01	2.01E-02	2.01E-02	2.01E-02	6.64E-04	6.64E-04	6.64E-04	2190
HDDTPE	1.50E-01	2.83E-01	2.83E-01	8.58E-03	8.58E-03	8.58E-03	2.84E-04	2.84E-04	2.84E-04	2190
HDDB1	7.87E-03	3.15E-02	3.15E-02	3.75E-03	3.35E-03	3.35E-03	3.35E-04	3.35E-04	3.35E-04	2190
HDDB2	1.57E-02	6.30E-02	6.30E-02	7.50E-03	6.71E-03	6.71E-03	6.71E-04	6.71E-04	6.71E-04	2190
HDDH1_W	2.40E-02	9.59E-02	9.59E-02	1.14E-02	1.02E-02	1.02E-02	1.02E-03	1.02E-03	1.02E-03	2190
HDDH1_E	2.40E-02	9.59E-02	9.59E-02	1.14E-02	1.02E-02	1.02E-02	1.02E-03	1.02E-03	1.02E-03	2190
HDDH2_W	1.10E-02	4.38E-02	4.38E-02	5.22E-03	4.67E-03	4.67E-03	4.67E-04	4.67E-04	4.67E-04	2190
HDDH2_E	1.10E-02	4.38E-02	4.38E-02	5.22E-03	4.67E-03	4.67E-03	4.67E-04	4.67E-04	4.67E-04	2190
HDDWH_W	5.69E-03	2.28E-02	2.28E-02	2.71E-03	2.42E-03	2.42E-03	2.42E-04	2.42E-04	2.42E-04	2190
HDDWH_E	5.69E-03	2.28E-02	2.28E-02	2.71E-03	2.42E-03	2.42E-03	2.42E-04	2.42E-04	2.42E-04	2190
HDDNMGE1	1.28E+00	1.46E+00	1.46E+00	7.31E-02	7.31E-02	7.31E-02	2.70E-03	2.70E-03	2.70E-03	2190

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
HDDNMGE2	6.14E-01	7.02E-01	7.02E-01	3.51E-02	3.51E-02	3.51E-02	1.29E-03	1.29E-03	1.29E-03	2190
HDDNMGE3	7.68E-01	8.77E-01	8.77E-01	4.39E-02	4.39E-02	4.39E-02	1.62E-03	1.62E-03	1.62E-03	2190
HDDNMBGE1	1.28E+00	1.46E+00	1.46E-01	7.31E-02	7.31E-02	7.31E-03	2.70E-03	2.70E-03	2.70E-04	219
HDDNMBGE2	6.14E-01	7.02E-01	7.02E-02	3.51E-02	3.51E-02	3.51E-03	1.29E-03	1.29E-03	1.29E-04	219
HDDNMBGE3	6.14E-01	7.02E-01	7.02E-02	3.51E-02	3.51E-02	3.51E-03	1.29E-03	1.29E-03	1.29E-04	219
HDDNMAC1	4.62E-03	2.13E-02	7.11E-03	8.81E-04	8.54E-04	2.85E-04	5.90E-05	5.90E-05	1.97E-05	730
HDDNMAC2	4.62E-03	2.13E-02	7.11E-03	8.81E-04	8.54E-04	2.85E-04	5.90E-05	5.90E-05	1.97E-05	730
HDDNROCE1	6.99E-03	2.11E-02	7.04E-03	1.22E-03	1.18E-03	3.93E-04	5.95E-05	5.95E-05	1.98E-05	730
HDDNROCE2	6.99E-03	2.11E-02	7.04E-03	1.22E-03	1.18E-03	3.93E-04	5.95E-05	5.95E-05	1.98E-05	730
HDDNRC	3.45E-03	1.68E-02	5.60E-03	5.90E-04	5.73E-04	1.91E-04	6.33E-05	6.33E-05	2.11E-05	730
WOCPWRGEN	3.89E+00	3.89E+00	1.94E+00	1.11E-01	1.11E-01	5.56E-02	7.35E-03	7.35E-03	3.67E-03	4380
WOCTEMPTRB	5.29E+00	6.96E+00	6.96E+00	1.83E-01	1.83E-01	1.83E-01	2.37E-02	2.37E-02	2.37E-02	8760
WOCFACHTR1	9.28E-02	3.71E-01	1.42E-01	4.42E-02	3.95E-02	1.52E-02	3.95E-03	3.95E-03	1.52E-03	2520
WOCFACNMAC	4.08E-02	6.21E-02	5.95E-03	5.35E-03	5.19E-03	4.97E-04	1.55E-04	1.55E-04	1.48E-05	630
WOCFACNR	2.04E-01	3.12E-01	2.54E-01	2.82E-02	2.74E-02	2.34E-02	5.01E-04	5.01E-04	3.97E-04	1890
WOCFACNMGS1	5.60E-02	2.02E-01	7.74E-02	1.21E-02	1.17E-02	4.49E-03	2.38E-04	2.38E-04	9.13E-05	2520
WOCFACNMGS2	9.06E-02	1.71E-01	6.55E-02	1.34E-02	1.30E-02	5.00E-03	1.46E-04	1.46E-04	5.60E-05	2520
WOCFUGD	0.00E+00	0.00E+00	0.00E+00	1.11E-01	1.66E-02	1.66E-02	0.00E+00	0.00E+00	0.00E+00	4380
WCFFACHTR1	1.64E-01	6.57E-01	2.52E-01	7.82E-02	7.00E-02	2.69E-02	7.00E-03	7.00E-03	2.69E-03	2520
WCFFACNMAC	6.74E-02	1.03E-01	9.84E-03	8.84E-03	8.58E-03	8.23E-04	2.55E-04	2.55E-04	2.45E-05	630
WCFFACNMGS1	2.76E-01	9.96E-01	3.82E-01	5.95E-02	5.78E-02	2.22E-02	1.17E-03	1.17E-03	4.51E-04	2520
WCFFACNMGS2	1.60E-01	3.03E-01	1.16E-01	2.38E-02	2.31E-02	8.85E-03	2.59E-04	2.59E-04	9.93E-05	2520
WCFFUGD	0.00E+00	0.00E+00	0.00E+00	3.45E-02	5.17E-03	5.17E-03	0.00E+00	0.00E+00	0.00E+00	4380
WILLOWAIR1	1.33E-07	4.40E-08	4.40E-08	2.66E-09	2.66E-09	2.66E-09	9.35E-09	9.35E-09	9.35E-09	8760
WILLOWAIR2	1.33E-07	4.40E-08	4.40E-08	2.66E-09	2.66E-09	2.66E-09	9.35E-09	9.35E-09	9.35E-09	8760
WILLOWAIR3	1.33E-07	4.40E-08	4.40E-08	2.66E-09	2.66E-09	2.66E-09	9.35E-09	9.35E-09	9.35E-09	8760
2TAIL1	1.06E-02	2.61E-02	1.81E-02	1.48E-03	1.42E-03	9.87E-04	6.87E-05	6.87E-05	4.78E-05	8760
2TAIL2	1.06E-02	2.61E-02	1.81E-02	1.48E-03	1.42E-03	9.87E-04	6.87E-05	6.87E-05	4.78E-05	8760
2TAIL3	1.06E-02	2.61E-02	1.81E-02	1.48E-03	1.42E-03	9.87E-04	6.87E-05	6.87E-05	4.78E-05	8760
2TAIL4	1.06E-02	2.61E-02	1.81E-02	1.48E-03	1.42E-03	9.87E-04	6.87E-05	6.87E-05	4.78E-05	8760
3TAIL1	1.06E-02	2.61E-02	1.81E-02	1.48E-03	1.42E-03	9.87E-04	6.87E-05	6.87E-05	4.78E-05	8760
3TAIL2	1.06E-02	2.61E-02	1.81E-02	1.48E-03	1.42E-03	9.87E-04	6.87E-05	6.87E-05	4.78E-05	8760
3TAIL3	1.06E-02	2.61E-02	1.81E-02	1.48E-03	1.42E-03	9.87E-04	6.87E-05	6.87E-05	4.78E-05	8760

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
3TAIL4	1.06E-02	2.61E-02	1.81E-02	1.48E-03	1.42E-03	9.87E-04	6.87E-05	6.87E-05	4.78E-05	8760
1TAIL1	2.56E-04	3.06E-04	3.06E-04	2.70E-05	1.65E-05	1.65E-05	1.10E-06	1.10E-06	1.10E-06	8760
1TAIL2	2.56E-04	3.06E-04	3.06E-04	2.70E-05	1.65E-05	1.65E-05	1.10E-06	1.10E-06	1.10E-06	8760
1TAIL3	2.56E-04	3.06E-04	3.06E-04	2.70E-05	1.65E-05	1.65E-05	1.10E-06	1.10E-06	1.10E-06	8760
1TAIL4	2.56E-04	3.06E-04	3.06E-04	2.70E-05	1.65E-05	1.65E-05	1.10E-06	1.10E-06	1.10E-06	8760
WOCTAIL1	2.56E-04	3.06E-04	3.06E-04	2.70E-05	1.65E-05	1.65E-05	1.10E-06	1.10E-06	1.10E-06	8760
WOCTAIL2	2.56E-04	3.06E-04	3.06E-04	2.70E-05	1.65E-05	1.65E-05	1.10E-06	1.10E-06	1.10E-06	8760
WOCTAIL3	2.56E-04	3.06E-04	3.06E-04	2.70E-05	1.65E-05	1.65E-05	1.10E-06	1.10E-06	1.10E-06	8760
WOCTAIL4	2.56E-04	3.06E-04	3.06E-04	2.70E-05	1.65E-05	1.65E-05	1.10E-06	1.10E-06	1.10E-06	8760
WCFTAIL1	2.56E-04	3.06E-04	3.06E-04	2.70E-05	1.65E-05	1.65E-05	1.10E-06	1.10E-06	1.10E-06	8760
WCFTAIL2	2.56E-04	3.06E-04	3.06E-04	2.70E-05	1.65E-05	1.65E-05	1.10E-06	1.10E-06	1.10E-06	8760
WCFTAIL3	2.56E-04	3.06E-04	3.06E-04	2.70E-05	1.65E-05	1.65E-05	1.10E-06	1.10E-06	1.10E-06	8760
WCFTAIL4	2.56E-04	3.06E-04	3.06E-04	2.70E-05	1.65E-05	1.65E-05	1.10E-06	1.10E-06	1.10E-06	8760
MINETAIL1	1.06E-02	2.61E-02	1.81E-02	1.48E-03	1.42E-03	9.87E-04	6.87E-05	6.87E-05	4.78E-05	8760
MINETAIL2	1.06E-02	2.61E-02	1.81E-02	1.48E-03	1.42E-03	9.87E-04	6.87E-05	6.87E-05	4.78E-05	8760
MINETAIL3	1.06E-02	2.61E-02	1.81E-02	1.48E-03	1.42E-03	9.87E-04	6.87E-05	6.87E-05	4.78E-05	8760
MINETAIL4	1.06E-02	2.61E-02	1.81E-02	1.48E-03	1.42E-03	9.87E-04	6.87E-05	6.87E-05	4.78E-05	8760
1MFUGD1	0.00E+00	0.00E+00	0.00E+00	2.14E-02	2.14E-03	2.14E-03	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD2	0.00E+00	0.00E+00	0.00E+00	2.14E-02	2.14E-03	2.14E-03	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD3	0.00E+00	0.00E+00	0.00E+00	2.14E-02	2.14E-03	2.14E-03	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD4	0.00E+00	0.00E+00	0.00E+00	2.14E-02	2.14E-03	2.14E-03	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD1	0.00E+00	0.00E+00	0.00E+00	2.14E-02	2.14E-03	2.14E-03	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD2	0.00E+00	0.00E+00	0.00E+00	2.14E-02	2.14E-03	2.14E-03	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD3	0.00E+00	0.00E+00	0.00E+00	2.14E-02	2.14E-03	2.14E-03	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD4	0.00E+00	0.00E+00	0.00E+00	2.14E-02	2.14E-03	2.14E-03	0.00E+00	0.00E+00	0.00E+00	4380
3MFUGD1	0.00E+00	0.00E+00	0.00E+00	2.14E-02	2.14E-03	2.14E-03	0.00E+00	0.00E+00	0.00E+00	4380
3MFUGD2	0.00E+00	0.00E+00	0.00E+00	2.14E-02	2.14E-03	2.14E-03	0.00E+00	0.00E+00	0.00E+00	4380
3MFUGD3	0.00E+00	0.00E+00	0.00E+00	2.14E-02	2.14E-03	2.14E-03	0.00E+00	0.00E+00	0.00E+00	4380
3MFUGD4	0.00E+00	0.00E+00	0.00E+00	2.14E-02	2.14E-03	2.14E-03	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD1	0.00E+00	0.00E+00	0.00E+00	2.14E-02	2.14E-03	2.14E-03	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD2	0.00E+00	0.00E+00	0.00E+00	2.14E-02	2.14E-03	2.14E-03	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD3	0.00E+00	0.00E+00	0.00E+00	2.14E-02	2.14E-03	2.14E-03	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD4	0.00E+00	0.00E+00	0.00E+00	2.14E-02	2.14E-03	2.14E-03	0.00E+00	0.00E+00	0.00E+00	4380

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
WOCMFUGD1	0.00E+00	0.00E+00	0.00E+00	2.14E-02	2.14E-03	2.14E-03	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD2	0.00E+00	0.00E+00	0.00E+00	2.14E-02	2.14E-03	2.14E-03	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD3	0.00E+00	0.00E+00	0.00E+00	2.14E-02	2.14E-03	2.14E-03	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD4	0.00E+00	0.00E+00	0.00E+00	2.14E-02	2.14E-03	2.14E-03	0.00E+00	0.00E+00	0.00E+00	4380
MINEMFUGD1	0.00E+00	0.00E+00	0.00E+00	2.14E-02	2.14E-03	2.14E-03	0.00E+00	0.00E+00	0.00E+00	4380
MINEMFUGD2	0.00E+00	0.00E+00	0.00E+00	2.14E-02	2.14E-03	2.14E-03	0.00E+00	0.00E+00	0.00E+00	4380
MINEMFUGD3	0.00E+00	0.00E+00	0.00E+00	2.14E-02	2.14E-03	2.14E-03	0.00E+00	0.00E+00	0.00E+00	4380
MINEMFUGD4	0.00E+00	0.00E+00	0.00E+00	2.14E-02	2.14E-03	2.14E-03	0.00E+00	0.00E+00	0.00E+00	4380
2GRVLNR1	9.40E-06	2.46E-05	2.11E-05	1.29E-06	1.25E-06	1.08E-06	1.01E-07	1.01E-07	8.67E-08	VARIES
2GRVLNR2	9.40E-06	2.46E-05	2.11E-05	1.29E-06	1.25E-06	1.08E-06	1.01E-07	1.01E-07	8.67E-08	VARIES
2GRVLNR3	9.40E-06	2.46E-05	2.11E-05	1.29E-06	1.25E-06	1.08E-06	1.01E-07	1.01E-07	8.67E-08	VARIES
2GRVLNR4	9.40E-06	2.46E-05	2.11E-05	1.29E-06	1.25E-06	1.08E-06	1.01E-07	1.01E-07	8.67E-08	VARIES
3GRVLNR1	9.40E-06	2.46E-05	2.11E-05	1.29E-06	1.25E-06	1.08E-06	1.01E-07	1.01E-07	8.67E-08	VARIES
3GRVLNR2	9.40E-06	2.46E-05	2.11E-05	1.29E-06	1.25E-06	1.08E-06	1.01E-07	1.01E-07	8.67E-08	VARIES
3GRVLNR3	9.40E-06	2.46E-05	2.11E-05	1.29E-06	1.25E-06	1.08E-06	1.01E-07	1.01E-07	8.67E-08	VARIES
3GRVLNR4	9.40E-06	2.46E-05	2.11E-05	1.29E-06	1.25E-06	1.08E-06	1.01E-07	1.01E-07	8.67E-08	VARIES
ICEPDNRHCE	3.84E-02	1.03E-01	9.51E-02	4.99E-03	4.84E-03	4.46E-03	1.75E-04	1.75E-04	1.61E-04	2492.952
ICEPDNROS1	5.01E-04	1.35E-03	1.24E-03	6.52E-05	6.33E-05	5.83E-05	2.28E-06	2.28E-06	2.10E-06	2492.952
ICEPDNROS2	5.01E-04	1.35E-03	1.24E-03	6.52E-05	6.33E-05	5.83E-05	2.28E-06	2.28E-06	2.10E-06	2492.952
ICEPDNROS3	5.01E-04	1.35E-03	1.24E-03	6.52E-05	6.33E-05	5.83E-05	2.28E-06	2.28E-06	2.10E-06	2492.952
ICEPDNROS4	5.01E-04	1.35E-03	1.24E-03	6.52E-05	6.33E-05	5.83E-05	2.28E-06	2.28E-06	2.10E-06	2492.952
ICEPDNROS5	5.01E-04	1.35E-03	1.24E-03	6.52E-05	6.33E-05	5.83E-05	2.28E-06	2.28E-06	2.10E-06	2492.952
ICEPDNROS6	5.01E-04	1.35E-03	1.24E-03	6.52E-05	6.33E-05	5.83E-05	2.28E-06	2.28E-06	2.10E-06	2492.952
ICEPDNROS7	5.01E-04	1.35E-03	1.24E-03	6.52E-05	6.33E-05	5.83E-05	2.28E-06	2.28E-06	2.10E-06	2492.952
ICEPDNROS8	5.01E-04	1.35E-03	1.24E-03	6.52E-05	6.33E-05	5.83E-05	2.28E-06	2.28E-06	2.10E-06	2492.952
ICEPDNROS9	5.01E-04	1.35E-03	1.24E-03	6.52E-05	6.33E-05	5.83E-05	2.28E-06	2.28E-06	2.10E-06	2492.952
ICEPDNROS10	5.01E-04	1.35E-03	1.24E-03	6.52E-05	6.33E-05	5.83E-05	2.28E-06	2.28E-06	2.10E-06	2492.952
ICEPDNROS11	5.01E-04	1.35E-03	1.24E-03	6.52E-05	6.33E-05	5.83E-05	2.28E-06	2.28E-06	2.10E-06	2492.952
ICEPDNROS12	5.01E-04	1.35E-03	1.24E-03	6.52E-05	6.33E-05	5.83E-05	2.28E-06	2.28E-06	2.10E-06	2492.952
ICEPDNROS13	5.01E-04	1.35E-03	1.24E-03	6.52E-05	6.33E-05	5.83E-05	2.28E-06	2.28E-06	2.10E-06	2492.952
ICEPDNROS14	5.01E-04	1.35E-03	1.24E-03	6.52E-05	6.33E-05	5.83E-05	2.28E-06	2.28E-06	2.10E-06	2492.952
ICEPDNROS15	5.01E-04	1.35E-03	1.24E-03	6.52E-05	6.33E-05	5.83E-05	2.28E-06	2.28E-06	2.10E-06	2492.952
ICEPDNROS16	5.01E-04	1.35E-03	1.24E-03	6.52E-05	6.33E-05	5.83E-05	2.28E-06	2.28E-06	2.10E-06	2492.952

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
ICEPDNROS17	5.01E-04	1.35E-03	1.24E-03	6.52E-05	6.33E-05	5.83E-05	2.28E-06	2.28E-06	2.10E-06	2492.952
ICEPDNROS18	5.01E-04	1.35E-03	1.24E-03	6.52E-05	6.33E-05	5.83E-05	2.28E-06	2.28E-06	2.10E-06	2492.952
ICEPDNROS19	5.01E-04	1.35E-03	1.24E-03	6.52E-05	6.33E-05	5.83E-05	2.28E-06	2.28E-06	2.10E-06	2492.952
ICEPDNROS20	5.01E-04	1.35E-03	1.24E-03	6.52E-05	6.33E-05	5.83E-05	2.28E-06	2.28E-06	2.10E-06	2492.952
ICEPDNROS21	5.01E-04	1.35E-03	1.24E-03	6.52E-05	6.33E-05	5.83E-05	2.28E-06	2.28E-06	2.10E-06	2492.952
ICEPDNROS22	5.01E-04	1.35E-03	1.24E-03	6.52E-05	6.33E-05	5.83E-05	2.28E-06	2.28E-06	2.10E-06	2492.952
ICEPDNROS23	5.01E-04	1.35E-03	1.24E-03	6.52E-05	6.33E-05	5.83E-05	2.28E-06	2.28E-06	2.10E-06	2492.952
ICEPDNROS24	5.01E-04	1.35E-03	1.24E-03	6.52E-05	6.33E-05	5.83E-05	2.28E-06	2.28E-06	2.10E-06	2492.952
ICEPDNROS25	5.01E-04	1.35E-03	1.24E-03	6.52E-05	6.33E-05	5.83E-05	2.28E-06	2.28E-06	2.10E-06	2492.952
ICEPDNROS26	5.01E-04	1.35E-03	1.24E-03	6.52E-05	6.33E-05	5.83E-05	2.28E-06	2.28E-06	2.10E-06	2492.952
ICEPDNROS27	5.01E-04	1.35E-03	1.24E-03	6.52E-05	6.33E-05	5.83E-05	2.28E-06	2.28E-06	2.10E-06	2492.952
ICEPDNROS28	5.01E-04	1.35E-03	1.24E-03	6.52E-05	6.33E-05	5.83E-05	2.28E-06	2.28E-06	2.10E-06	2492.952
ICEPDNROS29	5.01E-04	1.35E-03	1.24E-03	6.52E-05	6.33E-05	5.83E-05	2.28E-06	2.28E-06	2.10E-06	2492.952
ICEPDNROS30	5.01E-04	1.35E-03	1.24E-03	6.52E-05	6.33E-05	5.83E-05	2.28E-06	2.28E-06	2.10E-06	2492.952
ICEPDNROS31	5.01E-04	1.35E-03	1.24E-03	6.52E-05	6.33E-05	5.83E-05	2.28E-06	2.28E-06	2.10E-06	2492.952
ICEPDNROS32	5.01E-04	1.35E-03	1.24E-03	6.52E-05	6.33E-05	5.83E-05	2.28E-06	2.28E-06	2.10E-06	2492.952
ICEPDNROS33	5.01E-04	1.35E-03	1.24E-03	6.52E-05	6.33E-05	5.83E-05	2.28E-06	2.28E-06	2.10E-06	2492.952
ICEPDNROS34	5.01E-04	1.35E-03	1.24E-03	6.52E-05	6.33E-05	5.83E-05	2.28E-06	2.28E-06	2.10E-06	2492.952
ICEPDNROS35	5.01E-04	1.35E-03	1.24E-03	6.52E-05	6.33E-05	5.83E-05	2.28E-06	2.28E-06	2.10E-06	2492.952
ICEPDNROS36	5.01E-04	1.35E-03	1.24E-03	6.52E-05	6.33E-05	5.83E-05	2.28E-06	2.28E-06	2.10E-06	2492.952
ICEPDNROS37	5.01E-04	1.35E-03	1.24E-03	6.52E-05	6.33E-05	5.83E-05	2.28E-06	2.28E-06	2.10E-06	2492.952
ICEPDNROS38	5.01E-04	1.35E-03	1.24E-03	6.52E-05	6.33E-05	5.83E-05	2.28E-06	2.28E-06	2.10E-06	2492.952
ICEPDNROS39	5.01E-04	1.35E-03	1.24E-03	6.52E-05	6.33E-05	5.83E-05	2.28E-06	2.28E-06	2.10E-06	2492.952
ICEPDNROS40	5.01E-04	1.35E-03	1.24E-03	6.52E-05	6.33E-05	5.83E-05	2.28E-06	2.28E-06	2.10E-06	2492.952
ICEPDNROS41	5.01E-04	1.35E-03	1.24E-03	6.52E-05	6.33E-05	5.83E-05	2.28E-06	2.28E-06	2.10E-06	2492.952
ICEPDNROS42	5.01E-04	1.35E-03	1.24E-03	6.52E-05	6.33E-05	5.83E-05	2.28E-06	2.28E-06	2.10E-06	2492.952
ICEPDNROS43	5.01E-04	1.35E-03	1.24E-03	6.52E-05	6.33E-05	5.83E-05	2.28E-06	2.28E-06	2.10E-06	2492.952
ICEPDNROS44	5.01E-04	1.35E-03	1.24E-03	6.52E-05	6.33E-05	5.83E-05	2.28E-06	2.28E-06	2.10E-06	2492.952
ICEPDNRIOS1	2.89E-03	7.78E-03	7.16E-03	3.76E-04	3.65E-04	3.36E-04	1.31E-05	1.31E-05	1.21E-05	2492.952
ICEPDNRIOS2	2.89E-03	7.78E-03	7.16E-03	3.76E-04	3.65E-04	3.36E-04	1.31E-05	1.31E-05	1.21E-05	2492.952
ICEPDNRIOS3	2.89E-03	7.78E-03	7.16E-03	3.76E-04	3.65E-04	3.36E-04	1.31E-05	1.31E-05	1.21E-05	2492.952
ICEPDNRIOS4	2.89E-03	7.78E-03	7.16E-03	3.76E-04	3.65E-04	3.36E-04	1.31E-05	1.31E-05	1.21E-05	2492.952
ICEPDNRIOS5	2.89E-03	7.78E-03	7.16E-03	3.76E-04	3.65E-04	3.36E-04	1.31E-05	1.31E-05	1.21E-05	2492.952

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
ICEPDNRIOS6	2.89E-03	7.78E-03	7.16E-03	3.76E-04	3.65E-04	3.36E-04	1.31E-05	1.31E-05	1.21E-05	2492.952
ICEPDNRIOS7	2.89E-03	7.78E-03	7.16E-03	3.76E-04	3.65E-04	3.36E-04	1.31E-05	1.31E-05	1.21E-05	2492.952
ICEPDNRIOS8	2.89E-03	7.78E-03	7.16E-03	3.76E-04	3.65E-04	3.36E-04	1.31E-05	1.31E-05	1.21E-05	2492.952
ICEPDNRIOS9	2.89E-03	7.78E-03	7.16E-03	3.76E-04	3.65E-04	3.36E-04	1.31E-05	1.31E-05	1.21E-05	2492.952
ICEPDNRIOS10	2.89E-03	7.78E-03	7.16E-03	3.76E-04	3.65E-04	3.36E-04	1.31E-05	1.31E-05	1.21E-05	2492.952
ICEPDNRIOS11	2.89E-03	7.78E-03	7.16E-03	3.76E-04	3.65E-04	3.36E-04	1.31E-05	1.31E-05	1.21E-05	2492.952
ICEPDNRIOS12	2.89E-03	7.78E-03	7.16E-03	3.76E-04	3.65E-04	3.36E-04	1.31E-05	1.31E-05	1.21E-05	2492.952
ICEPDNRIOS13	2.89E-03	7.78E-03	7.16E-03	3.76E-04	3.65E-04	3.36E-04	1.31E-05	1.31E-05	1.21E-05	2492.952
ICEPDNRIOS14	2.89E-03	7.78E-03	7.16E-03	3.76E-04	3.65E-04	3.36E-04	1.31E-05	1.31E-05	1.21E-05	2492.952
ICEPDNRIOS15	2.89E-03	7.78E-03	7.16E-03	3.76E-04	3.65E-04	3.36E-04	1.31E-05	1.31E-05	1.21E-05	2492.952
ICEPDNRIOS16	2.89E-03	7.78E-03	7.16E-03	3.76E-04	3.65E-04	3.36E-04	1.31E-05	1.31E-05	1.21E-05	2492.952
ICEPDNRIOS17	2.89E-03	7.78E-03	7.16E-03	3.76E-04	3.65E-04	3.36E-04	1.31E-05	1.31E-05	1.21E-05	2492.952
ICEPDNRIOS18	2.89E-03	7.78E-03	7.16E-03	3.76E-04	3.65E-04	3.36E-04	1.31E-05	1.31E-05	1.21E-05	2492.952
ICEPDNRIOS19	2.89E-03	7.78E-03	7.16E-03	3.76E-04	3.65E-04	3.36E-04	1.31E-05	1.31E-05	1.21E-05	2492.952
ICEPDNRIOS20	2.89E-03	7.78E-03	7.16E-03	3.76E-04	3.65E-04	3.36E-04	1.31E-05	1.31E-05	1.21E-05	2492.952
ICEPDNRIOS21	2.89E-03	7.78E-03	7.16E-03	3.76E-04	3.65E-04	3.36E-04	1.31E-05	1.31E-05	1.21E-05	2492.952
ICEPDNRIOS22	2.89E-03	7.78E-03	7.16E-03	3.76E-04	3.65E-04	3.36E-04	1.31E-05	1.31E-05	1.21E-05	2492.952
ICEPDNRIOS23	2.89E-03	7.78E-03	7.16E-03	3.76E-04	3.65E-04	3.36E-04	1.31E-05	1.31E-05	1.21E-05	2492.952
ICEPDNRIOS24	2.89E-03	7.78E-03	7.16E-03	3.76E-04	3.65E-04	3.36E-04	1.31E-05	1.31E-05	1.21E-05	2492.952
ICEPDNRIOS25	2.89E-03	7.78E-03	7.16E-03	3.76E-04	3.65E-04	3.36E-04	1.31E-05	1.31E-05	1.21E-05	2492.952
ICEPDNRIOS26	2.89E-03	7.78E-03	7.16E-03	3.76E-04	3.65E-04	3.36E-04	1.31E-05	1.31E-05	1.21E-05	2492.952
ICEPDNRIOS27	2.89E-03	7.78E-03	7.16E-03	3.76E-04	3.65E-04	3.36E-04	1.31E-05	1.31E-05	1.21E-05	2492.952
ICEPDNRIOS28	2.89E-03	7.78E-03	7.16E-03	3.76E-04	3.65E-04	3.36E-04	1.31E-05	1.31E-05	1.21E-05	2492.952
ICEPDNRIOS29	2.89E-03	7.78E-03	7.16E-03	3.76E-04	3.65E-04	3.36E-04	1.31E-05	1.31E-05	1.21E-05	2492.952
ICEPDNRIOS30	2.89E-03	7.78E-03	7.16E-03	3.76E-04	3.65E-04	3.36E-04	1.31E-05	1.31E-05	1.21E-05	2492.952
ICEPDNRIOS31	2.89E-03	7.78E-03	7.16E-03	3.76E-04	3.65E-04	3.36E-04	1.31E-05	1.31E-05	1.21E-05	2492.952
ICEPDNRIOS32	2.89E-03	7.78E-03	7.16E-03	3.76E-04	3.65E-04	3.36E-04	1.31E-05	1.31E-05	1.21E-05	2492.952
ICEPDNRIOS33	2.89E-03	7.78E-03	7.16E-03	3.76E-04	3.65E-04	3.36E-04	1.31E-05	1.31E-05	1.21E-05	2492.952
ICEPDNRIOS34	2.89E-03	7.78E-03	7.16E-03	3.76E-04	3.65E-04	3.36E-04	1.31E-05	1.31E-05	1.21E-05	2492.952
ICEPDNRIOS35	2.89E-03	7.78E-03	7.16E-03	3.76E-04	3.65E-04	3.36E-04	1.31E-05	1.31E-05	1.21E-05	2492.952
ICEPDNRIOS36	2.89E-03	7.78E-03	7.16E-03	3.76E-04	3.65E-04	3.36E-04	1.31E-05	1.31E-05	1.21E-05	2492.952
ICEPDNRIOS37	2.89E-03	7.78E-03	7.16E-03	3.76E-04	3.65E-04	3.36E-04	1.31E-05	1.31E-05	1.21E-05	2492.952
ICEPDNRIOS38	2.89E-03	7.78E-03	7.16E-03	3.76E-04	3.65E-04	3.36E-04	1.31E-05	1.31E-05	1.21E-05	2492.952

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
ICEPDNRIOS39	2.89E-03	7.78E-03	7.16E-03	3.76E-04	3.65E-04	3.36E-04	1.31E-05	1.31E-05	1.21E-05	2492.952
ICEPDNRIOS40	2.89E-03	7.78E-03	7.16E-03	3.76E-04	3.65E-04	3.36E-04	1.31E-05	1.31E-05	1.21E-05	2492.952
ICEPDNRIOS41	2.89E-03	7.78E-03	7.16E-03	3.76E-04	3.65E-04	3.36E-04	1.31E-05	1.31E-05	1.21E-05	2492.952
ICEPDNRIOS42	2.89E-03	7.78E-03	7.16E-03	3.76E-04	3.65E-04	3.36E-04	1.31E-05	1.31E-05	1.21E-05	2492.952
ICEPDNRIOS43	2.89E-03	7.78E-03	7.16E-03	3.76E-04	3.65E-04	3.36E-04	1.31E-05	1.31E-05	1.21E-05	2492.952
ICEPDNRIOS44	2.89E-03	7.78E-03	7.16E-03	3.76E-04	3.65E-04	3.36E-04	1.31E-05	1.31E-05	1.21E-05	2492.952
ICEPDNRPIP1	3.24E-03	8.74E-03	8.05E-03	4.22E-04	4.10E-04	3.77E-04	1.48E-05	1.48E-05	1.36E-05	2492.952
ICEPDNRPIP2	3.24E-03	8.74E-03	8.05E-03	4.22E-04	4.10E-04	3.77E-04	1.48E-05	1.48E-05	1.36E-05	2492.952
ICEPDNRPIP3	3.24E-03	8.74E-03	8.05E-03	4.22E-04	4.10E-04	3.77E-04	1.48E-05	1.48E-05	1.36E-05	2492.952
ICEPDNRPIP4	3.24E-03	8.74E-03	8.05E-03	4.22E-04	4.10E-04	3.77E-04	1.48E-05	1.48E-05	1.36E-05	2492.952
ICEPDNRPIP5	3.24E-03	8.74E-03	8.05E-03	4.22E-04	4.10E-04	3.77E-04	1.48E-05	1.48E-05	1.36E-05	2492.952
ICEPDNRPIP6	3.24E-03	8.74E-03	8.05E-03	4.22E-04	4.10E-04	3.77E-04	1.48E-05	1.48E-05	1.36E-05	2492.952
ICEPDNRPIP7	3.24E-03	8.74E-03	8.05E-03	4.22E-04	4.10E-04	3.77E-04	1.48E-05	1.48E-05	1.36E-05	2492.952
ICEPDNRPIP8	3.24E-03	8.74E-03	8.05E-03	4.22E-04	4.10E-04	3.77E-04	1.48E-05	1.48E-05	1.36E-05	2492.952
ICEPDNRPIP9	3.24E-03	8.74E-03	8.05E-03	4.22E-04	4.10E-04	3.77E-04	1.48E-05	1.48E-05	1.36E-05	2492.952
ICEPDNRPIP10	3.24E-03	8.74E-03	8.05E-03	4.22E-04	4.10E-04	3.77E-04	1.48E-05	1.48E-05	1.36E-05	2492.952
ICEPDNRPIP11	3.24E-03	8.74E-03	8.05E-03	4.22E-04	4.10E-04	3.77E-04	1.48E-05	1.48E-05	1.36E-05	2492.952
ICEPDNRPIP12	3.24E-03	8.74E-03	8.05E-03	4.22E-04	4.10E-04	3.77E-04	1.48E-05	1.48E-05	1.36E-05	2492.952
ICEPDNRPIP13	3.24E-03	8.74E-03	8.05E-03	4.22E-04	4.10E-04	3.77E-04	1.48E-05	1.48E-05	1.36E-05	2492.952
ICEPDNRPIP14	3.24E-03	8.74E-03	8.05E-03	4.22E-04	4.10E-04	3.77E-04	1.48E-05	1.48E-05	1.36E-05	2492.952
ICEPDNRPIP15	3.24E-03	8.74E-03	8.05E-03	4.22E-04	4.10E-04	3.77E-04	1.48E-05	1.48E-05	1.36E-05	2492.952
ICEPDNRPIP16	3.24E-03	8.74E-03	8.05E-03	4.22E-04	4.10E-04	3.77E-04	1.48E-05	1.48E-05	1.36E-05	2492.952
ICEPDNRPIP17	3.24E-03	8.74E-03	8.05E-03	4.22E-04	4.10E-04	3.77E-04	1.48E-05	1.48E-05	1.36E-05	2492.952
ICEPDNRPIP18	3.24E-03	8.74E-03	8.05E-03	4.22E-04	4.10E-04	3.77E-04	1.48E-05	1.48E-05	1.36E-05	2492.952
ICEPDNRPIP19	3.24E-03	8.74E-03	8.05E-03	4.22E-04	4.10E-04	3.77E-04	1.48E-05	1.48E-05	1.36E-05	2492.952
ICEPDNRPIP20	3.24E-03	8.74E-03	8.05E-03	4.22E-04	4.10E-04	3.77E-04	1.48E-05	1.48E-05	1.36E-05	2492.952
ICEPDNRPIP21	3.24E-03	8.74E-03	8.05E-03	4.22E-04	4.10E-04	3.77E-04	1.48E-05	1.48E-05	1.36E-05	2492.952
ICEPDNRPIP22	3.24E-03	8.74E-03	8.05E-03	4.22E-04	4.10E-04	3.77E-04	1.48E-05	1.48E-05	1.36E-05	2492.952
ICEPDNRPIP23	3.24E-03	8.74E-03	8.05E-03	4.22E-04	4.10E-04	3.77E-04	1.48E-05	1.48E-05	1.36E-05	2492.952
ICEPDNRPIP24	3.24E-03	8.74E-03	8.05E-03	4.22E-04	4.10E-04	3.77E-04	1.48E-05	1.48E-05	1.36E-05	2492.952
ICEPDNRPIP25	3.24E-03	8.74E-03	8.05E-03	4.22E-04	4.10E-04	3.77E-04	1.48E-05	1.48E-05	1.36E-05	2492.952
ICEPDNRPIP26	3.24E-03	8.74E-03	8.05E-03	4.22E-04	4.10E-04	3.77E-04	1.48E-05	1.48E-05	1.36E-05	2492.952
ICEPDNRPIP27	3.24E-03	8.74E-03	8.05E-03	4.22E-04	4.10E-04	3.77E-04	1.48E-05	1.48E-05	1.36E-05	2492.952

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
ICEPDNRPIP28	3.24E-03	8.74E-03	8.05E-03	4.22E-04	4.10E-04	3.77E-04	1.48E-05	1.48E-05	1.36E-05	2492.952
ICEPDNRPIP29	3.24E-03	8.74E-03	8.05E-03	4.22E-04	4.10E-04	3.77E-04	1.48E-05	1.48E-05	1.36E-05	2492.952
ICEPDNRPIP30	3.24E-03	8.74E-03	8.05E-03	4.22E-04	4.10E-04	3.77E-04	1.48E-05	1.48E-05	1.36E-05	2492.952
ICEPDNRPIP31	3.24E-03	8.74E-03	8.05E-03	4.22E-04	4.10E-04	3.77E-04	1.48E-05	1.48E-05	1.36E-05	2492.952
ICEPDNRPIP32	3.24E-03	8.74E-03	8.05E-03	4.22E-04	4.10E-04	3.77E-04	1.48E-05	1.48E-05	1.36E-05	2492.952
ICEPDNRPIP33	3.24E-03	8.74E-03	8.05E-03	4.22E-04	4.10E-04	3.77E-04	1.48E-05	1.48E-05	1.36E-05	2492.952
ICEPDNRPIP34	3.24E-03	8.74E-03	8.05E-03	4.22E-04	4.10E-04	3.77E-04	1.48E-05	1.48E-05	1.36E-05	2492.952
ICEPDNRPIP35	3.24E-03	8.74E-03	8.05E-03	4.22E-04	4.10E-04	3.77E-04	1.48E-05	1.48E-05	1.36E-05	2492.952
ICEPDNRPIP36	3.24E-03	8.74E-03	8.05E-03	4.22E-04	4.10E-04	3.77E-04	1.48E-05	1.48E-05	1.36E-05	2492.952
ICEPDNRPIP37	3.24E-03	8.74E-03	8.05E-03	4.22E-04	4.10E-04	3.77E-04	1.48E-05	1.48E-05	1.36E-05	2492.952
ICEPDNRPIP38	3.24E-03	8.74E-03	8.05E-03	4.22E-04	4.10E-04	3.77E-04	1.48E-05	1.48E-05	1.36E-05	2492.952
ICEPDNRPIP39	3.24E-03	8.74E-03	8.05E-03	4.22E-04	4.10E-04	3.77E-04	1.48E-05	1.48E-05	1.36E-05	2492.952
ICEPDNRPIP40	3.24E-03	8.74E-03	8.05E-03	4.22E-04	4.10E-04	3.77E-04	1.48E-05	1.48E-05	1.36E-05	2492.952
ICEPDNRPIP41	3.24E-03	8.74E-03	8.05E-03	4.22E-04	4.10E-04	3.77E-04	1.48E-05	1.48E-05	1.36E-05	2492.952
ICEPDNRPIP42	3.24E-03	8.74E-03	8.05E-03	4.22E-04	4.10E-04	3.77E-04	1.48E-05	1.48E-05	1.36E-05	2492.952
ICEPDNRPIP43	3.24E-03	8.74E-03	8.05E-03	4.22E-04	4.10E-04	3.77E-04	1.48E-05	1.48E-05	1.36E-05	2492.952
ICEPDNRPIP44	3.24E-03	8.74E-03	8.05E-03	4.22E-04	4.10E-04	3.77E-04	1.48E-05	1.48E-05	1.36E-05	2492.952
ICEPDNRHDD1	1.46E-02	3.94E-02	3.63E-02	1.90E-03	1.85E-03	1.70E-03	6.66E-05	6.66E-05	6.13E-05	2492.952
ICEPDNRHDD2	1.30E-02	3.50E-02	3.22E-02	1.69E-03	1.64E-03	1.51E-03	5.91E-05	5.91E-05	5.44E-05	2492.952
ICERDNR1	9.89E-04	1.23E-03	1.21E-04	1.29E-04	1.25E-04	1.23E-05	4.50E-06	4.50E-06	4.43E-07	576.8895
ICERDNR2	9.89E-04	1.23E-03	1.21E-04	1.29E-04	1.25E-04	1.23E-05	4.50E-06	4.50E-06	4.43E-07	576.8895
ICERDNR3	9.89E-04	1.23E-03	1.21E-04	1.29E-04	1.25E-04	1.23E-05	4.50E-06	4.50E-06	4.43E-07	576.8895
ICERDNR4	9.89E-04	1.23E-03	1.21E-04	1.29E-04	1.25E-04	1.23E-05	4.50E-06	4.50E-06	4.43E-07	576.8895
PIPNR1	1.41E-05	5.04E-05	3.65E-05	2.16E-06	2.09E-06	1.51E-06	1.60E-07	1.60E-07	1.14E-07	VARIES
PIPNR2	1.41E-05	5.04E-05	3.65E-05	2.16E-06	2.09E-06	1.51E-06	1.60E-07	1.60E-07	1.14E-07	VARIES
PIPNR3	1.41E-05	5.04E-05	3.65E-05	2.16E-06	2.09E-06	1.51E-06	1.60E-07	1.60E-07	1.14E-07	VARIES
PIPNR4	1.41E-05	5.04E-05	3.65E-05	2.16E-06	2.09E-06	1.51E-06	1.60E-07	1.60E-07	1.14E-07	VARIES
VSMNR1	4.21E-06	1.12E-05	1.04E-05	5.96E-07	5.78E-07	5.71E-07	2.18E-08	2.18E-08	1.94E-08	VARIES
VSMNR2	4.21E-06	1.12E-05	1.04E-05	5.96E-07	5.78E-07	5.71E-07	2.18E-08	2.18E-08	1.94E-08	VARIES
VSMNR3	4.21E-06	1.12E-05	1.04E-05	5.96E-07	5.78E-07	5.71E-07	2.18E-08	2.18E-08	1.94E-08	VARIES
VSMNR4	4.21E-06	1.12E-05	1.04E-05	5.96E-07	5.78E-07	5.71E-07	2.18E-08	2.18E-08	1.94E-08	VARIES
FBROPNR1	2.05E-06	3.39E-06	2.55E-06	2.69E-07	2.61E-07	9.02E-08	7.10E-09	7.10E-09	4.19E-09	VARIES
FBROPNR2	2.05E-06	3.39E-06	2.55E-06	2.69E-07	2.61E-07	9.02E-08	7.10E-09	7.10E-09	4.19E-09	VARIES

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
FBROPNR3	2.05E-06	3.39E-06	2.55E-06	2.69E-07	2.61E-07	9.02E-08	7.10E-09	7.10E-09	4.19E-09	VARIES
FBROPNR4	2.05E-06	3.39E-06	2.55E-06	2.69E-07	2.61E-07	9.02E-08	7.10E-09	7.10E-09	4.19E-09	VARIES
2PADNR1	1.48E-02	3.87E-02	3.33E-02	2.04E-03	1.97E-03	1.70E-03	1.59E-04	1.59E-04	1.37E-04	VARIES
2PADNR2	1.48E-02	3.87E-02	3.33E-02	2.04E-03	1.97E-03	1.70E-03	1.59E-04	1.59E-04	1.37E-04	VARIES
2PADNR3	1.48E-02	3.87E-02	3.33E-02	2.04E-03	1.97E-03	1.70E-03	1.59E-04	1.59E-04	1.37E-04	VARIES
2PADNR4	1.48E-02	3.87E-02	3.33E-02	2.04E-03	1.97E-03	1.70E-03	1.59E-04	1.59E-04	1.37E-04	VARIES
3PADNR1	1.48E-02	3.87E-02	3.33E-02	2.04E-03	1.97E-03	1.70E-03	1.59E-04	1.59E-04	1.37E-04	VARIES
3PADNR2	1.48E-02	3.87E-02	3.33E-02	2.04E-03	1.97E-03	1.70E-03	1.59E-04	1.59E-04	1.37E-04	VARIES
3PADNR3	1.48E-02	3.87E-02	3.33E-02	2.04E-03	1.97E-03	1.70E-03	1.59E-04	1.59E-04	1.37E-04	VARIES
3PADNR4	1.48E-02	3.87E-02	3.33E-02	2.04E-03	1.97E-03	1.70E-03	1.59E-04	1.59E-04	1.37E-04	VARIES
MINENR1	1.64E-02	3.83E-02	2.24E-02	2.26E-03	2.19E-03	1.38E-03	9.26E-05	9.26E-05	5.03E-05	VARIES
MINENR2	1.64E-02	3.83E-02	2.24E-02	2.26E-03	2.19E-03	1.38E-03	9.26E-05	9.26E-05	5.03E-05	VARIES
MINENR3	1.64E-02	3.83E-02	2.24E-02	2.26E-03	2.19E-03	1.38E-03	9.26E-05	9.26E-05	5.03E-05	VARIES
MINENR4	1.64E-02	3.83E-02	2.24E-02	2.26E-03	2.19E-03	1.38E-03	9.26E-05	9.26E-05	5.03E-05	VARIES
MINENR5	1.64E-02	3.83E-02	2.24E-02	2.26E-03	2.19E-03	1.38E-03	9.26E-05	9.26E-05	5.03E-05	VARIES
MINENR6	1.64E-02	3.83E-02	2.24E-02	2.26E-03	2.19E-03	1.38E-03	9.26E-05	9.26E-05	5.03E-05	VARIES
MINENR7	1.64E-02	3.83E-02	2.24E-02	2.26E-03	2.19E-03	1.38E-03	9.26E-05	9.26E-05	5.03E-05	VARIES
MINENR8	1.64E-02	3.83E-02	2.24E-02	2.26E-03	2.19E-03	1.38E-03	9.26E-05	9.26E-05	5.03E-05	VARIES
MINENR9	1.64E-02	3.83E-02	2.24E-02	2.26E-03	2.19E-03	1.38E-03	9.26E-05	9.26E-05	5.03E-05	VARIES
2PADOHT1	2.06E-02	5.16E-02	3.56E-02	2.90E-03	2.81E-03	1.94E-03	1.35E-04	1.35E-04	9.34E-05	1512
2PADOHT2	2.06E-02	5.16E-02	3.56E-02	2.90E-03	2.81E-03	1.94E-03	1.35E-04	1.35E-04	9.34E-05	1512
2PADOHT3	2.06E-02	5.16E-02	3.56E-02	2.90E-03	2.81E-03	1.94E-03	1.35E-04	1.35E-04	9.34E-05	1512
2PADOHT4	2.06E-02	5.16E-02	3.56E-02	2.90E-03	2.81E-03	1.94E-03	1.35E-04	1.35E-04	9.34E-05	1512
3PADOHT1	2.06E-02	5.16E-02	3.56E-02	2.90E-03	2.81E-03	1.94E-03	1.35E-04	1.35E-04	9.34E-05	1512
3PADOHT2	2.06E-02	5.16E-02	3.56E-02	2.90E-03	2.81E-03	1.94E-03	1.35E-04	1.35E-04	9.34E-05	1512
3PADOHT3	2.06E-02	5.16E-02	3.56E-02	2.90E-03	2.81E-03	1.94E-03	1.35E-04	1.35E-04	9.34E-05	1512
3PADOHT4	2.06E-02	5.16E-02	3.56E-02	2.90E-03	2.81E-03	1.94E-03	1.35E-04	1.35E-04	9.34E-05	1512
2GRVLOHT1	1.73E-05	4.32E-05	2.99E-05	2.43E-06	2.36E-06	1.63E-06	1.13E-07	1.13E-07	7.82E-08	1512
2GRVLOHT2	1.73E-05	4.32E-05	2.99E-05	2.43E-06	2.36E-06	1.63E-06	1.13E-07	1.13E-07	7.82E-08	1512
2GRVLOHT3	1.73E-05	4.32E-05	2.99E-05	2.43E-06	2.36E-06	1.63E-06	1.13E-07	1.13E-07	7.82E-08	1512
2GRVLOHT4	1.73E-05	4.32E-05	2.99E-05	2.43E-06	2.36E-06	1.63E-06	1.13E-07	1.13E-07	7.82E-08	1512
3GRVLOHT1	1.73E-05	4.32E-05	2.99E-05	2.43E-06	2.36E-06	1.63E-06	1.13E-07	1.13E-07	7.82E-08	1512
3GRVLOHT2	1.73E-05	4.32E-05	2.99E-05	2.43E-06	2.36E-06	1.63E-06	1.13E-07	1.13E-07	7.82E-08	1512

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
3GRVLOHT3	1.73E-05	4.32E-05	2.99E-05	2.43E-06	2.36E-06	1.63E-06	1.13E-07	1.13E-07	7.82E-08	1512
3GRVLOHT4	1.73E-05	4.32E-05	2.99E-05	2.43E-06	2.36E-06	1.63E-06	1.13E-07	1.13E-07	7.82E-08	1512
MINEOHT1	9.16E-03	2.29E-02	1.58E-02	1.29E-03	1.25E-03	8.62E-04	6.01E-05	6.01E-05	4.15E-05	1512
MINEOHT2	9.16E-03	2.29E-02	1.58E-02	1.29E-03	1.25E-03	8.62E-04	6.01E-05	6.01E-05	4.15E-05	1512
MINEOHT3	9.16E-03	2.29E-02	1.58E-02	1.29E-03	1.25E-03	8.62E-04	6.01E-05	6.01E-05	4.15E-05	1512
MINEOHT4	9.16E-03	2.29E-02	1.58E-02	1.29E-03	1.25E-03	8.62E-04	6.01E-05	6.01E-05	4.15E-05	1512
MINEOHT5	9.16E-03	2.29E-02	1.58E-02	1.29E-03	1.25E-03	8.62E-04	6.01E-05	6.01E-05	4.15E-05	1512
MINEOHT6	9.16E-03	2.29E-02	1.58E-02	1.29E-03	1.25E-03	8.62E-04	6.01E-05	6.01E-05	4.15E-05	1512
MINEOHT7	9.16E-03	2.29E-02	1.58E-02	1.29E-03	1.25E-03	8.62E-04	6.01E-05	6.01E-05	4.15E-05	1512
MINEOHT8	9.16E-03	2.29E-02	1.58E-02	1.29E-03	1.25E-03	8.62E-04	6.01E-05	6.01E-05	4.15E-05	1512
MINEOHT9	9.16E-03	2.29E-02	1.58E-02	1.29E-03	1.25E-03	8.62E-04	6.01E-05	6.01E-05	4.15E-05	1512
WCFFACNR1	7.87E-02	1.26E-01	1.05E-01	1.09E-02	1.06E-02	9.14E-03	2.16E-04	2.16E-04	1.78E-04	VARIES
WCFFACNR2	7.87E-02	1.26E-01	1.05E-01	1.09E-02	1.06E-02	9.14E-03	2.16E-04	2.16E-04	1.78E-04	VARIES
WCFFACNR3	7.87E-02	1.26E-01	1.05E-01	1.09E-02	1.06E-02	9.14E-03	2.16E-04	2.16E-04	1.78E-04	VARIES
WCFFACNR4	7.87E-02	1.26E-01	1.05E-01	1.09E-02	1.06E-02	9.14E-03	2.16E-04	2.16E-04	1.78E-04	VARIES
WLW2GEN	1.25E-01	2.28E-01	1.30E-02	7.13E-03	7.13E-03	4.07E-04	0.00E+00	0.00E+00	0.00E+00	500

A.1.2 Scenario 2: BT1 Pre-Drill

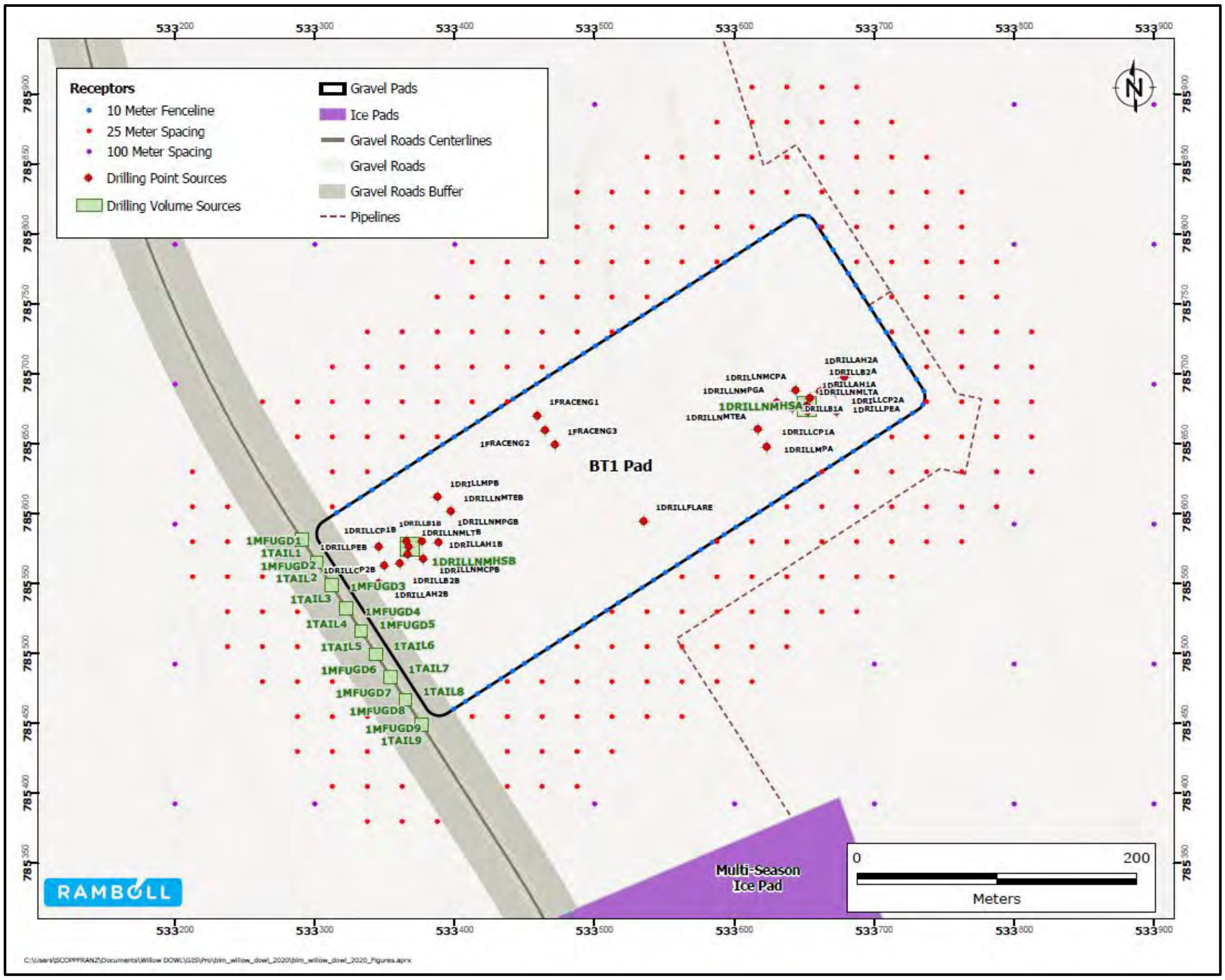

Figure A.1-11. Alternative B Near-field Model Scenario 2 Source Locations at BT1.

Table A.1-4. Alternative B Near-field Model Scenario 2 Emissions Source Descriptions and In-stack Ratios

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
1DRILLPEA	POINT	Drill Rigs - Primary Power Engines A	0.1	Diesel engines
1DRILLPEB	POINT	Drill Rigs - Primary Power Engines B	0.1	Diesel engines
1DRILLCP1A	POINT	Drill Rigs - Cement Pumping Unit #1 A	0.2	Diesel tailpipe from non-road equipment
1DRILLCP1B	POINT	Drill Rigs - Cement Pumping Unit #1 B	0.2	Diesel tailpipe from non-road equipment
1DRILLCP2A	POINT	Drill Rigs - Cement Pumping Unit #2 A	0.2	Diesel tailpipe from non-road equipment
1DRILLCP2B	POINT	Drill Rigs - Cement Pumping Unit #2 B	0.2	Diesel tailpipe from non-road equipment
1DRILLB1A	POINT	Drill Rigs - Boiler #1 A	0.05	Diesel or natural gas heaters, or boiler
1DRILLB1B	POINT	Drill Rigs - Boiler #1 B	0.05	Diesel or natural gas heaters, or boiler
1DRILLB2A	POINT	Drill Rigs - Boiler #2 A	0.05	Diesel or natural gas heaters, or boiler
1DRILLB2B	POINT	Drill Rigs - Boiler #2 B	0.05	Diesel or natural gas heaters, or boiler
1DRILLAH1A	POINT	Drill Rigs - Air Heater #1 A	0.05	Diesel or natural gas heaters, or boiler
1DRILLAH1B	POINT	Drill Rigs - Air Heater #1 B	0.05	Diesel or natural gas heaters, or boiler
1DRILLAH2A	POINT	Drill Rigs - Air Heater #2 A	0.05	Diesel or natural gas heaters, or boiler
1DRILLAH2B	POINT	Drill Rigs - Air Heater #2 B	0.05	Diesel or natural gas heaters, or boiler
1DRILLMPA	POINT	Drill Rigs - Mud Pit Heater A	0.05	Diesel or natural gas heaters, or boiler
1DRILLMPB	POINT	Drill Rigs - Mud Pit Heater B	0.05	Diesel or natural gas heaters, or boiler
1DRILLNMTEA	POINT	Drilling Non-Mobile Support Equipment - Total Engine A	0.1	Diesel engines
1DRILLNMTEB	POINT	Drilling Non-Mobile Support Equipment - Total Engine B	0.1	Diesel engines
1DRILLNMLTA	POINT	Drilling Non-Mobile Support Equipment - Total Lighting Engine A	0.2	Diesel tailpipe from non-road equipment
1DRILLNMLTB	POINT	Drilling Non-Mobile Support Equipment - Total Lighting Engine B	0.2	Diesel tailpipe from non-road equipment
1DRILLNMPGA	POINT	Drilling Non-Mobile Support Equipment - Total Portable Generators A	0.1	Diesel engines
1DRILLNMPGB	POINT	Drilling Non-Mobile Support Equipment - Total Portable Generators B	0.1	Diesel engines

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
1DRILLNMCPA	POINT	Drilling Non-Mobile Support Equipment - Total Portable Welders/Compressor Engine A	0.1	Diesel engines
1DRILLNMCPB	POINT	Drilling Non-Mobile Support Equipment - Total Portable Welders/Compressor Engine B	0.1	Diesel engines
1DRILLNMHSA	VOLUME	Drilling Non-Mobile Support Equipment - Portable Heaters & Snow Melters	0.05	Diesel or natural gas heaters, or boiler
1DRILLNMHSB	VOLUME	Drilling Non-Mobile Support Equipment - Portable Heaters & Snow Melters	0.05	Diesel or natural gas heaters, or boiler
1FRACENG1	POINT	Hydraulic Fracturing - Well Frac Engine 1	0.1	Diesel engines
1FRACENG2	POINT	Hydraulic Fracturing - Well Frac Engine 2	0.1	Diesel engines
1FRACENG3	POINT	Hydraulic Fracturing - Well Frac Engine 3	0.1	Diesel engines
1DRILLFLARE	POINT	Drilling Well Flowback and Flaring - Total Flaring Emissions	0.5	USEPA default value
1TAIL1	VOLUME	Drilling Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL2	VOLUME	Drilling Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL3	VOLUME	Drilling Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL4	VOLUME	Drilling Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL5	VOLUME	Drilling Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL6	VOLUME	Drilling Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL7	VOLUME	Drilling Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL8	VOLUME	Drilling Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL9	VOLUME	Drilling Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1MFUGD1	VOLUME	Drilling Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD2	VOLUME	Drilling Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD3	VOLUME	Drilling Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD4	VOLUME	Drilling Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD5	VOLUME	Drilling Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD6	VOLUME	Drilling Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD7	VOLUME	Drilling Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD8	VOLUME	Drilling Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD9	VOLUME	Drilling Mobile Equipment Fugitive Dust - BT1	-	-

Table A.1-5. Alternative B Near-field Model Scenario 2 Emissions Stack Parameters

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
1DRILLPEA	POINT	2.74	13.3	0.4	10.5	614	-	-	-	-	-
1DRILLPEB	POINT	2.74	13.3	0.4	10.5	614	-	-	-	-	-
1DRILLCP1A	POINT	2.74	10.4	0.13	43.5	750	-	-	-	-	-
1DRILLCP1B	POINT	2.74	10.4	0.13	43.5	750	-	-	-	-	-
1DRILLCP2A	POINT	2.74	10.4	0.13	43.5	750	-	-	-	-	-
1DRILLCP2B	POINT	2.74	10.4	0.13	43.5	750	-	-	-	-	-
1DRILLB1A	POINT	2.74	11.9	0.279	11.7	450	-	-	-	-	-
1DRILLB1B	POINT	2.74	11.9	0.279	11.7	450	-	-	-	-	-
1DRILLB2A	POINT	2.74	11.9	0.279	11.7	450	-	-	-	-	-
1DRILLB2B	POINT	2.74	11.9	0.279	11.7	450	-	-	-	-	-
1DRILLAH1A	POINT	2.74	10.5	0.3	3.2	533	-	-	-	-	-
1DRILLAH1B	POINT	2.74	10.5	0.3	3.2	533	-	-	-	-	-
1DRILLAH2A	POINT	2.74	10.5	0.3	3.2	533	-	-	-	-	-
1DRILLAH2B	POINT	2.74	10.5	0.3	3.2	533	-	-	-	-	-
1DRILLMPA	POINT	2.74	7.2	0.3	10.8	533	-	-	-	-	-
1DRILLMPB	POINT	2.74	7.2	0.3	10.8	533	-	-	-	-	-
1DRILLNMTEA	POINT	2.74	6.5	0.3	47	761	-	-	-	-	-
1DRILLNMTEB	POINT	2.74	6.5	0.3	47	761	-	-	-	-	-
1DRILLNMLTA	POINT	2.74	6.1	0.3	15.1	795	-	-	-	-	-
1DRILLNMLTB	POINT	2.74	6.1	0.3	15.1	795	-	-	-	-	-
1DRILLNMPGA	POINT	2.74	6.1	0.3	15.1	795	-	-	-	-	-
1DRILLNMPGB	POINT	2.74	6.1	0.3	15.1	795	-	-	-	-	-
1DRILLNMCPA	POINT	2.74	3.7	0.3	46	689	-	-	-	-	-
1DRILLNMCPB	POINT	2.74	3.7	0.3	46	689	-	-	-	-	-
1DRILLNMHSA	VOLUME	2.74	3.7	-	-	-	13.95	3.38	-	-	-
1DRILLNMHSB	VOLUME	2.74	3.7	-	-	-	13.95	3.38	-	-	-
1FRACENG1	POINT	2.74	3.7	0.356	41.6	644	-	-	-	-	-
1FRACENG2	POINT	2.74	3.7	0.356	41.6	644	-	-	-	-	-
1FRACENG3	POINT	2.74	3.7	0.356	41.6	644	-	-	-	-	-
1DRILLFLARE	POINT	2.74	10.1	0.3	6.1	1033	-	-	-	-	-
1TAIL1	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
1TAIL2	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL3	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL4	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL5	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL6	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL7	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL8	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL9	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD1	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD2	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD3	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD4	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD5	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD6	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD7	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD8	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD9	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-

Table A.1-6. Alternative B Near-field Model Scenario 2 Emissions Rates

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
1DRILLPEA	3.21E+00	6.15E-01	6.15E-01	2.75E-02	2.75E-02	2.75E-02	4.74E-03	4.74E-03	4.74E-03	8760
1DRILLPEB	3.21E+00	6.15E-01	6.15E-01	2.75E-02	2.75E-02	2.75E-02	4.74E-03	4.74E-03	4.74E-03	8760
1DRILLCP1A	1.75E-01	2.00E-02	1.14E-03	1.00E-03	1.00E-03	5.71E-05	3.31E-04	3.31E-04	1.89E-05	500
1DRILLCP1B	1.75E-01	2.00E-02	1.14E-03	1.00E-03	1.00E-03	5.71E-05	3.31E-04	3.31E-04	1.89E-05	500
1DRILLCP2A	1.75E-01	2.00E-02	1.14E-03	1.00E-03	1.00E-03	5.71E-05	3.31E-04	3.31E-04	1.89E-05	500
1DRILLCP2B	1.75E-01	2.00E-02	1.14E-03	1.00E-03	1.00E-03	5.71E-05	3.31E-04	3.31E-04	1.89E-05	500
1DRILLB1A	1.53E-02	6.12E-02	6.12E-02	7.28E-03	6.51E-03	6.51E-03	6.51E-04	6.51E-04	6.51E-04	8760
1DRILLB1B	1.53E-02	6.12E-02	6.12E-02	7.28E-03	6.51E-03	6.51E-03	6.51E-04	6.51E-04	6.51E-04	8760
1DRILLB2A	1.53E-02	6.12E-02	6.12E-02	7.28E-03	6.51E-03	6.51E-03	6.51E-04	6.51E-04	6.51E-04	8760
1DRILLB2B	1.53E-02	6.12E-02	6.12E-02	7.28E-03	6.51E-03	6.51E-03	6.51E-04	6.51E-04	6.51E-04	8760

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
1DRILLAH1A	1.83E-02	7.30E-02	7.30E-02	8.69E-03	7.78E-03	7.78E-03	7.78E-04	7.78E-04	7.78E-04	8760
1DRILLAH1B	1.83E-02	7.30E-02	7.30E-02	8.69E-03	7.78E-03	7.78E-03	7.78E-04	7.78E-04	7.78E-04	8760
1DRILLAH2A	9.13E-03	3.65E-02	3.65E-02	4.35E-03	3.89E-03	3.89E-03	3.89E-04	3.89E-04	3.89E-04	8760
1DRILLAH2B	9.13E-03	3.65E-02	3.65E-02	4.35E-03	3.89E-03	3.89E-03	3.89E-04	3.89E-04	3.89E-04	8760
1DRILLMPA	1.37E-02	5.48E-02	5.48E-02	6.52E-03	5.83E-03	5.83E-03	5.83E-04	5.83E-04	5.83E-04	8760
1DRILLMPB	1.37E-02	5.48E-02	5.48E-02	6.52E-03	5.83E-03	5.83E-03	5.83E-04	5.83E-04	5.83E-04	8760
1DRILLNMTEA	4.91E-01	5.61E-01	5.61E-01	2.81E-02	2.81E-02	2.81E-02	1.04E-03	1.04E-03	1.04E-03	8760
1DRILLNMTEB	4.91E-01	5.61E-01	5.61E-01	2.81E-02	2.81E-02	2.81E-02	1.04E-03	1.04E-03	1.04E-03	8760
1DRILLNMLTA	7.22E-02	8.20E-02	8.20E-02	8.75E-03	8.75E-03	8.75E-03	7.24E-05	7.24E-05	7.24E-05	8760
1DRILLNMLTB	7.22E-02	8.20E-02	8.20E-02	8.75E-03	8.75E-03	8.75E-03	7.24E-05	7.24E-05	7.24E-05	8760
1DRILLNMPGA	3.51E-02	3.30E-02	3.30E-02	2.81E-03	2.81E-03	2.81E-03	4.64E-05	4.64E-05	4.64E-05	8760
1DRILLNMPGB	3.51E-02	3.30E-02	3.30E-02	2.81E-03	2.81E-03	2.81E-03	4.64E-05	4.64E-05	4.64E-05	8760
1DRILLNMCPA	5.97E-02	5.61E-02	5.61E-02	4.77E-03	4.77E-03	4.77E-03	7.90E-05	7.90E-05	7.90E-05	8760
1DRILLNMCPB	5.97E-02	5.61E-02	5.61E-02	4.77E-03	4.77E-03	4.77E-03	7.90E-05	7.90E-05	7.90E-05	8760
1DRILLNMHSA	2.15E-02	8.59E-02	6.44E-02	1.02E-02	9.15E-03	6.86E-03	9.15E-04	9.15E-04	6.86E-04	8760
1DRILLNMHSB	2.15E-02	8.59E-02	6.44E-02	1.02E-02	9.15E-03	6.86E-03	9.15E-04	9.15E-04	6.86E-04	8760
1FRACENG1	3.11E-02	2.49E-03	8.17E-04	1.24E-04	1.24E-04	4.09E-05	4.11E-05	4.11E-05	1.35E-05	5840
1FRACENG2	1.79E-01	3.43E-02	1.13E-02	1.54E-03	1.54E-03	5.06E-04	3.78E-04	3.78E-04	1.24E-04	5840
1FRACENG3	2.61E+00	5.00E-01	1.64E-01	2.24E-02	2.24E-02	7.35E-03	5.50E-03	5.50E-03	1.81E-03	5840
1DRILLFLARE	1.08E+00	1.98E-01	1.95E-02	4.79E-05	4.79E-05	4.72E-06	1.16E-02	1.16E-02	1.14E-03	864
1TAIL1	4.76E-06	9.26E-06	9.26E-06	1.46E-06	4.49E-07	4.49E-07	5.97E-08	5.97E-08	5.97E-08	8760
1TAIL2	4.76E-06	9.26E-06	9.26E-06	1.46E-06	4.49E-07	4.49E-07	5.97E-08	5.97E-08	5.97E-08	8760
1TAIL3	4.76E-06	9.26E-06	9.26E-06	1.46E-06	4.49E-07	4.49E-07	5.97E-08	5.97E-08	5.97E-08	8760
1TAIL4	4.76E-06	9.26E-06	9.26E-06	1.46E-06	4.49E-07	4.49E-07	5.97E-08	5.97E-08	5.97E-08	8760
1TAIL5	4.76E-06	9.26E-06	9.26E-06	1.46E-06	4.49E-07	4.49E-07	5.97E-08	5.97E-08	5.97E-08	8760
1TAIL6	4.76E-06	9.26E-06	9.26E-06	1.46E-06	4.49E-07	4.49E-07	5.97E-08	5.97E-08	5.97E-08	8760
1TAIL7	4.76E-06	9.26E-06	9.26E-06	1.46E-06	4.49E-07	4.49E-07	5.97E-08	5.97E-08	5.97E-08	8760
1TAIL8	4.76E-06	9.26E-06	9.26E-06	1.46E-06	4.49E-07	4.49E-07	5.97E-08	5.97E-08	5.97E-08	8760
1TAIL9	4.76E-06	9.26E-06	9.26E-06	1.46E-06	4.49E-07	4.49E-07	5.97E-08	5.97E-08	5.97E-08	8760
1MFUGD1	0.00E+00	0.00E+00	0.00E+00	2.61E-03	2.61E-04	2.61E-04	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD2	0.00E+00	0.00E+00	0.00E+00	2.61E-03	2.61E-04	2.61E-04	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD3	0.00E+00	0.00E+00	0.00E+00	2.61E-03	2.61E-04	2.61E-04	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD4	0.00E+00	0.00E+00	0.00E+00	2.61E-03	2.61E-04	2.61E-04	0.00E+00	0.00E+00	0.00E+00	4380

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
1MFUGD5	0.00E+00	0.00E+00	0.00E+00	2.61E-03	2.61E-04	2.61E-04	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD6	0.00E+00	0.00E+00	0.00E+00	2.61E-03	2.61E-04	2.61E-04	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD7	0.00E+00	0.00E+00	0.00E+00	2.61E-03	2.61E-04	2.61E-04	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD8	0.00E+00	0.00E+00	0.00E+00	2.61E-03	2.61E-04	2.61E-04	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD9	0.00E+00	0.00E+00	0.00E+00	2.61E-03	2.61E-04	2.61E-04	0.00E+00	0.00E+00	0.00E+00	4380

A.1.3 Scenario 3: BT1/BT2 Pre-Drill

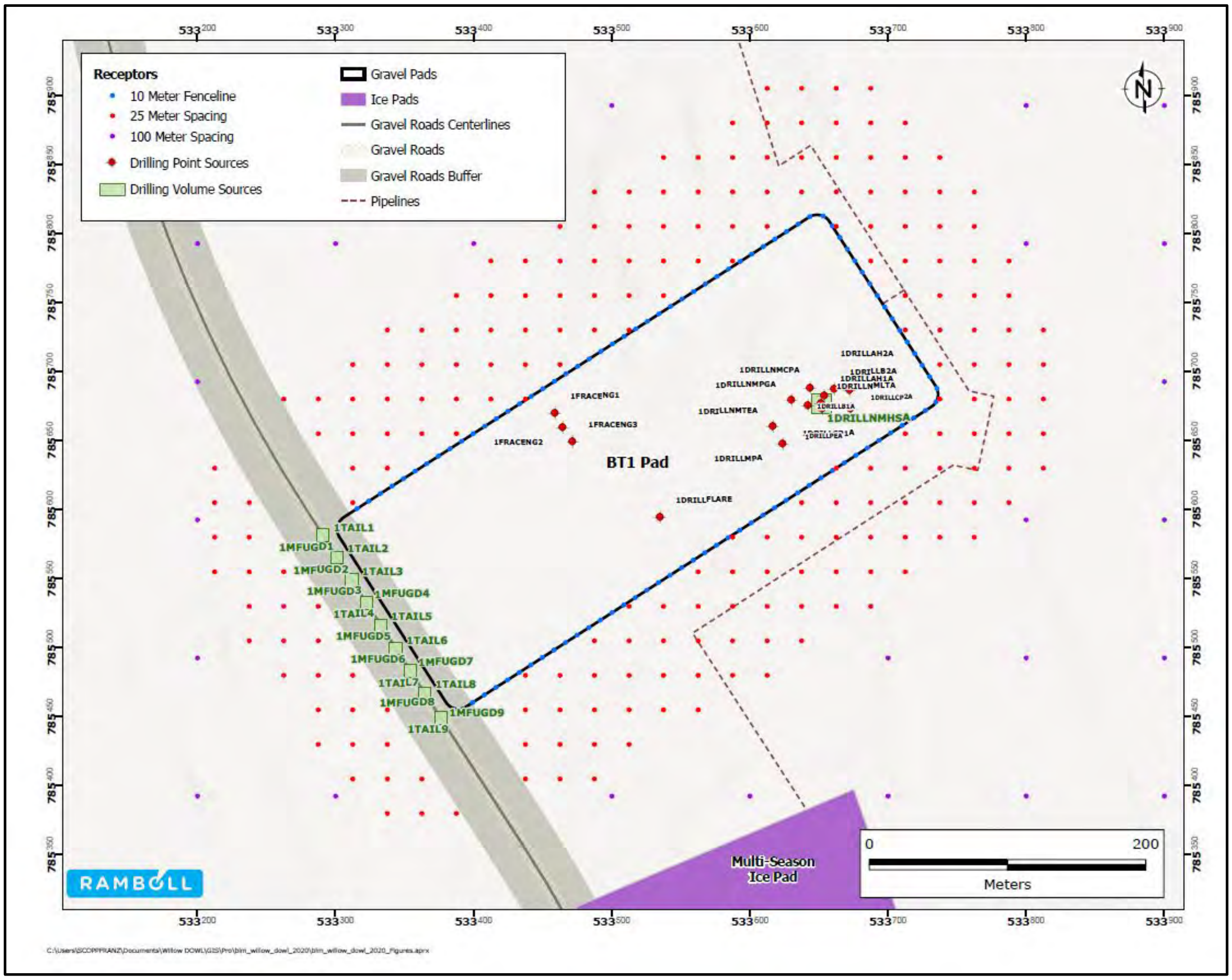

Figure A.1-12. Alternative B Near-field Model Scenario 3 Source Locations at BT1.

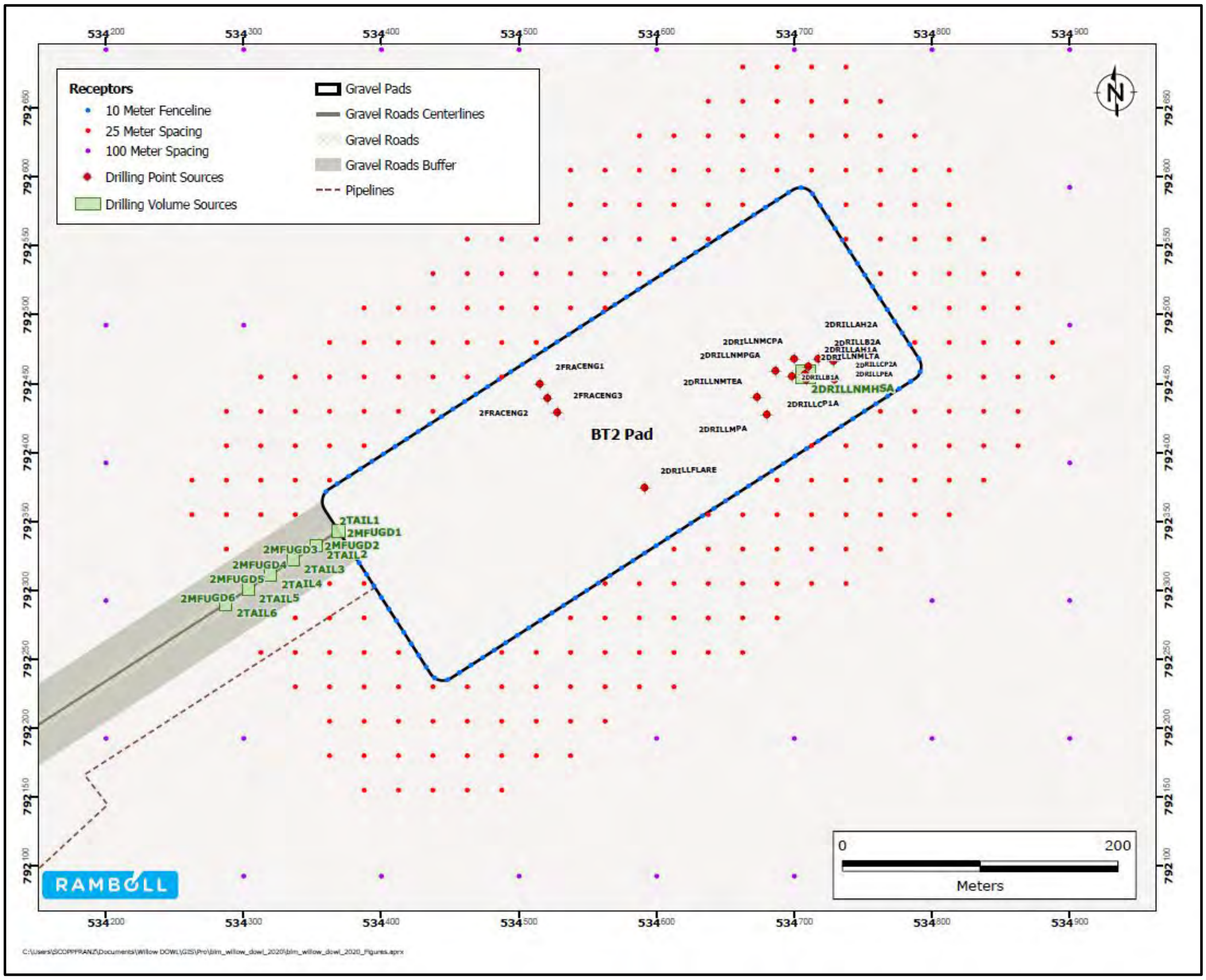

Figure A.1-13. Alternative B Near-field Model Scenario 3 Source Locations at BT2.

Table A.1-7. Alternative B Near-field Model Scenario 3 Emissions Source Descriptions and In-stack Ratios

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
1DRILLPEA	POINT	Drill Rigs - Primary Power Engines A	0.1	Diesel engines
2DRILLPEA	POINT	Drill Rigs - Primary Power Engines A	0.1	Diesel engines
1DRILLCP1A	POINT	Drill Rigs - Cement Pumping Unit #1 A	0.2	Diesel tailpipe from non-road equipment
2DRILLCP1A	POINT	Drill Rigs - Cement Pumping Unit #1 A	0.2	Diesel tailpipe from non-road equipment
1DRILLCP2A	POINT	Drill Rigs - Cement Pumping Unit #2 A	0.2	Diesel tailpipe from non-road equipment
2DRILLCP2A	POINT	Drill Rigs - Cement Pumping Unit #2 A	0.2	Diesel tailpipe from non-road equipment
1DRILLB1A	POINT	Drill Rigs - Boiler #1 A	0.05	Diesel or natural gas heaters, or boiler
2DRILLB1A	POINT	Drill Rigs - Boiler #1 A	0.05	Diesel or natural gas heaters, or boiler
1DRILLB2A	POINT	Drill Rigs - Boiler #2 A	0.05	Diesel or natural gas heaters, or boiler
2DRILLB2A	POINT	Drill Rigs - Boiler #2 A	0.05	Diesel or natural gas heaters, or boiler
1DRILLAH1A	POINT	Drill Rigs - Air Heater #1 A	0.05	Diesel or natural gas heaters, or boiler
2DRILLAH1A	POINT	Drill Rigs - Air Heater #1 A	0.05	Diesel or natural gas heaters, or boiler
1DRILLAH2A	POINT	Drill Rigs - Air Heater #2 A	0.05	Diesel or natural gas heaters, or boiler
2DRILLAH2A	POINT	Drill Rigs - Air Heater #2 A	0.05	Diesel or natural gas heaters, or boiler
1DRILLMPA	POINT	Drill Rigs - Mud Pit Heater A	0.05	Diesel or natural gas heaters, or boiler
2DRILLMPA	POINT	Drill Rigs - Mud Pit Heater A	0.05	Diesel or natural gas heaters, or boiler
1DRILLNMTEA	POINT	Drilling Non-Mobile Support Equipment - Total Engine A	0.1	Diesel engines
2DRILLNMTEA	POINT	Drilling Non-Mobile Support Equipment - Total Engine A	0.1	Diesel engines
1DRILLNMLTA	POINT	Drilling Non-Mobile Support Equipment - Total Lighting Engine A	0.2	Diesel tailpipe from non-road equipment
2DRILLNMLTA	POINT	Drilling Non-Mobile Support Equipment - Total Lighting Engine A	0.2	Diesel tailpipe from non-road equipment
1DRILLNMPG A	POINT	Drilling Non-Mobile Support Equipment - Total Portable Generators A	0.1	Diesel engines
2DRILLNMPG A	POINT	Drilling Non-Mobile Support Equipment - Total Portable Generators A	0.1	Diesel engines
1DRILLNMCPA	POINT	Drilling Non-Mobile Support Equipment - Total Portable Welders/Compressor Engine A	0.1	Diesel engines

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
2DRILLNMCPA	POINT	Drilling Non-Mobile Support Equipment - Total Portable Welders/Compressor Engine A	0.1	Diesel engines
1DRILLNMHSA	VOLUME	Drilling Non-Mobile Support Equipment - Portable Heaters & Snow Melters	0.05	Diesel or natural gas heaters, or boiler
2DRILLNMHSA	VOLUME	Drilling Non-Mobile Support Equipment - Portable Heaters & Snow Melters	0.05	Diesel or natural gas heaters, or boiler
1FRACENG1	POINT	Hydraulic Fracturing - Well Frac Engine 1	0.1	Diesel engines
1FRACENG2	POINT	Hydraulic Fracturing - Well Frac Engine 2	0.1	Diesel engines
1FRACENG3	POINT	Hydraulic Fracturing - Well Frac Engine 3	0.1	Diesel engines
1DRILLFLARE	POINT	Drilling Well Flowback and Flaring - Total Flaring Emissions	0.5	USEPA default value
2FRACENG1	POINT	Hydraulic Fracturing - Well Frac Engine 1	0.1	Diesel engines
2FRACENG2	POINT	Hydraulic Fracturing - Well Frac Engine 2	0.1	Diesel engines
2FRACENG3	POINT	Hydraulic Fracturing - Well Frac Engine 3	0.1	Diesel engines
2DRILLFLARE	POINT	Drilling Well Flowback and Flaring - Total Flaring Emissions	0.5	USEPA default value
1TAIL1	VOLUME	Drilling Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL2	VOLUME	Drilling Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL3	VOLUME	Drilling Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL4	VOLUME	Drilling Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL5	VOLUME	Drilling Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL6	VOLUME	Drilling Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL7	VOLUME	Drilling Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL8	VOLUME	Drilling Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL9	VOLUME	Drilling Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
2TAIL1	VOLUME	Drilling Mobile Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL2	VOLUME	Drilling Mobile Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL3	VOLUME	Drilling Mobile Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL4	VOLUME	Drilling Mobile Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL5	VOLUME	Drilling Mobile Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL6	VOLUME	Drilling Mobile Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
1MFUGD1	VOLUME	Drilling Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD2	VOLUME	Drilling Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD3	VOLUME	Drilling Mobile Equipment Fugitive Dust - BT1	-	-

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
1MFUGD4	VOLUME	Drilling Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD5	VOLUME	Drilling Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD6	VOLUME	Drilling Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD7	VOLUME	Drilling Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD8	VOLUME	Drilling Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD9	VOLUME	Drilling Mobile Equipment Fugitive Dust - BT1	-	-
2MFUGD1	VOLUME	Drilling Mobile Equipment Fugitive Dust - BT2	-	-
2MFUGD2	VOLUME	Drilling Mobile Equipment Fugitive Dust - BT2	-	-
2MFUGD3	VOLUME	Drilling Mobile Equipment Fugitive Dust - BT2	-	-
2MFUGD4	VOLUME	Drilling Mobile Equipment Fugitive Dust - BT2	-	-
2MFUGD5	VOLUME	Drilling Mobile Equipment Fugitive Dust - BT2	-	-
2MFUGD6	VOLUME	Drilling Mobile Equipment Fugitive Dust - BT2	-	-

Table A.1-8. Alternative B Near-field Model Scenario 3 Emissions Stack Parameters

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
1DRILLPEA	POINT	2.74	13.3	0.4	10.5	614	-	-	-	-	-
2DRILLPEA	POINT	2.74	13.3	0.4	10.5	614	-	-	-	-	-
1DRILLCP1A	POINT	2.74	10.4	0.13	43.5	750	-	-	-	-	-
2DRILLCP1A	POINT	2.74	10.4	0.13	43.5	750	-	-	-	-	-
1DRILLCP2A	POINT	2.74	10.4	0.13	43.5	750	-	-	-	-	-
2DRILLCP2A	POINT	2.74	10.4	0.13	43.5	750	-	-	-	-	-
1DRILLB1A	POINT	2.74	11.9	0.279	11.7	450	-	-	-	-	-
2DRILLB1A	POINT	2.74	11.9	0.279	11.7	450	-	-	-	-	-
1DRILLB2A	POINT	2.74	11.9	0.279	11.7	450	-	-	-	-	-
2DRILLB2A	POINT	2.74	11.9	0.279	11.7	450	-	-	-	-	-
1DRILLAH1A	POINT	2.74	10.5	0.3	3.2	533	-	-	-	-	-
2DRILLAH1A	POINT	2.74	10.5	0.3	3.2	533	-	-	-	-	-
1DRILLAH2A	POINT	2.74	10.5	0.3	3.2	533	-	-	-	-	-
2DRILLAH2A	POINT	2.74	10.5	0.3	3.2	533	-	-	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
1DRILLMPA	POINT	2.74	7.2	0.3	10.8	533	-	-	-	-	-
2DRILLMPA	POINT	2.74	7.2	0.3	10.8	533	-	-	-	-	-
1DRILLNMTEA	POINT	2.74	6.5	0.3	47	761	-	-	-	-	-
2DRILLNMTEA	POINT	2.74	6.5	0.3	47	761	-	-	-	-	-
1DRILLNMLTA	POINT	2.74	6.1	0.3	15.1	795	-	-	-	-	-
2DRILLNMLTA	POINT	2.74	6.1	0.3	15.1	795	-	-	-	-	-
1DRILLNMPGA	POINT	2.74	6.1	0.3	15.1	795	-	-	-	-	-
2DRILLNMPGA	POINT	2.74	6.1	0.3	15.1	795	-	-	-	-	-
1DRILLNMCPA	POINT	2.74	3.7	0.3	46	689	-	-	-	-	-
2DRILLNMCPA	POINT	2.74	3.7	0.3	46	689	-	-	-	-	-
1DRILLNMHSA	VOLUME	2.74	3.7	-	-	-	13.95	3.38	-	-	-
2DRILLNMHSA	VOLUME	2.74	3.7	-	-	-	13.95	3.38	-	-	-
1FRACENG1	POINT	2.74	3.7	0.356	41.6	644	-	-	-	-	-
1FRACENG2	POINT	2.74	3.7	0.356	41.6	644	-	-	-	-	-
1FRACENG3	POINT	2.74	3.7	0.356	41.6	644	-	-	-	-	-
1DRILLFLARE	POINT	2.74	10.1	0.3	6.1	1033	-	-	-	-	-
2FRACENG1	POINT	2.74	3.7	0.356	41.6	644	-	-	-	-	-
2FRACENG2	POINT	2.74	3.7	0.356	41.6	644	-	-	-	-	-
2FRACENG3	POINT	2.74	3.7	0.356	41.6	644	-	-	-	-	-
2DRILLFLARE	POINT	2.74	10.1	0.3	6.1	1033	-	-	-	-	-
1TAIL1	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL2	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL3	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL4	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL5	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL6	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL7	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL8	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL9	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
2TAIL1	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
2TAIL2	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
2TAIL3	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
2TAIL4	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
2TAIL5	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
2TAIL6	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD1	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD2	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD3	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD4	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD5	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD6	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD7	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD8	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD9	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
2MFUGD1	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
2MFUGD2	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
2MFUGD3	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
2MFUGD4	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
2MFUGD5	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
2MFUGD6	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-

Table A.1-9. Alternative B Near-field Model Scenario 3 Emissions Rates

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
1DRILLPEA	3.21E+00	6.15E-01	6.15E-01	2.75E-02	2.75E-02	2.75E-02	4.74E-03	4.74E-03	4.74E-03	8760
2DRILLPEA	3.21E+00	6.15E-01	6.15E-01	2.75E-02	2.75E-02	2.75E-02	4.74E-03	4.74E-03	4.74E-03	8760
1DRILLCP1A	1.75E-01	2.00E-02	1.14E-03	1.00E-03	1.00E-03	5.71E-05	3.31E-04	3.31E-04	1.89E-05	500
2DRILLCP1A	1.75E-01	2.00E-02	1.14E-03	1.00E-03	1.00E-03	5.71E-05	3.31E-04	3.31E-04	1.89E-05	500
1DRILLCP2A	1.75E-01	2.00E-02	1.14E-03	1.00E-03	1.00E-03	5.71E-05	3.31E-04	3.31E-04	1.89E-05	500
2DRILLCP2A	1.75E-01	2.00E-02	1.14E-03	1.00E-03	1.00E-03	5.71E-05	3.31E-04	3.31E-04	1.89E-05	500
1DRILLB1A	1.53E-02	6.12E-02	6.12E-02	7.28E-03	6.51E-03	6.51E-03	6.51E-04	6.51E-04	6.51E-04	8760
2DRILLB1A	1.53E-02	6.12E-02	6.12E-02	7.28E-03	6.51E-03	6.51E-03	6.51E-04	6.51E-04	6.51E-04	8760

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
1DRILLB2A	1.53E-02	6.12E-02	6.12E-02	7.28E-03	6.51E-03	6.51E-03	6.51E-04	6.51E-04	6.51E-04	8760
2DRILLB2A	1.53E-02	6.12E-02	6.12E-02	7.28E-03	6.51E-03	6.51E-03	6.51E-04	6.51E-04	6.51E-04	8760
1DRILLAH1A	1.83E-02	7.30E-02	7.30E-02	8.69E-03	7.78E-03	7.78E-03	7.78E-04	7.78E-04	7.78E-04	8760
2DRILLAH1A	1.83E-02	7.30E-02	7.30E-02	8.69E-03	7.78E-03	7.78E-03	7.78E-04	7.78E-04	7.78E-04	8760
1DRILLAH2A	9.13E-03	3.65E-02	3.65E-02	4.35E-03	3.89E-03	3.89E-03	3.89E-04	3.89E-04	3.89E-04	8760
2DRILLAH2A	9.13E-03	3.65E-02	3.65E-02	4.35E-03	3.89E-03	3.89E-03	3.89E-04	3.89E-04	3.89E-04	8760
1DRILLMPA	1.37E-02	5.48E-02	5.48E-02	6.52E-03	5.83E-03	5.83E-03	5.83E-04	5.83E-04	5.83E-04	8760
2DRILLMPA	1.37E-02	5.48E-02	5.48E-02	6.52E-03	5.83E-03	5.83E-03	5.83E-04	5.83E-04	5.83E-04	8760
1DRILLNMTEA	4.91E-01	5.61E-01	5.61E-01	2.81E-02	2.81E-02	2.81E-02	1.04E-03	1.04E-03	1.04E-03	8760
2DRILLNMTEA	4.91E-01	5.61E-01	5.61E-01	2.81E-02	2.81E-02	2.81E-02	1.04E-03	1.04E-03	1.04E-03	8760
1DRILLNMLTA	7.22E-02	8.20E-02	8.20E-02	8.75E-03	8.75E-03	8.75E-03	7.24E-05	7.24E-05	7.24E-05	8760
2DRILLNMLTA	7.22E-02	8.20E-02	8.20E-02	8.75E-03	8.75E-03	8.75E-03	7.24E-05	7.24E-05	7.24E-05	8760
1DRILLNMPGA	3.51E-02	3.30E-02	3.30E-02	2.81E-03	2.81E-03	2.81E-03	4.64E-05	4.64E-05	4.64E-05	8760
2DRILLNMPGA	3.51E-02	3.30E-02	3.30E-02	2.81E-03	2.81E-03	2.81E-03	4.64E-05	4.64E-05	4.64E-05	8760
1DRILLNMCPA	5.97E-02	5.61E-02	5.61E-02	4.77E-03	4.77E-03	4.77E-03	7.90E-05	7.90E-05	7.90E-05	8760
2DRILLNMCPA	5.97E-02	5.61E-02	5.61E-02	4.77E-03	4.77E-03	4.77E-03	7.90E-05	7.90E-05	7.90E-05	8760
1DRILLNMHSA	2.15E-02	8.59E-02	6.44E-02	1.02E-02	9.15E-03	6.86E-03	9.15E-04	9.15E-04	6.86E-04	8760
2DRILLNMHSA	2.15E-02	8.59E-02	6.44E-02	1.02E-02	9.15E-03	6.86E-03	9.15E-04	9.15E-04	6.86E-04	8760
1FRACENG1	3.11E-02	2.49E-03	8.17E-04	1.24E-04	1.24E-04	4.09E-05	4.11E-05	4.11E-05	1.35E-05	5840
1FRACENG2	1.79E-01	3.43E-02	1.13E-02	1.54E-03	1.54E-03	5.06E-04	3.78E-04	3.78E-04	1.24E-04	5840
1FRACENG3	2.61E+00	5.00E-01	1.64E-01	2.24E-02	2.24E-02	7.35E-03	5.50E-03	5.50E-03	1.81E-03	5840
1DRILLFLARE	1.08E+00	1.98E-01	1.95E-02	4.79E-05	4.79E-05	4.72E-06	1.16E-02	1.16E-02	1.14E-03	864
2FRACENG1	3.11E-02	2.49E-03	8.17E-04	1.24E-04	1.24E-04	4.09E-05	4.11E-05	4.11E-05	1.35E-05	5840
2FRACENG2	1.79E-01	3.43E-02	1.13E-02	1.54E-03	1.54E-03	5.06E-04	3.78E-04	3.78E-04	1.24E-04	5840
2FRACENG3	2.61E+00	5.00E-01	1.64E-01	2.24E-02	2.24E-02	7.35E-03	5.50E-03	5.50E-03	1.81E-03	5840
2DRILLFLARE	1.08E+00	1.98E-01	1.95E-02	4.79E-05	4.79E-05	4.72E-06	1.16E-02	1.16E-02	1.14E-03	864
1TAIL1	6.08E-06	1.18E-05	1.18E-05	1.86E-06	5.74E-07	5.74E-07	7.62E-08	7.62E-08	7.62E-08	8760
1TAIL2	6.08E-06	1.18E-05	1.18E-05	1.86E-06	5.74E-07	5.74E-07	7.62E-08	7.62E-08	7.62E-08	8760
1TAIL3	6.08E-06	1.18E-05	1.18E-05	1.86E-06	5.74E-07	5.74E-07	7.62E-08	7.62E-08	7.62E-08	8760
1TAIL4	6.08E-06	1.18E-05	1.18E-05	1.86E-06	5.74E-07	5.74E-07	7.62E-08	7.62E-08	7.62E-08	8760
1TAIL5	6.08E-06	1.18E-05	1.18E-05	1.86E-06	5.74E-07	5.74E-07	7.62E-08	7.62E-08	7.62E-08	8760
1TAIL6	6.08E-06	1.18E-05	1.18E-05	1.86E-06	5.74E-07	5.74E-07	7.62E-08	7.62E-08	7.62E-08	8760

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
1TAIL7	6.08E-06	1.18E-05	1.18E-05	1.86E-06	5.74E-07	5.74E-07	7.62E-08	7.62E-08	7.62E-08	8760
1TAIL8	6.08E-06	1.18E-05	1.18E-05	1.86E-06	5.74E-07	5.74E-07	7.62E-08	7.62E-08	7.62E-08	8760
1TAIL9	6.08E-06	1.18E-05	1.18E-05	1.86E-06	5.74E-07	5.74E-07	7.62E-08	7.62E-08	7.62E-08	8760
2TAIL1	6.08E-06	1.18E-05	1.18E-05	1.86E-06	5.74E-07	5.74E-07	7.62E-08	7.62E-08	7.62E-08	8760
2TAIL2	6.08E-06	1.18E-05	1.18E-05	1.86E-06	5.74E-07	5.74E-07	7.62E-08	7.62E-08	7.62E-08	8760
2TAIL3	6.08E-06	1.18E-05	1.18E-05	1.86E-06	5.74E-07	5.74E-07	7.62E-08	7.62E-08	7.62E-08	8760
2TAIL4	6.08E-06	1.18E-05	1.18E-05	1.86E-06	5.74E-07	5.74E-07	7.62E-08	7.62E-08	7.62E-08	8760
2TAIL5	6.08E-06	1.18E-05	1.18E-05	1.86E-06	5.74E-07	5.74E-07	7.62E-08	7.62E-08	7.62E-08	8760
2TAIL6	6.08E-06	1.18E-05	1.18E-05	1.86E-06	5.74E-07	5.74E-07	7.62E-08	7.62E-08	7.62E-08	8760
1MFUGD1	0.00E+00	0.00E+00	0.00E+00	3.34E-03	3.34E-04	3.34E-04	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD2	0.00E+00	0.00E+00	0.00E+00	3.34E-03	3.34E-04	3.34E-04	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD3	0.00E+00	0.00E+00	0.00E+00	3.34E-03	3.34E-04	3.34E-04	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD4	0.00E+00	0.00E+00	0.00E+00	3.34E-03	3.34E-04	3.34E-04	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD5	0.00E+00	0.00E+00	0.00E+00	3.34E-03	3.34E-04	3.34E-04	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD6	0.00E+00	0.00E+00	0.00E+00	3.34E-03	3.34E-04	3.34E-04	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD7	0.00E+00	0.00E+00	0.00E+00	3.34E-03	3.34E-04	3.34E-04	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD8	0.00E+00	0.00E+00	0.00E+00	3.34E-03	3.34E-04	3.34E-04	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD9	0.00E+00	0.00E+00	0.00E+00	3.34E-03	3.34E-04	3.34E-04	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD1	0.00E+00	0.00E+00	0.00E+00	3.34E-03	3.34E-04	3.34E-04	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD2	0.00E+00	0.00E+00	0.00E+00	3.34E-03	3.34E-04	3.34E-04	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD3	0.00E+00	0.00E+00	0.00E+00	3.34E-03	3.34E-04	3.34E-04	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD4	0.00E+00	0.00E+00	0.00E+00	3.34E-03	3.34E-04	3.34E-04	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD5	0.00E+00	0.00E+00	0.00E+00	3.34E-03	3.34E-04	3.34E-04	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD6	0.00E+00	0.00E+00	0.00E+00	3.34E-03	3.34E-04	3.34E-04	0.00E+00	0.00E+00	0.00E+00	4380

A.1.4 Scenario 4: Development Drilling

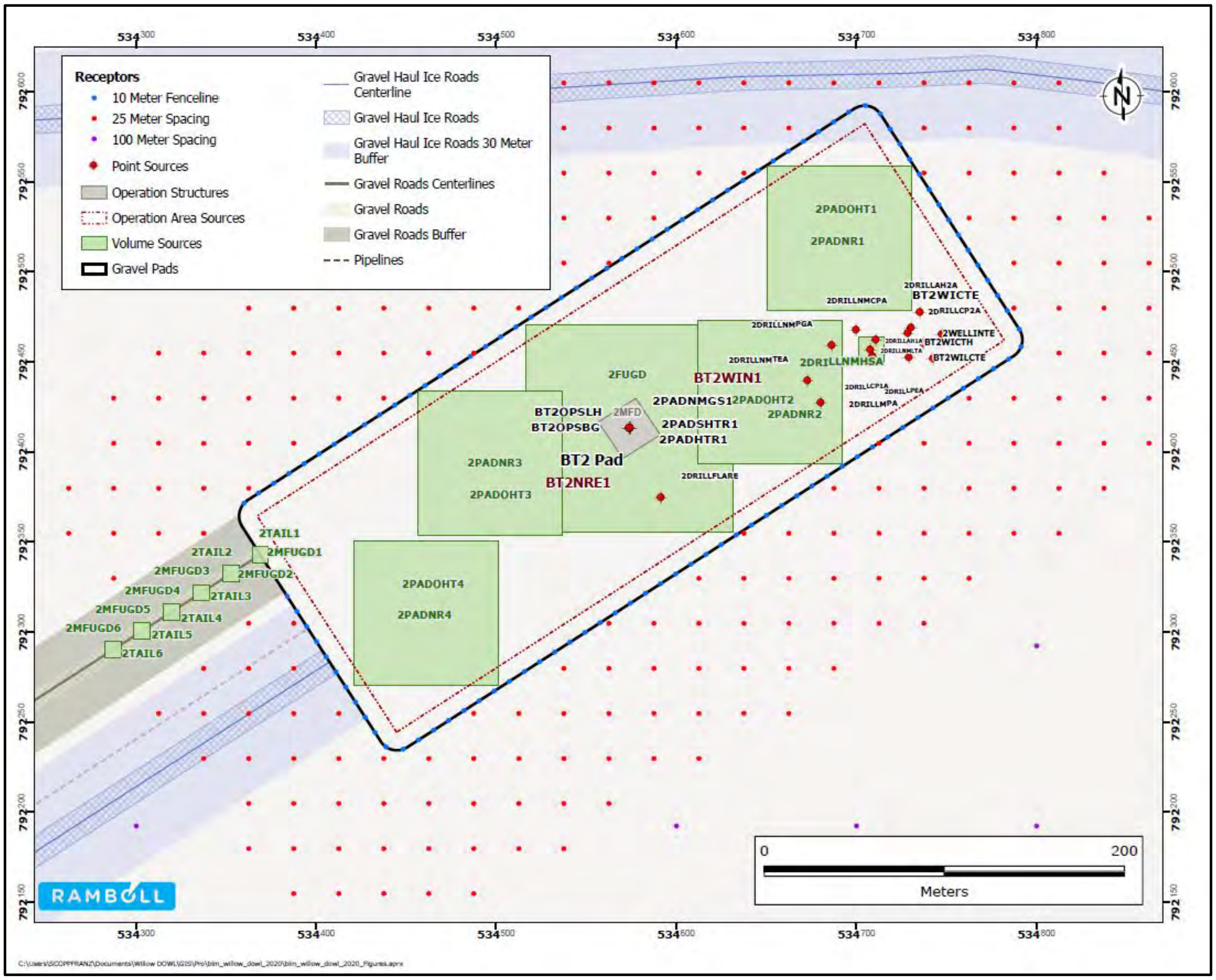

Figure A.1-14. Alternative B Near-field Model Scenario 4 Source Locations at BT2.

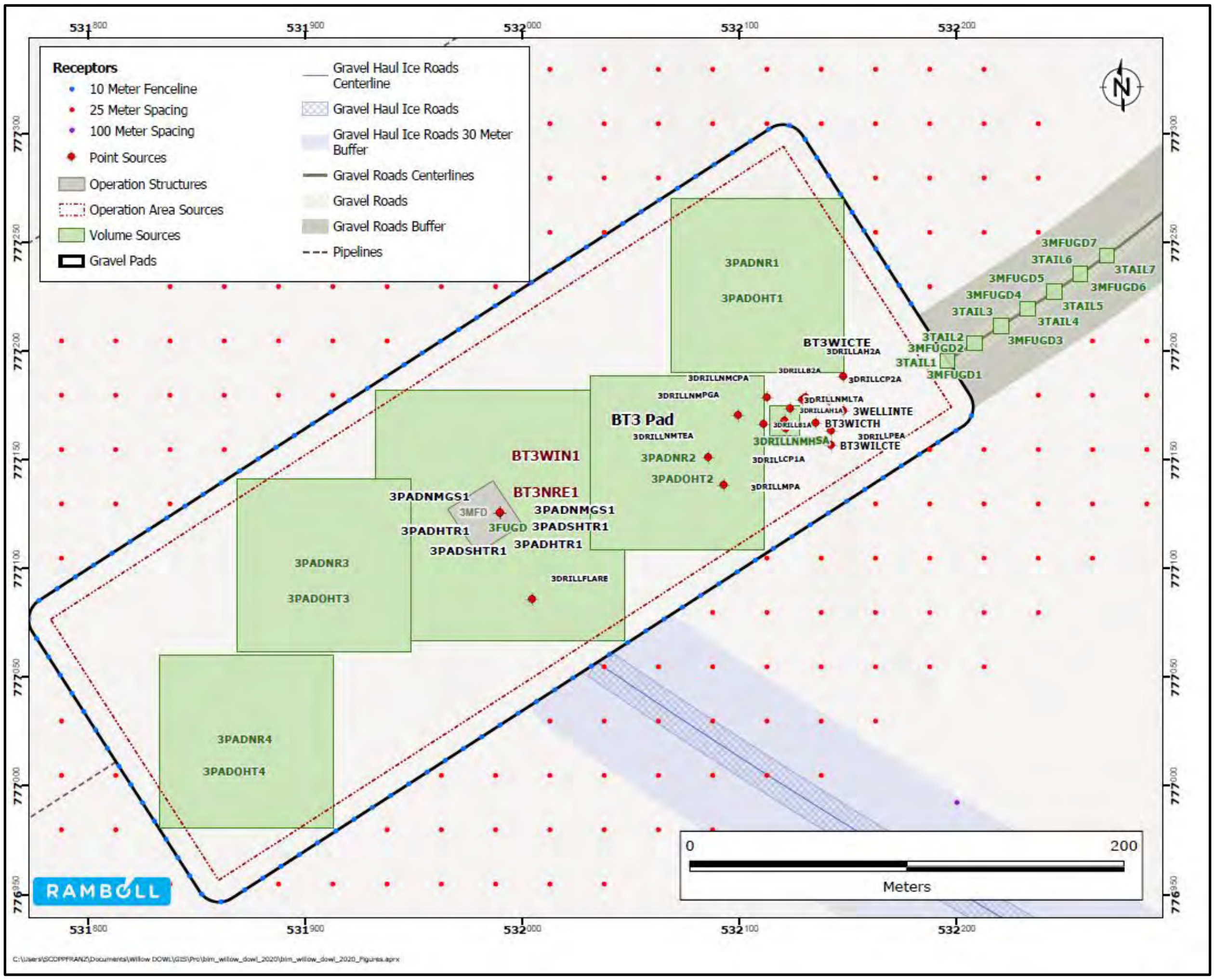

Figure A.1-15. Alternative B Near-field Model Scenario 4 Source Locations at BT3.

Table A.1-10. Alternative B Near-field Model Scenario 4 Emissions Source Descriptions and In-stack Ratios

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
WOCOPSTDR	POINT	WOC - Storage Tanks - VFRT/ DRA (drag reducing agent)	-	-
BT1OPSLH	POINT	BT1 - Line Heater	0.05	Diesel or natural gas heaters, or boiler
BT1OPSBG	POINT	BT1 - Backup Generator	0.2	Diesel tailpipe from non-road equipment
BT1OPSFUG	VOLUME	BT1 - Fugitive Components	-	-
BT1OPSFUGD	VOLUME	BT1 - Wind Erosion Fugitive Dust	-	-
BT1OPSTEB	POINT	BT1 - Storage Tanks - VFRT/ Emulsion Breaker/ Pad Buster	-	-
BT1OPSTD	POINT	BT1 - Storage Tanks - VFRT/ Diesel	-	-
BT1OPSTCO	POINT	BT1 - Storage Tanks - VFRT/ Portable Temp Crude Oil	-	-
BT1WICTH	POINT	BT1 - Well Intervention Main Equipment - Coil Tubing Heater	0.05	Diesel or natural gas heaters, or boiler
BT1WICTE	POINT	BT1 - Well Intervention Main Equipment - Coil Tubing Engine	0.1	Diesel engines
BT1WILCTE	POINT	BT1 - Well Intervention Main Equipment - Large Coil Tubing Engine	0.1	Diesel engines
BT2OPSLH	POINT	BT2 - Line Heater	0.05	Diesel or natural gas heaters, or boiler
BT2OPSBG	POINT	BT2 - Backup Generator	0.2	Diesel tailpipe from non-road equipment
BT2OPSFUG	VOLUME	BT2 - Fugitive Components	-	-
BT2OPSFUGD	VOLUME	BT2 - Wind Erosion Fugitive Dust	-	-
BT2WICTH	POINT	BT2 - Well Intervention Main Equipment - Coil Tubing Heater	0.05	Diesel or natural gas heaters, or boiler
BT2WICTE	POINT	BT2 - Well Intervention Main Equipment - Coil Tubing Engine	0.1	Diesel engines
BT2WILCTE	POINT	BT2 - Well Intervention Main Equipment - Large Coil Tubing Engine	0.1	Diesel engines
BT3OPSFUG	VOLUME	BT3 - Fugitive Components	-	-
BT3OPSFUGD	VOLUME	BT3 - Wind Erosion Fugitive Dust	-	-
BT3WICTH	POINT	BT3 - Well Intervention Main Equipment - Coil Tubing Heater	0.05	Diesel or natural gas heaters, or boiler
BT3WICTE	POINT	BT3 - Well Intervention Main Equipment - Coil Tubing Engine	0.1	Diesel engines
BT3WILCTE	POINT	BT3 - Well Intervention Main Equipment - Large Coil Tubing Engine	0.1	Diesel engines
BT4OPSLH	POINT	BT4 - Line Heater	0.05	Diesel or natural gas heaters, or boiler
BT4OPSBG	POINT	BT4 - Backup Generator	0.2	Diesel tailpipe from non-road equipment
BT4OPSFUG	VOLUME	BT4 - Fugitive Components	-	-
BT4OPSFUGD	VOLUME	BT4 - Wind Erosion Fugitive Dust	-	-
BT4OPSTEB	POINT	BT4 - Storage Tanks - VFRT/ Emulsion Breaker/ Pad Buster	-	-

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
BT4OPSTD	POINT	BT4 - Storage Tanks - VFRT/ Diesel	-	-
BT4OPSTCO	POINT	BT4 - Storage Tanks - VFRT/ Portable Temp Crude Oil	-	-
BT4WICTH	POINT	BT4 - Well Intervention Main Equipment - Coil Tubing Heater	0.05	Diesel or natural gas heaters, or boiler
BT4WICTE	POINT	BT4 - Well Intervention Main Equipment - Coil Tubing Engine	0.1	Diesel engines
BT4WILCTE	POINT	BT4 - Well Intervention Main Equipment - Large Coil Tubing Engine	0.1	Diesel engines
BT5OPSLH	POINT	BT5 - Line Heater	0.05	Diesel or natural gas heaters, or boiler
BT5OPSBG	POINT	BT5 - Backup Generator	0.2	Diesel tailpipe from non-road equipment
BT5OPSFUG	VOLUME	BT5 - Fugitive Components	-	-
BT5OPSFUGD	VOLUME	BT5 - Wind Erosion Fugitive Dust	-	-
BT5WICTH	POINT	BT5 - Well Intervention Main Equipment - Coil Tubing Heater	0.05	Diesel or natural gas heaters, or boiler
BT5WICTE	POINT	BT5 - Well Intervention Main Equipment - Coil Tubing Engine	0.1	Diesel engines
BT5WILCTE	POINT	BT5 - Well Intervention Main Equipment - Large Coil Tubing Engine	0.1	Diesel engines
WLWTG03A	POINT	WPF - Stationary Combustion Sources - Injection/Compression Turbine	0.3	Natural gas-fired turbines
WLWTG03B	POINT	WPF - Stationary Combustion Sources - Injection/Compression Turbine	0.3	Natural gas-fired turbines
WLWTG01A	POINT	WPF - Stationary Combustion Sources - Power Generation Turbine	0.3	Natural gas-fired turbines
WLWTG01B	POINT	WPF - Stationary Combustion Sources - Power Generation Turbine	0.3	Natural gas-fired turbines
WLWTG02A	POINT	WPF - Stationary Combustion Sources - Power Generation Turbine	0.3	Natural gas-fired turbines
WLWTG02B	POINT	WPF - Stationary Combustion Sources - Power Generation Turbine	0.3	Natural gas-fired turbines
WLWTG04	POINT	WPF - Stationary Combustion Sources - Backup Power Generation Turbine (Dual Fuel)	0.3	Natural gas-fired turbines
WLWTG05	POINT	WPF - Stationary Combustion Sources - Backup Power Generation Turbine (Dual Fuel)	0.3	Natural gas-fired turbines
WLWGL05	POINT	WPF - Stationary Combustion Sources - Black Start Engine	0.1	Diesel engines
WLWHG03	POINT	WPF - Stationary Combustion Sources - Crude Production Heater	0.05	Diesel or natural gas heaters, or boiler
WLWHG04	POINT	WPF - Stationary Combustion Sources - Crude Production Heater	0.05	Diesel or natural gas heaters, or boiler
WLWHG01	POINT	WPF - Stationary Combustion Sources - Utility Heat Medium (UHM) Heater	0.05	Diesel or natural gas heaters, or boiler
WLWHG02	POINT	WPF - Stationary Combustion Sources - Utility Heat Medium (UHM) Heater	0.05	Diesel or natural gas heaters, or boiler

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
WLWHG06	POINT	WPF - Stationary Combustion Sources - Hot Oil Heater	0.05	Diesel or natural gas heaters, or boiler
WLWFGLP	POINT	WPF - Stationary Combustion Sources - LP Flare (pilot/purge/assist)	0.5	USEPA default value
WLWFGHP	POINT	WPF - Stationary Combustion Sources - HP Flare (pilot/purge/assist)	0.5	USEPA default value
WCFOPSDS	POINT	WPF - Stationary Combustion Sources - Diesel Fueling Station	-	-
WCFOPSTSO	POINT	WPF - Storage Tanks - VFRT/ Slop Oil	-	-
WCFOPSTCO	POINT	WPF - Storage Tanks - VFRT/ Portable Temp Crude Oil	-	-
WCFOPSTUD	POINT	WPF - Storage Tanks - VFRT/ ULSD	-	-
WCFOPSTLD	POINT	WPF - Storage Tanks - VFRT/ LEPD	-	-
WCFOPSTEB	POINT	WPF - Storage Tanks - VFRT/ Emulsion Breaker/ Pad Buster	-	-
WCFOPSFUG	VOLUME	WPF - Fugitive Equipment Leaks	-	-
WCFOPSFUGD	VOLUME	WPF - Wind Erosion Fugitive Dust	-	-
WOCPWRGEN1	POINT	WOC - Stationary Combustion Sources - Power Generation	0.1	Diesel engines
WOCPWRGEN2	POINT	WOC - Stationary Combustion Sources - Power Generation	0.1	Diesel engines
WOCPWRGEN3	POINT	WOC - Stationary Combustion Sources - Power Generation	0.1	Diesel engines
WLWIG01	POINT	WOC - Stationary Combustion Sources - Incinerator	0.5	USEPA default value
WLWIG02	POINT	WOC - Stationary Combustion Sources - Incinerator	0.5	USEPA default value
WLWHL05	POINT	WOC - Stationary Combustion Sources - Mud Plant Glycol Boiler	0.05	Diesel or natural gas heaters, or boiler
WOCOPSTJF	POINT	WOC - Storage Tanks - VFRT/ Aircraft Jet Fuel	-	-
WOCOPSTHC	POINT	WOC - Storage Tanks - VFRT/ Hydrocarbon	-	-
WOCOPSTD	POINT	WOC - Storage Tanks - VFRT/ Diesel	-	-
WILLOWAIR1	AREAPOLY	WOC - Aircraft Activity (Willow Airstrip) - Release Height 50.8m	0.5	USEPA default value
WILLOWAIR2	AREAPOLY	WOC - Aircraft Activity (Willow Airstrip) - Release Height 152.4m	0.5	USEPA default value
WILLOWAIR3	AREAPOLY	WOC - Aircraft Activity (Willow Airstrip) - Release Height 254m	0.5	USEPA default value
WOCOPSFUGD	VOLUME	WOC - Wind Erosion Fugitive Dust - Wind Erosion	-	-
WCFPCE1	AREAPOLY	WPF - Non-mobile Support Equipment - Portable External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFPCE2	AREAPOLY	WPF - Non-mobile Support Equipment - Portable External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFPCE3	AREAPOLY	WPF - Non-mobile Support Equipment - Portable External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFPCE4	AREAPOLY	WPF - Non-mobile Support Equipment - Portable External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
WCFPCE5	AREAPOLY	WPF - Non-mobile Support Equipment - Portable External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFPCE6	AREAPOLY	WPF - Non-mobile Support Equipment - Portable External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFPCE7	AREAPOLY	WPF - Non-mobile Support Equipment - Portable External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFSCE1	AREAPOLY	WPF - Non-mobile Support Equipment - Stationary External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFSCE2	AREAPOLY	WPF - Non-mobile Support Equipment - Stationary External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFSCE3	AREAPOLY	WPF - Non-mobile Support Equipment - Stationary External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFSCE4	AREAPOLY	WPF - Non-mobile Support Equipment - Stationary External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFSCE5	AREAPOLY	WPF - Non-mobile Support Equipment - Stationary External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFSCE6	AREAPOLY	WPF - Non-mobile Support Equipment - Stationary External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFSCE7	AREAPOLY	WPF - Non-mobile Support Equipment - Stationary External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFNRE1	AREAPOLY	WPF - Non-mobile Support Equipment - Internal Combustion Equipment Non-Road Engines <140 HP	0.2	Diesel tailpipe from non-road equipment
WCFNRE2	AREAPOLY	WPF - Non-mobile Support Equipment - Internal Combustion Equipment Non-Road Engines <140 HP	0.2	Diesel tailpipe from non-road equipment
WCFNRE3	AREAPOLY	WPF - Non-mobile Support Equipment - Internal Combustion Equipment Non-Road Engines <140 HP	0.2	Diesel tailpipe from non-road equipment
WCFNRE4	AREAPOLY	WPF - Non-mobile Support Equipment - Internal Combustion Equipment Non-Road Engines <140 HP	0.2	Diesel tailpipe from non-road equipment
WCFNRE5	AREAPOLY	WPF - Non-mobile Support Equipment - Internal Combustion Equipment Non-Road Engines <140 HP	0.2	Diesel tailpipe from non-road equipment
WCFNRE6	AREAPOLY	WPF - Non-mobile Support Equipment - Internal Combustion Equipment Non-Road Engines <140 HP	0.2	Diesel tailpipe from non-road equipment

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
WCFNRE7	AREAPOLY	WPF - Non-mobile Support Equipment - Internal Combustion Equipment Non-Road Engines <140 HP	0.2	Diesel tailpipe from non-road equipment
WLW2GEN	POINT	WPF - Non-mobile Support Equipment - Internal Combustion Equipment Non-Road Engines >140 HP	0.1	Diesel engines
BT3NRE1	AREAPOLY	BT3 - Routine Operations Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
BT3WIN1	AREAPOLY	BT3 - Well Intervention Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
3WELLINTE	POINT	BT3 - Well Intervention Non-Mobile Support Equipment - Total Engine	0.1	Diesel engines
BT1NRE1	AREAPOLY	BT1 - Routine Operations Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
BT1WIN1	AREAPOLY	BT1 - Well Intervention Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
1WELLINTE	POINT	BT1 - Well Intervention Non-Mobile Support Equipment - Total Engine	0.1	Diesel engines
BT2NRE1	AREAPOLY	BT2 - Routine Operations Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
BT2WIN1	AREAPOLY	BT2 - Well Intervention Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
2WELLINTE	POINT	BT2 - Well Intervention Non-Mobile Support Equipment - Total Engine	0.1	Diesel engines
BT4NRE1	AREAPOLY	BT4 - Routine Operations Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
BT4WIN1	AREAPOLY	BT4 - Well Intervention Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
4WELLINTE	POINT	BT4 - Well Intervention Non-Mobile Support Equipment - Total Engine	0.1	Diesel engines
BT5NRE1	AREAPOLY	BT5 - Routine Operations Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
BT5WIN1	AREAPOLY	BT5 - Well Intervention Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
5WELLINTE	POINT	BT5 - Well Intervention Non-Mobile Support Equipment - Total Engine	0.1	Diesel engines
WOCPCE	AREAPOLY	WOC - Non-mobile Support Equipment - Portable External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WOCSCE	AREAPOLY	WOC - Non-mobile Support Equipment - Stationary External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WOCNRE	AREAPOLY	WOC - Non-mobile Support Equipment - Internal Combustion Equipment Non-Road Engines <140 HP	0.2	Diesel tailpipe from non-road equipment
1TAIL1	VOLUME	Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL2	VOLUME	Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL3	VOLUME	Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL4	VOLUME	Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL5	VOLUME	Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL6	VOLUME	Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL7	VOLUME	Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL8	VOLUME	Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL9	VOLUME	Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
2TAIL1	VOLUME	Mobile Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL2	VOLUME	Mobile Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL3	VOLUME	Mobile Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL4	VOLUME	Mobile Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL5	VOLUME	Mobile Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL6	VOLUME	Mobile Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
3TAIL1	VOLUME	Mobile Equipment Tailpipe - BT3	0.15	Diesel tailpipe from on-road vehicles
3TAIL2	VOLUME	Mobile Equipment Tailpipe - BT3	0.15	Diesel tailpipe from on-road vehicles
3TAIL3	VOLUME	Mobile Equipment Tailpipe - BT3	0.15	Diesel tailpipe from on-road vehicles
3TAIL4	VOLUME	Mobile Equipment Tailpipe - BT3	0.15	Diesel tailpipe from on-road vehicles
3TAIL5	VOLUME	Mobile Equipment Tailpipe - BT3	0.15	Diesel tailpipe from on-road vehicles
3TAIL6	VOLUME	Mobile Equipment Tailpipe - BT3	0.15	Diesel tailpipe from on-road vehicles
3TAIL7	VOLUME	Mobile Equipment Tailpipe - BT3	0.15	Diesel tailpipe from on-road vehicles
4TAIL1	VOLUME	Mobile Equipment Tailpipe - BT4	0.15	Diesel tailpipe from on-road vehicles
4TAIL2	VOLUME	Mobile Equipment Tailpipe - BT4	0.15	Diesel tailpipe from on-road vehicles

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
4TAIL3	VOLUME	Mobile Equipment Tailpipe - BT4	0.15	Diesel tailpipe from on-road vehicles
4TAIL4	VOLUME	Mobile Equipment Tailpipe - BT4	0.15	Diesel tailpipe from on-road vehicles
4TAIL5	VOLUME	Mobile Equipment Tailpipe - BT4	0.15	Diesel tailpipe from on-road vehicles
4TAIL6	VOLUME	Mobile Equipment Tailpipe - BT4	0.15	Diesel tailpipe from on-road vehicles
4TAIL7	VOLUME	Mobile Equipment Tailpipe - BT4	0.15	Diesel tailpipe from on-road vehicles
5TAIL1	VOLUME	Mobile Equipment Tailpipe - BT5	0.15	Diesel tailpipe from on-road vehicles
5TAIL2	VOLUME	Mobile Equipment Tailpipe - BT5	0.15	Diesel tailpipe from on-road vehicles
5TAIL3	VOLUME	Mobile Equipment Tailpipe - BT5	0.15	Diesel tailpipe from on-road vehicles
5TAIL4	VOLUME	Mobile Equipment Tailpipe - BT5	0.15	Diesel tailpipe from on-road vehicles
5TAIL5	VOLUME	Mobile Equipment Tailpipe - BT5	0.15	Diesel tailpipe from on-road vehicles
5TAIL6	VOLUME	Mobile Equipment Tailpipe - BT5	0.15	Diesel tailpipe from on-road vehicles
5TAIL7	VOLUME	Mobile Equipment Tailpipe - BT5	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL1	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL2	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL3	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL4	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL5	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL6	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL7	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL8	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL9	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL10	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL11	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL12	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL13	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL14	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL15	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL16	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL17	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL18	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL19	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL20	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
WOCTAIL21	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL22	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL23	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL24	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL25	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL26	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL27	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL28	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL29	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL30	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL31	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL32	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL33	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
AIRTAIL1	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
AIRTAIL2	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
AIRTAIL3	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
AIRTAIL4	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
AIRTAIL5	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
AIRTAIL6	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
AIRTAIL7	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL1	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL2	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL3	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL4	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL5	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL6	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL7	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL8	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL9	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL10	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL11	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL12	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
WCFTAIL13	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL14	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL15	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL16	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL17	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL18	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL19	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
1MFUGD1	VOLUME	Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD2	VOLUME	Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD3	VOLUME	Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD4	VOLUME	Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD5	VOLUME	Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD6	VOLUME	Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD7	VOLUME	Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD8	VOLUME	Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD9	VOLUME	Mobile Equipment Fugitive Dust - BT1	-	-
2MFUGD1	VOLUME	Mobile Equipment Fugitive Dust - BT2	-	-
2MFUGD2	VOLUME	Mobile Equipment Fugitive Dust - BT2	-	-
2MFUGD3	VOLUME	Mobile Equipment Fugitive Dust - BT2	-	-
2MFUGD4	VOLUME	Mobile Equipment Fugitive Dust - BT2	-	-
2MFUGD5	VOLUME	Mobile Equipment Fugitive Dust - BT2	-	-
2MFUGD6	VOLUME	Mobile Equipment Fugitive Dust - BT2	-	-
3MFUGD1	VOLUME	Mobile Equipment Fugitive Dust - BT3	-	-
3MFUGD2	VOLUME	Mobile Equipment Fugitive Dust - BT3	-	-
3MFUGD3	VOLUME	Mobile Equipment Fugitive Dust - BT3	-	-
3MFUGD4	VOLUME	Mobile Equipment Fugitive Dust - BT3	-	-
3MFUGD5	VOLUME	Mobile Equipment Fugitive Dust - BT3	-	-
3MFUGD6	VOLUME	Mobile Equipment Fugitive Dust - BT3	-	-
3MFUGD7	VOLUME	Mobile Equipment Fugitive Dust - BT3	-	-
4MFUGD1	VOLUME	Mobile Equipment Fugitive Dust - BT4	-	-
4MFUGD2	VOLUME	Mobile Equipment Fugitive Dust - BT4	-	-
4MFUGD3	VOLUME	Mobile Equipment Fugitive Dust - BT4	-	-

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
4MFUGD4	VOLUME	Mobile Equipment Fugitive Dust - BT4	-	-
4MFUGD5	VOLUME	Mobile Equipment Fugitive Dust - BT4	-	-
4MFUGD6	VOLUME	Mobile Equipment Fugitive Dust - BT4	-	-
4MFUGD7	VOLUME	Mobile Equipment Fugitive Dust - BT4	-	-
5MFUGD1	VOLUME	Mobile Equipment Fugitive Dust - BT5	-	-
5MFUGD2	VOLUME	Mobile Equipment Fugitive Dust - BT5	-	-
5MFUGD3	VOLUME	Mobile Equipment Fugitive Dust - BT5	-	-
5MFUGD4	VOLUME	Mobile Equipment Fugitive Dust - BT5	-	-
5MFUGD5	VOLUME	Mobile Equipment Fugitive Dust - BT5	-	-
5MFUGD6	VOLUME	Mobile Equipment Fugitive Dust - BT5	-	-
5MFUGD7	VOLUME	Mobile Equipment Fugitive Dust - BT5	-	-
WCFMFUGD1	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD2	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD3	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD4	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD5	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD6	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD7	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD8	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD9	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD10	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD11	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD12	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD13	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD14	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD15	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD16	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD17	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD18	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD19	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WOCMFUGD1	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD2	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
WOCMFUGD3	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD4	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD5	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD6	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD7	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD8	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD9	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD10	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD11	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD12	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD13	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD14	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD15	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD16	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD17	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD18	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD19	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD20	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD21	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD22	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD23	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD24	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD25	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD26	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD27	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD28	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD29	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD30	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD31	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD32	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD33	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
AIRMFUGD1	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
AIRMFUGD2	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
AIRMFUGD3	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
AIRMFUGD4	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
AIRMFUGD5	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
AIRMFUGD6	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
AIRMFUGD7	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCTEMPTRB 1	POINT	WOC - Stationary Conbustion Sources - Power Generation Turbine	0.3	Natural gas-fired turbines
WOCTEMPTRB 2	POINT	WOC - Stationary Conbustion Sources - Power Generation Turbine	0.3	Natural gas-fired turbines
RFDGMT1	POINT	RFD - GMT1	0.2	Diesel tailpipe from non-road equipment
RFDGMT2	POINT	RFD - GMT2	0.2	Diesel tailpipe from non-road equipment
RFDGWPDS1	POINT	RFD - Greater Willow Project Drill Site #1	0.15	Diesel engines/natural gas-fired turbines
RFDGWPDS2	POINT	RFD - Greater Willow Project Drill Site #2	0.15	Diesel engines/natural gas-fired turbines
RFDCD5	POINT	RFD - CD5	0.2	Diesel tailpipe from non-road equipment
2DRILLPEA	POINT	BT2 - Drill Rigs - Primary Power Engines	0.1	Diesel engines
2DRILLCP1A	POINT	BT2 - Drill Rigs - Cement Pumping Unit #1	0.2	Diesel tailpipe from non-road equipment
2DRILLCP2A	POINT	BT2 - Drill Rigs - Cement Pumping Unit #2	0.2	Diesel tailpipe from non-road equipment
2DRILLB1A	POINT	BT2 - Drill Rigs - Boiler #1	0.05	Diesel or natural gas heaters, or boiler
2DRILLB2A	POINT	BT2 - Drill Rigs - Boiler #2	0.05	Diesel or natural gas heaters, or boiler
2DRILLAH1A	POINT	BT2 - Drill Rigs - Air Heater #1	0.05	Diesel or natural gas heaters, or boiler
2DRILLAH2A	POINT	BT2 - Drill Rigs - Air Heater #2	0.05	Diesel or natural gas heaters, or boiler
2DRILLMPA	POINT	BT2 - Drill Rigs - Mud Pit Heater	0.05	Diesel or natural gas heaters, or boiler
2DRILLNMTEA	POINT	BT2 - Drilling Non-Mobile Support Equipment - Total Engine	0.1	Diesel engines
2DRILLNMLTA	POINT	BT2 - Drilling Non-Mobile Support Equipment - Total Lighting Engine	0.2	Diesel tailpipe from non-road equipment

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
2DRILLNMPGA	POINT	BT2 - Drilling Non-Mobile Support Equipment - Total Portable Generators	0.1	Diesel engines
2DRILLNMCPA	POINT	BT2 - Drilling Non-Mobile Support Equipment - Total Portable Welders/Compressor Engine	0.1	Diesel engines
2DRILLNMHSA	VOLUME	BT2 - Drilling Non-Mobile Support Equipment - Portable Heaters & Snow Melters	0.05	Diesel tailpipe from non-road equipment
2DRILLFLARE	POINT	BT2 - Drilling Well Flowback and Flaring - Total Flaring Emissions	0.5	USEPA default value
3DRILLPEA	POINT	BT3 - Drill Rigs - Primary Power Engines	0.1	Diesel engines
3DRILLCP1A	POINT	BT3 - Drill Rigs - Cement Pumping Unit #1	0.2	Diesel tailpipe from non-road equipment
3DRILLCP2A	POINT	BT3 - Drill Rigs - Cement Pumping Unit #2	0.2	Diesel tailpipe from non-road equipment
3DRILLB1A	POINT	BT3 - Drill Rigs - Boiler #1	0.05	Diesel or natural gas heaters, or boiler
3DRILLB2A	POINT	BT3 - Drill Rigs - Boiler #2	0.05	Diesel or natural gas heaters, or boiler
3DRILLAH1A	POINT	BT3 - Drill Rigs - Air Heater #1	0.05	Diesel or natural gas heaters, or boiler
3DRILLAH2A	POINT	BT3 - Drill Rigs - Air Heater #2	0.05	Diesel or natural gas heaters, or boiler
3DRILLMPA	POINT	BT3 - Drill Rigs - Mud Pit Heater	0.05	Diesel or natural gas heaters, or boiler
3DRILLNMTEA	POINT	BT3 - Drilling Non-Mobile Support Equipment - Total Engine	0.1	Diesel engines
3DRILLNMLTA	POINT	BT3 - Drilling Non-Mobile Support Equipment - Total Lighting Engine	0.2	Diesel tailpipe from non-road equipment
3DRILLNMPGA	POINT	BT3 - Drilling Non-Mobile Support Equipment - Total Portable Generators	0.1	Diesel engines
3DRILLNMCPA	POINT	BT3 - Drilling Non-Mobile Support Equipment - Total Portable Welders/Compressor Engine	0.1	Diesel engines
3DRILLNMHSA	VOLUME	BT3 - Drilling Non-Mobile Support Equipment - Portable Heaters & Snow Melters	0.05	Diesel tailpipe from non-road equipment
3DRILLFLARE	POINT	BT3 - Drilling Well Flowback and Flaring - Total Flaring Emissions	0.5	USEPA default value
2PADHTR1	POINT	BT2 - Pad Construction - Construction Heaters	0.05	Diesel or natural gas heaters, or boiler
2PADSHTR1	POINT	BT2 - Pad Construction - Construction Shop Heaters	0.05	Diesel or natural gas heaters, or boiler
2PADNMGS1	POINT	BT2 - Pad Construction - Generator Sets	0.1	Diesel engines
3PADHTR1	POINT	BT3 - Pad Construction - Construction Heaters	0.05	Diesel or natural gas heaters, or boiler
3PADSHTR1	POINT	BT3 - Pad Construction - Construction Shop Heaters	0.05	Diesel or natural gas heaters, or boiler
3PADNMGS1	POINT	BT3 - Pad Construction - Generator Sets	0.1	Diesel engines

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
2PADNR1	VOLUME	BT2 - Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
2PADNR2	VOLUME	BT2 - Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
2PADNR3	VOLUME	BT2 - Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
2PADNR4	VOLUME	BT2 - Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
3PADNR1	VOLUME	BT3 - Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
3PADNR2	VOLUME	BT3 - Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
3PADNR3	VOLUME	BT3 - Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
3PADNR4	VOLUME	BT3 - Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
2PADOHT1	VOLUME	BT2 - Pad Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
2PADOHT2	VOLUME	BT2 - Pad Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
2PADOHT3	VOLUME	BT2 - Pad Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
2PADOHT4	VOLUME	BT2 - Pad Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
3PADOHT1	VOLUME	BT3 - Pad Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
3PADOHT2	VOLUME	BT3 - Pad Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
3PADOHT3	VOLUME	BT3 - Pad Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
3PADOHT4	VOLUME	BT3 - Pad Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
2FUGD	VOLUME	BT2 - Wind Erosion Fugitive Dust	-	-
3FUGD	VOLUME	BT3 - Wind Erosion Fugitive Dust	-	-

Table A.1-11. Alternative B Near-field Model Scenario 4 Emissions Stack Parameters

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
WOCOPSTDR	POINT	3.05	5.4864	0.1016	1.67652	294.261111	-	-	-	-	-
BT1OPSLH	POINT	2.7432	12.2	0.94	5.7	529	-	-	-	-	-
BT1OPSBG	POINT	2.7432	6.1	0.46	15.1	795	-	-	-	-	-
BT1OPSFUG	VOLUME	2.7432	3.7	-	-	-	15.1	3.38	-	-	-
BT1OPSFUGD	VOLUME	2.7432	3.7	-	-	-	26.74	3.38	-	-	-
BT1OPSTEB	POINT	2.7432	5.4864	0.1016	1.67652	283.15	-	-	-	-	-
BT1OPSTD	POINT	2.7432	5.4864	0.1016	1.67652	299.816667	-	-	-	-	-
BT1OPSTCO	POINT	2.7432	5.4864	0.1016	1.67652	277.594444	-	-	-	-	-
BT1WICTH	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT1WICTE	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT1WILCTE	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT2OPSLH	POINT	2.7432	12.2	0.94	5.7	529	-	-	-	-	-
BT2OPSBG	POINT	2.7432	6.1	0.46	15.1	795	-	-	-	-	-
BT2OPSFUG	VOLUME	2.7432	3.7	-	-	-	15.1	3.38	-	-	-
BT2OPSFUGD	VOLUME	2.7432	3.7	-	-	-	26.74	3.38	-	-	-
BT2WICTH	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT2WICTE	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT2WILCTE	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT3OPSFUG	VOLUME	3.66	3.7	-	-	-	15.1	3.38	-	-	-
BT3OPSFUGD	VOLUME	3.66	3.7	-	-	-	26.74	3.38	-	-	-
BT3WICTH	POINT	3.66	3.7	0.356	41.6	644	-	-	-	-	-
BT3WICTE	POINT	3.66	3.7	0.356	41.6	644	-	-	-	-	-
BT3WILCTE	POINT	3.66	3.7	0.356	41.6	644	-	-	-	-	-
BT4OPSLH	POINT	2.7432	12.2	0.94	5.7	529	-	-	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
BT4OPSBG	POINT	2.7432	6.1	0.46	15.1	795	-	-	-	-	-
BT4OPSFUG	VOLUME	2.7432	3.7	-	-	-	15.1	3.38	-	-	-
BT4OPSFUGD	VOLUME	2.7432	3.7	-	-	-	15.1	3.38	-	-	-
BT4OPSTEB	POINT	2.7432	5.4864	0.1016	1.67652	283.15	-	-	-	-	-
BT4OPSTD	POINT	2.7432	5.4864	0.1016	1.67652	299.816667	-	-	-	-	-
BT4OPSTCO	POINT	2.7432	5.4864	0.1016	1.67652	277.594444	-	-	-	-	-
BT4WICTH	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT4WICTE	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT4WILCTE	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT5OPSLH	POINT	2.7432	12.2	0.94	5.7	529	-	-	-	-	-
BT5OPSBG	POINT	2.7432	6.1	0.46	15.1	795	-	-	-	-	-
BT5OPSFUG	VOLUME	2.7432	3.7	-	-	-	15.1	3.38	-	-	-
BT5OPSFUGD	VOLUME	2.7432	3.7	-	-	-	26.74	3.38	-	-	-
BT5WICTH	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT5WICTE	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT5WILCTE	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
WLWTG03A	POINT	3.66	25	2	30	370	-	-	-	-	-
WLWTG03B	POINT	3.66	25	2	30	370	-	-	-	-	-
WLWTG01A	POINT	3.66	30	2	35	370	-	-	-	-	-
WLWTG01B	POINT	3.66	30	2	35	370	-	-	-	-	-
WLWTG02A	POINT	3.66	30	2	35	370	-	-	-	-	-
WLWTG02B	POINT	3.66	30	2	35	370	-	-	-	-	-
WLWTG04	POINT	3.66	25	2	30	550	-	-	-	-	-
WLWTG05	POINT	3.66	25	2	30	550	-	-	-	-	-
WLWGL05	POINT	3.66	5.5	0.3	20	760	-	-	-	-	-
WLWHG03	POINT	3.66	25	1	10	525	-	-	-	-	-
WLWHG04	POINT	3.66	25	1	10	525	-	-	-	-	-
WLWHG01	POINT	3.66	25	1	10	525	-	-	-	-	-
WLWHG02	POINT	3.66	25	1	10	525	-	-	-	-	-
WLWHG06	POINT	3.66	25	1	10	525	-	-	-	-	-
WLWFGLP	POINT	3.66	25	0.2	20	1273	-	-	-	-	-
WLWFGHP	POINT	3.66	25	0.2	20	1273	-	-	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
WCFOPSDS	POINT	3.66	5.5	0.1	1.68	0	-	-	-	-	-
WCFOPSTSO	POINT	3.66	5.4864	0.1016	1.67652	319.261111	-	-	-	-	-
WCFOPSTCO	POINT	3.66	5.4864	0.1016	1.67652	277.594444	-	-	-	-	-
WCFOPSTUD	POINT	3.66	12.8016	0.1524	0.74512	299.816667	-	-	-	-	-
WCFOPSTLD	POINT	3.66	5.4864	0.1016	1.67652	299.816667	-	-	-	-	-
WCFOPSTEB	POINT	3.66	5.4864	0.1016	1.67652	283.15	-	-	-	-	-
WCFOPSFUG	VOLUME	3.66	3.7	-	-	-	15.1	3.38	-	-	-
WCFOPSFUGD	VOLUME	3.66	3.7	-	-	-	15.1	3.38	-	-	-
WOCPWRGEN1	POINT	3.05	8.6	0.3	20	760	-	-	-	-	-
WOCPWRGEN2	POINT	3.05	8.6	0.3	20	760	-	-	-	-	-
WOCPWRGEN3	POINT	3.05	8.6	0.3	20	760	-	-	-	-	-
WLWIG01	POINT	3.05	20	0.3	10	1200	-	-	-	-	-
WLWIG02	POINT	3.05	20	0.3	10	1200	-	-	-	-	-
WLWHL05	POINT	3.05	13.19	0.3	10	525	-	-	-	-	-
WOCOPSTJF	POINT	3.05	5.4864	0.1016	1.67652	283.15	-	-	-	-	-
WOCOPSTHC	POINT	3.05	5.4864	0.1016	1.67652	0	-	-	-	-	-
WOCOPSTD	POINT	3.05	5.4864	0.1016	1.67652	299.816667	-	-	-	-	-
WILLOWAIR1	AREAPOLY	3.6576	50.8	-	-	-	-	23.63	-	-	-
WILLOWAIR2	AREAPOLY	3.6576	152.4	-	-	-	-	23.63	-	-	-
WILLOWAIR3	AREAPOLY	3.6576	254	-	-	-	-	23.63	-	-	-
WOCOPSFUGD	VOLUME	3.05	3.7	-	-	-	15.1	3.38	-	-	-
WCFPCE1	AREAPOLY	3.66	13.3	-	-	-	-	12.37	-	-	-
WCFPCE2	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFPCE3	AREAPOLY	3.66	9.38	-	-	-	-	8.72	-	-	-
WCFPCE4	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFPCE5	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFPCE6	AREAPOLY	3.66	13.3	-	-	-	-	12.37	-	-	-
WCFPCE7	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFSCE1	AREAPOLY	3.66	13.3	-	-	-	-	12.37	-	-	-
WCFSCE2	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFSCE3	AREAPOLY	3.66	9.38	-	-	-	-	8.72	-	-	-
WCFSCE4	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
WCFSCE5	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFSCE6	AREAPOLY	3.66	13.3	-	-	-	-	12.37	-	-	-
WCFSCE7	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFNRE1	AREAPOLY	3.66	13.3	-	-	-	-	12.37	-	-	-
WCFNRE2	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFNRE3	AREAPOLY	3.66	9.38	-	-	-	-	8.72	-	-	-
WCFNRE4	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFNRE5	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFNRE6	AREAPOLY	3.66	13.3	-	-	-	-	12.37	-	-	-
WCFNRE7	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WLW2GEN	POINT	3.66	6.1	0.46	15.1	795	-	-	-	-	-
BT3NRE1	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
BT3WIN1	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
3WELLINTE	POINT	3.66	6.1	0.46	15.1	795	-	-	-	-	-
BT1NRE1	AREAPOLY	2.74	3.63	-	-	-	-	3.38	-	-	-
BT1WIN1	AREAPOLY	2.74	3.63	-	-	-	-	3.38	-	-	-
1WELLINTE	POINT	2.7432	6.1	0.46	15.1	795	-	-	-	-	-
BT2NRE1	AREAPOLY	2.74	3.63	-	-	-	-	3.38	-	-	-
BT2WIN1	AREAPOLY	2.74	3.63	-	-	-	-	3.38	-	-	-
2WELLINTE	POINT	2.7432	6.1	0.46	15.1	795	-	-	-	-	-
BT4NRE1	AREAPOLY	2.74	3.63	-	-	-	-	3.38	-	-	-
BT4WIN1	AREAPOLY	2.74	3.63	-	-	-	-	3.38	-	-	-
4WELLINTE	POINT	2.7432	6.1	0.46	15.1	795	-	-	-	-	-
BT5NRE1	AREAPOLY	2.74	3.63	-	-	-	-	3.38	-	-	-
BT5WIN1	AREAPOLY	2.74	3.63	-	-	-	-	3.38	-	-	-
5WELLINTE	POINT	2.7432	6.1	0.46	15.1	795	-	-	-	-	-
WOCPCE	AREAPOLY	3.05	3.63	-	-	-	-	3.38	-	-	-
WOCSCE	AREAPOLY	3.05	3.63	-	-	-	-	3.38	-	-	-
WOCNRE	AREAPOLY	3.05	3.63	-	-	-	-	3.38	-	-	-
1TAIL1	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL2	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL3	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
1TAIL4	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL5	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL6	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL7	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL8	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL9	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
2TAIL1	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2TAIL2	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2TAIL3	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2TAIL4	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2TAIL5	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2TAIL6	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
3TAIL1	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
3TAIL2	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
3TAIL3	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
3TAIL4	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
3TAIL5	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
3TAIL6	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
3TAIL7	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4TAIL1	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4TAIL2	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4TAIL3	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4TAIL4	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4TAIL5	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4TAIL6	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4TAIL7	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5TAIL1	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5TAIL2	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5TAIL3	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5TAIL4	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5TAIL5	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5TAIL6	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
5TAIL7	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
WOCTAIL1	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL2	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL3	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL4	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL5	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL6	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL7	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL8	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL9	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL10	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL11	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL12	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL13	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL14	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL15	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL16	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL17	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL18	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL19	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL20	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL21	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL22	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL23	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL24	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL25	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL26	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL27	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL28	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL29	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL30	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL31	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
WOCTAIL32	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL33	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
AIRTAIL1	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRTAIL2	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRTAIL3	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRTAIL4	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRTAIL5	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRTAIL6	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRTAIL7	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
WCFTAIL1	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL2	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL3	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL4	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL5	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL6	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL7	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL8	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL9	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL10	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL11	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL12	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL13	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL14	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL15	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL16	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL17	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL18	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL19	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD1	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD2	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD3	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD4	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
1MFUGD5	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD6	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD7	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD8	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD9	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
2MFUGD1	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2MFUGD2	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2MFUGD3	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2MFUGD4	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2MFUGD5	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2MFUGD6	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
3MFUGD1	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
3MFUGD2	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
3MFUGD3	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
3MFUGD4	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
3MFUGD5	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
3MFUGD6	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
3MFUGD7	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4MFUGD1	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4MFUGD2	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4MFUGD3	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4MFUGD4	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4MFUGD5	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4MFUGD6	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4MFUGD7	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5MFUGD1	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5MFUGD2	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5MFUGD3	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5MFUGD4	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5MFUGD5	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5MFUGD6	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5MFUGD7	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
WCFMFUGD1	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD2	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD3	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD4	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD5	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD6	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD7	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD8	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD9	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD10	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD11	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD12	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD13	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD14	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD15	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD16	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD17	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD18	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD19	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD1	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD2	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD3	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD4	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD5	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD6	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD7	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD8	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD9	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD10	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD11	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD12	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD13	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
WOCMFUGD14	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD15	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD16	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD17	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD18	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD19	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD20	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD21	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD22	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD23	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD24	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD25	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD26	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD27	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD28	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD29	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD30	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD31	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD32	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD33	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
AIRMFUGD1	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRMFUGD2	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRMFUGD3	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRMFUGD4	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRMFUGD5	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRMFUGD6	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRMFUGD7	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
WOCTEMPTRB1	POINT	3.05	30	2	30	550	-	-	-	-	-
WOCTEMPTRB2	POINT	3.05	30	2	30	550	-	-	-	-	-
RFDGMT1	POINT	1.524	4.88	0.305	35	820	-	-	-	-	-
RFDGMT2	POINT	1.524	12.2	0.94	5.7	529	-	-	-	-	-
RFDGWPDS1	POINT	1.524	3.7	0.356	41.6	644	-	-	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
RFDGWPDS2	POINT	1.524	3.7	0.356	41.6	644	-	-	-	-	-
RFDCD5	POINT	1.524	4.88	0.305	35	820	-	-	-	-	-
2DRILLPEA	POINT	2.7432	13.3	0.4	10.5	614	-	-	-	-	-
2DRILLCP1A	POINT	2.7432	10.4	0.13	43.5	750	-	-	-	-	-
2DRILLCP2A	POINT	2.7432	10.4	0.13	43.5	750	-	-	-	-	-
2DRILLB1A	POINT	2.7432	11.9	0.279	11.7	450	-	-	-	-	-
2DRILLB2A	POINT	2.7432	11.9	0.279	11.7	450	-	-	-	-	-
2DRILLAH1A	POINT	2.7432	10.5	0.3	3.2	533	-	-	-	-	-
2DRILLAH2A	POINT	2.7432	10.5	0.3	3.2	533	-	-	-	-	-
2DRILLMPA	POINT	2.7432	7.2	0.3	10.8	533	-	-	-	-	-
2DRILLNMTEA	POINT	2.7432	6.5	0.3	47	761	-	-	-	-	-
2DRILLNMLTA	POINT	2.7432	6.1	0.3	15.1	795	-	-	-	-	-
2DRILLNMPGA	POINT	2.7432	6.1	0.3	15.1	795	-	-	-	-	-
2DRILLNMCPA	POINT	2.74	3.7	0.3	46	689	-	-	-	-	-
2DRILLNMHSA	VOLUME	2.7432	3.7	-	-	-	13.95	3.38	-	-	-
2DRILLFLARE	POINT	2.7432	10.1	0.3	6.1	1033	-	-	-	-	-
3DRILLPEA	POINT	3.6576	13.3	0.4	10.5	614	-	-	-	-	-
3DRILLCP1A	POINT	3.6576	10.4	0.13	43.5	750	-	-	-	-	-
3DRILLCP2A	POINT	3.6576	10.4	0.13	43.5	750	-	-	-	-	-
3DRILLB1A	POINT	3.6576	11.9	0.279	11.7	450	-	-	-	-	-
3DRILLB2A	POINT	3.6576	11.9	0.279	11.7	450	-	-	-	-	-
3DRILLAH1A	POINT	3.6576	10.5	0.3	3.2	533	-	-	-	-	-
3DRILLAH2A	POINT	3.6576	10.5	0.3	3.2	533	-	-	-	-	-
3DRILLMPA	POINT	3.6576	7.2	0.3	10.8	533	-	-	-	-	-
3DRILLNMTEA	POINT	3.6576	6.5	0.3	47	761	-	-	-	-	-
3DRILLNMLTA	POINT	3.6576	6.1	0.3	15.1	795	-	-	-	-	-
3DRILLNMPGA	POINT	3.6576	6.1	0.3	15.1	795	-	-	-	-	-
3DRILLNMCPA	POINT	2.74	3.7	0.3	46	689	-	-	-	-	-
3DRILLNMHSA	VOLUME	3.6576	3.7	-	-	-	13.95	3.38	-	-	-
3DRILLFLARE	POINT	3.6576	10.1	0.3	6.1	1033	-	-	-	-	-
2PADHTR1	POINT	2.7432	12.2	0.94	5.7	529	-	-	-	-	-
2PADSHTR1	POINT	2.7432	12.2	0.94	5.7	529	-	-	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
2PADNMGS1	POINT	2.7432	6.5	0.2	47	761	-	-	-	-	-
3PADHTR1	POINT	2.7432	12.2	0.94	5.7	529	-	-	-	-	-
3PADSHTR1	POINT	2.7432	12.2	0.94	5.7	529	-	-	-	-	-
3PADNMGS1	POINT	2.7432	6.5	0.2	47	761	-	-	-	-	-
2PADNR1	VOLUME	2.7432	3.66	-	-	-	18.6047	3.38	-	-	-
2PADNR2	VOLUME	2.7432	3.66	-	-	-	18.6047	3.38	-	-	-
2PADNR3	VOLUME	2.7432	3.66	-	-	-	18.6047	3.38	-	-	-
2PADNR4	VOLUME	2.7432	3.66	-	-	-	18.6047	3.38	-	-	-
3PADNR1	VOLUME	2.7432	3.66	-	-	-	18.6047	3.38	-	-	-
3PADNR2	VOLUME	2.7432	3.66	-	-	-	18.6047	3.38	-	-	-
3PADNR3	VOLUME	2.7432	3.66	-	-	-	18.6047	3.38	-	-	-
3PADNR4	VOLUME	2.7432	3.66	-	-	-	18.6047	3.38	-	-	-
2PADOHT1	VOLUME	2.7432	3.66	-	-	-	18.6047	3.38	-	-	-
2PADOHT2	VOLUME	2.7432	3.66	-	-	-	18.6047	3.38	-	-	-
2PADOHT3	VOLUME	2.7432	3.66	-	-	-	18.6047	3.38	-	-	-
2PADOHT4	VOLUME	2.7432	3.66	-	-	-	18.6047	3.38	-	-	-
3PADOHT1	VOLUME	2.7432	3.66	-	-	-	18.6047	3.38	-	-	-
3PADOHT2	VOLUME	2.7432	3.66	-	-	-	18.6047	3.38	-	-	-
3PADOHT3	VOLUME	2.7432	3.66	-	-	-	18.6047	3.38	-	-	-
3PADOHT4	VOLUME	2.7432	3.66	-	-	-	18.6047	3.38	-	-	-
2FUGD	VOLUME	2.7432	3.66	-	-	-	26.7442	3.38	-	-	-
3FUGD	VOLUME	3.6576	3.66	-	-	-	26.7442	3.38	-	-	-

Table A.1-12. Alternative B Near-field Model Scenario 4 Emissions Rates

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
WOCOPSTDR	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
BT1OPSLH	5.19E-02	6.18E-02	6.18E-02	4.69E-03	4.69E-03	4.69E-03	4.17E-03	4.17E-03	4.17E-03	8760
BT1OPSBG	1.16E+00	1.16E+00	6.63E-02	3.35E-02	3.35E-02	1.91E-03	2.21E-03	2.21E-03	1.26E-04	500
BT1OPSFUG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
BT1OPSFUGD	0.00E+00	0.00E+00	0.00E+00	2.57E-02	3.86E-03	3.86E-03	0.00E+00	0.00E+00	0.00E+00	4380
BT1OPSTEB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
BT1OPSTD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
BT1OPSTCO	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
BT1WICTH	4.57E-02	1.83E-01	7.20E-02	2.17E-02	1.94E-02	7.67E-03	1.94E-03	1.94E-03	7.67E-04	288
BT1WICTE	6.21E-02	9.32E-02	3.68E-02	4.97E-03	4.97E-03	1.96E-03	8.23E-05	8.23E-05	3.25E-05	288
BT1WILCTE	4.75E-01	8.68E-01	3.43E-01	2.71E-02	2.71E-02	1.07E-02	1.00E-03	1.00E-03	3.95E-04	288
BT2OPSLH	5.19E-02	6.18E-02	6.18E-02	4.69E-03	4.69E-03	4.69E-03	4.17E-03	4.17E-03	4.17E-03	8760
BT2OPSBG	1.16E+00	1.16E+00	6.63E-02	3.35E-02	3.35E-02	1.91E-03	2.21E-03	2.21E-03	1.26E-04	500
BT2OPSFUG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
BT2OPSFUGD	0.00E+00	0.00E+00	0.00E+00	2.57E-02	3.86E-03	3.86E-03	0.00E+00	0.00E+00	0.00E+00	4380
BT2WICTH	4.57E-02	1.83E-01	7.20E-02	2.17E-02	1.94E-02	7.67E-03	1.94E-03	1.94E-03	7.67E-04	288
BT2WICTE	6.21E-02	9.32E-02	3.68E-02	4.97E-03	4.97E-03	1.96E-03	8.23E-05	8.23E-05	3.25E-05	288
BT2WILCTE	4.75E-01	8.68E-01	3.43E-01	2.71E-02	2.71E-02	1.07E-02	1.00E-03	1.00E-03	3.95E-04	288
BT3OPSFUG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
BT3OPSFUGD	0.00E+00	0.00E+00	0.00E+00	2.57E-02	3.86E-03	3.86E-03	0.00E+00	0.00E+00	0.00E+00	4380
BT3WICTH	4.57E-02	1.83E-01	7.20E-02	2.17E-02	1.94E-02	7.67E-03	1.94E-03	1.94E-03	7.67E-04	288
BT3WICTE	6.21E-02	9.32E-02	3.68E-02	4.97E-03	4.97E-03	1.96E-03	8.23E-05	8.23E-05	3.25E-05	288
BT3WILCTE	4.75E-01	8.68E-01	3.43E-01	2.71E-02	2.71E-02	1.07E-02	1.00E-03	1.00E-03	3.95E-04	288
BT4OPSLH	5.19E-02	6.18E-02	6.18E-02	4.69E-03	4.69E-03	4.69E-03	4.17E-03	4.17E-03	4.17E-03	8760
BT4OPSBG	1.16E+00	1.16E+00	6.63E-02	3.35E-02	3.35E-02	1.91E-03	2.21E-03	2.21E-03	1.26E-04	500
BT4OPSFUG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
BT4OPSFUGD	0.00E+00	0.00E+00	0.00E+00	2.18E-02	3.27E-03	3.27E-03	0.00E+00	0.00E+00	0.00E+00	4380
BT4OPSTEB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
BT4OPSTD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
BT4OPSTCO	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
BT4WICTH	4.57E-02	1.83E-01	7.20E-02	2.17E-02	1.94E-02	7.67E-03	1.94E-03	1.94E-03	7.67E-04	288
BT4WICTE	6.21E-02	9.32E-02	3.68E-02	4.97E-03	4.97E-03	1.96E-03	8.23E-05	8.23E-05	3.25E-05	288
BT4WILCTE	4.75E-01	8.68E-01	3.43E-01	2.71E-02	2.71E-02	1.07E-02	1.00E-03	1.00E-03	3.95E-04	288
BT5OPSLH	5.19E-02	6.18E-02	6.18E-02	4.69E-03	4.69E-03	4.69E-03	4.17E-03	4.17E-03	4.17E-03	8760
BT5OPSBG	1.16E+00	1.16E+00	6.63E-02	3.35E-02	3.35E-02	1.91E-03	2.21E-03	2.21E-03	1.26E-04	500
BT5OPSFUG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
BT5OPSFUGD	0.00E+00	0.00E+00	0.00E+00	2.18E-02	3.27E-03	3.27E-03	0.00E+00	0.00E+00	0.00E+00	4380
BT5WICTH	4.57E-02	1.83E-01	7.20E-02	2.17E-02	1.94E-02	7.67E-03	1.94E-03	1.94E-03	7.67E-04	288
BT5WICTE	6.21E-02	9.32E-02	3.68E-02	4.97E-03	4.97E-03	1.96E-03	8.23E-05	8.23E-05	3.25E-05	288
BT5WILCTE	4.75E-01	8.68E-01	3.43E-01	2.71E-02	2.71E-02	1.07E-02	1.00E-03	1.00E-03	3.95E-04	288
WLWTG03A	1.93E+00	1.91E+00	1.91E+00	2.21E-01	2.21E-01	2.21E-01	2.22E-01	2.22E-01	2.22E-01	8760
WLWTG03B	1.93E+00	1.91E+00	1.91E+00	2.21E-01	2.21E-01	2.21E-01	2.22E-01	2.22E-01	2.22E-01	8760
WLWTG01A	1.47E+00	1.45E+00	1.45E+00	1.68E-01	1.68E-01	1.68E-01	1.69E-01	1.69E-01	1.69E-01	8760
WLWTG01B	1.47E+00	1.45E+00	1.45E+00	1.68E-01	1.68E-01	1.68E-01	1.69E-01	1.69E-01	1.69E-01	8760
WLWTG02A	1.47E+00	1.45E+00	1.45E+00	1.68E-01	1.68E-01	1.68E-01	1.69E-01	1.69E-01	1.69E-01	8760
WLWTG02B	1.47E+00	1.45E+00	1.45E+00	1.68E-01	1.68E-01	1.68E-01	1.69E-01	1.69E-01	1.69E-01	8760
WLWTG04	5.67E-01	6.08E-01	6.08E-01	5.28E-02	5.28E-02	5.28E-02	5.06E-02	5.06E-02	5.06E-02	8760
WLWTG05	5.67E-01	6.08E-01	6.08E-01	5.28E-02	5.28E-02	5.28E-02	5.06E-02	5.06E-02	5.06E-02	8760
WLWGL05	6.48E-01	1.19E+00	6.76E-02	3.70E-02	3.70E-02	2.11E-03	1.22E-03	1.22E-03	6.99E-05	500
WLWHG03	3.42E-01	4.08E-01	4.08E-01	3.10E-02	3.10E-02	3.10E-02	2.75E-02	2.75E-02	2.75E-02	8760
WLWHG04	3.42E-01	4.08E-01	4.08E-01	3.10E-02	3.10E-02	3.10E-02	2.75E-02	2.75E-02	2.75E-02	8760
WLWHG01	2.08E-01	2.47E-01	2.47E-01	1.88E-02	1.88E-02	1.88E-02	1.67E-02	1.67E-02	1.67E-02	8760
WLWHG02	2.08E-01	2.47E-01	2.47E-01	1.88E-02	1.88E-02	1.88E-02	1.67E-02	1.67E-02	1.67E-02	8760
WLWHG06	3.84E-01	4.57E-01	4.57E-01	3.47E-02	3.47E-02	3.47E-02	3.09E-02	3.09E-02	3.09E-02	8760
WLWFGLP	4.15E-02	4.94E-02	4.94E-02	3.76E-03	3.76E-03	3.76E-03	3.34E-03	3.34E-03	3.34E-03	8760
WLWFGHP	4.15E-02	4.94E-02	4.94E-02	3.76E-03	3.76E-03	3.76E-03	3.34E-03	3.34E-03	3.34E-03	8760
WCFOPSDS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
WCFOPSTSO	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
WCFOPSTCO	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
WCFOPSTUD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
WCFOPSTLD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
WCFOPSTEB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
WCFOPSFUG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
WCFOPSFUGD	0.00E+00	0.00E+00	0.00E+00	3.45E-02	5.17E-03	5.17E-03	0.00E+00	0.00E+00	0.00E+00	4380
WOCPWRGEN1	1.30E+00	1.30E+00	6.48E-01	3.70E-02	3.70E-02	1.85E-02	2.45E-03	2.45E-03	1.22E-03	4380
WOCPWRGEN2	1.30E+00	1.30E+00	6.48E-01	3.70E-02	3.70E-02	1.85E-02	2.45E-03	2.45E-03	1.22E-03	4380
WOCPWRGEN3	1.30E+00	1.30E+00	6.48E-01	3.70E-02	3.70E-02	1.85E-02	2.45E-03	2.45E-03	1.22E-03	4380
WLWIG01	3.99E-02	9.94E-02	8.28E-02	1.36E-01	1.36E-01	1.13E-01	3.54E-03	3.54E-03	2.95E-03	7300

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
WLWIG02	3.99E-02	9.94E-02	8.28E-02	1.36E-01	1.36E-01	1.13E-01	3.54E-03	3.54E-03	2.95E-03	7300
WLWHL05	5.93E-03	2.37E-02	2.37E-02	2.82E-03	2.53E-03	2.53E-03	2.54E-04	2.54E-04	2.54E-04	8760
WOCOPSTJF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
WOCOPSTHC	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
WOCOPSTD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
WILLOWAIR1	1.06E-07	2.91E-08	2.91E-08	1.20E-09	1.20E-09	1.20E-09	4.52E-09	4.52E-09	4.52E-09	8760
WILLOWAIR2	1.06E-07	2.91E-08	2.91E-08	1.20E-09	1.20E-09	1.20E-09	4.52E-09	4.52E-09	4.52E-09	8760
WILLOWAIR3	1.06E-07	2.91E-08	2.91E-08	1.20E-09	1.20E-09	1.20E-09	4.52E-09	4.52E-09	4.52E-09	8760
WOCOPSFUGD	0.00E+00	0.00E+00	0.00E+00	1.11E-01	1.66E-02	1.66E-02	0.00E+00	0.00E+00	0.00E+00	4380
WCFPCE1	4.48E-07	2.05E-06	2.05E-06	1.54E-07	1.52E-07	1.52E-07	2.65E-09	2.65E-09	2.65E-09	8760
WCFPCE2	4.48E-07	2.05E-06	2.05E-06	1.54E-07	1.52E-07	1.52E-07	2.65E-09	2.65E-09	2.65E-09	8760
WCFPCE3	4.48E-07	2.05E-06	2.05E-06	1.54E-07	1.52E-07	1.52E-07	2.65E-09	2.65E-09	2.65E-09	8760
WCFPCE4	4.48E-07	2.05E-06	2.05E-06	1.54E-07	1.52E-07	1.52E-07	2.65E-09	2.65E-09	2.65E-09	8760
WCFPCE5	4.48E-07	2.05E-06	2.05E-06	1.54E-07	1.52E-07	1.52E-07	2.65E-09	2.65E-09	2.65E-09	8760
WCFPCE6	4.48E-07	2.05E-06	2.05E-06	1.54E-07	1.52E-07	1.52E-07	2.65E-09	2.65E-09	2.65E-09	8760
WCFPCE7	4.48E-07	2.05E-06	2.05E-06	1.54E-07	1.52E-07	1.52E-07	2.65E-09	2.65E-09	2.65E-09	8760
WCFSCE1	3.32E-07	4.16E-07	4.16E-07	3.18E-08	3.18E-08	3.18E-08	2.83E-08	2.83E-08	2.83E-08	8760
WCFSCE2	3.32E-07	4.16E-07	4.16E-07	3.18E-08	3.18E-08	3.18E-08	2.83E-08	2.83E-08	2.83E-08	8760
WCFSCE3	3.32E-07	4.16E-07	4.16E-07	3.18E-08	3.18E-08	3.18E-08	2.83E-08	2.83E-08	2.83E-08	8760
WCFSCE4	3.32E-07	4.16E-07	4.16E-07	3.18E-08	3.18E-08	3.18E-08	2.83E-08	2.83E-08	2.83E-08	8760
WCFSCE5	3.32E-07	4.16E-07	4.16E-07	3.18E-08	3.18E-08	3.18E-08	2.83E-08	2.83E-08	2.83E-08	8760
WCFSCE6	3.32E-07	4.16E-07	4.16E-07	3.18E-08	3.18E-08	3.18E-08	2.83E-08	2.83E-08	2.83E-08	8760
WCFSCE7	3.32E-07	4.16E-07	4.16E-07	3.18E-08	3.18E-08	3.18E-08	2.83E-08	2.83E-08	2.83E-08	8760
WCFNRE1	1.98E-06	9.17E-06	9.17E-06	6.51E-07	6.51E-07	6.51E-07	3.21E-09	3.21E-09	3.21E-09	8760
WCFNRE2	1.98E-06	9.17E-06	9.17E-06	6.51E-07	6.51E-07	6.51E-07	3.21E-09	3.21E-09	3.21E-09	8760
WCFNRE3	1.98E-06	9.17E-06	9.17E-06	6.51E-07	6.51E-07	6.51E-07	3.21E-09	3.21E-09	3.21E-09	8760
WCFNRE4	1.98E-06	9.17E-06	9.17E-06	6.51E-07	6.51E-07	6.51E-07	3.21E-09	3.21E-09	3.21E-09	8760
WCFNRE5	1.98E-06	9.17E-06	9.17E-06	6.51E-07	6.51E-07	6.51E-07	3.21E-09	3.21E-09	3.21E-09	8760
WCFNRE6	1.98E-06	9.17E-06	9.17E-06	6.51E-07	6.51E-07	6.51E-07	3.21E-09	3.21E-09	3.21E-09	8760
WCFNRE7	1.98E-06	9.17E-06	9.17E-06	6.51E-07	6.51E-07	6.51E-07	3.21E-09	3.21E-09	3.21E-09	8760
WLW2GEN	1.19E-01	5.87E-01	6.08E-01	3.46E-02	3.46E-02	3.53E-02	3.51E-04	3.51E-04	3.51E-04	8760
BT3NRE1	1.95E-06	2.08E-06	2.08E-07	2.09E-07	2.06E-07	2.06E-08	4.32E-09	4.32E-09	4.32E-10	876

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
BT3WIN1	2.64E-06	3.70E-06	1.46E-06	3.79E-07	3.61E-07	1.43E-07	1.81E-08	1.81E-08	7.15E-09	288
3WELLINTE	2.46E-01	2.81E-01	1.11E-01	1.40E-02	1.40E-02	5.54E-03	5.18E-04	5.18E-04	2.04E-04	288
BT1NRE1	1.95E-06	2.08E-06	2.08E-07	2.09E-07	2.06E-07	2.06E-08	4.32E-09	4.32E-09	4.32E-10	876
BT1WIN1	2.64E-06	3.70E-06	1.46E-06	3.79E-07	3.61E-07	1.43E-07	1.81E-08	1.81E-08	7.15E-09	288
1WELLINTE	2.46E-01	2.81E-01	1.11E-01	1.40E-02	1.40E-02	5.54E-03	5.18E-04	5.18E-04	2.04E-04	288
BT2NRE1	1.95E-06	2.08E-06	2.08E-07	2.09E-07	2.06E-07	2.06E-08	4.32E-09	4.32E-09	4.32E-10	876
BT2WIN1	2.64E-06	3.70E-06	1.46E-06	3.79E-07	3.61E-07	1.43E-07	1.81E-08	1.81E-08	7.15E-09	288
2WELLINTE	2.46E-01	2.81E-01	1.11E-01	1.40E-02	1.40E-02	5.54E-03	5.18E-04	5.18E-04	2.04E-04	288
BT4NRE1	1.95E-06	2.08E-06	2.08E-07	2.09E-07	2.06E-07	2.06E-08	4.32E-09	4.32E-09	4.32E-10	876
BT4WIN1	2.64E-06	3.70E-06	1.46E-06	3.79E-07	3.61E-07	1.43E-07	1.81E-08	1.81E-08	7.15E-09	288
4WELLINTE	2.46E-01	2.81E-01	1.11E-01	1.40E-02	1.40E-02	5.54E-03	5.18E-04	5.18E-04	2.04E-04	288
BT5NRE1	1.95E-06	2.08E-06	2.08E-07	2.09E-07	2.06E-07	2.06E-08	4.32E-09	4.32E-09	4.32E-10	876
BT5WIN1	2.64E-06	3.70E-06	1.46E-06	3.79E-07	3.61E-07	1.43E-07	1.81E-08	1.81E-08	7.15E-09	288
5WELLINTE	2.46E-01	2.81E-01	1.11E-01	1.40E-02	1.40E-02	5.54E-03	5.18E-04	5.18E-04	2.04E-04	288
WOCPCE	7.88E-08	3.56E-07	3.56E-07	2.83E-08	2.75E-08	2.75E-08	7.86E-10	7.86E-10	7.86E-10	8760
WOCSCE	6.12E-08	1.07E-07	1.07E-07	8.44E-09	8.44E-09	8.44E-09	7.50E-09	7.50E-09	7.50E-09	8760
WOCNRE	5.55E-07	2.47E-06	1.86E-06	2.08E-07	1.99E-07	1.35E-07	7.98E-09	7.98E-09	1.46E-09	8760
1TAIL1	1.07E-05	1.04E-05	1.04E-05	1.35E-06	4.91E-07	4.91E-07	5.54E-08	5.54E-08	5.54E-08	8760
1TAIL2	1.07E-05	1.04E-05	1.04E-05	1.35E-06	4.91E-07	4.91E-07	5.54E-08	5.54E-08	5.54E-08	8760
1TAIL3	1.07E-05	1.04E-05	1.04E-05	1.35E-06	4.91E-07	4.91E-07	5.54E-08	5.54E-08	5.54E-08	8760
1TAIL4	1.07E-05	1.04E-05	1.04E-05	1.35E-06	4.91E-07	4.91E-07	5.54E-08	5.54E-08	5.54E-08	8760
1TAIL5	1.07E-05	1.04E-05	1.04E-05	1.35E-06	4.91E-07	4.91E-07	5.54E-08	5.54E-08	5.54E-08	8760
1TAIL6	1.07E-05	1.04E-05	1.04E-05	1.35E-06	4.91E-07	4.91E-07	5.54E-08	5.54E-08	5.54E-08	8760
1TAIL7	1.07E-05	1.04E-05	1.04E-05	1.35E-06	4.91E-07	4.91E-07	5.54E-08	5.54E-08	5.54E-08	8760
1TAIL8	1.07E-05	1.04E-05	1.04E-05	1.35E-06	4.91E-07	4.91E-07	5.54E-08	5.54E-08	5.54E-08	8760
1TAIL9	1.07E-05	1.04E-05	1.04E-05	1.35E-06	4.91E-07	4.91E-07	5.54E-08	5.54E-08	5.54E-08	8760
2TAIL1	9.54E-06	1.44E-05	2.37E-05	2.21E-06	6.95E-07	1.13E-06	9.01E-08	9.01E-08	1.40E-07	8760
2TAIL2	9.54E-06	1.44E-05	2.37E-05	2.21E-06	6.95E-07	1.13E-06	9.01E-08	9.01E-08	1.40E-07	8760
2TAIL3	9.54E-06	1.44E-05	2.37E-05	2.21E-06	6.95E-07	1.13E-06	9.01E-08	9.01E-08	1.40E-07	8760
2TAIL4	9.54E-06	1.44E-05	2.37E-05	2.21E-06	6.95E-07	1.13E-06	9.01E-08	9.01E-08	1.40E-07	8760
2TAIL5	9.54E-06	1.44E-05	2.37E-05	2.21E-06	6.95E-07	1.13E-06	9.01E-08	9.01E-08	1.40E-07	8760
2TAIL6	9.54E-06	1.44E-05	2.37E-05	2.21E-06	6.95E-07	1.13E-06	9.01E-08	9.01E-08	1.40E-07	8760

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
3TAIL1	8.17E-06	1.23E-05	2.03E-05	1.89E-06	5.96E-07	9.71E-07	7.72E-08	7.72E-08	1.20E-07	8760
3TAIL2	8.17E-06	1.23E-05	2.03E-05	1.89E-06	5.96E-07	9.71E-07	7.72E-08	7.72E-08	1.20E-07	8760
3TAIL3	8.17E-06	1.23E-05	2.03E-05	1.89E-06	5.96E-07	9.71E-07	7.72E-08	7.72E-08	1.20E-07	8760
3TAIL4	8.17E-06	1.23E-05	2.03E-05	1.89E-06	5.96E-07	9.71E-07	7.72E-08	7.72E-08	1.20E-07	8760
3TAIL5	8.17E-06	1.23E-05	2.03E-05	1.89E-06	5.96E-07	9.71E-07	7.72E-08	7.72E-08	1.20E-07	8760
3TAIL6	8.17E-06	1.23E-05	2.03E-05	1.89E-06	5.96E-07	9.71E-07	7.72E-08	7.72E-08	1.20E-07	8760
3TAIL7	8.17E-06	1.23E-05	2.03E-05	1.89E-06	5.96E-07	9.71E-07	7.72E-08	7.72E-08	1.20E-07	8760
4TAIL1	8.17E-06	7.94E-06	7.94E-06	1.03E-06	3.76E-07	3.76E-07	4.24E-08	4.24E-08	4.24E-08	8760
4TAIL2	8.17E-06	7.94E-06	7.94E-06	1.03E-06	3.76E-07	3.76E-07	4.24E-08	4.24E-08	4.24E-08	8760
4TAIL3	8.17E-06	7.94E-06	7.94E-06	1.03E-06	3.76E-07	3.76E-07	4.24E-08	4.24E-08	4.24E-08	8760
4TAIL4	8.17E-06	7.94E-06	7.94E-06	1.03E-06	3.76E-07	3.76E-07	4.24E-08	4.24E-08	4.24E-08	8760
4TAIL5	8.17E-06	7.94E-06	7.94E-06	1.03E-06	3.76E-07	3.76E-07	4.24E-08	4.24E-08	4.24E-08	8760
4TAIL6	8.17E-06	7.94E-06	7.94E-06	1.03E-06	3.76E-07	3.76E-07	4.24E-08	4.24E-08	4.24E-08	8760
4TAIL7	8.17E-06	7.94E-06	7.94E-06	1.03E-06	3.76E-07	3.76E-07	4.24E-08	4.24E-08	4.24E-08	8760
5TAIL1	8.17E-06	7.94E-06	7.94E-06	1.03E-06	3.76E-07	3.76E-07	4.24E-08	4.24E-08	4.24E-08	8760
5TAIL2	8.17E-06	7.94E-06	7.94E-06	1.03E-06	3.76E-07	3.76E-07	4.24E-08	4.24E-08	4.24E-08	8760
5TAIL3	8.17E-06	7.94E-06	7.94E-06	1.03E-06	3.76E-07	3.76E-07	4.24E-08	4.24E-08	4.24E-08	8760
5TAIL4	8.17E-06	7.94E-06	7.94E-06	1.03E-06	3.76E-07	3.76E-07	4.24E-08	4.24E-08	4.24E-08	8760
5TAIL5	8.17E-06	7.94E-06	7.94E-06	1.03E-06	3.76E-07	3.76E-07	4.24E-08	4.24E-08	4.24E-08	8760
5TAIL6	8.17E-06	7.94E-06	7.94E-06	1.03E-06	3.76E-07	3.76E-07	4.24E-08	4.24E-08	4.24E-08	8760
5TAIL7	8.17E-06	7.94E-06	7.94E-06	1.03E-06	3.76E-07	3.76E-07	4.24E-08	4.24E-08	4.24E-08	8760
WOCTAIL1	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	8760
WOCTAIL2	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	8760
WOCTAIL3	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	8760
WOCTAIL4	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	8760
WOCTAIL5	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	8760
WOCTAIL6	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	8760
WOCTAIL7	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	8760
WOCTAIL8	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	8760
WOCTAIL9	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	8760
WOCTAIL10	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	8760
WOCTAIL11	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	8760

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
WOCTAIL12	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	8760
WOCTAIL13	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	8760
WOCTAIL14	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	8760
WOCTAIL15	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	8760
WOCTAIL16	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	8760
WOCTAIL17	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	8760
WOCTAIL18	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	8760
WOCTAIL19	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	8760
WOCTAIL20	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	8760
WOCTAIL21	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	8760
WOCTAIL22	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	8760
WOCTAIL23	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	8760
WOCTAIL24	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	8760
WOCTAIL25	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	8760
WOCTAIL26	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	8760
WOCTAIL27	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	8760
WOCTAIL28	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	8760
WOCTAIL29	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	8760
WOCTAIL30	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	8760
WOCTAIL31	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	8760
WOCTAIL32	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	8760
WOCTAIL33	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	8760
AIRTAIL1	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	8760
AIRTAIL2	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	8760
AIRTAIL3	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	8760
AIRTAIL4	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	8760
AIRTAIL5	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	8760
AIRTAIL6	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	8760
AIRTAIL7	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	8760
WCFTAIL1	1.06E-05	1.03E-05	1.03E-05	1.33E-06	4.86E-07	4.86E-07	5.48E-08	5.48E-08	5.48E-08	8760
WCFTAIL2	1.06E-05	1.03E-05	1.03E-05	1.33E-06	4.86E-07	4.86E-07	5.48E-08	5.48E-08	5.48E-08	8760
WCFTAIL3	1.06E-05	1.03E-05	1.03E-05	1.33E-06	4.86E-07	4.86E-07	5.48E-08	5.48E-08	5.48E-08	8760

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
WCFTAIL4	1.06E-05	1.03E-05	1.03E-05	1.33E-06	4.86E-07	4.86E-07	5.48E-08	5.48E-08	5.48E-08	8760
WCFTAIL5	1.06E-05	1.03E-05	1.03E-05	1.33E-06	4.86E-07	4.86E-07	5.48E-08	5.48E-08	5.48E-08	8760
WCFTAIL6	1.06E-05	1.03E-05	1.03E-05	1.33E-06	4.86E-07	4.86E-07	5.48E-08	5.48E-08	5.48E-08	8760
WCFTAIL7	1.06E-05	1.03E-05	1.03E-05	1.33E-06	4.86E-07	4.86E-07	5.48E-08	5.48E-08	5.48E-08	8760
WCFTAIL8	1.06E-05	1.03E-05	1.03E-05	1.33E-06	4.86E-07	4.86E-07	5.48E-08	5.48E-08	5.48E-08	8760
WCFTAIL9	1.06E-05	1.03E-05	1.03E-05	1.33E-06	4.86E-07	4.86E-07	5.48E-08	5.48E-08	5.48E-08	8760
WCFTAIL10	1.06E-05	1.03E-05	1.03E-05	1.33E-06	4.86E-07	4.86E-07	5.48E-08	5.48E-08	5.48E-08	8760
WCFTAIL11	1.06E-05	1.03E-05	1.03E-05	1.33E-06	4.86E-07	4.86E-07	5.48E-08	5.48E-08	5.48E-08	8760
WCFTAIL12	1.06E-05	1.03E-05	1.03E-05	1.33E-06	4.86E-07	4.86E-07	5.48E-08	5.48E-08	5.48E-08	8760
WCFTAIL13	1.06E-05	1.03E-05	1.03E-05	1.33E-06	4.86E-07	4.86E-07	5.48E-08	5.48E-08	5.48E-08	8760
WCFTAIL14	1.06E-05	1.03E-05	1.03E-05	1.33E-06	4.86E-07	4.86E-07	5.48E-08	5.48E-08	5.48E-08	8760
WCFTAIL15	1.06E-05	1.03E-05	1.03E-05	1.33E-06	4.86E-07	4.86E-07	5.48E-08	5.48E-08	5.48E-08	8760
WCFTAIL16	1.06E-05	1.03E-05	1.03E-05	1.33E-06	4.86E-07	4.86E-07	5.48E-08	5.48E-08	5.48E-08	8760
WCFTAIL17	1.06E-05	1.03E-05	1.03E-05	1.33E-06	4.86E-07	4.86E-07	5.48E-08	5.48E-08	5.48E-08	8760
WCFTAIL18	1.06E-05	1.03E-05	1.03E-05	1.33E-06	4.86E-07	4.86E-07	5.48E-08	5.48E-08	5.48E-08	8760
WCFTAIL19	1.06E-05	1.03E-05	1.03E-05	1.33E-06	4.86E-07	4.86E-07	5.48E-08	5.48E-08	5.48E-08	8760
1MFUGD1	0.00E+00	0.00E+00	0.00E+00	3.45E-03	3.45E-04	3.45E-04	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD2	0.00E+00	0.00E+00	0.00E+00	3.45E-03	3.45E-04	3.45E-04	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD3	0.00E+00	0.00E+00	0.00E+00	3.45E-03	3.45E-04	3.45E-04	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD4	0.00E+00	0.00E+00	0.00E+00	3.45E-03	3.45E-04	3.45E-04	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD5	0.00E+00	0.00E+00	0.00E+00	3.45E-03	3.45E-04	3.45E-04	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD6	0.00E+00	0.00E+00	0.00E+00	3.45E-03	3.45E-04	3.45E-04	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD7	0.00E+00	0.00E+00	0.00E+00	3.45E-03	3.45E-04	3.45E-04	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD8	0.00E+00	0.00E+00	0.00E+00	3.45E-03	3.45E-04	3.45E-04	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD9	0.00E+00	0.00E+00	0.00E+00	3.45E-03	3.45E-04	3.45E-04	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD1	0.00E+00	0.00E+00	0.00E+00	3.45E-03	3.45E-04	6.19E-04	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD2	0.00E+00	0.00E+00	0.00E+00	3.08E-03	3.08E-04	5.82E-04	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD3	0.00E+00	0.00E+00	0.00E+00	3.08E-03	3.08E-04	5.82E-04	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD4	0.00E+00	0.00E+00	0.00E+00	3.08E-03	3.08E-04	5.82E-04	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD5	0.00E+00	0.00E+00	0.00E+00	3.08E-03	3.08E-04	5.82E-04	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD6	0.00E+00	0.00E+00	0.00E+00	3.08E-03	3.08E-04	5.82E-04	0.00E+00	0.00E+00	0.00E+00	4380
3MFUGD1	0.00E+00	0.00E+00	0.00E+00	3.08E-03	3.08E-04	5.43E-04	0.00E+00	0.00E+00	0.00E+00	4380

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
3MFUGD2	0.00E+00	0.00E+00	0.00E+00	2.64E-03	2.64E-04	4.99E-04	0.00E+00	0.00E+00	0.00E+00	4380
3MFUGD3	0.00E+00	0.00E+00	0.00E+00	2.64E-03	2.64E-04	4.99E-04	0.00E+00	0.00E+00	0.00E+00	4380
3MFUGD4	0.00E+00	0.00E+00	0.00E+00	2.64E-03	2.64E-04	4.99E-04	0.00E+00	0.00E+00	0.00E+00	4380
3MFUGD5	0.00E+00	0.00E+00	0.00E+00	2.64E-03	2.64E-04	4.99E-04	0.00E+00	0.00E+00	0.00E+00	4380
3MFUGD6	0.00E+00	0.00E+00	0.00E+00	2.64E-03	2.64E-04	4.99E-04	0.00E+00	0.00E+00	0.00E+00	4380
3MFUGD7	0.00E+00	0.00E+00	0.00E+00	2.64E-03	2.64E-04	2.64E-04	0.00E+00	0.00E+00	0.00E+00	4380
4MFUGD1	0.00E+00	0.00E+00	0.00E+00	2.64E-03	2.64E-04	2.64E-04	0.00E+00	0.00E+00	0.00E+00	4380
4MFUGD2	0.00E+00	0.00E+00	0.00E+00	2.64E-03	2.64E-04	2.64E-04	0.00E+00	0.00E+00	0.00E+00	4380
4MFUGD3	0.00E+00	0.00E+00	0.00E+00	2.64E-03	2.64E-04	2.64E-04	0.00E+00	0.00E+00	0.00E+00	4380
4MFUGD4	0.00E+00	0.00E+00	0.00E+00	2.64E-03	2.64E-04	2.64E-04	0.00E+00	0.00E+00	0.00E+00	4380
4MFUGD5	0.00E+00	0.00E+00	0.00E+00	2.64E-03	2.64E-04	2.64E-04	0.00E+00	0.00E+00	0.00E+00	4380
4MFUGD6	0.00E+00	0.00E+00	0.00E+00	2.64E-03	2.64E-04	2.64E-04	0.00E+00	0.00E+00	0.00E+00	4380
4MFUGD7	0.00E+00	0.00E+00	0.00E+00	2.64E-03	2.64E-04	2.64E-04	0.00E+00	0.00E+00	0.00E+00	4380
5MFUGD1	0.00E+00	0.00E+00	0.00E+00	2.64E-03	2.64E-04	2.64E-04	0.00E+00	0.00E+00	0.00E+00	4380
5MFUGD2	0.00E+00	0.00E+00	0.00E+00	2.64E-03	2.64E-04	2.64E-04	0.00E+00	0.00E+00	0.00E+00	4380
5MFUGD3	0.00E+00	0.00E+00	0.00E+00	2.64E-03	2.64E-04	2.64E-04	0.00E+00	0.00E+00	0.00E+00	4380
5MFUGD4	0.00E+00	0.00E+00	0.00E+00	2.64E-03	2.64E-04	2.64E-04	0.00E+00	0.00E+00	0.00E+00	4380
5MFUGD5	0.00E+00	0.00E+00	0.00E+00	2.64E-03	2.64E-04	2.64E-04	0.00E+00	0.00E+00	0.00E+00	4380
5MFUGD6	0.00E+00	0.00E+00	0.00E+00	2.64E-03	2.64E-04	2.64E-04	0.00E+00	0.00E+00	0.00E+00	4380
5MFUGD7	0.00E+00	0.00E+00	0.00E+00	2.64E-03	2.64E-04	2.64E-04	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD1	0.00E+00	0.00E+00	0.00E+00	3.41E-03	3.41E-04	3.41E-04	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD2	0.00E+00	0.00E+00	0.00E+00	3.41E-03	3.41E-04	3.41E-04	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD3	0.00E+00	0.00E+00	0.00E+00	3.41E-03	3.41E-04	3.41E-04	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD4	0.00E+00	0.00E+00	0.00E+00	3.41E-03	3.41E-04	3.41E-04	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD5	0.00E+00	0.00E+00	0.00E+00	3.41E-03	3.41E-04	3.41E-04	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD6	0.00E+00	0.00E+00	0.00E+00	3.41E-03	3.41E-04	3.41E-04	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD7	0.00E+00	0.00E+00	0.00E+00	3.41E-03	3.41E-04	3.41E-04	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD8	0.00E+00	0.00E+00	0.00E+00	3.41E-03	3.41E-04	3.41E-04	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD9	0.00E+00	0.00E+00	0.00E+00	3.41E-03	3.41E-04	3.41E-04	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD10	0.00E+00	0.00E+00	0.00E+00	3.41E-03	3.41E-04	3.41E-04	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD11	0.00E+00	0.00E+00	0.00E+00	3.41E-03	3.41E-04	3.41E-04	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD12	0.00E+00	0.00E+00	0.00E+00	3.41E-03	3.41E-04	3.41E-04	0.00E+00	0.00E+00	0.00E+00	4380

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
WCFMFUGD13	0.00E+00	0.00E+00	0.00E+00	3.41E-03	3.41E-04	3.41E-04	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD14	0.00E+00	0.00E+00	0.00E+00	3.41E-03	3.41E-04	3.41E-04	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD15	0.00E+00	0.00E+00	0.00E+00	3.41E-03	3.41E-04	3.41E-04	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD16	0.00E+00	0.00E+00	0.00E+00	3.41E-03	3.41E-04	3.41E-04	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD17	0.00E+00	0.00E+00	0.00E+00	3.41E-03	3.41E-04	3.41E-04	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD18	0.00E+00	0.00E+00	0.00E+00	3.41E-03	3.41E-04	3.41E-04	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD19	0.00E+00	0.00E+00	0.00E+00	3.41E-03	3.41E-04	3.41E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD1	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD2	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD3	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD4	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD5	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD6	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD7	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD8	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD9	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD10	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD11	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD12	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD13	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD14	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD15	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD16	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD17	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD18	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD19	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD20	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD21	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD22	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD23	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD24	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD25	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	4380

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
WOCMFUGD26	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD27	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD28	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD29	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD30	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD31	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD32	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD33	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
AIRMFUGD1	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
AIRMFUGD2	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
AIRMFUGD3	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
AIRMFUGD4	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
AIRMFUGD5	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
AIRMFUGD6	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
AIRMFUGD7	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCTEMPTRB1	4.41E-01	4.35E-01	4.35E-01	5.04E-02	5.04E-02	5.04E-02	5.06E-02	5.06E-02	5.06E-02	8760
WOCTEMPTRB2	4.41E-01	4.35E-01	4.35E-01	5.04E-02	5.04E-02	5.04E-02	5.06E-02	5.06E-02	5.06E-02	8760
RFDGMT1	3.50E-01	3.50E-01	2.69E+00	3.50E-01	3.50E-01	9.50E-02	3.80E-02	3.80E-02	1.96E-02	8760
RFDGMT2	4.06E+00	7.21E+00	7.34E-01	4.06E+00	6.44E-01	7.71E-02	1.40E-02	1.40E-02	6.33E-03	8760
RFDGWPDS1	1.25E+01	4.25E+00	4.25E+00	2.84E-01	2.84E-01	2.84E-01	3.87E-02	3.87E-02	3.87E-02	8760
RFDGWPDS2	1.25E+01	4.25E+00	4.25E+00	2.84E-01	2.84E-01	2.84E-01	3.87E-02	3.87E-02	3.87E-02	8760
RFDCD5	1.82E+00	2.15E+00	2.15E+00	1.27E-01	1.27E-01	1.27E-01	2.70E-01	2.70E-01	2.70E-01	8760
2DRILLPEA	1.07E+00	2.05E-01	2.05E-01	9.17E-03	9.17E-03	9.17E-03	5.64E-04	5.64E-04	5.64E-04	8760
2DRILLCP1A	1.75E-01	2.00E-02	1.14E-03	1.00E-03	1.00E-03	5.71E-05	3.31E-04	3.31E-04	1.89E-05	500
2DRILLCP2A	1.75E-01	2.00E-02	1.14E-03	1.00E-03	1.00E-03	5.71E-05	3.31E-04	3.31E-04	1.89E-05	500
2DRILLB1A	1.53E-02	6.12E-02	6.12E-02	7.28E-03	6.51E-03	6.51E-03	6.51E-04	6.51E-04	6.51E-04	8760
2DRILLB2A	1.53E-02	6.12E-02	6.12E-02	7.28E-03	6.51E-03	6.51E-03	6.51E-04	6.51E-04	6.51E-04	8760
2DRILLAH1A	1.83E-02	7.30E-02	7.30E-02	8.69E-03	7.78E-03	7.78E-03	7.78E-04	7.78E-04	7.78E-04	8760
2DRILLAH2A	9.13E-03	3.65E-02	3.65E-02	4.35E-03	3.89E-03	3.89E-03	3.89E-04	3.89E-04	3.89E-04	8760
2DRILLMPA	1.37E-02	5.48E-02	5.48E-02	6.52E-03	5.83E-03	5.83E-03	5.83E-04	5.83E-04	5.83E-04	8760
2DRILLNMTEA	4.91E-01	5.61E-01	5.61E-01	2.81E-02	2.81E-02	2.81E-02	1.04E-03	1.04E-03	1.04E-03	8760
2DRILLNMLTA	7.22E-02	8.20E-02	8.20E-02	8.75E-03	8.75E-03	8.75E-03	7.24E-05	7.24E-05	7.24E-05	8760

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
2DRILLNMPGA	3.51E-02	3.30E-02	3.30E-02	2.81E-03	2.81E-03	2.81E-03	4.64E-05	4.64E-05	4.64E-05	8760
2DRILLNMCPA	5.97E-02	5.61E-02	5.61E-02	4.77E-03	4.77E-03	4.77E-03	7.90E-05	7.90E-05	7.90E-05	8760
2DRILLNMHSA	2.15E-02	8.59E-02	8.59E-02	1.02E-02	9.15E-03	9.15E-03	9.15E-04	9.15E-04	9.15E-04	8760
2DRILLFLARE	1.08E+00	1.98E-01	9.38E-02	4.79E-05	4.79E-05	2.27E-05	1.16E-02	1.16E-02	5.47E-03	1728
3DRILLPEA	1.07E+00	2.05E-01	2.05E-01	9.17E-03	9.17E-03	9.17E-03	5.64E-04	5.64E-04	5.64E-04	8760
3DRILLCP1A	1.75E-01	2.00E-02	1.14E-03	1.00E-03	1.00E-03	5.71E-05	3.31E-04	3.31E-04	1.89E-05	500
3DRILLCP2A	1.75E-01	2.00E-02	1.14E-03	1.00E-03	1.00E-03	5.71E-05	3.31E-04	3.31E-04	1.89E-05	500
3DRILLB1A	1.53E-02	6.12E-02	6.12E-02	7.28E-03	6.51E-03	6.51E-03	6.51E-04	6.51E-04	6.51E-04	8760
3DRILLB2A	1.53E-02	6.12E-02	6.12E-02	7.28E-03	6.51E-03	6.51E-03	6.51E-04	6.51E-04	6.51E-04	8760
3DRILLAH1A	1.83E-02	7.30E-02	7.30E-02	8.69E-03	7.78E-03	7.78E-03	7.78E-04	7.78E-04	7.78E-04	8760
3DRILLAH2A	9.13E-03	3.65E-02	3.65E-02	4.35E-03	3.89E-03	3.89E-03	3.89E-04	3.89E-04	3.89E-04	8760
3DRILLMPA	1.37E-02	5.48E-02	5.48E-02	6.52E-03	5.83E-03	5.83E-03	5.83E-04	5.83E-04	5.83E-04	8760
3DRILLNMTEA	4.91E-01	5.61E-01	5.61E-01	2.81E-02	2.81E-02	2.81E-02	1.04E-03	1.04E-03	1.04E-03	8760
3DRILLNMLTA	7.22E-02	8.20E-02	8.20E-02	8.75E-03	8.75E-03	8.75E-03	7.24E-05	7.24E-05	7.24E-05	8760
3DRILLNMPGA	3.51E-02	3.30E-02	3.30E-02	2.81E-03	2.81E-03	2.81E-03	4.64E-05	4.64E-05	4.64E-05	8760
3DRILLNMCPA	5.97E-02	5.61E-02	5.61E-02	4.77E-03	4.77E-03	4.77E-03	7.90E-05	7.90E-05	7.90E-05	8760
3DRILLNMHSA	2.15E-02	8.59E-02	8.59E-02	1.02E-02	9.15E-03	9.15E-03	9.15E-04	9.15E-04	9.15E-04	8760
3DRILLFLARE	1.08E+00	1.98E-01	3.91E-02	4.79E-05	4.79E-05	9.44E-06	1.16E-02	1.16E-02	2.28E-03	1728
2PADHTR1	1.35E-02	5.41E-02	4.98E-02	6.44E-03	5.76E-03	5.31E-03	5.76E-04	5.76E-04	5.31E-04	4704
2PADSHTR1	4.67E-03	1.87E-02	1.72E-02	2.22E-03	1.99E-03	1.83E-03	1.99E-04	1.99E-04	1.83E-04	4704
2PADNMGS1	1.32E-02	2.49E-02	2.29E-02	1.96E-03	1.90E-03	1.75E-03	2.13E-05	2.13E-05	1.96E-05	4704
3PADHTR1	1.35E-02	5.41E-02	4.98E-02	6.44E-03	5.76E-03	5.31E-03	5.76E-04	5.76E-04	5.31E-04	4704
3PADSHTR1	4.67E-03	1.87E-02	1.72E-02	2.22E-03	1.99E-03	1.83E-03	1.99E-04	1.99E-04	1.83E-04	4704
3PADNMGS1	1.32E-02	2.49E-02	2.29E-02	1.96E-03	1.90E-03	1.75E-03	2.13E-05	2.13E-05	1.96E-05	4704
2PADNR1	1.48E-02	3.87E-02	3.33E-02	2.04E-03	1.97E-03	1.70E-03	1.59E-04	1.59E-04	1.37E-04	VARIES
2PADNR2	1.48E-02	3.87E-02	3.33E-02	2.04E-03	1.97E-03	1.70E-03	1.59E-04	1.59E-04	1.37E-04	VARIES
2PADNR3	1.48E-02	3.87E-02	3.33E-02	2.04E-03	1.97E-03	1.70E-03	1.59E-04	1.59E-04	1.37E-04	VARIES
2PADNR4	1.48E-02	3.87E-02	3.33E-02	2.04E-03	1.97E-03	1.70E-03	1.59E-04	1.59E-04	1.37E-04	VARIES
3PADNR1	1.48E-02	3.87E-02	3.33E-02	2.04E-03	1.97E-03	1.70E-03	1.59E-04	1.59E-04	1.37E-04	VARIES
3PADNR2	1.48E-02	3.87E-02	3.33E-02	2.04E-03	1.97E-03	1.70E-03	1.59E-04	1.59E-04	1.37E-04	VARIES
3PADNR3	1.48E-02	3.87E-02	3.33E-02	2.04E-03	1.97E-03	1.70E-03	1.59E-04	1.59E-04	1.37E-04	VARIES
3PADNR4	1.48E-02	3.87E-02	3.33E-02	2.04E-03	1.97E-03	1.70E-03	1.59E-04	1.59E-04	1.37E-04	VARIES

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
2PADOHT1	2.06E-02	5.16E-02	3.56E-02	2.90E-03	2.81E-03	1.94E-03	1.35E-04	1.35E-04	9.34E-05	1512
2PADOHT2	2.06E-02	5.16E-02	3.56E-02	2.90E-03	2.81E-03	1.94E-03	1.35E-04	1.35E-04	9.34E-05	1512
2PADOHT3	2.06E-02	5.16E-02	3.56E-02	2.90E-03	2.81E-03	1.94E-03	1.35E-04	1.35E-04	9.34E-05	1512
2PADOHT4	2.06E-02	5.16E-02	3.56E-02	2.90E-03	2.81E-03	1.94E-03	1.35E-04	1.35E-04	9.34E-05	1512
3PADOHT1	2.06E-02	5.16E-02	3.56E-02	2.90E-03	2.81E-03	1.94E-03	1.35E-04	1.35E-04	9.34E-05	1512
3PADOHT2	2.06E-02	5.16E-02	3.56E-02	2.90E-03	2.81E-03	1.94E-03	1.35E-04	1.35E-04	9.34E-05	1512
3PADOHT3	2.06E-02	5.16E-02	3.56E-02	2.90E-03	2.81E-03	1.94E-03	1.35E-04	1.35E-04	9.34E-05	1512
3PADOHT4	2.06E-02	5.16E-02	3.56E-02	2.90E-03	2.81E-03	1.94E-03	1.35E-04	1.35E-04	9.34E-05	1512
2FUGD	0.00E+00	0.00E+00	0.00E+00	2.88E-02	4.32E-03	4.32E-03	0.00E+00	0.00E+00	0.00E+00	4380
3FUGD	0.00E+00	0.00E+00	0.00E+00	2.88E-02	4.32E-03	4.32E-03	0.00E+00	0.00E+00	0.00E+00	4380

A.1.5 Scenario 5: Routine Operations

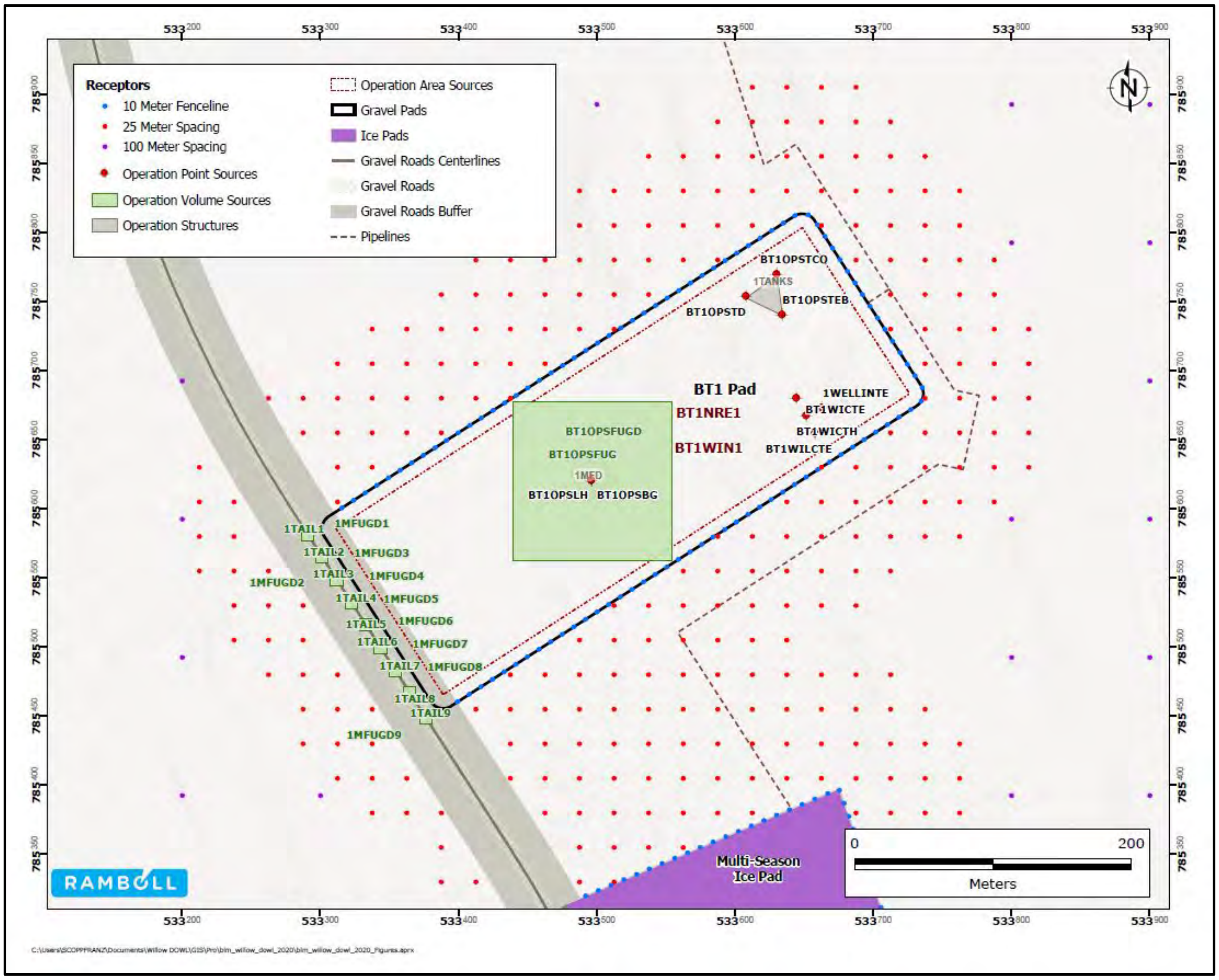

Figure A.1-16. Alternative B Near-field Model Scenario 5 Source Locations at BT1.

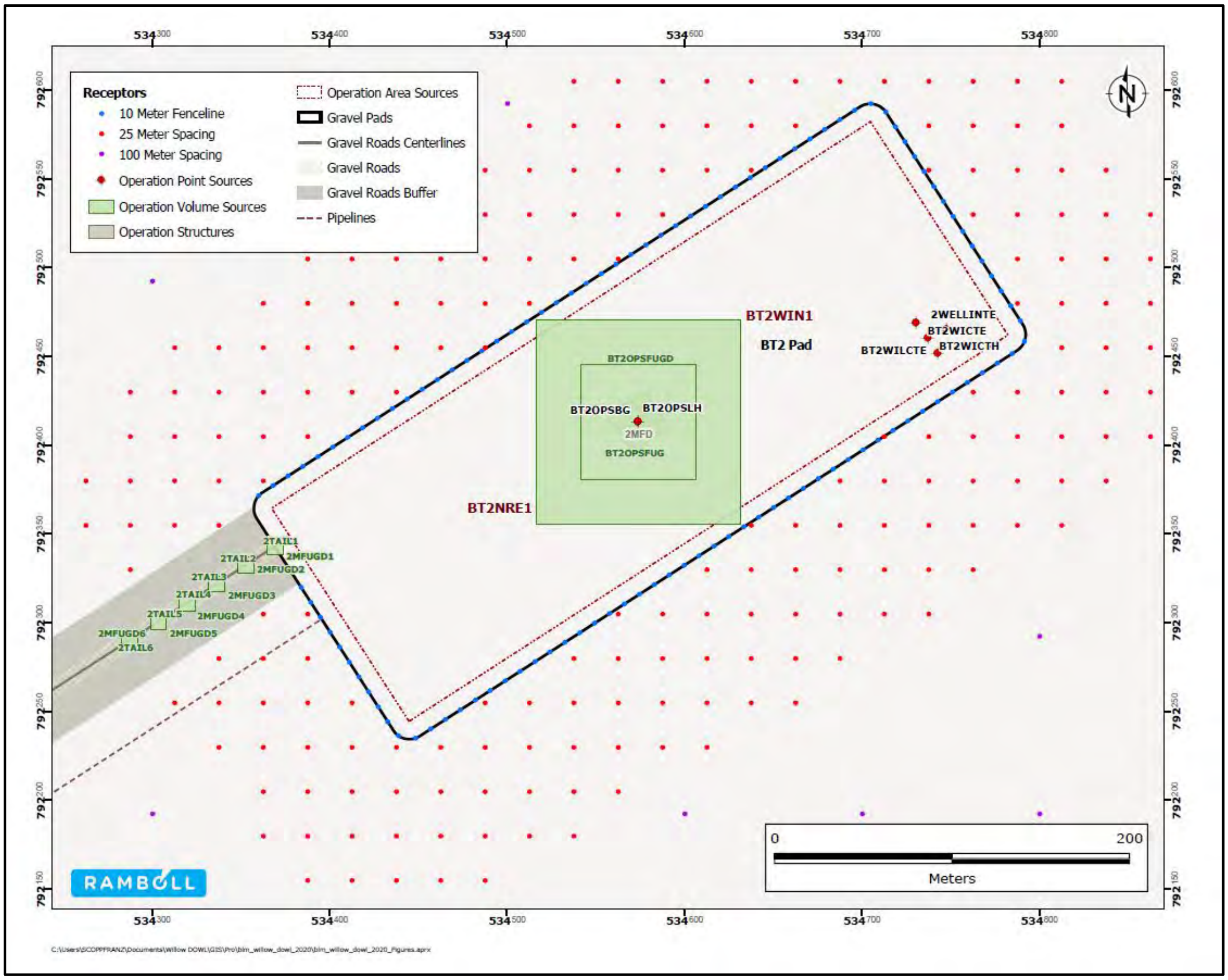

Figure A.1-17. Alternative B Near-field Model Scenario 5 Source Locations at BT2.

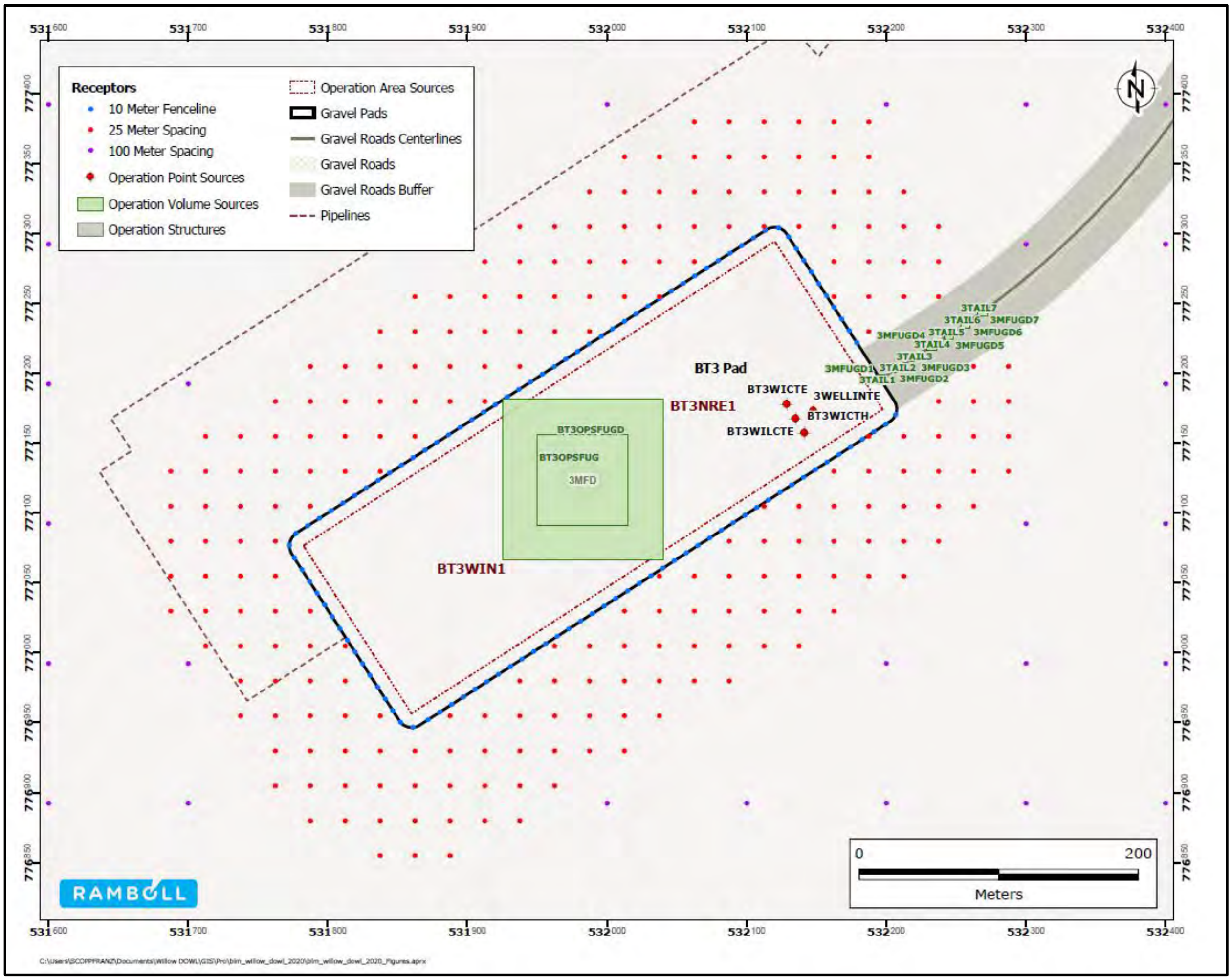

Figure A.1-18. Alternative B Near-field Model Scenario 5 Source Locations at BT3.

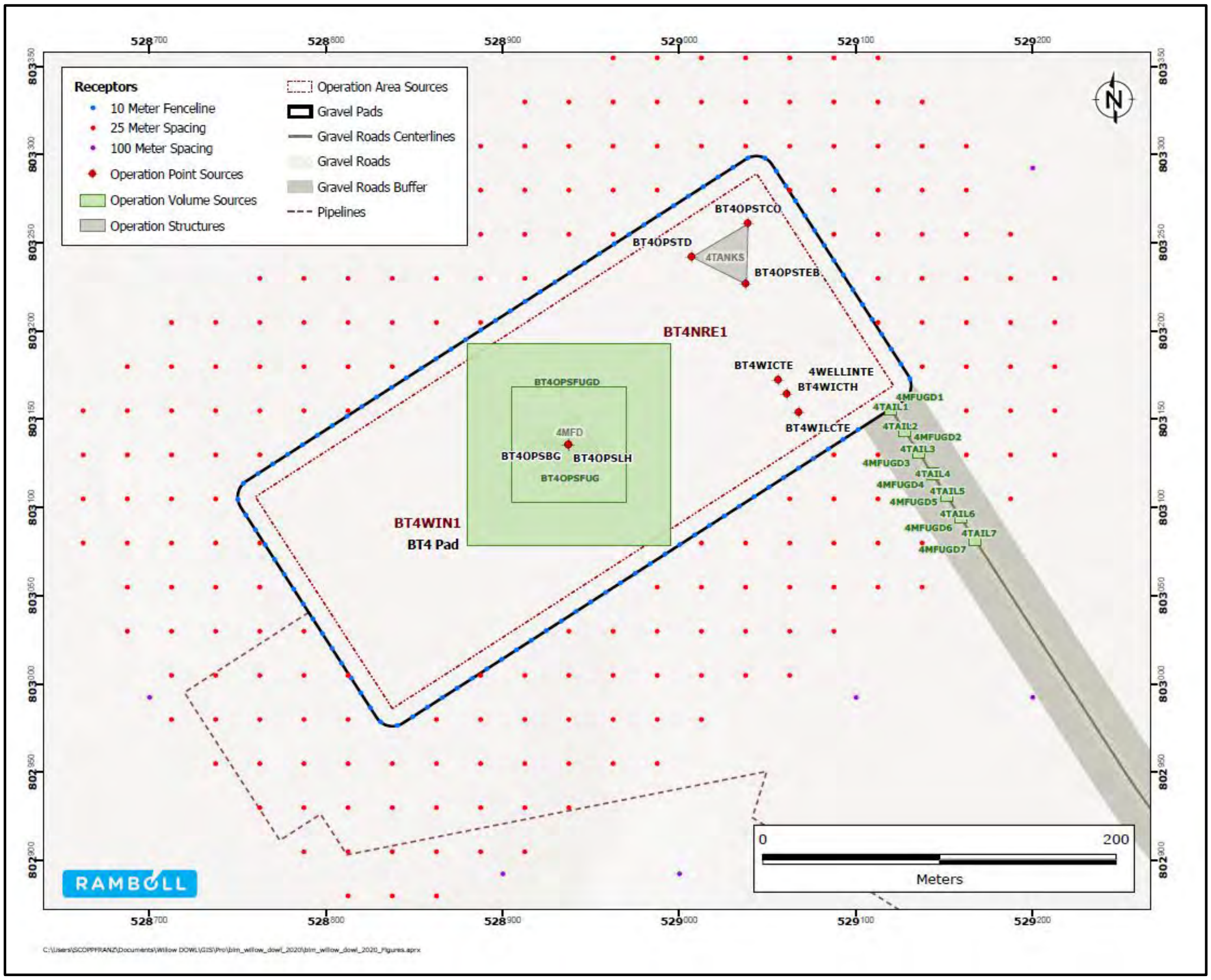

Figure A.1-19. Alternative B Near-field Model Scenario 5 Source Locations at BT4.

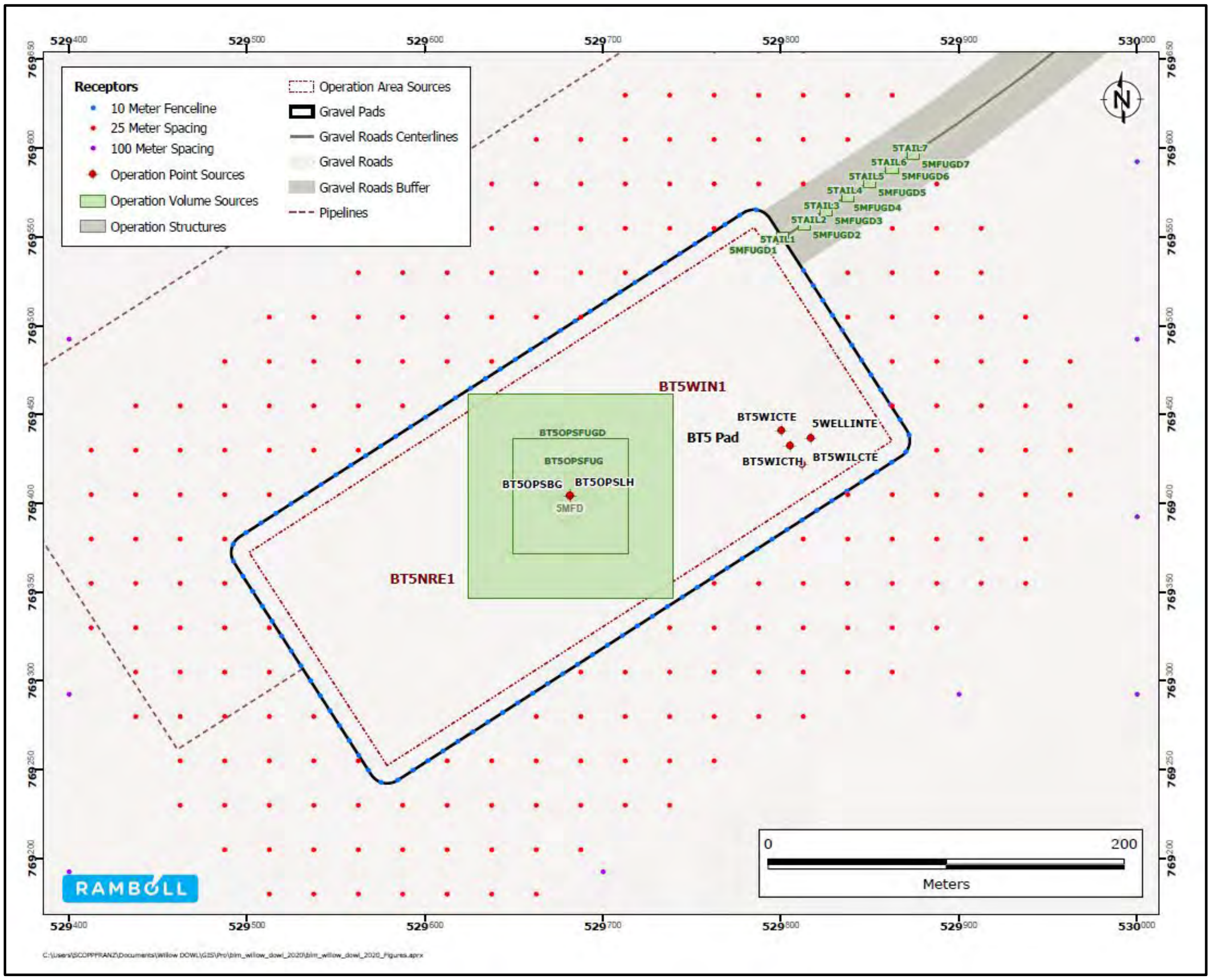

Figure A.1-20. Alternative B Near-field Model Scenario 5 Source Locations at BT5.

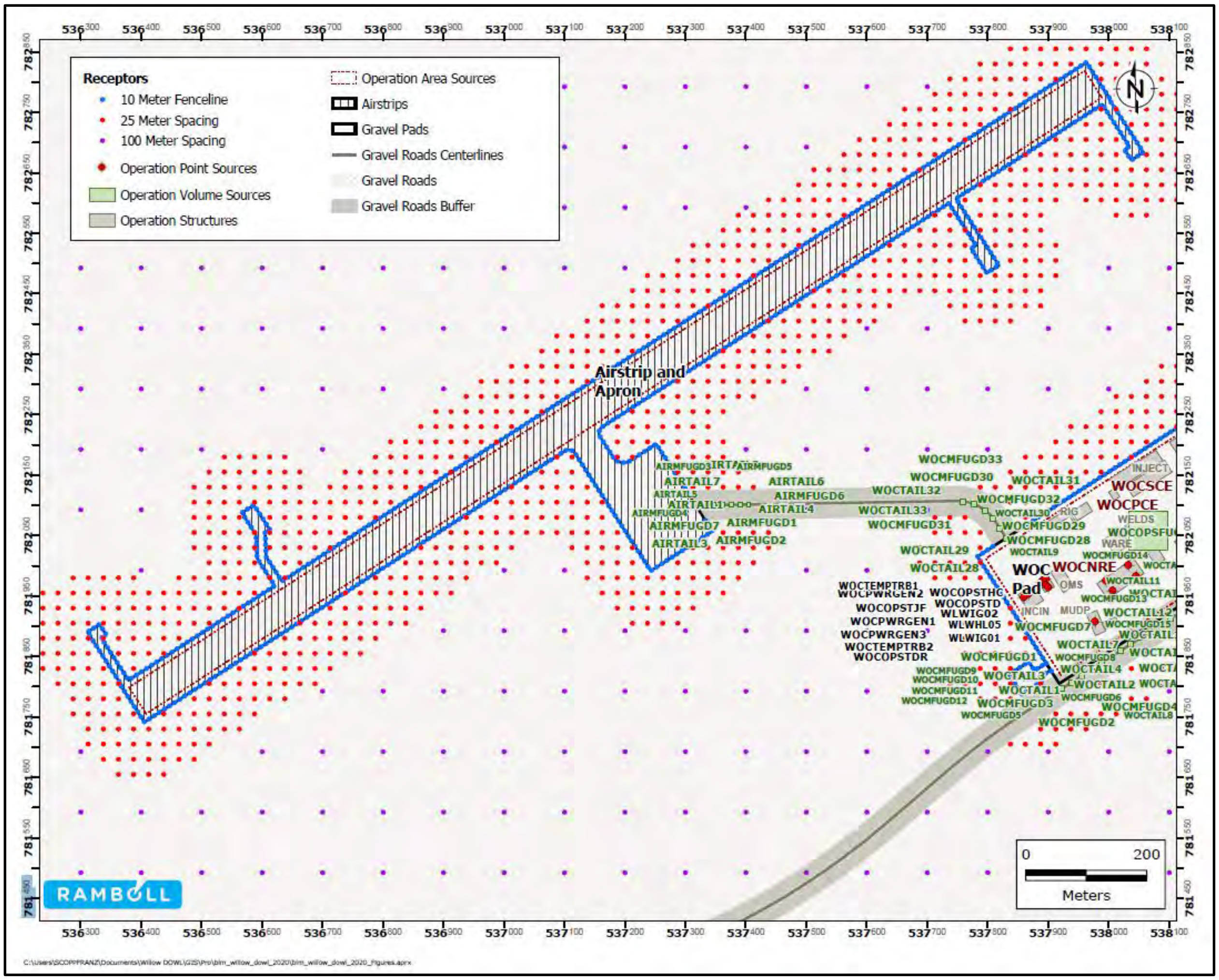

Figure A.1-21. Alternative B Near-field Model Scenario 5 Source Locations at Airstrip.

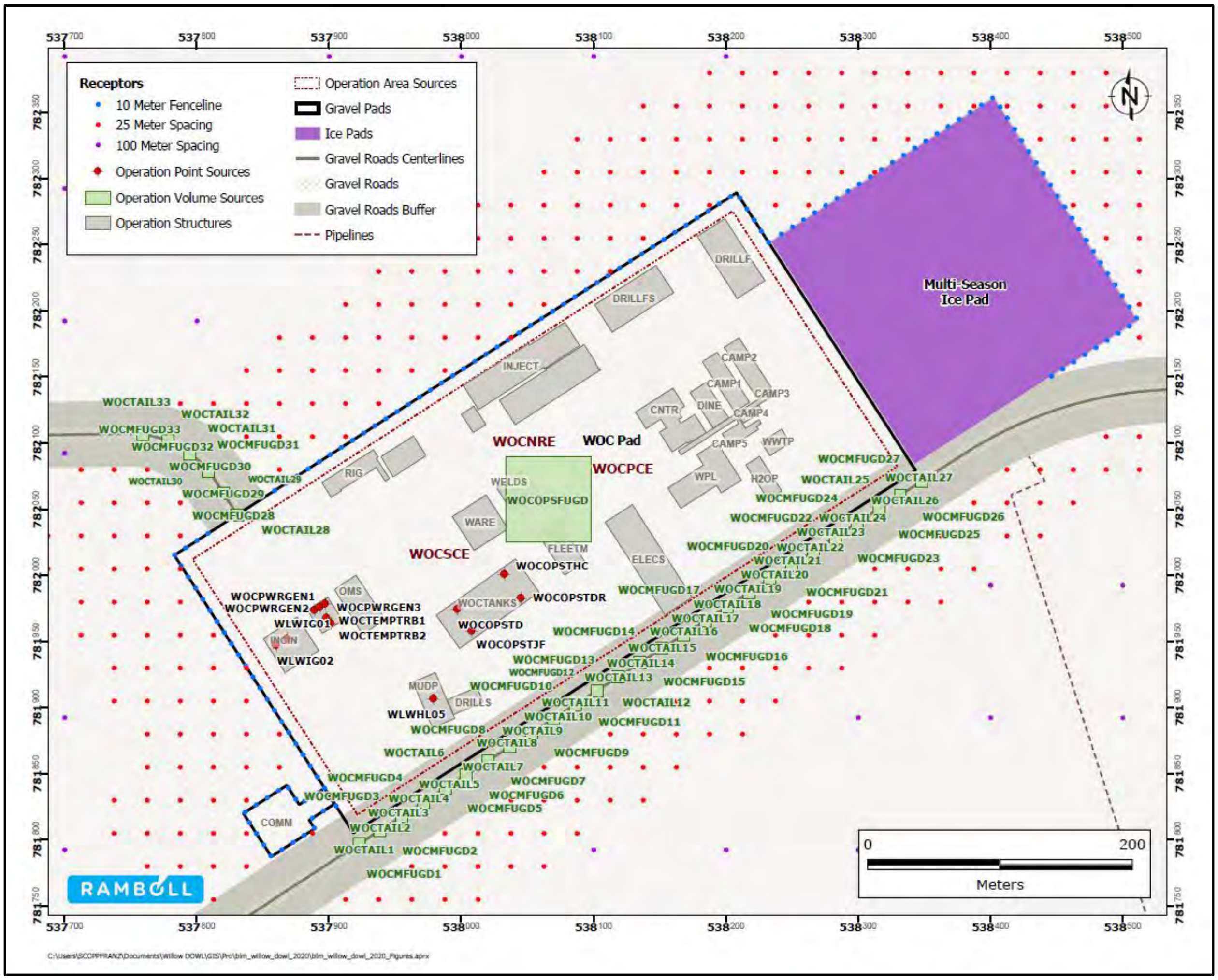

Figure A.1-22. Alternative B Near-field Model Scenario 5 Source Locations at WOC.

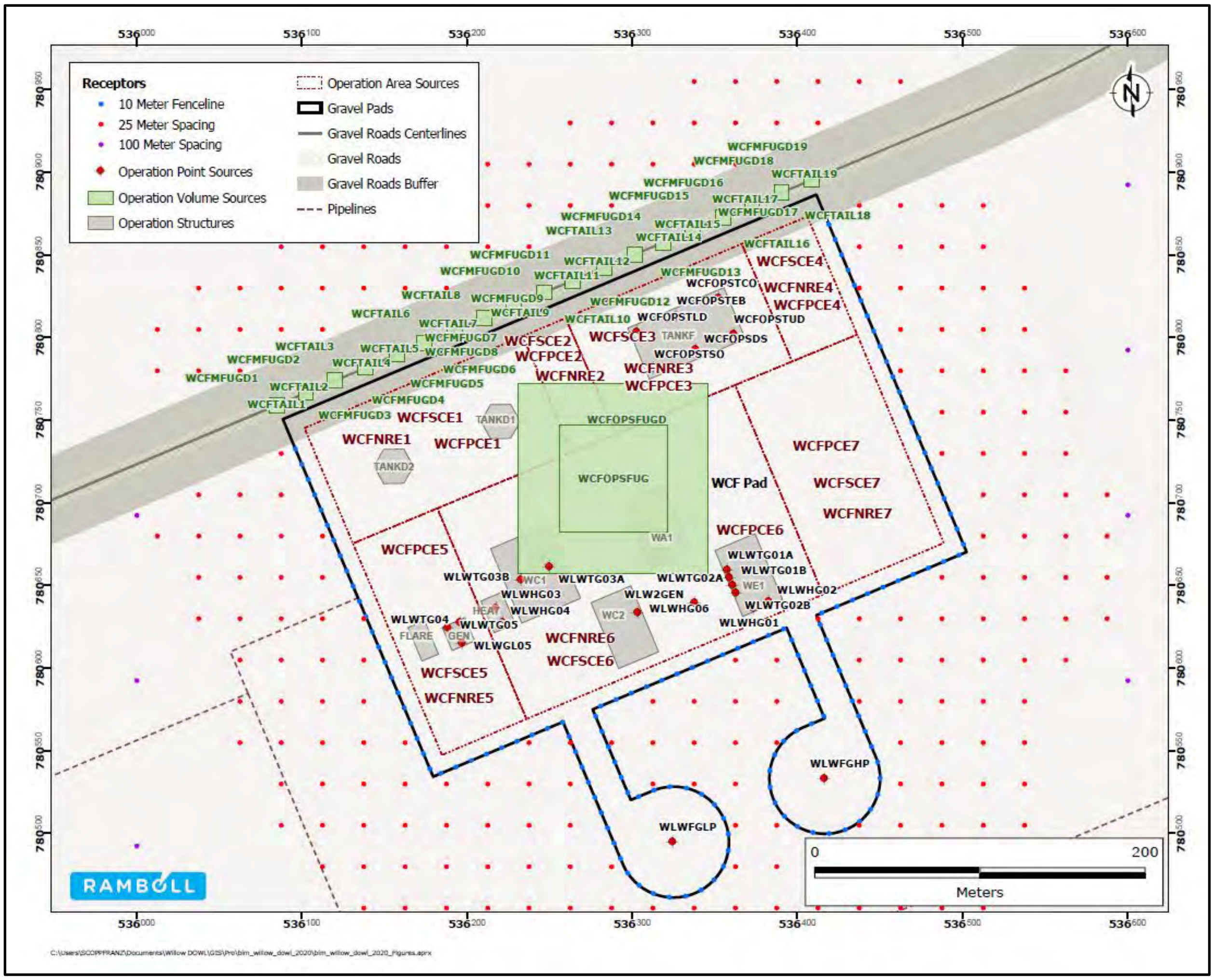

Figure A.1-23. Alternative B Near-field Model Scenario 5 Source Locations at WPF.

Table A.1-13. Alternative B Near-field Model Scenario 5 Emissions Source Descriptions and In-stack Ratios

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
WOCOPSTDR	POINT	WOC - Storage Tanks - VFRT/ DRA (drag reducing agent)	-	-
BT1OPSLH	POINT	BT1 - Line Heater	0.05	Diesel or natural gas heaters, or boiler
BT1OPSBG	POINT	BT1 - Backup Generator	0.2	Diesel tailpipe from non-road equipment
BT1OPSFUG	VOLUME	BT1 - Fugitive Components	-	-
BT1OPSFUGD	VOLUME	BT1 - Wind Erosion Fugitive Dust	-	-
BT1OPSTEB	POINT	BT1 - Storage Tanks - VFRT/ Emulsion Breaker/ Pad Buster	-	-
BT1OPSTD	POINT	BT1 - Storage Tanks - VFRT/ Diesel	-	-
BT1OPSTCO	POINT	BT1 - Storage Tanks - VFRT/ Portable Temp Crude Oil	-	-
BT1WICTH	POINT	BT1 - Well Intervention Main Equipment - Coil Tubing Heater	0.05	Diesel or natural gas heaters, or boiler
BT1WICTE	POINT	BT1 - Well Intervention Main Equipment - Coil Tubing Engine	0.1	Diesel engines
BT1WILCTE	POINT	BT1 - Well Intervention Main Equipment - Large Coil Tubing Engine	0.1	Diesel engines
BT2OPSLH	POINT	BT2 - Line Heater	0.05	Diesel or natural gas heaters, or boiler
BT2OPSBG	POINT	BT2 - Backup Generator	0.2	Diesel tailpipe from non-road equipment
BT2OPSFUG	VOLUME	BT2 - Fugitive Components	-	-
BT2OPSFUGD	VOLUME	BT2 - Wind Erosion Fugitive Dust	-	-
BT2WICTH	POINT	BT2 - Well Intervention Main Equipment - Coil Tubing Heater	0.05	Diesel or natural gas heaters, or boiler
BT2WICTE	POINT	BT2 - Well Intervention Main Equipment - Coil Tubing Engine	0.1	Diesel engines
BT2WILCTE	POINT	BT2 - Well Intervention Main Equipment - Large Coil Tubing Engine	0.1	Diesel engines
BT3OPSFUG	VOLUME	BT3 - Fugitive Components	-	-
BT3OPSFUGD	VOLUME	BT3 - Wind Erosion Fugitive Dust	-	-
BT3WICTH	POINT	BT3 - Well Intervention Main Equipment - Coil Tubing Heater	0.05	Diesel or natural gas heaters, or boiler
BT3WICTE	POINT	BT3 - Well Intervention Main Equipment - Coil Tubing Engine	0.1	Diesel engines
BT3WILCTE	POINT	BT3 - Well Intervention Main Equipment - Large Coil Tubing Engine	0.1	Diesel engines
BT4OPSLH	POINT	BT4 - Line Heater	0.05	Diesel or natural gas heaters, or boiler
BT4OPSBG	POINT	BT4 - Backup Generator	0.2	Diesel tailpipe from non-road equipment
BT4OPSFUG	VOLUME	BT4 - Fugitive Components	-	-
BT4OPSFUGD	VOLUME	BT4 - Wind Erosion Fugitive Dust	-	-
BT4OPSTEB	POINT	BT4 - Storage Tanks - VFRT/ Emulsion Breaker/ Pad Buster	-	-

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
BT4OPSTD	POINT	BT4 - Storage Tanks - VFRT/ Diesel	-	-
BT4OPSTCO	POINT	BT4 - Storage Tanks - VFRT/ Portable Temp Crude Oil	-	-
BT4WICTH	POINT	BT4 - Well Intervention Main Equipment - Coil Tubing Heater	0.05	Diesel or natural gas heaters, or boiler
BT4WICTE	POINT	BT4 - Well Intervention Main Equipment - Coil Tubing Engine	0.1	Diesel engines
BT4WILCTE	POINT	BT4 - Well Intervention Main Equipment - Large Coil Tubing Engine	0.1	Diesel engines
BT5OPSLH	POINT	BT5 - Line Heater	0.05	Diesel or natural gas heaters, or boiler
BT5OPSBG	POINT	BT5 - Backup Generator	0.2	Diesel tailpipe from non-road equipment
BT5OPSFUG	VOLUME	BT5 - Fugitive Components	-	-
BT5OPSFUGD	VOLUME	BT5 - Wind Erosion Fugitive Dust	-	-
BT5WICTH	POINT	BT5 - Well Intervention Main Equipment - Coil Tubing Heater	0.05	Diesel or natural gas heaters, or boiler
BT5WICTE	POINT	BT5 - Well Intervention Main Equipment - Coil Tubing Engine	0.1	Diesel engines
BT5WILCTE	POINT	BT5 - Well Intervention Main Equipment - Large Coil Tubing Engine	0.1	Diesel engines
WLWTG03A	POINT	WPF - Stationary Combustion Sources - Injection/Compression Turbine	0.3	Natural gas-fired turbines
WLWTG03B	POINT	WPF - Stationary Combustion Sources - Injection/Compression Turbine	0.3	Natural gas-fired turbines
WLWTG01A	POINT	WPF - Stationary Combustion Sources - Power Generation Turbine	0.3	Natural gas-fired turbines
WLWTG01B	POINT	WPF - Stationary Combustion Sources - Power Generation Turbine	0.3	Natural gas-fired turbines
WLWTG02A	POINT	WPF - Stationary Combustion Sources - Power Generation Turbine	0.3	Natural gas-fired turbines
WLWTG02B	POINT	WPF - Stationary Combustion Sources - Power Generation Turbine	0.3	Natural gas-fired turbines
WLWTG04	POINT	WPF - Stationary Combustion Sources - Backup Power Generation Turbine (Dual Fuel)	0.3	Natural gas-fired turbines
WLWTG05	POINT	WPF - Stationary Combustion Sources - Backup Power Generation Turbine (Dual Fuel)	0.3	Natural gas-fired turbines
WLWGL05	POINT	WPF - Stationary Combustion Sources - Black Start Engine	0.1	Diesel engines
WLWHG03	POINT	WPF - Stationary Combustion Sources - Crude Production Heater	0.05	Diesel or natural gas heaters, or boiler
WLWHG04	POINT	WPF - Stationary Combustion Sources - Crude Production Heater	0.05	Diesel or natural gas heaters, or boiler
WLWHG01	POINT	WPF - Stationary Combustion Sources - Utility Heat Medium (UHM) Heater	0.05	Diesel or natural gas heaters, or boiler
WLWHG02	POINT	WPF - Stationary Combustion Sources - Utility Heat Medium (UHM) Heater	0.05	Diesel or natural gas heaters, or boiler

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
WLWHG06	POINT	WPF - Stationary Combustion Sources - Hot Oil Heater	0.05	Diesel or natural gas heaters, or boiler
WLWFGLP	POINT	WPF - Stationary Combustion Sources - LP Flare (pilot/purge/assist)	0.5	USEPA default value
WLWFGHP	POINT	WPF - Stationary Combustion Sources - HP Flare (pilot/purge/assist)	0.5	USEPA default value
WCFOPSDS	POINT	WPF - Stationary Combustion Sources - Diesel Fueling Station	-	-
WCFOPSTSO	POINT	WPF - Storage Tanks - VFRT/ Slop Oil	-	-
WCFOPSTCO	POINT	WPF - Storage Tanks - VFRT/ Portable Temp Crude Oil	-	-
WCFOPSTUD	POINT	WPF - Storage Tanks - VFRT/ ULSD	-	-
WCFOPSTLD	POINT	WPF - Storage Tanks - VFRT/ LEPD	-	-
WCFOPSTEB	POINT	WPF - Storage Tanks - VFRT/ Emulsion Breaker/ Pad Buster	-	-
WCFOPSFUG	VOLUME	WPF - Fugitive Equipment Leaks	-	-
WCFOPSFUGD	VOLUME	WPF - Wind Erosion Fugitive Dust	-	-
WOCPWRGEN1	POINT	WOC - Stationary Combustion Sources - Power Generation	0.1	Diesel engines
WOCPWRGEN2	POINT	WOC - Stationary Combustion Sources - Power Generation	0.1	Diesel engines
WOCPWRGEN3	POINT	WOC - Stationary Combustion Sources - Power Generation	0.1	Diesel engines
WLWIG01	POINT	WOC - Stationary Combustion Sources - Incinerator	0.5	USEPA default value
WLWIG02	POINT	WOC - Stationary Combustion Sources - Incinerator	0.5	USEPA default value
WLWHL05	POINT	WOC - Stationary Combustion Sources - Mud Plant Glycol Boiler	0.05	Diesel or natural gas heaters, or boiler
WOCOPSTJF	POINT	WOC - Storage Tanks - VFRT/ Aircraft Jet Fuel	-	-
WOCOPSTHC	POINT	WOC - Storage Tanks - VFRT/ Hydrocarbon	-	-
WOCOPSTD	POINT	WOC - Storage Tanks - VFRT/ Diesel	-	-
WILLOWAIR1	AREAPOLY	WOC - Aircraft Activity (Willow Airstrip) - Release Height 50.8m	0.5	USEPA default value
WILLOWAIR2	AREAPOLY	WOC - Aircraft Activity (Willow Airstrip) - Release Height 152.4m	0.5	USEPA default value
WILLOWAIR3	AREAPOLY	WOC - Aircraft Activity (Willow Airstrip) - Release Height 254m	0.5	USEPA default value
WOCOPSFUGD	VOLUME	WOC - Wind Erosion Fugitive Dust - Wind Erosion	-	-
WCFPCE1	AREAPOLY	WPF - Non-mobile Support Equipment - Portable External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFPCE2	AREAPOLY	WPF - Non-mobile Support Equipment - Portable External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFPCE3	AREAPOLY	WPF - Non-mobile Support Equipment - Portable External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
WCFPCE4	AREAPOLY	WPF - Non-mobile Support Equipment - Portable External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFPCE5	AREAPOLY	WPF - Non-mobile Support Equipment - Portable External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFPCE6	AREAPOLY	WPF - Non-mobile Support Equipment - Portable External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFPCE7	AREAPOLY	WPF - Non-mobile Support Equipment - Portable External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFSCE1	AREAPOLY	WPF - Non-mobile Support Equipment - Stationary External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFSCE2	AREAPOLY	WPF - Non-mobile Support Equipment - Stationary External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFSCE3	AREAPOLY	WPF - Non-mobile Support Equipment - Stationary External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFSCE4	AREAPOLY	WPF - Non-mobile Support Equipment - Stationary External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFSCE5	AREAPOLY	WPF - Non-mobile Support Equipment - Stationary External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFSCE6	AREAPOLY	WPF - Non-mobile Support Equipment - Stationary External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFSCE7	AREAPOLY	WPF - Non-mobile Support Equipment - Stationary External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFNRE1	AREAPOLY	WPF - Non-mobile Support Equipment - Internal Combustion Equipment Non-Road Engines <140 HP	0.2	Diesel tailpipe from non-road equipment
WCFNRE2	AREAPOLY	WPF - Non-mobile Support Equipment - Internal Combustion Equipment Non-Road Engines <140 HP	0.2	Diesel tailpipe from non-road equipment
WCFNRE3	AREAPOLY	WPF - Non-mobile Support Equipment - Internal Combustion Equipment Non-Road Engines <140 HP	0.2	Diesel tailpipe from non-road equipment
WCFNRE4	AREAPOLY	WPF - Non-mobile Support Equipment - Internal Combustion Equipment Non-Road Engines <140 HP	0.2	Diesel tailpipe from non-road equipment
WCFNRE5	AREAPOLY	WPF - Non-mobile Support Equipment - Internal Combustion Equipment Non-Road Engines <140 HP	0.2	Diesel tailpipe from non-road equipment

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
WCFNRE6	AREAPOLY	WPF - Non-mobile Support Equipment - Internal Combustion Equipment Non-Road Engines <140 HP	0.2	Diesel tailpipe from non-road equipment
WCFNRE7	AREAPOLY	WPF - Non-mobile Support Equipment - Internal Combustion Equipment Non-Road Engines <140 HP	0.2	Diesel tailpipe from non-road equipment
WLW2GEN	POINT	WPF - Non-mobile Support Equipment - Internal Combustion Equipment Non-Road Engines >140 HP	0.1	Diesel engines
BT3NRE1	AREAPOLY	BT3 - Routine Operations Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
BT3WIN1	AREAPOLY	BT3 - Well Intervention Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
3WELLINTE	POINT	BT3 - Well Intervention Non-Mobile Support Equipment - Total Engine	0.1	Diesel engines
BT1NRE1	AREAPOLY	BT1 - Routine Operations Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
BT1WIN1	AREAPOLY	BT1 - Well Intervention Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
1WELLINTE	POINT	BT1 - Well Intervention Non-Mobile Support Equipment - Total Engine	0.1	Diesel engines
BT2NRE1	AREAPOLY	BT2 - Routine Operations Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
BT2WIN1	AREAPOLY	BT2 - Well Intervention Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
2WELLINTE	POINT	BT2 - Well Intervention Non-Mobile Support Equipment - Total Engine	0.1	Diesel engines
BT4NRE1	AREAPOLY	BT4 - Routine Operations Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
BT4WIN1	AREAPOLY	BT4 - Well Intervention Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
4WELLINTE	POINT	BT4 - Well Intervention Non-Mobile Support Equipment - Total Engine	0.1	Diesel engines
BT5NRE1	AREAPOLY	BT5 - Routine Operations Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
BT5WIN1	AREAPOLY	BT5 - Well Intervention Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
5WELLINTE	POINT	BT5 - Well Intervention Non-Mobile Support Equipment - Total Engine	0.1	Diesel engines
WOCPCE	AREAPOLY	WOC - Non-mobile Support Equipment - Portable External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WOCSCE	AREAPOLY	WOC - Non-mobile Support Equipment - Stationary External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WOCNRE	AREAPOLY	WOC - Non-mobile Support Equipment - Internal Combustion Equipment Non-Road Engines <140 HP	0.2	Diesel tailpipe from non-road equipment
1TAIL1	VOLUME	Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
1TAIL2	VOLUME	Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL3	VOLUME	Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL4	VOLUME	Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL5	VOLUME	Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL6	VOLUME	Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL7	VOLUME	Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL8	VOLUME	Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL9	VOLUME	Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
2TAIL1	VOLUME	Mobile Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL2	VOLUME	Mobile Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL3	VOLUME	Mobile Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL4	VOLUME	Mobile Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL5	VOLUME	Mobile Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL6	VOLUME	Mobile Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
3TAIL1	VOLUME	Mobile Equipment Tailpipe - BT3	0.15	Diesel tailpipe from on-road vehicles
3TAIL2	VOLUME	Mobile Equipment Tailpipe - BT3	0.15	Diesel tailpipe from on-road vehicles
3TAIL3	VOLUME	Mobile Equipment Tailpipe - BT3	0.15	Diesel tailpipe from on-road vehicles
3TAIL4	VOLUME	Mobile Equipment Tailpipe - BT3	0.15	Diesel tailpipe from on-road vehicles
3TAIL5	VOLUME	Mobile Equipment Tailpipe - BT3	0.15	Diesel tailpipe from on-road vehicles
3TAIL6	VOLUME	Mobile Equipment Tailpipe - BT3	0.15	Diesel tailpipe from on-road vehicles
3TAIL7	VOLUME	Mobile Equipment Tailpipe - BT3	0.15	Diesel tailpipe from on-road vehicles
4TAIL1	VOLUME	Mobile Equipment Tailpipe - BT4	0.15	Diesel tailpipe from on-road vehicles
4TAIL2	VOLUME	Mobile Equipment Tailpipe - BT4	0.15	Diesel tailpipe from on-road vehicles
4TAIL3	VOLUME	Mobile Equipment Tailpipe - BT4	0.15	Diesel tailpipe from on-road vehicles
4TAIL4	VOLUME	Mobile Equipment Tailpipe - BT4	0.15	Diesel tailpipe from on-road vehicles
4TAIL5	VOLUME	Mobile Equipment Tailpipe - BT4	0.15	Diesel tailpipe from on-road vehicles
4TAIL6	VOLUME	Mobile Equipment Tailpipe - BT4	0.15	Diesel tailpipe from on-road vehicles
4TAIL7	VOLUME	Mobile Equipment Tailpipe - BT4	0.15	Diesel tailpipe from on-road vehicles
5TAIL1	VOLUME	Mobile Equipment Tailpipe - BT5	0.15	Diesel tailpipe from on-road vehicles
5TAIL2	VOLUME	Mobile Equipment Tailpipe - BT5	0.15	Diesel tailpipe from on-road vehicles
5TAIL3	VOLUME	Mobile Equipment Tailpipe - BT5	0.15	Diesel tailpipe from on-road vehicles
5TAIL4	VOLUME	Mobile Equipment Tailpipe - BT5	0.15	Diesel tailpipe from on-road vehicles

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
5TAIL5	VOLUME	Mobile Equipment Tailpipe - BT5	0.15	Diesel tailpipe from on-road vehicles
5TAIL6	VOLUME	Mobile Equipment Tailpipe - BT5	0.15	Diesel tailpipe from on-road vehicles
5TAIL7	VOLUME	Mobile Equipment Tailpipe - BT5	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL1	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL2	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL3	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL4	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL5	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL6	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL7	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL8	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL9	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL10	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL11	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL12	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL13	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL14	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL15	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL16	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL17	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL18	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL19	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL20	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL21	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL22	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL23	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL24	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL25	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL26	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL27	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL28	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL29	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
WOCTAIL30	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL31	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL32	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL33	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
AIRTAIL1	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
AIRTAIL2	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
AIRTAIL3	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
AIRTAIL4	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
AIRTAIL5	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
AIRTAIL6	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
AIRTAIL7	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL1	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL2	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL3	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL4	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL5	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL6	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL7	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL8	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL9	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL10	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL11	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL12	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL13	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL14	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL15	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL16	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL17	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL18	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL19	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
1MFUGD1	VOLUME	Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD2	VOLUME	Mobile Equipment Fugitive Dust - BT1	-	-

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
1MFUGD3	VOLUME	Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD4	VOLUME	Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD5	VOLUME	Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD6	VOLUME	Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD7	VOLUME	Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD8	VOLUME	Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD9	VOLUME	Mobile Equipment Fugitive Dust - BT1	-	-
2MFUGD1	VOLUME	Mobile Equipment Fugitive Dust - BT2	-	-
2MFUGD2	VOLUME	Mobile Equipment Fugitive Dust - BT2	-	-
2MFUGD3	VOLUME	Mobile Equipment Fugitive Dust - BT2	-	-
2MFUGD4	VOLUME	Mobile Equipment Fugitive Dust - BT2	-	-
2MFUGD5	VOLUME	Mobile Equipment Fugitive Dust - BT2	-	-
2MFUGD6	VOLUME	Mobile Equipment Fugitive Dust - BT2	-	-
3MFUGD1	VOLUME	Mobile Equipment Fugitive Dust - BT3	-	-
3MFUGD2	VOLUME	Mobile Equipment Fugitive Dust - BT3	-	-
3MFUGD3	VOLUME	Mobile Equipment Fugitive Dust - BT3	-	-
3MFUGD4	VOLUME	Mobile Equipment Fugitive Dust - BT3	-	-
3MFUGD5	VOLUME	Mobile Equipment Fugitive Dust - BT3	-	-
3MFUGD6	VOLUME	Mobile Equipment Fugitive Dust - BT3	-	-
3MFUGD7	VOLUME	Mobile Equipment Fugitive Dust - BT3	-	-
4MFUGD1	VOLUME	Mobile Equipment Fugitive Dust - BT4	-	-
4MFUGD2	VOLUME	Mobile Equipment Fugitive Dust - BT4	-	-
4MFUGD3	VOLUME	Mobile Equipment Fugitive Dust - BT4	-	-
4MFUGD4	VOLUME	Mobile Equipment Fugitive Dust - BT4	-	-
4MFUGD5	VOLUME	Mobile Equipment Fugitive Dust - BT4	-	-
4MFUGD6	VOLUME	Mobile Equipment Fugitive Dust - BT4	-	-
4MFUGD7	VOLUME	Mobile Equipment Fugitive Dust - BT4	-	-
5MFUGD1	VOLUME	Mobile Equipment Fugitive Dust - BT5	-	-
5MFUGD2	VOLUME	Mobile Equipment Fugitive Dust - BT5	-	-
5MFUGD3	VOLUME	Mobile Equipment Fugitive Dust - BT5	-	-
5MFUGD4	VOLUME	Mobile Equipment Fugitive Dust - BT5	-	-
5MFUGD5	VOLUME	Mobile Equipment Fugitive Dust - BT5	-	-

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
5MFUGD6	VOLUME	Mobile Equipment Fugitive Dust - BT5	-	-
5MFUGD7	VOLUME	Mobile Equipment Fugitive Dust - BT5	-	-
WCFMFUGD1	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD2	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD3	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD4	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD5	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD6	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD7	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD8	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD9	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD10	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD11	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD12	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD13	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD14	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD15	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD16	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD17	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD18	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD19	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WOCMFUGD1	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD2	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD3	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD4	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD5	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD6	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD7	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD8	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD9	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD10	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD11	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
WOCMFUGD12	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD13	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD14	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD15	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD16	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD17	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD18	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD19	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD20	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD21	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD22	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD23	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD24	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD25	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD26	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD27	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD28	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD29	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD30	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD31	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD32	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD33	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
AIRMFUGD1	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
AIRMFUGD2	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
AIRMFUGD3	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
AIRMFUGD4	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
AIRMFUGD5	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
AIRMFUGD6	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
AIRMFUGD7	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCTEMPTRB1	POINT	WOC - Stationary Combustion Sources - Power Generation Turbine	0.3	Natural gas-fired turbines

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
WOCTEMPTRB2	POINT	WOC - Stationary Combustion Sources - Power Generation Turbine	0.3	Natural gas-fired turbines
RFDGMT1	POINT	RFD - GMT1	0.2	Diesel tailpipe from non-road equipment
RFDGMT2	POINT	RFD - GMT2	0.2	Diesel tailpipe from non-road equipment
RFDGWPDS1	POINT	RFD - Greater Willow Project Drill Site #1	0.15	Diesel engines/natural gas-fired turbines
RFDGWPDS2	POINT	RFD - Greater Willow Project Drill Site #2	0.15	Diesel engines/natural gas-fired turbines
RFDCD5	POINT	RFD - CD5	0.2	Diesel tailpipe from non-road equipment

Table A.1-14. Alternative B Near-field Model Scenario 5 Emissions Stack Parameters

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
WOCOPSTDR	POINT	3.05	5.4864	0.1016	1.676522	294.261111	-	-	-	-	-
BT1OPSLH	POINT	2.7432	12.2	0.94	5.7	529	-	-	-	-	-
BT1OPSBG	POINT	2.7432	6.1	0.46	15.1	795	-	-	-	-	-
BT1OPSFUG	VOLUME	2.7432	3.7	-	-	-	15.1	3.38	-	-	-
BT1OPSFUGD	VOLUME	2.7432	3.7	-	-	-	26.74	3.38	-	-	-
BT1OPSTEB	POINT	2.7432	5.4864	0.1016	1.676522	283.15	-	-	-	-	-
BT1OPSTD	POINT	2.7432	5.4864	0.1016	1.676522	299.816667	-	-	-	-	-
BT1OPSTCO	POINT	2.7432	5.4864	0.1016	1.676522	277.594444	-	-	-	-	-
BT1WICTH	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT1WICTE	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT1WILCTE	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT2OPSLH	POINT	2.7432	12.2	0.94	5.7	529	-	-	-	-	-
BT2OPSBG	POINT	2.7432	6.1	0.46	15.1	795	-	-	-	-	-
BT2OPSFUG	VOLUME	2.7432	3.7	-	-	-	15.1	3.38	-	-	-
BT2OPSFUGD	VOLUME	2.7432	3.7	-	-	-	26.74	3.38	-	-	-
BT2WICTH	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT2WICTE	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT2WILCTE	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT3OPSFUG	VOLUME	3.66	3.7	-	-	-	15.1	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
BT3OPSFUGD	VOLUME	3.66	3.7	-	-	-	26.74	3.38	-	-	-
BT3WICTH	POINT	3.66	3.7	0.356	41.6	644	-	-	-	-	-
BT3WICTE	POINT	3.66	3.7	0.356	41.6	644	-	-	-	-	-
BT3WILCTE	POINT	3.66	3.7	0.356	41.6	644	-	-	-	-	-
BT4OPSLH	POINT	2.7432	12.2	0.94	5.7	529	-	-	-	-	-
BT4OPSBG	POINT	2.7432	6.1	0.46	15.1	795	-	-	-	-	-
BT4OPSFUG	VOLUME	2.7432	3.7	-	-	-	15.1	3.38	-	-	-
BT4OPSFUGD	VOLUME	2.7432	3.7	-	-	-	15.1	3.38	-	-	-
BT4OPSTEB	POINT	2.7432	5.4864	0.1016	1.676522	283.15	-	-	-	-	-
BT4OPSTD	POINT	2.7432	5.4864	0.1016	1.676522	299.816667	-	-	-	-	-
BT4OPSTCO	POINT	2.7432	5.4864	0.1016	1.676522	277.594444	-	-	-	-	-
BT4WICTH	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT4WICTE	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT4WILCTE	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT5OPSLH	POINT	2.7432	12.2	0.94	5.7	529	-	-	-	-	-
BT5OPSBG	POINT	2.7432	6.1	0.46	15.1	795	-	-	-	-	-
BT5OPSFUG	VOLUME	2.7432	3.7	-	-	-	15.1	3.38	-	-	-
BT5OPSFUGD	VOLUME	2.7432	3.7	-	-	-	26.74	3.38	-	-	-
BT5WICTH	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT5WICTE	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT5WILCTE	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
WLWTG03A	POINT	3.66	25	2	30	370	-	-	-	-	-
WLWTG03B	POINT	3.66	25	2	30	370	-	-	-	-	-
WLWTG01A	POINT	3.66	30	2	35	370	-	-	-	-	-
WLWTG01B	POINT	3.66	30	2	35	370	-	-	-	-	-
WLWTG02A	POINT	3.66	30	2	35	370	-	-	-	-	-
WLWTG02B	POINT	3.66	30	2	35	370	-	-	-	-	-
WLWTG04	POINT	3.66	25	2	30	550	-	-	-	-	-
WLWTG05	POINT	3.66	25	2	30	550	-	-	-	-	-
WLWGL05	POINT	3.66	5.5	0.3	20	760	-	-	-	-	-
WLWHG03	POINT	3.66	25	1	10	525	-	-	-	-	-
WLWHG04	POINT	3.66	25	1	10	525	-	-	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
WLWHG01	POINT	3.66	25	1	10	525	-	-	-	-	-
WLWHG02	POINT	3.66	25	1	10	525	-	-	-	-	-
WLWHG06	POINT	3.66	25	1	10	525	-	-	-	-	-
WLWFGLP	POINT	3.66	25	0.2	20	1273	-	-	-	-	-
WLWFGHP	POINT	3.66	25	0.2	20	1273	-	-	-	-	-
WCFOPSDS	POINT	3.66	5.5	0.1	1.68	-	-	-	-	-	-
WCFOPSTSO	POINT	3.66	5.4864	0.1016	1.676522	319.261111	-	-	-	-	-
WCFOPSTCO	POINT	3.66	5.4864	0.1016	1.676522	277.594444	-	-	-	-	-
WCFOPSTUD	POINT	3.66	12.8016	0.1524	0.745121	299.816667	-	-	-	-	-
WCFOPSTLD	POINT	3.66	5.4864	0.1016	1.676522	299.816667	-	-	-	-	-
WCFOPSTEB	POINT	3.66	5.4864	0.1016	1.676522	283.15	-	-	-	-	-
WCFOPSFUG	VOLUME	3.66	3.7	-	-	-	15.1	3.38	-	-	-
WCFOPSFUGD	VOLUME	3.66	3.7	-	-	-	15.1	3.38	-	-	-
WOCPWRGEN1	POINT	3.05	8.6	0.3	20	760	-	-	-	-	-
WOCPWRGEN2	POINT	3.05	8.6	0.3	20	760	-	-	-	-	-
WOCPWRGEN3	POINT	3.05	8.6	0.3	20	760	-	-	-	-	-
WLWIG01	POINT	3.05	20	0.3	10	1200	-	-	-	-	-
WLWIG02	POINT	3.05	20	0.3	10	1200	-	-	-	-	-
WLWHL05	POINT	3.05	13.19	0.3	10	525	-	-	-	-	-
WOCOPSTJF	POINT	3.05	5.4864	0.1016	1.676522	283.15	-	-	-	-	-
WOCOPSTHC	POINT	3.05	5.4864	0.1016	1.676522	-	-	-	-	-	-
WOCOPSTD	POINT	3.05	5.4864	0.1016	1.676522	299.816667	-	-	-	-	-
WILLOWAIR1	AREAPOLY	3.6576	50.8	-	-	-	-	23.63	-	-	-
WILLOWAIR2	AREAPOLY	3.6576	152.4	-	-	-	-	23.63	-	-	-
WILLOWAIR3	AREAPOLY	3.6576	254	-	-	-	-	23.63	-	-	-
WOCOPSFUGD	VOLUME	3.05	3.7	-	-	-	15.1	3.38	-	-	-
WCFPCE1	AREAPOLY	3.66	13.3	-	-	-	-	12.37	-	-	-
WCFPCE2	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFPCE3	AREAPOLY	3.66	9.38	-	-	-	-	8.72	-	-	-
WCFPCE4	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFPCE5	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFPCE6	AREAPOLY	3.66	13.3	-	-	-	-	12.37	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
WCFPCE7	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFSCE1	AREAPOLY	3.66	13.3	-	-	-	-	12.37	-	-	-
WCFSCE2	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFSCE3	AREAPOLY	3.66	9.38	-	-	-	-	8.72	-	-	-
WCFSCE4	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFSCE5	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFSCE6	AREAPOLY	3.66	13.3	-	-	-	-	12.37	-	-	-
WCFSCE7	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFNRE1	AREAPOLY	3.66	13.3	-	-	-	-	12.37	-	-	-
WCFNRE2	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFNRE3	AREAPOLY	3.66	9.38	-	-	-	-	8.72	-	-	-
WCFNRE4	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFNRE5	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFNRE6	AREAPOLY	3.66	13.3	-	-	-	-	12.37	-	-	-
WCFNRE7	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WLW2GEN	POINT	3.66	6.1	0.46	15.1	795	-	-	-	-	-
BT3NRE1	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
BT3WIN1	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
3WELLINTE	POINT	3.66	6.1	0.46	15.1	795	-	-	-	-	-
BT1NRE1	AREAPOLY	2.74	3.63	-	-	-	-	3.38	-	-	-
BT1WIN1	AREAPOLY	2.74	3.63	-	-	-	-	3.38	-	-	-
1WELLINTE	POINT	2.7432	6.1	0.46	15.1	795	-	-	-	-	-
BT2NRE1	AREAPOLY	2.74	3.63	-	-	-	-	3.38	-	-	-
BT2WIN1	AREAPOLY	2.74	3.63	-	-	-	-	3.38	-	-	-
2WELLINTE	POINT	2.7432	6.1	0.46	15.1	795	-	-	-	-	-
BT4NRE1	AREAPOLY	2.74	3.63	-	-	-	-	3.38	-	-	-
BT4WIN1	AREAPOLY	2.74	3.63	-	-	-	-	3.38	-	-	-
4WELLINTE	POINT	2.7432	6.1	0.46	15.1	795	-	-	-	-	-
BT5NRE1	AREAPOLY	2.74	3.63	-	-	-	-	3.38	-	-	-
BT5WIN1	AREAPOLY	2.74	3.63	-	-	-	-	3.38	-	-	-
5WELLINTE	POINT	2.7432	6.1	0.46	15.1	795	-	-	-	-	-
WOCPCE	AREAPOLY	3.05	3.63	-	-	-	-	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
WOCSCE	AREAPOLY	3.05	3.63	-	-	-	-	3.38	-	-	-
WOCNRE	AREAPOLY	3.05	3.63	-	-	-	-	3.38	-	-	-
1TAIL1	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL2	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL3	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL4	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL5	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL6	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL7	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL8	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL9	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
2TAIL1	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2TAIL2	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2TAIL3	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2TAIL4	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2TAIL5	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2TAIL6	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
3TAIL1	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
3TAIL2	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
3TAIL3	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
3TAIL4	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
3TAIL5	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
3TAIL6	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
3TAIL7	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4TAIL1	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4TAIL2	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4TAIL3	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4TAIL4	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4TAIL5	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4TAIL6	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4TAIL7	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5TAIL1	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
5TAIL2	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5TAIL3	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5TAIL4	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5TAIL5	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5TAIL6	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5TAIL7	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
WOCTAIL1	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL2	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL3	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL4	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL5	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL6	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL7	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL8	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL9	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL10	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL11	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL12	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL13	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL14	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL15	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL16	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL17	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL18	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL19	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL20	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL21	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL22	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL23	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL24	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL25	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL26	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
WOCTAIL27	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL28	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL29	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL30	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL31	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL32	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL33	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
AIRTAIL1	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRTAIL2	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRTAIL3	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRTAIL4	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRTAIL5	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRTAIL6	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRTAIL7	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
WCFTAIL1	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL2	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL3	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL4	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL5	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL6	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL7	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL8	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL9	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL10	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL11	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL12	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL13	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL14	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL15	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL16	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL17	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL18	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
WCFTAIL19	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD1	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD2	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD3	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD4	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD5	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD6	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD7	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD8	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD9	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
2MFUGD1	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2MFUGD2	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2MFUGD3	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2MFUGD4	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2MFUGD5	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2MFUGD6	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
3MFUGD1	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
3MFUGD2	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
3MFUGD3	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
3MFUGD4	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
3MFUGD5	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
3MFUGD6	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
3MFUGD7	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4MFUGD1	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4MFUGD2	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4MFUGD3	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4MFUGD4	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4MFUGD5	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4MFUGD6	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4MFUGD7	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5MFUGD1	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5MFUGD2	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
5MFUGD3	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5MFUGD4	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5MFUGD5	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5MFUGD6	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5MFUGD7	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
WCFMFUGD1	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD2	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD3	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD4	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD5	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD6	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD7	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD8	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD9	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD10	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD11	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD12	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD13	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD14	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD15	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD16	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD17	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD18	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD19	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD1	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD2	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD3	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD4	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD5	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD6	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD7	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD8	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
WOCMFUGD9	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD10	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD11	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD12	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD13	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD14	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD15	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD16	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD17	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD18	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD19	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD20	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD21	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD22	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD23	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD24	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD25	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD26	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD27	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD28	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD29	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD30	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD31	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD32	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD33	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
AIRMFUGD1	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRMFUGD2	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRMFUGD3	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRMFUGD4	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRMFUGD5	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRMFUGD6	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRMFUGD7	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
WOCTEMPTRB1	POINT	3.05	30	2	30	550	-	-	-	-	-
WOCTEMPTRB2	POINT	3.05	30	2	30	550	-	-	-	-	-
RFDGMT1	POINT	1.524	4.88	0.305	35	820	-	-	-	-	-
RFDGMT2	POINT	1.524	12.2	0.94	5.7	529	-	-	-	-	-
RFDGWPDS1	POINT	1.524	3.7	0.356	41.6	644	-	-	-	-	-
RFDGWPDS2	POINT	1.524	3.7	0.356	41.6	644	-	-	-	-	-
RFDCD5	POINT	1.524	4.88	0.305	35	820	-	-	-	-	-

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Table A.1-15. Alternative B Near-field Model Scenario 5 Emissions Rates

Source ID	Modeled Emission Rates (g/s)																					Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	Benzene 1-hr	Benzene Annual[1]	Toluene 1-hr	Toluene Annual[1]	E-Benzene 1-hr	E-Benzene Annual[1]	Xylenes 1-hr	Xylenes Annual[1]	n-Hexane 1-hr	n-Hexane Annual[1]	Formaldehyde 1-hr	Formaldehyde Annual[1]	
WOCOPSTDR	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.85E-05	5.85E-05	2.85E-05	2.85E-05	3.88E-06	3.88E-06	1.14E-05	1.14E-05	6.29E-05	6.29E-05	0.00E+00	0.00E+00	8760
BT1OPSLH	5.19E-02	6.18E-02	6.18E-02	4.69E-03	4.69E-03	4.69E-03	4.17E-03	4.17E-03	4.17E-03	1.30E-06	1.30E-06	2.10E-06	2.10E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.11E-03	1.11E-03	4.63E-05	4.63E-05	8760
BT1OPSBG	1.16E+00	1.16E+00	6.63E-02	3.35E-02	3.35E-02	1.91E-03	2.21E-03	2.21E-03	1.26E-04	1.10E-03	6.29E-05	3.99E-04	2.28E-05	0.00E+00	0.00E+00	2.74E-04	1.56E-05	0.00E+00	0.00E+00	1.12E-04	6.39E-06	500
BT1OPSFUG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.80E-03	2.80E-03	8.20E-03	8.20E-03	7.37E-02	7.37E-02	1.45E-01	1.45E-01	1.80E-01	1.80E-01	0.00E+00	0.00E+00	8760
BT1OPSFUGD	0.00E+00	0.00E+00	0.00E+00	2.57E-02	3.86E-03	3.86E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
BT1OPSTEB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.19E-05	5.19E-05	4.73E-05	4.73E-05	3.74E-06	3.74E-06	1.55E-05	1.55E-05	2.17E-04	2.17E-04	0.00E+00	0.00E+00	8760
BT1OPSTD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.31E-07	4.31E-07	5.90E-06	5.90E-06	8.63E-07	8.63E-07	1.58E-05	1.58E-05	1.44E-07	1.44E-07	0.00E+00	0.00E+00	8760
BT1OPSTCO	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.98E-05	9.98E-05	4.37E-05	4.37E-05	5.32E-06	5.32E-06	1.54E-05	1.54E-05	1.13E-04	1.13E-04	0.00E+00	0.00E+00	8760
BT1WICTH	4.57E-02	1.83E-01	7.20E-02	2.17E-02	1.94E-02	7.67E-03	1.94E-03	1.94E-03	7.67E-04	1.95E-06	7.71E-07	5.66E-05	2.23E-05	5.81E-07	2.29E-07	9.95E-07	3.93E-07	0.00E+00	0.00E+00	3.01E-04	1.19E-04	288
BT1WICTE	6.21E-02	9.32E-02	3.68E-02	4.97E-03	4.97E-03	1.96E-03	8.23E-05	8.23E-05	3.25E-05	4.94E-05	1.95E-05	2.16E-05	8.54E-06	0.00E+00	0.00E+00	1.51E-05	5.95E-06	0.00E+00	0.00E+00	6.24E-05	2.46E-05	288
BT1WILCTE	4.75E-01	8.68E-01	3.43E-01	2.71E-02	2.71E-02	1.07E-02	1.00E-03	1.00E-03	3.95E-04	4.48E-04	1.77E-04	1.62E-04	6.40E-05	0.00E+00	0.00E+00	1.11E-04	4.40E-05	0.00E+00	0.00E+00	4.56E-05	1.80E-05	288
BT2OPSLH	5.19E-02	6.18E-02	6.18E-02	4.69E-03	4.69E-03	4.69E-03	4.17E-03	4.17E-03	4.17E-03	1.30E-06	1.30E-06	2.10E-06	2.10E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.11E-03	1.11E-03	4.63E-05	4.63E-05	8760
BT2OPSBG	1.16E+00	1.16E+00	6.63E-02	3.35E-02	3.35E-02	1.91E-03	2.21E-03	2.21E-03	1.26E-04	1.10E-03	6.29E-05	3.99E-04	2.28E-05	0.00E+00	0.00E+00	2.74E-04	1.56E-05	0.00E+00	0.00E+00	1.12E-04	6.39E-06	500
BT2OPSFUG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.80E-03	2.80E-03	8.20E-03	8.20E-03	7.37E-02	7.37E-02	1.45E-01	1.45E-01	1.80E-01	1.80E-01	0.00E+00	0.00E+00	8760
BT2OPSFUGD	0.00E+00	0.00E+00	0.00E+00	2.57E-02	3.86E-03	3.86E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
BT2WICTH	4.57E-02	1.83E-01	7.20E-02	2.17E-02	1.94E-02	7.67E-03	1.94E-03	1.94E-03	7.67E-04	1.95E-06	7.71E-07	5.66E-05	2.23E-05	5.81E-07	2.29E-07	9.95E-07	3.93E-07	0.00E+00	0.00E+00	3.01E-04	1.19E-04	288
BT2WICTE	6.21E-02	9.32E-02	3.68E-02	4.97E-03	4.97E-03	1.96E-03	8.23E-05	8.23E-05	3.25E-05	4.94E-05	1.95E-05	2.16E-05	8.54E-06	0.00E+00	0.00E+00	1.51E-05	5.95E-06	0.00E+00	0.00E+00	6.24E-05	2.46E-05	288
BT2WILCTE	4.75E-01	8.68E-01	3.43E-01	2.71E-02	2.71E-02	1.07E-02	1.00E-03	1.00E-03	3.95E-04	4.48E-04	1.77E-04	1.62E-04	6.40E-05	0.00E+00	0.00E+00	1.11E-04	4.40E-05	0.00E+00	0.00E+00	4.56E-05	1.80E-05	288
BT3OPSFUG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.80E-03	2.80E-03	8.20E-03	8.20E-03	7.37E-02	7.37E-02	1.45E-01	1.45E-01	1.80E-01	1.80E-01	0.00E+00	0.00E+00	8760
BT3OPSFUGD	0.00E+00	0.00E+00	0.00E+00	2.57E-02	3.86E-03	3.86E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
BT3WICTH	4.57E-02	1.83E-01	7.20E-02	2.17E-02	1.94E-02	7.67E-03	1.94E-03	1.94E-03	7.67E-04	1.95E-06	7.71E-07	5.66E-05	2.23E-05	5.81E-07	2.29E-07	9.95E-07	3.93E-07	0.00E+00	0.00E+00	3.01E-04	1.19E-04	288
BT3WICTE	6.21E-02	9.32E-02	3.68E-02	4.97E-03	4.97E-03	1.96E-03	8.23E-05	8.23E-05	3.25E-05	4.94E-05	1.95E-05	2.16E-05	8.54E-06	0.00E+00	0.00E+00	1.51E-05	5.95E-06	0.00E+00	0.00E+00	6.24E-05	2.46E-05	288
BT3WILCTE	4.75E-01	8.68E-01	3.43E-01	2.71E-02	2.71E-02	1.07E-02	1.00E-03	1.00E-03	3.95E-04	4.48E-04	1.77E-04	1.62E-04	6.40E-05	0.00E+00	0.00E+00	1.11E-04	4.40E-05	0.00E+00	0.00E+00	4.56E-05	1.80E-05	288
BT4OPSLH	5.19E-02	6.18E-02	6.18E-02	4.69E-03	4.69E-03	4.69E-03	4.17E-03	4.17E-03	4.17E-03	1.30E-06	1.30E-06	2.10E-06	2.10E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.11E-03	1.11E-03	4.63E-05	4.63E-05	8760
BT4OPSBG	1.16E+00	1.16E+00	6.63E-02	3.35E-02	3.35E-02	1.91E-03	2.21E-03	2.21E-03	1.26E-04	1.10E-03	6.29E-05	3.99E-04	2.28E-05	0.00E+00	0.00E+00	2.74E-04	1.56E-05	0.00E+00	0.00E+00	1.12E-04	6.39E-06	500
BT4OPSFUG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.20E-03	2.20E-03	6.44E-03	6.44E-03	5.81E-02	5.81E-02	1.14E-01	1.14E-01	1.42E-01	1.42E-01	0.00E+00	0.00E+00	8760
BT4OPSFUGD	0.00E+00	0.00E+00	0.00E+00	2.18E-02	3.27E-03	3.27E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
BT4OPSTEB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.19E-05	5.19E-05	4.73E-05	4.73E-05	3.74E-06	3.74E-06	1.55E-05	1.55E-05	2.17E-04	2.17E-04	0.00E+00	0.00E+00	8760
BT4OPSTD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.31E-07	4.31E-07	5.90E-06	5.90E-06	8.63E-07	8.63E-07	1.58E-05	1.58E-05	1.44E-07	1.44E-07	0.00E+00	0.00E+00	8760
BT4OPSTCO	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.98E-05	9.98E-05	4.37E-05	4.37E-05	5.32E-06	5.32E-06	1.54E-05	1.54E-05	1.13E-04	1.13E-04	0.00E+00	0.00E+00	8760
BT4WICTH	4.57E-02	1.83E-01	7.20E-02	2.17E-02	1.94E-02	7.67E-03	1.94E-03	1.94E-03	7.67E-04	1.95E-06	7.71E-07	5.66E-05	2.23E-05	5.81E-07	2.29E-07	9.95E-07	3.93E-07	0.00E+00	0.00E+00	3.01E-04	1.19E-04	288
BT4WICTE	6.21E-02	9.32E-02	3.68E-02	4.97E-03	4.97E-03	1.96E-03	8.23E-05	8.23E-05	3.25E-05	4.94E-05	1.95E-05	2.16E-05	8.54E-06	0.00E+00	0.00E+00	1.51E-05	5.95E-06	0.00E+00	0.00E+00	6.24E-05	2.46E-05	288
BT4WILCTE	4.75E-01	8.68E-01	3.43E-01	2.71E-02	2.71E-02	1.07E-02	1.00E-03	1.00E-03	3.95E-04	4.48E-04	1.77E-04	1.62E-04	6.40E-05	0.00E+00	0.00E+00	1.11E-04	4.40E-05	0.00E+00	0.00E+00	4.56E-05	1.80E-05	288
BT5OPSLH	5.19E-02	6.18E-02	6.18E-02	4.69E-03	4.69E-03	4.69E-03	4.17E-03	4.17E-03	4.17E-03	1.30E-06	1.30E-06	2.10E-06	2.10E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.11E-03	1.11E-03	4.63E-05	4.63E-05	8760
BT5OPSBG	1.16E+00	1.16E+00	6.63E-02	3.35E-02	3.35E-02	1.91E-03	2.21E-03	2.21E-03	1.26E-04	1.10E-03	6.29E-05	3.99E-04	2.28E-05	0.00E+00	0.00E+00	2.74E-04	1.56E-05	0.00E+00	0.00E+00	1.12E-04	6.39E-06	500
BT5OPSFUG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.20E-03	2.20E-03	6.44E-03	6.44E-03	5.81E-02	5.81E-02	1.14E-01	1.14E-01	1.42E-01	1.42E-01	0.00E+00	0.00E+00	8760
BT5OPSFUGD	0.00E+00	0.00E+00	0.00E+00	2.18E-02	3.27E-03	3.27E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
BT5WICTH	4.57E-02	1.83E-01	7.20E-02	2.17E-02	1.94E-02	7.67E-03	1.94E-03	1.94E-03	7.67E-04	1.95E-06	7.71E-07	5.66E-05	2.23E-05	5.81E-07	2.29E-07	9.95E-07	3.93E-07	0.00E+00	0.00E+00	3.01E-04	1.19E-04	288
BT5WICTE	6.21E-02	9.32E-02	3.68E-02	4.97E-03	4.97E-03	1.96E-03	8.23E-05	8.23E-05	3.25E-05	4.94E-05	1.95E-05	2.16E-05	8.54E-06	0.00E+00	0.00E+00	1.51E-05	5.95E-06	0.00E+00	0.00E+00	6.24E-05	2.46E-05	288
BT5WILCTE	4.75E-01	8.68E-01	3.43E-01	2.71E-02	2.71E-02	1.07E-02	1.00E-03	1.00E-03	3.95E-04	4.48E-04	1.77E-04	1.62E-04	6.40E-05	0.00E+00	0.00E+00	1.11E-04	4.40E-05	0.00E+00	0.00E+00	4.56E-05	1.80E-05	288
WLWTG03A	1.93E+00	1.91E+00	1.91E+00	2.21E-01	2.21E-01	2.21E-01	2.22E-01	2.22E-01	2.22E-01	4.02E-04	4.02E-04	4.36E-03	4.36E-03	1.07E-03	1.07E-03	2.15E-03	2.15E-03	0.00E+00	0.00E+00	7.37E-03	7.37E-03	8760
WLWTG03B	1.93E+00	1.91E+00	1.91E+00	2.21E-01	2.21E-01	2.21E-01	2.22E-01	2.22E-01	2.22E-01	4.02E-04	4.02E-04	4.36E-03	4.36E-03	1.07E-03	1.07E-03	2.15E-03	2.15E-03	0.00E+00	0.00E+00	7.37E-03	7.37E-03	8760
WLWTG01A	1.47E+00	1.45E+00	1.45E+00	1.68E-01	1.68E-01	1.68E-01	1.69E-01	1.69E-01	1.69E-01	3.06E-04	3.06E-04	3.32E-03	3.32E-03	8.17E-04	8.17E-04	1.63E-03	1.63E-03	0.00E+00	0.00E+00	5.62E-03	5.62E-03	8760
WLWTG01B	1.47E+00	1.45E+00	1.45E+00	1.68E-01	1.68E-01	1.68E-01	1.69E-01	1.69E-01	1.69E-01	3.06E-04	3.06E-04	3.32E-03	3.32E-03	8.17E-04	8.17E-04	1.63E-03	1.63E-03	0.00E+00	0.00E+00	5.62E-03	5.62E-03	8760
WLWTG02A	1.47E+00	1.45E+00	1.45E+00	1.68E-01	1.68E-01	1.68E-01	1.69E-01	1.69E-01	1.69E-01	3.06E-04	3.06E-04	3.32E-03	3.32E-03	8.17E-04	8.17E-04	1.63E-03	1.63E-03	0.00E+00	0.00E+00	5.62E-03	5.62E-03	8760
WLWTG02B	1.47E+00	1.45E+00	1.45E+00	1.68E-01	1.68E-01	1.68E-01	1.69E-01	1.69E-01	1.69E-01	3.06E-04	3.06E-04	3.32E-03	3.32E-03	8.17E-04	8.17E-04	1.63E-03	1.63E-03	0.00E+00	0.00E+00	5.62E-03	5.62E-03	8760

Source ID	Modeled Emission Rates (g/s)																					Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	Benzene 1-hr	Benzene Annual[1]	Toluene 1-hr	Toluene Annual[1]	E-Benzene 1-hr	E-Benzene Annual[1]	Xylenes 1-hr	Xylenes Annual[1]	n-Hexane 1-hr	n-Hexane Annual[1]	Formaldehyde 1-hr	Formaldehyde Annual[1]	
WLWTG04	5.67E-01	6.08E-01	6.08E-01	5.28E-02	5.28E-02	5.28E-02	5.06E-02	5.06E-02	5.06E-02	1.17E-04	1.17E-04	1.05E-03	1.05E-03	2.59E-04	2.59E-04	5.19E-04	5.19E-04	0.00E+00	0.00E+00	1.81E-03	1.81E-03	8760
WLWTG05	5.67E-01	6.08E-01	6.08E-01	5.28E-02	5.28E-02	5.28E-02	5.06E-02	5.06E-02	5.06E-02	1.17E-04	1.17E-04	1.05E-03	1.05E-03	2.59E-04	2.59E-04	5.19E-04	5.19E-04	0.00E+00	0.00E+00	1.81E-03	1.81E-03	8760
WLWGL05	6.48E-01	1.19E+00	6.76E-02	3.70E-02	3.70E-02	2.11E-03	1.22E-03	1.22E-03	6.99E-05	6.12E-04	3.49E-05	2.22E-04	1.26E-05	0.00E+00	0.00E+00	1.52E-04	8.69E-06	0.00E+00	0.00E+00	6.22E-05	3.55E-06	500
WLWHG03	3.42E-01	4.08E-01	4.08E-01	3.10E-02	3.10E-02	3.10E-02	2.75E-02	2.75E-02	2.75E-02	8.56E-06	8.56E-06	1.39E-05	1.39E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.88E-05	1.88E-05	3.06E-04	3.06E-04	8760
WLWHG04	3.42E-01	4.08E-01	4.08E-01	3.10E-02	3.10E-02	3.10E-02	2.75E-02	2.75E-02	2.75E-02	8.56E-06	8.56E-06	1.39E-05	1.39E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.88E-05	1.88E-05	3.06E-04	3.06E-04	8760
WLWHG01	2.08E-01	2.47E-01	2.47E-01	1.88E-02	1.88E-02	1.88E-02	1.67E-02	1.67E-02	1.67E-02	5.19E-06	5.19E-06	8.40E-06	8.40E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.14E-05	1.14E-05	1.85E-04	1.85E-04	8760
WLWHG02	2.08E-01	2.47E-01	2.47E-01	1.88E-02	1.88E-02	1.88E-02	1.67E-02	1.67E-02	1.67E-02	5.19E-06	5.19E-06	8.40E-06	8.40E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.14E-05	1.14E-05	1.85E-04	1.85E-04	8760
WLWHG06	3.84E-01	4.57E-01	4.57E-01	3.47E-02	3.47E-02	3.47E-02	3.09E-02	3.09E-02	3.09E-02	9.60E-06	9.60E-06	1.55E-05	1.55E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.10E-05	2.10E-05	3.43E-04	3.43E-04	8760
WLWFGLP	4.15E-02	4.94E-02	4.94E-02	3.76E-03	3.76E-03	3.76E-03	3.34E-03	3.34E-03	3.34E-03	1.04E-06	1.04E-06	1.68E-06	1.68E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.11E-06	3.11E-06	3.71E-05	3.71E-05	8760
WLWFGHP	4.15E-02	4.94E-02	4.94E-02	3.76E-03	3.76E-03	3.76E-03	3.34E-03	3.34E-03	3.34E-03	1.04E-06	1.04E-06	1.68E-06	1.68E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.11E-06	3.11E-06	3.71E-05	3.71E-05	8760
WCFOPSDS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.71E-06	3.71E-06	4.50E-05	4.50E-05	6.45E-06	6.45E-06	1.20E-04	1.20E-04	8.06E-07	8.06E-07	0.00E+00	0.00E+00	8760
WCFOPSTSO	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.89E-04	6.89E-04	3.83E-04	3.83E-04	6.00E-05	6.00E-05	1.78E-04	1.78E-04	6.94E-04	6.94E-04	0.00E+00	0.00E+00	8760
WCFOPSTCO	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.98E-05	9.98E-05	4.37E-05	4.37E-05	5.32E-06	5.32E-06	1.54E-05	1.54E-05	1.13E-04	1.13E-04	0.00E+00	0.00E+00	8760
WCFOPSTUD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.31E-06	3.31E-06	4.01E-05	4.01E-05	5.75E-06	5.75E-06	1.07E-04	1.07E-04	7.19E-07	7.19E-07	0.00E+00	0.00E+00	8760
WCFOPSTLD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.88E-07	2.88E-07	3.88E-06	3.88E-06	5.75E-07	5.75E-07	1.05E-05	1.05E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
WCFOPSTEB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.19E-05	5.19E-05	4.73E-05	4.73E-05	3.74E-06	3.74E-06	1.55E-05	1.55E-05	2.17E-04	2.17E-04	0.00E+00	0.00E+00	8760
WCFOPSFUG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.52E-04	3.52E-04	1.49E-03	1.49E-03	1.41E-03	1.41E-03	2.22E-03	2.22E-03	1.33E-02	1.33E-02	0.00E+00	0.00E+00	8760
WCFOPSFUGD	0.00E+00	0.00E+00	0.00E+00	3.45E-02	5.17E-03	5.17E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCPWRGEN1	1.30E+00	1.30E+00	6.48E-01	3.70E-02	3.70E-02	1.85E-02	2.45E-03	2.45E-03	1.22E-03	1.22E-03	6.12E-04	4.43E-04	2.22E-04	0.00E+00	0.00E+00	3.04E-04	1.52E-04	0.00E+00	0.00E+00	1.24E-04	6.22E-05	4380
WOCPWRGEN2	1.30E+00	1.30E+00	6.48E-01	3.70E-02	3.70E-02	1.85E-02	2.45E-03	2.45E-03	1.22E-03	1.22E-03	6.12E-04	4.43E-04	2.22E-04	0.00E+00	0.00E+00	3.04E-04	1.52E-04	0.00E+00	0.00E+00	1.24E-04	6.22E-05	4380
WOCPWRGEN3	1.30E+00	1.30E+00	6.48E-01	3.70E-02	3.70E-02	1.85E-02	2.45E-03	2.45E-03	1.22E-03	1.22E-03	6.12E-04	4.43E-04	2.22E-04	0.00E+00	0.00E+00	3.04E-04	1.52E-04	0.00E+00	0.00E+00	1.24E-04	6.22E-05	4380
WLWIG01	3.99E-02	9.94E-02	8.28E-02	1.36E-01	1.36E-01	1.13E-01	3.54E-03	3.54E-03	2.95E-03	9.34E-07	7.78E-07	1.51E-06	1.26E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.80E-06	2.33E-06	3.34E-05	2.78E-05	7300
WLWIG02	3.99E-02	9.94E-02	8.28E-02	1.36E-01	1.36E-01	1.13E-01	3.54E-03	3.54E-03	2.95E-03	9.34E-07	7.78E-07	1.51E-06	1.26E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.80E-06	2.33E-06	3.34E-05	2.78E-05	7300
WLWHL05	5.93E-03	2.37E-02	2.37E-02	2.82E-03	2.53E-03	2.53E-03	2.54E-04	2.54E-04	2.54E-04	2.54E-07	2.54E-07	7.36E-06	7.36E-06	7.55E-08	7.55E-08	1.29E-07	1.29E-07	0.00E+00	0.00E+00	3.92E-05	3.92E-05	8760
WOCOPSTJF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.01E-06	1.01E-06	8.49E-06	8.49E-06	2.59E-06	2.59E-06	5.18E-06	5.18E-06	2.01E-06	2.01E-06	0.00E+00	0.00E+00	8760
WOCOPSTHC	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.50E-05	8.50E-05	3.37E-05	3.37E-05	3.60E-06	3.60E-06	1.05E-05	1.05E-05	1.02E-04	1.02E-04	0.00E+00	0.00E+00	8760
WOCOPSTD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.88E-07	2.88E-07	2.73E-06	2.73E-06	4.31E-07	4.31E-07	7.19E-06	7.19E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
WILLOWAIR1	1.06E-07	2.91E-08	2.91E-08	1.20E-09	1.20E-09	1.20E-09	4.52E-09	4.52E-09	4.52E-09	3.13E-10	3.13E-10	1.35E-10	1.35E-10	3.57E-11	3.57E-11	8.53E-11	8.53E-11	9.34E-12	9.34E-12	2.28E-09	2.28E-09	8760
WILLOWAIR2	1.06E-07	2.91E-08	2.91E-08	1.20E-09	1.20E-09	1.20E-09	4.52E-09	4.52E-09	4.52E-09	3.13E-10	3.13E-10	1.35E-10	1.35E-10	3.57E-11	3.57E-11	8.53E-11	8.53E-11	9.34E-12	9.34E-12	2.28E-09	2.28E-09	8760
WILLOWAIR3	1.06E-07	2.91E-08	2.91E-08	1.20E-09	1.20E-09	1.20E-09	4.52E-09	4.52E-09	4.52E-09	3.13E-10	3.13E-10	1.35E-10	1.35E-10	3.57E-11	3.57E-11	8.53E-11	8.53E-11	9.34E-12	9.34E-12	2.28E-09	2.28E-09	8760
WOCOPSFUGD	0.00E+00	0.00E+00	0.00E+00	1.11E-01	1.66E-02	1.66E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WCFPCE1	4.48E-07	2.05E-06	2.05E-06	1.54E-07	1.52E-07	1.52E-07	2.65E-09	2.65E-09	2.65E-09	3.94E-10	3.94E-10	2.30E-10	2.30E-10	1.20E-10	1.20E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.04E-10	8.04E-10	8760
WCFPCE2	4.48E-07	2.05E-06	2.05E-06	1.54E-07	1.52E-07	1.52E-07	2.65E-09	2.65E-09	2.65E-09	3.94E-10	3.94E-10	2.30E-10	2.30E-10	1.20E-10	1.20E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.04E-10	8.04E-10	8760
WCFPCE3	4.48E-07	2.05E-06	2.05E-06	1.54E-07	1.52E-07	1.52E-07	2.65E-09	2.65E-09	2.65E-09	3.94E-10	3.94E-10	2.30E-10	2.30E-10	1.20E-10	1.20E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.04E-10	8.04E-10	8760
WCFPCE4	4.48E-07	2.05E-06	2.05E-06	1.54E-07	1.52E-07	1.52E-07	2.65E-09	2.65E-09	2.65E-09	3.94E-10	3.94E-10	2.30E-10	2.30E-10	1.20E-10	1.20E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.04E-10	8.04E-10	8760
WCFPCE5	4.48E-07	2.05E-06	2.05E-06	1.54E-07	1.52E-07	1.52E-07	2.65E-09	2.65E-09	2.65E-09	3.94E-10	3.94E-10	2.30E-10	2.30E-10	1.20E-10	1.20E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.04E-10	8.04E-10	8760
WCFPCE6	4.48E-07	2.05E-06	2.05E-06	1.54E-07	1.52E-07	1.52E-07	2.65E-09	2.65E-09	2.65E-09	3.94E-10	3.94E-10	2.30E-10	2.30E-10	1.20E-10	1.20E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.04E-10	8.04E-10	8760
WCFPCE7	4.48E-07	2.05E-06	2.05E-06	1.54E-07	1.52E-07	1.52E-07	2.65E-09	2.65E-09	2.65E-09	3.94E-10	3.94E-10	2.30E-10	2.30E-10	1.20E-10	1.20E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.04E-10	8.04E-10	8760
WCFSCE1	3.32E-07	4.16E-07	4.16E-07	3.18E-08	3.18E-08	3.18E-08	2.83E-08	2.83E-08	2.83E-08	8.80E-12	8.80E-12	1.42E-11	1.42E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.64E-11	2.64E-11	3.14E-10	3.14E-10	8760
WCFSCE2	3.32E-07	4.16E-07	4.16E-07	3.18E-08	3.18E-08	3.18E-08	2.83E-08	2.83E-08	2.83E-08	8.80E-12	8.80E-12	1.42E-11	1.42E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.64E-11	2.64E-11	3.14E-10	3.14E-10	8760
WCFSCE3	3.32E-07	4.16E-07	4.16E-07	3.18E-08	3.18E-08	3.18E-08	2.83E-08	2.83E-08	2.83E-08	8.80E-12	8.80E-12	1.42E-11	1.42E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.64E-11	2.64E-11	3.14E-10	3.14E-10	8760
WCFSCE4	3.32E-07	4.16E-07	4.16E-07	3.18E-08	3.18E-08	3.18E-08	2.83E-08	2.83E-08	2.83E-08	8.80E-12	8.80E-12	1.42E-11	1.42E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.64E-11	2.64E-11	3.14E-10	3.14E-10	8760
WCFSCE5	3.32E-07	4.16E-07	4.16E-07	3.18E-08	3.18E-08	3.18E-08	2.83E-08	2.83E-08	2.83E-08	8.80E-12	8.80E-12	1.42E-11	1.42E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.64E-11	2.64E-11	3.14E-10	3.14E-10	8760
WCFSCE6	3.32E-07	4.16E-07	4.16E-07	3.18E-08	3.18E-08	3.18E-08	2.83E-08	2.83E-08	2.83E-08	8.80E-12	8.80E-12	1.42E-11	1.42E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.64E-11	2.64E-11	3.14E-10	3.14E-10	8760
WCFSCE7	3.32E-07	4.16E-07	4.16E-07	3.18E-08	3.18E-08	3.18E-08	2.83E-08	2.83E-08	2.83E-08	8.80E-12	8.80E-12	1.42E-11	1.42E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.64E-11	2.64E-11	3.14E-10	3.14E-10	8760
WCFNRE1	1.98E-06	9.17E-06	9.17E-06	6.51E-07	6.51E-07	6.51E-07	3.21E-09	3.21E-09	3.21E-09	1.93E-09	1.93E-09	8.47E-10	8.47E-10	5.90E-10	5.90E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.44E-09	2.44E-09	8760
WCFNRE2	1.98E-06	9.17E-06	9.17E-06	6.51E-07	6.51E-07	6.51E-07	3.21E-09	3.21E-09	3.21E-09	1.93E-09	1.93E-09	8.47E-10	8.47E-10	5.90E-10	5.90E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.44E-09	2.44E-09	8760

Source ID	Modeled Emission Rates (g/s)																					Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	Benzene 1-hr	Benzene Annual[1]	Toluene 1-hr	Toluene Annual[1]	E-Benzene 1-hr	E-Benzene Annual[1]	Xylenes 1-hr	Xylenes Annual[1]	n-Hexane 1-hr	n-Hexane Annual[1]	Formaldehyde 1-hr	Formaldehyde Annual[1]	
WCFNRE3	1.98E-06	9.17E-06	9.17E-06	6.51E-07	6.51E-07	6.51E-07	3.21E-09	3.21E-09	3.21E-09	1.93E-09	1.93E-09	8.47E-10	8.47E-10	5.90E-10	5.90E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.44E-09	2.44E-09	8760
WCFNRE4	1.98E-06	9.17E-06	9.17E-06	6.51E-07	6.51E-07	6.51E-07	3.21E-09	3.21E-09	3.21E-09	1.93E-09	1.93E-09	8.47E-10	8.47E-10	5.90E-10	5.90E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.44E-09	2.44E-09	8760
WCFNRE5	1.98E-06	9.17E-06	9.17E-06	6.51E-07	6.51E-07	6.51E-07	3.21E-09	3.21E-09	3.21E-09	1.93E-09	1.93E-09	8.47E-10	8.47E-10	5.90E-10	5.90E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.44E-09	2.44E-09	8760
WCFNRE6	1.98E-06	9.17E-06	9.17E-06	6.51E-07	6.51E-07	6.51E-07	3.21E-09	3.21E-09	3.21E-09	1.93E-09	1.93E-09	8.47E-10	8.47E-10	5.90E-10	5.90E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.44E-09	2.44E-09	8760
WCFNRE7	1.98E-06	9.17E-06	9.17E-06	6.51E-07	6.51E-07	6.51E-07	3.21E-09	3.21E-09	3.21E-09	1.93E-09	1.93E-09	8.47E-10	8.47E-10	5.90E-10	5.90E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.44E-09	2.44E-09	8760
WLW2GEN	1.19E-01	5.87E-01	6.08E-01	3.46E-02	3.46E-02	3.53E-02	3.51E-04	3.51E-04	3.51E-04	1.91E-04	2.05E-04	7.62E-05	8.20E-05	5.24E-05	5.24E-05	2.47E-07	4.32E-06	0.00E+00	0.00E+00	1.24E-04	1.41E-04	8760
BT3NRE1	1.95E-06	2.08E-06	2.08E-07	2.09E-07	2.06E-07	2.06E-08	4.32E-09	4.32E-09	4.32E-10	1.33E-09	1.33E-10	6.42E-10	6.42E-11	6.32E-13	6.32E-14	4.06E-10	4.06E-11	0.00E+00	0.00E+00	1.23E-09	1.23E-10	876
BT3WIN1	2.64E-06	3.70E-06	1.46E-06	3.79E-07	3.61E-07	1.43E-07	1.81E-08	1.81E-08	7.15E-09	1.71E-09	6.73E-10	1.19E-09	4.68E-10	4.57E-12	1.80E-12	5.24E-10	2.07E-10	0.00E+00	0.00E+00	4.37E-09	1.72E-09	288
3WELLINTE	2.46E-01	2.81E-01	1.11E-01	1.40E-02	1.40E-02	5.54E-03	5.18E-04	5.18E-04	2.04E-04	2.32E-04	9.15E-05	8.40E-05	3.31E-05	0.00E+00	0.00E+00	5.77E-05	2.28E-05	0.00E+00	0.00E+00	2.36E-05	9.30E-06	288
BT1NRE1	1.95E-06	2.08E-06	2.08E-07	2.09E-07	2.06E-07	2.06E-08	4.32E-09	4.32E-09	4.32E-10	1.33E-09	1.33E-10	6.42E-10	6.42E-11	6.32E-13	6.32E-14	4.06E-10	4.06E-11	0.00E+00	0.00E+00	1.23E-09	1.23E-10	876
BT1WIN1	2.64E-06	3.70E-06	1.46E-06	3.79E-07	3.61E-07	1.43E-07	1.81E-08	1.81E-08	7.15E-09	1.71E-09	6.73E-10	1.19E-09	4.68E-10	4.57E-12	1.80E-12	5.24E-10	2.07E-10	0.00E+00	0.00E+00	4.37E-09	1.72E-09	288
1WELLINTE	2.46E-01	2.81E-01	1.11E-01	1.40E-02	1.40E-02	5.54E-03	5.18E-04	5.18E-04	2.04E-04	2.32E-04	9.15E-05	8.40E-05	3.31E-05	0.00E+00	0.00E+00	5.77E-05	2.28E-05	0.00E+00	0.00E+00	2.36E-05	9.30E-06	288
BT2NRE1	1.95E-06	2.08E-06	2.08E-07	2.09E-07	2.06E-07	2.06E-08	4.32E-09	4.32E-09	4.32E-10	1.33E-09	1.33E-10	6.42E-10	6.42E-11	6.32E-13	6.32E-14	4.06E-10	4.06E-11	0.00E+00	0.00E+00	1.23E-09	1.23E-10	876
BT2WIN1	2.64E-06	3.70E-06	1.46E-06	3.79E-07	3.61E-07	1.43E-07	1.81E-08	1.81E-08	7.15E-09	1.71E-09	6.73E-10	1.19E-09	4.68E-10	4.57E-12	1.80E-12	5.24E-10	2.07E-10	0.00E+00	0.00E+00	4.37E-09	1.72E-09	288
2WELLINTE	2.46E-01	2.81E-01	1.11E-01	1.40E-02	1.40E-02	5.54E-03	5.18E-04	5.18E-04	2.04E-04	2.32E-04	9.15E-05	8.40E-05	3.31E-05	0.00E+00	0.00E+00	5.77E-05	2.28E-05	0.00E+00	0.00E+00	2.36E-05	9.30E-06	288
BT4NRE1	1.95E-06	2.08E-06	2.08E-07	2.09E-07	2.06E-07	2.06E-08	4.32E-09	4.32E-09	4.32E-10	1.33E-09	1.33E-10	6.42E-10	6.42E-11	6.32E-13	6.32E-14	4.06E-10	4.06E-11	0.00E+00	0.00E+00	1.23E-09	1.23E-10	876
BT4WIN1	2.64E-06	3.70E-06	1.46E-06	3.79E-07	3.61E-07	1.43E-07	1.81E-08	1.81E-08	7.15E-09	1.71E-09	6.73E-10	1.19E-09	4.68E-10	4.57E-12	1.80E-12	5.24E-10	2.07E-10	0.00E+00	0.00E+00	4.37E-09	1.72E-09	288
4WELLINTE	2.46E-01	2.81E-01	1.11E-01	1.40E-02	1.40E-02	5.54E-03	5.18E-04	5.18E-04	2.04E-04	2.32E-04	9.15E-05	8.40E-05	3.31E-05	0.00E+00	0.00E+00	5.77E-05	2.28E-05	0.00E+00	0.00E+00	2.36E-05	9.30E-06	288
BT5NRE1	1.95E-06	2.08E-06	2.08E-07	2.09E-07	2.06E-07	2.06E-08	4.32E-09	4.32E-09	4.32E-10	1.33E-09	1.33E-10	6.42E-10	6.42E-11	6.32E-13	6.32E-14	4.06E-10	4.06E-11	0.00E+00	0.00E+00	1.23E-09	1.23E-10	876
BT5WIN1	2.64E-06	3.70E-06	1.46E-06	3.79E-07	3.61E-07	1.43E-07	1.81E-08	1.81E-08	7.15E-09	1.71E-09	6.73E-10	1.19E-09	4.68E-10	4.57E-12	1.80E-12	5.24E-10	2.07E-10	0.00E+00	0.00E+00	4.37E-09	1.72E-09	288
5WELLINTE	2.46E-01	2.81E-01	1.11E-01	1.40E-02	1.40E-02	5.54E-03	5.18E-04	5.18E-04	2.04E-04	2.32E-04	9.15E-05	8.40E-05	3.31E-05	0.00E+00	0.00E+00	5.77E-05	2.28E-05	0.00E+00	0.00E+00	2.36E-05	9.30E-06	288
WOCPCE	7.88E-08	3.56E-07	3.56E-07	2.83E-08	2.75E-08	2.75E-08	7.86E-10	7.86E-10	7.86E-10	6.22E-11	6.22E-11	4.67E-11	4.67E-11	1.90E-11	1.90E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.83E-10	1.83E-10	8760
WOCSCE	6.12E-08	1.07E-07	1.07E-07	8.44E-09	8.44E-09	8.44E-09	7.50E-09	7.50E-09	7.50E-09	2.33E-12	2.33E-12	3.77E-12	3.77E-12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.99E-12	6.99E-12	8.33E-11	8.33E-11	8760
WOCNRE	5.55E-07	2.47E-06	1.86E-06	2.08E-07	1.99E-07	1.35E-07	7.98E-09	7.98E-09	1.46E-09	3.82E-10	3.76E-10	3.77E-10	1.89E-10	1.17E-10	1.15E-10	3.74E-12	4.27E-13	0.00E+00	0.00E+00	1.61E-09	6.04E-10	8760
1TAIL1	1.07E-05	1.04E-05	1.04E-05	1.35E-06	4.91E-07	4.91E-07	5.54E-08	5.54E-08	5.54E-08	1.18E-08	1.18E-08	1.42E-08	1.42E-08	4.77E-09	4.77E-09	1.54E-08	1.54E-08	5.07E-09	5.07E-09	1.33E-07	1.33E-07	8760
1TAIL2	1.07E-05	1.04E-05	1.04E-05	1.35E-06	4.91E-07	4.91E-07	5.54E-08	5.54E-08	5.54E-08	1.18E-08	1.18E-08	1.42E-08	1.42E-08	4.77E-09	4.77E-09	1.54E-08	1.54E-08	5.07E-09	5.07E-09	1.33E-07	1.33E-07	8760
1TAIL3	1.07E-05	1.04E-05	1.04E-05	1.35E-06	4.91E-07	4.91E-07	5.54E-08	5.54E-08	5.54E-08	1.18E-08	1.18E-08	1.42E-08	1.42E-08	4.77E-09	4.77E-09	1.54E-08	1.54E-08	5.07E-09	5.07E-09	1.33E-07	1.33E-07	8760
1TAIL4	1.07E-05	1.04E-05	1.04E-05	1.35E-06	4.91E-07	4.91E-07	5.54E-08	5.54E-08	5.54E-08	1.18E-08	1.18E-08	1.42E-08	1.42E-08	4.77E-09	4.77E-09	1.54E-08	1.54E-08	5.07E-09	5.07E-09	1.33E-07	1.33E-07	8760
1TAIL5	1.07E-05	1.04E-05	1.04E-05	1.35E-06	4.91E-07	4.91E-07	5.54E-08	5.54E-08	5.54E-08	1.18E-08	1.18E-08	1.42E-08	1.42E-08	4.77E-09	4.77E-09	1.54E-08	1.54E-08	5.07E-09	5.07E-09	1.33E-07	1.33E-07	8760
1TAIL6	1.07E-05	1.04E-05	1.04E-05	1.35E-06	4.91E-07	4.91E-07	5.54E-08	5.54E-08	5.54E-08	1.18E-08	1.18E-08	1.42E-08	1.42E-08	4.77E-09	4.77E-09	1.54E-08	1.54E-08	5.07E-09	5.07E-09	1.33E-07	1.33E-07	8760
1TAIL7	1.07E-05	1.04E-05	1.04E-05	1.35E-06	4.91E-07	4.91E-07	5.54E-08	5.54E-08	5.54E-08	1.18E-08	1.18E-08	1.42E-08	1.42E-08	4.77E-09	4.77E-09	1.54E-08	1.54E-08	5.07E-09	5.07E-09	1.33E-07	1.33E-07	8760
1TAIL8	1.07E-05	1.04E-05	1.04E-05	1.35E-06	4.91E-07	4.91E-07	5.54E-08	5.54E-08	5.54E-08	1.18E-08	1.18E-08	1.42E-08	1.42E-08	4.77E-09	4.77E-09	1.54E-08	1.54E-08	5.07E-09	5.07E-09	1.33E-07	1.33E-07	8760
1TAIL9	1.07E-05	1.04E-05	1.04E-05	1.35E-06	4.91E-07	4.91E-07	5.54E-08	5.54E-08	5.54E-08	1.18E-08	1.18E-08	1.42E-08	1.42E-08	4.77E-09	4.77E-09	1.54E-08	1.54E-08	5.07E-09	5.07E-09	1.33E-07	1.33E-07	8760
2TAIL1	9.54E-06	9.27E-06	9.27E-06	1.20E-06	4.38E-07	4.38E-07	4.95E-08	4.95E-08	4.95E-08	1.05E-08	1.05E-08	1.27E-08	1.27E-08	4.26E-09	4.26E-09	1.37E-08	1.37E-08	4.52E-09	4.52E-09	1.19E-07	1.19E-07	8760
2TAIL2	9.54E-06	9.27E-06	9.27E-06	1.20E-06	4.38E-07	4.38E-07	4.95E-08	4.95E-08	4.95E-08	1.05E-08	1.05E-08	1.27E-08	1.27E-08	4.26E-09	4.26E-09	1.37E-08	1.37E-08	4.52E-09	4.52E-09	1.19E-07	1.19E-07	8760
2TAIL3	9.54E-06	9.27E-06	9.27E-06	1.20E-06	4.38E-07	4.38E-07	4.95E-08	4.95E-08	4.95E-08	1.05E-08	1.05E-08	1.27E-08	1.27E-08	4.26E-09	4.26E-09	1.37E-08	1.37E-08	4.52E-09	4.52E-09	1.19E-07	1.19E-07	8760
2TAIL4	9.54E-06	9.27E-06	9.27E-06	1.20E-06	4.38E-07	4.38E-07	4.95E-08	4.95E-08	4.95E-08	1.05E-08	1.05E-08	1.27E-08	1.27E-08	4.26E-09	4.26E-09	1.37E-08	1.37E-08	4.52E-09	4.52E-09	1.19E-07	1.19E-07	8760
2TAIL5	9.54E-06	9.27E-06	9.27E-06	1.20E-06	4.38E-07	4.38E-07	4.95E-08	4.95E-08	4.95E-08	1.05E-08	1.05E-08	1.27E-08	1.27E-08	4.26E-09	4.26E-09	1.37E-08	1.37E-08	4.52E-09	4.52E-09	1.19E-07	1.19E-07	8760
2TAIL6	9.54E-06	9.27E-06	9.27E-06	1.20E-06	4.38E-07	4.38E-07	4.95E-08	4.95E-08	4.95E-08	1.05E-08	1.05E-08	1.27E-08	1.27E-08	4.26E-09	4.26E-09	1.37E-08	1.37E-08	4.52E-09	4.52E-09	1.19E-07	1.19E-07	8760
3TAIL1	8.17E-06	7.94E-06	7.94E-06	1.03E-06	3.76E-07	3.76E-07	4.24E-08	4.24E-08	4.24E-08	9.00E-09	9.00E-09	1.09E-08	1.09E-08	3.65E-09	3.65E-09	1.18E-08	1.18E-08	3.88E-09	3.88E-09	1.02E-07	1.02E-07	8760
3TAIL2	8.17E-06	7.94E-06	7.94E-06	1.03E-06	3.76E-07	3.76E-07	4.24E-08	4.24E-08	4.24E-08	9.00E-09	9.00E-09	1.09E-08	1.09E-08	3.65E-09	3.65E-09	1.18E-08	1.18E-08	3.88E-09	3.88E-09	1.02E-07	1.02E-07	8760
3TAIL3	8.17E-06	7.94E-06	7.94E-06	1.03E-06	3.76E-07	3.76E-07	4.24E-08	4.24E-08	4.24E-08	9.00E-09	9.00E-09	1.09E-08	1.09E-08	3.65E-09	3.65E-09	1.18E-08	1.18E-08	3.88E-09	3.88E-09	1.02E-07	1.02E-07	8760
3TAIL4	8.17E-06	7.94E-06	7.94E-06	1.03E-06	3.76E-07	3.76E-07	4.24E-08	4.24E-08	4.24E-08	9.00E-09	9.00E-09	1.09E-08	1.09E-08	3.65E-09	3.65E-09	1.18E-08	1.18E-08	3.88E-09	3.88E-09	1.02E-07	1.02E-07	8760
3TAIL5	8.17E-06	7.94E-06	7.94E-06	1.03E-06	3.76E-07	3.76E-07	4.24E-08	4.24E-08	4.24E-08	9.00E-09	9.00E-09	1.09E-08	1.09E-08	3.65E-09	3.65E-09	1.18E-08	1.18E-08	3.88E-09	3.88E-09	1.02E-07	1.02E-07	8760
3TAIL6	8.17E-06	7.94E-06	7.94E-06	1.03E-06	3.76E-07	3.76E-07	4.24E-08	4.24E-08	4.24E-08	9.00E-09	9.00E-09	1.09E-08	1.09E-08	3.65E-09	3.65E-09	1.18E-08	1.18E-08	3.88E-09	3.88E-09	1.02E-07	1.02E-07	8760
3TAIL7	8.17E-06	7.94E-06	7.94E-06	1.03E-06	3.76E-07	3.76E-07	4.24E-08	4.24E-08	4.24E-08	9.00E-09	9.00E-09	1.09E-08	1.09E-08	3.65E-09	3.65E-09	1.18E-08	1.18E-08	3.88E-09	3.88E-09	1.02E-07	1.02E-07	8760
4TAIL1	8.17E-06	7.94E-06	7.94E-06	1.03E-06	3.76E-07	3.76E-07	4.24E-08	4.24E-08	4.24E-08	9.00E-09	9.00E-09	1.09E-08	1.09E-08	3.65E-09	3.65E-09	1.18E-08	1.18E-08	3.88E-09	3.88E-09	1.02E-07	1.02E-07	8760

Source ID	Modeled Emission Rates (g/s)																					Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	Benzene 1-hr	Benzene Annual[1]	Toluene 1-hr	Toluene Annual[1]	E-Benzene 1-hr	E-Benzene Annual[1]	Xylenes 1-hr	Xylenes Annual[1]	n-Hexane 1-hr	n-Hexane Annual[1]	Formaldehyde 1-hr	Formaldehyde Annual[1]	
4TAIL2	8.17E-06	7.94E-06	7.94E-06	1.03E-06	3.76E-07	3.76E-07	4.24E-08	4.24E-08	4.24E-08	9.00E-09	9.00E-09	1.09E-08	1.09E-08	3.65E-09	3.65E-09	1.18E-08	1.18E-08	3.88E-09	3.88E-09	1.02E-07	1.02E-07	8760
4TAIL3	8.17E-06	7.94E-06	7.94E-06	1.03E-06	3.76E-07	3.76E-07	4.24E-08	4.24E-08	4.24E-08	9.00E-09	9.00E-09	1.09E-08	1.09E-08	3.65E-09	3.65E-09	1.18E-08	1.18E-08	3.88E-09	3.88E-09	1.02E-07	1.02E-07	8760
4TAIL4	8.17E-06	7.94E-06	7.94E-06	1.03E-06	3.76E-07	3.76E-07	4.24E-08	4.24E-08	4.24E-08	9.00E-09	9.00E-09	1.09E-08	1.09E-08	3.65E-09	3.65E-09	1.18E-08	1.18E-08	3.88E-09	3.88E-09	1.02E-07	1.02E-07	8760
4TAIL5	8.17E-06	7.94E-06	7.94E-06	1.03E-06	3.76E-07	3.76E-07	4.24E-08	4.24E-08	4.24E-08	9.00E-09	9.00E-09	1.09E-08	1.09E-08	3.65E-09	3.65E-09	1.18E-08	1.18E-08	3.88E-09	3.88E-09	1.02E-07	1.02E-07	8760
4TAIL6	8.17E-06	7.94E-06	7.94E-06	1.03E-06	3.76E-07	3.76E-07	4.24E-08	4.24E-08	4.24E-08	9.00E-09	9.00E-09	1.09E-08	1.09E-08	3.65E-09	3.65E-09	1.18E-08	1.18E-08	3.88E-09	3.88E-09	1.02E-07	1.02E-07	8760
4TAIL7	8.17E-06	7.94E-06	7.94E-06	1.03E-06	3.76E-07	3.76E-07	4.24E-08	4.24E-08	4.24E-08	9.00E-09	9.00E-09	1.09E-08	1.09E-08	3.65E-09	3.65E-09	1.18E-08	1.18E-08	3.88E-09	3.88E-09	1.02E-07	1.02E-07	8760
5TAIL1	8.17E-06	7.94E-06	7.94E-06	1.03E-06	3.76E-07	3.76E-07	4.24E-08	4.24E-08	4.24E-08	9.00E-09	9.00E-09	1.09E-08	1.09E-08	3.65E-09	3.65E-09	1.18E-08	1.18E-08	3.88E-09	3.88E-09	1.02E-07	1.02E-07	8760
5TAIL2	8.17E-06	7.94E-06	7.94E-06	1.03E-06	3.76E-07	3.76E-07	4.24E-08	4.24E-08	4.24E-08	9.00E-09	9.00E-09	1.09E-08	1.09E-08	3.65E-09	3.65E-09	1.18E-08	1.18E-08	3.88E-09	3.88E-09	1.02E-07	1.02E-07	8760
5TAIL3	8.17E-06	7.94E-06	7.94E-06	1.03E-06	3.76E-07	3.76E-07	4.24E-08	4.24E-08	4.24E-08	9.00E-09	9.00E-09	1.09E-08	1.09E-08	3.65E-09	3.65E-09	1.18E-08	1.18E-08	3.88E-09	3.88E-09	1.02E-07	1.02E-07	8760
5TAIL4	8.17E-06	7.94E-06	7.94E-06	1.03E-06	3.76E-07	3.76E-07	4.24E-08	4.24E-08	4.24E-08	9.00E-09	9.00E-09	1.09E-08	1.09E-08	3.65E-09	3.65E-09	1.18E-08	1.18E-08	3.88E-09	3.88E-09	1.02E-07	1.02E-07	8760
5TAIL5	8.17E-06	7.94E-06	7.94E-06	1.03E-06	3.76E-07	3.76E-07	4.24E-08	4.24E-08	4.24E-08	9.00E-09	9.00E-09	1.09E-08	1.09E-08	3.65E-09	3.65E-09	1.18E-08	1.18E-08	3.88E-09	3.88E-09	1.02E-07	1.02E-07	8760
5TAIL6	8.17E-06	7.94E-06	7.94E-06	1.03E-06	3.76E-07	3.76E-07	4.24E-08	4.24E-08	4.24E-08	9.00E-09	9.00E-09	1.09E-08	1.09E-08	3.65E-09	3.65E-09	1.18E-08	1.18E-08	3.88E-09	3.88E-09	1.02E-07	1.02E-07	8760
5TAIL7	8.17E-06	7.94E-06	7.94E-06	1.03E-06	3.76E-07	3.76E-07	4.24E-08	4.24E-08	4.24E-08	9.00E-09	9.00E-09	1.09E-08	1.09E-08	3.65E-09	3.65E-09	1.18E-08	1.18E-08	3.88E-09	3.88E-09	1.02E-07	1.02E-07	8760
WOCTAIL1	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	9.53E-09	9.53E-09	1.15E-08	1.15E-08	3.87E-09	3.87E-09	1.25E-08	1.25E-08	4.11E-09	4.11E-09	1.08E-07	1.08E-07	8760
WOCTAIL2	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	9.53E-09	9.53E-09	1.15E-08	1.15E-08	3.87E-09	3.87E-09	1.25E-08	1.25E-08	4.11E-09	4.11E-09	1.08E-07	1.08E-07	8760
WOCTAIL3	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	9.53E-09	9.53E-09	1.15E-08	1.15E-08	3.87E-09	3.87E-09	1.25E-08	1.25E-08	4.11E-09	4.11E-09	1.08E-07	1.08E-07	8760
WOCTAIL4	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	9.53E-09	9.53E-09	1.15E-08	1.15E-08	3.87E-09	3.87E-09	1.25E-08	1.25E-08	4.11E-09	4.11E-09	1.08E-07	1.08E-07	8760
WOCTAIL5	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	9.53E-09	9.53E-09	1.15E-08	1.15E-08	3.87E-09	3.87E-09	1.25E-08	1.25E-08	4.11E-09	4.11E-09	1.08E-07	1.08E-07	8760
WOCTAIL6	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	9.53E-09	9.53E-09	1.15E-08	1.15E-08	3.87E-09	3.87E-09	1.25E-08	1.25E-08	4.11E-09	4.11E-09	1.08E-07	1.08E-07	8760
WOCTAIL7	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	9.53E-09	9.53E-09	1.15E-08	1.15E-08	3.87E-09	3.87E-09	1.25E-08	1.25E-08	4.11E-09	4.11E-09	1.08E-07	1.08E-07	8760
WOCTAIL8	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	9.53E-09	9.53E-09	1.15E-08	1.15E-08	3.87E-09	3.87E-09	1.25E-08	1.25E-08	4.11E-09	4.11E-09	1.08E-07	1.08E-07	8760
WOCTAIL9	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	9.53E-09	9.53E-09	1.15E-08	1.15E-08	3.87E-09	3.87E-09	1.25E-08	1.25E-08	4.11E-09	4.11E-09	1.08E-07	1.08E-07	8760
WOCTAIL10	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	9.53E-09	9.53E-09	1.15E-08	1.15E-08	3.87E-09	3.87E-09	1.25E-08	1.25E-08	4.11E-09	4.11E-09	1.08E-07	1.08E-07	8760
WOCTAIL11	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	9.53E-09	9.53E-09	1.15E-08	1.15E-08	3.87E-09	3.87E-09	1.25E-08	1.25E-08	4.11E-09	4.11E-09	1.08E-07	1.08E-07	8760
WOCTAIL12	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	9.53E-09	9.53E-09	1.15E-08	1.15E-08	3.87E-09	3.87E-09	1.25E-08	1.25E-08	4.11E-09	4.11E-09	1.08E-07	1.08E-07	8760
WOCTAIL13	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	9.53E-09	9.53E-09	1.15E-08	1.15E-08	3.87E-09	3.87E-09	1.25E-08	1.25E-08	4.11E-09	4.11E-09	1.08E-07	1.08E-07	8760
WOCTAIL14	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	9.53E-09	9.53E-09	1.15E-08	1.15E-08	3.87E-09	3.87E-09	1.25E-08	1.25E-08	4.11E-09	4.11E-09	1.08E-07	1.08E-07	8760
WOCTAIL15	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	9.53E-09	9.53E-09	1.15E-08	1.15E-08	3.87E-09	3.87E-09	1.25E-08	1.25E-08	4.11E-09	4.11E-09	1.08E-07	1.08E-07	8760
WOCTAIL16	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	9.53E-09	9.53E-09	1.15E-08	1.15E-08	3.87E-09	3.87E-09	1.25E-08	1.25E-08	4.11E-09	4.11E-09	1.08E-07	1.08E-07	8760
WOCTAIL17	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	9.53E-09	9.53E-09	1.15E-08	1.15E-08	3.87E-09	3.87E-09	1.25E-08	1.25E-08	4.11E-09	4.11E-09	1.08E-07	1.08E-07	8760
WOCTAIL18	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	9.53E-09	9.53E-09	1.15E-08	1.15E-08	3.87E-09	3.87E-09	1.25E-08	1.25E-08	4.11E-09	4.11E-09	1.08E-07	1.08E-07	8760
WOCTAIL19	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	9.53E-09	9.53E-09	1.15E-08	1.15E-08	3.87E-09	3.87E-09	1.25E-08	1.25E-08	4.11E-09	4.11E-09	1.08E-07	1.08E-07	8760
WOCTAIL20	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	9.53E-09	9.53E-09	1.15E-08	1.15E-08	3.87E-09	3.87E-09	1.25E-08	1.25E-08	4.11E-09	4.11E-09	1.08E-07	1.08E-07	8760
WOCTAIL21	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	9.53E-09	9.53E-09	1.15E-08	1.15E-08	3.87E-09	3.87E-09	1.25E-08	1.25E-08	4.11E-09	4.11E-09	1.08E-07	1.08E-07	8760
WOCTAIL22	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	9.53E-09	9.53E-09	1.15E-08	1.15E-08	3.87E-09	3.87E-09	1.25E-08	1.25E-08	4.11E-09	4.11E-09	1.08E-07	1.08E-07	8760
WOCTAIL23	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	9.53E-09	9.53E-09	1.15E-08	1.15E-08	3.87E-09	3.87E-09	1.25E-08	1.25E-08	4.11E-09	4.11E-09	1.08E-07	1.08E-07	8760
WOCTAIL24	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	9.53E-09	9.53E-09	1.15E-08	1.15E-08	3.87E-09	3.87E-09	1.25E-08	1.25E-08	4.11E-09	4.11E-09	1.08E-07	1.08E-07	8760
WOCTAIL25	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	9.53E-09	9.53E-09	1.15E-08	1.15E-08	3.87E-09	3.87E-09	1.25E-08	1.25E-08	4.11E-09	4.11E-09	1.08E-07	1.08E-07	8760
WOCTAIL26	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	9.53E-09	9.53E-09	1.15E-08	1.15E-08	3.87E-09	3.87E-09	1.25E-08	1.25E-08	4.11E-09	4.11E-09	1.08E-07	1.08E-07	8760
WOCTAIL27	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	9.53E-09	9.53E-09	1.15E-08	1.15E-08	3.87E-09	3.87E-09	1.25E-08	1.25E-08	4.11E-09	4.11E-09	1.08E-07	1.08E-07	8760
WOCTAIL28	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	9.53E-09	9.53E-09	1.15E-08	1.15E-08	3.87E-09	3.87E-09	1.25E-08	1.25E-08	4.11E-09	4.11E-09	1.08E-07	1.08E-07	8760
WOCTAIL29	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	9.53E-09	9.53E-09	1.15E-08	1.15E-08	3.87E-09	3.87E-09	1.25E-08	1.25E-08	4.11E-09	4.11E-09	1.08E-07	1.08E-07	8760
WOCTAIL30	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	9.53E-09	9.53E-09	1.15E-08	1.15E-08	3.87E-09	3.87E-09	1.25E-08	1.25E-08	4.11E-09	4.11E-09	1.08E-07	1.08E-07	8760
WOCTAIL31	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	9.53E-09	9.53E-09	1.15E-08	1.15E-08	3.87E-09	3.87E-09	1.25E-08	1.25E-08	4.11E-09	4.11E-09	1.08E-07	1.08E-07	8760
WOCTAIL32	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	9.53E-09	9.53E-09	1.15E-08	1.15E-08	3.87E-09	3.87E-09	1.25E-08	1.25E-08	4.11E-09	4.11E-09	1.08E-07	1.08E-07	8760
WOCTAIL33	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	9.53E-09	9.53E-09	1.15E-08	1.15E-08	3.87E-09	3.87E-09	1.25E-08	1.25E-08	4.11E-09	4.11E-09	1.08E-07	1.08E-07	8760
AIRTAIL1	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	9.53E-09	9.53E-09	1.15E-08	1.15E-08	3.87E-09	3.87E-09	1.25E-08	1.25E-08	4.11E-09	4.11E-09	1.08E-07	1.08E-07	8760

Source ID	Modeled Emission Rates (g/s)																					Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	Benzene 1-hr	Benzene Annual[1]	Toluene 1-hr	Toluene Annual[1]	E-Benzene 1-hr	E-Benzene Annual[1]	Xylenes 1-hr	Xylenes Annual[1]	n-Hexane 1-hr	n-Hexane Annual[1]	Formaldehyde 1-hr	Formaldehyde Annual[1]	
AIRTAIL2	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	9.53E-09	9.53E-09	1.15E-08	1.15E-08	3.87E-09	3.87E-09	1.25E-08	1.25E-08	4.11E-09	4.11E-09	1.08E-07	1.08E-07	8760
AIRTAIL3	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	9.53E-09	9.53E-09	1.15E-08	1.15E-08	3.87E-09	3.87E-09	1.25E-08	1.25E-08	4.11E-09	4.11E-09	1.08E-07	1.08E-07	8760
AIRTAIL4	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	9.53E-09	9.53E-09	1.15E-08	1.15E-08	3.87E-09	3.87E-09	1.25E-08	1.25E-08	4.11E-09	4.11E-09	1.08E-07	1.08E-07	8760
AIRTAIL5	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	9.53E-09	9.53E-09	1.15E-08	1.15E-08	3.87E-09	3.87E-09	1.25E-08	1.25E-08	4.11E-09	4.11E-09	1.08E-07	1.08E-07	8760
AIRTAIL6	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	9.53E-09	9.53E-09	1.15E-08	1.15E-08	3.87E-09	3.87E-09	1.25E-08	1.25E-08	4.11E-09	4.11E-09	1.08E-07	1.08E-07	8760
AIRTAIL7	8.65E-06	8.41E-06	8.41E-06	1.09E-06	3.98E-07	3.98E-07	4.49E-08	4.49E-08	4.49E-08	9.53E-09	9.53E-09	1.15E-08	1.15E-08	3.87E-09	3.87E-09	1.25E-08	1.25E-08	4.11E-09	4.11E-09	1.08E-07	1.08E-07	8760
WCFTAIL1	1.06E-05	1.03E-05	1.03E-05	1.33E-06	4.86E-07	4.86E-07	5.48E-08	5.48E-08	5.48E-08	1.16E-08	1.16E-08	1.41E-08	1.41E-08	4.72E-09	4.72E-09	1.52E-08	1.52E-08	5.01E-09	5.01E-09	1.32E-07	1.32E-07	8760
WCFTAIL2	1.06E-05	1.03E-05	1.03E-05	1.33E-06	4.86E-07	4.86E-07	5.48E-08	5.48E-08	5.48E-08	1.16E-08	1.16E-08	1.41E-08	1.41E-08	4.72E-09	4.72E-09	1.52E-08	1.52E-08	5.01E-09	5.01E-09	1.32E-07	1.32E-07	8760
WCFTAIL3	1.06E-05	1.03E-05	1.03E-05	1.33E-06	4.86E-07	4.86E-07	5.48E-08	5.48E-08	5.48E-08	1.16E-08	1.16E-08	1.41E-08	1.41E-08	4.72E-09	4.72E-09	1.52E-08	1.52E-08	5.01E-09	5.01E-09	1.32E-07	1.32E-07	8760
WCFTAIL4	1.06E-05	1.03E-05	1.03E-05	1.33E-06	4.86E-07	4.86E-07	5.48E-08	5.48E-08	5.48E-08	1.16E-08	1.16E-08	1.41E-08	1.41E-08	4.72E-09	4.72E-09	1.52E-08	1.52E-08	5.01E-09	5.01E-09	1.32E-07	1.32E-07	8760
WCFTAIL5	1.06E-05	1.03E-05	1.03E-05	1.33E-06	4.86E-07	4.86E-07	5.48E-08	5.48E-08	5.48E-08	1.16E-08	1.16E-08	1.41E-08	1.41E-08	4.72E-09	4.72E-09	1.52E-08	1.52E-08	5.01E-09	5.01E-09	1.32E-07	1.32E-07	8760
WCFTAIL6	1.06E-05	1.03E-05	1.03E-05	1.33E-06	4.86E-07	4.86E-07	5.48E-08	5.48E-08	5.48E-08	1.16E-08	1.16E-08	1.41E-08	1.41E-08	4.72E-09	4.72E-09	1.52E-08	1.52E-08	5.01E-09	5.01E-09	1.32E-07	1.32E-07	8760
WCFTAIL7	1.06E-05	1.03E-05	1.03E-05	1.33E-06	4.86E-07	4.86E-07	5.48E-08	5.48E-08	5.48E-08	1.16E-08	1.16E-08	1.41E-08	1.41E-08	4.72E-09	4.72E-09	1.52E-08	1.52E-08	5.01E-09	5.01E-09	1.32E-07	1.32E-07	8760
WCFTAIL8	1.06E-05	1.03E-05	1.03E-05	1.33E-06	4.86E-07	4.86E-07	5.48E-08	5.48E-08	5.48E-08	1.16E-08	1.16E-08	1.41E-08	1.41E-08	4.72E-09	4.72E-09	1.52E-08	1.52E-08	5.01E-09	5.01E-09	1.32E-07	1.32E-07	8760
WCFTAIL9	1.06E-05	1.03E-05	1.03E-05	1.33E-06	4.86E-07	4.86E-07	5.48E-08	5.48E-08	5.48E-08	1.16E-08	1.16E-08	1.41E-08	1.41E-08	4.72E-09	4.72E-09	1.52E-08	1.52E-08	5.01E-09	5.01E-09	1.32E-07	1.32E-07	8760
WCFTAIL10	1.06E-05	1.03E-05	1.03E-05	1.33E-06	4.86E-07	4.86E-07	5.48E-08	5.48E-08	5.48E-08	1.16E-08	1.16E-08	1.41E-08	1.41E-08	4.72E-09	4.72E-09	1.52E-08	1.52E-08	5.01E-09	5.01E-09	1.32E-07	1.32E-07	8760
WCFTAIL11	1.06E-05	1.03E-05	1.03E-05	1.33E-06	4.86E-07	4.86E-07	5.48E-08	5.48E-08	5.48E-08	1.16E-08	1.16E-08	1.41E-08	1.41E-08	4.72E-09	4.72E-09	1.52E-08	1.52E-08	5.01E-09	5.01E-09	1.32E-07	1.32E-07	8760
WCFTAIL12	1.06E-05	1.03E-05	1.03E-05	1.33E-06	4.86E-07	4.86E-07	5.48E-08	5.48E-08	5.48E-08	1.16E-08	1.16E-08	1.41E-08	1.41E-08	4.72E-09	4.72E-09	1.52E-08	1.52E-08	5.01E-09	5.01E-09	1.32E-07	1.32E-07	8760
WCFTAIL13	1.06E-05	1.03E-05	1.03E-05	1.33E-06	4.86E-07	4.86E-07	5.48E-08	5.48E-08	5.48E-08	1.16E-08	1.16E-08	1.41E-08	1.41E-08	4.72E-09	4.72E-09	1.52E-08	1.52E-08	5.01E-09	5.01E-09	1.32E-07	1.32E-07	8760
WCFTAIL14	1.06E-05	1.03E-05	1.03E-05	1.33E-06	4.86E-07	4.86E-07	5.48E-08	5.48E-08	5.48E-08	1.16E-08	1.16E-08	1.41E-08	1.41E-08	4.72E-09	4.72E-09	1.52E-08	1.52E-08	5.01E-09	5.01E-09	1.32E-07	1.32E-07	8760
WCFTAIL15	1.06E-05	1.03E-05	1.03E-05	1.33E-06	4.86E-07	4.86E-07	5.48E-08	5.48E-08	5.48E-08	1.16E-08	1.16E-08	1.41E-08	1.41E-08	4.72E-09	4.72E-09	1.52E-08	1.52E-08	5.01E-09	5.01E-09	1.32E-07	1.32E-07	8760
WCFTAIL16	1.06E-05	1.03E-05	1.03E-05	1.33E-06	4.86E-07	4.86E-07	5.48E-08	5.48E-08	5.48E-08	1.16E-08	1.16E-08	1.41E-08	1.41E-08	4.72E-09	4.72E-09	1.52E-08	1.52E-08	5.01E-09	5.01E-09	1.32E-07	1.32E-07	8760
WCFTAIL17	1.06E-05	1.03E-05	1.03E-05	1.33E-06	4.86E-07	4.86E-07	5.48E-08	5.48E-08	5.48E-08	1.16E-08	1.16E-08	1.41E-08	1.41E-08	4.72E-09	4.72E-09	1.52E-08	1.52E-08	5.01E-09	5.01E-09	1.32E-07	1.32E-07	8760
WCFTAIL18	1.06E-05	1.03E-05	1.03E-05	1.33E-06	4.86E-07	4.86E-07	5.48E-08	5.48E-08	5.48E-08	1.16E-08	1.16E-08	1.41E-08	1.41E-08	4.72E-09	4.72E-09	1.52E-08	1.52E-08	5.01E-09	5.01E-09	1.32E-07	1.32E-07	8760
WCFTAIL19	1.06E-05	1.03E-05	1.03E-05	1.33E-06	4.86E-07	4.86E-07	5.48E-08	5.48E-08	5.48E-08	1.16E-08	1.16E-08	1.41E-08	1.41E-08	4.72E-09	4.72E-09	1.52E-08	1.52E-08	5.01E-09	5.01E-09	1.32E-07	1.32E-07	8760
1MFUGD1	0.00E+00	0.00E+00	0.00E+00	3.45E-03	3.45E-04	3.45E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD2	0.00E+00	0.00E+00	0.00E+00	3.45E-03	3.45E-04	3.45E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD3	0.00E+00	0.00E+00	0.00E+00	3.45E-03	3.45E-04	3.45E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD4	0.00E+00	0.00E+00	0.00E+00	3.45E-03	3.45E-04	3.45E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD5	0.00E+00	0.00E+00	0.00E+00	3.45E-03	3.45E-04	3.45E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD6	0.00E+00	0.00E+00	0.00E+00	3.45E-03	3.45E-04	3.45E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD7	0.00E+00	0.00E+00	0.00E+00	3.45E-03	3.45E-04	3.45E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD8	0.00E+00	0.00E+00	0.00E+00	3.45E-03	3.45E-04	3.45E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD9	0.00E+00	0.00E+00	0.00E+00	3.45E-03	3.45E-04	3.45E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD1	0.00E+00	0.00E+00	0.00E+00	3.08E-03	3.08E-04	3.08E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD2	0.00E+00	0.00E+00	0.00E+00	3.08E-03	3.08E-04	3.08E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD3	0.00E+00	0.00E+00	0.00E+00	3.08E-03	3.08E-04	3.08E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD4	0.00E+00	0.00E+00	0.00E+00	3.08E-03	3.08E-04	3.08E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD5	0.00E+00	0.00E+00	0.00E+00	3.08E-03	3.08E-04	3.08E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD6	0.00E+00	0.00E+00	0.00E+00	3.08E-03	3.08E-04	3.08E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
3MFUGD1	0.00E+00	0.00E+00	0.00E+00	2.64E-03	2.64E-04	2.64E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
3MFUGD2	0.00E+00	0.00E+00	0.00E+00	2.64E-03	2.64E-04	2.64E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
3MFUGD3	0.00E+00	0.00E+00	0.00E+00	2.64E-03	2.64E-04	2.64E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
3MFUGD4	0.00E+00	0.00E+00	0.00E+00	2.64E-03	2.64E-04	2.64E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
3MFUGD5	0.00E+00	0.00E+00	0.00E+00	2.64E-03	2.64E-04	2.64E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
3MFUGD6	0.00E+00	0.00E+00	0.00E+00	2.64E-03	2.64E-04	2.64E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
3MFUGD7	0.00E+00	0.00E+00	0.00E+00	2.64E-03	2.64E-04	2.64E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380

Source ID	Modeled Emission Rates (g/s)																					Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	Benzene 1-hr	Benzene Annual[1]	Toluene 1-hr	Toluene Annual[1]	E-Benzene 1-hr	E-Benzene Annual[1]	Xylenes 1-hr	Xylenes Annual[1]	n-Hexane 1-hr	n-Hexane Annual[1]	Formaldehyde 1-hr	Formaldehyde Annual[1]	
4MFUGD1	0.00E+00	0.00E+00	0.00E+00	2.64E-03	2.64E-04	2.64E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
4MFUGD2	0.00E+00	0.00E+00	0.00E+00	2.64E-03	2.64E-04	2.64E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
4MFUGD3	0.00E+00	0.00E+00	0.00E+00	2.64E-03	2.64E-04	2.64E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
4MFUGD4	0.00E+00	0.00E+00	0.00E+00	2.64E-03	2.64E-04	2.64E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
4MFUGD5	0.00E+00	0.00E+00	0.00E+00	2.64E-03	2.64E-04	2.64E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
4MFUGD6	0.00E+00	0.00E+00	0.00E+00	2.64E-03	2.64E-04	2.64E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
4MFUGD7	0.00E+00	0.00E+00	0.00E+00	2.64E-03	2.64E-04	2.64E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
5MFUGD1	0.00E+00	0.00E+00	0.00E+00	2.64E-03	2.64E-04	2.64E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
5MFUGD2	0.00E+00	0.00E+00	0.00E+00	2.64E-03	2.64E-04	2.64E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
5MFUGD3	0.00E+00	0.00E+00	0.00E+00	2.64E-03	2.64E-04	2.64E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
5MFUGD4	0.00E+00	0.00E+00	0.00E+00	2.64E-03	2.64E-04	2.64E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
5MFUGD5	0.00E+00	0.00E+00	0.00E+00	2.64E-03	2.64E-04	2.64E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
5MFUGD6	0.00E+00	0.00E+00	0.00E+00	2.64E-03	2.64E-04	2.64E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
5MFUGD7	0.00E+00	0.00E+00	0.00E+00	2.64E-03	2.64E-04	2.64E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD1	0.00E+00	0.00E+00	0.00E+00	3.41E-03	3.41E-04	3.41E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD2	0.00E+00	0.00E+00	0.00E+00	3.41E-03	3.41E-04	3.41E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD3	0.00E+00	0.00E+00	0.00E+00	3.41E-03	3.41E-04	3.41E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD4	0.00E+00	0.00E+00	0.00E+00	3.41E-03	3.41E-04	3.41E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD5	0.00E+00	0.00E+00	0.00E+00	3.41E-03	3.41E-04	3.41E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD6	0.00E+00	0.00E+00	0.00E+00	3.41E-03	3.41E-04	3.41E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD7	0.00E+00	0.00E+00	0.00E+00	3.41E-03	3.41E-04	3.41E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD8	0.00E+00	0.00E+00	0.00E+00	3.41E-03	3.41E-04	3.41E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD9	0.00E+00	0.00E+00	0.00E+00	3.41E-03	3.41E-04	3.41E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD10	0.00E+00	0.00E+00	0.00E+00	3.41E-03	3.41E-04	3.41E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD11	0.00E+00	0.00E+00	0.00E+00	3.41E-03	3.41E-04	3.41E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD12	0.00E+00	0.00E+00	0.00E+00	3.41E-03	3.41E-04	3.41E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD13	0.00E+00	0.00E+00	0.00E+00	3.41E-03	3.41E-04	3.41E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD14	0.00E+00	0.00E+00	0.00E+00	3.41E-03	3.41E-04	3.41E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD15	0.00E+00	0.00E+00	0.00E+00	3.41E-03	3.41E-04	3.41E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD16	0.00E+00	0.00E+00	0.00E+00	3.41E-03	3.41E-04	3.41E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD17	0.00E+00	0.00E+00	0.00E+00	3.41E-03	3.41E-04	3.41E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD18	0.00E+00	0.00E+00	0.00E+00	3.41E-03	3.41E-04	3.41E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD19	0.00E+00	0.00E+00	0.00E+00	3.41E-03	3.41E-04	3.41E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD1	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD2	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD3	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD4	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD5	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD6	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD7	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD8	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD9	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD10	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD11	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD12	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD13	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD14	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380

Source ID	Modeled Emission Rates (g/s)																					Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	Benzene 1-hr	Benzene Annual[1]	Toluene 1-hr	Toluene Annual[1]	E-Benzene 1-hr	E-Benzene Annual[1]	Xylenes 1-hr	Xylenes Annual[1]	n-Hexane 1-hr	n-Hexane Annual[1]	Formaldehyde 1-hr	Formaldehyde Annual[1]	
WOCMFUGD15	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD16	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD17	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD18	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD19	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD20	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD21	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD22	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD23	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD24	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD25	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD26	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD27	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD28	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD29	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD30	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD31	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD32	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD33	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
AIRMFUGD1	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
AIRMFUGD2	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
AIRMFUGD3	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
AIRMFUGD4	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
AIRMFUGD5	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
AIRMFUGD6	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
AIRMFUGD7	0.00E+00	0.00E+00	0.00E+00	2.79E-03	2.79E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCTEMPTRB1	4.41E-01	4.35E-01	4.35E-01	5.04E-02	5.04E-02	5.04E-02	5.06E-02	5.06E-02	5.06E-02	9.17E-05	9.17E-05	9.93E-04	9.93E-04	2.45E-04	2.45E-04	4.89E-04	4.89E-04	0.00E+00	0.00E+00	1.68E-03	1.68E-03	8760
WOCTEMPTRB2	4.41E-01	4.35E-01	4.35E-01	5.04E-02	5.04E-02	5.04E-02	5.06E-02	5.06E-02	5.06E-02	9.17E-05	9.17E-05	9.93E-04	9.93E-04	2.45E-04	2.45E-04	4.89E-04	4.89E-04	0.00E+00	0.00E+00	1.68E-03	1.68E-03	8760
RFDGMT1	3.50E-01	3.50E-01	2.69E+00	3.50E-01	3.50E-01	1.29E-01	1.67E-01	1.67E-01	1.67E-01	8.87E-03	8.87E-03	3.32E-03	3.32E-03	1.29E-02	1.29E-02	1.51E-02	1.51E-02	6.49E-02	6.49E-02	3.69E-03	3.69E-03	8760
RFDGMT2	4.06E+00	7.21E+00	7.34E-01	4.06E+00	6.44E-01	7.71E-02	1.40E-02	1.40E-02	6.33E-03	4.03E-04	4.03E-04	4.60E-04	4.60E-04	3.16E-04	3.16E-04	5.75E-04	5.75E-04	6.62E-03	6.62E-03	4.03E-04	4.03E-04	8760
RFDGWPDS1	1.25E+01	4.25E+00	4.25E+00	2.84E-01	2.84E-01	2.84E-01	3.87E-02	3.87E-02	3.87E-02	3.02E-03	3.02E-03	8.32E-03	8.32E-03	7.37E-02	7.37E-02	1.45E-01	1.45E-01	1.81E-01	1.81E-01	5.98E-05	5.98E-05	8760
RFDGWPDS2	1.25E+01	4.25E+00	4.25E+00	2.84E-01	2.84E-01	2.84E-01	3.87E-02	3.87E-02	3.87E-02	3.02E-03	3.02E-03	8.32E-03	8.32E-03	7.37E-02	7.37E-02	1.45E-01	1.45E-01	1.81E-01	1.81E-01	5.98E-05	5.98E-05	8760
RFDCD5	1.82E+00	2.15E+00	2.15E+00	1.27E-01	1.27E-01	1.27E-01	2.70E-01	2.70E-01	2.70E-01	6.26E-02	6.26E-02	2.31E-02	2.31E-02	5.05E-02	5.05E-02	6.60E-02	6.60E-02	2.54E-01	2.54E-01	1.73E-02	1.73E-02	8760

1. Annual emission rate calculations are based on the number of actual daily operating hours provided in the EI. If actual daily operating hour timeframes were not known, 8760 hours were assumed.

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A.2 Alternative C

A.2.1 Scenario 1: Construction

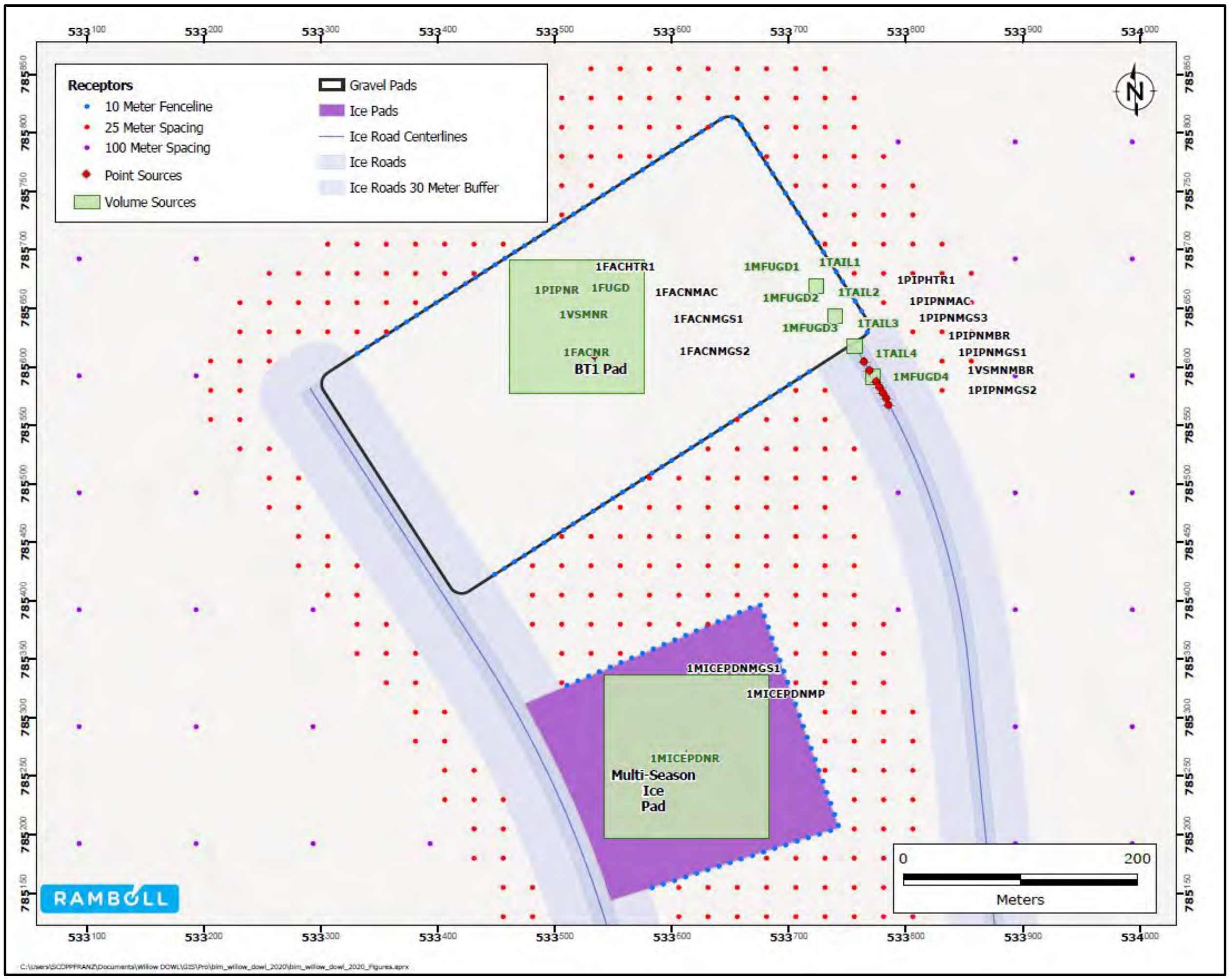

Figure A.2-1. Alternative C Near-field Model Scenario 1 Source Locations at BT1 with Ice Pad.

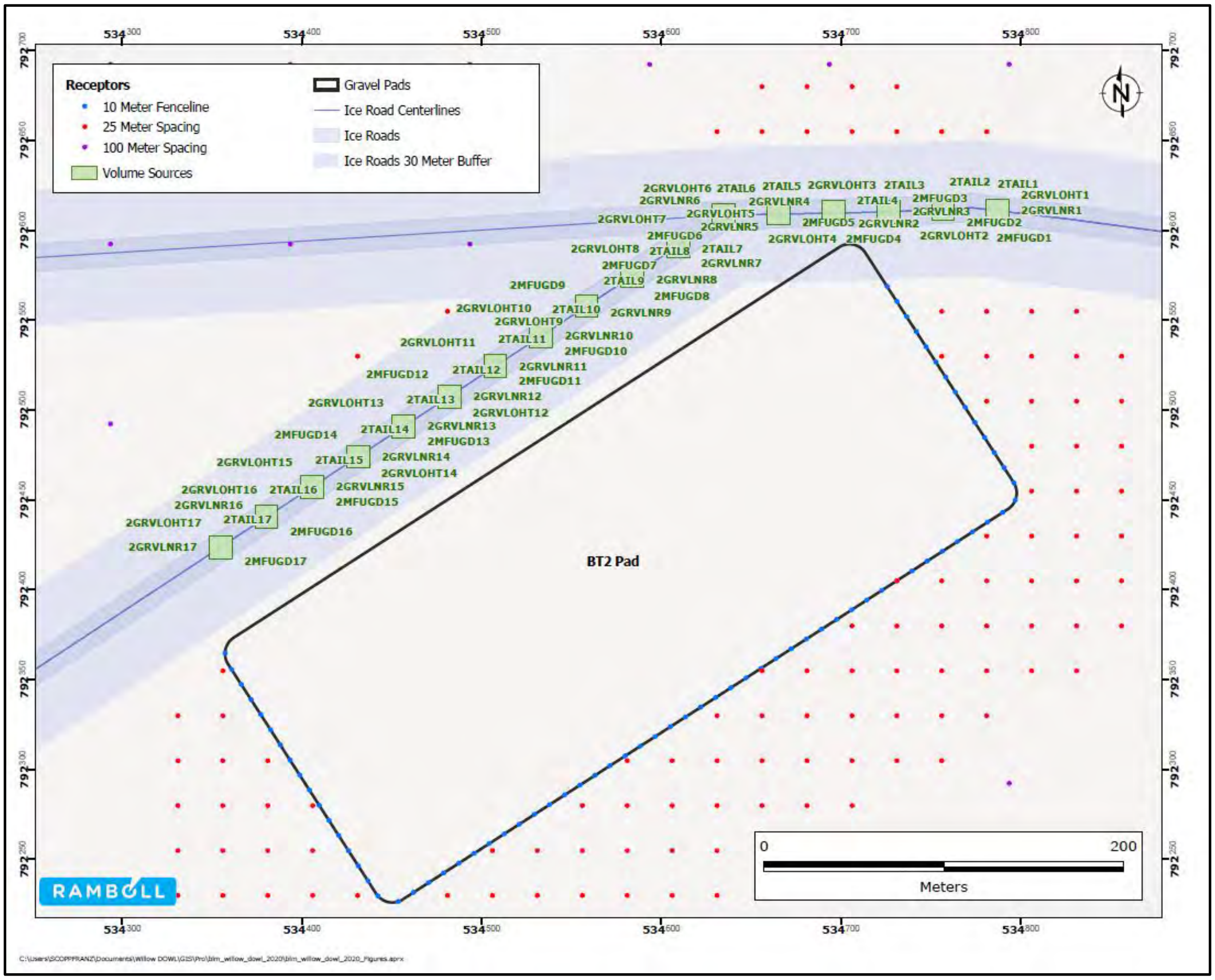

Figure A.2-2. Alternative C Near-field Model Scenario 1 Source Locations at BT2.

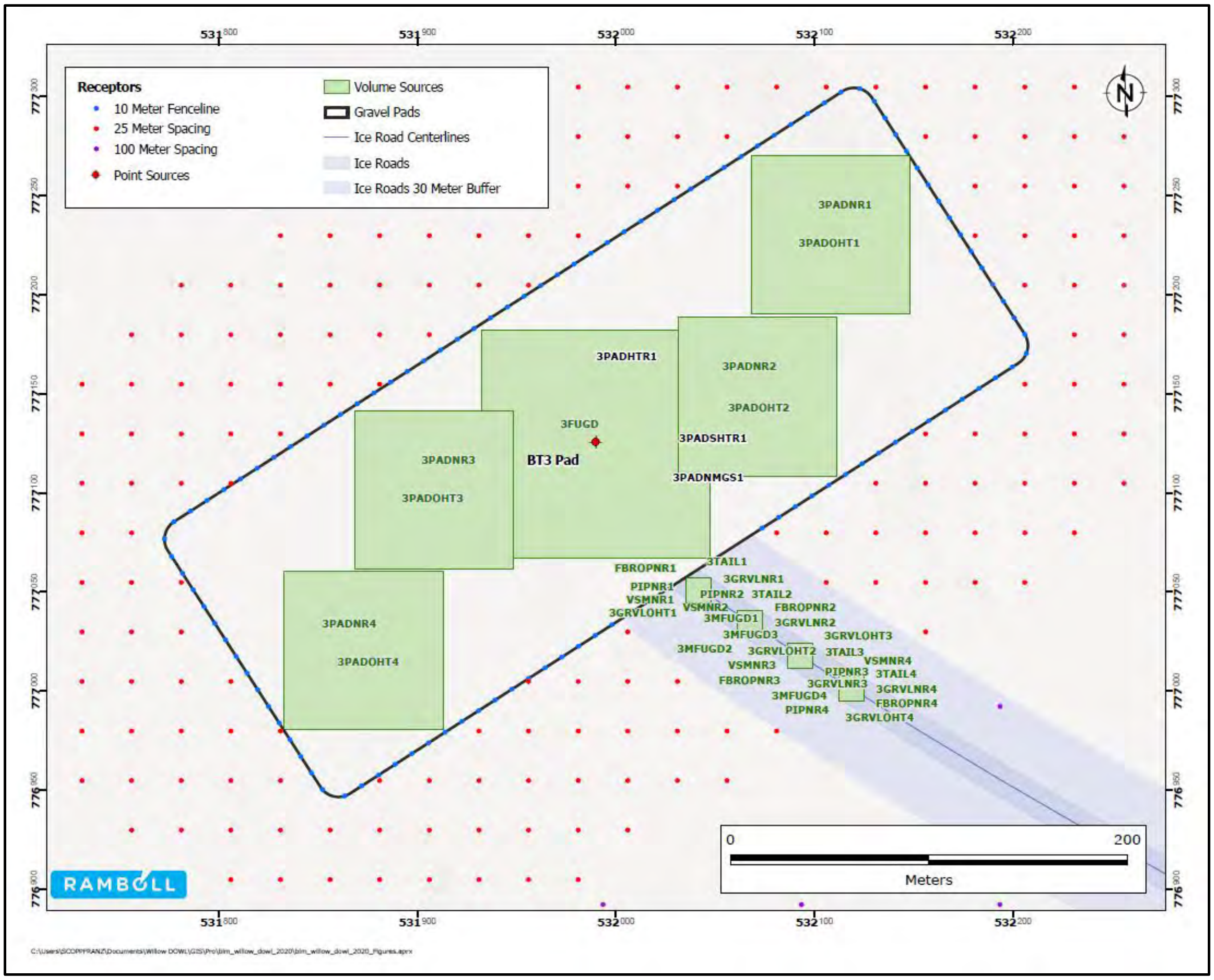

Figure A.2-3. Alternative C Near-field Model Scenario 1 Source Locations at BT3.

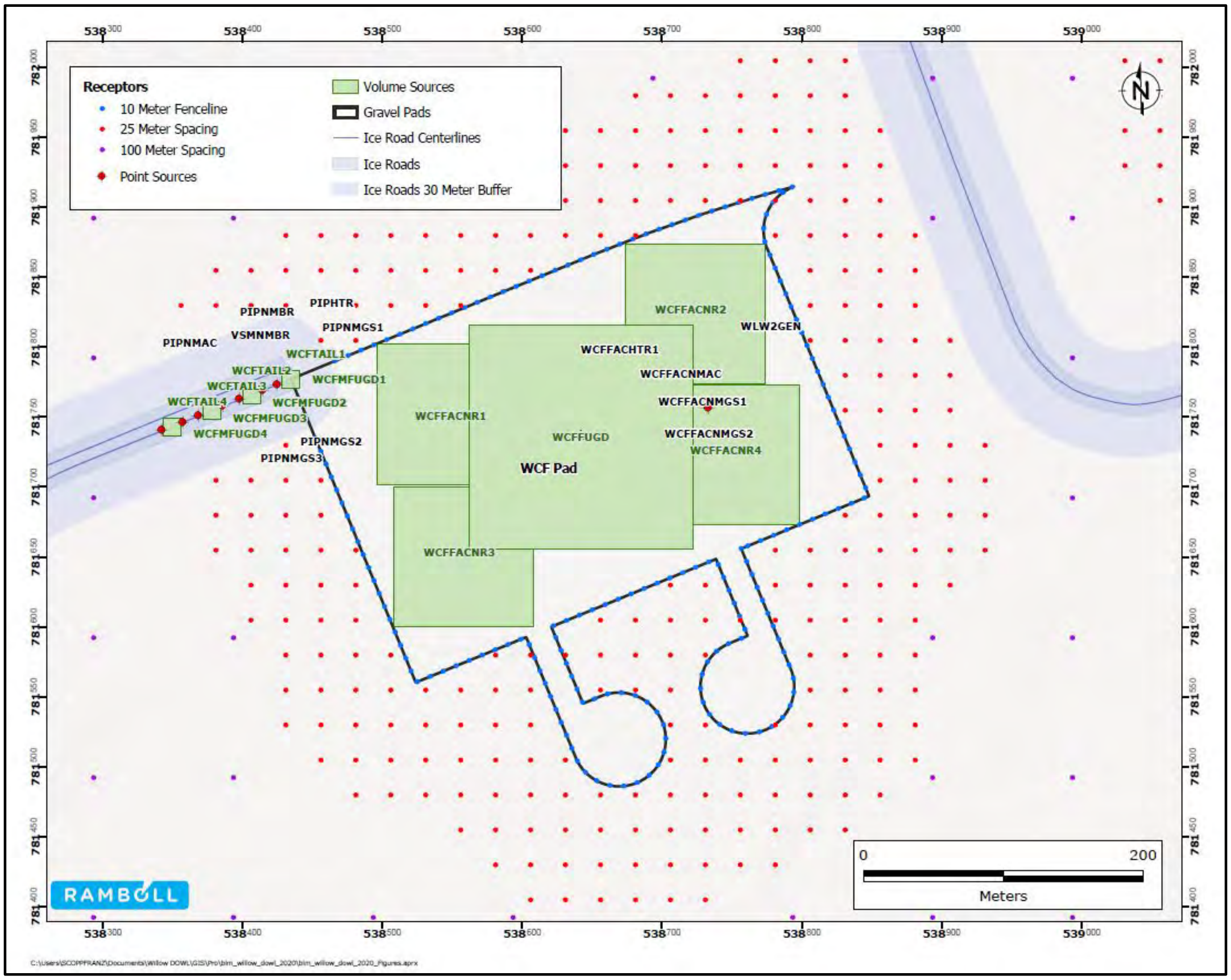

Figure A.2-4. Alternative C Near-field Model Scenario 1 Source Locations at WPF.

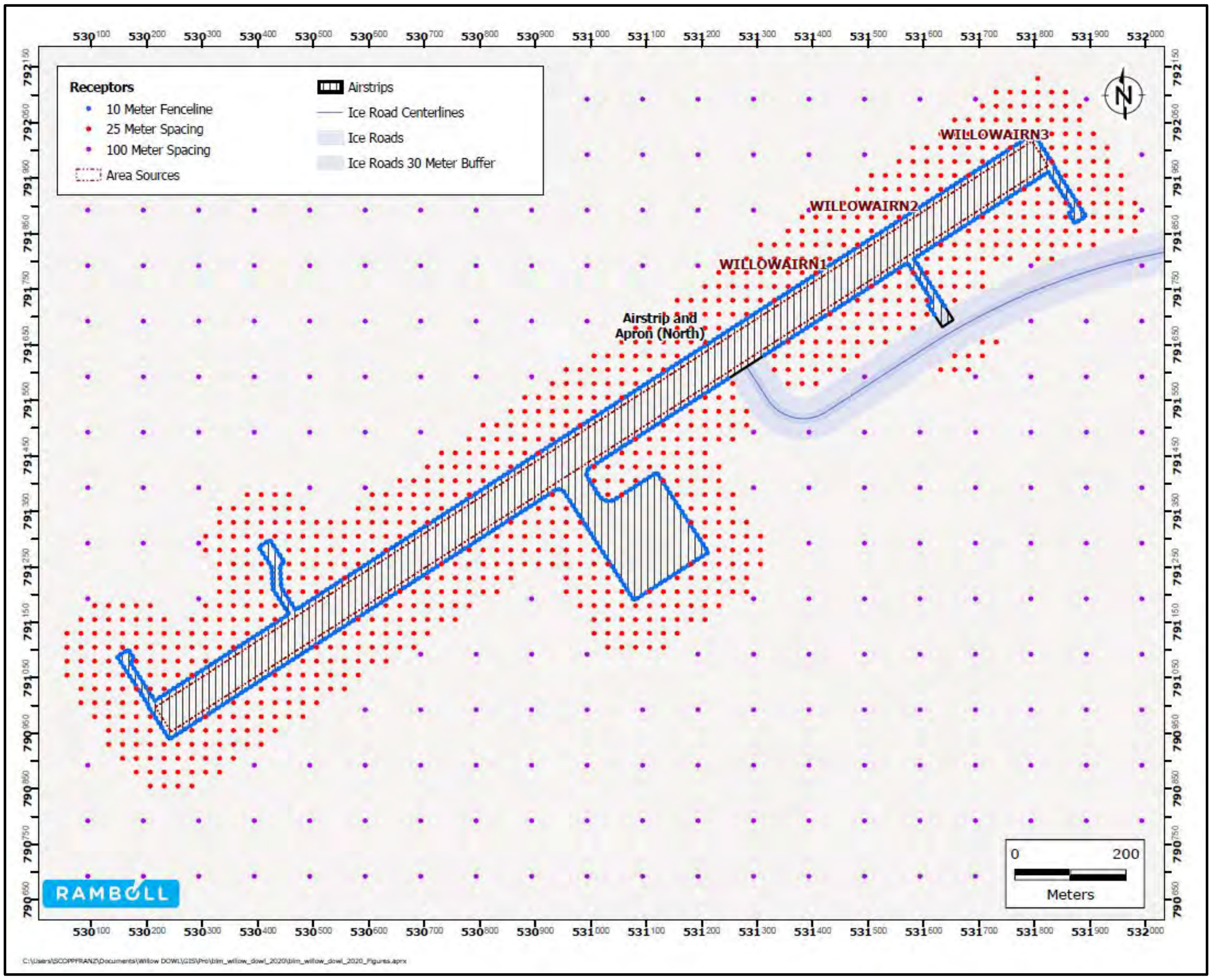

Figure A.2-5. Alternative C Near-field Model Scenario 1 Source Locations at North Airstrip.

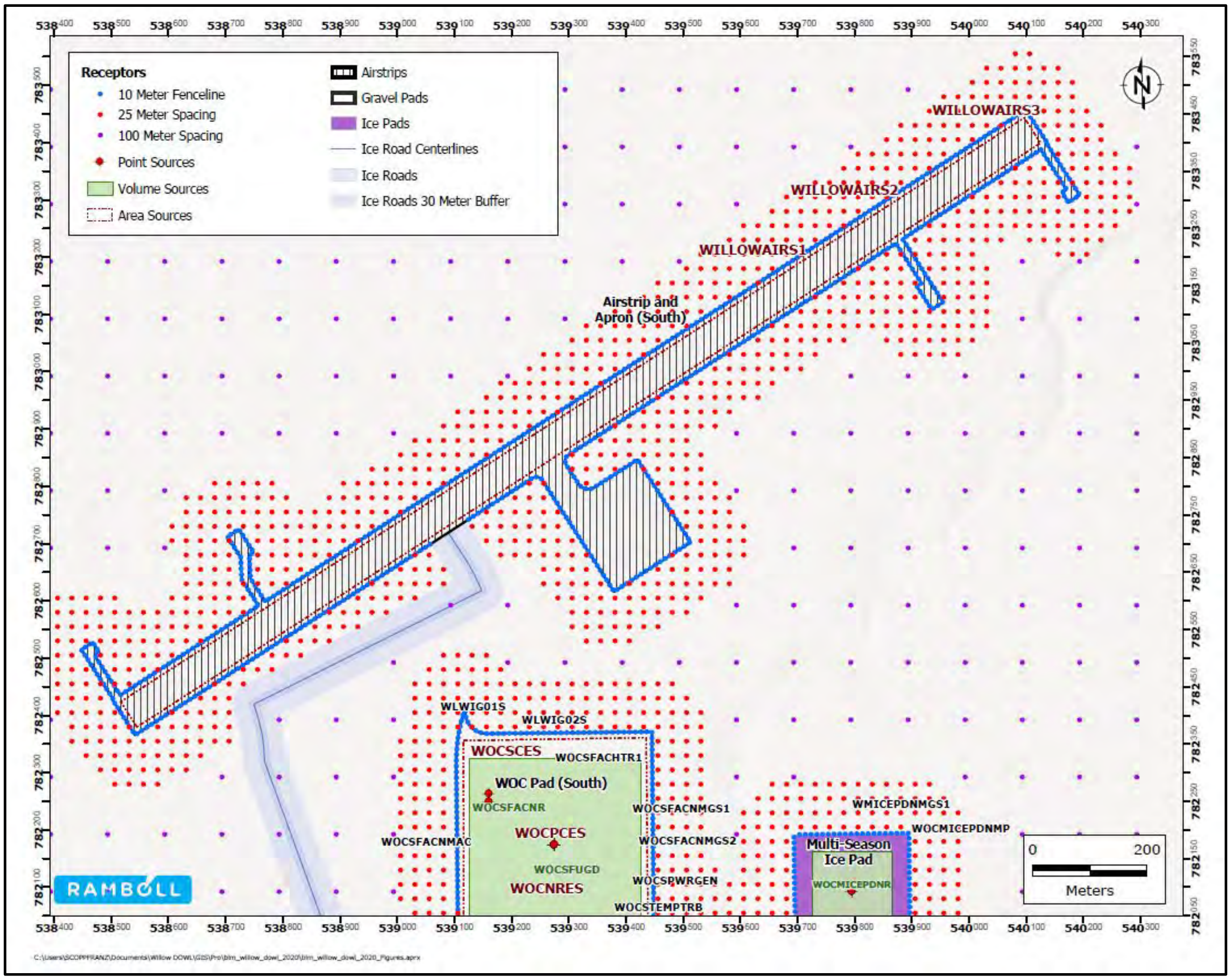

Figure A.2-6. Alternative C Near-field Model Scenario 1 Source Locations at South Airstrip/Willow Operations Center.

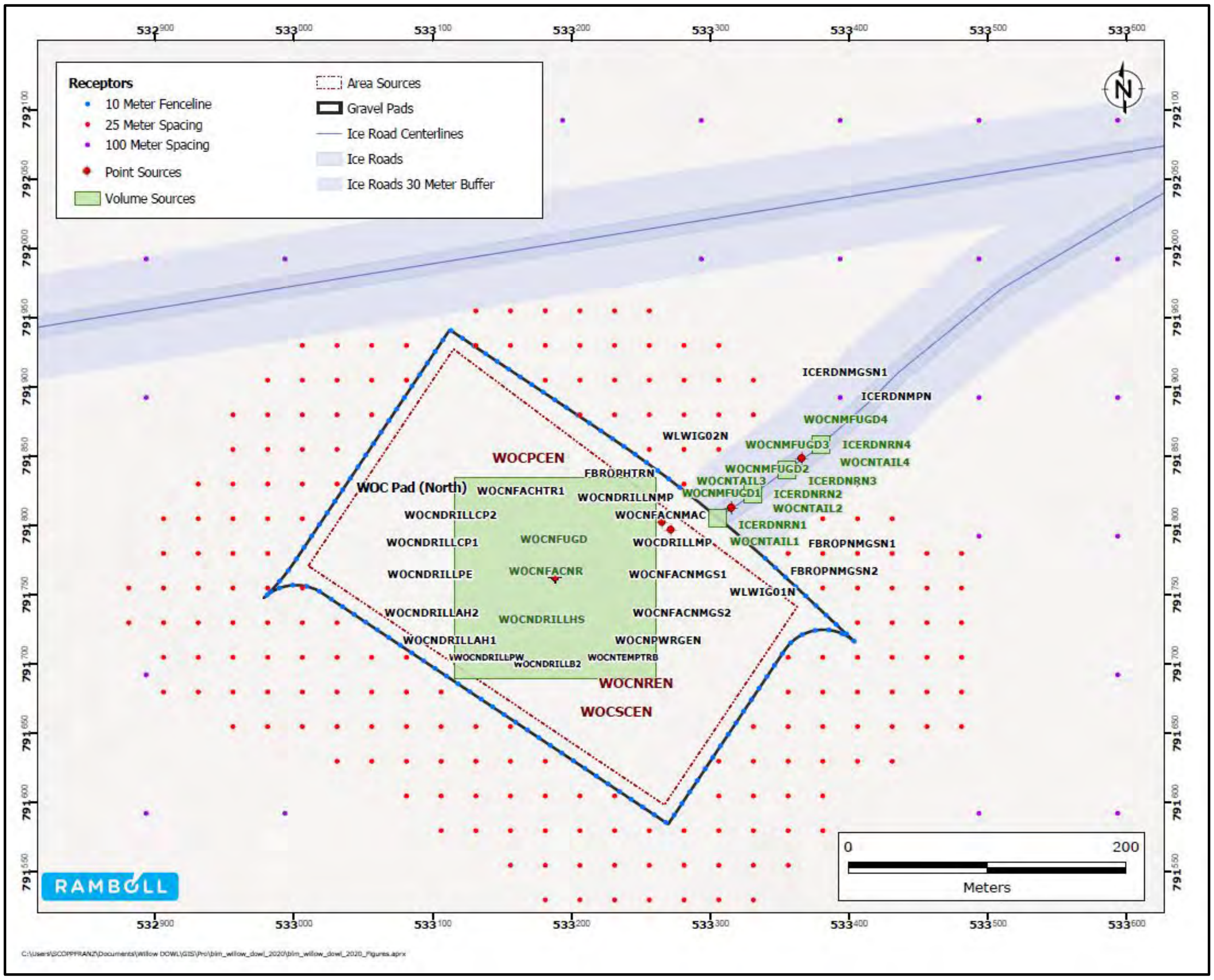

Figure A.2-7. Alternative C Near-field Model Scenario 1 Source Locations at WOC North.

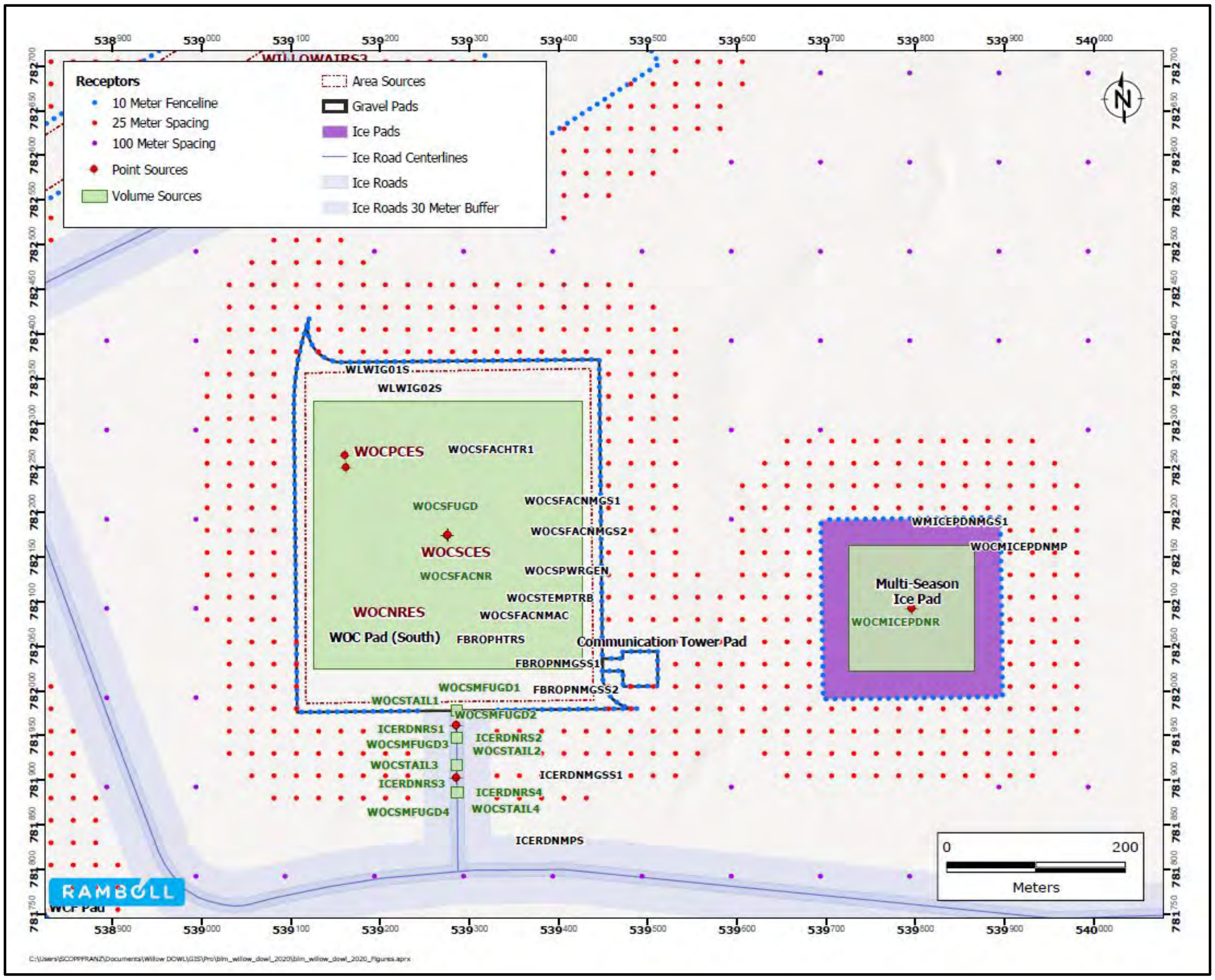

Figure A.2-8. Alternative C Near-field Model Scenario 1 Source Locations at WOC South.

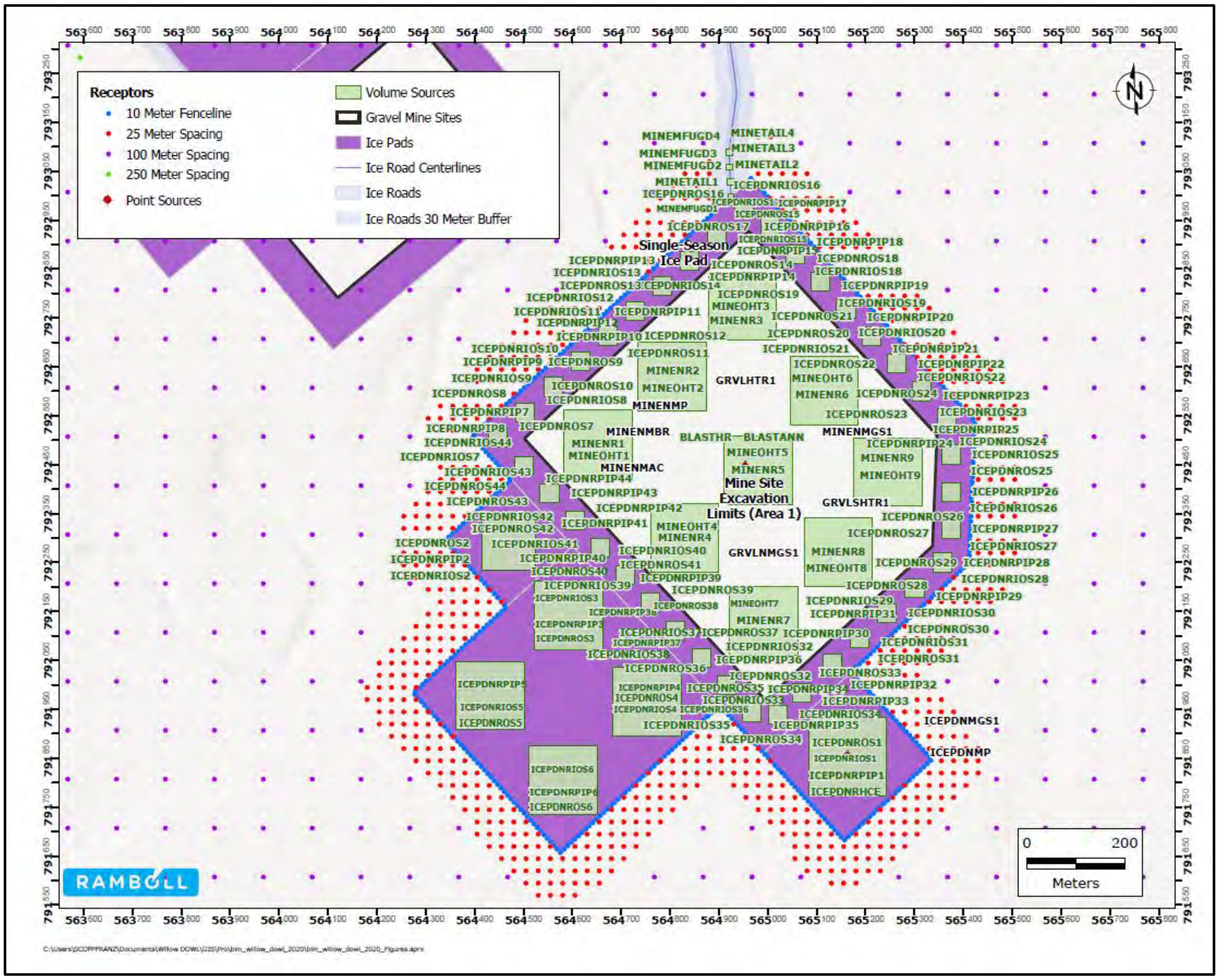

Figure A.2-9. Alternative C Near-field Model Scenario 1 Source Locations at Gravel Mine Site.

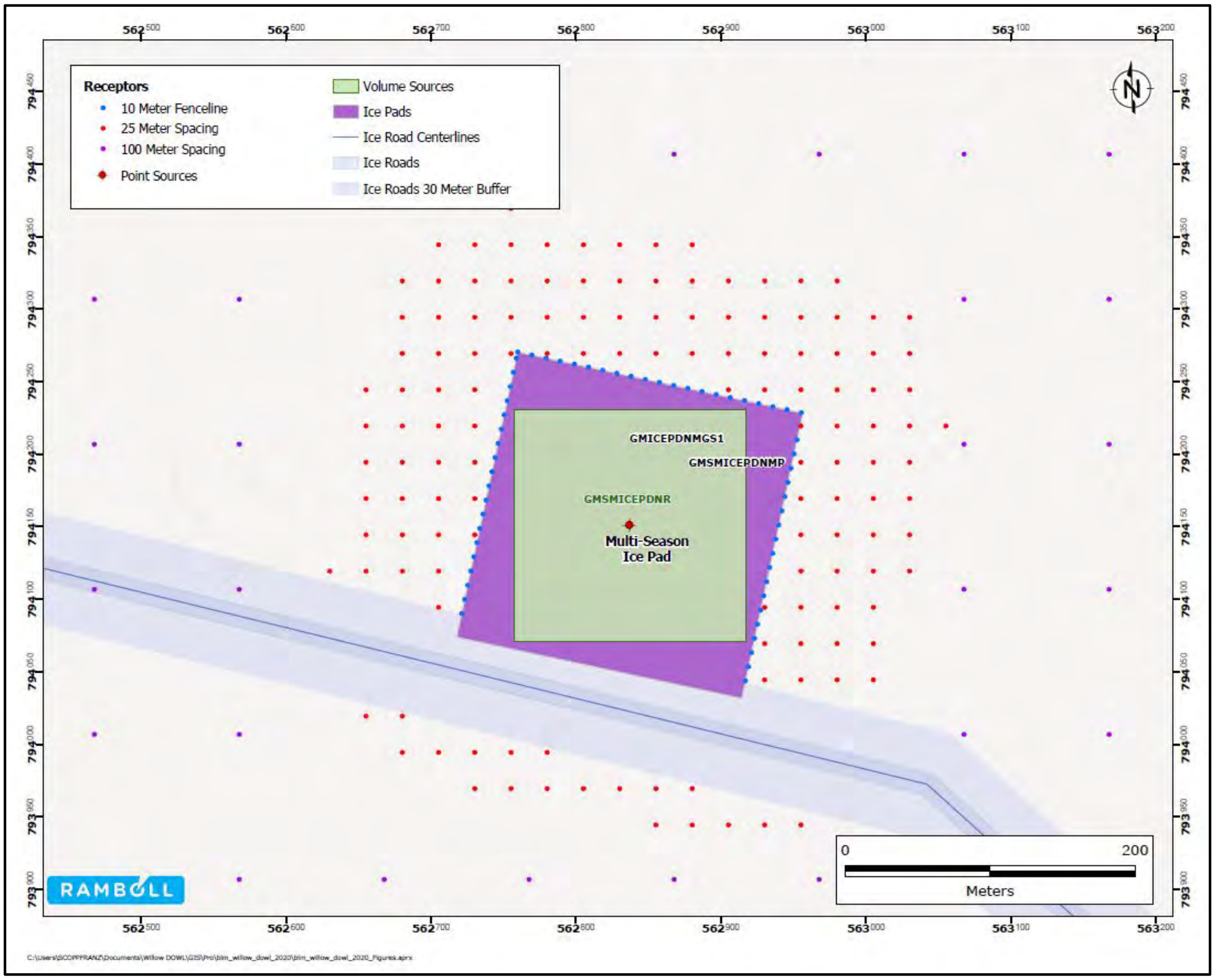

Figure A.2-10. Alternative C Near-field Model Scenario 1 Source Locations at Mine Camp.

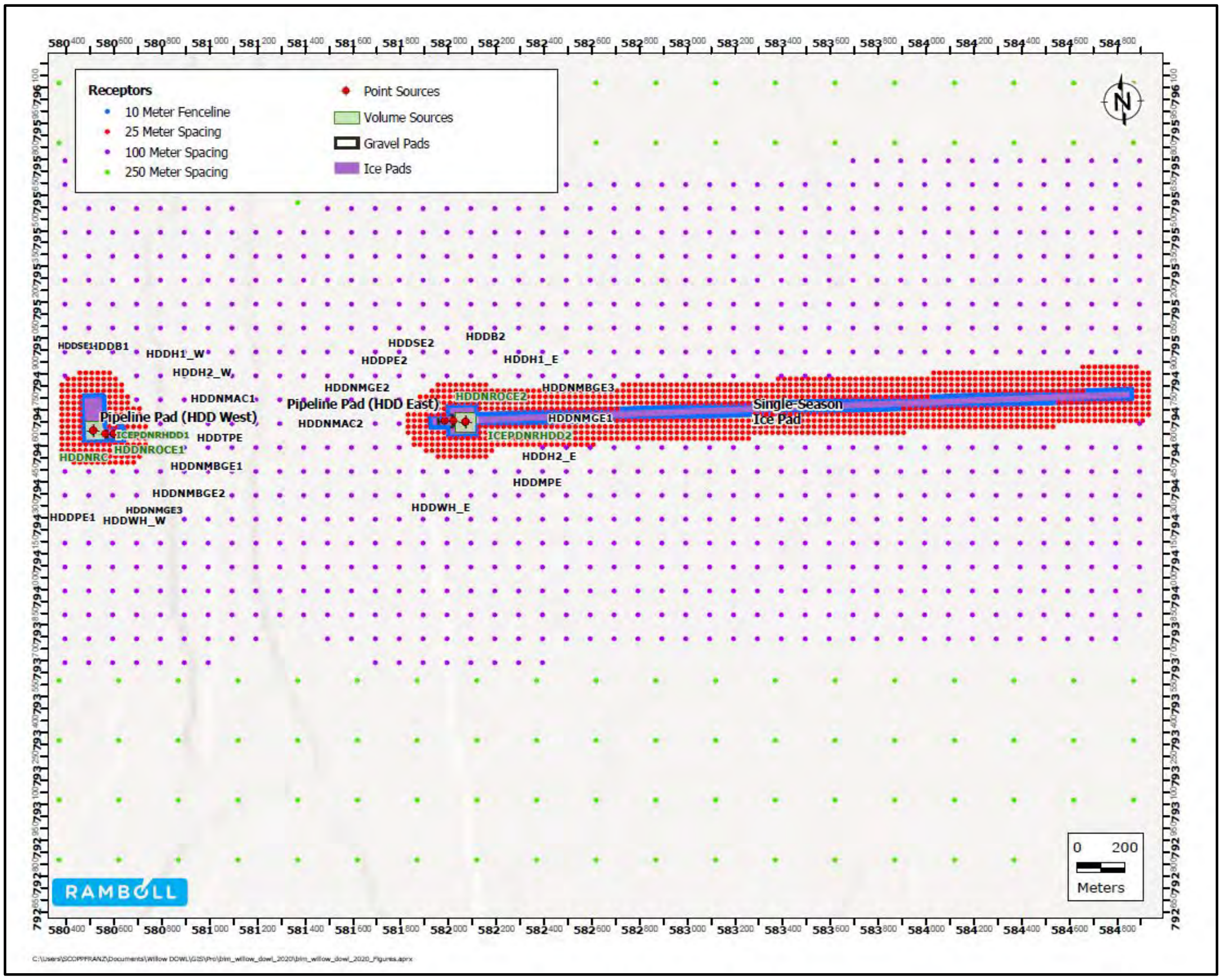

Figure A.2-11. Alternative C Near-field Model Scenario 1 Source Locations at HDD (wide view).

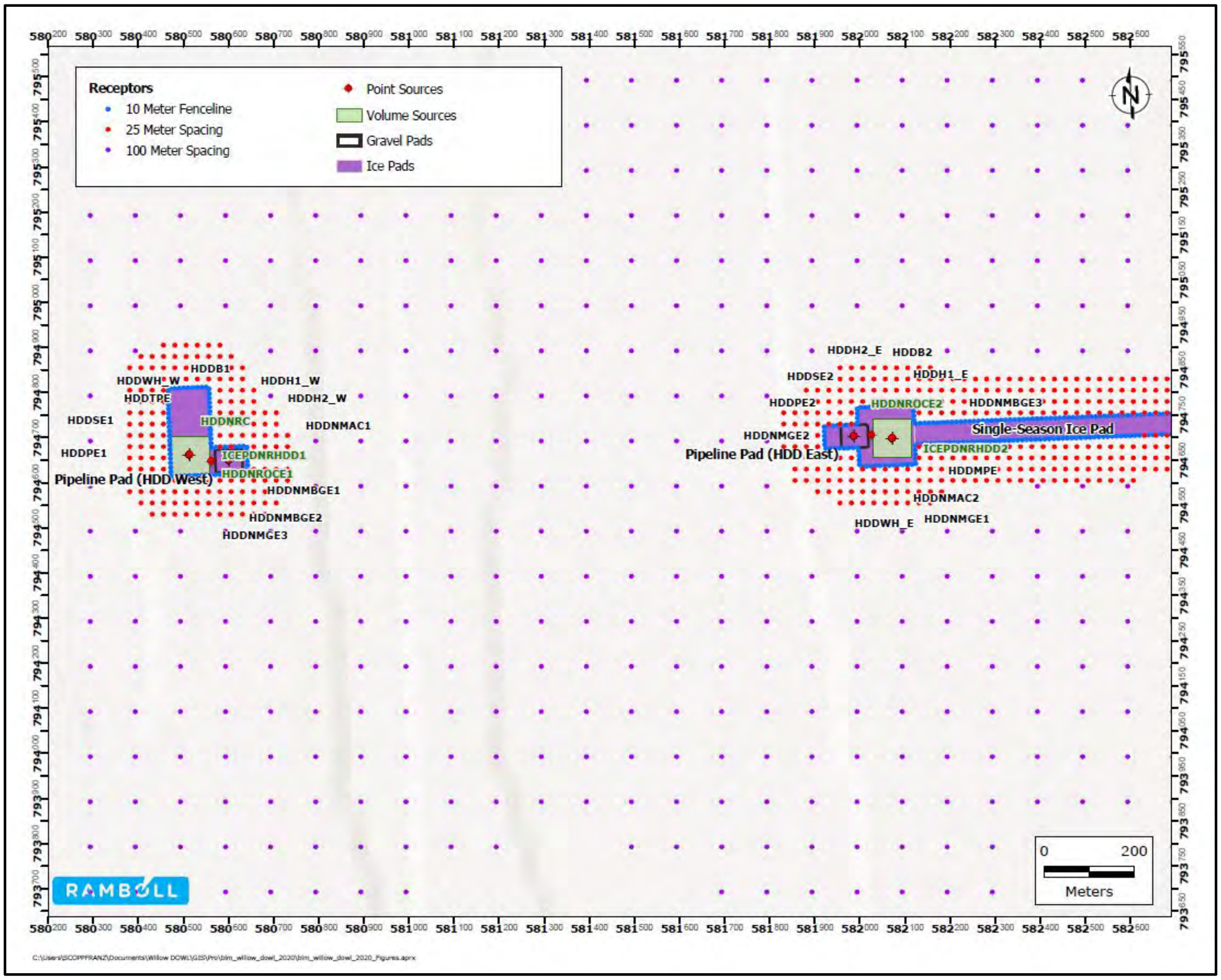

Figure A.2-12. Alternative C Near-field Model Scenario 1 Source Locations at HDD (close-up view).

Table A.2-1. Alternative C Near-field Model Scenario 1 Emissions Source Descriptions and In-stack Ratios

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
1FACHTR1	POINT	BT1 - Willow Facilities Installation - Construction Heaters	0.05	Diesel or natural gas heaters, or boiler
1FACNMAC	POINT	BT1 - Willow Facilities Installation - Air Compressors	0.1	Diesel engines
1FACNR	VOLUME	BT1 - Willow Facilities Installation - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
1FACNMGS1	POINT	BT1 - Willow Facilities Installation - Generator Sets	0.1	Diesel engines
1FACNMGS2	POINT	BT1 - Willow Facilities Installation - Generator Sets	0.1	Diesel engines
1PIPHTR1	POINT	BT1 - Pipeline Installation - Wellsite to WPF - Construction Heaters	0.05	Diesel or natural gas heaters, or boiler
1PIPNMAC	POINT	BT1 - Pipeline Installation - Wellsite to WPF - Air Compressors	0.1	Diesel engines
1PIPNR	VOLUME	BT1 - Pipeline Installation - Wellsite to WPF - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
1PIPNMBR	POINT	BT1 - Pipeline Installation - Wellsite to WPF - Bore/Drill Rigs	0.2	Diesel tailpipe from non-road equipment
1PIPNMGS1	POINT	BT1 - Pipeline Installation - Wellsite to WPF - Generator Sets	0.1	Diesel engines
1PIPNMGS2	POINT	BT1 - Pipeline Installation - Wellsite to WPF - Generator Sets	0.1	Diesel engines
1PIPNMGS3	POINT	BT1 - Pipeline Installation - Wellsite to WPF - Generator Sets	0.1	Diesel engines
1VSMNR	VOLUME	BT1 - Vertical Support Member (VSM) Construction - Wellsite to WPF - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
1VSMNMBR	POINT	BT1 - Vertical Support Member (VSM) Construction - Wellsite to WPF - Bore/Drill Rigs	0.2	Diesel tailpipe from non-road equipment
1FUGD	VOLUME	BT1 - Wind Erosion Fugitive Dust - Wind Erosion Fugitive Dust	-	-
3PADHTR1	POINT	BT3 - Pad Construction - Construction Heaters	0.05	Diesel or natural gas heaters, or boiler
3PADSHTR1	POINT	BT3 - Pad Construction - Construction Shop Heaters	0.05	Diesel or natural gas heaters, or boiler
3PADNMGS1	POINT	BT3 - Pad Construction - Generator Sets	0.1	Diesel engines
3FUGD	VOLUME	BT3 - Wind Erosion Fugitive Dust - Wind Erosion Fugitive Dust	-	-
ALPAIR1	AREAPOLY	Aircraft Activity (Alpine Airstrip) - Release Height 50.8m	0.5	USEPA default value
ALPAIR2	AREAPOLY	Aircraft Activity (Alpine Airstrip) - Release Height 152.4m	0.5	USEPA default value
ALPAIR3	AREAPOLY	Aircraft Activity (Alpine Airstrip) - Release Height 254m	0.5	USEPA default value
BDGHTR1	POINT	Bridge Installation - Construction Heater #1	0.05	Diesel or natural gas heaters, or boiler
BDGHTR2	POINT	Bridge Installation - Construction Heater #2	0.05	Diesel or natural gas heaters, or boiler
BDGNMAC1	POINT	Bridge Installation - Air Compressors	0.1	Diesel engines
BDGNMAC2	POINT	Bridge Installation - Air Compressors	0.1	Diesel engines
BDGNR	VOLUME	Bridge Installation - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
BDGNMBR	POINT	Bridge Installation - Bore/Drill Rigs	0.2	Diesel tailpipe from non-road equipment
BDGNMGS1	POINT	Bridge Installation - Generator Sets	0.1	Diesel engines
BDGNMGS2	POINT	Bridge Installation - Generator Sets	0.1	Diesel engines
MINENMAC	POINT	Gravel Mining - Air Compressors	0.1	Diesel engines
MINENMBR	POINT	Gravel Mining - Bore/Drill Rigs	0.2	Diesel tailpipe from non-road equipment
MINENMGS1	POINT	Gravel Mining - Generator Sets	0.1	Diesel engines
MINENMP	POINT	Gravel Mining - Pumps	0.2	Diesel tailpipe from non-road equipment
BLASTANN	VOLUME	Blasting Emissions - Blasting Long Term	0.5	USEPA default value
BLASTHR	VOLUME	Blasting Emissions - Blasting Short Term	0.5	USEPA default value
GRVLHTR1	POINT	Gravel Roads Construction - Construction Heaters	0.05	Diesel or natural gas heaters, or boiler
GRVLSHTR1	POINT	Gravel Roads Construction - Construction Shop Heaters	0.05	Diesel or natural gas heaters, or boiler
GRVLNMGS1	POINT	Gravel Roads Construction - Generator Sets	0.1	Diesel engines
ICERDNMGSS1	POINT	Seasonal Ice Road Construction - Generator Sets	0.1	Diesel engines
ICERDNMPS	POINT	Seasonal Ice Road Construction - Pumps	0.2	Diesel tailpipe from non-road equipment
ICERDNMGSN1	POINT	Seasonal Ice Road Construction - Generator Sets	0.1	Diesel engines
ICERDNMPN	POINT	Seasonal Ice Road Construction - Pumps	0.2	Diesel tailpipe from non-road equipment
ICEPDNMGS1	POINT	Single Season Ice Pad Construction - Generator Sets	0.1	Diesel engines
ICEPDNMP	POINT	Single Season Ice Pad Construction - Pumps	0.2	Diesel tailpipe from non-road equipment
1MICEPDNR	VOLUME	Multi-Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
1MICEPDNMGS1	POINT	Multi-Season Ice Pad Construction - Generator Sets	0.1	Diesel engines
1MICEPDNMP	POINT	Multi-Season Ice Pad Construction - Pumps	0.2	Diesel tailpipe from non-road equipment
WOCMICEPDNR	VOLUME	Multi-Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
WMICEPDNMGS1	POINT	Multi-Season Ice Pad Construction - Generator Sets	0.1	Diesel engines
WOCMICEPDNMP	POINT	Multi-Season Ice Pad Construction - Pumps	0.2	Diesel tailpipe from non-road equipment
GMSMICEPDNR	VOLUME	Multi-Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
GMICEPDNMGS1	POINT	Multi-Season Ice Pad Construction - Generator Sets	0.1	Diesel engines
GMSMICEPDNMP	POINT	Multi-Season Ice Pad Construction - Pumps	0.2	Diesel tailpipe from non-road equipment
FBROPHTRN	POINT	Fiber Optic Line Installation - Construction Heaters	0.05	Diesel or natural gas heaters, or boiler
FBROPNMGSN1	POINT	Fiber Optic Line Installation - Generator Sets	0.1	Diesel engines
FBROPNMGSN2	POINT	Fiber Optic Line Installation - Generator Sets	0.1	Diesel engines
FBROPHTRS	POINT	Fiber Optic Line Installation - Construction Heaters	0.05	Diesel or natural gas heaters, or boiler
FBROPNMGSS1	POINT	Fiber Optic Line Installation - Generator Sets	0.1	Diesel engines

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
FBROPNMGSS2	POINT	Fiber Optic Line Installation - Generator Sets	0.1	Diesel engines
PIPHTR	POINT	Pipeline Installation - Construction Heaters	0.05	Diesel or natural gas heaters, or boiler
PIPNMAC	POINT	Pipeline Installation - Air Compressors	0.1	Diesel engines
PIPNMBR	POINT	Pipeline Installation - Bore/Drill Rigs	0.2	Diesel tailpipe from non-road equipment
PIPNMGS1	POINT	Pipeline Installation - Generator Sets	0.1	Diesel engines
PIPNMGS2	POINT	Pipeline Installation - Generator Sets	0.1	Diesel engines
PIPNMGS3	POINT	Pipeline Installation - Generator Sets	0.1	Diesel engines
VSMNMBR	POINT	Vertical Support Member Construction - Bore/Drill Rigs	0.2	Diesel tailpipe from non-road equipment
HDDPE1	POINT	Boring Equipment - Primary Power Engine #1	0.2	Diesel tailpipe from non-road equipment
HDDPE2	POINT	Boring Equipment - Primary Power Engine #2	0.2	Diesel tailpipe from non-road equipment
HDDSE1	POINT	Boring Equipment - Secondary Power Engine #1	0.2	Diesel tailpipe from non-road equipment
HDDSE2	POINT	Boring Equipment - Secondary Power Engine #2	0.2	Diesel tailpipe from non-road equipment
HDDMPE	POINT	Boring Equipment - Mud Pump Engine	0.2	Diesel tailpipe from non-road equipment
HDDTPE	POINT	Boring Equipment - Transfer Pump Engine	0.2	Diesel tailpipe from non-road equipment
HDDB1	POINT	Boring Equipment - Boiler #1	0.05	Diesel or natural gas heaters, or boiler
HDDB2	POINT	Boring Equipment - Boiler #2	0.05	Diesel or natural gas heaters, or boiler
HDDH1_W	POINT	Boring Equipment - Heater #1 - West	0.1	Diesel engines
HDDH1_E	POINT	Boring Equipment - Heater #1 - East	0.1	Diesel engines
HDDH2_W	POINT	Boring Equipment - Heater #2 - West	0.1	Diesel engines
HDDH2_E	POINT	Boring Equipment - Heater #2 - East	0.1	Diesel engines
HDDWH_W	POINT	Boring Equipment - Water Heater - West	0.1	Diesel engines
HDDWH_E	POINT	Boring Equipment - Water Heater - East	0.1	Diesel engines
HDDNMGE1	POINT	Non-Mobile Support Equipment - Generator Sets	0.1	Diesel engines
HDDNMGE2	POINT	Non-Mobile Support Equipment - Generator Sets	0.1	Diesel engines
HDDNMGE3	POINT	Non-Mobile Support Equipment - Generator Sets	0.1	Diesel engines
HDDNMBGE1	POINT	Non-Mobile Support Equipment - Backup Generator Sets	0.1	Diesel engines
HDDNMBGE2	POINT	Non-Mobile Support Equipment - Backup Generator Sets	0.1	Diesel engines
HDDNMBGE3	POINT	Non-Mobile Support Equipment - Backup Generator Sets	0.1	Diesel engines
HDDNMAC1	POINT	Non-Mobile Support Equipment - Air Compressors #1	0.1	Diesel engines
HDDNMAC2	POINT	Non-Mobile Support Equipment - Air Compressors #2	0.1	Diesel engines
HDDNROCE1	VOLUME	Non-Mobile Support Equipment - Other Construction Equipment #1	0.2	Diesel tailpipe from non-road equipment

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
HDDNROCE2	VOLUME	Non-Mobile Support Equipment - Other Construction Equipment #2	0.2	Diesel tailpipe from non-road equipment
HDDNRC	VOLUME	Non-Mobile Support Equipment - Cranes	0.2	Diesel tailpipe from non-road equipment
WOCSPWRGEN	POINT	All - Power Generation	0.1	Diesel engines
WOCSTEMPTRB	POINT	All - Power Generation Turbine	0.3	Natural gas-fired turbines
WOCSFACHTR1	POINT	Facilities Installation-WOC - Heaters	0.05	Diesel or natural gas heaters, or boiler
WOCSFACNMAC	POINT	Facilities Installation-WOC - Air Compressors	0.1	Diesel engines
WOCSFACNR	VOLUME	Facilities Installation-WOC - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
WOCSFACNMGS1	POINT	Facilities Installation-WOC - Generator Sets	0.1	Diesel engines
WOCSFACNMGS2	POINT	Facilities Installation-WOC - Generator Sets	0.1	Diesel engines
WCFFACHTR1	POINT	Facilities Installation-WPF - Heaters	0.05	Diesel or natural gas heaters, or boiler
WCFFACNMAC	POINT	Facilities Installation-WPF - Air Compressors	0.1	Diesel engines
WCFFACNMGS1	POINT	Facilities Installation-WPF - Generator Sets	0.1	Diesel engines
WCFFACNMGS2	POINT	Facilities Installation-WPF - Generator Sets	0.1	Diesel engines
WCFFUGD	VOLUME	Construction Fugitive Dust-WPF - Wind Erosion Fugitive Dust	-	-
WILLOWAIRS1	AREAPOLY	Aircraft Activity (Willow Airstrip) - Release Height 50.8m	0.5	USEPA default value
WILLOWAIRS2	AREAPOLY	Aircraft Activity (Willow Airstrip) - Release Height 152.4m	0.5	USEPA default value
WILLOWAIRS3	AREAPOLY	Aircraft Activity (Willow Airstrip) - Release Height 254m	0.5	USEPA default value
2TAIL1	VOLUME	Mobile Support Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL2	VOLUME	Mobile Support Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL3	VOLUME	Mobile Support Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL4	VOLUME	Mobile Support Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL5	VOLUME	Mobile Support Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL6	VOLUME	Mobile Support Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL7	VOLUME	Mobile Support Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL8	VOLUME	Mobile Support Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL9	VOLUME	Mobile Support Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL10	VOLUME	Mobile Support Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL11	VOLUME	Mobile Support Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL12	VOLUME	Mobile Support Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL13	VOLUME	Mobile Support Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL14	VOLUME	Mobile Support Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
2TAIL15	VOLUME	Mobile Support Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL16	VOLUME	Mobile Support Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL17	VOLUME	Mobile Support Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
3TAIL1	VOLUME	Mobile Support Equipment Tailpipe - BT3	0.15	Diesel tailpipe from on-road vehicles
3TAIL2	VOLUME	Mobile Support Equipment Tailpipe - BT3	0.15	Diesel tailpipe from on-road vehicles
3TAIL3	VOLUME	Mobile Support Equipment Tailpipe - BT3	0.15	Diesel tailpipe from on-road vehicles
3TAIL4	VOLUME	Mobile Support Equipment Tailpipe - BT3	0.15	Diesel tailpipe from on-road vehicles
1TAIL1	VOLUME	Mobile Support Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL2	VOLUME	Mobile Support Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL3	VOLUME	Mobile Support Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL4	VOLUME	Mobile Support Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL1	VOLUME	Mobile Support Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL2	VOLUME	Mobile Support Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL3	VOLUME	Mobile Support Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL4	VOLUME	Mobile Support Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL1	VOLUME	Mobile Support Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL2	VOLUME	Mobile Support Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL3	VOLUME	Mobile Support Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL4	VOLUME	Mobile Support Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
MINETAIL1	VOLUME	Mobile Support Equipment Tailpipe - MINE	0.15	Diesel tailpipe from on-road vehicles
MINETAIL2	VOLUME	Mobile Support Equipment Tailpipe - MINE	0.15	Diesel tailpipe from on-road vehicles
MINETAIL3	VOLUME	Mobile Support Equipment Tailpipe - MINE	0.15	Diesel tailpipe from on-road vehicles
MINETAIL4	VOLUME	Mobile Support Equipment Tailpipe - MINE	0.15	Diesel tailpipe from on-road vehicles
1MFUGD1	VOLUME	Mobile Support Equipment Fugitive Dust - BT1	-	-
1MFUGD2	VOLUME	Mobile Support Equipment Fugitive Dust - BT1	-	-
1MFUGD3	VOLUME	Mobile Support Equipment Fugitive Dust - BT1	-	-
1MFUGD4	VOLUME	Mobile Support Equipment Fugitive Dust - BT1	-	-
2MFUGD1	VOLUME	Mobile Support Equipment Fugitive Dust - BT2	-	-
2MFUGD2	VOLUME	Mobile Support Equipment Fugitive Dust - BT2	-	-
2MFUGD3	VOLUME	Mobile Support Equipment Fugitive Dust - BT2	-	-
2MFUGD4	VOLUME	Mobile Support Equipment Fugitive Dust - BT2	-	-
2MFUGD5	VOLUME	Mobile Support Equipment Fugitive Dust - BT2	-	-

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
2MFUGD6	VOLUME	Mobile Support Equipment Fugitive Dust - BT2	-	-
2MFUGD7	VOLUME	Mobile Support Equipment Fugitive Dust - BT2	-	-
2MFUGD8	VOLUME	Mobile Support Equipment Fugitive Dust - BT2	-	-
2MFUGD9	VOLUME	Mobile Support Equipment Fugitive Dust - BT2	-	-
2MFUGD10	VOLUME	Mobile Support Equipment Fugitive Dust - BT2	-	-
2MFUGD11	VOLUME	Mobile Support Equipment Fugitive Dust - BT2	-	-
2MFUGD12	VOLUME	Mobile Support Equipment Fugitive Dust - BT2	-	-
2MFUGD13	VOLUME	Mobile Support Equipment Fugitive Dust - BT2	-	-
2MFUGD14	VOLUME	Mobile Support Equipment Fugitive Dust - BT2	-	-
2MFUGD15	VOLUME	Mobile Support Equipment Fugitive Dust - BT2	-	-
2MFUGD16	VOLUME	Mobile Support Equipment Fugitive Dust - BT2	-	-
2MFUGD17	VOLUME	Mobile Support Equipment Fugitive Dust - BT3	-	-
3MFUGD1	VOLUME	Mobile Support Equipment Fugitive Dust - BT3	-	-
3MFUGD2	VOLUME	Mobile Support Equipment Fugitive Dust - BT3	-	-
3MFUGD3	VOLUME	Mobile Support Equipment Fugitive Dust - BT3	-	-
3MFUGD4	VOLUME	Mobile Support Equipment Fugitive Dust - BT3	-	-
WCFMFUGD1	VOLUME	Mobile Support Equipment Fugitive Dust - WPF	-	-
WCFMFUGD2	VOLUME	Mobile Support Equipment Fugitive Dust - WPF	-	-
WCFMFUGD3	VOLUME	Mobile Support Equipment Fugitive Dust - WPF	-	-
WCFMFUGD4	VOLUME	Mobile Support Equipment Fugitive Dust - WPF	-	-
WOCSMFUGD1	VOLUME	Mobile Support Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD2	VOLUME	Mobile Support Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD3	VOLUME	Mobile Support Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD4	VOLUME	Mobile Support Equipment Fugitive Dust - WOC	-	-
MINEMFUGD1	VOLUME	Mobile Support Equipment Fugitive Dust - MINE	-	-
MINEMFUGD2	VOLUME	Mobile Support Equipment Fugitive Dust - MINE	-	-
MINEMFUGD3	VOLUME	Mobile Support Equipment Fugitive Dust - MINE	-	-
MINEMFUGD4	VOLUME	Mobile Support Equipment Fugitive Dust - MINE	-	-
2GRVLNR1	VOLUME	Gravel Roads Construction - BT2 Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
2GRVLNR2	VOLUME	Gravel Roads Construction - BT2 Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
2GRVLNR3	VOLUME	Gravel Roads Construction - BT2 Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
2GRVLNR4	VOLUME	Gravel Roads Construction - BT2 Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
2GRVLNR5	VOLUME	Gravel Roads Construction - BT2 Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
2GRVLNR6	VOLUME	Gravel Roads Construction - BT2 Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
2GRVLNR7	VOLUME	Gravel Roads Construction - BT2 Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
2GRVLNR8	VOLUME	Gravel Roads Construction - BT2 Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
2GRVLNR9	VOLUME	Gravel Roads Construction - BT2 Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
2GRVLNR10	VOLUME	Gravel Roads Construction - BT2 Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
2GRVLNR11	VOLUME	Gravel Roads Construction - BT2 Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
2GRVLNR12	VOLUME	Gravel Roads Construction - BT2 Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
2GRVLNR13	VOLUME	Gravel Roads Construction - BT2 Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
2GRVLNR14	VOLUME	Gravel Roads Construction - BT2 Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
2GRVLNR15	VOLUME	Gravel Roads Construction - BT2 Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
2GRVLNR16	VOLUME	Gravel Roads Construction - BT2 Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
2GRVLNR17	VOLUME	Gravel Roads Construction - BT2 Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
3GRVLNR1	VOLUME	Gravel Roads Construction - BT3 Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
3GRVLNR2	VOLUME	Gravel Roads Construction - BT3 Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
3GRVLNR3	VOLUME	Gravel Roads Construction - BT3 Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
3GRVLNR4	VOLUME	Gravel Roads Construction - BT3 Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRHCE	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS1	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS2	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS3	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS4	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS5	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS6	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS7	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS8	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS9	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS10	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS11	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS12	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS13	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS14	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
ICEPDNROS15	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS16	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS17	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS18	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS19	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS20	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS21	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS22	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS23	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS24	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS25	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS26	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS27	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS28	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS29	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS30	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS31	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS32	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS33	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS34	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS35	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS36	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS37	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS38	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS39	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS40	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS41	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS42	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS43	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS44	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS1	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS2	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
ICEPDNRIOS3	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS4	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS5	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS6	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS7	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS8	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS9	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS10	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS11	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS12	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS13	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS14	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS15	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS16	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS17	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS18	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS19	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS20	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS21	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS22	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS23	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS24	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS25	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS26	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS27	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS28	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS29	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS30	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS31	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS32	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS33	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS34	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
ICEPDNRIOS35	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS36	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS37	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS38	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS39	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS40	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS41	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS42	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS43	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS44	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP1	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP2	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP3	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP4	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP5	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP6	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP7	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP8	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP9	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP10	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP11	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP12	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP13	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP14	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP15	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP16	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP17	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP18	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP19	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP20	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP21	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP22	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
ICEPDNRPIP23	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP24	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP25	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP26	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP27	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP28	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP29	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP30	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP31	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP32	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP33	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP34	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP35	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP36	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP37	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP38	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP39	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP40	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP41	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP42	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP43	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP44	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRHDD1	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRHDD2	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICERDNRS1	VOLUME	Seasonal Ice Road Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICERDNRS2	VOLUME	Seasonal Ice Road Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICERDNRS3	VOLUME	Seasonal Ice Road Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICERDNRS4	VOLUME	Seasonal Ice Road Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICERDNRN1	VOLUME	Seasonal Ice Road Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICERDNRN2	VOLUME	Seasonal Ice Road Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICERDNRN3	VOLUME	Seasonal Ice Road Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICERDNRN4	VOLUME	Seasonal Ice Road Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
PIPNR1	VOLUME	Pipeline Installation - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
PIPNR2	VOLUME	Pipeline Installation - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
PIPNR3	VOLUME	Pipeline Installation - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
PIPNR4	VOLUME	Pipeline Installation - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
VSMNR1	VOLUME	Vertical Support Member Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
VSMNR2	VOLUME	Vertical Support Member Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
VSMNR3	VOLUME	Vertical Support Member Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
VSMNR4	VOLUME	Vertical Support Member Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
FBROPNR1	VOLUME	Fiber Optic Line Installation - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
FBROPNR2	VOLUME	Fiber Optic Line Installation - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
FBROPNR3	VOLUME	Fiber Optic Line Installation - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
FBROPNR4	VOLUME	Fiber Optic Line Installation - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
3PADNR1	VOLUME	BT3 - Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
3PADNR2	VOLUME	BT3 - Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
3PADNR3	VOLUME	BT3 - Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
3PADNR4	VOLUME	BT3 - Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
MINENR1	VOLUME	Gravel Mining - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
MINENR2	VOLUME	Gravel Mining - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
MINENR3	VOLUME	Gravel Mining - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
MINENR4	VOLUME	Gravel Mining - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
MINENR5	VOLUME	Gravel Mining - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
MINENR6	VOLUME	Gravel Mining - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
MINENR7	VOLUME	Gravel Mining - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
MINENR8	VOLUME	Gravel Mining - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
MINENR9	VOLUME	Gravel Mining - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
3PADOHT1	VOLUME	BT3 - Pad Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
3PADOHT2	VOLUME	BT3 - Pad Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
3PADOHT3	VOLUME	BT3 - Pad Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
3PADOHT4	VOLUME	BT3 - Pad Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
2GRVLOHT1	VOLUME	Gravel Roads Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
2GRVLOHT2	VOLUME	Gravel Roads Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
2GRVLOHT3	VOLUME	Gravel Roads Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
2GRVLOHT4	VOLUME	Gravel Roads Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
2GRVLOHT5	VOLUME	Gravel Roads Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
2GRVLOHT6	VOLUME	Gravel Roads Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
2GRVLOHT7	VOLUME	Gravel Roads Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
2GRVLOHT8	VOLUME	Gravel Roads Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
2GRVLOHT9	VOLUME	Gravel Roads Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
2GRVLOHT10	VOLUME	Gravel Roads Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
2GRVLOHT11	VOLUME	Gravel Roads Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
2GRVLOHT12	VOLUME	Gravel Roads Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
2GRVLOHT13	VOLUME	Gravel Roads Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
2GRVLOHT14	VOLUME	Gravel Roads Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
2GRVLOHT15	VOLUME	Gravel Roads Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
2GRVLOHT16	VOLUME	Gravel Roads Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
2GRVLOHT17	VOLUME	Gravel Roads Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
3GRVLOHT1	VOLUME	Gravel Roads Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
3GRVLOHT2	VOLUME	Gravel Roads Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
3GRVLOHT3	VOLUME	Gravel Roads Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
3GRVLOHT4	VOLUME	Gravel Roads Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
MINEOHT1	VOLUME	Gravel Mining - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
MINEOHT2	VOLUME	Gravel Mining - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
MINEOHT3	VOLUME	Gravel Mining - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
MINEOHT4	VOLUME	Gravel Mining - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
MINEOHT5	VOLUME	Gravel Mining - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
MINEOHT6	VOLUME	Gravel Mining - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
MINEOHT7	VOLUME	Gravel Mining - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
MINEOHT8	VOLUME	Gravel Mining - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
MINEOHT9	VOLUME	Gravel Mining - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
WCFFACNR1	VOLUME	Facilities Installation-WPF - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
WCFFACNR2	VOLUME	Facilities Installation-WPF - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
WCFFACNR3	VOLUME	Facilities Installation-WPF - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
WCFFACNR4	VOLUME	Facilities Installation-WPF - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
WLW2GEN	POINT	Stationary Combustion Sources - WPF - WPF Internal Combustion Equipment Non-Road Engines >140 HP	0.1	Diesel engines
WOCNPWRGEN	POINT	Temporary Power Generation - Power Generation	0.1	Diesel engines
WOCNTEMPTRB	POINT	Temporary Power Generation - Power Generation Turbine	0.3	Natural gas-fired turbines
WOCNFACHTR1	POINT	Facilities Installation-WOC - Heaters	0.05	Diesel or natural gas heaters, or boiler
WOCNFACNMAC	POINT	Facilities Installation-WOC - Air Compressors	0.1	Diesel engines
WOCNFACNR	VOLUME	Facilities Installation-WOC - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
WOCNFACNMGS1	POINT	Facilities Installation-WOC - Generator Sets	0.1	Diesel engines
WOCNFACNMGS2	POINT	Facilities Installation-WOC - Generator Sets	0.1	Diesel engines
WOCNFUGD	VOLUME	Construction Fugitive Dust-WOCN - Wind Erosion Fugitive Dust	-	-
WOCNDRILLPE	POINT	Drill Rigs - Cement Pumping Unit #2	0.2	Diesel tailpipe from non-road equipment
WOCNDRILLCP1	POINT	Drill Rigs - Primary Power Engines	0.2	Diesel tailpipe from non-road equipment
WOCNDRILLCP2	POINT	Drill Rigs - Cement Pumping Unit #1	0.2	Diesel tailpipe from non-road equipment
WOCNDRILLB1	POINT	Drill Rigs - Boiler #1	0.05	Diesel or natural gas heaters, or boiler
WOCNDRILLB2	POINT	Drill Rigs - Boiler #2	0.05	Diesel or natural gas heaters, or boiler
WOCNDRILLAH1	POINT	Drill Rigs - Air Heater #1	0.05	Diesel or natural gas heaters, or boiler
WOCNDRILLAH2	POINT	Drill Rigs - Air Heater #2	0.05	Diesel or natural gas heaters, or boiler
WOCDRILLMP	POINT	Drill Rigs - Mud Pit Heater	0.05	Diesel or natural gas heaters, or boiler
WOCNDRILLNMT	POINT	Drilling Non-Mobile Support Equipment - Total Engine	0.1	Diesel engines
WOCNDRILLNML	POINT	Drilling Non-Mobile Support Equipment - Lighting Engines	0.2	Diesel tailpipe from non-road equipment
WOCNDRILLNMP	POINT	Drilling Non-Mobile Support Equipment - Portable Generator Engine	0.1	Diesel engines
WOCNDRILLPW	POINT	Drilling Non-Mobile Support Equipment - Portable Welders or Compressors	0.1	Diesel engines
WOCNDRILLHS	VOLUME	Drilling Non-Mobile Support Equipment - Portable Heaters and Snow Melters	0.05	Diesel tailpipe from non-road equipment
WOCNTAIL1	VOLUME	Mobile Support Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL2	VOLUME	Mobile Support Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL3	VOLUME	Mobile Support Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL4	VOLUME	Mobile Support Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNMFUGD1	VOLUME	Mobile Support Equipment Fugitive Dust - WOC	-	-

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
WOCNMFUGD2	VOLUME	Mobile Support Equipment Fugitive Dust - WOC	-	-
WOCNMFUGD3	VOLUME	Mobile Support Equipment Fugitive Dust - WOC	-	-
WOCNMFUGD4	VOLUME	Mobile Support Equipment Fugitive Dust - WOC	-	-
WILLOWAIRN1	AREAPOLY	Aircraft Activity (Willow Airstrip) - Release Height 50.8m	0.5	USEPA default value
WILLOWAIRN2	AREAPOLY	Aircraft Activity (Willow Airstrip) - Release Height 152.4m	0.5	USEPA default value
WILLOWAIRN3	AREAPOLY	Aircraft Activity (Willow Airstrip) - Release Height 254m	0.5	USEPA default value
WOCPCES	AREAPOLY	WOC - Non-mobile Support Equipment - Portable External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WOCSCES	AREAPOLY	WOC - Non-mobile Support Equipment - Stationary External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WOCNRES	AREAPOLY	WOC - Non-mobile Support Equipment - Internal Combustion Equipment Non-Road Engines <140 HP	0.2	Diesel tailpipe from non-road equipment
WOCPCEN	AREAPOLY	WOC - Non-mobile Support Equipment - Portable External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WOCSCEN	AREAPOLY	WOC - Non-mobile Support Equipment - Stationary External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WOCNREN	AREAPOLY	WOC - Non-mobile Support Equipment - Internal Combustion Equipment Non-Road Engines <140 HP	0.2	Diesel tailpipe from non-road equipment
WLWIG01S	POINT	WOC - Stationary Combustion Sources - Incinerator	0.5	USEPA default value
WLWIG02S	POINT	WOC - Stationary Combustion Sources - Incinerator	0.5	USEPA default value
WLWIG01N	POINT	WOC - Stationary Combustion Sources - Incinerator	0.5	USEPA default value
WLWIG02N	POINT	WOC - Stationary Combustion Sources - Incinerator	0.5	USEPA default value

Table A.2-2. Alternative C Near-field Model Scenario 1 Emissions Stack Parameters

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
1FACHTR1	POINT	2.7432	12.2	0.94	5.7	529	-	-	-	-	-
1FACNMAC	POINT	2.7432	13.3	0.4	10.5	614	-	-	-	-	-
1FACNR	VOLUME	2.7432	3.66	-	-	-	26.74419	3.38	-	-	-
1FACNMGS1	POINT	2.7432	6.1	0.46	15.1	795	-	-	-	-	-
1FACNMGS2	POINT	2.7432	6.5	0.2	47	761	-	-	-	-	-
1PIPHTR1	POINT	2.1336	12.2	0.94	5.7	529	-	-	-	-	-
1PIPNMAC	POINT	2.1336	13.3	0.4	10.5	614	-	-	-	-	-
1PIPNR	VOLUME	2.7432	3.66	-	-	-	26.74419	3.38	-	-	-
1PIPNMBR	POINT	2.1336	13.3	0.4	10.5	614	-	-	-	-	-
1PIPNMGS1	POINT	2.1336	6.1	0.46	15.1	795	-	-	-	-	-
1PIPNMGS2	POINT	2.1336	6.5	0.2	47	761	-	-	-	-	-
1PIPNMGS3	POINT	2.1336	6.5	0.2	47	761	-	-	-	-	-
1VSMNR	VOLUME	2.7432	3.66	-	-	-	26.74419	3.38	-	-	-
1VSMNMBR	POINT	2.7432	13.3	0.4	10.5	614	-	-	-	-	-
1FUGD	VOLUME	2.7432	3.66	-	-	-	26.74419	3.38	-	-	-
3PADHTR1	POINT	2.7432	12.2	0.94	5.7	529	-	-	-	-	-
3PADSHTR1	POINT	2.7432	12.2	0.94	5.7	529	-	-	-	-	-
3PADNMGS1	POINT	2.7432	6.5	0.2	47	761	-	-	-	-	-
3FUGD	VOLUME	3.6576	3.66	-	-	-	26.74419	3.38	-	-	-
ALPAIR1	AREAPOLY	3.6576	50.8	-	-	-	-	23.63	-	-	-
ALPAIR2	AREAPOLY	3.6576	152.4	-	-	-	-	23.63	-	-	-
ALPAIR3	AREAPOLY	3.6576	254	-	-	-	-	23.63	-	-	-
BDGHTR1	POINT	2.1336	12.2	0.94	5.7	529	-	-	-	-	-
BDGHTR2	POINT	2.1336	12.2	0.94	5.7	529	-	-	-	-	-
BDGNMAC1	POINT	2.1336	13.3	0.4	10.5	614	-	-	-	-	-
BDGNMAC2	POINT	2.1336	13.3	0.4	10.5	614	-	-	-	-	-
BDGNR	VOLUME	2.1336	3.66	-	-	-	11.62791	3.38	-	-	-
BDGNMBR	POINT	2.1336	13.3	0.4	10.5	614	-	-	-	-	-
BDGNMGS1	POINT	2.1336	6.1	0.46	15.1	795	-	-	-	-	-
BDGNMGS2	POINT	2.1336	6.5	0.2	47	761	-	-	-	-	-
MINENMAC	POINT	0	13.3	0.4	10.5	614	-	-	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
MINENMBR	POINT	0	13.3	0.4	10.5	614	-	-	-	-	-
MINENMGS1	POINT	0	6.5	0.2	47	761	-	-	-	-	-
MINENMP	POINT	0	13.3	0.4	10.5	614	-	-	-	-	-
BLASTANN	VOLUME	0	50	-	-	-	11.62791	11.63	-	-	-
BLASTHR	VOLUME	0	50	-	-	-	11.62791	11.63	-	-	-
GRVLHTR1	POINT	2.1336	12.2	0.94	5.7	529	-	-	-	-	-
GRVLSHTR1	POINT	2.1336	12.2	0.94	5.7	529	-	-	-	-	-
GRVLNMGS1	POINT	2.1336	6.5	0.2	47	761	-	-	-	-	-
ICERDNMGSS1	POINT	1.5	6.5	0.2	47	761	-	-	-	-	-
ICERDNMPS	POINT	1.5	13.3	0.4	10.5	614	-	-	-	-	-
ICERDNMGSN1	POINT	1.5	6.5	0.2	47	761	-	-	-	-	-
ICERDNMPN	POINT	1.5	13.3	0.4	10.5	614	-	-	-	-	-
ICEPDNMGS1	POINT	1.5	6.5	0.2	47	761	-	-	-	-	-
ICEPDNMP	POINT	1.5	13.3	0.4	10.5	614	-	-	-	-	-
1MICEPDNR	VOLUME	3.048	3.66	-	-	-	32.55814	3.38	-	-	-
1MICEPDNMGS1	POINT	3.048	6.5	0.2	47	761	-	-	-	-	-
1MICEPDNMP	POINT	3.048	13.3	0.4	10.5	614	-	-	-	-	-
WOCMICEPDNR	VOLUME	3.048	3.66	-	-	-	32.55814	3.38	-	-	-
WMICEPDNMGS1	POINT	3.048	6.5	0.2	47	761	-	-	-	-	-
WOCMICEPDNMP	POINT	3.048	13.3	0.4	10.5	614	-	-	-	-	-
GMSMICEPDNR	VOLUME	3.048	3.66	-	-	-	37.2093	3.38	-	-	-
GMICEPDNMGS1	POINT	3.048	6.5	0.2	47	761	-	-	-	-	-
GMSMICEPDNMP	POINT	3.048	13.3	0.4	10.5	614	-	-	-	-	-
FBROPHTRN	POINT	2.1336	12.2	0.94	5.7	529	-	-	-	-	-
FBROPNMGSN1	POINT	2.1336	6.1	0.46	15.1	795	-	-	-	-	-
FBROPNMGSN2	POINT	2.1336	6.5	0.2	47	761	-	-	-	-	-
FBROPHTRS	POINT	2.1336	12.2	0.94	5.7	529	-	-	-	-	-
FBROPNMGSS1	POINT	2.1336	6.1	0.46	15.1	795	-	-	-	-	-
FBROPNMGSS2	POINT	2.1336	6.5	0.2	47	761	-	-	-	-	-
PIPHTR	POINT	2.1336	12.2	0.94	5.7	529	-	-	-	-	-
PIPNMAC	POINT	2.1336	13.3	0.4	10.5	614	-	-	-	-	-
PIPNMBR	POINT	2.1336	13.3	0.4	10.5	614	-	-	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
PIPNMGS1	POINT	2.1336	6.1	0.46	15.1	795	-	-	-	-	-
PIPNMGS2	POINT	2.1336	6.5	0.2	47	761	-	-	-	-	-
PIPNMGS3	POINT	2.1336	6.5	0.2	47	761	-	-	-	-	-
VSMNMBR	POINT	2.1336	13.3	0.4	10.5	614	-	-	-	-	-
HDDPE1	POINT	1.5	13.3	0.4	10.5	614	-	-	-	-	-
HDDPE2	POINT	1.5	13.3	0.4	10.5	614	-	-	-	-	-
HDDSE1	POINT	1.5	13.3	0.4	10.5	614	-	-	-	-	-
HDDSE2	POINT	1.5	13.3	0.4	10.5	614	-	-	-	-	-
HDDMPE	POINT	1.5	10.4	0.13	43.5	750	-	-	-	-	-
HDDTPE	POINT	1.5	10.4	0.13	43.5	750	-	-	-	-	-
HDDB1	POINT	1.5	11.9	0.279	11.7	450	-	-	-	-	-
HDDB2	POINT	1.5	11.9	0.279	11.7	450	-	-	-	-	-
HDDH1_W	POINT	1.5	10.5	0.3	3.2	533	-	-	-	-	-
HDDH1_E	POINT	1.5	10.5	0.3	3.2	533	-	-	-	-	-
HDDH2_W	POINT	1.5	10.5	0.3	3.2	533	-	-	-	-	-
HDDH2_E	POINT	1.5	10.5	0.3	3.2	533	-	-	-	-	-
HDDWH_W	POINT	1.5	10.5	0.3	3.2	533	-	-	-	-	-
HDDWH_E	POINT	1.5	10.5	0.3	3.2	533	-	-	-	-	-
HDDNMGE1	POINT	1.5	6.1	0.46	15.1	795	-	-	-	-	-
HDDNMGE2	POINT	1.5	6.1	0.46	15.1	795	-	-	-	-	-
HDDNMGE3	POINT	1.5	6.1	0.46	15.1	795	-	-	-	-	-
HDDNMBGE1	POINT	1.5	6.1	0.46	15.1	795	-	-	-	-	-
HDDNMBGE2	POINT	1.5	6.1	0.46	15.1	795	-	-	-	-	-
HDDNMBGE3	POINT	1.5	6.1	0.46	15.1	795	-	-	-	-	-
HDDNMAC1	POINT	1.5	13.3	0.4	10.5	614	-	-	-	-	-
HDDNMAC2	POINT	1.5	13.3	0.4	10.5	614	-	-	-	-	-
HDDNROCE1	VOLUME	1.5	0	-	-	-	19.76744	8.7	-	-	-
HDDNROCE2	VOLUME	1.5	0	-	-	-	19.76744	8.7	-	-	-
HDDNRC	VOLUME	1.5	0	-	-	-	19.76744	8.7	-	-	-
WOCSPWRGEN	POINT	3.05	8.6	0.3	20	760	-	-	-	-	-
WOCSTEMPTRB	POINT	3.05	25	2	30	550	-	-	-	-	-
WOCSFACHTR1	POINT	3.048	12.2	0.94	5.7	529	-	-	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
WOCSFACNMAC	POINT	3.048	13.3	0.4	10.5	614	-	-	-	-	-
WOCSFACNR	VOLUME	3.048	3.66	-	-	-	69.76744	3.38	-	-	-
WOCSFACNMGS1	POINT	3.048	6.1	0.46	15.1	795	-	-	-	-	-
WOCSFACNMGS2	POINT	3.048	6.5	0.2	47	761	-	-	-	-	-
WCFFACHTR1	POINT	3.6576	12.2	0.94	5.7	529	-	-	-	-	-
WCFFACNMAC	POINT	3.6576	13.3	0.4	10.5	614	-	-	-	-	-
WCFFACNMGS1	POINT	3.6576	6.1	0.46	15.1	795	-	-	-	-	-
WCFFACNMGS2	POINT	3.6576	6.5	0.2	47	761	-	-	-	-	-
WCFFUGD	VOLUME	3.6576	3.66	-	-	-	37.2093	3.38	-	-	-
WILLOWAIRS1	AREAPOLY	3.6576	50.8	-	-	-	-	23.63	-	-	-
WILLOWAIRS2	AREAPOLY	3.6576	152.4	-	-	-	-	23.63	-	-	-
WILLOWAIRS3	AREAPOLY	3.6576	254	-	-	-	-	23.63	-	-	-
2TAIL1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2TAIL2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2TAIL3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2TAIL4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2TAIL5	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2TAIL6	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2TAIL7	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2TAIL8	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2TAIL9	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2TAIL10	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2TAIL11	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2TAIL12	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2TAIL13	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2TAIL14	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2TAIL15	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2TAIL16	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2TAIL17	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
3TAIL1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
3TAIL2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
3TAIL3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
3TAIL4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
1TAIL1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
1TAIL2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
1TAIL3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
1TAIL4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
WOCSTAIL1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
WOCSTAIL2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
WOCSTAIL3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
WOCSTAIL4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
WCFTAIL1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
WCFTAIL2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
WCFTAIL3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
WCFTAIL4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
MINETAIL1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
MINETAIL2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
MINETAIL3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
MINETAIL4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
1MFUGD1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
1MFUGD2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
1MFUGD3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
1MFUGD4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2MFUGD1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.66	-	-	-
2MFUGD2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2MFUGD3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2MFUGD4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2MFUGD5	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2MFUGD6	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2MFUGD7	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2MFUGD8	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2MFUGD9	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2MFUGD10	VOLUME	2.1336	3.66	-	-	-	14.17674	3.66	-	-	-
2MFUGD11	VOLUME	2.1336	3.66	-	-	-	14.17674	3.66	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
2MFUGD12	VOLUME	2.1336	3.66	-	-	-	14.17674	3.66	-	-	-
2MFUGD13	VOLUME	2.1336	3.66	-	-	-	14.17674	3.66	-	-	-
2MFUGD14	VOLUME	2.1336	3.66	-	-	-	14.17674	3.66	-	-	-
2MFUGD15	VOLUME	2.1336	3.66	-	-	-	14.17674	3.66	-	-	-
2MFUGD16	VOLUME	2.1336	3.66	-	-	-	14.17674	3.66	-	-	-
2MFUGD17	VOLUME	2.1336	3.66	-	-	-	14.17674	3.66	-	-	-
3MFUGD1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
3MFUGD2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
3MFUGD3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
3MFUGD4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
WCFMFUGD1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
WCFMFUGD2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
WCFMFUGD3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
WCFMFUGD4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
WOCSMFUGD1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
WOCSMFUGD2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
WOCSMFUGD3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
WOCSMFUGD4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
MINEMFUGD1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
MINEMFUGD2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
MINEMFUGD3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
MINEMFUGD4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2GRVLNR1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2GRVLNR2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2GRVLNR3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2GRVLNR4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2GRVLNR5	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2GRVLNR6	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2GRVLNR7	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2GRVLNR8	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2GRVLNR9	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2GRVLNR10	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
2GRVLNR11	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2GRVLNR12	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2GRVLNR13	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2GRVLNR14	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2GRVLNR15	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2GRVLNR16	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2GRVLNR17	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
3GRVLNR1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
3GRVLNR2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
3GRVLNR3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
3GRVLNR4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
ICEPDNRHCE	VOLUME	2.1336	3.66	-	-	-	37.21	3.38	-	-	-
ICEPDNROS1	VOLUME	2.1336	3.66	-	-	-	37.21	3.38	-	-	-
ICEPDNROS2	VOLUME	2.1336	3.66	-	-	-	25.58	3.38	-	-	-
ICEPDNROS3	VOLUME	2.1336	3.66	-	-	-	32.56	3.38	-	-	-
ICEPDNROS4	VOLUME	2.1336	3.66	-	-	-	32.56	3.38	-	-	-
ICEPDNROS5	VOLUME	2.1336	3.66	-	-	-	32.56	3.38	-	-	-
ICEPDNROS6	VOLUME	2.1336	3.66	-	-	-	32.56	3.38	-	-	-
ICEPDNROS7	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS8	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS9	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS10	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS11	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS12	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS13	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS14	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS15	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS16	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS17	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS18	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS19	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS20	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
ICEPDNROS21	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS22	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS23	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS24	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS25	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS26	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS27	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS28	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS29	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS30	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS31	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS32	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS33	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS34	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS35	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS36	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS37	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS38	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS39	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS40	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS41	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS42	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS43	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS44	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS1	VOLUME	2.1336	3.66	-	-	-	37.21	3.38	-	-	-
ICEPDNRIOS2	VOLUME	2.1336	3.66	-	-	-	25.58	3.38	-	-	-
ICEPDNRIOS3	VOLUME	2.1336	3.66	-	-	-	32.56	3.38	-	-	-
ICEPDNRIOS4	VOLUME	2.1336	3.66	-	-	-	32.56	3.38	-	-	-
ICEPDNRIOS5	VOLUME	2.1336	3.66	-	-	-	32.56	3.38	-	-	-
ICEPDNRIOS6	VOLUME	2.1336	3.66	-	-	-	32.56	3.38	-	-	-
ICEPDNRIOS7	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS8	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
ICEPDNRIOS9	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS10	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS11	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS12	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS13	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS14	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS15	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS16	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS17	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS18	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS19	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS20	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS21	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS22	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS23	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS24	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS25	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS26	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS27	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS28	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS29	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS30	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS31	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS32	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS33	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS34	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS35	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS36	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS37	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS38	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS39	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS40	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
ICEPDNRIOS41	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS42	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS43	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS44	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP1	VOLUME	2.1336	3.66	-	-	-	37.21	3.38	-	-	-
ICEPDNRPIP2	VOLUME	2.1336	3.66	-	-	-	25.58	3.38	-	-	-
ICEPDNRPIP3	VOLUME	2.1336	3.66	-	-	-	32.56	3.38	-	-	-
ICEPDNRPIP4	VOLUME	2.1336	3.66	-	-	-	32.56	3.38	-	-	-
ICEPDNRPIP5	VOLUME	2.1336	3.66	-	-	-	32.56	3.38	-	-	-
ICEPDNRPIP6	VOLUME	2.1336	3.66	-	-	-	32.56	3.38	-	-	-
ICEPDNRPIP7	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP8	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP9	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP10	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP11	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP12	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP13	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP14	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP15	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP16	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP17	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP18	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP19	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP20	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP21	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP22	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP23	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP24	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP25	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP26	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP27	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP28	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
ICEPDNRPIP29	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP30	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP31	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP32	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP33	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP34	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP35	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP36	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP37	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP38	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP39	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP40	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP41	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP42	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP43	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP44	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRHDD1	VOLUME	2.1336	3.66	-	-	-	19.76744	3.38	-	-	-
ICEPDNRHDD2	VOLUME	2.1336	3.66	-	-	-	19.76744	3.38	-	-	-
ICERDNRS1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
ICERDNRS2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
ICERDNRS3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
ICERDNRS4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
ICERDNRN1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
ICERDNRN2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
ICERDNRN3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
ICERDNRN4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
PIPNR1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
PIPNR2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
PIPNR3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
PIPNR4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
VSMNR1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
VSMNR2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
VSMNR3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
VSMNR4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
FBROPNR1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
FBROPNR2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
FBROPNR3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
FBROPNR4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
3PADNR1	VOLUME	2.7432	3.66	-	-	-	18.60465	3.38	-	-	-
3PADNR2	VOLUME	2.7432	3.66	-	-	-	18.60465	3.38	-	-	-
3PADNR3	VOLUME	2.7432	3.66	-	-	-	18.60465	3.38	-	-	-
3PADNR4	VOLUME	2.7432	3.66	-	-	-	18.60465	3.38	-	-	-
MINENR1	VOLUME	0	3.66	-	-	-	32.56	3.38	-	-	-
MINENR2	VOLUME	0	3.66	-	-	-	32.56	3.38	-	-	-
MINENR3	VOLUME	0	3.66	-	-	-	32.56	3.38	-	-	-
MINENR4	VOLUME	0	3.66	-	-	-	32.56	3.38	-	-	-
MINENR5	VOLUME	0	3.66	-	-	-	32.56	3.38	-	-	-
MINENR6	VOLUME	0	3.66	-	-	-	32.56	3.38	-	-	-
MINENR7	VOLUME	0	3.66	-	-	-	32.56	3.38	-	-	-
MINENR8	VOLUME	0	3.66	-	-	-	32.56	3.38	-	-	-
MINENR9	VOLUME	0	3.66	-	-	-	32.56	3.38	-	-	-
3PADOHT1	VOLUME	2.7432	3.66	-	-	-	18.60465	3.38	-	-	-
3PADOHT2	VOLUME	2.7432	3.66	-	-	-	18.60465	3.38	-	-	-
3PADOHT3	VOLUME	2.7432	3.66	-	-	-	18.60465	3.38	-	-	-
3PADOHT4	VOLUME	2.7432	3.66	-	-	-	18.60465	3.38	-	-	-
2GRVLOHT1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2GRVLOHT2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2GRVLOHT3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2GRVLOHT4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2GRVLOHT5	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2GRVLOHT6	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2GRVLOHT7	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2GRVLOHT8	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2GRVLOHT9	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
2GRVLOHT10	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2GRVLOHT11	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2GRVLOHT12	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2GRVLOHT13	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2GRVLOHT14	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2GRVLOHT15	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2GRVLOHT16	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2GRVLOHT17	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
3GRVLOHT1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
3GRVLOHT2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
3GRVLOHT3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
3GRVLOHT4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
MINEOHT1	VOLUME	0	3.66	-	-	-	32.56	3.38	-	-	-
MINEOHT2	VOLUME	0	3.66	-	-	-	32.56	3.38	-	-	-
MINEOHT3	VOLUME	0	3.66	-	-	-	32.56	3.38	-	-	-
MINEOHT4	VOLUME	0	3.66	-	-	-	32.56	3.38	-	-	-
MINEOHT5	VOLUME	0	3.66	-	-	-	32.56	3.38	-	-	-
MINEOHT6	VOLUME	0	3.66	-	-	-	32.56	3.38	-	-	-
MINEOHT7	VOLUME	0	3.66	-	-	-	32.56	3.38	-	-	-
MINEOHT8	VOLUME	0	3.66	-	-	-	32.56	3.38	-	-	-
MINEOHT9	VOLUME	0	3.66	-	-	-	32.56	3.38	-	-	-
WCFFACNR1	VOLUME	3.6576	3.66	-	-	-	23.25581	3.38	-	-	-
WCFFACNR2	VOLUME	3.6576	3.66	-	-	-	23.25581	3.38	-	-	-
WCFFACNR3	VOLUME	3.6576	3.66	-	-	-	23.25581	3.38	-	-	-
WCFFACNR4	VOLUME	3.6576	3.66	-	-	-	23.25581	3.38	-	-	-
WLW2GEN	POINT	3.66	10.4	0.13	43.5	750	-	-	-	-	-
WOCNPWRGEN	POINT	3.05	8.6	0.3	20	760	-	-	-	-	-
WOCNTEMPTRB	POINT	3.05	25	2	30	550	-	-	-	-	-
WOCNFACHTR1	POINT	3.048	12.2	0.94	5.7	529	-	-	-	-	-
WOCNFACNMAC	POINT	3.048	13.3	0.4	10.5	614	-	-	-	-	-
WOCNFACNR	VOLUME	3.048	3.66	-	-	-	33.72093	3.38	-	-	-
WOCNFACNMGS1	POINT	3.048	6.1	0.46	15.1	795	-	-	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
WOCNFACNMGS2	POINT	3.048	6.5	0.2	47	761	-	-	-	-	-
WOCNFUGD	VOLUME	3.048	3.66	-	-	-	33.72093	3.38	-	-	-
WOCNDRILLPE	POINT	3.048	13.3	0.4	10.5	614	-	-	-	-	-
WOCNDRILLCP1	POINT	3.048	10.4	0.13	43.5	750	-	-	-	-	-
WOCNDRILLCP2	POINT	3.048	10.4	0.13	43.5	750	-	-	-	-	-
WOCNDRILLB1	POINT	3.048	11.9	0.279	11.7	450	-	-	-	-	-
WOCNDRILLB2	POINT	3.048	11.9	0.279	11.7	450	-	-	-	-	-
WOCNDRILLAH1	POINT	3.048	10.5	0.3	3.2	533	-	-	-	-	-
WOCNDRILLAH2	POINT	3.048	10.5	0.3	3.2	533	-	-	-	-	-
WOCDRILLMP	POINT	3.048	7.2	0.3	10.8	533	-	-	-	-	-
WOCNDRILLNMT	POINT	3.048	6.1	0.46	15.1	795	-	-	-	-	-
WOCNDRILLNML	POINT	3.048	6.5	0.2	47	761	-	-	-	-	-
WOCNDRILLNMP	POINT	3.048	6.1	0.46	15.1	795	-	-	-	-	-
WOCNDRILLPW	POINT	3.048	6.1	0.46	15.1	795	-	-	-	-	-
WOCNDRILLHS	VOLUME	3.048	3.66	-	-	-	33.72093	3.38	-	-	-
WOCNTAIL1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
WOCNTAIL2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
WOCNTAIL3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
WOCNTAIL4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
WOCNMFUGD1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
WOCNMFUGD2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
WOCNMFUGD3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
WOCNMFUGD4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
WILLOWAIRN1	AREAPOLY	3.6576	50.8	-	-	-	-	23.63	-	-	-
WILLOWAIRN2	AREAPOLY	3.6576	152.4	-	-	-	-	23.63	-	-	-
WILLOWAIRN3	AREAPOLY	3.6576	254	-	-	-	-	23.63	-	-	-
WOCPCES	AREAPOLY	3.05	3.63	-	-	-	-	3.38	-	-	-
WOCSCES	AREAPOLY	3.05	3.63	-	-	-	-	3.38	-	-	-
WOCNRES	AREAPOLY	3.05	3.63	-	-	-	-	3.38	-	-	-
WOCPCEN	AREAPOLY	3.05	3.63	-	-	-	-	3.38	-	-	-
WOCSCEN	AREAPOLY	3.05	3.63	-	-	-	-	3.38	-	-	-
WOCNREN	AREAPOLY	3.05	3.63	-	-	-	-	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
WLWIG01S	POINT	3.05	15	0.3	10	1200	-	-	-	-	-
WLWIG02S	POINT	3.05	15	0.3	10	1200	-	-	-	-	-
WLWIG01N	POINT	3.05	15	0.3	10	1200	-	-	-	-	-
WLWIG02N	POINT	3.05	15	0.3	10	1200	-	-	-	-	-

Table A.2-3. Alternative C Near-field Model Scenario 1 Emissions Rates

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
1FACHTR1	2.65E-02	1.06E-01	2.75E-02	1.26E-02	1.13E-02	2.93E-03	1.13E-03	1.13E-03	2.93E-04	378.56
1FACNMAC	1.17E-02	1.78E-02	1.15E-03	1.53E-03	1.48E-03	9.62E-05	4.42E-05	4.42E-05	2.87E-06	94.64
1FACNR	5.85E-02	8.92E-02	4.91E-02	8.08E-03	7.83E-03	4.54E-03	1.43E-04	1.43E-04	7.69E-05	283.92
1FACNMGS1	1.60E-02	5.78E-02	1.50E-02	3.46E-03	3.35E-03	8.69E-04	6.82E-05	6.82E-05	1.77E-05	378.56
1FACNMGS2	2.59E-02	4.89E-02	1.27E-02	3.84E-03	3.73E-03	9.67E-04	4.18E-05	4.18E-05	1.08E-05	378.56
1PIPHTR1	4.90E-03	1.96E-02	7.89E-03	2.33E-03	2.09E-03	8.40E-04	2.09E-04	2.09E-04	8.40E-05	882
1PIPNMAC	1.66E-02	5.26E-02	1.59E-02	2.45E-03	2.38E-03	7.18E-04	8.89E-05	8.89E-05	2.69E-05	661.5
1PIPNR	1.13E-02	4.05E-02	2.93E-02	1.73E-03	1.68E-03	1.21E-03	1.28E-04	1.28E-04	9.17E-05	661.5
1PIPNMBR	8.87E-03	3.59E-02	1.08E-02	1.89E-03	1.84E-03	5.54E-04	4.44E-05	4.44E-05	1.34E-05	661.5
1PIPNMGS1	7.09E-03	1.73E-02	6.97E-03	1.09E-03	1.06E-03	4.26E-04	1.49E-05	1.49E-05	5.98E-06	882
1PIPNMGS2	3.83E-03	3.96E-03	1.60E-03	3.58E-04	3.47E-04	1.40E-04	3.41E-06	3.41E-06	1.37E-06	882
1PIPNMGS3	7.17E-03	1.35E-02	5.44E-03	1.06E-03	1.03E-03	4.15E-04	1.16E-05	1.16E-05	4.66E-06	882
1VSMNR	9.50E-03	2.53E-02	2.35E-02	1.35E-03	1.31E-03	1.29E-03	4.93E-05	4.93E-05	4.37E-05	693
1VSMNMBR	9.93E-03	4.17E-02	1.32E-02	2.07E-03	2.01E-03	6.35E-04	5.22E-05	5.22E-05	1.65E-05	693
1FUGD	0.00E+00	0.00E+00	0.00E+00	3.95E-02	5.93E-03	5.93E-03	0.00E+00	0.00E+00	0.00E+00	4380
3PADHTR1	1.35E-02	5.41E-02	4.98E-02	6.44E-03	5.76E-03	5.31E-03	5.76E-04	5.76E-04	5.31E-04	4704
3PADSHTR1	4.67E-03	1.87E-02	1.72E-02	2.22E-03	1.99E-03	1.83E-03	1.99E-04	1.99E-04	1.83E-04	4704
3PADNMGS1	1.32E-02	2.49E-02	2.29E-02	1.96E-03	1.90E-03	1.75E-03	2.13E-05	2.13E-05	1.96E-05	4704
3FUGD	0.00E+00	0.00E+00	0.00E+00	2.88E-02	4.32E-03	4.32E-03	0.00E+00	0.00E+00	0.00E+00	4380
ALPAIR1	9.28E-09	8.21E-09	8.21E-09	1.16E-10	1.16E-10	1.16E-10	3.47E-10	3.47E-10	3.47E-10	8760
ALPAIR2	9.28E-09	8.21E-09	8.21E-09	1.16E-10	1.16E-10	1.16E-10	3.47E-10	3.47E-10	3.47E-10	8760
ALPAIR3	9.28E-09	8.21E-09	8.21E-09	1.16E-10	1.16E-10	1.16E-10	3.47E-10	3.47E-10	3.47E-10	8760
BDGHTR1	1.35E-03	5.41E-03	1.75E-03	6.44E-04	5.76E-04	1.86E-04	5.76E-05	5.76E-05	1.86E-05	708.75

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
BDGHTR2	4.06E-03	1.62E-02	5.25E-03	1.93E-03	1.73E-03	5.59E-04	1.73E-04	1.73E-04	5.59E-05	708.75
BDGNMAC1	1.04E-03	1.58E-03	3.42E-04	1.36E-04	1.32E-04	2.86E-05	3.94E-06	3.94E-06	8.51E-07	472.5
BDGNMAC2	2.08E-03	3.17E-03	6.84E-04	2.73E-04	2.65E-04	5.71E-05	7.89E-06	7.89E-06	1.70E-06	472.5
BDGNR	1.12E-02	3.63E-02	8.72E-03	1.65E-03	1.60E-03	3.67E-04	8.72E-05	8.72E-05	1.92E-05	472.5
BDGNMBR	1.70E-03	7.13E-03	1.54E-03	3.53E-04	3.42E-04	7.39E-05	8.91E-06	8.91E-06	1.92E-06	472.5
BDGNMGS1	4.90E-03	1.19E-02	5.16E-03	7.54E-04	7.31E-04	3.16E-04	1.03E-05	1.03E-05	4.43E-06	945
BDGNMGS2	3.96E-03	7.47E-03	3.22E-03	5.88E-04	5.70E-04	2.46E-04	6.39E-06	6.39E-06	2.76E-06	945
MINENMAC	3.10E-03	4.30E-02	3.96E-02	4.41E-04	4.28E-04	3.94E-04	4.03E-05	4.03E-05	3.71E-05	3360
MINENMBR	6.84E-02	2.43E-01	2.24E-01	1.03E-02	9.96E-03	9.17E-03	2.84E-04	2.84E-04	2.61E-04	3360
MINENMGS1	2.50E-02	4.71E-02	4.34E-02	3.71E-03	3.60E-03	3.31E-03	4.03E-05	4.03E-05	3.71E-05	3360
MINENMP	1.35E-02	6.73E-02	6.19E-03	2.34E-03	2.27E-03	2.09E-04	5.98E-05	5.98E-05	5.51E-06	336
BLASTANN	0.00E+00	0.00E+00	1.26E+00	0.00E+00	0.00E+00	7.38E-03	0.00E+00	0.00E+00	1.49E-01	4344
BLASTHR	8.79E+00	2.23E+00	0.00E+00	2.26E-01	1.30E-02	0.00E+00	2.62E-01	2.62E-01	0.00E+00	4344
GRVLHTR1	9.66E-03	3.87E-02	3.56E-02	4.60E-03	4.12E-03	3.79E-03	4.12E-04	4.12E-04	3.79E-04	2688
GRVLSHTR1	3.33E-03	1.33E-02	1.23E-02	1.59E-03	1.42E-03	1.31E-03	1.42E-04	1.42E-04	1.31E-04	2688
GRVLNMGS1	9.44E-03	1.78E-02	1.64E-02	1.40E-03	1.36E-03	1.25E-03	1.52E-05	1.52E-05	1.40E-05	2688
ICERDNMGSS1	8.89E-02	6.91E-02	5.78E-02	1.32E-02	1.28E-02	1.07E-02	1.43E-04	1.43E-04	1.20E-04	4272.8
ICERDNMPS	2.21E-01	3.43E-01	2.86E-01	3.34E-02	3.24E-02	2.71E-02	9.62E-04	9.62E-04	8.05E-04	4272.8
ICERDNMGSN1	8.89E-02	6.91E-02	5.78E-02	1.32E-02	1.28E-02	1.07E-02	1.43E-04	1.43E-04	1.20E-04	4272.8
ICERDNMPN	2.21E-01	3.43E-01	2.86E-01	3.34E-02	3.24E-02	2.71E-02	9.62E-04	9.62E-04	8.05E-04	4272.8
ICEPDNMGS1	4.82E-02	6.91E-02	3.14E-02	7.15E-03	6.93E-03	3.14E-03	7.77E-05	7.77E-05	3.52E-05	2317.392
ICEPDNMP	1.20E-01	3.43E-01	1.55E-01	1.81E-02	1.76E-02	7.97E-03	5.22E-04	5.22E-04	2.37E-04	2317.392
1MICEPDNR	9.68E-04	7.04E-02	6.48E-02	1.26E-04	1.22E-04	1.13E-04	4.41E-06	4.41E-06	3.45E-06	92.4
1MICEPDNMGS1	1.92E-03	6.91E-02	1.25E-03	2.85E-04	2.76E-04	5.00E-06	3.10E-06	3.10E-06	5.60E-08	92.4
1MICEPDNMP	4.78E-03	3.43E-01	6.19E-03	7.22E-04	7.01E-04	1.27E-05	2.08E-05	2.08E-05	3.76E-07	92.4
WOCMICEPDNR	9.68E-04	7.04E-02	6.48E-02	1.26E-04	1.22E-04	1.13E-04	4.41E-06	4.41E-06	3.45E-06	92.4
WMICEPDNMGS1	1.92E-03	6.91E-02	1.25E-03	2.85E-04	2.76E-04	5.00E-06	3.10E-06	3.10E-06	5.60E-08	92.4
WOCMICEPDNMP	4.78E-03	3.43E-01	6.19E-03	7.22E-04	7.01E-04	1.27E-05	2.08E-05	2.08E-05	3.76E-07	92.4
GMSMICEPDNR	9.68E-04	7.04E-02	6.48E-02	1.26E-04	1.22E-04	1.13E-04	4.41E-06	4.41E-06	3.45E-06	92.4
GMICEPDNMGS1	1.92E-03	6.91E-02	1.25E-03	2.85E-04	2.76E-04	5.00E-06	3.10E-06	3.10E-06	5.60E-08	92.4
GMSMICEPDNMP	4.78E-03	3.43E-01	6.19E-03	7.22E-04	7.01E-04	1.27E-05	2.08E-05	2.08E-05	3.76E-07	92.4
FBROPHTRN	9.74E-03	3.90E-02	2.69E-02	4.64E-03	4.15E-03	1.07E-03	4.15E-04	4.15E-04	2.86E-04	1512
FBROPNMGSN1	2.35E-02	5.73E-02	1.98E-02	3.62E-03	3.51E-03	9.09E-04	4.93E-05	4.93E-05	1.70E-05	756

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
FBROPNMGSN2	1.90E-02	3.59E-02	2.48E-02	2.82E-03	2.74E-03	7.08E-04	3.07E-05	3.07E-05	2.12E-05	1512
FBROPHTRS	9.74E-03	3.90E-02	2.69E-02	4.64E-03	4.15E-03	1.07E-03	4.15E-04	4.15E-04	2.86E-04	1512
FBROPNMGSS1	2.35E-02	5.73E-02	1.98E-02	3.62E-03	3.51E-03	9.09E-04	4.93E-05	4.93E-05	1.70E-05	756
FBROPNMGSS2	1.90E-02	3.59E-02	2.48E-02	2.82E-03	2.74E-03	7.08E-04	3.07E-05	3.07E-05	2.12E-05	1512
PIPHTR	8.41E-02	3.36E-01	1.35E-01	4.00E-02	3.58E-02	1.44E-02	3.58E-03	3.58E-03	1.44E-03	882
PIPNMAC	2.85E-01	9.03E-01	2.73E-01	4.21E-02	4.08E-02	1.23E-02	1.53E-03	1.53E-03	4.61E-04	661.5
PIPNMBR	1.52E-01	6.16E-01	1.86E-01	3.25E-02	3.15E-02	9.52E-03	7.62E-04	7.62E-04	2.30E-04	661.5
PIPNMGS1	1.22E-01	2.97E-01	1.20E-01	1.88E-02	1.82E-02	7.32E-03	2.55E-04	2.55E-04	1.03E-04	882
PIPNMGS2	6.58E-02	6.80E-02	2.74E-02	6.14E-03	5.96E-03	2.40E-03	5.85E-05	5.85E-05	2.36E-05	882
PIPNMGS3	1.23E-01	2.32E-01	9.35E-02	1.83E-02	1.77E-02	7.14E-03	1.99E-04	1.99E-04	8.00E-05	882
VSMNMBR	4.25E-02	1.78E-01	5.65E-02	8.84E-03	8.58E-03	2.71E-03	2.23E-04	2.23E-04	7.06E-05	693
HDDPE1	3.51E-01	6.42E-01	6.42E-01	2.01E-02	2.01E-02	2.01E-02	6.64E-04	6.64E-04	6.64E-04	2190
HDDPE2	2.73E-01	4.98E-01	4.98E-01	1.56E-02	1.56E-02	1.56E-02	5.15E-04	5.15E-04	5.15E-04	2190
HDDSE1	3.51E-01	6.42E-01	6.42E-02	2.01E-02	2.01E-02	2.01E-03	6.64E-04	6.64E-04	6.64E-05	219
HDDSE2	1.30E-01	2.46E-01	2.46E-02	7.46E-03	7.46E-03	7.46E-04	2.47E-04	2.47E-04	2.47E-05	219
HDDMPE	3.51E-01	6.42E-01	6.42E-01	2.01E-02	2.01E-02	2.01E-02	6.64E-04	6.64E-04	6.64E-04	2190
HDDTPE	1.50E-01	2.83E-01	2.83E-01	8.58E-03	8.58E-03	8.58E-03	2.84E-04	2.84E-04	2.84E-04	2190
HDDB1	7.87E-03	3.15E-02	3.15E-02	3.75E-03	3.35E-03	3.35E-03	3.35E-04	3.35E-04	3.35E-04	2190
HDDB2	1.57E-02	6.30E-02	6.30E-02	7.50E-03	6.71E-03	6.71E-03	6.71E-04	6.71E-04	6.71E-04	2190
HDDH1_W	2.40E-02	9.59E-02	9.59E-02	1.14E-02	1.02E-02	1.02E-02	1.02E-03	1.02E-03	1.02E-03	2190
HDDH1_E	2.40E-02	9.59E-02	9.59E-02	1.14E-02	1.02E-02	1.02E-02	1.02E-03	1.02E-03	1.02E-03	2190
HDDH2_W	1.10E-02	4.38E-02	4.38E-02	5.22E-03	4.67E-03	4.67E-03	4.67E-04	4.67E-04	4.67E-04	2190
HDDH2_E	1.10E-02	4.38E-02	4.38E-02	5.22E-03	4.67E-03	4.67E-03	4.67E-04	4.67E-04	4.67E-04	2190
HDDWH_W	5.69E-03	2.28E-02	2.28E-02	2.71E-03	2.42E-03	2.42E-03	2.42E-04	2.42E-04	2.42E-04	2190
HDDWH_E	5.69E-03	2.28E-02	2.28E-02	2.71E-03	2.42E-03	2.42E-03	2.42E-04	2.42E-04	2.42E-04	2190
HDDNMGE1	1.28E+00	1.46E+00	1.46E+00	7.31E-02	7.31E-02	7.31E-02	2.70E-03	2.70E-03	2.70E-03	2190
HDDNMGE2	6.14E-01	7.02E-01	7.02E-01	3.51E-02	3.51E-02	3.51E-02	1.29E-03	1.29E-03	1.29E-03	2190
HDDNMGE3	7.68E-01	8.77E-01	8.77E-01	4.39E-02	4.39E-02	4.39E-02	1.62E-03	1.62E-03	1.62E-03	2190
HDDNMBGE1	1.28E+00	1.46E+00	1.46E-01	7.31E-02	7.31E-02	7.31E-03	2.70E-03	2.70E-03	2.70E-04	219
HDDNMBGE2	6.14E-01	7.02E-01	7.02E-02	3.51E-02	3.51E-02	3.51E-03	1.29E-03	1.29E-03	1.29E-04	219
HDDNMBGE3	6.14E-01	7.02E-01	7.02E-02	3.51E-02	3.51E-02	3.51E-03	1.29E-03	1.29E-03	1.29E-04	219
HDDNMAC1	4.62E-03	2.13E-02	7.11E-03	8.81E-04	8.54E-04	2.85E-04	5.90E-05	5.90E-05	1.97E-05	730
HDDNMAC2	4.62E-03	2.13E-02	7.11E-03	8.81E-04	8.54E-04	2.85E-04	5.90E-05	5.90E-05	1.97E-05	730

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
HDDNROCE1	6.99E-03	2.11E-02	7.04E-03	1.22E-03	1.18E-03	3.93E-04	5.95E-05	5.95E-05	1.98E-05	730
HDDNROCE2	6.99E-03	2.11E-02	7.04E-03	1.22E-03	1.18E-03	3.93E-04	5.95E-05	5.95E-05	1.98E-05	730
HDDNRC	3.45E-03	1.68E-02	5.60E-03	5.90E-04	5.73E-04	1.91E-04	6.33E-05	6.33E-05	2.11E-05	730
WOCSPWRGEN	3.89E+00	3.89E+00	1.94E+00	1.11E-01	1.11E-01	5.56E-02	7.35E-03	7.35E-03	3.67E-03	4380
WOCSTEMPTRB	5.29E+00	6.96E+00	6.96E+00	1.83E-01	1.83E-01	1.83E-01	2.37E-02	2.37E-02	2.37E-02	8760
WOCSFACHTR1	5.99E-02	2.39E-01	9.18E-02	2.85E-02	2.55E-02	9.78E-03	2.55E-03	2.55E-03	9.78E-04	1680
WOCSFACNMAC	2.63E-02	4.01E-02	3.84E-03	3.45E-03	3.35E-03	3.21E-04	9.97E-05	9.97E-05	9.56E-06	420
WOCSFACNR	1.32E-01	2.01E-01	1.64E-01	1.82E-02	1.77E-02	1.51E-02	3.23E-04	3.23E-04	2.56E-04	1260
WOCSFACNMGS1	3.61E-02	1.30E-01	4.99E-02	7.79E-03	7.55E-03	2.90E-03	1.54E-04	1.54E-04	5.89E-05	1680
WOCSFACNMGS2	5.85E-02	1.10E-01	4.23E-02	8.67E-03	8.41E-03	3.22E-03	9.43E-05	9.43E-05	3.62E-05	1680
WCFFACHTR1	2.05E-01	8.22E-01	3.15E-01	9.78E-02	8.75E-02	3.36E-02	8.75E-03	8.75E-03	3.36E-03	3360
WCFFACNMAC	8.43E-02	1.28E-01	1.23E-02	1.11E-02	1.07E-02	1.03E-03	3.19E-04	3.19E-04	3.06E-05	840
WCFFACNMGS1	3.45E-01	1.24E+00	4.78E-01	7.44E-02	7.22E-02	2.77E-02	1.47E-03	1.47E-03	5.63E-04	3360
WCFFACNMGS2	2.01E-01	3.78E-01	1.45E-01	2.97E-02	2.89E-02	1.11E-02	3.24E-04	3.24E-04	1.24E-04	3360
WCFFUGD	0.00E+00	0.00E+00	0.00E+00	3.45E-02	5.17E-03	5.17E-03	0.00E+00	0.00E+00	0.00E+00	4380
WILLOWAIRS1	5.43E-07	1.94E-07	1.94E-07	8.11E-09	8.11E-09	8.11E-09	2.75E-08	2.75E-08	2.75E-08	8760
WILLOWAIRS2	5.43E-07	1.94E-07	1.94E-07	8.11E-09	8.11E-09	8.11E-09	2.75E-08	2.75E-08	2.75E-08	8760
WILLOWAIRS3	5.43E-07	1.94E-07	1.94E-07	8.11E-09	8.11E-09	8.11E-09	2.75E-08	2.75E-08	2.75E-08	8760
2TAIL1	2.46E-04	2.93E-04	2.93E-04	2.57E-05	1.57E-05	1.57E-05	1.05E-06	1.05E-06	1.05E-06	8760
2TAIL2	2.46E-04	2.93E-04	2.93E-04	2.57E-05	1.57E-05	1.57E-05	1.05E-06	1.05E-06	1.05E-06	8760
2TAIL3	2.46E-04	2.93E-04	2.93E-04	2.57E-05	1.57E-05	1.57E-05	1.05E-06	1.05E-06	1.05E-06	8760
2TAIL4	2.46E-04	2.93E-04	2.93E-04	2.57E-05	1.57E-05	1.57E-05	1.05E-06	1.05E-06	1.05E-06	8760
2TAIL5	2.46E-04	2.93E-04	2.93E-04	2.57E-05	1.57E-05	1.57E-05	1.05E-06	1.05E-06	1.05E-06	8760
2TAIL6	2.46E-04	2.93E-04	2.93E-04	2.57E-05	1.57E-05	1.57E-05	1.05E-06	1.05E-06	1.05E-06	8760
2TAIL7	2.46E-04	2.93E-04	2.93E-04	2.57E-05	1.57E-05	1.57E-05	1.05E-06	1.05E-06	1.05E-06	8760
2TAIL8	2.46E-04	2.93E-04	2.93E-04	2.57E-05	1.57E-05	1.57E-05	1.05E-06	1.05E-06	1.05E-06	8760
2TAIL9	2.46E-04	2.93E-04	2.93E-04	2.57E-05	1.57E-05	1.57E-05	1.05E-06	1.05E-06	1.05E-06	8760
2TAIL10	2.46E-04	2.93E-04	2.93E-04	2.57E-05	1.57E-05	1.57E-05	1.05E-06	1.05E-06	1.05E-06	8760
2TAIL11	2.46E-04	2.93E-04	2.93E-04	2.57E-05	1.57E-05	1.57E-05	1.05E-06	1.05E-06	1.05E-06	8760
2TAIL12	2.46E-04	2.93E-04	2.93E-04	2.57E-05	1.57E-05	1.57E-05	1.05E-06	1.05E-06	1.05E-06	8760
2TAIL13	2.46E-04	2.93E-04	2.93E-04	2.57E-05	1.57E-05	1.57E-05	1.05E-06	1.05E-06	1.05E-06	8760
2TAIL14	2.46E-04	2.93E-04	2.93E-04	2.57E-05	1.57E-05	1.57E-05	1.05E-06	1.05E-06	1.05E-06	8760
2TAIL15	2.46E-04	2.93E-04	2.93E-04	2.57E-05	1.57E-05	1.57E-05	1.05E-06	1.05E-06	1.05E-06	8760

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
2TAIL16	2.46E-04	2.93E-04	2.93E-04	2.57E-05	1.57E-05	1.57E-05	1.05E-06	1.05E-06	1.05E-06	8760
2TAIL17	2.46E-04	2.93E-04	2.93E-04	2.57E-05	1.57E-05	1.57E-05	1.05E-06	1.05E-06	1.05E-06	8760
3TAIL1	1.13E-02	2.78E-02	1.93E-02	1.57E-03	1.52E-03	1.05E-03	7.33E-05	7.33E-05	5.10E-05	8760
3TAIL2	1.13E-02	2.78E-02	1.93E-02	1.57E-03	1.52E-03	1.05E-03	7.33E-05	7.33E-05	5.10E-05	8760
3TAIL3	1.13E-02	2.78E-02	1.93E-02	1.57E-03	1.52E-03	1.05E-03	7.33E-05	7.33E-05	5.10E-05	8760
3TAIL4	1.13E-02	2.78E-02	1.93E-02	1.57E-03	1.52E-03	1.05E-03	7.33E-05	7.33E-05	5.10E-05	8760
1TAIL1	3.12E-04	3.72E-04	3.72E-04	3.27E-05	1.99E-05	1.99E-05	1.33E-06	1.33E-06	1.33E-06	8760
1TAIL2	3.12E-04	3.72E-04	3.72E-04	3.27E-05	1.99E-05	1.99E-05	1.33E-06	1.33E-06	1.33E-06	8760
1TAIL3	3.12E-04	3.72E-04	3.72E-04	3.27E-05	1.99E-05	1.99E-05	1.33E-06	1.33E-06	1.33E-06	8760
1TAIL4	3.12E-04	3.72E-04	3.72E-04	3.27E-05	1.99E-05	1.99E-05	1.33E-06	1.33E-06	1.33E-06	8760
WOCSTAIL1	3.12E-04	3.72E-04	3.72E-04	3.27E-05	1.99E-05	1.99E-05	1.33E-06	1.33E-06	1.33E-06	8760
WOCSTAIL2	3.12E-04	3.72E-04	3.72E-04	3.27E-05	1.99E-05	1.99E-05	1.33E-06	1.33E-06	1.33E-06	8760
WOCSTAIL3	3.12E-04	3.72E-04	3.72E-04	3.27E-05	1.99E-05	1.99E-05	1.33E-06	1.33E-06	1.33E-06	8760
WOCSTAIL4	3.12E-04	3.72E-04	3.72E-04	3.27E-05	1.99E-05	1.99E-05	1.33E-06	1.33E-06	1.33E-06	8760
WCFTAIL1	3.12E-04	3.72E-04	3.72E-04	3.27E-05	1.99E-05	1.99E-05	1.33E-06	1.33E-06	1.33E-06	8760
WCFTAIL2	3.12E-04	3.72E-04	3.72E-04	3.27E-05	1.99E-05	1.99E-05	1.33E-06	1.33E-06	1.33E-06	8760
WCFTAIL3	3.12E-04	3.72E-04	3.72E-04	3.27E-05	1.99E-05	1.99E-05	1.33E-06	1.33E-06	1.33E-06	8760
WCFTAIL4	3.12E-04	3.72E-04	3.72E-04	3.27E-05	1.99E-05	1.99E-05	1.33E-06	1.33E-06	1.33E-06	8760
MINETAIL1	1.06E-02	2.62E-02	1.82E-02	1.48E-03	1.42E-03	9.90E-04	6.90E-05	6.90E-05	4.80E-05	8760
MINETAIL2	1.06E-02	2.62E-02	1.82E-02	1.48E-03	1.42E-03	9.90E-04	6.90E-05	6.90E-05	4.80E-05	8760
MINETAIL3	1.06E-02	2.62E-02	1.82E-02	1.48E-03	1.42E-03	9.90E-04	6.90E-05	6.90E-05	4.80E-05	8760
MINETAIL4	1.06E-02	2.62E-02	1.82E-02	1.48E-03	1.42E-03	9.90E-04	6.90E-05	6.90E-05	4.80E-05	8760
1MFUGD1	0.00E+00	0.00E+00	0.00E+00	2.68E-02	2.68E-03	2.68E-03	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD2	0.00E+00	0.00E+00	0.00E+00	2.68E-02	2.68E-03	2.68E-03	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD3	0.00E+00	0.00E+00	0.00E+00	2.68E-02	2.68E-03	2.68E-03	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD4	0.00E+00	0.00E+00	0.00E+00	2.68E-02	2.68E-03	2.68E-03	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD1	0.00E+00	0.00E+00	0.00E+00	2.11E-02	2.11E-03	2.11E-03	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD2	0.00E+00	0.00E+00	0.00E+00	2.11E-02	2.11E-03	2.11E-03	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD3	0.00E+00	0.00E+00	0.00E+00	2.11E-02	2.11E-03	2.11E-03	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD4	0.00E+00	0.00E+00	0.00E+00	2.11E-02	2.11E-03	2.11E-03	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD5	0.00E+00	0.00E+00	0.00E+00	2.11E-02	2.11E-03	2.11E-03	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD6	0.00E+00	0.00E+00	0.00E+00	2.11E-02	2.11E-03	2.11E-03	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD7	0.00E+00	0.00E+00	0.00E+00	2.11E-02	2.11E-03	2.11E-03	0.00E+00	0.00E+00	0.00E+00	4380

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
2MFUGD8	0.00E+00	0.00E+00	0.00E+00	2.11E-02	2.11E-03	2.11E-03	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD9	0.00E+00	0.00E+00	0.00E+00	2.11E-02	2.11E-03	2.11E-03	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD10	0.00E+00	0.00E+00	0.00E+00	2.11E-02	2.11E-03	2.11E-03	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD11	0.00E+00	0.00E+00	0.00E+00	2.11E-02	2.11E-03	2.11E-03	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD12	0.00E+00	0.00E+00	0.00E+00	2.11E-02	2.11E-03	2.11E-03	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD13	0.00E+00	0.00E+00	0.00E+00	2.11E-02	2.11E-03	2.11E-03	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD14	0.00E+00	0.00E+00	0.00E+00	2.11E-02	2.11E-03	2.11E-03	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD15	0.00E+00	0.00E+00	0.00E+00	2.11E-02	2.11E-03	2.11E-03	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD16	0.00E+00	0.00E+00	0.00E+00	2.11E-02	2.11E-03	2.11E-03	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD17	0.00E+00	0.00E+00	0.00E+00	2.11E-02	2.11E-03	2.11E-03	0.00E+00	0.00E+00	0.00E+00	4380
3MFUGD1	0.00E+00	0.00E+00	0.00E+00	2.68E-02	2.68E-03	2.68E-03	0.00E+00	0.00E+00	0.00E+00	4380
3MFUGD2	0.00E+00	0.00E+00	0.00E+00	2.68E-02	2.68E-03	2.68E-03	0.00E+00	0.00E+00	0.00E+00	4380
3MFUGD3	0.00E+00	0.00E+00	0.00E+00	2.68E-02	2.68E-03	2.68E-03	0.00E+00	0.00E+00	0.00E+00	4380
3MFUGD4	0.00E+00	0.00E+00	0.00E+00	2.68E-02	2.68E-03	2.68E-03	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD1	0.00E+00	0.00E+00	0.00E+00	2.68E-02	2.68E-03	2.68E-03	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD2	0.00E+00	0.00E+00	0.00E+00	2.68E-02	2.68E-03	2.68E-03	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD3	0.00E+00	0.00E+00	0.00E+00	2.68E-02	2.68E-03	2.68E-03	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD4	0.00E+00	0.00E+00	0.00E+00	2.68E-02	2.68E-03	2.68E-03	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD1	0.00E+00	0.00E+00	0.00E+00	2.68E-02	2.68E-03	2.68E-03	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD2	0.00E+00	0.00E+00	0.00E+00	2.68E-02	2.68E-03	2.68E-03	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD3	0.00E+00	0.00E+00	0.00E+00	2.68E-02	2.68E-03	2.68E-03	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD4	0.00E+00	0.00E+00	0.00E+00	2.68E-02	2.68E-03	2.68E-03	0.00E+00	0.00E+00	0.00E+00	4380
MINEMFUGD1	0.00E+00	0.00E+00	0.00E+00	2.68E-02	2.68E-03	2.68E-03	0.00E+00	0.00E+00	0.00E+00	4380
MINEMFUGD2	0.00E+00	0.00E+00	0.00E+00	2.68E-02	2.68E-03	2.68E-03	0.00E+00	0.00E+00	0.00E+00	4380
MINEMFUGD3	0.00E+00	0.00E+00	0.00E+00	2.68E-02	2.68E-03	2.68E-03	0.00E+00	0.00E+00	0.00E+00	4380
MINEMFUGD4	0.00E+00	0.00E+00	0.00E+00	2.68E-02	2.68E-03	2.68E-03	0.00E+00	0.00E+00	0.00E+00	4380
2GRVLNR1	2.19E-06	5.73E-06	4.92E-06	3.01E-07	2.92E-07	2.51E-07	2.35E-08	2.35E-08	2.02E-08	Varies
2GRVLNR2	2.19E-06	5.73E-06	4.92E-06	3.01E-07	2.92E-07	2.51E-07	2.35E-08	2.35E-08	2.02E-08	Varies
2GRVLNR3	2.19E-06	5.73E-06	4.92E-06	3.01E-07	2.92E-07	2.51E-07	2.35E-08	2.35E-08	2.02E-08	Varies
2GRVLNR4	2.19E-06	5.73E-06	4.92E-06	3.01E-07	2.92E-07	2.51E-07	2.35E-08	2.35E-08	2.02E-08	Varies
2GRVLNR5	2.19E-06	5.73E-06	4.92E-06	3.01E-07	2.92E-07	2.51E-07	2.35E-08	2.35E-08	2.02E-08	Varies
2GRVLNR6	2.19E-06	5.73E-06	4.92E-06	3.01E-07	2.92E-07	2.51E-07	2.35E-08	2.35E-08	2.02E-08	Varies
2GRVLNR7	2.19E-06	5.73E-06	4.92E-06	3.01E-07	2.92E-07	2.51E-07	2.35E-08	2.35E-08	2.02E-08	Varies

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
2GRVLNR8	2.19E-06	5.73E-06	4.92E-06	3.01E-07	2.92E-07	2.51E-07	2.35E-08	2.35E-08	2.02E-08	Varies
2GRVLNR9	2.19E-06	5.73E-06	4.92E-06	3.01E-07	2.92E-07	2.51E-07	2.35E-08	2.35E-08	2.02E-08	Varies
2GRVLNR10	2.19E-06	5.73E-06	4.92E-06	3.01E-07	2.92E-07	2.51E-07	2.35E-08	2.35E-08	2.02E-08	Varies
2GRVLNR11	2.19E-06	5.73E-06	4.92E-06	3.01E-07	2.92E-07	2.51E-07	2.35E-08	2.35E-08	2.02E-08	Varies
2GRVLNR12	2.19E-06	5.73E-06	4.92E-06	3.01E-07	2.92E-07	2.51E-07	2.35E-08	2.35E-08	2.02E-08	Varies
2GRVLNR13	2.19E-06	5.73E-06	4.92E-06	3.01E-07	2.92E-07	2.51E-07	2.35E-08	2.35E-08	2.02E-08	Varies
2GRVLNR14	2.19E-06	5.73E-06	4.92E-06	3.01E-07	2.92E-07	2.51E-07	2.35E-08	2.35E-08	2.02E-08	Varies
2GRVLNR15	2.19E-06	5.73E-06	4.92E-06	3.01E-07	2.92E-07	2.51E-07	2.35E-08	2.35E-08	2.02E-08	Varies
2GRVLNR16	2.19E-06	5.73E-06	4.92E-06	3.01E-07	2.92E-07	2.51E-07	2.35E-08	2.35E-08	2.02E-08	Varies
2GRVLNR17	2.19E-06	5.73E-06	4.92E-06	3.01E-07	2.92E-07	2.51E-07	2.35E-08	2.35E-08	2.02E-08	Varies
3GRVLNR1	9.31E-06	2.43E-05	2.09E-05	1.28E-06	1.24E-06	1.07E-06	1.00E-07	1.00E-07	8.59E-08	Varies
3GRVLNR2	9.31E-06	2.43E-05	2.09E-05	1.28E-06	1.24E-06	1.07E-06	1.00E-07	1.00E-07	8.59E-08	Varies
3GRVLNR3	9.31E-06	2.43E-05	2.09E-05	1.28E-06	1.24E-06	1.07E-06	1.00E-07	1.00E-07	8.59E-08	Varies
3GRVLNR4	9.31E-06	2.43E-05	2.09E-05	1.28E-06	1.24E-06	1.07E-06	1.00E-07	1.00E-07	8.59E-08	Varies
ICEPDNRHCE	3.31E-02	9.61E-02	8.84E-02	4.31E-03	4.18E-03	3.85E-03	1.51E-04	1.51E-04	1.39E-04	2317.392
ICEPDNROS1	4.33E-04	1.26E-03	1.16E-03	5.64E-05	5.47E-05	5.04E-05	1.97E-06	1.97E-06	1.82E-06	2317.392
ICEPDNROS2	4.33E-04	1.26E-03	1.16E-03	5.64E-05	5.47E-05	5.04E-05	1.97E-06	1.97E-06	1.82E-06	2317.392
ICEPDNROS3	4.33E-04	1.26E-03	1.16E-03	5.64E-05	5.47E-05	5.04E-05	1.97E-06	1.97E-06	1.82E-06	2317.392
ICEPDNROS4	4.33E-04	1.26E-03	1.16E-03	5.64E-05	5.47E-05	5.04E-05	1.97E-06	1.97E-06	1.82E-06	2317.392
ICEPDNROS5	4.33E-04	1.26E-03	1.16E-03	5.64E-05	5.47E-05	5.04E-05	1.97E-06	1.97E-06	1.82E-06	2317.392
ICEPDNROS6	4.33E-04	1.26E-03	1.16E-03	5.64E-05	5.47E-05	5.04E-05	1.97E-06	1.97E-06	1.82E-06	2317.392
ICEPDNROS7	4.33E-04	1.26E-03	1.16E-03	5.64E-05	5.47E-05	5.04E-05	1.97E-06	1.97E-06	1.82E-06	2317.392
ICEPDNROS8	4.33E-04	1.26E-03	1.16E-03	5.64E-05	5.47E-05	5.04E-05	1.97E-06	1.97E-06	1.82E-06	2317.392
ICEPDNROS9	4.33E-04	1.26E-03	1.16E-03	5.64E-05	5.47E-05	5.04E-05	1.97E-06	1.97E-06	1.82E-06	2317.392
ICEPDNROS10	4.33E-04	1.26E-03	1.16E-03	5.64E-05	5.47E-05	5.04E-05	1.97E-06	1.97E-06	1.82E-06	2317.392
ICEPDNROS11	4.33E-04	1.26E-03	1.16E-03	5.64E-05	5.47E-05	5.04E-05	1.97E-06	1.97E-06	1.82E-06	2317.392
ICEPDNROS12	4.33E-04	1.26E-03	1.16E-03	5.64E-05	5.47E-05	5.04E-05	1.97E-06	1.97E-06	1.82E-06	2317.392
ICEPDNROS13	4.33E-04	1.26E-03	1.16E-03	5.64E-05	5.47E-05	5.04E-05	1.97E-06	1.97E-06	1.82E-06	2317.392
ICEPDNROS14	4.33E-04	1.26E-03	1.16E-03	5.64E-05	5.47E-05	5.04E-05	1.97E-06	1.97E-06	1.82E-06	2317.392
ICEPDNROS15	4.33E-04	1.26E-03	1.16E-03	5.64E-05	5.47E-05	5.04E-05	1.97E-06	1.97E-06	1.82E-06	2317.392
ICEPDNROS16	4.33E-04	1.26E-03	1.16E-03	5.64E-05	5.47E-05	5.04E-05	1.97E-06	1.97E-06	1.82E-06	2317.392
ICEPDNROS17	4.33E-04	1.26E-03	1.16E-03	5.64E-05	5.47E-05	5.04E-05	1.97E-06	1.97E-06	1.82E-06	2317.392
ICEPDNROS18	4.33E-04	1.26E-03	1.16E-03	5.64E-05	5.47E-05	5.04E-05	1.97E-06	1.97E-06	1.82E-06	2317.392

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
ICEPDNROS19	4.33E-04	1.26E-03	1.16E-03	5.64E-05	5.47E-05	5.04E-05	1.97E-06	1.97E-06	1.82E-06	2317.392
ICEPDNROS20	4.33E-04	1.26E-03	1.16E-03	5.64E-05	5.47E-05	5.04E-05	1.97E-06	1.97E-06	1.82E-06	2317.392
ICEPDNROS21	4.33E-04	1.26E-03	1.16E-03	5.64E-05	5.47E-05	5.04E-05	1.97E-06	1.97E-06	1.82E-06	2317.392
ICEPDNROS22	4.33E-04	1.26E-03	1.16E-03	5.64E-05	5.47E-05	5.04E-05	1.97E-06	1.97E-06	1.82E-06	2317.392
ICEPDNROS23	4.33E-04	1.26E-03	1.16E-03	5.64E-05	5.47E-05	5.04E-05	1.97E-06	1.97E-06	1.82E-06	2317.392
ICEPDNROS24	4.33E-04	1.26E-03	1.16E-03	5.64E-05	5.47E-05	5.04E-05	1.97E-06	1.97E-06	1.82E-06	2317.392
ICEPDNROS25	4.33E-04	1.26E-03	1.16E-03	5.64E-05	5.47E-05	5.04E-05	1.97E-06	1.97E-06	1.82E-06	2317.392
ICEPDNROS26	4.33E-04	1.26E-03	1.16E-03	5.64E-05	5.47E-05	5.04E-05	1.97E-06	1.97E-06	1.82E-06	2317.392
ICEPDNROS27	4.33E-04	1.26E-03	1.16E-03	5.64E-05	5.47E-05	5.04E-05	1.97E-06	1.97E-06	1.82E-06	2317.392
ICEPDNROS28	4.33E-04	1.26E-03	1.16E-03	5.64E-05	5.47E-05	5.04E-05	1.97E-06	1.97E-06	1.82E-06	2317.392
ICEPDNROS29	4.33E-04	1.26E-03	1.16E-03	5.64E-05	5.47E-05	5.04E-05	1.97E-06	1.97E-06	1.82E-06	2317.392
ICEPDNROS30	4.33E-04	1.26E-03	1.16E-03	5.64E-05	5.47E-05	5.04E-05	1.97E-06	1.97E-06	1.82E-06	2317.392
ICEPDNROS31	4.33E-04	1.26E-03	1.16E-03	5.64E-05	5.47E-05	5.04E-05	1.97E-06	1.97E-06	1.82E-06	2317.392
ICEPDNROS32	4.33E-04	1.26E-03	1.16E-03	5.64E-05	5.47E-05	5.04E-05	1.97E-06	1.97E-06	1.82E-06	2317.392
ICEPDNROS33	4.33E-04	1.26E-03	1.16E-03	5.64E-05	5.47E-05	5.04E-05	1.97E-06	1.97E-06	1.82E-06	2317.392
ICEPDNROS34	4.33E-04	1.26E-03	1.16E-03	5.64E-05	5.47E-05	5.04E-05	1.97E-06	1.97E-06	1.82E-06	2317.392
ICEPDNROS35	4.33E-04	1.26E-03	1.16E-03	5.64E-05	5.47E-05	5.04E-05	1.97E-06	1.97E-06	1.82E-06	2317.392
ICEPDNROS36	4.33E-04	1.26E-03	1.16E-03	5.64E-05	5.47E-05	5.04E-05	1.97E-06	1.97E-06	1.82E-06	2317.392
ICEPDNROS37	4.33E-04	1.26E-03	1.16E-03	5.64E-05	5.47E-05	5.04E-05	1.97E-06	1.97E-06	1.82E-06	2317.392
ICEPDNROS38	4.33E-04	1.26E-03	1.16E-03	5.64E-05	5.47E-05	5.04E-05	1.97E-06	1.97E-06	1.82E-06	2317.392
ICEPDNROS39	4.33E-04	1.26E-03	1.16E-03	5.64E-05	5.47E-05	5.04E-05	1.97E-06	1.97E-06	1.82E-06	2317.392
ICEPDNROS40	4.33E-04	1.26E-03	1.16E-03	5.64E-05	5.47E-05	5.04E-05	1.97E-06	1.97E-06	1.82E-06	2317.392
ICEPDNROS41	4.33E-04	1.26E-03	1.16E-03	5.64E-05	5.47E-05	5.04E-05	1.97E-06	1.97E-06	1.82E-06	2317.392
ICEPDNROS42	4.33E-04	1.26E-03	1.16E-03	5.64E-05	5.47E-05	5.04E-05	1.97E-06	1.97E-06	1.82E-06	2317.392
ICEPDNROS43	4.33E-04	1.26E-03	1.16E-03	5.64E-05	5.47E-05	5.04E-05	1.97E-06	1.97E-06	1.82E-06	2317.392
ICEPDNROS44	4.33E-04	1.26E-03	1.16E-03	5.64E-05	5.47E-05	5.04E-05	1.97E-06	1.97E-06	1.82E-06	2317.392
ICEPDNRIOS1	2.50E-03	7.23E-03	6.66E-03	3.25E-04	3.15E-04	2.90E-04	1.14E-05	1.14E-05	1.05E-05	2317.392
ICEPDNRIOS2	2.50E-03	7.23E-03	6.66E-03	3.25E-04	3.15E-04	2.90E-04	1.14E-05	1.14E-05	1.05E-05	2317.392
ICEPDNRIOS3	2.50E-03	7.23E-03	6.66E-03	3.25E-04	3.15E-04	2.90E-04	1.14E-05	1.14E-05	1.05E-05	2317.392
ICEPDNRIOS4	2.50E-03	7.23E-03	6.66E-03	3.25E-04	3.15E-04	2.90E-04	1.14E-05	1.14E-05	1.05E-05	2317.392
ICEPDNRIOS5	2.50E-03	7.23E-03	6.66E-03	3.25E-04	3.15E-04	2.90E-04	1.14E-05	1.14E-05	1.05E-05	2317.392
ICEPDNRIOS6	2.50E-03	7.23E-03	6.66E-03	3.25E-04	3.15E-04	2.90E-04	1.14E-05	1.14E-05	1.05E-05	2317.392
ICEPDNRIOS7	2.50E-03	7.23E-03	6.66E-03	3.25E-04	3.15E-04	2.90E-04	1.14E-05	1.14E-05	1.05E-05	2317.392

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
ICEPDNRIOS8	2.50E-03	7.23E-03	6.66E-03	3.25E-04	3.15E-04	2.90E-04	1.14E-05	1.14E-05	1.05E-05	2317.392
ICEPDNRIOS9	2.50E-03	7.23E-03	6.66E-03	3.25E-04	3.15E-04	2.90E-04	1.14E-05	1.14E-05	1.05E-05	2317.392
ICEPDNRIOS10	2.50E-03	7.23E-03	6.66E-03	3.25E-04	3.15E-04	2.90E-04	1.14E-05	1.14E-05	1.05E-05	2317.392
ICEPDNRIOS11	2.50E-03	7.23E-03	6.66E-03	3.25E-04	3.15E-04	2.90E-04	1.14E-05	1.14E-05	1.05E-05	2317.392
ICEPDNRIOS12	2.50E-03	7.23E-03	6.66E-03	3.25E-04	3.15E-04	2.90E-04	1.14E-05	1.14E-05	1.05E-05	2317.392
ICEPDNRIOS13	2.50E-03	7.23E-03	6.66E-03	3.25E-04	3.15E-04	2.90E-04	1.14E-05	1.14E-05	1.05E-05	2317.392
ICEPDNRIOS14	2.50E-03	7.23E-03	6.66E-03	3.25E-04	3.15E-04	2.90E-04	1.14E-05	1.14E-05	1.05E-05	2317.392
ICEPDNRIOS15	2.50E-03	7.23E-03	6.66E-03	3.25E-04	3.15E-04	2.90E-04	1.14E-05	1.14E-05	1.05E-05	2317.392
ICEPDNRIOS16	2.50E-03	7.23E-03	6.66E-03	3.25E-04	3.15E-04	2.90E-04	1.14E-05	1.14E-05	1.05E-05	2317.392
ICEPDNRIOS17	2.50E-03	7.23E-03	6.66E-03	3.25E-04	3.15E-04	2.90E-04	1.14E-05	1.14E-05	1.05E-05	2317.392
ICEPDNRIOS18	2.50E-03	7.23E-03	6.66E-03	3.25E-04	3.15E-04	2.90E-04	1.14E-05	1.14E-05	1.05E-05	2317.392
ICEPDNRIOS19	2.50E-03	7.23E-03	6.66E-03	3.25E-04	3.15E-04	2.90E-04	1.14E-05	1.14E-05	1.05E-05	2317.392
ICEPDNRIOS20	2.50E-03	7.23E-03	6.66E-03	3.25E-04	3.15E-04	2.90E-04	1.14E-05	1.14E-05	1.05E-05	2317.392
ICEPDNRIOS21	2.50E-03	7.23E-03	6.66E-03	3.25E-04	3.15E-04	2.90E-04	1.14E-05	1.14E-05	1.05E-05	2317.392
ICEPDNRIOS22	2.50E-03	7.23E-03	6.66E-03	3.25E-04	3.15E-04	2.90E-04	1.14E-05	1.14E-05	1.05E-05	2317.392
ICEPDNRIOS23	2.50E-03	7.23E-03	6.66E-03	3.25E-04	3.15E-04	2.90E-04	1.14E-05	1.14E-05	1.05E-05	2317.392
ICEPDNRIOS24	2.50E-03	7.23E-03	6.66E-03	3.25E-04	3.15E-04	2.90E-04	1.14E-05	1.14E-05	1.05E-05	2317.392
ICEPDNRIOS25	2.50E-03	7.23E-03	6.66E-03	3.25E-04	3.15E-04	2.90E-04	1.14E-05	1.14E-05	1.05E-05	2317.392
ICEPDNRIOS26	2.50E-03	7.23E-03	6.66E-03	3.25E-04	3.15E-04	2.90E-04	1.14E-05	1.14E-05	1.05E-05	2317.392
ICEPDNRIOS27	2.50E-03	7.23E-03	6.66E-03	3.25E-04	3.15E-04	2.90E-04	1.14E-05	1.14E-05	1.05E-05	2317.392
ICEPDNRIOS28	2.50E-03	7.23E-03	6.66E-03	3.25E-04	3.15E-04	2.90E-04	1.14E-05	1.14E-05	1.05E-05	2317.392
ICEPDNRIOS29	2.50E-03	7.23E-03	6.66E-03	3.25E-04	3.15E-04	2.90E-04	1.14E-05	1.14E-05	1.05E-05	2317.392
ICEPDNRIOS30	2.50E-03	7.23E-03	6.66E-03	3.25E-04	3.15E-04	2.90E-04	1.14E-05	1.14E-05	1.05E-05	2317.392
ICEPDNRIOS31	2.50E-03	7.23E-03	6.66E-03	3.25E-04	3.15E-04	2.90E-04	1.14E-05	1.14E-05	1.05E-05	2317.392
ICEPDNRIOS32	2.50E-03	7.23E-03	6.66E-03	3.25E-04	3.15E-04	2.90E-04	1.14E-05	1.14E-05	1.05E-05	2317.392
ICEPDNRIOS33	2.50E-03	7.23E-03	6.66E-03	3.25E-04	3.15E-04	2.90E-04	1.14E-05	1.14E-05	1.05E-05	2317.392
ICEPDNRIOS34	2.50E-03	7.23E-03	6.66E-03	3.25E-04	3.15E-04	2.90E-04	1.14E-05	1.14E-05	1.05E-05	2317.392
ICEPDNRIOS35	2.50E-03	7.23E-03	6.66E-03	3.25E-04	3.15E-04	2.90E-04	1.14E-05	1.14E-05	1.05E-05	2317.392
ICEPDNRIOS36	2.50E-03	7.23E-03	6.66E-03	3.25E-04	3.15E-04	2.90E-04	1.14E-05	1.14E-05	1.05E-05	2317.392
ICEPDNRIOS37	2.50E-03	7.23E-03	6.66E-03	3.25E-04	3.15E-04	2.90E-04	1.14E-05	1.14E-05	1.05E-05	2317.392
ICEPDNRIOS38	2.50E-03	7.23E-03	6.66E-03	3.25E-04	3.15E-04	2.90E-04	1.14E-05	1.14E-05	1.05E-05	2317.392
ICEPDNRIOS39	2.50E-03	7.23E-03	6.66E-03	3.25E-04	3.15E-04	2.90E-04	1.14E-05	1.14E-05	1.05E-05	2317.392
ICEPDNRIOS40	2.50E-03	7.23E-03	6.66E-03	3.25E-04	3.15E-04	2.90E-04	1.14E-05	1.14E-05	1.05E-05	2317.392

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
ICEPDNRIOS41	2.50E-03	7.23E-03	6.66E-03	3.25E-04	3.15E-04	2.90E-04	1.14E-05	1.14E-05	1.05E-05	2317.392
ICEPDNRIOS42	2.50E-03	7.23E-03	6.66E-03	3.25E-04	3.15E-04	2.90E-04	1.14E-05	1.14E-05	1.05E-05	2317.392
ICEPDNRIOS43	2.50E-03	7.23E-03	6.66E-03	3.25E-04	3.15E-04	2.90E-04	1.14E-05	1.14E-05	1.05E-05	2317.392
ICEPDNRIOS44	2.50E-03	7.23E-03	6.66E-03	3.25E-04	3.15E-04	2.90E-04	1.14E-05	1.14E-05	1.05E-05	2317.392
ICEPDNRPIP1	2.80E-03	8.13E-03	7.48E-03	3.65E-04	3.54E-04	3.26E-04	1.28E-05	1.28E-05	1.17E-05	2317.392
ICEPDNRPIP2	2.80E-03	8.13E-03	7.48E-03	3.65E-04	3.54E-04	3.26E-04	1.28E-05	1.28E-05	1.17E-05	2317.392
ICEPDNRPIP3	2.80E-03	8.13E-03	7.48E-03	3.65E-04	3.54E-04	3.26E-04	1.28E-05	1.28E-05	1.17E-05	2317.392
ICEPDNRPIP4	2.80E-03	8.13E-03	7.48E-03	3.65E-04	3.54E-04	3.26E-04	1.28E-05	1.28E-05	1.17E-05	2317.392
ICEPDNRPIP5	2.80E-03	8.13E-03	7.48E-03	3.65E-04	3.54E-04	3.26E-04	1.28E-05	1.28E-05	1.17E-05	2317.392
ICEPDNRPIP6	2.80E-03	8.13E-03	7.48E-03	3.65E-04	3.54E-04	3.26E-04	1.28E-05	1.28E-05	1.17E-05	2317.392
ICEPDNRPIP7	2.80E-03	8.13E-03	7.48E-03	3.65E-04	3.54E-04	3.26E-04	1.28E-05	1.28E-05	1.17E-05	2317.392
ICEPDNRPIP8	2.80E-03	8.13E-03	7.48E-03	3.65E-04	3.54E-04	3.26E-04	1.28E-05	1.28E-05	1.17E-05	2317.392
ICEPDNRPIP9	2.80E-03	8.13E-03	7.48E-03	3.65E-04	3.54E-04	3.26E-04	1.28E-05	1.28E-05	1.17E-05	2317.392
ICEPDNRPIP10	2.80E-03	8.13E-03	7.48E-03	3.65E-04	3.54E-04	3.26E-04	1.28E-05	1.28E-05	1.17E-05	2317.392
ICEPDNRPIP11	2.80E-03	8.13E-03	7.48E-03	3.65E-04	3.54E-04	3.26E-04	1.28E-05	1.28E-05	1.17E-05	2317.392
ICEPDNRPIP12	2.80E-03	8.13E-03	7.48E-03	3.65E-04	3.54E-04	3.26E-04	1.28E-05	1.28E-05	1.17E-05	2317.392
ICEPDNRPIP13	2.80E-03	8.13E-03	7.48E-03	3.65E-04	3.54E-04	3.26E-04	1.28E-05	1.28E-05	1.17E-05	2317.392
ICEPDNRPIP14	2.80E-03	8.13E-03	7.48E-03	3.65E-04	3.54E-04	3.26E-04	1.28E-05	1.28E-05	1.17E-05	2317.392
ICEPDNRPIP15	2.80E-03	8.13E-03	7.48E-03	3.65E-04	3.54E-04	3.26E-04	1.28E-05	1.28E-05	1.17E-05	2317.392
ICEPDNRPIP16	2.80E-03	8.13E-03	7.48E-03	3.65E-04	3.54E-04	3.26E-04	1.28E-05	1.28E-05	1.17E-05	2317.392
ICEPDNRPIP17	2.80E-03	8.13E-03	7.48E-03	3.65E-04	3.54E-04	3.26E-04	1.28E-05	1.28E-05	1.17E-05	2317.392
ICEPDNRPIP18	2.80E-03	8.13E-03	7.48E-03	3.65E-04	3.54E-04	3.26E-04	1.28E-05	1.28E-05	1.17E-05	2317.392
ICEPDNRPIP19	2.80E-03	8.13E-03	7.48E-03	3.65E-04	3.54E-04	3.26E-04	1.28E-05	1.28E-05	1.17E-05	2317.392
ICEPDNRPIP20	2.80E-03	8.13E-03	7.48E-03	3.65E-04	3.54E-04	3.26E-04	1.28E-05	1.28E-05	1.17E-05	2317.392
ICEPDNRPIP21	2.80E-03	8.13E-03	7.48E-03	3.65E-04	3.54E-04	3.26E-04	1.28E-05	1.28E-05	1.17E-05	2317.392
ICEPDNRPIP22	2.80E-03	8.13E-03	7.48E-03	3.65E-04	3.54E-04	3.26E-04	1.28E-05	1.28E-05	1.17E-05	2317.392
ICEPDNRPIP23	2.80E-03	8.13E-03	7.48E-03	3.65E-04	3.54E-04	3.26E-04	1.28E-05	1.28E-05	1.17E-05	2317.392
ICEPDNRPIP24	2.80E-03	8.13E-03	7.48E-03	3.65E-04	3.54E-04	3.26E-04	1.28E-05	1.28E-05	1.17E-05	2317.392
ICEPDNRPIP25	2.80E-03	8.13E-03	7.48E-03	3.65E-04	3.54E-04	3.26E-04	1.28E-05	1.28E-05	1.17E-05	2317.392
ICEPDNRPIP26	2.80E-03	8.13E-03	7.48E-03	3.65E-04	3.54E-04	3.26E-04	1.28E-05	1.28E-05	1.17E-05	2317.392
ICEPDNRPIP27	2.80E-03	8.13E-03	7.48E-03	3.65E-04	3.54E-04	3.26E-04	1.28E-05	1.28E-05	1.17E-05	2317.392
ICEPDNRPIP28	2.80E-03	8.13E-03	7.48E-03	3.65E-04	3.54E-04	3.26E-04	1.28E-05	1.28E-05	1.17E-05	2317.392
ICEPDNRPIP29	2.80E-03	8.13E-03	7.48E-03	3.65E-04	3.54E-04	3.26E-04	1.28E-05	1.28E-05	1.17E-05	2317.392

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
ICEPDNRPIP30	2.80E-03	8.13E-03	7.48E-03	3.65E-04	3.54E-04	3.26E-04	1.28E-05	1.28E-05	1.17E-05	2317.392
ICEPDNRPIP31	2.80E-03	8.13E-03	7.48E-03	3.65E-04	3.54E-04	3.26E-04	1.28E-05	1.28E-05	1.17E-05	2317.392
ICEPDNRPIP32	2.80E-03	8.13E-03	7.48E-03	3.65E-04	3.54E-04	3.26E-04	1.28E-05	1.28E-05	1.17E-05	2317.392
ICEPDNRPIP33	2.80E-03	8.13E-03	7.48E-03	3.65E-04	3.54E-04	3.26E-04	1.28E-05	1.28E-05	1.17E-05	2317.392
ICEPDNRPIP34	2.80E-03	8.13E-03	7.48E-03	3.65E-04	3.54E-04	3.26E-04	1.28E-05	1.28E-05	1.17E-05	2317.392
ICEPDNRPIP35	2.80E-03	8.13E-03	7.48E-03	3.65E-04	3.54E-04	3.26E-04	1.28E-05	1.28E-05	1.17E-05	2317.392
ICEPDNRPIP36	2.80E-03	8.13E-03	7.48E-03	3.65E-04	3.54E-04	3.26E-04	1.28E-05	1.28E-05	1.17E-05	2317.392
ICEPDNRPIP37	2.80E-03	8.13E-03	7.48E-03	3.65E-04	3.54E-04	3.26E-04	1.28E-05	1.28E-05	1.17E-05	2317.392
ICEPDNRPIP38	2.80E-03	8.13E-03	7.48E-03	3.65E-04	3.54E-04	3.26E-04	1.28E-05	1.28E-05	1.17E-05	2317.392
ICEPDNRPIP39	2.80E-03	8.13E-03	7.48E-03	3.65E-04	3.54E-04	3.26E-04	1.28E-05	1.28E-05	1.17E-05	2317.392
ICEPDNRPIP40	2.80E-03	8.13E-03	7.48E-03	3.65E-04	3.54E-04	3.26E-04	1.28E-05	1.28E-05	1.17E-05	2317.392
ICEPDNRPIP41	2.80E-03	8.13E-03	7.48E-03	3.65E-04	3.54E-04	3.26E-04	1.28E-05	1.28E-05	1.17E-05	2317.392
ICEPDNRPIP42	2.80E-03	8.13E-03	7.48E-03	3.65E-04	3.54E-04	3.26E-04	1.28E-05	1.28E-05	1.17E-05	2317.392
ICEPDNRPIP43	2.80E-03	8.13E-03	7.48E-03	3.65E-04	3.54E-04	3.26E-04	1.28E-05	1.28E-05	1.17E-05	2317.392
ICEPDNRPIP44	2.80E-03	8.13E-03	7.48E-03	3.65E-04	3.54E-04	3.26E-04	1.28E-05	1.28E-05	1.17E-05	2317.392
ICEPDNRHDD1	1.26E-02	3.66E-02	3.37E-02	1.64E-03	1.59E-03	1.47E-03	5.75E-05	5.75E-05	5.29E-05	2317.392
ICEPDNRHDD2	1.12E-02	3.25E-02	2.99E-02	1.46E-03	1.42E-03	1.30E-03	5.11E-05	5.11E-05	4.70E-05	2317.392
ICERDNRS1	1.73E-04	2.73E-04	2.51E-04	2.26E-05	2.19E-05	2.02E-05	7.89E-07	7.89E-07	7.27E-07	4272.8
ICERDNRS2	1.73E-04	2.73E-04	2.51E-04	2.26E-05	2.19E-05	2.02E-05	7.89E-07	7.89E-07	7.27E-07	4272.8
ICERDNRS3	1.73E-04	2.73E-04	2.51E-04	2.26E-05	2.19E-05	2.02E-05	7.89E-07	7.89E-07	7.27E-07	4272.8
ICERDNRS4	1.73E-04	2.73E-04	2.51E-04	2.26E-05	2.19E-05	2.02E-05	7.89E-07	7.89E-07	7.27E-07	4272.8
ICERDNRN1	1.73E-04	2.73E-04	2.51E-04	2.26E-05	2.19E-05	2.02E-05	7.89E-07	7.89E-07	7.27E-07	4272.8
ICERDNRN2	1.73E-04	2.73E-04	2.51E-04	2.26E-05	2.19E-05	2.02E-05	7.89E-07	7.89E-07	7.27E-07	4272.8
ICERDNRN3	1.73E-04	2.73E-04	2.51E-04	2.26E-05	2.19E-05	2.02E-05	7.89E-07	7.89E-07	7.27E-07	4272.8
ICERDNRN4	1.73E-04	2.73E-04	2.51E-04	2.26E-05	2.19E-05	2.02E-05	7.89E-07	7.89E-07	7.27E-07	4272.8
PIPNR1	3.25E-06	1.16E-05	8.42E-06	4.98E-07	4.83E-07	3.49E-07	3.69E-08	3.69E-08	2.64E-08	Varies
PIPNR2	3.25E-06	1.16E-05	8.42E-06	4.98E-07	4.83E-07	3.49E-07	3.69E-08	3.69E-08	2.64E-08	Varies
PIPNR3	3.25E-06	1.16E-05	8.42E-06	4.98E-07	4.83E-07	3.49E-07	3.69E-08	3.69E-08	2.64E-08	Varies
PIPNR4	3.25E-06	1.16E-05	8.42E-06	4.98E-07	4.83E-07	3.49E-07	3.69E-08	3.69E-08	2.64E-08	Varies
VSMNR1	3.40E-06	9.07E-06	8.44E-06	4.82E-07	4.68E-07	4.62E-07	1.77E-08	1.77E-08	1.57E-08	Varies
VSMNR2	3.40E-06	9.07E-06	8.44E-06	4.82E-07	4.68E-07	4.62E-07	1.77E-08	1.77E-08	1.57E-08	Varies
VSMNR3	3.40E-06	9.07E-06	8.44E-06	4.82E-07	4.68E-07	4.62E-07	1.77E-08	1.77E-08	1.57E-08	Varies
VSMNR4	3.40E-06	9.07E-06	8.44E-06	4.82E-07	4.68E-07	4.62E-07	1.77E-08	1.77E-08	1.57E-08	Varies

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
FBROPNR1	1.75E-06	2.90E-06	2.18E-06	2.30E-07	2.23E-07	7.70E-08	6.07E-09	6.07E-09	3.58E-09	Varies
FBROPNR2	1.75E-06	2.90E-06	2.18E-06	2.30E-07	2.23E-07	7.70E-08	6.07E-09	6.07E-09	3.58E-09	Varies
FBROPNR3	1.75E-06	2.90E-06	2.18E-06	2.30E-07	2.23E-07	7.70E-08	6.07E-09	6.07E-09	3.58E-09	Varies
FBROPNR4	1.75E-06	2.90E-06	2.18E-06	2.30E-07	2.23E-07	7.70E-08	6.07E-09	6.07E-09	3.58E-09	Varies
3PADNR1	1.48E-02	3.87E-02	3.33E-02	2.04E-03	1.97E-03	1.70E-03	1.59E-04	1.59E-04	1.37E-04	Varies
3PADNR2	1.48E-02	3.87E-02	3.33E-02	2.04E-03	1.97E-03	1.70E-03	1.59E-04	1.59E-04	1.37E-04	Varies
3PADNR3	1.48E-02	3.87E-02	3.33E-02	2.04E-03	1.97E-03	1.70E-03	1.59E-04	1.59E-04	1.37E-04	Varies
3PADNR4	1.48E-02	3.87E-02	3.33E-02	2.04E-03	1.97E-03	1.70E-03	1.59E-04	1.59E-04	1.37E-04	Varies
MINENR1	1.63E-02	3.81E-02	2.23E-02	2.24E-03	2.18E-03	1.37E-03	9.24E-05	9.24E-05	5.02E-05	Varies
MINENR2	1.63E-02	3.81E-02	2.23E-02	2.24E-03	2.18E-03	1.37E-03	9.24E-05	9.24E-05	5.02E-05	Varies
MINENR3	1.63E-02	3.81E-02	2.23E-02	2.24E-03	2.18E-03	1.37E-03	9.24E-05	9.24E-05	5.02E-05	Varies
MINENR4	1.63E-02	3.81E-02	2.23E-02	2.24E-03	2.18E-03	1.37E-03	9.24E-05	9.24E-05	5.02E-05	Varies
MINENR5	1.63E-02	3.81E-02	2.23E-02	2.24E-03	2.18E-03	1.37E-03	9.24E-05	9.24E-05	5.02E-05	Varies
MINENR6	1.63E-02	3.81E-02	2.23E-02	2.24E-03	2.18E-03	1.37E-03	9.24E-05	9.24E-05	5.02E-05	Varies
MINENR7	1.63E-02	3.81E-02	2.23E-02	2.24E-03	2.18E-03	1.37E-03	9.24E-05	9.24E-05	5.02E-05	Varies
MINENR8	1.63E-02	3.81E-02	2.23E-02	2.24E-03	2.18E-03	1.37E-03	9.24E-05	9.24E-05	5.02E-05	Varies
MINENR9	1.63E-02	3.81E-02	2.23E-02	2.24E-03	2.18E-03	1.37E-03	9.24E-05	9.24E-05	5.02E-05	Varies
3PADOHT1	2.19E-02	5.49E-02	3.79E-02	3.08E-03	2.99E-03	2.07E-03	1.44E-04	1.44E-04	9.94E-05	3528
3PADOHT2	2.19E-02	5.49E-02	3.79E-02	3.08E-03	2.99E-03	2.07E-03	1.44E-04	1.44E-04	9.94E-05	3528
3PADOHT3	2.19E-02	5.49E-02	3.79E-02	3.08E-03	2.99E-03	2.07E-03	1.44E-04	1.44E-04	9.94E-05	3528
3PADOHT4	2.19E-02	5.49E-02	3.79E-02	3.08E-03	2.99E-03	2.07E-03	1.44E-04	1.44E-04	9.94E-05	3528
2GRVLOHT1	6.91E-06	1.73E-05	1.19E-05	9.71E-07	9.42E-07	6.50E-07	4.53E-08	4.53E-08	3.13E-08	1512
2GRVLOHT2	6.91E-06	1.73E-05	1.19E-05	9.71E-07	9.42E-07	6.50E-07	4.53E-08	4.53E-08	3.13E-08	1512
2GRVLOHT3	6.91E-06	1.73E-05	1.19E-05	9.71E-07	9.42E-07	6.50E-07	4.53E-08	4.53E-08	3.13E-08	1512
2GRVLOHT4	6.91E-06	1.73E-05	1.19E-05	9.71E-07	9.42E-07	6.50E-07	4.53E-08	4.53E-08	3.13E-08	1512
2GRVLOHT5	6.91E-06	1.73E-05	1.19E-05	9.71E-07	9.42E-07	6.50E-07	4.53E-08	4.53E-08	3.13E-08	1512
2GRVLOHT6	6.91E-06	1.73E-05	1.19E-05	9.71E-07	9.42E-07	6.50E-07	4.53E-08	4.53E-08	3.13E-08	1512
2GRVLOHT7	6.91E-06	1.73E-05	1.19E-05	9.71E-07	9.42E-07	6.50E-07	4.53E-08	4.53E-08	3.13E-08	1512
2GRVLOHT8	6.91E-06	1.73E-05	1.19E-05	9.71E-07	9.42E-07	6.50E-07	4.53E-08	4.53E-08	3.13E-08	1512
2GRVLOHT9	6.91E-06	1.73E-05	1.19E-05	9.71E-07	9.42E-07	6.50E-07	4.53E-08	4.53E-08	3.13E-08	1512
2GRVLOHT10	6.91E-06	1.73E-05	1.19E-05	9.71E-07	9.42E-07	6.50E-07	4.53E-08	4.53E-08	3.13E-08	1512
2GRVLOHT11	6.91E-06	1.73E-05	1.19E-05	9.71E-07	9.42E-07	6.50E-07	4.53E-08	4.53E-08	3.13E-08	1512
2GRVLOHT12	6.91E-06	1.73E-05	1.19E-05	9.71E-07	9.42E-07	6.50E-07	4.53E-08	4.53E-08	3.13E-08	1512

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
2GRVLOHT13	6.91E-06	1.73E-05	1.19E-05	9.71E-07	9.42E-07	6.50E-07	4.53E-08	4.53E-08	3.13E-08	1512
2GRVLOHT14	6.91E-06	1.73E-05	1.19E-05	9.71E-07	9.42E-07	6.50E-07	4.53E-08	4.53E-08	3.13E-08	1512
2GRVLOHT15	6.91E-06	1.73E-05	1.19E-05	9.71E-07	9.42E-07	6.50E-07	4.53E-08	4.53E-08	3.13E-08	1512
2GRVLOHT16	6.91E-06	1.73E-05	1.19E-05	9.71E-07	9.42E-07	6.50E-07	4.53E-08	4.53E-08	3.13E-08	1512
2GRVLOHT17	6.91E-06	1.73E-05	1.19E-05	9.71E-07	9.42E-07	6.50E-07	4.53E-08	4.53E-08	3.13E-08	1512
3GRVLOHT1	6.91E-06	1.73E-05	1.19E-05	9.71E-07	9.42E-07	6.50E-07	4.53E-08	4.53E-08	3.13E-08	1512
3GRVLOHT2	6.91E-06	1.73E-05	1.19E-05	9.71E-07	9.42E-07	6.50E-07	4.53E-08	4.53E-08	3.13E-08	1512
3GRVLOHT3	6.91E-06	1.73E-05	1.19E-05	9.71E-07	9.42E-07	6.50E-07	4.53E-08	4.53E-08	3.13E-08	1512
3GRVLOHT4	6.91E-06	1.73E-05	1.19E-05	9.71E-07	9.42E-07	6.50E-07	4.53E-08	4.53E-08	3.13E-08	1512
MINEOHT1	9.16E-03	2.29E-02	1.58E-02	1.29E-03	1.25E-03	8.62E-04	6.01E-05	6.01E-05	4.15E-05	1512
MINEOHT2	9.16E-03	2.29E-02	1.58E-02	1.29E-03	1.25E-03	8.62E-04	6.01E-05	6.01E-05	4.15E-05	1512
MINEOHT3	9.16E-03	2.29E-02	1.58E-02	1.29E-03	1.25E-03	8.62E-04	6.01E-05	6.01E-05	4.15E-05	1512
MINEOHT4	9.16E-03	2.29E-02	1.58E-02	1.29E-03	1.25E-03	8.62E-04	6.01E-05	6.01E-05	4.15E-05	1512
MINEOHT5	9.16E-03	2.29E-02	1.58E-02	1.29E-03	1.25E-03	8.62E-04	6.01E-05	6.01E-05	4.15E-05	1512
MINEOHT6	9.16E-03	2.29E-02	1.58E-02	1.29E-03	1.25E-03	8.62E-04	6.01E-05	6.01E-05	4.15E-05	1512
MINEOHT7	9.16E-03	2.29E-02	1.58E-02	1.29E-03	1.25E-03	8.62E-04	6.01E-05	6.01E-05	4.15E-05	1512
MINEOHT8	9.16E-03	2.29E-02	1.58E-02	1.29E-03	1.25E-03	8.62E-04	6.01E-05	6.01E-05	4.15E-05	1512
MINEOHT9	9.16E-03	2.29E-02	1.58E-02	1.29E-03	1.25E-03	8.62E-04	6.01E-05	6.01E-05	4.15E-05	1512
WCFFACNR1	9.84E-02	1.58E-01	1.31E-01	1.37E-02	1.33E-02	1.14E-02	2.69E-04	2.69E-04	2.23E-04	Varies
WCFFACNR2	9.84E-02	1.58E-01	1.31E-01	1.37E-02	1.33E-02	1.14E-02	2.69E-04	2.69E-04	2.23E-04	Varies
WCFFACNR3	9.84E-02	1.58E-01	1.31E-01	1.37E-02	1.33E-02	1.14E-02	2.69E-04	2.69E-04	2.23E-04	Varies
WCFFACNR4	9.84E-02	1.58E-01	1.31E-01	1.37E-02	1.33E-02	1.14E-02	2.69E-04	2.69E-04	2.23E-04	Varies
WLW2GEN	1.25E-01	2.28E-01	1.30E-02	7.13E-03	7.13E-03	4.07E-04	0.00E+00	0.00E+00	0.00E+00	500
WOCNPWRGEN	3.89E+00	3.89E+00	1.94E+00	1.11E-01	1.11E-01	5.56E-02	7.35E-03	7.35E-03	3.67E-03	4380
WOCNTEMPTRB	5.29E+00	6.96E+00	6.96E+00	1.83E-01	1.83E-01	1.83E-01	2.37E-02	2.37E-02	2.37E-02	8760
WOCNFACHTR1	5.99E-02	2.39E-01	9.18E-02	2.85E-02	2.55E-02	9.78E-03	2.55E-03	2.55E-03	9.78E-04	1680
WOCNFACNMAC	2.63E-02	4.01E-02	3.84E-03	3.45E-03	3.35E-03	3.21E-04	9.97E-05	9.97E-05	9.56E-06	420
WOCNFACNR	1.32E-01	2.01E-01	1.64E-01	1.82E-02	1.77E-02	1.51E-02	3.23E-04	3.23E-04	2.56E-04	Varies
WOCNFACNMGS1	3.61E-02	1.30E-01	4.99E-02	7.79E-03	7.55E-03	2.90E-03	1.54E-04	1.54E-04	5.89E-05	1680
WOCNFACNMGS2	5.85E-02	1.10E-01	4.23E-02	8.67E-03	8.41E-03	3.22E-03	9.43E-05	9.43E-05	3.62E-05	1680
WOCNFUGD	0.00E+00	0.00E+00	0.00E+00	9.17E-02	1.75E-02	1.75E-02	0.00E+00	0.00E+00	0.00E+00	4380
WOCNDRILLPE	1.07E+00	2.05E-01	2.46E+00	9.17E-03	9.17E-03	1.10E-01	5.64E-04	5.64E-04	6.77E-03	8760
WOCNDRILLCP1	1.75E-01	2.00E-02	1.37E-02	1.00E-03	1.00E-03	6.85E-04	3.31E-04	3.31E-04	2.27E-04	500

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
WOCNDRILLCP2	1.75E-01	2.00E-02	1.37E-02	1.00E-03	1.00E-03	6.85E-04	3.31E-04	3.31E-04	2.27E-04	500
WOCNDRILLB1	1.53E-02	6.12E-02	7.34E-01	7.28E-03	6.51E-03	7.82E-02	6.51E-04	6.51E-04	7.82E-03	8760
WOCNDRILLB2	1.53E-02	6.12E-02	7.34E-01	7.28E-03	6.51E-03	7.82E-02	6.51E-04	6.51E-04	7.82E-03	8760
WOCNDRILLAH1	1.83E-02	7.30E-02	8.77E-01	8.69E-03	7.78E-03	9.33E-02	7.78E-04	7.78E-04	9.33E-03	8760
WOCNDRILLAH2	9.13E-03	3.65E-02	4.38E-01	4.35E-03	3.89E-03	4.67E-02	3.89E-04	3.89E-04	4.67E-03	8760
WOCDRILLMP	1.37E-02	5.48E-02	6.57E-01	6.52E-03	5.83E-03	7.00E-02	5.83E-04	5.83E-04	7.00E-03	8760
WOCNDRILLNMT	4.91E-01	5.61E-01	6.74E+00	2.81E-02	2.81E-02	3.37E-01	1.04E-03	1.04E-03	1.24E-02	8760
WOCNDRILLNML	7.22E-02	8.20E-02	9.84E-01	8.75E-03	8.75E-03	1.05E-01	7.24E-05	7.24E-05	8.69E-04	8760
WOCNDRILLNMP	3.51E-02	3.30E-02	3.96E-01	2.81E-03	2.81E-03	3.37E-02	4.64E-05	4.64E-05	5.57E-04	8760
WOCNDRILLPW	5.97E-02	5.61E-02	6.73E-01	4.77E-03	4.77E-03	5.73E-02	7.90E-05	7.90E-05	9.48E-04	8760
WOCNDRILLHS	2.15E-02	8.59E-02	1.03E+00	1.02E-02	9.15E-03	1.10E-01	9.15E-04	9.15E-04	1.10E-02	8760
WOCNTAIL1	3.12E-04	3.72E-04	3.72E-04	3.27E-05	1.99E-05	1.99E-05	1.33E-06	1.33E-06	1.33E-06	8760
WOCNTAIL2	3.12E-04	3.72E-04	3.72E-04	3.27E-05	1.99E-05	1.99E-05	1.33E-06	1.33E-06	1.33E-06	8760
WOCNTAIL3	3.12E-04	3.72E-04	3.72E-04	3.27E-05	1.99E-05	1.99E-05	1.33E-06	1.33E-06	1.33E-06	8760
WOCNTAIL4	3.12E-04	3.72E-04	3.72E-04	3.27E-05	1.99E-05	1.99E-05	1.33E-06	1.33E-06	1.33E-06	8760
WOCNMFUGD1	0.00E+00	0.00E+00	0.00E+00	2.68E-02	2.68E-03	2.68E-03	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD2	0.00E+00	0.00E+00	0.00E+00	2.68E-02	2.68E-03	2.68E-03	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD3	0.00E+00	0.00E+00	0.00E+00	2.68E-02	2.68E-03	2.68E-03	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD4	0.00E+00	0.00E+00	0.00E+00	2.68E-02	2.68E-03	2.68E-03	0.00E+00	0.00E+00	0.00E+00	4380
WILLOWAIRN1	1.33E-07	4.55E-08	4.55E-08	2.17E-09	2.17E-09	2.17E-09	3.92E-09	3.92E-09	3.92E-09	8760
WILLOWAIRN2	1.33E-07	4.55E-08	4.55E-08	2.17E-09	2.17E-09	2.17E-09	3.92E-09	3.92E-09	3.92E-09	8760
WILLOWAIRN3	1.33E-07	4.55E-08	4.55E-08	2.17E-09	2.17E-09	2.17E-09	3.92E-09	3.92E-09	3.92E-09	8760
WOCPCES	7.88E-08	3.56E-07	3.56E-07	2.83E-08	2.75E-08	2.75E-08	7.86E-10	7.86E-10	7.86E-10	8760
WOCSCES	6.12E-08	1.07E-07	1.07E-07	8.44E-09	8.44E-09	8.44E-09	7.50E-09	7.50E-09	7.50E-09	8760
WOCNRES	5.55E-07	2.47E-06	1.86E-06	2.08E-07	1.99E-07	1.35E-07	7.98E-09	7.98E-09	1.46E-09	8760
WOCPCEN	7.88E-08	3.56E-07	3.56E-07	2.83E-08	2.75E-08	2.75E-08	7.86E-10	7.86E-10	7.86E-10	8760
WOCSCEN	6.12E-08	1.07E-07	1.07E-07	8.44E-09	8.44E-09	8.44E-09	7.50E-09	7.50E-09	7.50E-09	8760
WOCNREN	5.55E-07	2.47E-06	1.86E-06	2.08E-07	1.99E-07	1.35E-07	7.98E-09	7.98E-09	1.46E-09	8760
WLWIG01S	3.99E-02	9.94E-02	8.28E-02	1.36E-01	1.36E-01	1.13E-01	3.54E-03	3.54E-03	2.95E-03	7300
WLWIG02S	3.99E-02	9.94E-02	8.28E-02	1.36E-01	1.36E-01	1.13E-01	3.54E-03	3.54E-03	2.95E-03	7300
WLWIG01N	3.99E-02	9.94E-02	8.28E-02	1.36E-01	1.36E-01	1.13E-01	3.54E-03	3.54E-03	2.95E-03	7300
WLWIG02N	3.99E-02	9.94E-02	8.28E-02	1.36E-01	1.36E-01	1.13E-01	3.54E-03	3.54E-03	2.95E-03	7300

A.2.2 Scenario 2: BT1 Pre-Drill

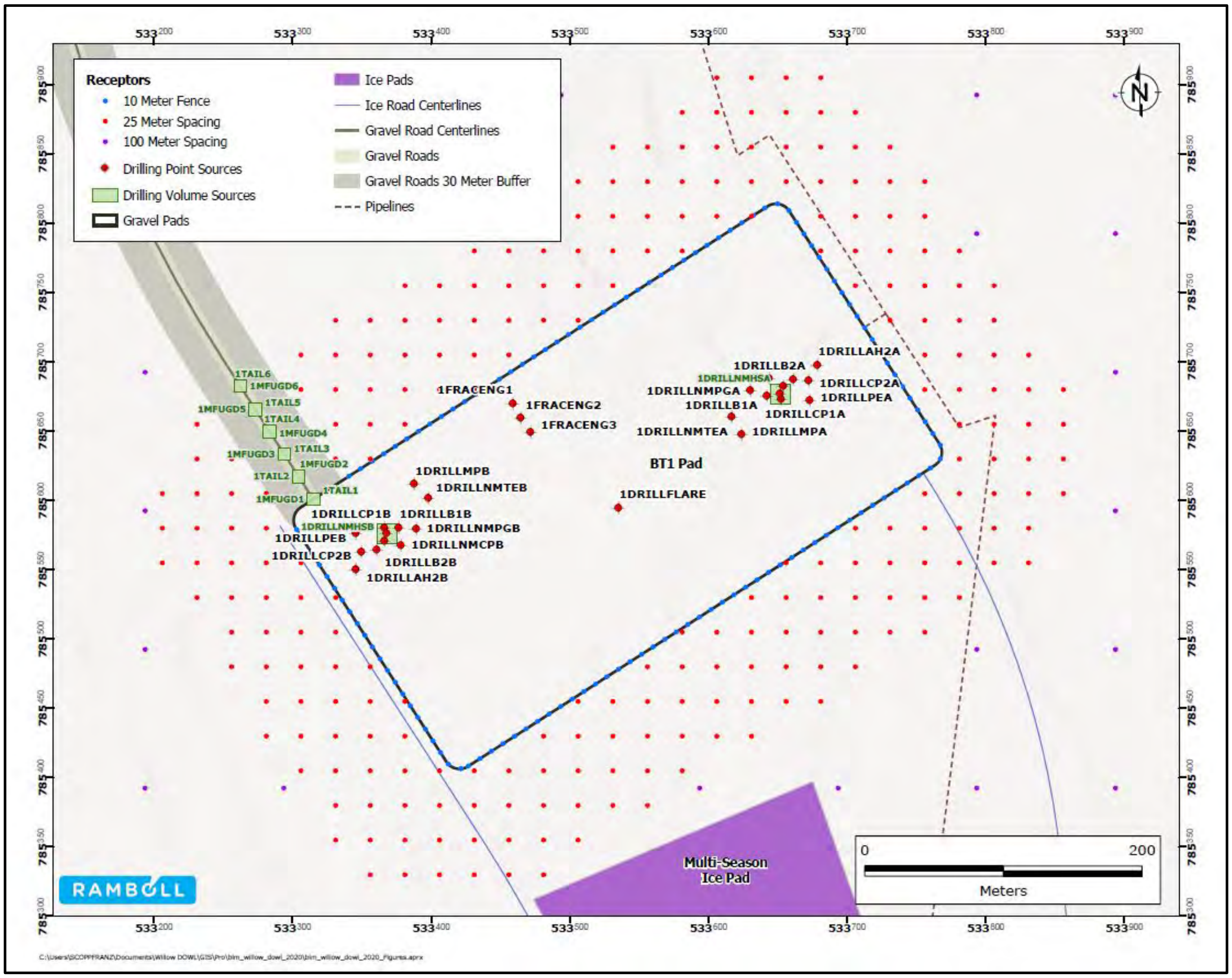

Figure A.2-13. Alternative C Near-field Model Scenario 2 Source Locations at BT1.

Table A.2-4. Alternative C Near-field Model Scenario 2 Emissions Source Descriptions and In-stack Ratios

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
1DRILLPEA	POINT	Drill Rigs - Primary Power Engines A	0.1	Diesel engines
1DRILLPEB	POINT	Drill Rigs - Primary Power Engines B	0.1	Diesel engines
1DRILLCP1A	POINT	Drill Rigs - Cement Pumping Unit #1 A	0.2	Diesel tailpipe from non-road equipment
1DRILLCP1B	POINT	Drill Rigs - Cement Pumping Unit #1 B	0.2	Diesel tailpipe from non-road equipment
1DRILLCP2A	POINT	Drill Rigs - Cement Pumping Unit #2 A	0.2	Diesel tailpipe from non-road equipment
1DRILLCP2B	POINT	Drill Rigs - Cement Pumping Unit #2 B	0.2	Diesel tailpipe from non-road equipment
1DRILLB1A	POINT	Drill Rigs - Boiler #1 A	0.05	Diesel or natural gas heaters, or boiler
1DRILLB1B	POINT	Drill Rigs - Boiler #1 B	0.05	Diesel or natural gas heaters, or boiler
1DRILLB2A	POINT	Drill Rigs - Boiler #2 A	0.05	Diesel or natural gas heaters, or boiler
1DRILLB2B	POINT	Drill Rigs - Boiler #2 B	0.05	Diesel or natural gas heaters, or boiler
1DRILLAH1A	POINT	Drill Rigs - Air Heater #1 A	0.05	Diesel or natural gas heaters, or boiler
1DRILLAH1B	POINT	Drill Rigs - Air Heater #1 B	0.05	Diesel or natural gas heaters, or boiler
1DRILLAH2A	POINT	Drill Rigs - Air Heater #2 A	0.05	Diesel or natural gas heaters, or boiler
1DRILLAH2B	POINT	Drill Rigs - Air Heater #2 B	0.05	Diesel or natural gas heaters, or boiler
1DRILLMPA	POINT	Drill Rigs - Mud Pit Heater A	0.05	Diesel or natural gas heaters, or boiler
1DRILLMPB	POINT	Drill Rigs - Mud Pit Heater B	0.05	Diesel or natural gas heaters, or boiler
1DRILLNMTEA	POINT	Drilling Non-Mobile Support Equipment - Total Engine A	0.1	Diesel engines
1DRILLNMTEB	POINT	Drilling Non-Mobile Support Equipment - Total Engine B	0.1	Diesel engines
1DRILLNMLTA	POINT	Drilling Non-Mobile Support Equipment - Total Lighting Engine A	0.2	Diesel tailpipe from non-road equipment
1DRILLNMLTB	POINT	Drilling Non-Mobile Support Equipment - Total Lighting Engine B	0.2	Diesel tailpipe from non-road equipment
1DRILLNMPGA	POINT	Drilling Non-Mobile Support Equipment - Total Portable Generators A	0.1	Diesel engines
1DRILLNMPGB	POINT	Drilling Non-Mobile Support Equipment - Total Portable Generators B	0.1	Diesel engines
1DRILLNMCPA	POINT	Drilling Non-Mobile Support Equipment - Total Portable Welders/Compressor Engine A	0.1	Diesel engines
1DRILLNMCPB	POINT	Drilling Non-Mobile Support Equipment - Total Portable Welders/Compressor Engine B	0.1	Diesel engines
1DRILLNMHSA	VOLUME	Drilling Non-Mobile Support Equipment - Portable Heaters & Snow Melters	0.05	Diesel tailpipe from non-road equipment

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
1DRILLNMHSB	VOLUME	Drilling Non-Mobile Support Equipment - Portable Heaters & Snow Melters	0.05	Diesel tailpipe from non-road equipment
1FRACENG1	POINT	Hydraulic Fracturing - Well Frac Engine 1	0.1	Diesel engines
1FRACENG2	POINT	Hydraulic Fracturing - Well Frac Engine 2	0.1	Diesel engines
1FRACENG3	POINT	Hydraulic Fracturing - Well Frac Engine 3	0.1	Diesel engines
1DRILLFLARE	POINT	Drilling Well Flowback and Flaring - Total Flaring Emissions	0.5	USEPA default value
1TAIL1	VOLUME	Drilling Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL2	VOLUME	Drilling Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL3	VOLUME	Drilling Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL4	VOLUME	Drilling Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL5	VOLUME	Drilling Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL6	VOLUME	Drilling Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1MFUGD1	VOLUME	Drilling Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD2	VOLUME	Drilling Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD3	VOLUME	Drilling Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD4	VOLUME	Drilling Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD5	VOLUME	Drilling Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD6	VOLUME	Drilling Mobile Equipment Fugitive Dust - BT1	-	-

Table A.2-5. Alternative C Near-field Model Scenario 2 Emissions Stack Parameters

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
1DRILLPEA	POINT	2.74	13.3	0.4	10.5	614	-	-	-	-	-
1DRILLPEB	POINT	2.74	13.3	0.4	10.5	614	-	-	-	-	-
1DRILLCP1A	POINT	2.74	10.4	0.13	43.5	750	-	-	-	-	-
1DRILLCP1B	POINT	2.74	10.4	0.13	43.5	750	-	-	-	-	-
1DRILLCP2A	POINT	2.74	10.4	0.13	43.5	750	-	-	-	-	-
1DRILLCP2B	POINT	2.74	10.4	0.13	43.5	750	-	-	-	-	-
1DRILLB1A	POINT	2.74	11.9	0.279	11.7	450	-	-	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
1DRILLB1B	POINT	2.74	11.9	0.279	11.7	450	-	-	-	-	-
1DRILLB2A	POINT	2.74	11.9	0.279	11.7	450	-	-	-	-	-
1DRILLB2B	POINT	2.74	11.9	0.279	11.7	450	-	-	-	-	-
1DRILLAH1A	POINT	2.74	10.5	0.3	3.2	533	-	-	-	-	-
1DRILLAH1B	POINT	2.74	10.5	0.3	3.2	533	-	-	-	-	-
1DRILLAH2A	POINT	2.74	10.5	0.3	3.2	533	-	-	-	-	-
1DRILLAH2B	POINT	2.74	10.5	0.3	3.2	533	-	-	-	-	-
1DRILLMPA	POINT	2.74	7.2	0.3	10.8	533	-	-	-	-	-
1DRILLMPB	POINT	2.74	7.2	0.3	10.8	533	-	-	-	-	-
1DRILLNMTEA	POINT	2.74	6.5	0.3	47	761	-	-	-	-	-
1DRILLNMTEB	POINT	2.74	6.5	0.3	47	761	-	-	-	-	-
1DRILLNMLTA	POINT	2.74	6.1	0.3	15.1	795	-	-	-	-	-
1DRILLNMLTB	POINT	2.74	6.1	0.3	15.1	795	-	-	-	-	-
1DRILLNMPGA	POINT	2.74	6.1	0.3	15.1	795	-	-	-	-	-
1DRILLNMPGB	POINT	2.74	6.1	0.3	15.1	795	-	-	-	-	-
1DRILLNMCPA	POINT	2.74	3.7	0.3	46	689	-	-	-	-	-
1DRILLNMCPB	POINT	2.74	3.7	0.3	46	689	-	-	-	-	-
1DRILLNMHSA	VOLUME	2.74	3.7	-	-	-	13.95	13.95	-	-	-
1DRILLNMHSB	VOLUME	2.74	3.7	-	-	-	13.95	13.95	-	-	-
1FRACENG1	POINT	2.74	3.7	0.356	41.6	644	-	-	-	-	-
1FRACENG2	POINT	2.74	3.7	0.356	41.6	644	-	-	-	-	-
1FRACENG3	POINT	2.74	3.7	0.356	41.6	644	-	-	-	-	-
1DRILLFLARE	POINT	2.74	10.1	0.3	6.1	1033	-	-	-	-	-
1TAIL1	VOLUME	2.13	3.66	-	-	-	9.07	9.07	-	-	-
1TAIL2	VOLUME	2.13	3.66	-	-	-	9.07	9.07	-	-	-
1TAIL3	VOLUME	2.13	3.66	-	-	-	9.07	9.07	-	-	-
1TAIL4	VOLUME	2.13	3.66	-	-	-	9.07	9.07	-	-	-
1TAIL5	VOLUME	2.13	3.66	-	-	-	9.07	9.07	-	-	-
1TAIL6	VOLUME	2.13	3.66	-	-	-	9.07	9.07	-	-	-
1MFUGD1	VOLUME	2.13	3.66	-	-	-	9.07	9.07	-	-	-
1MFUGD2	VOLUME	2.13	3.66	-	-	-	9.07	9.07	-	-	-
1MFUGD3	VOLUME	2.13	3.66	-	-	-	9.07	9.07	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
1MFUGD4	VOLUME	2.13	3.66	-	-	-	9.07	9.07	-	-	-
1MFUGD5	VOLUME	2.13	3.66	-	-	-	9.07	9.07	-	-	-
1MFUGD6	VOLUME	2.13	3.66	-	-	-	9.07	9.07	-	-	-

Table A.2-6. Alternative C Near-field Model Scenario 2 Emissions Rates

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
1DRILLPEA	3.21E+00	6.15E-01	6.15E-01	2.75E-02	2.75E-02	2.75E-02	4.74E-03	4.74E-03	4.74E-03	8760
1DRILLPEB	3.21E+00	6.15E-01	6.15E-01	2.75E-02	2.75E-02	2.75E-02	4.74E-03	4.74E-03	4.74E-03	8760
1DRILLCP1A	1.75E-01	2.00E-02	1.14E-03	1.00E-03	1.00E-03	5.71E-05	3.31E-04	3.31E-04	1.89E-05	500
1DRILLCP1B	1.75E-01	2.00E-02	1.14E-03	1.00E-03	1.00E-03	5.71E-05	3.31E-04	3.31E-04	1.89E-05	500
1DRILLCP2A	1.75E-01	2.00E-02	1.14E-03	1.00E-03	1.00E-03	5.71E-05	3.31E-04	3.31E-04	1.89E-05	500
1DRILLCP2B	1.75E-01	2.00E-02	1.14E-03	1.00E-03	1.00E-03	5.71E-05	3.31E-04	3.31E-04	1.89E-05	500
1DRILLB1A	1.53E-02	6.12E-02	6.12E-02	7.28E-03	6.51E-03	6.51E-03	6.51E-04	6.51E-04	6.51E-04	8760
1DRILLB1B	1.53E-02	6.12E-02	6.12E-02	7.28E-03	6.51E-03	6.51E-03	6.51E-04	6.51E-04	6.51E-04	8760
1DRILLB2A	1.53E-02	6.12E-02	6.12E-02	7.28E-03	6.51E-03	6.51E-03	6.51E-04	6.51E-04	6.51E-04	8760
1DRILLB2B	1.53E-02	6.12E-02	6.12E-02	7.28E-03	6.51E-03	6.51E-03	6.51E-04	6.51E-04	6.51E-04	8760
1DRILLAH1A	1.83E-02	7.30E-02	7.30E-02	8.69E-03	7.78E-03	7.78E-03	7.78E-04	7.78E-04	7.78E-04	8760
1DRILLAH1B	1.83E-02	7.30E-02	7.30E-02	8.69E-03	7.78E-03	7.78E-03	7.78E-04	7.78E-04	7.78E-04	8760
1DRILLAH2A	9.13E-03	3.65E-02	3.65E-02	4.35E-03	3.89E-03	3.89E-03	3.89E-04	3.89E-04	3.89E-04	8760
1DRILLAH2B	9.13E-03	3.65E-02	3.65E-02	4.35E-03	3.89E-03	3.89E-03	3.89E-04	3.89E-04	3.89E-04	8760
1DRILLMPA	1.37E-02	5.48E-02	5.48E-02	6.52E-03	5.83E-03	5.83E-03	5.83E-04	5.83E-04	5.83E-04	8760
1DRILLMPB	1.37E-02	5.48E-02	5.48E-02	6.52E-03	5.83E-03	5.83E-03	5.83E-04	5.83E-04	5.83E-04	8760
1DRILLNMTEA	4.91E-01	5.61E-01	5.61E-01	2.81E-02	2.81E-02	2.81E-02	1.04E-03	1.04E-03	1.04E-03	8760
1DRILLNMTEB	4.91E-01	5.61E-01	5.61E-01	2.81E-02	2.81E-02	2.81E-02	1.04E-03	1.04E-03	1.04E-03	8760
1DRILLNMLTA	7.22E-02	8.20E-02	8.20E-02	8.75E-03	8.75E-03	8.75E-03	7.24E-05	7.24E-05	7.24E-05	8760
1DRILLNMLTB	7.22E-02	8.20E-02	8.20E-02	8.75E-03	8.75E-03	8.75E-03	7.24E-05	7.24E-05	7.24E-05	8760
1DRILLNMPGA	3.51E-02	3.30E-02	3.30E-02	2.81E-03	2.81E-03	2.81E-03	4.64E-05	4.64E-05	4.64E-05	8760
1DRILLNMPGB	3.51E-02	3.30E-02	3.30E-02	2.81E-03	2.81E-03	2.81E-03	4.64E-05	4.64E-05	4.64E-05	8760
1DRILLNMCPA	5.97E-02	5.61E-02	5.61E-02	4.77E-03	4.77E-03	4.77E-03	7.90E-05	7.90E-05	7.90E-05	8760
1DRILLNMCPB	5.97E-02	5.61E-02	5.61E-02	4.77E-03	4.77E-03	4.77E-03	7.90E-05	7.90E-05	7.90E-05	8760

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
1DRILLNMHSA	2.15E-02	8.59E-02	6.44E-02	1.02E-02	9.15E-03	6.86E-03	9.15E-04	9.15E-04	6.86E-04	8760
1DRILLNMHSB	2.15E-02	8.59E-02	6.44E-02	1.02E-02	9.15E-03	6.86E-03	9.15E-04	9.15E-04	6.86E-04	8760
1FRACENG1	3.11E-02	2.49E-03	8.17E-04	1.24E-04	1.24E-04	4.09E-05	4.11E-05	4.11E-05	1.35E-05	1920
1FRACENG2	1.79E-01	3.43E-02	1.13E-02	1.54E-03	1.54E-03	5.06E-04	3.78E-04	3.78E-04	1.24E-04	1920
1FRACENG3	2.61E+00	5.00E-01	1.64E-01	2.24E-02	2.24E-02	7.35E-03	5.50E-03	5.50E-03	1.81E-03	1920
1DRILLFLARE	1.08E+00	1.98E-01	1.95E-02	4.79E-05	4.79E-05	4.72E-06	1.16E-02	1.16E-02	1.14E-03	864
1TAIL1	4.54E-06	9.44E-06	9.44E-06	1.51E-06	4.59E-07	4.59E-07	6.17E-08	6.17E-08	6.17E-08	8760
1TAIL2	4.54E-06	9.44E-06	9.44E-06	1.51E-06	4.59E-07	4.59E-07	6.17E-08	6.17E-08	6.17E-08	8760
1TAIL3	4.54E-06	9.44E-06	9.44E-06	1.51E-06	4.59E-07	4.59E-07	6.17E-08	6.17E-08	6.17E-08	8760
1TAIL4	4.54E-06	9.44E-06	9.44E-06	1.51E-06	4.59E-07	4.59E-07	6.17E-08	6.17E-08	6.17E-08	8760
1TAIL5	4.54E-06	9.44E-06	9.44E-06	1.51E-06	4.59E-07	4.59E-07	6.17E-08	6.17E-08	6.17E-08	8760
1TAIL6	4.54E-06	9.44E-06	9.44E-06	1.51E-06	4.59E-07	4.59E-07	6.17E-08	6.17E-08	6.17E-08	8760
1MFUGD1	0.00E+00	0.00E+00	0.00E+00	2.74E-03	2.74E-04	2.74E-04	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD2	0.00E+00	0.00E+00	0.00E+00	2.74E-03	2.74E-04	2.74E-04	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD3	0.00E+00	0.00E+00	0.00E+00	2.74E-03	2.74E-04	2.74E-04	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD4	0.00E+00	0.00E+00	0.00E+00	2.74E-03	2.74E-04	2.74E-04	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD5	0.00E+00	0.00E+00	0.00E+00	2.74E-03	2.74E-04	2.74E-04	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD6	0.00E+00	0.00E+00	0.00E+00	2.74E-03	2.74E-04	2.74E-04	0.00E+00	0.00E+00	0.00E+00	4380

1. Annual emission rate calculations are based on the number of actual daily operating hours provided in the EI. If actual daily operating hour timeframes were not known, 8760 hours were assumed.

A.2.3 Scenario 3: BT1/BT2 Pre-Drill

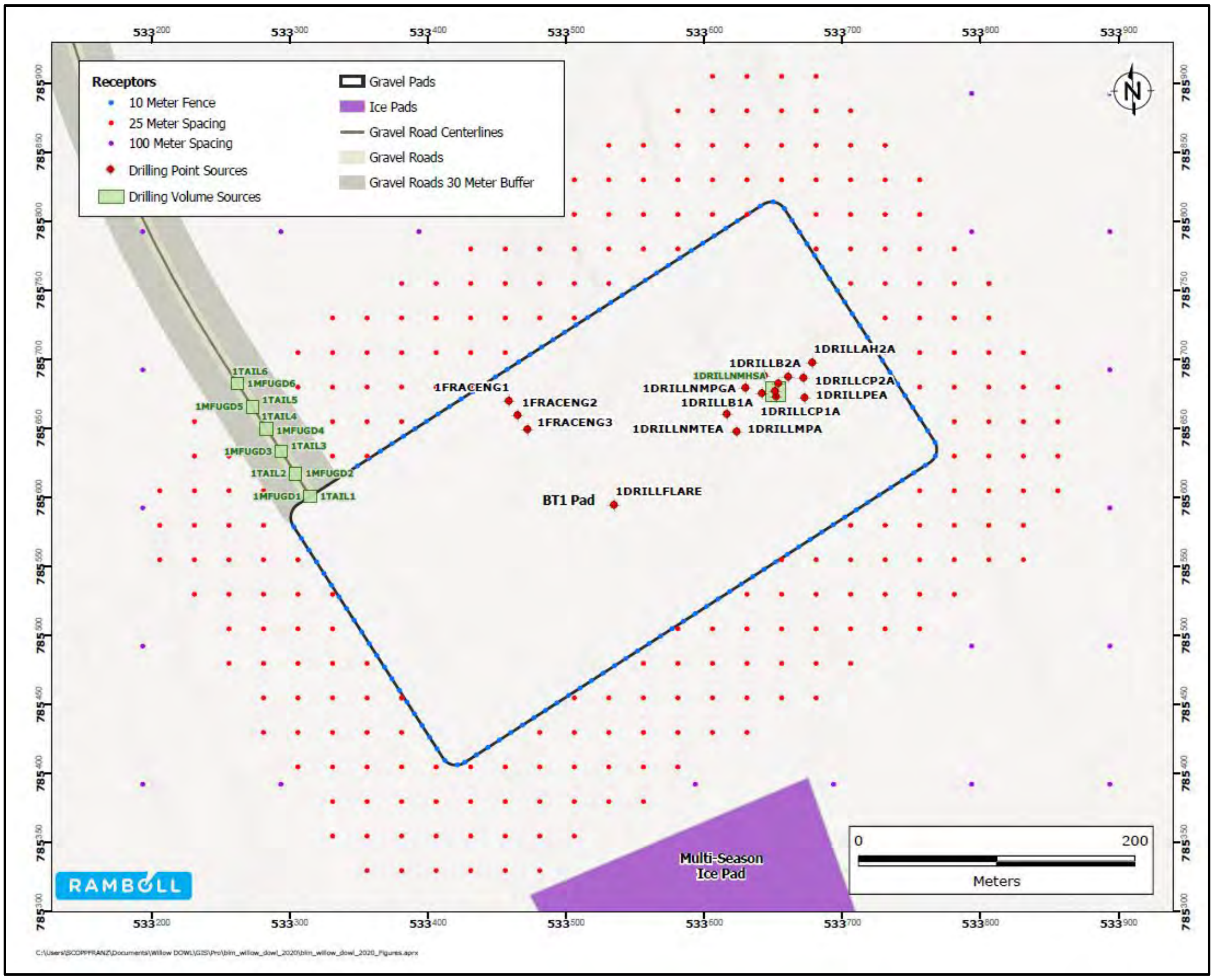

Figure A.2-14. Alternative C Near-field Model Scenario 3 Source Locations at BT1.

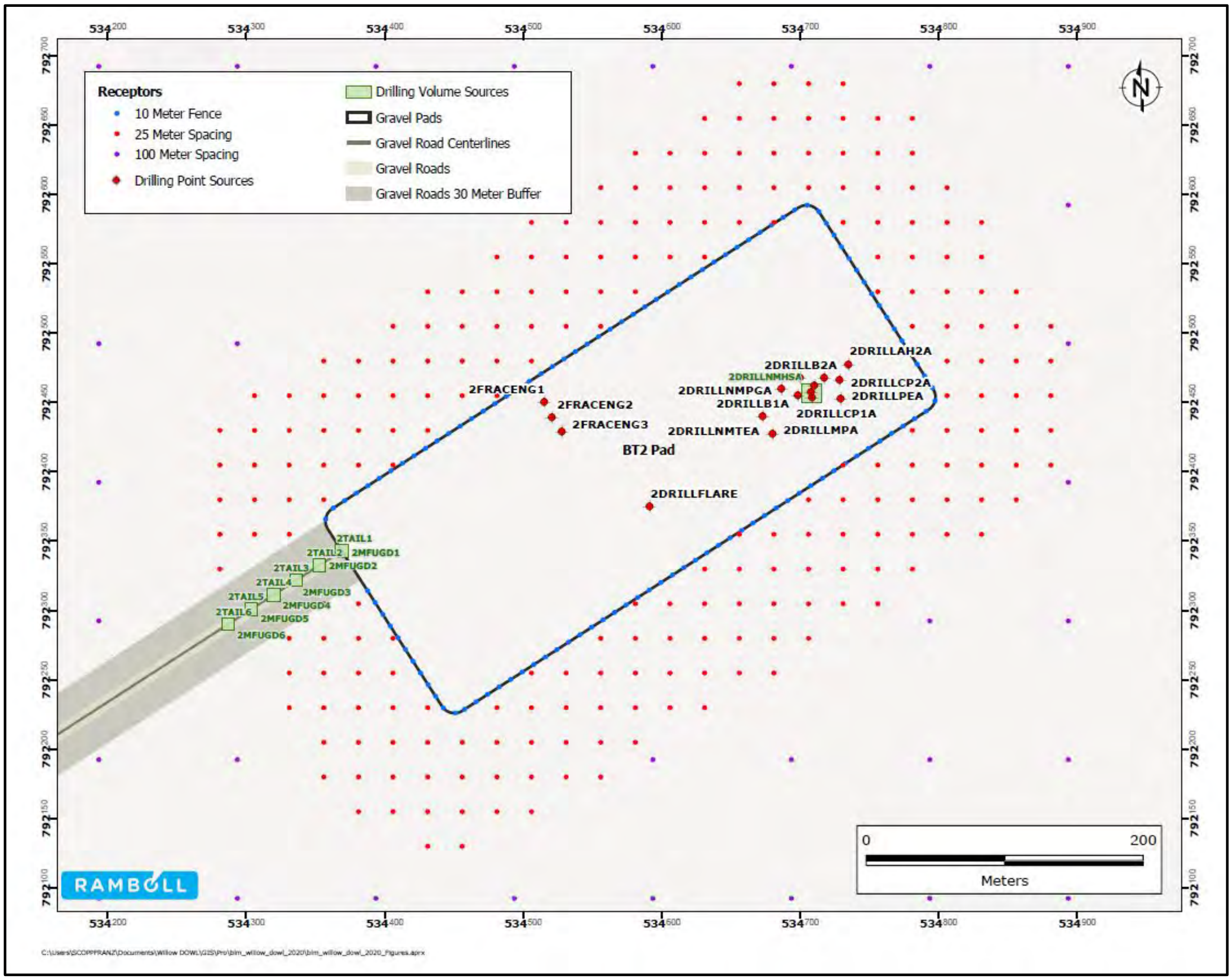

Figure A.2-15. Alternative C Near-field Model Scenario 3 Source Locations at BT2.

Table A.2-7. Alternative C Near-field Model Scenario 3 Emissions Source Descriptions and In-stack Ratios

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
1DRILLPEA	POINT	Drill Rigs - Primary Power Engines A	0.1	Diesel engines
2DRILLPEA	POINT	Drill Rigs - Primary Power Engines A	0.1	Diesel engines
1DRILLCP1A	POINT	Drill Rigs - Cement Pumping Unit #1 A	0.2	Diesel tailpipe from non-road equipment
2DRILLCP1A	POINT	Drill Rigs - Cement Pumping Unit #1 A	0.2	Diesel tailpipe from non-road equipment
1DRILLCP2A	POINT	Drill Rigs - Cement Pumping Unit #2 A	0.2	Diesel tailpipe from non-road equipment
2DRILLCP2A	POINT	Drill Rigs - Cement Pumping Unit #2 A	0.2	Diesel tailpipe from non-road equipment
1DRILLB1A	POINT	Drill Rigs - Boiler #1 A	0.05	Diesel or natural gas heaters, or boiler
2DRILLB1A	POINT	Drill Rigs - Boiler #1 A	0.05	Diesel or natural gas heaters, or boiler
1DRILLB2A	POINT	Drill Rigs - Boiler #2 A	0.05	Diesel or natural gas heaters, or boiler
2DRILLB2A	POINT	Drill Rigs - Boiler #2 A	0.05	Diesel or natural gas heaters, or boiler
1DRILLAH1A	POINT	Drill Rigs - Air Heater #1 A	0.05	Diesel or natural gas heaters, or boiler
2DRILLAH1A	POINT	Drill Rigs - Air Heater #1 A	0.05	Diesel or natural gas heaters, or boiler
1DRILLAH2A	POINT	Drill Rigs - Air Heater #2 A	0.05	Diesel or natural gas heaters, or boiler
2DRILLAH2A	POINT	Drill Rigs - Air Heater #2 A	0.05	Diesel or natural gas heaters, or boiler
1DRILLMPA	POINT	Drill Rigs - Mud Pit Heater A	0.05	Diesel or natural gas heaters, or boiler
2DRILLMPA	POINT	Drill Rigs - Mud Pit Heater A	0.05	Diesel or natural gas heaters, or boiler
1DRILLNMTEA	POINT	Drilling Non-Mobile Support Equipment - Total Engine A	0.1	Diesel engines
2DRILLNMTEA	POINT	Drilling Non-Mobile Support Equipment - Total Engine A	0.1	Diesel engines
1DRILLNMLTA	POINT	Drilling Non-Mobile Support Equipment - Total Lighting Engine A	0.2	Diesel tailpipe from non-road equipment
2DRILLNMLTA	POINT	Drilling Non-Mobile Support Equipment - Total Lighting Engine A	0.2	Diesel tailpipe from non-road equipment
1DRILLNMPGA	POINT	Drilling Non-Mobile Support Equipment - Total Portable Generators A	0.1	Diesel engines
2DRILLNMPGA	POINT	Drilling Non-Mobile Support Equipment - Total Portable Generators A	0.1	Diesel engines
1DRILLNMCPA	POINT	Drilling Non-Mobile Support Equipment - Total Portable Welders/Compressor Engine A	0.1	Diesel engines
2DRILLNMCPA	POINT	Drilling Non-Mobile Support Equipment - Total Portable Welders/Compressor Engine A	0.1	Diesel engines
1DRILLNMHSA	VOLUME	Drilling Non-Mobile Support Equipment - Portable Heaters & Snow Melters	0.05	Diesel tailpipe from non-road equipment
2DRILLNMHSA	VOLUME	Drilling Non-Mobile Support Equipment - Portable Heaters & Snow Melters	0.05	Diesel tailpipe from non-road equipment
1FRACENG1	POINT	Hydraulic Fracturing - Well Frac Engine 1	0.1	Diesel engines

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
1FRACENG2	POINT	Hydraulic Fracturing - Well Frac Engine 2	0.1	Diesel engines
1FRACENG3	POINT	Hydraulic Fracturing - Well Frac Engine 3	0.1	Diesel engines
1DRILLFLARE	POINT	Drilling Well Flowback and Flaring - Total Flaring Emissions	0.5	USEPA default value
2FRACENG1	POINT	Hydraulic Fracturing - Well Frac Engine 1	0.1	Diesel engines
2FRACENG2	POINT	Hydraulic Fracturing - Well Frac Engine 2	0.1	Diesel engines
2FRACENG3	POINT	Hydraulic Fracturing - Well Frac Engine 3	0.1	Diesel engines
2DRILLFLARE	POINT	Drilling Well Flowback and Flaring - Total Flaring Emissions	0.5	USEPA default value
1TAIL1	VOLUME	Drilling Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL2	VOLUME	Drilling Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL3	VOLUME	Drilling Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL4	VOLUME	Drilling Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL5	VOLUME	Drilling Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL6	VOLUME	Drilling Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
2TAIL1	VOLUME	Drilling Mobile Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL2	VOLUME	Drilling Mobile Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL3	VOLUME	Drilling Mobile Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL4	VOLUME	Drilling Mobile Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL5	VOLUME	Drilling Mobile Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL6	VOLUME	Drilling Mobile Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
1MFUGD1	VOLUME	Drilling Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD2	VOLUME	Drilling Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD3	VOLUME	Drilling Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD4	VOLUME	Drilling Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD5	VOLUME	Drilling Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD6	VOLUME	Drilling Mobile Equipment Fugitive Dust - BT1	-	-
2MFUGD1	VOLUME	Drilling Mobile Equipment Fugitive Dust - BT2	-	-
2MFUGD2	VOLUME	Drilling Mobile Equipment Fugitive Dust - BT2	-	-
2MFUGD3	VOLUME	Drilling Mobile Equipment Fugitive Dust - BT2	-	-
2MFUGD4	VOLUME	Drilling Mobile Equipment Fugitive Dust - BT2	-	-
2MFUGD5	VOLUME	Drilling Mobile Equipment Fugitive Dust - BT2	-	-
2MFUGD6	VOLUME	Drilling Mobile Equipment Fugitive Dust - BT2	-	-

Table A.2-8. Alternative C Near-field Model Scenario 3 Emissions Stack Parameters

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
1DRILLPEA	POINT	2.74	13.3	0.4	10.5	614	-	-	-	-	-
2DRILLPEA	POINT	2.74	13.3	0.4	10.5	614	-	-	-	-	-
1DRILLCP1A	POINT	2.74	10.4	0.13	43.5	750	-	-	-	-	-
2DRILLCP1A	POINT	2.74	10.4	0.13	43.5	750	-	-	-	-	-
1DRILLCP2A	POINT	2.74	10.4	0.13	43.5	750	-	-	-	-	-
2DRILLCP2A	POINT	2.74	10.4	0.13	43.5	750	-	-	-	-	-
1DRILLB1A	POINT	2.74	11.9	0.279	11.7	450	-	-	-	-	-
2DRILLB1A	POINT	2.74	11.9	0.279	11.7	450	-	-	-	-	-
1DRILLB2A	POINT	2.74	11.9	0.279	11.7	450	-	-	-	-	-
2DRILLB2A	POINT	2.74	11.9	0.279	11.7	450	-	-	-	-	-
1DRILLAH1A	POINT	2.74	10.5	0.3	3.2	533	-	-	-	-	-
2DRILLAH1A	POINT	2.74	10.5	0.3	3.2	533	-	-	-	-	-
1DRILLAH2A	POINT	2.74	10.5	0.3	3.2	533	-	-	-	-	-
2DRILLAH2A	POINT	2.74	10.5	0.3	3.2	533	-	-	-	-	-
1DRILLMPA	POINT	2.74	7.2	0.3	10.8	533	-	-	-	-	-
2DRILLMPA	POINT	2.74	7.2	0.3	10.8	533	-	-	-	-	-
1DRILLNMTEA	POINT	2.74	6.5	0.3	47	761	-	-	-	-	-
2DRILLNMTEA	POINT	2.74	6.5	0.3	47	761	-	-	-	-	-
1DRILLNMLTA	POINT	2.74	6.1	0.3	15.1	795	-	-	-	-	-
2DRILLNMLTA	POINT	2.74	6.1	0.3	15.1	795	-	-	-	-	-
1DRILLNMPGA	POINT	2.74	6.1	0.3	15.1	795	-	-	-	-	-
2DRILLNMPGA	POINT	2.74	6.1	0.3	15.1	795	-	-	-	-	-
1DRILLNMCPA	POINT	2.74	3.7	0.3	46	689	-	-	-	-	-
2DRILLNMCPA	POINT	2.74	3.7	0.3	46	689	-	-	-	-	-
1DRILLNMHSA	VOLUME	2.74	3.7	-	-	-	13.95	3.38	-	-	-
2DRILLNMHSA	VOLUME	2.74	3.7	-	-	-	13.95	3.38	-	-	-
1FRACENG1	POINT	2.74	3.7	0.356	41.6	644	-	-	-	-	-
1FRACENG2	POINT	2.74	3.7	0.356	41.6	644	-	-	-	-	-
1FRACENG3	POINT	2.74	3.7	0.356	41.6	644	-	-	-	-	-
1DRILLFLARE	POINT	2.74	10.1	0.3	6.1	1033	-	-	-	-	-
2FRACENG1	POINT	2.74	3.7	0.356	41.6	644	-	-	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
2FRACENG2	POINT	2.74	3.7	0.356	41.6	644	-	-	-	-	-
2FRACENG3	POINT	2.74	3.7	0.356	41.6	644	-	-	-	-	-
2DRILLFLARE	POINT	2.74	10.1	0.3	6.1	1033	-	-	-	-	-
1TAIL1	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL2	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL3	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL4	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL5	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL6	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
2TAIL1	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
2TAIL2	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
2TAIL3	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
2TAIL4	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
2TAIL5	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
2TAIL6	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD1	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD2	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD3	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD4	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD5	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD6	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
2MFUGD1	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
2MFUGD2	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
2MFUGD3	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
2MFUGD4	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
2MFUGD5	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
2MFUGD6	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-

Table A.2-9. Alternative C Near-field Model Scenario 3 Emissions Rates

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
1DRILLPEA	3.21E+00	6.15E-01	6.15E-01	2.75E-02	2.75E-02	2.75E-02	4.74E-03	4.74E-03	4.74E-03	8760
2DRILLPEA	3.21E+00	6.15E-01	6.15E-01	2.75E-02	2.75E-02	2.75E-02	4.74E-03	4.74E-03	4.74E-03	8760
1DRILLCP1A	1.75E-01	2.00E-02	1.14E-03	1.00E-03	1.00E-03	5.71E-05	3.31E-04	3.31E-04	1.89E-05	500
2DRILLCP1A	1.75E-01	2.00E-02	1.14E-03	1.00E-03	1.00E-03	5.71E-05	3.31E-04	3.31E-04	1.89E-05	500
1DRILLCP2A	1.75E-01	2.00E-02	1.14E-03	1.00E-03	1.00E-03	5.71E-05	3.31E-04	3.31E-04	1.89E-05	500
2DRILLCP2A	1.75E-01	2.00E-02	1.14E-03	1.00E-03	1.00E-03	5.71E-05	3.31E-04	3.31E-04	1.89E-05	500
1DRILLB1A	1.53E-02	6.12E-02	6.12E-02	7.28E-03	6.51E-03	6.51E-03	6.51E-04	6.51E-04	6.51E-04	8760
2DRILLB1A	1.53E-02	6.12E-02	6.12E-02	7.28E-03	6.51E-03	6.51E-03	6.51E-04	6.51E-04	6.51E-04	8760
1DRILLB2A	1.53E-02	6.12E-02	6.12E-02	7.28E-03	6.51E-03	6.51E-03	6.51E-04	6.51E-04	6.51E-04	8760
2DRILLB2A	1.53E-02	6.12E-02	6.12E-02	7.28E-03	6.51E-03	6.51E-03	6.51E-04	6.51E-04	6.51E-04	8760
1DRILLAH1A	1.83E-02	7.30E-02	7.30E-02	8.69E-03	7.78E-03	7.78E-03	7.78E-04	7.78E-04	7.78E-04	8760
2DRILLAH1A	1.83E-02	7.30E-02	7.30E-02	8.69E-03	7.78E-03	7.78E-03	7.78E-04	7.78E-04	7.78E-04	8760
1DRILLAH2A	9.13E-03	3.65E-02	3.65E-02	4.35E-03	3.89E-03	3.89E-03	3.89E-04	3.89E-04	3.89E-04	8760
2DRILLAH2A	9.13E-03	3.65E-02	3.65E-02	4.35E-03	3.89E-03	3.89E-03	3.89E-04	3.89E-04	3.89E-04	8760
1DRILLMPA	1.37E-02	5.48E-02	5.48E-02	6.52E-03	5.83E-03	5.83E-03	5.83E-04	5.83E-04	5.83E-04	8760
2DRILLMPA	1.37E-02	5.48E-02	5.48E-02	6.52E-03	5.83E-03	5.83E-03	5.83E-04	5.83E-04	5.83E-04	8760
1DRILLNMTEA	4.91E-01	5.61E-01	5.61E-01	2.81E-02	2.81E-02	2.81E-02	1.04E-03	1.04E-03	1.04E-03	8760
2DRILLNMTEA	4.91E-01	5.61E-01	5.61E-01	2.81E-02	2.81E-02	2.81E-02	1.04E-03	1.04E-03	1.04E-03	8760
1DRILLNMLTA	7.22E-02	8.20E-02	8.20E-02	8.75E-03	8.75E-03	8.75E-03	7.24E-05	7.24E-05	7.24E-05	8760
2DRILLNMLTA	7.22E-02	8.20E-02	8.20E-02	8.75E-03	8.75E-03	8.75E-03	7.24E-05	7.24E-05	7.24E-05	8760
1DRILLNMPGA	3.51E-02	3.30E-02	3.30E-02	2.81E-03	2.81E-03	2.81E-03	4.64E-05	4.64E-05	4.64E-05	8760
2DRILLNMPGA	3.51E-02	3.30E-02	3.30E-02	2.81E-03	2.81E-03	2.81E-03	4.64E-05	4.64E-05	4.64E-05	8760
1DRILLNMCPA	5.97E-02	5.61E-02	5.61E-02	4.77E-03	4.77E-03	4.77E-03	7.90E-05	7.90E-05	7.90E-05	8760
2DRILLNMCPA	5.97E-02	5.61E-02	5.61E-02	4.77E-03	4.77E-03	4.77E-03	7.90E-05	7.90E-05	7.90E-05	8760
1DRILLNMHSA	2.15E-02	8.59E-02	6.44E-02	1.02E-02	9.15E-03	6.86E-03	9.15E-04	9.15E-04	6.86E-04	8760
2DRILLNMHSA	2.15E-02	8.59E-02	6.44E-02	1.02E-02	9.15E-03	6.86E-03	9.15E-04	9.15E-04	6.86E-04	8760

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
1FRACENG1	3.11E-02	2.49E-03	8.17E-04	1.24E-04	1.24E-04	4.09E-05	4.11E-05	4.11E-05	1.35E-05	1920
1FRACENG2	1.79E-01	3.43E-02	1.13E-02	1.54E-03	1.54E-03	5.06E-04	3.78E-04	3.78E-04	1.24E-04	1920
1FRACENG3	2.61E+00	5.00E-01	1.64E-01	2.24E-02	2.24E-02	7.35E-03	5.50E-03	5.50E-03	1.81E-03	1920
1DRILLFLARE	1.08E+00	1.98E-01	1.95E-02	4.79E-05	4.79E-05	4.72E-06	1.16E-02	1.16E-02	1.14E-03	864
2FRACENG1	3.11E-02	2.49E-03	8.17E-04	1.24E-04	1.24E-04	4.09E-05	4.11E-05	4.11E-05	1.35E-05	1920
2FRACENG2	1.79E-01	3.43E-02	1.13E-02	1.54E-03	1.54E-03	5.06E-04	3.78E-04	3.78E-04	1.24E-04	1920
2FRACENG3	2.61E+00	5.00E-01	1.64E-01	2.24E-02	2.24E-02	7.35E-03	5.50E-03	5.50E-03	1.81E-03	1920
2DRILLFLARE	1.08E+00	1.98E-01	1.95E-02	4.79E-05	4.79E-05	4.72E-06	1.16E-02	1.16E-02	1.14E-03	864
1TAIL1	5.67E-06	1.10E-05	1.10E-05	1.74E-06	5.35E-07	5.35E-07	7.11E-08	7.11E-08	7.11E-08	8760
1TAIL2	5.67E-06	1.10E-05	1.10E-05	1.74E-06	5.35E-07	5.35E-07	7.11E-08	7.11E-08	7.11E-08	8760
1TAIL3	5.67E-06	1.10E-05	1.10E-05	1.74E-06	5.35E-07	5.35E-07	7.11E-08	7.11E-08	7.11E-08	8760
1TAIL4	5.67E-06	1.10E-05	1.10E-05	1.74E-06	5.35E-07	5.35E-07	7.11E-08	7.11E-08	7.11E-08	8760
1TAIL5	5.67E-06	1.10E-05	1.10E-05	1.74E-06	5.35E-07	5.35E-07	7.11E-08	7.11E-08	7.11E-08	8760
1TAIL6	5.67E-06	1.10E-05	1.10E-05	1.74E-06	5.35E-07	5.35E-07	7.11E-08	7.11E-08	7.11E-08	8760
2TAIL1	5.67E-06	1.10E-05	1.10E-05	1.74E-06	5.35E-07	5.35E-07	7.11E-08	7.11E-08	7.11E-08	8760
2TAIL2	5.67E-06	1.10E-05	1.10E-05	1.74E-06	5.35E-07	5.35E-07	7.11E-08	7.11E-08	7.11E-08	8760
2TAIL3	5.67E-06	1.10E-05	1.10E-05	1.74E-06	5.35E-07	5.35E-07	7.11E-08	7.11E-08	7.11E-08	8760
2TAIL4	5.67E-06	1.10E-05	1.10E-05	1.74E-06	5.35E-07	5.35E-07	7.11E-08	7.11E-08	7.11E-08	8760
2TAIL5	5.67E-06	1.10E-05	1.10E-05	1.74E-06	5.35E-07	5.35E-07	7.11E-08	7.11E-08	7.11E-08	8760
2TAIL6	5.67E-06	1.10E-05	1.10E-05	1.74E-06	5.35E-07	5.35E-07	7.11E-08	7.11E-08	7.11E-08	8760
1MFUGD1	0.00E+00	0.00E+00	0.00E+00	3.11E-03	3.11E-04	3.11E-04	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD2	0.00E+00	0.00E+00	0.00E+00	3.11E-03	3.11E-04	3.11E-04	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD3	0.00E+00	0.00E+00	0.00E+00	3.11E-03	3.11E-04	3.11E-04	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD4	0.00E+00	0.00E+00	0.00E+00	3.11E-03	3.11E-04	3.11E-04	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD5	0.00E+00	0.00E+00	0.00E+00	3.11E-03	3.11E-04	3.11E-04	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD6	0.00E+00	0.00E+00	0.00E+00	3.11E-03	3.11E-04	3.11E-04	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD1	0.00E+00	0.00E+00	0.00E+00	3.11E-03	3.11E-04	3.11E-04	0.00E+00	0.00E+00	0.00E+00	4380

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
2MFUGD2	0.00E+00	0.00E+00	0.00E+00	3.11E-03	3.11E-04	3.11E-04	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD3	0.00E+00	0.00E+00	0.00E+00	3.11E-03	3.11E-04	3.11E-04	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD4	0.00E+00	0.00E+00	0.00E+00	3.11E-03	3.11E-04	3.11E-04	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD5	0.00E+00	0.00E+00	0.00E+00	3.11E-03	3.11E-04	3.11E-04	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD6	0.00E+00	0.00E+00	0.00E+00	3.11E-03	3.11E-04	3.11E-04	0.00E+00	0.00E+00	0.00E+00	4380

A.2.4 Scenario 4: Development Drilling

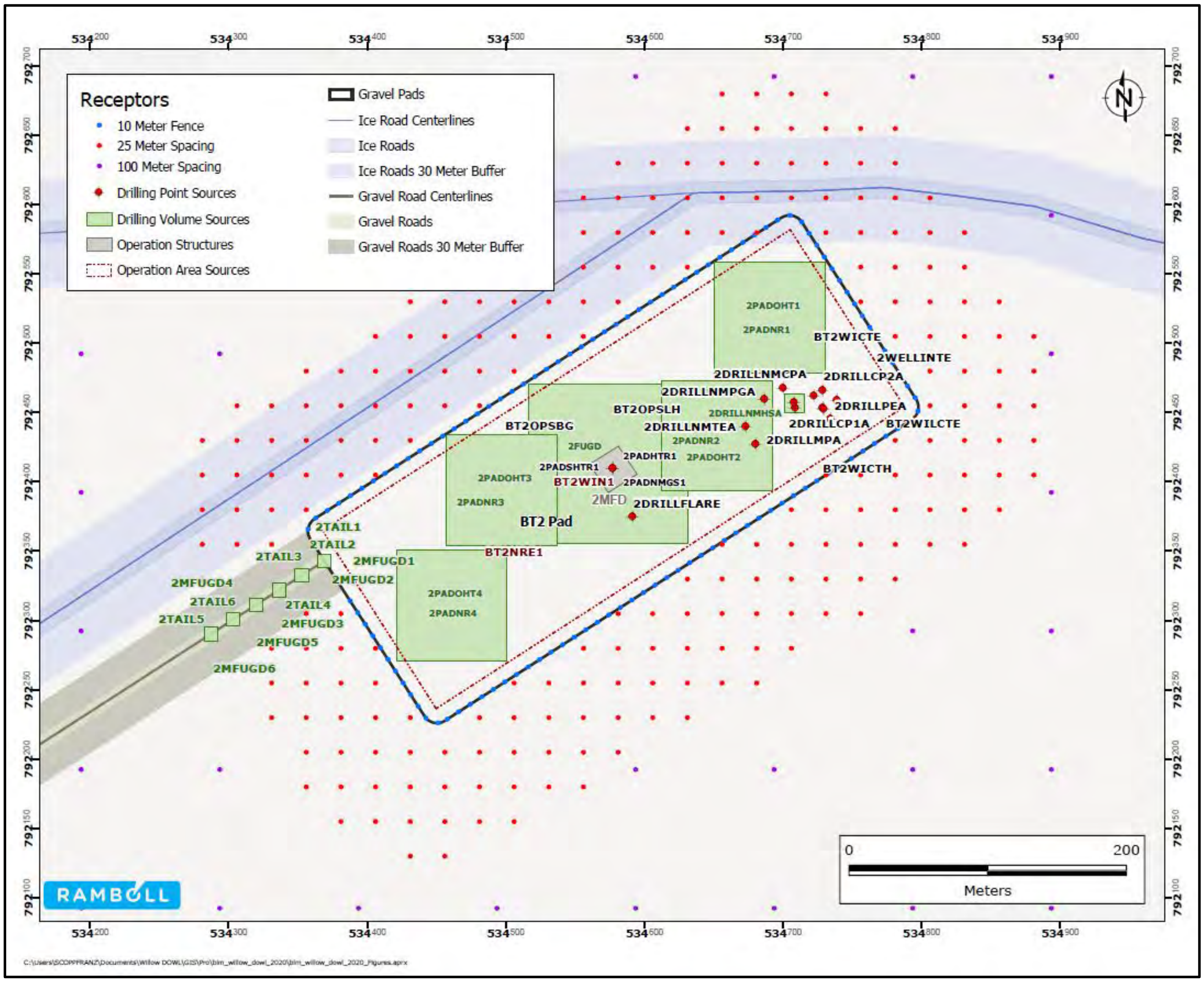

Figure A.2-16. Alternative C Near-field Model Scenario 4 Source Locations at BT2.

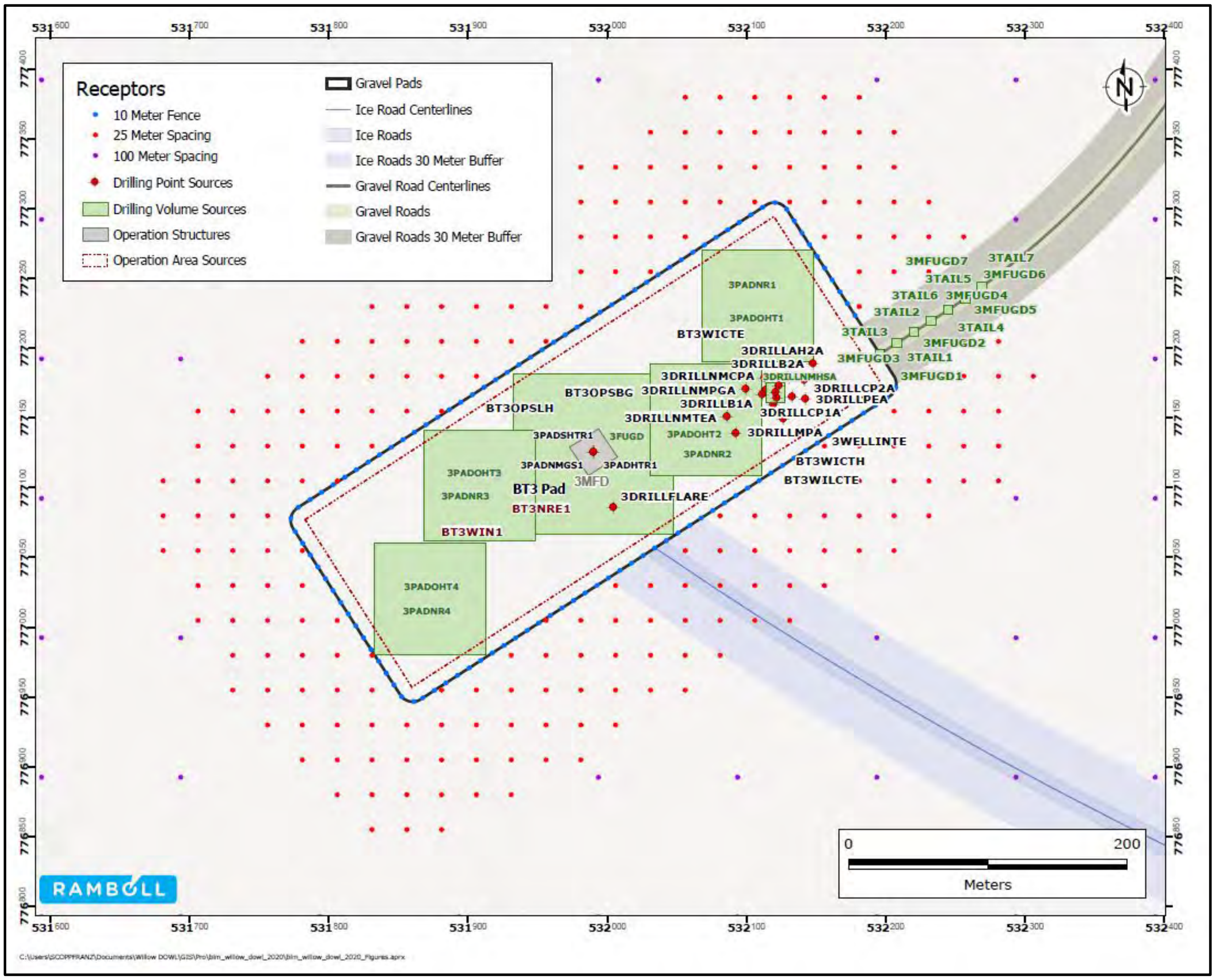

Figure A.2-17. Alternative C Near-field Model Scenario 4 Source Locations at BT3.

Table A.2-10. Alternative C Near-field Model Scenario 4 Emissions Source Descriptions and In-stack Ratios

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
WOCOPSTDRN	POINT	WOC - Storage Tanks - VFRT/ DRA (drag reducing agent)	-	-
BT1OPSLH	POINT	BT1 - Line Heater	0.05	Diesel or natural gas heaters, or boiler
BT1OPSBG	POINT	BT1 - Backup Generator	0.2	Diesel tailpipe from non-road equipment
BT1OPSFUG	VOLUME	BT1 - Fugitive Components	-	-
BT1OPSFUGD	VOLUME	BT1 - Wind Erosion Fugitive Dust	-	-
BT1OPSTEB	POINT	BT1 - Storage Tanks - VFRT/ Emulsion Breaker/ Pad Buster	-	-
BT1OPSTD	POINT	BT1 - Storage Tanks - VFRT/ Diesel	-	-
BT1OPSTCO	POINT	BT1 - Storage Tanks - VFRT/ Portable Temp Crude Oil	-	-
BT1WICTH	POINT	BT1 - Well Intervention Main Equipment - Coil Tubing Heater	0.05	Diesel or natural gas heaters, or boiler
BT1WICTE	POINT	BT1 - Well Intervention Main Equipment - Coil Tubing Engine	0.2	Diesel tailpipe from non-road equipment
BT1WILCTE	POINT	BT1 - Well Intervention Main Equipment - Large Coil Tubing Engine	0.1	Diesel engines
BT2OPSLH	POINT	BT2 - Line Heater	0.05	Diesel or natural gas heaters, or boiler
BT2OPSBG	POINT	BT2 - Backup Generator	0.2	Diesel tailpipe from non-road equipment
BT2OPSFUG	VOLUME	BT2 - Fugitive Components	-	-
BT2OPSFUGD	VOLUME	BT2 - Wind Erosion Fugitive Dust	-	-
BT2WICTH	POINT	BT2 - Well Intervention Main Equipment - Coil Tubing Heater	0.05	Diesel or natural gas heaters, or boiler
BT2WICTE	POINT	BT2 - Well Intervention Main Equipment - Coil Tubing Engine	0.2	Diesel tailpipe from non-road equipment
BT2WILCTE	POINT	BT2 - Well Intervention Main Equipment - Large Coil Tubing Engine	0.1	Diesel engines
BT3OPSLH	POINT	BT3 - Line Heater	0	-
BT3OPSBG	POINT	BT3 - Backup Generator	0	-
BT3OPSFUG	VOLUME	BT3 - Fugitive Components	-	-
BT3OPSFUGD	VOLUME	BT3 - Wind Erosion Fugitive Dust	-	-
BT3WICTH	POINT	BT3 - Well Intervention Main Equipment - Coil Tubing Heater	0.05	Diesel or natural gas heaters, or boiler
BT3WICTE	POINT	BT3 - Well Intervention Main Equipment - Coil Tubing Engine	0.2	Diesel tailpipe from non-road equipment
BT3WILCTE	POINT	BT3 - Well Intervention Main Equipment - Large Coil Tubing Engine	0.1	Diesel engines
BT4OPSLH	POINT	BT4 - Line Heater	0.05	Diesel or natural gas heaters, or boiler
BT4OPSBG	POINT	BT4 - Backup Generator	0.2	Diesel tailpipe from non-road equipment
BT4OPSFUG	VOLUME	BT4 - Fugitive Components	-	-
BT4OPSFUGD	VOLUME	BT4 - Wind Erosion Fugitive Dust	-	-
BT4OPSTEB	POINT	BT4 - Storage Tanks - VFRT/ Emulsion Breaker/ Pad Buster	-	-
BT4OPSTD	POINT	BT4 - Storage Tanks - VFRT/ Diesel	-	-

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
BT4OPSTCO	POINT	BT4 - Storage Tanks - VFRT/ Portable Temp Crude Oil	-	-
BT4WICTH	POINT	BT4 - Well Intervention Main Equipment - Coil Tubing Heater	0.05	Diesel or natural gas heaters, or boiler
BT4WICTE	POINT	BT4 - Well Intervention Main Equipment - Coil Tubing Engine	0.2	Diesel tailpipe from non-road equipment
BT4WILCTE	POINT	BT4 - Well Intervention Main Equipment - Large Coil Tubing Engine	0.1	Diesel engines
BT5OPSLH	POINT	BT5 - Line Heater	0.05	Diesel or natural gas heaters, or boiler
BT5OPSBG	POINT	BT5 - Backup Generator	0.2	Diesel tailpipe from non-road equipment
BT5OPSFUG	VOLUME	BT5 - Fugitive Components	-	-
BT5OPSFUGD	VOLUME	BT5 - Wind Erosion Fugitive Dust	-	-
BT5WICTH	POINT	BT5 - Well Intervention Main Equipment - Coil Tubing Heater	0.05	Diesel or natural gas heaters, or boiler
BT5WICTE	POINT	BT5 - Well Intervention Main Equipment - Coil Tubing Engine	0.2	Diesel tailpipe from non-road equipment
BT5WILCTE	POINT	BT5 - Well Intervention Main Equipment - Large Coil Tubing Engine	0.1	Diesel engines
WLWTG03A	POINT	WPF - Stationary Combustion Sources - Injection/Compression Turbine	0.3	Natural gas-fired turbines
WLWTG03B	POINT	WPF - Stationary Combustion Sources - Injection/Compression Turbine	0.3	Natural gas-fired turbines
WLWTG01A	POINT	WPF - Stationary Combustion Sources - Power Generation Turbine	0.3	Natural gas-fired turbines
WLWTG01B	POINT	WPF - Stationary Combustion Sources - Power Generation Turbine	0.3	Natural gas-fired turbines
WLWTG02A	POINT	WPF - Stationary Combustion Sources - Power Generation Turbine	0.3	Natural gas-fired turbines
WLWTG02B	POINT	WPF - Stationary Combustion Sources - Power Generation Turbine	0.3	Natural gas-fired turbines
WLWTG04	POINT	WPF - Stationary Combustion Sources - Backup Power Generation Turbine (Dual Fuel)	0.3	Natural gas-fired turbines
WLWTG05	POINT	WPF - Stationary Combustion Sources - Backup Power Generation Turbine (Dual Fuel)	0.3	Natural gas-fired turbines
WLWGL05	POINT	WPF - Stationary Combustion Sources - Black Start Engine	0.2	Diesel tailpipe from non-road equipment
WLWHG03	POINT	WPF - Stationary Combustion Sources - Crude Production Heater	0.05	Diesel or natural gas heaters, or boiler
WLWHG04	POINT	WPF - Stationary Combustion Sources - Crude Production Heater	0.05	Diesel or natural gas heaters, or boiler
WLWHG01	POINT	WPF - Stationary Combustion Sources - Utility Heat Medium (UHM) Heater	0.05	Diesel or natural gas heaters, or boiler
WLWHG02	POINT	WPF - Stationary Combustion Sources - Utility Heat Medium (UHM) Heater	0.05	Diesel or natural gas heaters, or boiler
WLWHG06	POINT	WPF - Stationary Combustion Sources - Hot Oil Heater	0.05	Diesel or natural gas heaters, or boiler
WLWFGLP	POINT	WPF - Stationary Combustion Sources - LP Flare (pilot/purge/assist)	0.5	USEPA default value

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
WLWFGHP	POINT	WPF - Stationary Combustion Sources - HP Flare (pilot/purge/assist)	0.5	USEPA default value
WCFOPSDS	POINT	WPF - Stationary Combustion Sources - Diesel Fueling Station	-	-
WCFOPSTSO	POINT	WPF - Storage Tanks - VFRT/ Slop Oil	-	-
WCFOPSTCO	POINT	WPF - Storage Tanks - VFRT/ Portable Temp Crude Oil	-	-
WCFOPSTUD	POINT	WPF - Storage Tanks - VFRT/ ULSD	-	-
WCFOPSTLD	POINT	WPF - Storage Tanks - VFRT/ LEPD	-	-
WCFOPSTEB	POINT	WPF - Storage Tanks - VFRT/ Emulsion Breaker/ Pad Buster	-	-
WCFOPSFUG	VOLUME	WPF - Fugitive Equipment Leaks	-	-
WCFOPSFUGD	VOLUME	WPF - Wind Erosion Fugitive Dust	-	-
WOCPWRGENN1	POINT	WOC - Stationary Combustion Sources N - Power Generation	0.1	Diesel engines
WOCPWRGENN2	POINT	WOC - Stationary Combustion Sources N - Power Generation	0.1	Diesel engines
WOCPWRGENN3	POINT	WOC - Stationary Combustion Sources N - Power Generation	0.1	Diesel engines
WLWIG01S	POINT	WOC - Stationary Combustion Sources - Incinerator	0.2	Diesel tailpipe from non-road equipment
WLWIG02S	POINT	WOC - Stationary Combustion Sources - Incinerator	0.05	Diesel or natural gas heaters, or boiler
WLWHL05S	POINT	WOC - Stationary Combustion Sources - Mud Plant Glycol Boiler	0.05	Diesel or natural gas heaters, or boiler
WOCOPSTJFS	POINT	WOC - Storage Tanks - VFRT/ Aircraft Jet Fuel	-	-
WOCOPSTHCS	POINT	WOC - Storage Tanks - VFRT/ Hydrocarbon	-	-
WOCOPSTDS	POINT	WOC - Storage Tanks - VFRT/ Diesel	-	-
WILLOWAIR1S	AREAPOLY	WOC - Aircraft Activity (Willow Airstrip) - Release Height 50.8m	0.5	USEPA default value
WILLOWAIR2S	AREAPOLY	WOC - Aircraft Activity (Willow Airstrip) - Release Height 152.4m	0.5	USEPA default value
WILLOWAIR3S	AREAPOLY	WOC - Aircraft Activity (Willow Airstrip) - Release Height 254m	0.5	USEPA default value
WOCOPSFUGDS	VOLUME	WOC - Wind Erosion Fugitive Dust - Wind Erosion	-	-
WCFPCE1	AREAPOLY	WPF - Non-mobile Support Equipment - Portable External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFPCE2	AREAPOLY	WPF - Non-mobile Support Equipment - Portable External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFPCE3	AREAPOLY	WPF - Non-mobile Support Equipment - Portable External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFPCE4	AREAPOLY	WPF - Non-mobile Support Equipment - Portable External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFPCE5	AREAPOLY	WPF - Non-mobile Support Equipment - Portable External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
WCFPCE6	AREAPOLY	WPF - Non-mobile Support Equipment - Portable External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFPCE7	AREAPOLY	WPF - Non-mobile Support Equipment - Portable External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFSCE1	AREAPOLY	WPF - Non-mobile Support Equipment - Stationary External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFSCE2	AREAPOLY	WPF - Non-mobile Support Equipment - Stationary External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFSCE3	AREAPOLY	WPF - Non-mobile Support Equipment - Stationary External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFSCE4	AREAPOLY	WPF - Non-mobile Support Equipment - Stationary External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFSCE5	AREAPOLY	WPF - Non-mobile Support Equipment - Stationary External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFSCE6	AREAPOLY	WPF - Non-mobile Support Equipment - Stationary External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFSCE7	AREAPOLY	WPF - Non-mobile Support Equipment - Stationary External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFNRE1	AREAPOLY	WPF - Non-mobile Support Equipment - Internal Combustion Equipment Non-Road Engines <140 HP	0.2	Diesel tailpipe from non-road equipment
WCFNRE2	AREAPOLY	WPF - Non-mobile Support Equipment - Internal Combustion Equipment Non-Road Engines <140 HP	0.2	Diesel tailpipe from non-road equipment
WCFNRE3	AREAPOLY	WPF - Non-mobile Support Equipment - Internal Combustion Equipment Non-Road Engines <140 HP	0.2	Diesel tailpipe from non-road equipment
WCFNRE4	AREAPOLY	WPF - Non-mobile Support Equipment - Internal Combustion Equipment Non-Road Engines <140 HP	0.2	Diesel tailpipe from non-road equipment
WCFNRE5	AREAPOLY	WPF - Non-mobile Support Equipment - Internal Combustion Equipment Non-Road Engines <140 HP	0.2	Diesel tailpipe from non-road equipment
WCFNRE6	AREAPOLY	WPF - Non-mobile Support Equipment - Internal Combustion Equipment Non-Road Engines <140 HP	0.2	Diesel tailpipe from non-road equipment
WCFNRE7	AREAPOLY	WPF - Non-mobile Support Equipment - Internal Combustion Equipment Non-Road Engines <140 HP	0.2	Diesel tailpipe from non-road equipment

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
WLW2GEN	POINT	WPF - Non-mobile Support Equipment - Internal Combustion Equipment Non-Road Engines >140 HP	0.15	Diesel tailpipe from non-road equipment
BT3NRE1	AREAPOLY	BT3 - Routine Operations Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
BT3WIN1	AREAPOLY	BT3 - Well Intervention Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
3WELLINTE	POINT	BT3 - Well Intervention Non-Mobile Support Equipment - Total Engine	0.1	Diesel engines
BT1NRE1	AREAPOLY	BT1 - Routine Operations Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
BT1WIN1	AREAPOLY	BT1 - Well Intervention Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
1WELLINTE	POINT	BT1 - Well Intervention Non-Mobile Support Equipment - Total Engine	0.1	Diesel engines
BT2NRE1	AREAPOLY	BT2 - Routine Operations Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
BT2WIN1	AREAPOLY	BT2 - Well Intervention Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
2WELLINTE	POINT	BT2 - Well Intervention Non-Mobile Support Equipment - Total Engine	0.1	Diesel engines
BT4NRE1	AREAPOLY	BT4 - Routine Operations Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
BT4WIN1	AREAPOLY	BT4 - Well Intervention Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
4WELLINTE	POINT	BT4 - Well Intervention Non-Mobile Support Equipment - Total Engine	0.1	Diesel engines
BT5NRE1	AREAPOLY	BT5 - Routine Operations Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
BT5WIN1	AREAPOLY	BT5 - Well Intervention Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
5WELLINTE	POINT	BT5 - Well Intervention Non-Mobile Support Equipment - Total Engine	0.1	Diesel engines
WOCPCES	AREAPOLY	WOC - Non-mobile Support Equipment - Portable External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WOCSCES	AREAPOLY	WOC - Non-mobile Support Equipment - Stationary External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WOCNRES	AREAPOLY	WOC - Non-mobile Support Equipment - Internal Combustion Equipment Non-Road Engines <140 HP	0.2	Diesel tailpipe from non-road equipment
1TAIL1	VOLUME	Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL2	VOLUME	Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL3	VOLUME	Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL4	VOLUME	Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL5	VOLUME	Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
1TAIL6	VOLUME	Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
2TAIL1	VOLUME	Mobile Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL2	VOLUME	Mobile Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL3	VOLUME	Mobile Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL4	VOLUME	Mobile Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL5	VOLUME	Mobile Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL6	VOLUME	Mobile Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
3TAIL1	VOLUME	Mobile Equipment Tailpipe - BT3	0.15	Diesel tailpipe from on-road vehicles
3TAIL2	VOLUME	Mobile Equipment Tailpipe - BT3	0.15	Diesel tailpipe from on-road vehicles
3TAIL3	VOLUME	Mobile Equipment Tailpipe - BT3	0.15	Diesel tailpipe from on-road vehicles
3TAIL4	VOLUME	Mobile Equipment Tailpipe - BT3	0.15	Diesel tailpipe from on-road vehicles
3TAIL5	VOLUME	Mobile Equipment Tailpipe - BT3	0.15	Diesel tailpipe from on-road vehicles
3TAIL6	VOLUME	Mobile Equipment Tailpipe - BT3	0.15	Diesel tailpipe from on-road vehicles
3TAIL7	VOLUME	Mobile Equipment Tailpipe - BT3	0.15	Diesel tailpipe from on-road vehicles
4TAIL1	VOLUME	Mobile Equipment Tailpipe - BT4	0.15	Diesel tailpipe from on-road vehicles
4TAIL2	VOLUME	Mobile Equipment Tailpipe - BT4	0.15	Diesel tailpipe from on-road vehicles
4TAIL3	VOLUME	Mobile Equipment Tailpipe - BT4	0.15	Diesel tailpipe from on-road vehicles
4TAIL4	VOLUME	Mobile Equipment Tailpipe - BT4	0.15	Diesel tailpipe from on-road vehicles
4TAIL5	VOLUME	Mobile Equipment Tailpipe - BT4	0.15	Diesel tailpipe from on-road vehicles
4TAIL6	VOLUME	Mobile Equipment Tailpipe - BT4	0.15	Diesel tailpipe from on-road vehicles
4TAIL7	VOLUME	Mobile Equipment Tailpipe - BT4	0.15	Diesel tailpipe from on-road vehicles
5TAIL1	VOLUME	Mobile Equipment Tailpipe - BT5	0.15	Diesel tailpipe from on-road vehicles
5TAIL2	VOLUME	Mobile Equipment Tailpipe - BT5	0.15	Diesel tailpipe from on-road vehicles
5TAIL3	VOLUME	Mobile Equipment Tailpipe - BT5	0.15	Diesel tailpipe from on-road vehicles
5TAIL4	VOLUME	Mobile Equipment Tailpipe - BT5	0.15	Diesel tailpipe from on-road vehicles
5TAIL5	VOLUME	Mobile Equipment Tailpipe - BT5	0.15	Diesel tailpipe from on-road vehicles
5TAIL6	VOLUME	Mobile Equipment Tailpipe - BT5	0.15	Diesel tailpipe from on-road vehicles
5TAIL7	VOLUME	Mobile Equipment Tailpipe - BT5	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL1	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL2	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL3	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL4	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
WOCSTAIL5	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL6	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL7	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL8	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL9	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL10	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL11	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL12	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL13	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL14	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL15	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL16	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL17	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL18	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL19	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL20	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL21	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL22	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL23	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL24	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL25	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL26	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL27	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL28	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL29	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL30	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL31	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL32	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL33	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL34	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL35	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL36	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
WOCSTAIL37	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL38	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL39	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL40	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL41	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL42	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL43	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
AIRSTAIL1	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
AIRSTAIL2	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
AIRSTAIL3	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
AIRSTAIL4	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
AIRSTAIL5	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
AIRSTAIL6	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
AIRSTAIL7	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL1	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL2	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL3	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL4	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL5	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL6	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL7	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL8	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL9	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL10	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL11	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL12	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL13	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL14	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL15	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL16	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL17	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL18	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
WOCNTAIL19	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL20	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL21	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL22	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL23	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL24	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL25	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL26	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL27	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL28	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL29	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL30	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL31	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
AIRNTAIL1	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
AIRNTAIL2	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
AIRNTAIL3	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
AIRNTAIL4	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
AIRNTAIL5	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
AIRNTAIL6	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
AIRNTAIL7	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL1	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL2	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL3	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL4	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL5	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL6	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL7	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL8	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL9	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL10	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL11	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL12	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
WCFTAIL13	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL14	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL15	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL16	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL17	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL18	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL19	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL20	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
1MFUGD1	VOLUME	Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD2	VOLUME	Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD3	VOLUME	Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD4	VOLUME	Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD5	VOLUME	Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD6	VOLUME	Mobile Equipment Fugitive Dust - BT1	-	-
2MFUGD1	VOLUME	Mobile Equipment Fugitive Dust - BT2	-	-
2MFUGD2	VOLUME	Mobile Equipment Fugitive Dust - BT2	-	-
2MFUGD3	VOLUME	Mobile Equipment Fugitive Dust - BT2	-	-
2MFUGD4	VOLUME	Mobile Equipment Fugitive Dust - BT2	-	-
2MFUGD5	VOLUME	Mobile Equipment Fugitive Dust - BT2	-	-
2MFUGD6	VOLUME	Mobile Equipment Fugitive Dust - BT2	-	-
3MFUGD1	VOLUME	Mobile Equipment Fugitive Dust - BT3	-	-
3MFUGD2	VOLUME	Mobile Equipment Fugitive Dust - BT3	-	-
3MFUGD3	VOLUME	Mobile Equipment Fugitive Dust - BT3	-	-
3MFUGD4	VOLUME	Mobile Equipment Fugitive Dust - BT3	-	-
3MFUGD5	VOLUME	Mobile Equipment Fugitive Dust - BT3	-	-
3MFUGD6	VOLUME	Mobile Equipment Fugitive Dust - BT3	-	-
3MFUGD7	VOLUME	Mobile Equipment Fugitive Dust - BT3	-	-
4MFUGD1	VOLUME	Mobile Equipment Fugitive Dust - BT4	-	-
4MFUGD2	VOLUME	Mobile Equipment Fugitive Dust - BT4	-	-
4MFUGD3	VOLUME	Mobile Equipment Fugitive Dust - BT4	-	-
4MFUGD4	VOLUME	Mobile Equipment Fugitive Dust - BT4	-	-
4MFUGD5	VOLUME	Mobile Equipment Fugitive Dust - BT4	-	-

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
4MFUGD6	VOLUME	Mobile Equipment Fugitive Dust - BT4	-	-
4MFUGD7	VOLUME	Mobile Equipment Fugitive Dust - BT4	-	-
5MFUGD1	VOLUME	Mobile Equipment Fugitive Dust - BT5	-	-
5MFUGD2	VOLUME	Mobile Equipment Fugitive Dust - BT5	-	-
5MFUGD3	VOLUME	Mobile Equipment Fugitive Dust - BT5	-	-
5MFUGD4	VOLUME	Mobile Equipment Fugitive Dust - BT5	-	-
5MFUGD5	VOLUME	Mobile Equipment Fugitive Dust - BT5	-	-
5MFUGD6	VOLUME	Mobile Equipment Fugitive Dust - BT5	-	-
5MFUGD7	VOLUME	Mobile Equipment Fugitive Dust - BT5	-	-
WCFMFUGD1	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD2	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD3	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD4	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD5	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD6	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD7	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD8	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD9	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD10	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD11	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD12	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD13	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD14	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD15	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD16	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD17	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD18	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD19	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD20	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WOCSMFUGD1	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD2	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD3	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
WOCSMFUGD4	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD5	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD6	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD7	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD8	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD9	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD10	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD11	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD12	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD13	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD14	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD15	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD16	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD17	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD18	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD19	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD20	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD21	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD22	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD23	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD24	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD25	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD26	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD27	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD28	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD29	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD30	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD31	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD32	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD33	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD34	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD35	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
WOCSMFUGD36	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD37	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD38	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD39	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD40	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD41	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD42	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD43	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
AIRSMFUGD1	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
AIRSMFUGD2	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
AIRSMFUGD3	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
AIRSMFUGD4	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
AIRSMFUGD5	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
AIRSMFUGD6	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
AIRSMFUGD7	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCTEMPTRBS1	POINT	WOC - Stationary Combustion Sources	0.3	Natural gas-fired turbines
WOCTEMPTRBS2	POINT	WOC - Stationary Combustion Sources	0.3	Natural gas-fired turbines
WOCTEMPTRBN1	POINT	WOC - Stationary Combustion Sources N	0.3	Natural gas-fired turbines
WOCTEMPTRBN2	POINT	WOC - Stationary Combustion Sources N	0.3	Natural gas-fired turbines
WOCPCEN	AREAPOLY	WOC - Non-mobile Support Equipment N	0.05	Diesel or natural gas heaters, or boiler
WOCSCEN	AREAPOLY	WOC - Non-mobile Support Equipment N	0.05	Diesel or natural gas heaters, or boiler
WOCNREN	AREAPOLY	WOC - Non-mobile Support Equipment N	0.2	Diesel tailpipe from non-road equipment
WOCNMFUGD1	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD2	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD3	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD4	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD5	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD6	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD7	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD8	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD9	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD10	VOLUME	Mobile Equipment Fugitive Dust	-	-

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
WOCNMFUGD11	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD12	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD13	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD14	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD15	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD16	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD17	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD18	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD19	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD20	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD21	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD22	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD23	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD24	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD25	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD26	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD27	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD28	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD29	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD30	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD31	VOLUME	Mobile Equipment Fugitive Dust	-	-
AIRNMFUGD1	VOLUME	Mobile Equipment Fugitive Dust	-	-
AIRNMFUGD2	VOLUME	Mobile Equipment Fugitive Dust	-	-
AIRNMFUGD3	VOLUME	Mobile Equipment Fugitive Dust	-	-
AIRNMFUGD4	VOLUME	Mobile Equipment Fugitive Dust	-	-
AIRNMFUGD5	VOLUME	Mobile Equipment Fugitive Dust	-	-
AIRNMFUGD6	VOLUME	Mobile Equipment Fugitive Dust	-	-
AIRNMFUGD7	VOLUME	Mobile Equipment Fugitive Dust	-	-
WILLOWAIR1N	AREAPOLY	WOC - Aircraft Activity (Willow Airstrip) N	0.5	USEPA default value
WILLOWAIR2N	AREAPOLY	WOC - Aircraft Activity (Willow Airstrip) N	0.5	USEPA default value
WILLOWAIR3N	AREAPOLY	WOC - Aircraft Activity (Willow Airstrip) N	0.5	USEPA default value
WOCOPSFUGDN	VOLUME	WOC - Wind Erosion Fugitive Dust N	-	-

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
WOCOPSTDRS	POINT	WOC - Storage Tanks N	-	-
WOCPWRGENS1	POINT	WOC - Stationary Combustion Sources - Power Generation	0.1	Diesel engines
WOCPWRGENS2	POINT	WOC - Stationary Combustion Sources - Power Generation	0.1	Diesel engines
WOCPWRGENS3	POINT	WOC - Stationary Combustion Sources - Power Generation	0.1	Diesel engines
WLWIG01N	POINT	WOC - Stationary Combustion Sources – Incinerator	0.5	USEPA default value
WLWIG02N	POINT	WOC - Stationary Combustion Sources – Incinerator	0.5	USEPA default value
WLWHL05N	POINT	WOC - Stationary Combustion Sources N	0.05	Diesel or natural gas heaters, or boiler
WOCOPSTJFN	POINT	WOC - Storage Tanks N	-	-
WOCOPSTHCN	POINT	WOC - Storage Tanks N	-	-
WOCOPSTDN	POINT	WOC - Storage Tanks N	-	-
RFDGMT1	POINT	RFD - GMT1	0.2	Diesel tailpipe from non-road equipment
RFDGMT2	POINT	RFD - GMT2	0.2	Diesel tailpipe from non-road equipment
RFDCD5	POINT	RFD - CD5	0.2	Diesel tailpipe from non-road equipment
RFDGWPDS1	POINT	RFD - Greater Willow Project Drill Site #1	0.15	Diesel engines/natural gas-fired turbines
RFDGWPDS2	POINT	RFD - Greater Willow Project Drill Site #2	0.15	Diesel engines/natural gas-fired turbines
2DRILLPEA	POINT	BT2 - Drill Rigs - Primary Power Engines	0.1	Diesel engines
2DRILLCP1A	POINT	BT2 - Drill Rigs - Cement Pumping Unit #1	0.2	Diesel tailpipe from non-road equipment
2DRILLCP2A	POINT	BT2 - Drill Rigs - Cement Pumping Unit #2	0.2	Diesel tailpipe from non-road equipment
2DRILLB1A	POINT	BT2 - Drill Rigs - Boiler #1	0.05	Diesel or natural gas heaters, or boiler
2DRILLB2A	POINT	BT2 - Drill Rigs - Boiler #2	0.05	Diesel or natural gas heaters, or boiler
2DRILLAH1A	POINT	BT2 - Drill Rigs - Air Heater #1	0.05	Diesel or natural gas heaters, or boiler
2DRILLAH2A	POINT	BT2 - Drill Rigs - Air Heater #2	0.05	Diesel or natural gas heaters, or boiler
2DRILLMPA	POINT	BT2 - Drill Rigs - Mud Pit Heater	0.05	Diesel or natural gas heaters, or boiler
2DRILLNMTEA	POINT	BT2 - Drilling Non-Mobile Support Equipment - Total Engine	0.1	Diesel engines
2DRILLNMLTA	POINT	BT2 - Drilling Non-Mobile Support Equipment - Total Lighting Engine	0.2	Diesel tailpipe from non-road equipment
2DRILLNMPGA	POINT	BT2 - Drilling Non-Mobile Support Equipment - Total Portable Generators	0.1	Diesel engines
2DRILLNMCPA	POINT	BT2 - Drilling Non-Mobile Support Equipment - Total Portable Welders/Compressor Engine	0.1	Diesel engines
2DRILLNMHSA	VOLUME	BT2 - Drilling Non-Mobile Support Equipment - Portable Heaters & Snow Melters	0.05	Diesel tailpipe from non-road equipment
2DRILLFLARE	POINT	BT2 - Drilling Well Flowback and Flaring - Total Flaring Emissions	0.5	USEPA default value

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
3DRILLPEA	POINT	BT3 - Drill Rigs - Primary Power Engines	0.1	Diesel engines
3DRILLCP1A	POINT	BT3 - Drill Rigs - Cement Pumping Unit #1	0.2	Diesel tailpipe from non-road equipment
3DRILLCP2A	POINT	BT3 - Drill Rigs - Cement Pumping Unit #2	0.2	Diesel tailpipe from non-road equipment
3DRILLB1A	POINT	BT3 - Drill Rigs - Boiler #1	0.05	Diesel or natural gas heaters, or boiler
3DRILLB2A	POINT	BT3 - Drill Rigs - Boiler #2	0.05	Diesel or natural gas heaters, or boiler
3DRILLAH1A	POINT	BT3 - Drill Rigs - Air Heater #1	0.05	Diesel or natural gas heaters, or boiler
3DRILLAH2A	POINT	BT3 - Drill Rigs - Air Heater #2	0.05	Diesel or natural gas heaters, or boiler
3DRILLMPA	POINT	BT3 - Drill Rigs - Mud Pit Heater	0.05	Diesel or natural gas heaters, or boiler
3DRILLNMTEA	POINT	BT3 - Drilling Non-Mobile Support Equipment - Total Engine	0.1	Diesel engines
3DRILLNMLTA	POINT	BT3 - Drilling Non-Mobile Support Equipment - Total Lighting Engine	0.2	Diesel tailpipe from non-road equipment
3DRILLNMPGA	POINT	BT3 - Drilling Non-Mobile Support Equipment - Total Portable Generators	0.1	Diesel engines
3DRILLNMCPA	POINT	BT3 - Drilling Non-Mobile Support Equipment - Total Portable Welders/Compressor Engine	0.1	Diesel engines
3DRILLNMHSA	VOLUME	BT3 - Drilling Non-Mobile Support Equipment - Portable Heaters & Snow Melters	0.05	Diesel tailpipe from non-road equipment
3DRILLFLARE	POINT	BT3 - Drilling Well Flowback and Flaring - Total Flaring Emissions	0.5	USEPA default value
2PADHTR1	POINT	BT2 - Pad Construction - Construction Heaters	0.05	Diesel or natural gas heaters, or boiler
2PADSHTR1	POINT	BT2 - Pad Construction - Construction Shop Heaters	0.05	Diesel or natural gas heaters, or boiler
2PADNMGS1	POINT	BT2 - Pad Construction - Generator Sets	0.1	Diesel engines
3PADHTR1	POINT	BT3 - Pad Construction - Construction Heaters	0.05	Diesel or natural gas heaters, or boiler
3PADSHTR1	POINT	BT3 - Pad Construction - Construction Shop Heaters	0.05	Diesel or natural gas heaters, or boiler
3PADNMGS1	POINT	BT3 - Pad Construction - Generator Sets	0.1	Diesel engines
2PADNR1	VOLUME	BT2 - Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
2PADNR2	VOLUME	BT2 - Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
2PADNR3	VOLUME	BT2 - Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
2PADNR4	VOLUME	BT2 - Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
3PADNR1	VOLUME	BT3 - Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
3PADNR2	VOLUME	BT3 - Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
3PADNR3	VOLUME	BT3 - Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
3PADNR4	VOLUME	BT3 - Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
2PADOHT1	VOLUME	BT2 - Pad Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
2PADOHT2	VOLUME	BT2 - Pad Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
2PADOHT3	VOLUME	BT2 - Pad Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
2PADOHT4	VOLUME	BT2 - Pad Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
3PADOHT1	VOLUME	BT3 - Pad Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
3PADOHT2	VOLUME	BT3 - Pad Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
3PADOHT3	VOLUME	BT3 - Pad Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
3PADOHT4	VOLUME	BT3 - Pad Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
2FUGD	VOLUME	BT2 - Wind Erosion Fugitive Dust	-	-
3FUGD	VOLUME	BT3 - Wind Erosion Fugitive Dust	-	-

Table A.2-11. Alternative C Near-field Model Scenario 4 Emissions Stack Parameters

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
WOCOPSTDRN	POINT	3.05	5.4864	0.1016	1.67652	294.261111	-	-	-	-	-
BT1OPSLH	POINT	2.7432	12.8	0.94	5.7	529	-	-	-	-	-
BT1OPSBG	POINT	2.7432	6.1	0.46	15.1	795	-	-	-	-	-
BT1OPSFUG	VOLUME	2.7432	3.7	-	-	-	15.1	3.38	-	-	-
BT1OPSFUGD	VOLUME	2.7432	3.7	-	-	-	26.74	3.38	-	-	-
BT1OPSTEB	POINT	2.7432	5.4864	0.1016	1.67652	283.15	-	-	-	-	-
BT1OPSTD	POINT	2.7432	5.4864	0.1016	1.67652	299.816667	-	-	-	-	-
BT1OPSTCO	POINT	2.7432	5.4864	0.1016	1.67652	277.594444	-	-	-	-	-
BT1WICTH	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT1WICTE	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT1WILCTE	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT2OPSLH	POINT	2.7432	12.8	0.94	5.7	529	-	-	-	-	-
BT2OPSBG	POINT	2.7432	6.1	0.46	15.1	795	-	-	-	-	-
BT2OPSFUG	VOLUME	2.7432	3.7	-	-	-	15.1	3.38	-	-	-
BT2OPSFUGD	VOLUME	2.7432	3.7	-	-	-	26.74	3.38	-	-	-
BT2WICTH	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT2WICTE	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
BT2WILCTE	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT3OPSLH	POINT	2.7432	12.8	0.94	5.7	529	-	-	-	-	-
BT3OPSBG	POINT	2.7432	6.1	0.46	15.1	795	-	-	-	-	-
BT3OPSFUG	VOLUME	3.66	3.7	-	-	-	15.1	3.38	-	-	-
BT3OPSFUGD	VOLUME	3.66	3.7	-	-	-	26.74	3.38	-	-	-
BT3WICTH	POINT	3.66	3.7	0.356	41.6	644	-	-	-	-	-
BT3WICTE	POINT	3.66	3.7	0.356	41.6	644	-	-	-	-	-
BT3WILCTE	POINT	3.66	3.7	0.356	41.6	644	-	-	-	-	-
BT4OPSLH	POINT	2.7432	12.8	0.94	5.7	529	-	-	-	-	-
BT4OPSBG	POINT	2.7432	6.1	0.46	15.1	795	-	-	-	-	-
BT4OPSFUG	VOLUME	2.7432	3.7	-	-	-	15.1	3.38	-	-	-
BT4OPSFUGD	VOLUME	2.7432	3.7	-	-	-	15.1	3.38	-	-	-
BT4OPSTEB	POINT	2.7432	5.4864	0.1016	1.67652	283.15	-	-	-	-	-
BT4OPSTD	POINT	2.7432	5.4864	0.1016	1.67652	299.816667	-	-	-	-	-
BT4OPSTCO	POINT	2.7432	5.4864	0.1016	1.67652	277.594444	-	-	-	-	-
BT4WICTH	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT4WICTE	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT4WILCTE	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT5OPSLH	POINT	2.7432	12.2	0.94	5.7	529	-	-	-	-	-
BT5OPSBG	POINT	2.7432	6.1	0.46	15.1	795	-	-	-	-	-
BT5OPSFUG	VOLUME	2.7432	3.7	-	-	-	15.1	3.38	-	-	-
BT5OPSFUGD	VOLUME	2.7432	3.7	-	-	-	26.74	3.38	-	-	-
BT5WICTH	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT5WICTE	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT5WILCTE	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
WLWTG03A	POINT	3.66	25	2	30	370	-	-	-	-	-
WLWTG03B	POINT	3.66	25	2	30	370	-	-	-	-	-
WLWTG01A	POINT	3.66	30	2	35	370	-	-	-	-	-
WLWTG01B	POINT	3.66	30	2	35	370	-	-	-	-	-
WLWTG02A	POINT	3.66	30	2	35	370	-	-	-	-	-
WLWTG02B	POINT	3.66	30	2	35	370	-	-	-	-	-
WLWTG04	POINT	3.66	25	2	30	550	-	-	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
WLWTG05	POINT	3.66	25	2	30	550	-	-	-	-	-
WLWGL05	POINT	3.66	8	0.3	20	760	-	-	-	-	-
WLWHG03	POINT	3.66	25	1	10	525	-	-	-	-	-
WLWHG04	POINT	3.66	25	1	10	525	-	-	-	-	-
WLWHG01	POINT	3.66	25	1	10	525	-	-	-	-	-
WLWHG02	POINT	3.66	25	1	10	525	-	-	-	-	-
WLWHG06	POINT	3.66	25	1	10	525	-	-	-	-	-
WLWFGLP	POINT	3.66	25	0.2	20	1273	-	-	-	-	-
WLWFGHP	POINT	3.66	25	0.2	20	1273	-	-	-	-	-
WCFOPSDS	POINT	3.66	5.5	0.1	1.68	0	-	-	-	-	-
WCFOPSTSO	POINT	3.66	5.4864	0.1016	1.67652	319.261111	-	-	-	-	-
WCFOPSTCO	POINT	3.66	5.4864	0.1016	1.67652	277.594444	-	-	-	-	-
WCFOPSTUD	POINT	3.66	12.8016	0.1524	0.74512	299.816667	-	-	-	-	-
WCFOPSTLD	POINT	3.66	5.4864	0.1016	1.67652	299.816667	-	-	-	-	-
WCFOPSTEB	POINT	3.66	5.4864	0.1016	1.67652	283.15	-	-	-	-	-
WCFOPSFUG	VOLUME	3.66	3.7	-	-	-	15.1	3.38	-	-	-
WCFOPSFUGD	VOLUME	3.66	3.7	-	-	-	15.1	3.38	-	-	-
WOCPWRGENN1	POINT	3.05	15	0.3	20	760	-	-	-	-	-
WOCPWRGENN2	POINT	3.05	15	0.3	20	760	-	-	-	-	-
WOCPWRGENN3	POINT	3.05	15	0.3	20	760	-	-	-	-	-
WLWIG01S	POINT	3.05	20	0.3	10	1200	-	-	-	-	-
WLWIG02S	POINT	3.05	20	0.3	10	1200	-	-	-	-	-
WLWHL05S	POINT	3.05	13.19	0.3	10	525	-	-	-	-	-
WOCOPSTJFS	POINT	3.05	5.4864	0.1016	1.67652	283.15	-	-	-	-	-
WOCOPSTHCS	POINT	3.05	5.4864	0.1016	1.67652	0	-	-	-	-	-
WOCOPSTDS	POINT	3.05	5.4864	0.1016	1.67652	299.816667	-	-	-	-	-
WILLOWAIR1S	AREAPOLY	3.6576	50.8	-	-	-	-	23.63	-	-	-
WILLOWAIR2S	AREAPOLY	3.6576	152.4	-	-	-	-	23.63	-	-	-
WILLOWAIR3S	AREAPOLY	3.6576	254	-	-	-	-	23.63	-	-	-
WOCOPSFUGDS	VOLUME	3.05	3.7	-	-	-	9.07	3.38	-	-	-
WCFPCE1	AREAPOLY	3.66	13.3	-	-	-	-	12.37	-	-	-
WCFPCE2	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
WCFPCE3	AREAPOLY	3.66	9.38	-	-	-	-	8.72	-	-	-
WCFPCE4	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFPCE5	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFPCE6	AREAPOLY	3.66	13.3	-	-	-	-	12.37	-	-	-
WCFPCE7	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFSCE1	AREAPOLY	3.66	13.3	-	-	-	-	12.37	-	-	-
WCFSCE2	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFSCE3	AREAPOLY	3.66	9.38	-	-	-	-	8.72	-	-	-
WCFSCE4	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFSCE5	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFSCE6	AREAPOLY	3.66	13.3	-	-	-	-	12.37	-	-	-
WCFSCE7	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFNRE1	AREAPOLY	3.66	13.3	-	-	-	-	12.37	-	-	-
WCFNRE2	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFNRE3	AREAPOLY	3.66	9.38	-	-	-	-	8.72	-	-	-
WCFNRE4	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFNRE5	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFNRE6	AREAPOLY	3.66	13.3	-	-	-	-	12.37	-	-	-
WCFNRE7	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WLW2GEN	POINT	3.66	6.1	0.46	15.1	795	-	-	-	-	-
BT3NRE1	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
BT3WIN1	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
3WELLINTE	POINT	3.66	6.1	0.46	15.1	795	-	-	-	-	-
BT1NRE1	AREAPOLY	2.74	3.63	-	-	-	-	3.38	-	-	-
BT1WIN1	AREAPOLY	2.74	3.63	-	-	-	-	3.38	-	-	-
1WELLINTE	POINT	2.7432	6.1	0.46	15.1	795	-	-	-	-	-
BT2NRE1	AREAPOLY	2.74	3.63	-	-	-	-	3.38	-	-	-
BT2WIN1	AREAPOLY	2.74	3.63	-	-	-	-	3.38	-	-	-
2WELLINTE	POINT	2.7432	6.1	0.46	15.1	795	-	-	-	-	-
BT4NRE1	AREAPOLY	2.74	3.63	-	-	-	-	3.38	-	-	-
BT4WIN1	AREAPOLY	2.74	3.63	-	-	-	-	3.38	-	-	-
4WELLINTE	POINT	2.7432	6.1	0.46	15.1	795	-	-	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
BT5NRE1	AREAPOLY	2.74	3.63	-	-	-	-	3.38	-	-	-
BT5WIN1	AREAPOLY	2.74	3.63	-	-	-	-	3.38	-	-	-
5WELLINTE	POINT	2.7432	6.1	0.46	15.1	795	-	-	-	-	-
WOCPCES	AREAPOLY	3.05	3.63	-	-	-	-	3.38	-	-	-
WOCSCES	AREAPOLY	3.05	3.63	-	-	-	-	3.38	-	-	-
WOCNRES	AREAPOLY	3.05	3.63	-	-	-	-	3.38	-	-	-
1TAIL1	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL2	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL3	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL4	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL5	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL6	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
2TAIL1	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2TAIL2	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2TAIL3	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2TAIL4	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2TAIL5	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2TAIL6	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
3TAIL1	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
3TAIL2	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
3TAIL3	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
3TAIL4	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
3TAIL5	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
3TAIL6	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
3TAIL7	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4TAIL1	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4TAIL2	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4TAIL3	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4TAIL4	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4TAIL5	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4TAIL6	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4TAIL7	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
5TAIL1	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5TAIL2	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5TAIL3	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5TAIL4	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5TAIL5	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5TAIL6	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5TAIL7	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
WOCSTAIL1	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL2	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL3	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL4	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL5	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL6	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL7	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL8	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL9	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL10	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL11	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL12	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL13	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL14	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL15	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL16	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL17	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL18	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL19	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL20	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL21	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL22	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL23	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL24	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL25	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
WOCSTAIL26	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL27	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL28	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL29	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL30	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL31	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL32	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL33	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL34	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL35	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL36	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL37	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL38	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL39	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL40	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL41	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL42	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL43	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
AIRSTAIL1	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRSTAIL2	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRSTAIL3	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRSTAIL4	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRSTAIL5	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRSTAIL6	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRSTAIL7	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
WOCNTAIL1	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL2	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL3	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL4	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL5	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL6	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL7	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
WOCNTAIL8	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL9	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL10	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL11	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL12	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL13	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL14	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL15	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL16	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL17	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL18	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL19	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL20	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL21	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL22	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL23	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL24	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL25	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL26	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL27	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL28	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL29	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL30	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL31	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
AIRNTAIL1	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRNTAIL2	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRNTAIL3	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRNTAIL4	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRNTAIL5	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRNTAIL6	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRNTAIL7	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
WCFTAIL1	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
WCFTAIL2	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL3	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL4	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL5	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL6	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL7	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL8	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL9	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL10	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL11	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL12	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL13	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL14	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL15	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL16	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL17	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL18	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL19	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL20	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD1	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD2	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD3	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD4	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD5	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD6	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
2MFUGD1	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2MFUGD2	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2MFUGD3	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2MFUGD4	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2MFUGD5	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2MFUGD6	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
3MFUGD1	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
3MFUGD2	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
3MFUGD3	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
3MFUGD4	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
3MFUGD5	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
3MFUGD6	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
3MFUGD7	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4MFUGD1	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4MFUGD2	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4MFUGD3	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4MFUGD4	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4MFUGD5	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4MFUGD6	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4MFUGD7	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5MFUGD1	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5MFUGD2	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5MFUGD3	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5MFUGD4	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5MFUGD5	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5MFUGD6	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5MFUGD7	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
WCFMFUGD1	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD2	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD3	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD4	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD5	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD6	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD7	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD8	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD9	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD10	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD11	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD12	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
WCFMFUGD13	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD14	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD15	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD16	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD17	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD18	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD19	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD20	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD1	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD2	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD3	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD4	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD5	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD6	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD7	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD8	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD9	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD10	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD11	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD12	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD13	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD14	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD15	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD16	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD17	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD18	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD19	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD20	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD21	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD22	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD23	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD24	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
WOCSMFUGD25	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD26	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD27	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD28	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD29	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD30	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD31	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD32	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD33	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD34	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD35	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD36	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD37	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD38	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD39	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD40	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD41	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD42	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD43	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
AIRSMFUGD1	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRSMFUGD2	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRSMFUGD3	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRSMFUGD4	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRSMFUGD5	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRSMFUGD6	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRSMFUGD7	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
WOCTEMPTRBS1	POINT	3.05	30	2	30	550	-	-	-	-	-
WOCTEMPTRBS2	POINT	3.05	30	2	30	550	-	-	-	-	-
WOCTEMPTRBN1	POINT	3.05	30	2	30	550	-	-	-	-	-
WOCTEMPTRBN2	POINT	3.05	30	2	30	550	-	-	-	-	-
WOCPCEN	AREAPOLY	3.05	3.63	-	-	-	-	3.38	-	-	-
WOCSCEN	AREAPOLY	3.05	3.63	-	-	-	-	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
WOCNREN	AREAPOLY	3.05	3.63	-	-	-	-	3.38	-	-	-
WOCNMFUGD1	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD2	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD3	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD4	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD5	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD6	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD7	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD8	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD9	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD10	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD11	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD12	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD13	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD14	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD15	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD16	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD17	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD18	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD19	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD20	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD21	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD22	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD23	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD24	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD25	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD26	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD27	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD28	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD29	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD30	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD31	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
AIRNMFUGD1	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRNMFUGD2	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRNMFUGD3	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRNMFUGD4	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRNMFUGD5	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRNMFUGD6	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRNMFUGD7	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
WILLOWAIR1N	AREAPOLY	3.6576	50.8	-	-	-	-	23.63	-	-	-
WILLOWAIR2N	AREAPOLY	3.6576	152.4	-	-	-	-	23.63	-	-	-
WILLOWAIR3N	AREAPOLY	3.6576	254	-	-	-	-	23.63	-	-	-
WOCOPSFUGDN	VOLUME	3.05	3.7	-	-	-	9.07	3.38	-	-	-
WOCOPSTDRS	POINT	3.05	5.4864	0.1016	1.67652	294.261111	-	-	-	-	-
WOCPWRGENS1	POINT	3.05	15	0.3	20	760	-	-	-	-	-
WOCPWRGENS2	POINT	3.05	15	0.3	20	760	-	-	-	-	-
WOCPWRGENS3	POINT	3.05	15	0.3	20	760	-	-	-	-	-
WLWIG01N	POINT	3.05	20	0.3	10	1200	-	-	-	-	-
WLWIG02N	POINT	3.05	20	0.3	10	1200	-	-	-	-	-
WLWHL05N	POINT	3.05	13.19	0.3	10	525	-	-	-	-	-
WOCOPSTJFN	POINT	3.05	5.4864	0.1016	1.67652	283.15	-	-	-	-	-
WOCOPSTHCN	POINT	3.05	5.4864	0.1016	1.67652	0	-	-	-	-	-
WOCOPSTDN	POINT	3.05	5.4864	0.1016	1.67652	299.816667	-	-	-	-	-
RFDGMT1	POINT	1.524	4.88	0.305	35	820	-	-	-	-	-
RFDGMT2	POINT	1.524	12.2	0.94	5.7	529	-	-	-	-	-
RFDCD5	POINT	1.524	4.88	0.305	35	820	-	-	-	-	-
RFDGWPDS1	POINT	1.524	3.7	0.356	41.6	644	-	-	-	-	-
RFDGWPDS2	POINT	1.524	3.7	0.356	41.6	644	-	-	-	-	-
2DRILLPEA	POINT	2.7432	13.3	0.4	10.5	614	-	-	-	-	-
2DRILLCP1A	POINT	2.7432	10.4	0.13	43.5	750	-	-	-	-	-
2DRILLCP2A	POINT	2.7432	10.4	0.13	43.5	750	-	-	-	-	-
2DRILLB1A	POINT	2.7432	11.9	0.279	11.7	450	-	-	-	-	-
2DRILLB2A	POINT	2.7432	11.9	0.279	11.7	450	-	-	-	-	-
2DRILLAH1A	POINT	2.7432	10.5	0.3	3.2	533	-	-	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
2DRILLAH2A	POINT	2.7432	10.5	0.3	3.2	533	-	-	-	-	-
2DRILLMPA	POINT	2.7432	7.2	0.3	10.8	533	-	-	-	-	-
2DRILLNMTEA	POINT	2.7432	6.5	0.3	47	761	-	-	-	-	-
2DRILLNMLTA	POINT	2.7432	6.1	0.3	15.1	795	-	-	-	-	-
2DRILLNMPGA	POINT	2.7432	6.1	0.3	15.1	795	-	-	-	-	-
2DRILLNMCPA	POINT	2.74	3.7	0.3	46	689	-	-	-	-	-
2DRILLNMHSA	VOLUME	2.7432	3.7	-	-	-	13.95	3.38	-	-	-
2DRILLFLARE	POINT	2.7432	10.1	0.3	6.1	1033	-	-	-	-	-
3DRILLPEA	POINT	3.6576	13.3	0.4	10.5	614	-	-	-	-	-
3DRILLCP1A	POINT	3.6576	10.4	0.13	43.5	750	-	-	-	-	-
3DRILLCP2A	POINT	3.6576	10.4	0.13	43.5	750	-	-	-	-	-
3DRILLB1A	POINT	3.6576	11.9	0.279	11.7	450	-	-	-	-	-
3DRILLB2A	POINT	3.6576	11.9	0.279	11.7	450	-	-	-	-	-
3DRILLAH1A	POINT	3.6576	10.5	0.3	3.2	533	-	-	-	-	-
3DRILLAH2A	POINT	3.6576	10.5	0.3	3.2	533	-	-	-	-	-
3DRILLMPA	POINT	3.6576	7.2	0.3	10.8	533	-	-	-	-	-
3DRILLNMTEA	POINT	3.6576	6.5	0.3	47	761	-	-	-	-	-
3DRILLNMLTA	POINT	3.6576	6.1	0.3	15.1	795	-	-	-	-	-
3DRILLNMPGA	POINT	3.6576	6.1	0.3	15.1	795	-	-	-	-	-
3DRILLNMCPA	POINT	2.74	3.7	0.3	46	689	-	-	-	-	-
3DRILLNMHSA	VOLUME	3.6576	3.7	-	-	-	13.95	3.38	-	-	-
3DRILLFLARE	POINT	3.6576	10.1	0.3	6.1	1033	-	-	-	-	-
2PADHTR1	POINT	2.7432	12.2	0.94	5.7	529	-	-	-	-	-
2PADSHTR1	POINT	2.7432	12.2	0.94	5.7	529	-	-	-	-	-
2PADNMGS1	POINT	2.7432	6.5	0.2	47	761	-	-	-	-	-
3PADHTR1	POINT	2.7432	12.2	0.94	5.7	529	-	-	-	-	-
3PADSHTR1	POINT	2.7432	12.2	0.94	5.7	529	-	-	-	-	-
3PADNMGS1	POINT	2.7432	6.5	0.2	47	761	-	-	-	-	-
2PADNR1	VOLUME	2.7432	3.66	-	-	-	18.6047	3.38	-	-	-
2PADNR2	VOLUME	2.7432	3.66	-	-	-	18.6047	3.38	-	-	-
2PADNR3	VOLUME	2.7432	3.66	-	-	-	18.6047	3.38	-	-	-
2PADNR4	VOLUME	2.7432	3.66	-	-	-	18.6047	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
3PADNR1	VOLUME	2.7432	3.66	-	-	-	18.6047	3.38	-	-	-
3PADNR2	VOLUME	2.7432	3.66	-	-	-	18.6047	3.38	-	-	-
3PADNR3	VOLUME	2.7432	3.66	-	-	-	18.6047	3.38	-	-	-
3PADNR4	VOLUME	2.7432	3.66	-	-	-	18.6047	3.38	-	-	-
2PADOHT1	VOLUME	2.7432	3.66	-	-	-	18.6047	3.38	-	-	-
2PADOHT2	VOLUME	2.7432	3.66	-	-	-	18.6047	3.38	-	-	-
2PADOHT3	VOLUME	2.7432	3.66	-	-	-	18.6047	3.38	-	-	-
2PADOHT4	VOLUME	2.7432	3.66	-	-	-	18.6047	3.38	-	-	-
3PADOHT1	VOLUME	2.7432	3.66	-	-	-	18.6047	3.38	-	-	-
3PADOHT2	VOLUME	2.7432	3.66	-	-	-	18.6047	3.38	-	-	-
3PADOHT3	VOLUME	2.7432	3.66	-	-	-	18.6047	3.38	-	-	-
3PADOHT4	VOLUME	2.7432	3.66	-	-	-	18.6047	3.38	-	-	-
2FUGD	VOLUME	2.7432	3.66	-	-	-	26.7442	3.38	-	-	-
3FUGD	VOLUME	3.6576	3.66	-	-	-	26.7442	3.38	-	-	-

Table A.2-12. Alternative C Near-field Model Scenario 4 Emissions Rates

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
WOCOPSTDRN	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
BT1OPSLH	5.19E-02	6.18E-02	6.18E-02	4.69E-03	4.69E-03	4.69E-03	4.17E-03	4.17E-03	4.17E-03	8760
BT1OPSBG	1.16E+00	1.16E+00	6.63E-02	3.35E-02	3.35E-02	1.91E-03	2.21E-03	2.21E-03	1.26E-04	500
BT1OPSFUG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
BT1OPSFUGD	0.00E+00	0.00E+00	0.00E+00	3.52E-02	5.29E-03	5.29E-03	0.00E+00	0.00E+00	0.00E+00	4380
BT1OPSTEB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
BT1OPSTD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
BT1OPSTCO	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
BT1WICTH	4.57E-02	1.83E-01	7.20E-02	2.17E-02	1.94E-02	7.67E-03	1.94E-03	1.94E-03	7.67E-04	288
BT1WICTE	6.21E-02	9.32E-02	3.68E-02	4.97E-03	4.97E-03	1.96E-03	8.23E-05	8.23E-05	3.25E-05	288
BT1WILCTE	4.75E-01	8.68E-01	3.43E-01	2.71E-02	2.71E-02	1.07E-02	1.00E-03	1.00E-03	3.95E-04	288
BT2OPSLH	5.19E-02	6.18E-02	6.18E-02	4.69E-03	4.69E-03	4.69E-03	4.17E-03	4.17E-03	4.17E-03	8760

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
BT2OPSBG	1.16E+00	1.16E+00	6.63E-02	3.35E-02	3.35E-02	1.91E-03	2.21E-03	2.21E-03	1.26E-04	500
BT2OPSFUG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
BT2OPSFUGD	0.00E+00	0.00E+00	0.00E+00	2.74E-02	4.11E-03	4.11E-03	0.00E+00	0.00E+00	0.00E+00	4380
BT2WICTH	4.57E-02	1.83E-01	7.20E-02	2.17E-02	1.94E-02	7.67E-03	1.94E-03	1.94E-03	7.67E-04	288
BT2WICTE	6.21E-02	9.32E-02	3.68E-02	4.97E-03	4.97E-03	1.96E-03	8.23E-05	8.23E-05	3.25E-05	288
BT2WILCTE	4.75E-01	8.68E-01	3.43E-01	2.71E-02	2.71E-02	1.07E-02	1.00E-03	1.00E-03	3.95E-04	288
BT3OPSLH	5.19E-02	6.18E-02	6.18E-02	4.69E-03	4.69E-03	4.69E-03	4.17E-03	4.17E-03	4.17E-03	8760
BT3OPSBG	1.16E+00	1.16E+00	6.63E-02	3.35E-02	3.35E-02	1.91E-03	2.21E-03	2.21E-03	1.26E-04	500
BT3OPSFUG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
BT3OPSFUGD	0.00E+00	0.00E+00	0.00E+00	2.57E-02	3.86E-03	3.86E-03	0.00E+00	0.00E+00	0.00E+00	4380
BT3WICTH	4.57E-02	1.83E-01	7.20E-02	2.17E-02	1.94E-02	7.67E-03	1.94E-03	1.94E-03	7.67E-04	288
BT3WICTE	6.21E-02	9.32E-02	3.68E-02	4.97E-03	4.97E-03	1.96E-03	8.23E-05	8.23E-05	3.25E-05	288
BT3WILCTE	4.75E-01	8.68E-01	3.43E-01	2.71E-02	2.71E-02	1.07E-02	1.00E-03	1.00E-03	3.95E-04	288
BT4OPSLH	5.19E-02	6.18E-02	6.18E-02	4.69E-03	4.69E-03	4.69E-03	4.17E-03	4.17E-03	4.17E-03	8760
BT4OPSBG	1.16E+00	1.16E+00	6.63E-02	3.35E-02	3.35E-02	1.91E-03	2.21E-03	2.21E-03	1.26E-04	500
BT4OPSFUG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
BT4OPSFUGD	0.00E+00	0.00E+00	0.00E+00	2.34E-02	3.52E-03	3.52E-03	0.00E+00	0.00E+00	0.00E+00	4380
BT4OPSTEB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
BT4OPSTD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
BT4OPSTCO	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
BT4WICTH	4.57E-02	1.83E-01	7.20E-02	2.17E-02	1.94E-02	7.67E-03	1.94E-03	1.94E-03	7.67E-04	288
BT4WICTE	6.21E-02	9.32E-02	3.68E-02	4.97E-03	4.97E-03	1.96E-03	8.23E-05	8.23E-05	3.25E-05	288
BT4WILCTE	4.75E-01	8.68E-01	3.43E-01	2.71E-02	2.71E-02	1.07E-02	1.00E-03	1.00E-03	3.95E-04	288
BT5OPSLH	5.19E-02	6.18E-02	6.18E-02	4.69E-03	4.69E-03	4.69E-03	4.17E-03	4.17E-03	4.17E-03	8760
BT5OPSBG	1.16E+00	1.16E+00	6.63E-02	3.35E-02	3.35E-02	1.91E-03	2.21E-03	2.21E-03	1.26E-04	500
BT5OPSFUG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
BT5OPSFUGD	0.00E+00	0.00E+00	0.00E+00	2.18E-02	3.27E-03	3.27E-03	0.00E+00	0.00E+00	0.00E+00	4380
BT5WICTH	4.57E-02	1.83E-01	7.20E-02	2.17E-02	1.94E-02	7.67E-03	1.94E-03	1.94E-03	7.67E-04	288
BT5WICTE	6.21E-02	9.32E-02	3.68E-02	4.97E-03	4.97E-03	1.96E-03	8.23E-05	8.23E-05	3.25E-05	288
BT5WILCTE	4.75E-01	8.68E-01	3.43E-01	2.71E-02	2.71E-02	1.07E-02	1.00E-03	1.00E-03	3.95E-04	288
WLWTG03A	1.93E+00	1.91E+00	1.91E+00	2.21E-01	2.21E-01	2.21E-01	2.22E-01	2.22E-01	2.22E-01	8760
WLWTG03B	1.93E+00	1.91E+00	1.91E+00	2.21E-01	2.21E-01	2.21E-01	2.22E-01	2.22E-01	2.22E-01	8760

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
WLWTG01A	1.47E+00	1.45E+00	1.45E+00	1.68E-01	1.68E-01	1.68E-01	1.69E-01	1.69E-01	1.69E-01	8760
WLWTG01B	1.47E+00	1.45E+00	1.45E+00	1.68E-01	1.68E-01	1.68E-01	1.69E-01	1.69E-01	1.69E-01	8760
WLWTG02A	1.47E+00	1.45E+00	1.45E+00	1.68E-01	1.68E-01	1.68E-01	1.69E-01	1.69E-01	1.69E-01	8760
WLWTG02B	1.47E+00	1.45E+00	1.45E+00	1.68E-01	1.68E-01	1.68E-01	1.69E-01	1.69E-01	1.69E-01	8760
WLWTG04	5.67E-01	6.08E-01	6.08E-01	5.28E-02	5.28E-02	5.28E-02	5.06E-02	5.06E-02	5.06E-02	8760
WLWTG05	5.67E-01	6.08E-01	6.08E-01	5.28E-02	5.28E-02	5.28E-02	5.06E-02	5.06E-02	5.06E-02	8760
WLWGL05	6.48E-01	1.19E+00	6.76E-02	3.70E-02	3.70E-02	2.11E-03	1.22E-03	1.22E-03	6.99E-05	500
WLWHG03	3.42E-01	4.08E-01	4.08E-01	3.10E-02	3.10E-02	3.10E-02	2.75E-02	2.75E-02	2.75E-02	8760
WLWHG04	3.42E-01	4.08E-01	4.08E-01	3.10E-02	3.10E-02	3.10E-02	2.75E-02	2.75E-02	2.75E-02	8760
WLWHG01	2.08E-01	2.47E-01	2.47E-01	1.88E-02	1.88E-02	1.88E-02	1.67E-02	1.67E-02	1.67E-02	8760
WLWHG02	2.08E-01	2.47E-01	2.47E-01	1.88E-02	1.88E-02	1.88E-02	1.67E-02	1.67E-02	1.67E-02	8760
WLWHG06	3.84E-01	4.57E-01	4.57E-01	3.47E-02	3.47E-02	3.47E-02	3.09E-02	3.09E-02	3.09E-02	8760
WLWFGLP	4.15E-02	4.94E-02	4.94E-02	3.76E-03	3.76E-03	3.76E-03	3.34E-03	3.34E-03	3.34E-03	8760
WLWFGHP	4.15E-02	4.94E-02	4.94E-02	3.76E-03	3.76E-03	3.76E-03	3.34E-03	3.34E-03	3.34E-03	8760
WCFOPSDS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
WCFOPSTSO	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
WCFOPSTCO	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
WCFOPSTUD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
WCFOPSTLD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
WCFOPSTEB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
WCFOPSFUG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
WCFOPSFUGD	0.00E+00	0.00E+00	0.00E+00	3.45E-02	5.17E-03	5.17E-03	0.00E+00	0.00E+00	0.00E+00	4380
WOCPWRGENN1	1.30E+00	1.30E+00	6.48E-01	3.70E-02	3.70E-02	1.85E-02	2.45E-03	2.45E-03	1.22E-03	4380
WOCPWRGENN2	1.30E+00	1.30E+00	6.48E-01	3.70E-02	3.70E-02	1.85E-02	2.45E-03	2.45E-03	1.22E-03	4380
WOCPWRGENN3	1.30E+00	1.30E+00	6.48E-01	3.70E-02	3.70E-02	1.85E-02	2.45E-03	2.45E-03	1.22E-03	4380
WLWIG01S	3.99E-02	9.94E-02	8.28E-02	1.36E-01	1.36E-01	1.13E-01	3.54E-03	3.54E-03	2.95E-03	7300
WLWIG02S	3.99E-02	9.94E-02	8.28E-02	1.36E-01	1.36E-01	1.13E-01	3.54E-03	3.54E-03	2.95E-03	7300
WLWHL05S	5.93E-03	2.37E-02	2.37E-02	2.82E-03	2.53E-03	2.53E-03	2.54E-04	2.54E-04	2.54E-04	8760
WOCOPSTJFS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
WOCOPSTHCS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
WOCOPSTDS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
WILLOWAIR1S	9.89E-08	5.36E-08	5.36E-08	1.85E-09	1.85E-09	1.85E-09	7.10E-09	7.10E-09	7.10E-09	8760

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
WILLOWAIR2S	9.89E-08	5.36E-08	5.36E-08	1.85E-09	1.85E-09	1.85E-09	7.10E-09	7.10E-09	7.10E-09	8760
WILLOWAIR3S	9.89E-08	5.36E-08	5.36E-08	1.85E-09	1.85E-09	1.85E-09	7.10E-09	7.10E-09	7.10E-09	8760
WOCOPSFUGDS	0.00E+00	0.00E+00	0.00E+00	2.08E-01	3.12E-02	3.12E-02	0.00E+00	0.00E+00	0.00E+00	4380
WCFPCE1	4.48E-07	2.05E-06	2.05E-06	1.54E-07	1.52E-07	1.52E-07	2.65E-09	2.65E-09	2.65E-09	8760
WCFPCE2	4.48E-07	2.05E-06	2.05E-06	1.54E-07	1.52E-07	1.52E-07	2.65E-09	2.65E-09	2.65E-09	8760
WCFPCE3	4.48E-07	2.05E-06	2.05E-06	1.54E-07	1.52E-07	1.52E-07	2.65E-09	2.65E-09	2.65E-09	8760
WCFPCE4	4.48E-07	2.05E-06	2.05E-06	1.54E-07	1.52E-07	1.52E-07	2.65E-09	2.65E-09	2.65E-09	8760
WCFPCE5	4.48E-07	2.05E-06	2.05E-06	1.54E-07	1.52E-07	1.52E-07	2.65E-09	2.65E-09	2.65E-09	8760
WCFPCE6	4.48E-07	2.05E-06	2.05E-06	1.54E-07	1.52E-07	1.52E-07	2.65E-09	2.65E-09	2.65E-09	8760
WCFPCE7	4.48E-07	2.05E-06	2.05E-06	1.54E-07	1.52E-07	1.52E-07	2.65E-09	2.65E-09	2.65E-09	8760
WCFSCE1	3.32E-07	4.16E-07	4.16E-07	3.18E-08	3.18E-08	3.18E-08	2.83E-08	2.83E-08	2.83E-08	8760
WCFSCE2	3.32E-07	4.16E-07	4.16E-07	3.18E-08	3.18E-08	3.18E-08	2.83E-08	2.83E-08	2.83E-08	8760
WCFSCE3	3.32E-07	4.16E-07	4.16E-07	3.18E-08	3.18E-08	3.18E-08	2.83E-08	2.83E-08	2.83E-08	8760
WCFSCE4	3.32E-07	4.16E-07	4.16E-07	3.18E-08	3.18E-08	3.18E-08	2.83E-08	2.83E-08	2.83E-08	8760
WCFSCE5	3.32E-07	4.16E-07	4.16E-07	3.18E-08	3.18E-08	3.18E-08	2.83E-08	2.83E-08	2.83E-08	8760
WCFSCE6	3.32E-07	4.16E-07	4.16E-07	3.18E-08	3.18E-08	3.18E-08	2.83E-08	2.83E-08	2.83E-08	8760
WCFSCE7	3.32E-07	4.16E-07	4.16E-07	3.18E-08	3.18E-08	3.18E-08	2.83E-08	2.83E-08	2.83E-08	8760
WCFNRE1	1.98E-06	9.17E-06	9.17E-06	6.51E-07	6.51E-07	6.51E-07	3.21E-09	3.21E-09	3.21E-09	8760
WCFNRE2	1.98E-06	9.17E-06	9.17E-06	6.51E-07	6.51E-07	6.51E-07	3.21E-09	3.21E-09	3.21E-09	8760
WCFNRE3	1.98E-06	9.17E-06	9.17E-06	6.51E-07	6.51E-07	6.51E-07	3.21E-09	3.21E-09	3.21E-09	8760
WCFNRE4	1.98E-06	9.17E-06	9.17E-06	6.51E-07	6.51E-07	6.51E-07	3.21E-09	3.21E-09	3.21E-09	8760
WCFNRE5	1.98E-06	9.17E-06	9.17E-06	6.51E-07	6.51E-07	6.51E-07	3.21E-09	3.21E-09	3.21E-09	8760
WCFNRE6	1.98E-06	9.17E-06	9.17E-06	6.51E-07	6.51E-07	6.51E-07	3.21E-09	3.21E-09	3.21E-09	8760
WCFNRE7	1.98E-06	9.17E-06	9.17E-06	6.51E-07	6.51E-07	6.51E-07	3.21E-09	3.21E-09	3.21E-09	8760
WLW2GEN	1.19E-01	5.87E-01	6.08E-01	3.46E-02	3.46E-02	3.53E-02	3.51E-04	3.51E-04	3.51E-04	8760
BT3NRE1	1.95E-06	2.08E-06	2.08E-07	2.09E-07	2.06E-07	2.06E-08	4.32E-09	4.32E-09	4.32E-10	876
BT3WIN1	2.64E-06	3.70E-06	1.46E-06	3.79E-07	3.61E-07	1.43E-07	1.81E-08	1.81E-08	7.15E-09	288
3WELLINTE	2.46E-01	2.81E-01	1.11E-01	1.40E-02	1.40E-02	5.54E-03	5.18E-04	5.18E-04	2.04E-04	288
BT1NRE1	1.95E-06	2.08E-06	2.08E-07	2.09E-07	2.06E-07	2.06E-08	4.32E-09	4.32E-09	4.32E-10	876
BT1WIN1	2.64E-06	3.70E-06	1.46E-06	3.79E-07	3.61E-07	1.43E-07	1.81E-08	1.81E-08	7.15E-09	288
1WELLINTE	1.31E-03	5.26E-03	2.07E-03	6.26E-04	5.60E-04	2.21E-04	5.60E-05	5.60E-05	2.21E-05	288
BT2NRE1	1.95E-06	2.08E-06	2.08E-07	2.09E-07	2.06E-07	2.06E-08	4.32E-09	4.32E-09	4.32E-10	876

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
BT2WIN1	2.64E-06	3.70E-06	1.46E-06	3.79E-07	3.61E-07	1.43E-07	1.81E-08	1.81E-08	7.15E-09	288
2WELLINTE	2.46E-01	2.81E-01	1.11E-01	1.40E-02	1.40E-02	5.54E-03	5.18E-04	5.18E-04	2.04E-04	288
BT4NRE1	1.95E-06	2.08E-06	2.08E-07	2.09E-07	2.06E-07	2.06E-08	4.32E-09	4.32E-09	4.32E-10	876
BT4WIN1	2.64E-06	3.70E-06	1.46E-06	3.79E-07	3.61E-07	1.43E-07	1.81E-08	1.81E-08	7.15E-09	288
4WELLINTE	2.46E-01	2.81E-01	1.11E-01	1.40E-02	1.40E-02	5.54E-03	5.18E-04	5.18E-04	2.04E-04	288
BT5NRE1	1.95E-06	2.08E-06	2.08E-07	2.09E-07	2.06E-07	2.06E-08	4.32E-09	4.32E-09	4.32E-10	876
BT5WIN1	2.64E-06	3.70E-06	1.46E-06	3.79E-07	3.61E-07	1.43E-07	1.81E-08	1.81E-08	7.15E-09	288
5WELLINTE	2.46E-01	2.81E-01	1.11E-01	1.40E-02	1.40E-02	5.54E-03	5.18E-04	5.18E-04	2.04E-04	288
WOCPCES	7.88E-08	3.56E-07	3.56E-07	2.83E-08	2.75E-08	2.75E-08	7.86E-10	7.86E-10	7.86E-10	8760
WOCSCES	6.12E-08	1.07E-07	1.07E-07	8.44E-09	8.44E-09	8.44E-09	7.50E-09	7.50E-09	7.50E-09	8760
WOCNRES	5.55E-07	2.47E-06	1.86E-06	2.08E-07	1.99E-07	1.35E-07	7.98E-09	7.98E-09	1.46E-09	8760
1TAIL1	1.34E-05	1.16E-05	1.16E-05	1.40E-06	5.49E-07	5.49E-07	5.61E-08	5.61E-08	5.61E-08	8760
1TAIL2	1.34E-05	1.16E-05	1.16E-05	1.40E-06	5.49E-07	5.49E-07	5.61E-08	5.61E-08	5.61E-08	8760
1TAIL3	1.34E-05	1.16E-05	1.16E-05	1.40E-06	5.49E-07	5.49E-07	5.61E-08	5.61E-08	5.61E-08	8760
1TAIL4	1.34E-05	1.16E-05	1.16E-05	1.40E-06	5.49E-07	5.49E-07	5.61E-08	5.61E-08	5.61E-08	8760
1TAIL5	1.34E-05	1.16E-05	1.16E-05	1.40E-06	5.49E-07	5.49E-07	5.61E-08	5.61E-08	5.61E-08	8760
1TAIL6	1.34E-05	1.16E-05	1.16E-05	1.40E-06	5.49E-07	5.49E-07	5.61E-08	5.61E-08	5.61E-08	8760
2TAIL1	1.34E-05	1.16E-05	2.04E-05	1.41E-06	5.49E-07	9.77E-07	5.76E-08	5.76E-08	1.14E-07	8760
2TAIL2	1.34E-05	1.16E-05	2.04E-05	1.41E-06	5.49E-07	9.77E-07	5.76E-08	5.76E-08	1.14E-07	8760
2TAIL3	1.34E-05	1.16E-05	2.04E-05	1.41E-06	5.49E-07	9.77E-07	5.76E-08	5.76E-08	1.14E-07	8760
2TAIL4	1.34E-05	1.16E-05	2.04E-05	1.41E-06	5.49E-07	9.77E-07	5.76E-08	5.76E-08	1.14E-07	8760
2TAIL5	1.34E-05	1.16E-05	2.04E-05	1.41E-06	5.49E-07	9.77E-07	5.76E-08	5.76E-08	1.14E-07	8760
2TAIL6	1.34E-05	1.16E-05	2.04E-05	1.41E-06	5.49E-07	9.77E-07	5.76E-08	5.76E-08	1.14E-07	8760
3TAIL1	1.15E-05	9.95E-06	1.75E-05	1.20E-06	4.71E-07	8.38E-07	4.93E-08	4.93E-08	9.74E-08	8760
3TAIL2	1.15E-05	9.95E-06	1.75E-05	1.20E-06	4.71E-07	8.38E-07	4.93E-08	4.93E-08	9.74E-08	8760
3TAIL3	1.15E-05	9.95E-06	1.75E-05	1.20E-06	4.71E-07	8.38E-07	4.93E-08	4.93E-08	9.74E-08	8760
3TAIL4	1.15E-05	9.95E-06	1.75E-05	1.20E-06	4.71E-07	8.38E-07	4.93E-08	4.93E-08	9.74E-08	8760
3TAIL5	1.15E-05	9.95E-06	1.75E-05	1.20E-06	4.71E-07	8.38E-07	4.93E-08	4.93E-08	9.74E-08	8760
3TAIL6	1.15E-05	9.95E-06	1.75E-05	1.20E-06	4.71E-07	8.38E-07	4.93E-08	4.93E-08	9.74E-08	8760
3TAIL7	1.15E-05	9.95E-06	1.75E-05	1.20E-06	4.71E-07	8.38E-07	4.93E-08	4.93E-08	9.74E-08	8760
4TAIL1	1.15E-05	9.95E-06	9.95E-06	1.20E-06	4.71E-07	4.71E-07	4.81E-08	4.81E-08	4.81E-08	8760
4TAIL2	1.15E-05	9.95E-06	9.95E-06	1.20E-06	4.71E-07	4.71E-07	4.81E-08	4.81E-08	4.81E-08	8760

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
4TAIL3	1.15E-05	9.95E-06	9.95E-06	1.20E-06	4.71E-07	4.71E-07	4.81E-08	4.81E-08	4.81E-08	8760
4TAIL4	1.15E-05	9.95E-06	9.95E-06	1.20E-06	4.71E-07	4.71E-07	4.81E-08	4.81E-08	4.81E-08	8760
4TAIL5	1.15E-05	9.95E-06	9.95E-06	1.20E-06	4.71E-07	4.71E-07	4.81E-08	4.81E-08	4.81E-08	8760
4TAIL6	1.15E-05	9.95E-06	9.95E-06	1.20E-06	4.71E-07	4.71E-07	4.81E-08	4.81E-08	4.81E-08	8760
4TAIL7	1.15E-05	9.95E-06	9.95E-06	1.20E-06	4.71E-07	4.71E-07	4.81E-08	4.81E-08	4.81E-08	8760
5TAIL1	1.15E-05	9.95E-06	9.95E-06	1.20E-06	4.71E-07	4.71E-07	4.81E-08	4.81E-08	4.81E-08	8760
5TAIL2	1.15E-05	9.95E-06	9.95E-06	1.20E-06	4.71E-07	4.71E-07	4.81E-08	4.81E-08	4.81E-08	8760
5TAIL3	1.15E-05	9.95E-06	9.95E-06	1.20E-06	4.71E-07	4.71E-07	4.81E-08	4.81E-08	4.81E-08	8760
5TAIL4	1.15E-05	9.95E-06	9.95E-06	1.20E-06	4.71E-07	4.71E-07	4.81E-08	4.81E-08	4.81E-08	8760
5TAIL5	1.15E-05	9.95E-06	9.95E-06	1.20E-06	4.71E-07	4.71E-07	4.81E-08	4.81E-08	4.81E-08	8760
5TAIL6	1.15E-05	9.95E-06	9.95E-06	1.20E-06	4.71E-07	4.71E-07	4.81E-08	4.81E-08	4.81E-08	8760
5TAIL7	1.15E-05	9.95E-06	9.95E-06	1.20E-06	4.71E-07	4.71E-07	4.81E-08	4.81E-08	4.81E-08	8760
WOCSTAIL1	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	8760
WOCSTAIL2	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	8760
WOCSTAIL3	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	8760
WOCSTAIL4	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	8760
WOCSTAIL5	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	8760
WOCSTAIL6	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	8760
WOCSTAIL7	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	8760
WOCSTAIL8	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	8760
WOCSTAIL9	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	8760
WOCSTAIL10	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	8760
WOCSTAIL11	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	8760
WOCSTAIL12	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	8760
WOCSTAIL13	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	8760
WOCSTAIL14	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	8760
WOCSTAIL15	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	8760
WOCSTAIL16	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	8760
WOCSTAIL17	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	8760
WOCSTAIL18	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	8760
WOCSTAIL19	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	8760
WOCSTAIL20	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	8760

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
WOCSTAIL21	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	8760
WOCSTAIL22	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	8760
WOCSTAIL23	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	8760
WOCSTAIL24	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	8760
WOCSTAIL25	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	8760
WOCSTAIL26	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	8760
WOCSTAIL27	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	8760
WOCSTAIL28	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	8760
WOCSTAIL29	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	8760
WOCSTAIL30	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	8760
WOCSTAIL31	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	8760
WOCSTAIL32	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	8760
WOCSTAIL33	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	8760
WOCSTAIL34	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	8760
WOCSTAIL35	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	8760
WOCSTAIL36	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	8760
WOCSTAIL37	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	8760
WOCSTAIL38	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	8760
WOCSTAIL39	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	8760
WOCSTAIL40	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	8760
WOCSTAIL41	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	8760
WOCSTAIL42	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	8760
WOCSTAIL43	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	8760
AIRSTAIL1	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	8760
AIRSTAIL2	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	8760
AIRSTAIL3	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	8760
AIRSTAIL4	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	8760
AIRSTAIL5	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	8760
AIRSTAIL6	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	8760
AIRSTAIL7	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	8760
WOCNTAIL1	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	8760
WOCNTAIL2	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	8760

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
WOCNTAIL3	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	8760
WOCNTAIL4	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	8760
WOCNTAIL5	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	8760
WOCNTAIL6	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	8760
WOCNTAIL7	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	8760
WOCNTAIL8	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	8760
WOCNTAIL9	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	8760
WOCNTAIL10	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	8760
WOCNTAIL11	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	8760
WOCNTAIL12	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	8760
WOCNTAIL13	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	8760
WOCNTAIL14	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	8760
WOCNTAIL15	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	8760
WOCNTAIL16	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	8760
WOCNTAIL17	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	8760
WOCNTAIL18	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	8760
WOCNTAIL19	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	8760
WOCNTAIL20	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	8760
WOCNTAIL21	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	8760
WOCNTAIL22	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	8760
WOCNTAIL23	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	8760
WOCNTAIL24	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	8760
WOCNTAIL25	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	8760
WOCNTAIL26	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	8760
WOCNTAIL27	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	8760
WOCNTAIL28	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	8760
WOCNTAIL29	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	8760
WOCNTAIL30	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	8760
WOCNTAIL31	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	8760
AIRNTAIL1	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	8760
AIRNTAIL2	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	8760
AIRNTAIL3	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	8760

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
AIRNTAIL4	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	8760
AIRNTAIL5	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	8760
AIRNTAIL6	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	8760
AIRNTAIL7	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	8760
WCFTAIL1	1.48E-05	1.29E-05	1.29E-05	1.56E-06	6.10E-07	6.10E-07	6.22E-08	6.22E-08	6.22E-08	8760
WCFTAIL2	1.48E-05	1.29E-05	1.29E-05	1.56E-06	6.10E-07	6.10E-07	6.22E-08	6.22E-08	6.22E-08	8760
WCFTAIL3	1.48E-05	1.29E-05	1.29E-05	1.56E-06	6.10E-07	6.10E-07	6.22E-08	6.22E-08	6.22E-08	8760
WCFTAIL4	1.48E-05	1.29E-05	1.29E-05	1.56E-06	6.10E-07	6.10E-07	6.22E-08	6.22E-08	6.22E-08	8760
WCFTAIL5	1.48E-05	1.29E-05	1.29E-05	1.56E-06	6.10E-07	6.10E-07	6.22E-08	6.22E-08	6.22E-08	8760
WCFTAIL6	1.48E-05	1.29E-05	1.29E-05	1.56E-06	6.10E-07	6.10E-07	6.22E-08	6.22E-08	6.22E-08	8760
WCFTAIL7	1.48E-05	1.29E-05	1.29E-05	1.56E-06	6.10E-07	6.10E-07	6.22E-08	6.22E-08	6.22E-08	8760
WCFTAIL8	1.48E-05	1.29E-05	1.29E-05	1.56E-06	6.10E-07	6.10E-07	6.22E-08	6.22E-08	6.22E-08	8760
WCFTAIL9	1.48E-05	1.29E-05	1.29E-05	1.56E-06	6.10E-07	6.10E-07	6.22E-08	6.22E-08	6.22E-08	8760
WCFTAIL10	1.48E-05	1.29E-05	1.29E-05	1.56E-06	6.10E-07	6.10E-07	6.22E-08	6.22E-08	6.22E-08	8760
WCFTAIL11	1.48E-05	1.29E-05	1.29E-05	1.56E-06	6.10E-07	6.10E-07	6.22E-08	6.22E-08	6.22E-08	8760
WCFTAIL12	1.48E-05	1.29E-05	1.29E-05	1.56E-06	6.10E-07	6.10E-07	6.22E-08	6.22E-08	6.22E-08	8760
WCFTAIL13	1.48E-05	1.29E-05	1.29E-05	1.56E-06	6.10E-07	6.10E-07	6.22E-08	6.22E-08	6.22E-08	8760
WCFTAIL14	1.48E-05	1.29E-05	1.29E-05	1.56E-06	6.10E-07	6.10E-07	6.22E-08	6.22E-08	6.22E-08	8760
WCFTAIL15	1.48E-05	1.29E-05	1.29E-05	1.56E-06	6.10E-07	6.10E-07	6.22E-08	6.22E-08	6.22E-08	8760
WCFTAIL16	1.48E-05	1.29E-05	1.29E-05	1.56E-06	6.10E-07	6.10E-07	6.22E-08	6.22E-08	6.22E-08	8760
WCFTAIL17	1.48E-05	1.29E-05	1.29E-05	1.56E-06	6.10E-07	6.10E-07	6.22E-08	6.22E-08	6.22E-08	8760
WCFTAIL18	1.48E-05	1.29E-05	1.29E-05	1.56E-06	6.10E-07	6.10E-07	6.22E-08	6.22E-08	6.22E-08	8760
WCFTAIL19	1.48E-05	1.29E-05	1.29E-05	1.56E-06	6.10E-07	6.10E-07	6.22E-08	6.22E-08	6.22E-08	8760
WCFTAIL20	1.48E-05	1.29E-05	1.29E-05	1.56E-06	6.10E-07	6.10E-07	6.22E-08	6.22E-08	6.22E-08	8760
1MFUGD1	0.00E+00	0.00E+00	0.00E+00	3.52E-03	3.52E-04	3.52E-04	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD2	0.00E+00	0.00E+00	0.00E+00	3.52E-03	3.52E-04	3.52E-04	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD3	0.00E+00	0.00E+00	0.00E+00	3.52E-03	3.52E-04	3.52E-04	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD4	0.00E+00	0.00E+00	0.00E+00	3.52E-03	3.52E-04	3.52E-04	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD5	0.00E+00	0.00E+00	0.00E+00	3.52E-03	3.52E-04	3.52E-04	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD6	0.00E+00	0.00E+00	0.00E+00	3.52E-03	3.52E-04	3.52E-04	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD1	0.00E+00	0.00E+00	0.00E+00	3.52E-03	3.52E-04	5.22E-04	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD2	0.00E+00	0.00E+00	0.00E+00	3.52E-03	3.52E-04	5.22E-04	0.00E+00	0.00E+00	0.00E+00	4380

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
2MFUGD3	0.00E+00	0.00E+00	0.00E+00	3.52E-03	3.52E-04	5.22E-04	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD4	0.00E+00	0.00E+00	0.00E+00	3.52E-03	3.52E-04	5.22E-04	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD5	0.00E+00	0.00E+00	0.00E+00	3.52E-03	3.52E-04	5.22E-04	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD6	0.00E+00	0.00E+00	0.00E+00	3.52E-03	3.52E-04	5.22E-04	0.00E+00	0.00E+00	0.00E+00	4380
3MFUGD1	0.00E+00	0.00E+00	0.00E+00	3.01E-03	3.01E-04	4.47E-04	0.00E+00	0.00E+00	0.00E+00	4380
3MFUGD2	0.00E+00	0.00E+00	0.00E+00	3.01E-03	3.01E-04	4.47E-04	0.00E+00	0.00E+00	0.00E+00	4380
3MFUGD3	0.00E+00	0.00E+00	0.00E+00	3.01E-03	3.01E-04	4.47E-04	0.00E+00	0.00E+00	0.00E+00	4380
3MFUGD4	0.00E+00	0.00E+00	0.00E+00	3.01E-03	3.01E-04	4.47E-04	0.00E+00	0.00E+00	0.00E+00	4380
3MFUGD5	0.00E+00	0.00E+00	0.00E+00	3.01E-03	3.01E-04	4.47E-04	0.00E+00	0.00E+00	0.00E+00	4380
3MFUGD6	0.00E+00	0.00E+00	0.00E+00	3.01E-03	3.01E-04	4.47E-04	0.00E+00	0.00E+00	0.00E+00	4380
3MFUGD7	0.00E+00	0.00E+00	0.00E+00	3.01E-03	3.01E-04	4.47E-04	0.00E+00	0.00E+00	0.00E+00	4380
4MFUGD1	0.00E+00	0.00E+00	0.00E+00	3.01E-03	3.01E-04	3.01E-04	0.00E+00	0.00E+00	0.00E+00	4380
4MFUGD2	0.00E+00	0.00E+00	0.00E+00	3.01E-03	3.01E-04	3.01E-04	0.00E+00	0.00E+00	0.00E+00	4380
4MFUGD3	0.00E+00	0.00E+00	0.00E+00	3.01E-03	3.01E-04	3.01E-04	0.00E+00	0.00E+00	0.00E+00	4380
4MFUGD4	0.00E+00	0.00E+00	0.00E+00	3.01E-03	3.01E-04	3.01E-04	0.00E+00	0.00E+00	0.00E+00	4380
4MFUGD5	0.00E+00	0.00E+00	0.00E+00	3.01E-03	3.01E-04	3.01E-04	0.00E+00	0.00E+00	0.00E+00	4380
4MFUGD6	0.00E+00	0.00E+00	0.00E+00	3.01E-03	3.01E-04	3.01E-04	0.00E+00	0.00E+00	0.00E+00	4380
4MFUGD7	0.00E+00	0.00E+00	0.00E+00	3.01E-03	3.01E-04	3.01E-04	0.00E+00	0.00E+00	0.00E+00	4380
5MFUGD1	0.00E+00	0.00E+00	0.00E+00	3.01E-03	3.01E-04	3.01E-04	0.00E+00	0.00E+00	0.00E+00	4380
5MFUGD2	0.00E+00	0.00E+00	0.00E+00	3.01E-03	3.01E-04	3.01E-04	0.00E+00	0.00E+00	0.00E+00	4380
5MFUGD3	0.00E+00	0.00E+00	0.00E+00	3.01E-03	3.01E-04	3.01E-04	0.00E+00	0.00E+00	0.00E+00	4380
5MFUGD4	0.00E+00	0.00E+00	0.00E+00	3.01E-03	3.01E-04	3.01E-04	0.00E+00	0.00E+00	0.00E+00	4380
5MFUGD5	0.00E+00	0.00E+00	0.00E+00	3.01E-03	3.01E-04	3.01E-04	0.00E+00	0.00E+00	0.00E+00	4380
5MFUGD6	0.00E+00	0.00E+00	0.00E+00	3.01E-03	3.01E-04	3.01E-04	0.00E+00	0.00E+00	0.00E+00	4380
5MFUGD7	0.00E+00	0.00E+00	0.00E+00	3.01E-03	3.01E-04	3.01E-04	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD1	0.00E+00	0.00E+00	0.00E+00	3.90E-03	3.90E-04	3.90E-04	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD2	0.00E+00	0.00E+00	0.00E+00	3.90E-03	3.90E-04	3.90E-04	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD3	0.00E+00	0.00E+00	0.00E+00	3.90E-03	3.90E-04	3.90E-04	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD4	0.00E+00	0.00E+00	0.00E+00	3.90E-03	3.90E-04	3.90E-04	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD5	0.00E+00	0.00E+00	0.00E+00	3.90E-03	3.90E-04	3.90E-04	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD6	0.00E+00	0.00E+00	0.00E+00	3.90E-03	3.90E-04	3.90E-04	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD7	0.00E+00	0.00E+00	0.00E+00	3.90E-03	3.90E-04	3.90E-04	0.00E+00	0.00E+00	0.00E+00	4380

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
WCFMFUGD8	0.00E+00	0.00E+00	0.00E+00	3.90E-03	3.90E-04	3.90E-04	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD9	0.00E+00	0.00E+00	0.00E+00	3.90E-03	3.90E-04	3.90E-04	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD10	0.00E+00	0.00E+00	0.00E+00	3.90E-03	3.90E-04	3.90E-04	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD11	0.00E+00	0.00E+00	0.00E+00	3.90E-03	3.90E-04	3.90E-04	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD12	0.00E+00	0.00E+00	0.00E+00	3.90E-03	3.90E-04	3.90E-04	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD13	0.00E+00	0.00E+00	0.00E+00	3.90E-03	3.90E-04	3.90E-04	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD14	0.00E+00	0.00E+00	0.00E+00	3.90E-03	3.90E-04	3.90E-04	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD15	0.00E+00	0.00E+00	0.00E+00	3.90E-03	3.90E-04	3.90E-04	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD16	0.00E+00	0.00E+00	0.00E+00	3.90E-03	3.90E-04	3.90E-04	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD17	0.00E+00	0.00E+00	0.00E+00	3.90E-03	3.90E-04	3.90E-04	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD18	0.00E+00	0.00E+00	0.00E+00	3.90E-03	3.90E-04	3.90E-04	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD19	0.00E+00	0.00E+00	0.00E+00	3.90E-03	3.90E-04	3.90E-04	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD20	0.00E+00	0.00E+00	0.00E+00	3.90E-03	3.90E-04	3.90E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD1	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD2	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD3	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD4	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD5	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD6	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD7	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD8	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD9	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD10	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD11	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD12	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD13	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD14	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD15	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD16	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD17	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD18	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD19	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
WOCSMFUGD20	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD21	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD22	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD23	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD24	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD25	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD26	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD27	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD28	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD29	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD30	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD31	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD32	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD33	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD34	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD35	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD36	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD37	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD38	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD39	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD40	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD41	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD42	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD43	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
AIRSMFUGD1	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
AIRSMFUGD2	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
AIRSMFUGD3	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
AIRSMFUGD4	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
AIRSMFUGD5	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
AIRSMFUGD6	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
AIRSMFUGD7	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCTEMPTRBS1	4.41E-01	4.35E-01	4.35E-01	5.04E-02	5.04E-02	5.04E-02	5.06E-02	5.06E-02	5.06E-02	8760

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
WOCTEMPTRBS2	4.41E-01	4.35E-01	4.35E-01	5.04E-02	5.04E-02	5.04E-02	5.06E-02	5.06E-02	5.06E-02	8760
WOCTEMPTRBN1	4.41E-01	4.35E-01	4.35E-01	5.04E-02	5.04E-02	5.04E-02	5.06E-02	5.06E-02	5.06E-02	8760
WOCTEMPTRBN2	4.41E-01	4.35E-01	4.35E-01	5.04E-02	5.04E-02	5.04E-02	5.06E-02	5.06E-02	5.06E-02	8760
WOCPCEN	7.88E-08	3.56E-07	3.56E-07	2.83E-08	2.75E-08	2.75E-08	7.86E-10	7.86E-10	7.86E-10	8760
WOCSCEN	6.12E-08	1.07E-07	1.07E-07	8.44E-09	8.44E-09	8.44E-09	7.50E-09	7.50E-09	7.50E-09	8760
WOCNREN	5.55E-07	2.47E-06	1.86E-06	2.08E-07	1.99E-07	1.35E-07	7.98E-09	7.98E-09	1.46E-09	8760
WOCNMFUGD1	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.78E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD2	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD3	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD4	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD5	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD6	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD7	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD8	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD9	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD10	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD11	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD12	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD13	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD14	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD15	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD16	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD17	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD18	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD19	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD20	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD21	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD22	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD23	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD24	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD25	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD26	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
WOCNMFUGD27	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD28	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD29	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD30	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD31	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
AIRNMFUGD1	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
AIRNMFUGD2	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
AIRNMFUGD3	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
AIRNMFUGD4	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
AIRNMFUGD5	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
AIRNMFUGD6	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
AIRNMFUGD7	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	4380
WILLOWAIR1N	2.10E-08	7.86E-09	7.86E-09	3.04E-10	3.04E-10	3.04E-10	1.18E-09	1.18E-09	1.18E-09	8760
WILLOWAIR2N	2.10E-08	7.86E-09	7.86E-09	3.04E-10	3.04E-10	3.04E-10	1.18E-09	1.18E-09	1.18E-09	8760
WILLOWAIR3N	2.10E-08	7.86E-09	7.86E-09	3.04E-10	3.04E-10	3.04E-10	1.18E-09	1.18E-09	1.18E-09	8760
WOCOPSFUGDN	0.00E+00	0.00E+00	0.00E+00	1.64E-01	2.45E-02	2.45E-02	0.00E+00	0.00E+00	0.00E+00	4380
WOCOPSTDRS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
WOCPWRGENS1	1.30E+00	1.30E+00	6.48E-01	3.70E-02	3.70E-02	1.85E-02	2.45E-03	2.45E-03	1.22E-03	4380
WOCPWRGENS2	1.30E+00	1.30E+00	6.48E-01	3.70E-02	3.70E-02	1.85E-02	2.45E-03	2.45E-03	1.22E-03	4380
WOCPWRGENS3	1.30E+00	1.30E+00	6.48E-01	3.70E-02	3.70E-02	1.85E-02	2.45E-03	2.45E-03	1.22E-03	4380
WLWIG01N	3.99E-02	9.94E-02	8.28E-02	1.36E-01	1.36E-01	1.13E-01	3.54E-03	3.54E-03	2.95E-03	7300
WLWIG02N	3.99E-02	9.94E-02	8.28E-02	1.36E-01	1.36E-01	1.13E-01	3.54E-03	3.54E-03	2.95E-03	7300
WLWHL05N	5.93E-03	2.37E-02	2.37E-02	2.82E-03	2.53E-03	2.53E-03	2.54E-04	2.54E-04	2.54E-04	8760
WOCOPSTJFN	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
WOCOPSTHCN	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
WOCOPSTDN	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
RFDGMT1	3.50E-01	3.50E-01	2.69E+00	3.50E-01	3.50E-01	9.50E-02	3.80E-02	3.80E-02	1.96E-02	8760
RFDGMT2	4.06E+00	7.21E+00	7.34E-01	4.06E+00	6.44E-01	7.71E-02	1.40E-02	1.40E-02	6.33E-03	8760
RFDCD5	1.82E+00	2.15E+00	2.15E+00	1.27E-01	1.27E-01	1.27E-01	2.70E-01	2.70E-01	2.70E-01	8760
RFDGWPDS1	1.25E+01	4.25E+00	4.25E+00	2.84E-01	2.84E-01	2.84E-01	3.87E-02	3.87E-02	3.87E-02	8760
RFDGWPDS2	1.25E+01	4.25E+00	4.25E+00	2.84E-01	2.84E-01	2.84E-01	3.87E-02	3.87E-02	3.87E-02	8760
2DRILLPEA	1.07E+00	2.05E-01	2.05E-01	9.17E-03	9.17E-03	9.17E-03	5.64E-04	5.64E-04	5.64E-04	8760

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
2DRILLCP1A	1.75E-01	2.00E-02	1.14E-03	1.00E-03	1.00E-03	5.71E-05	3.31E-04	3.31E-04	1.89E-05	500
2DRILLCP2A	1.75E-01	2.00E-02	1.14E-03	1.00E-03	1.00E-03	5.71E-05	3.31E-04	3.31E-04	1.89E-05	500
2DRILLB1A	1.53E-02	6.12E-02	6.12E-02	7.28E-03	6.51E-03	6.51E-03	6.51E-04	6.51E-04	6.51E-04	8760
2DRILLB2A	1.53E-02	6.12E-02	6.12E-02	7.28E-03	6.51E-03	6.51E-03	6.51E-04	6.51E-04	6.51E-04	8760
2DRILLAH1A	1.83E-02	7.30E-02	7.30E-02	8.69E-03	7.78E-03	7.78E-03	7.78E-04	7.78E-04	7.78E-04	8760
2DRILLAH2A	9.13E-03	3.65E-02	3.65E-02	4.35E-03	3.89E-03	3.89E-03	3.89E-04	3.89E-04	3.89E-04	8760
2DRILLMPA	1.37E-02	5.48E-02	5.48E-02	6.52E-03	5.83E-03	5.83E-03	5.83E-04	5.83E-04	5.83E-04	8760
2DRILLNMTEA	4.91E-01	5.61E-01	5.61E-01	2.81E-02	2.81E-02	2.81E-02	1.04E-03	1.04E-03	1.04E-03	8760
2DRILLNMLTA	7.22E-02	8.20E-02	8.20E-02	8.75E-03	8.75E-03	8.75E-03	7.24E-05	7.24E-05	7.24E-05	8760
2DRILLNMPGA	3.51E-02	3.30E-02	3.30E-02	2.81E-03	2.81E-03	2.81E-03	4.64E-05	4.64E-05	4.64E-05	8760
2DRILLNMCPA	5.97E-02	5.61E-02	5.61E-02	4.77E-03	4.77E-03	4.77E-03	7.90E-05	7.90E-05	7.90E-05	8760
2DRILLNMHSA	2.15E-02	8.59E-02	8.59E-02	1.02E-02	9.15E-03	9.15E-03	9.15E-04	9.15E-04	9.15E-04	8760
2DRILLFLARE	1.08E+00	1.98E-01	9.38E-02	4.79E-05	4.79E-05	2.27E-05	1.16E-02	1.16E-02	5.47E-03	1728
3DRILLPEA	1.07E+00	2.05E-01	2.05E-01	9.17E-03	9.17E-03	9.17E-03	5.64E-04	5.64E-04	5.64E-04	8760
3DRILLCP1A	1.75E-01	2.00E-02	1.14E-03	1.00E-03	1.00E-03	5.71E-05	3.31E-04	3.31E-04	1.89E-05	500
3DRILLCP2A	1.75E-01	2.00E-02	1.14E-03	1.00E-03	1.00E-03	5.71E-05	3.31E-04	3.31E-04	1.89E-05	500
3DRILLB1A	1.53E-02	6.12E-02	6.12E-02	7.28E-03	6.51E-03	6.51E-03	6.51E-04	6.51E-04	6.51E-04	8760
3DRILLB2A	1.53E-02	6.12E-02	6.12E-02	7.28E-03	6.51E-03	6.51E-03	6.51E-04	6.51E-04	6.51E-04	8760
3DRILLAH1A	1.83E-02	7.30E-02	7.30E-02	8.69E-03	7.78E-03	7.78E-03	7.78E-04	7.78E-04	7.78E-04	8760
3DRILLAH2A	9.13E-03	3.65E-02	3.65E-02	4.35E-03	3.89E-03	3.89E-03	3.89E-04	3.89E-04	3.89E-04	8760
3DRILLMPA	1.37E-02	5.48E-02	5.48E-02	6.52E-03	5.83E-03	5.83E-03	5.83E-04	5.83E-04	5.83E-04	8760
3DRILLNMTEA	4.91E-01	5.61E-01	5.61E-01	2.81E-02	2.81E-02	2.81E-02	1.04E-03	1.04E-03	1.04E-03	8760
3DRILLNMLTA	7.22E-02	8.20E-02	8.20E-02	8.75E-03	8.75E-03	8.75E-03	7.24E-05	7.24E-05	7.24E-05	8760
3DRILLNMPGA	3.51E-02	3.30E-02	3.30E-02	2.81E-03	2.81E-03	2.81E-03	4.64E-05	4.64E-05	4.64E-05	8760
3DRILLNMCPA	5.97E-02	5.61E-02	5.61E-02	4.77E-03	4.77E-03	4.77E-03	7.90E-05	7.90E-05	7.90E-05	8760
3DRILLNMHSA	2.15E-02	8.59E-02	8.59E-02	1.02E-02	9.15E-03	9.15E-03	9.15E-04	9.15E-04	9.15E-04	8760
3DRILLFLARE	1.08E+00	1.98E-01	3.91E-02	4.79E-05	4.79E-05	9.44E-06	1.16E-02	1.16E-02	2.28E-03	1728
2PADHTR1	1.35E-02	5.41E-02	4.98E-02	6.44E-03	5.76E-03	5.31E-03	5.76E-04	5.76E-04	5.31E-04	4704
2PADSHTR1	4.67E-03	1.87E-02	1.72E-02	2.22E-03	1.99E-03	1.83E-03	1.99E-04	1.99E-04	1.83E-04	4704
2PADNMGS1	1.32E-02	2.49E-02	2.29E-02	1.96E-03	1.90E-03	1.75E-03	2.13E-05	2.13E-05	1.96E-05	4704
3PADHTR1	1.35E-02	5.41E-02	4.98E-02	6.44E-03	5.76E-03	5.31E-03	5.76E-04	5.76E-04	5.31E-04	4704
3PADSHTR1	4.67E-03	1.87E-02	1.72E-02	2.22E-03	1.99E-03	1.83E-03	1.99E-04	1.99E-04	1.83E-04	4704

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
3PADNMGS1	1.32E-02	2.49E-02	2.29E-02	1.96E-03	1.90E-03	1.75E-03	2.13E-05	2.13E-05	1.96E-05	4704
2PADNR1	1.48E-02	3.87E-02	3.33E-02	2.04E-03	1.97E-03	1.70E-03	1.59E-04	1.59E-04	1.37E-04	VARIES
2PADNR2	1.48E-02	3.87E-02	3.33E-02	2.04E-03	1.97E-03	1.70E-03	1.59E-04	1.59E-04	1.37E-04	VARIES
2PADNR3	1.48E-02	3.87E-02	3.33E-02	2.04E-03	1.97E-03	1.70E-03	1.59E-04	1.59E-04	1.37E-04	VARIES
2PADNR4	1.48E-02	3.87E-02	3.33E-02	2.04E-03	1.97E-03	1.70E-03	1.59E-04	1.59E-04	1.37E-04	VARIES
3PADNR1	1.48E-02	3.87E-02	3.33E-02	2.04E-03	1.97E-03	1.70E-03	1.59E-04	1.59E-04	1.37E-04	VARIES
3PADNR2	1.48E-02	3.87E-02	3.33E-02	2.04E-03	1.97E-03	1.70E-03	1.59E-04	1.59E-04	1.37E-04	VARIES
3PADNR3	1.48E-02	3.87E-02	3.33E-02	2.04E-03	1.97E-03	1.70E-03	1.59E-04	1.59E-04	1.37E-04	VARIES
3PADNR4	1.48E-02	3.87E-02	3.33E-02	2.04E-03	1.97E-03	1.70E-03	1.59E-04	1.59E-04	1.37E-04	VARIES
2PADOHT1	2.06E-02	5.16E-02	3.56E-02	2.90E-03	2.81E-03	1.94E-03	1.35E-04	1.35E-04	9.34E-05	1512
2PADOHT2	2.06E-02	5.16E-02	3.56E-02	2.90E-03	2.81E-03	1.94E-03	1.35E-04	1.35E-04	9.34E-05	1512
2PADOHT3	2.06E-02	5.16E-02	3.56E-02	2.90E-03	2.81E-03	1.94E-03	1.35E-04	1.35E-04	9.34E-05	1512
2PADOHT4	2.06E-02	5.16E-02	3.56E-02	2.90E-03	2.81E-03	1.94E-03	1.35E-04	1.35E-04	9.34E-05	1512
3PADOHT1	2.06E-02	5.16E-02	3.56E-02	2.90E-03	2.81E-03	1.94E-03	1.35E-04	1.35E-04	9.34E-05	1512
3PADOHT2	2.06E-02	5.16E-02	3.56E-02	2.90E-03	2.81E-03	1.94E-03	1.35E-04	1.35E-04	9.34E-05	1512
3PADOHT3	2.06E-02	5.16E-02	3.56E-02	2.90E-03	2.81E-03	1.94E-03	1.35E-04	1.35E-04	9.34E-05	1512
3PADOHT4	2.06E-02	5.16E-02	3.56E-02	2.90E-03	2.81E-03	1.94E-03	1.35E-04	1.35E-04	9.34E-05	1512
2FUGD	0.00E+00	0.00E+00	0.00E+00	2.88E-02	4.32E-03	4.32E-03	0.00E+00	0.00E+00	0.00E+00	4380
3FUGD	0.00E+00	0.00E+00	0.00E+00	2.88E-02	4.32E-03	4.32E-03	0.00E+00	0.00E+00	0.00E+00	4380

A.2.5 Scenario 5: Routine Operations

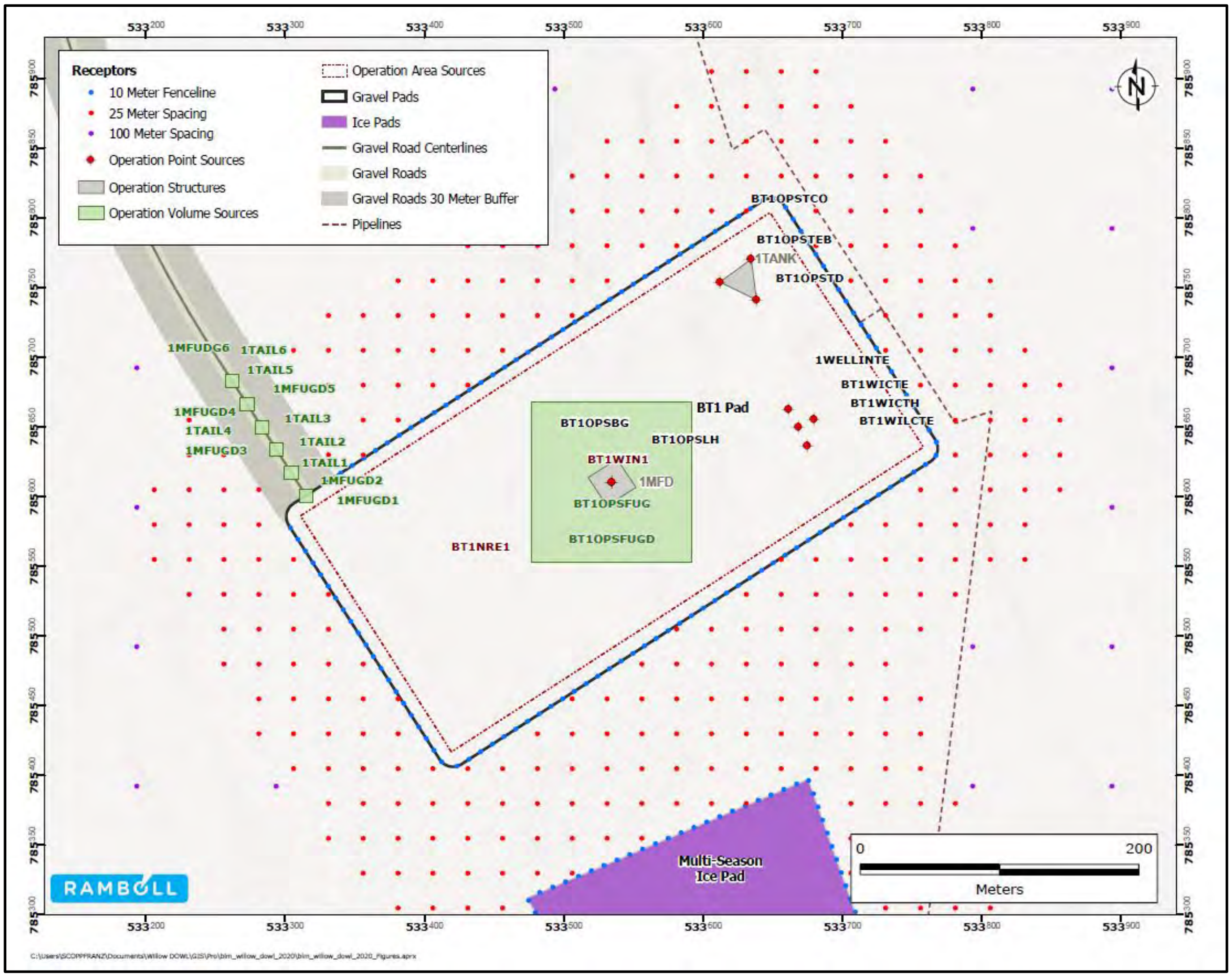

Figure A.2-18. Alternative C Near-field Model Scenario 5 Source Locations at BT1.

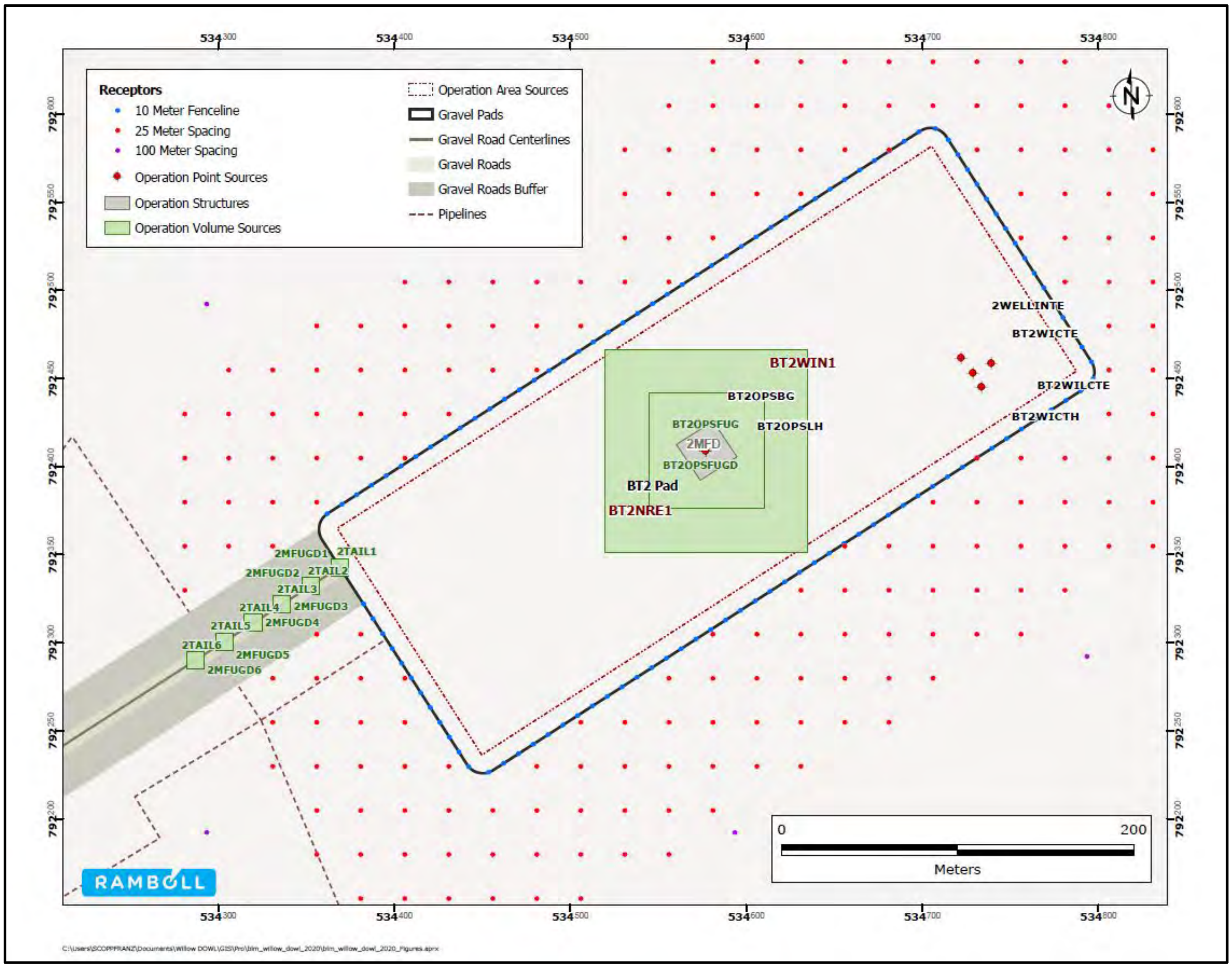

Figure A.2-19. Alternative C Near-field Model Scenario 5 Source Locations at BT2.

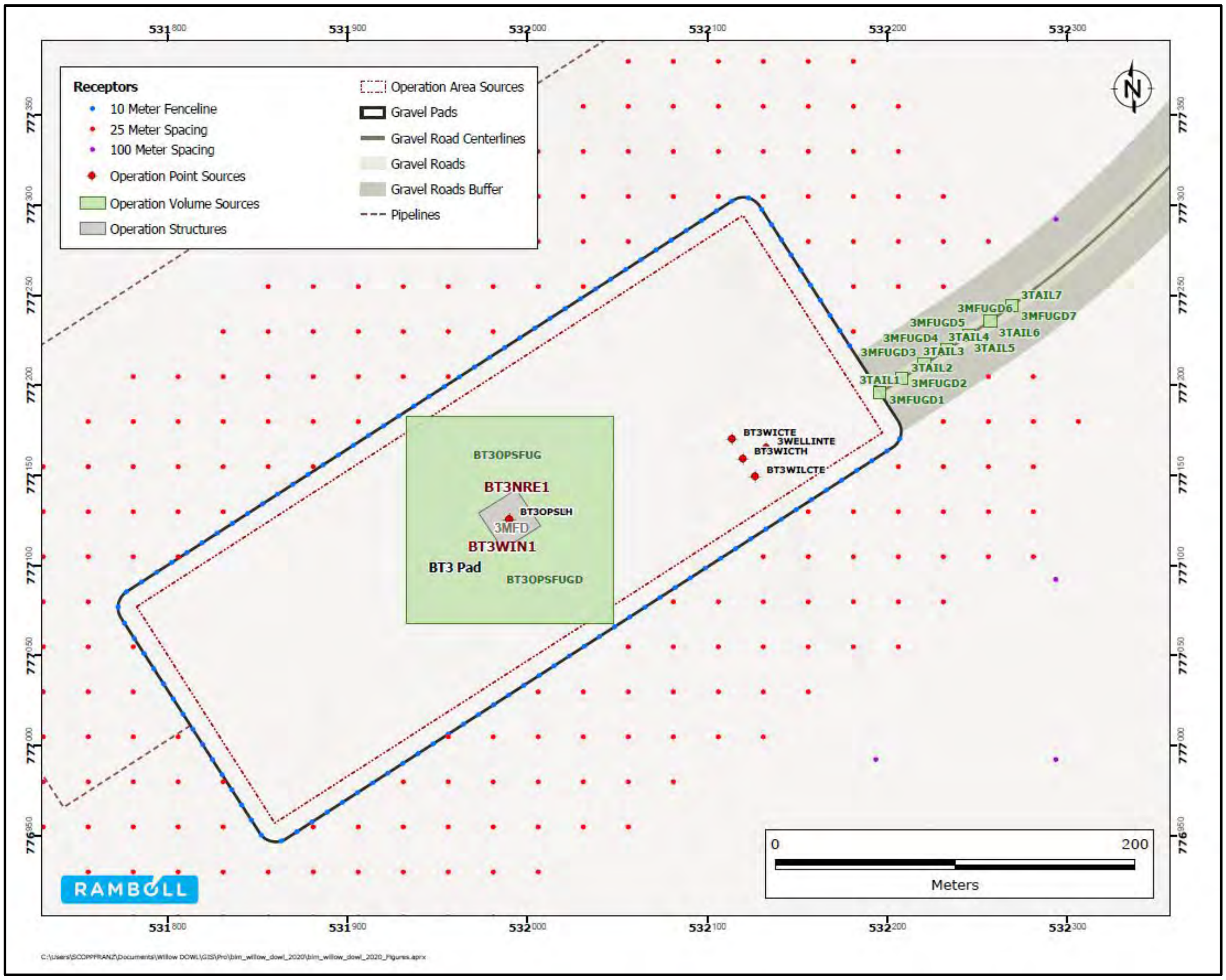

Figure A.2-20. Alternative C Near-field Model Scenario 5 Source Locations at BT3.

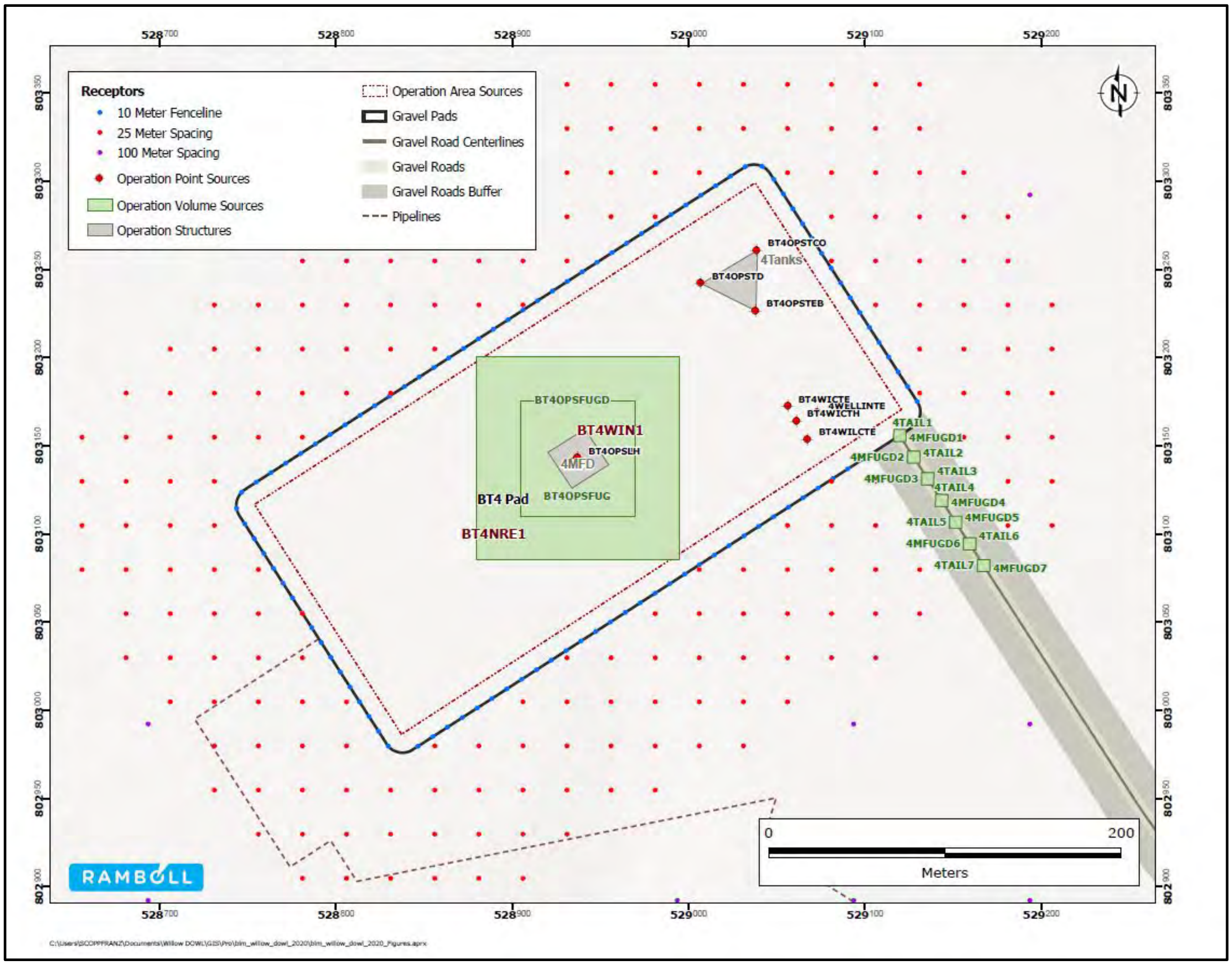

Figure A.2-21. Alternative C Near-field Model Scenario 5 Source Locations at BT4.

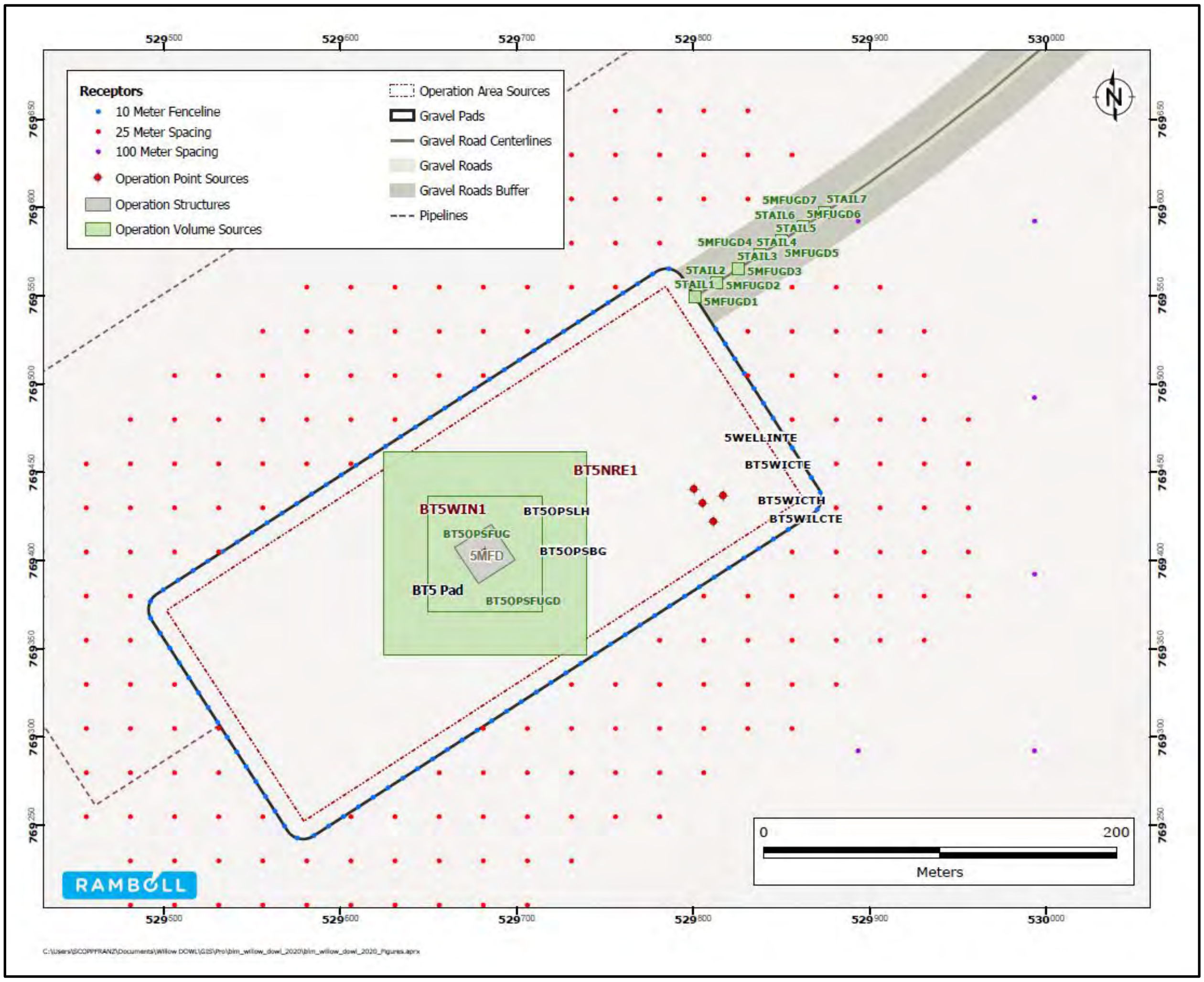

Figure A.2-22. Alternative C Near-field Model Scenario 5 Source Locations at BT5.

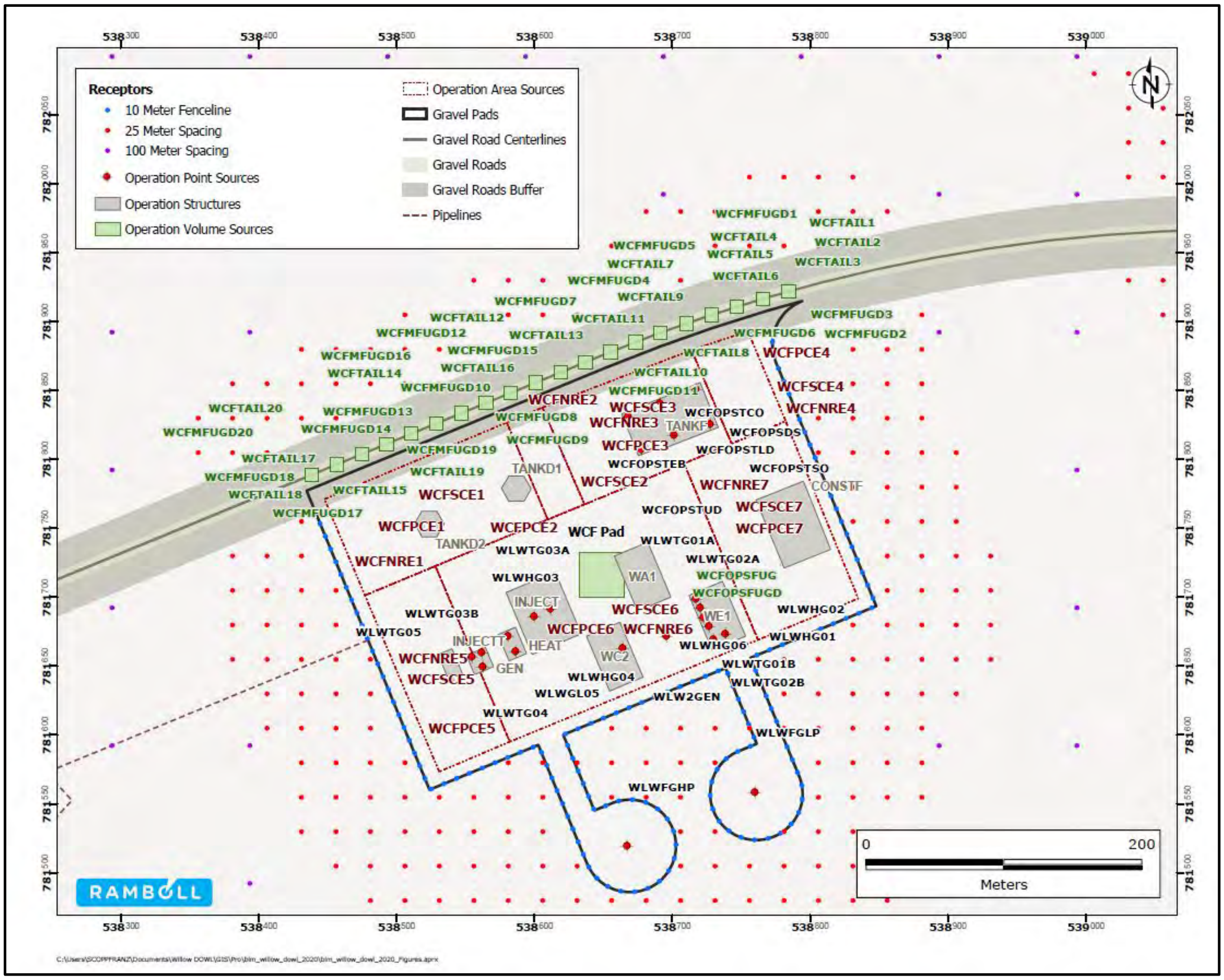

Figure A.2-23. Alternative C Near-field Model Scenario 5 Source Locations at WPF.

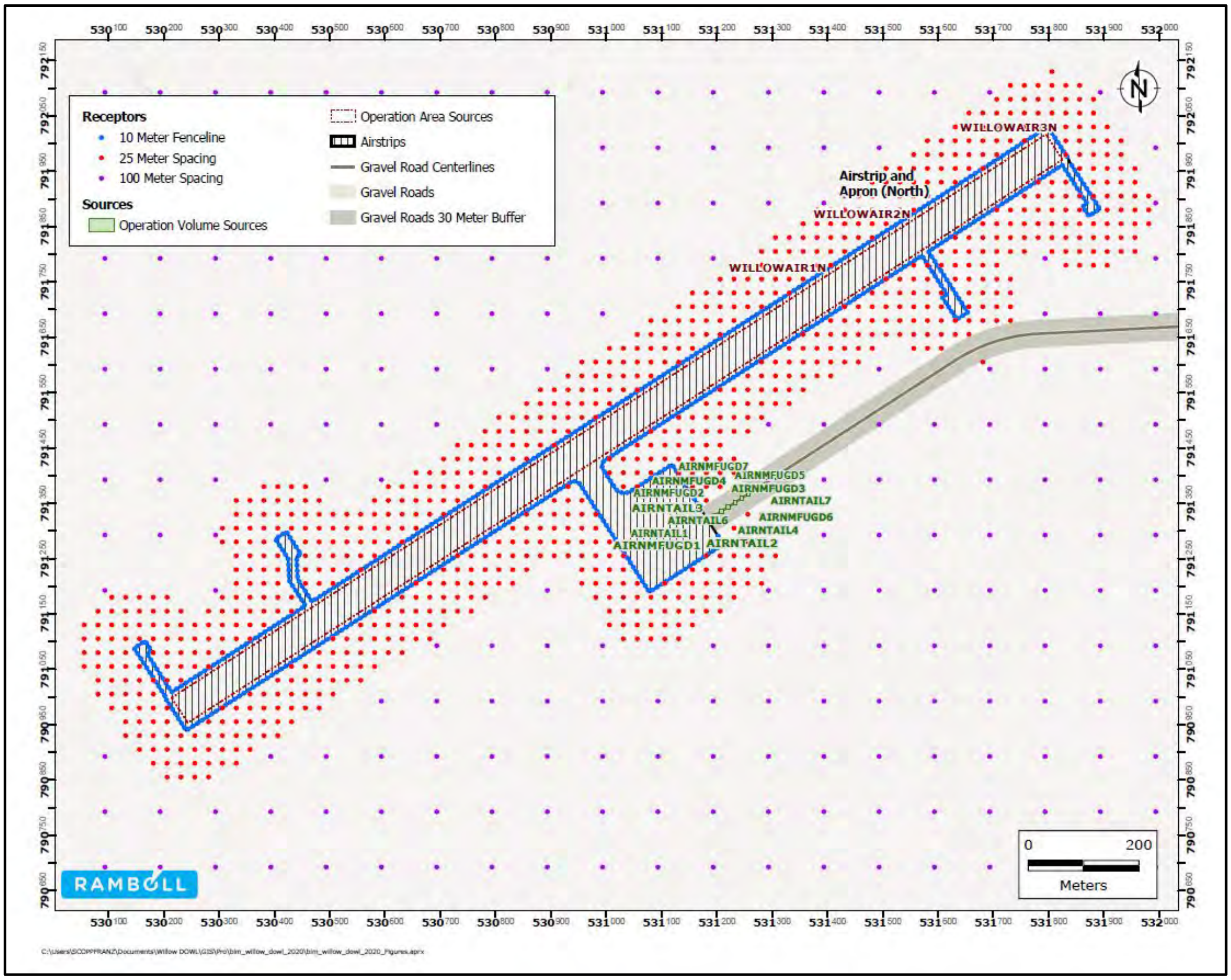

Figure A.2-24. Alternative C Near-field Model Scenario 5 Source Locations at Airstrip North.

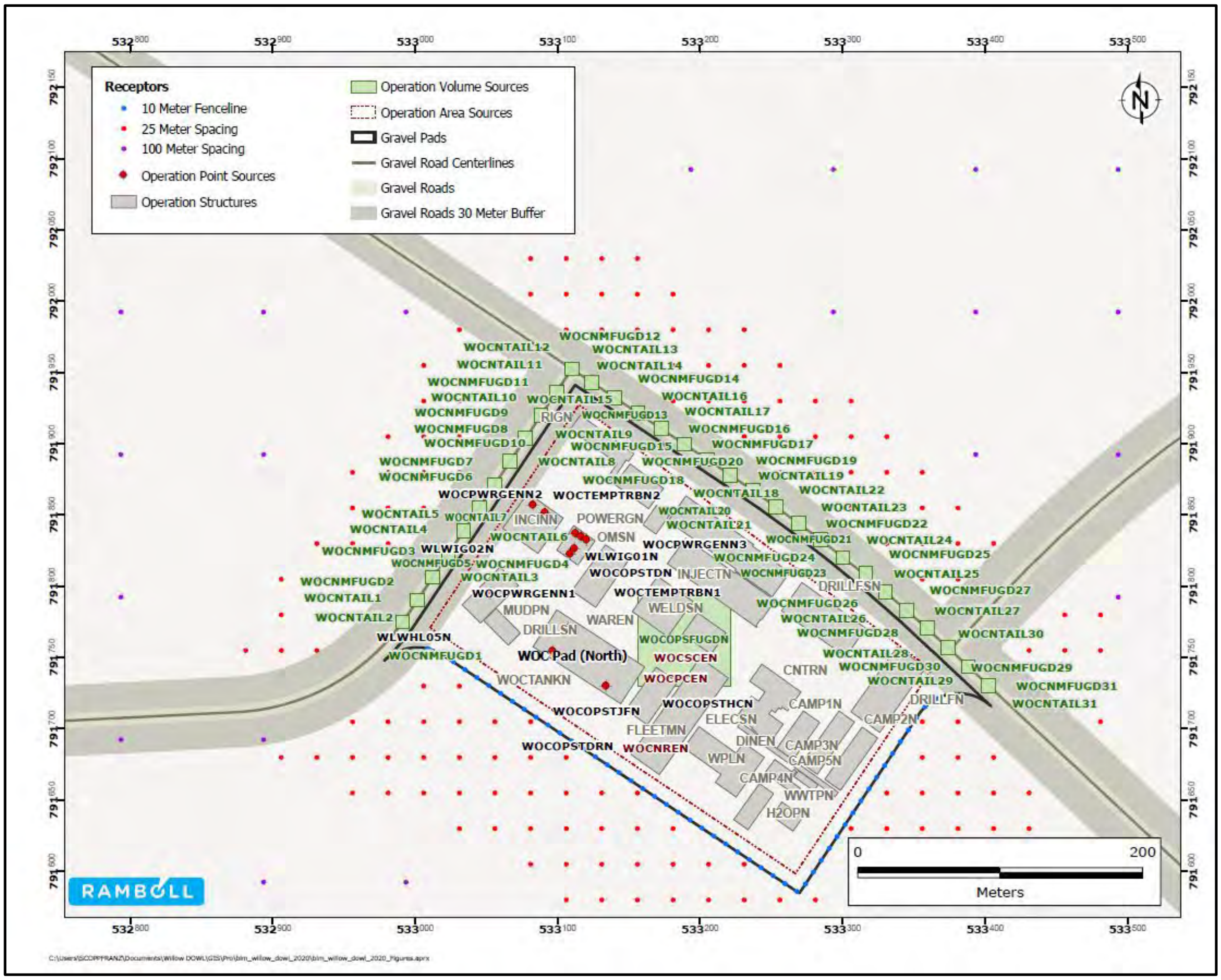

Figure A.2-25. Alternative C Near-field Model Scenario 5 Source Locations at WOC North.

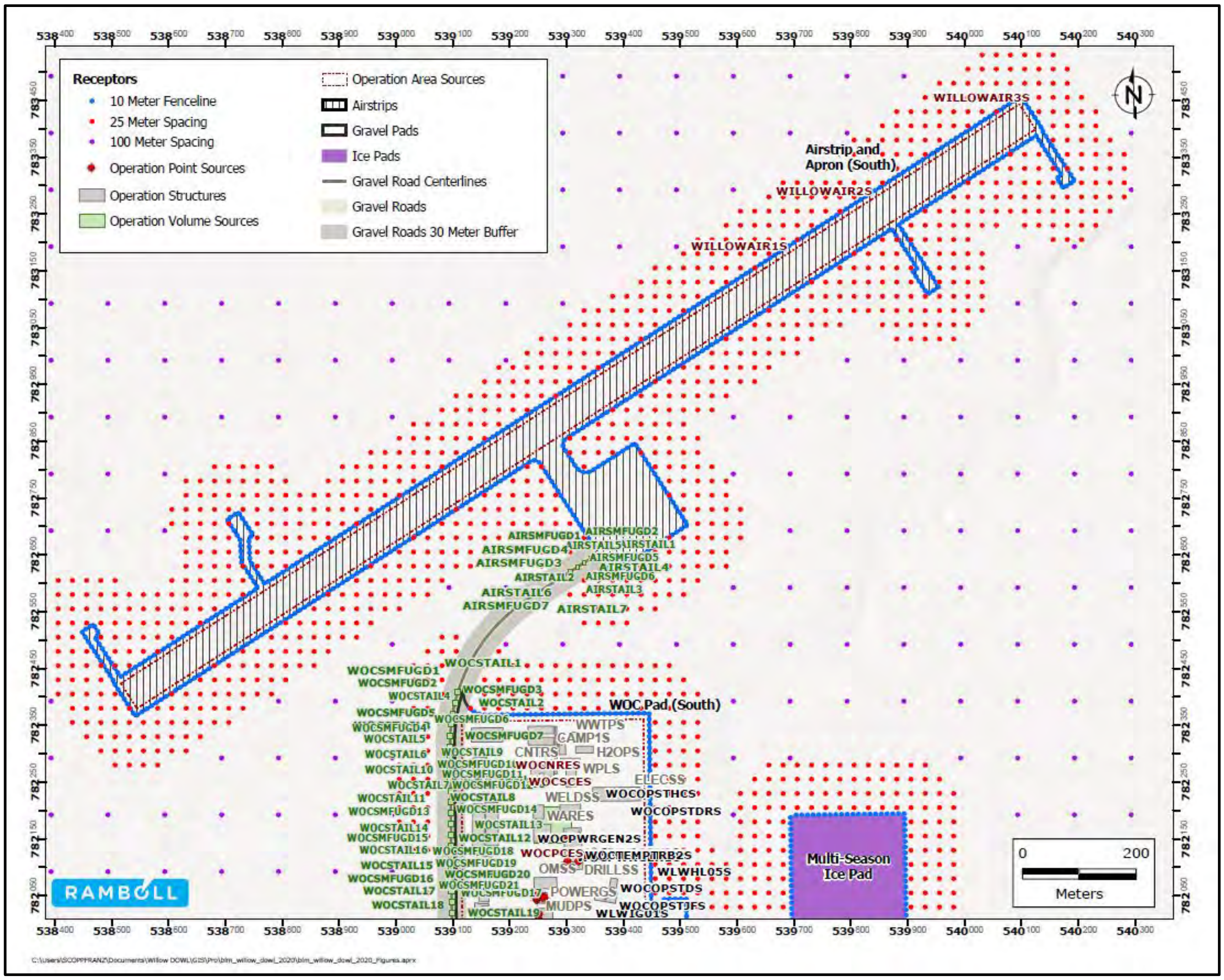

Figure A.2-26. Alternative C Near-field Model Scenario 5 Source Locations at Airstrip South.

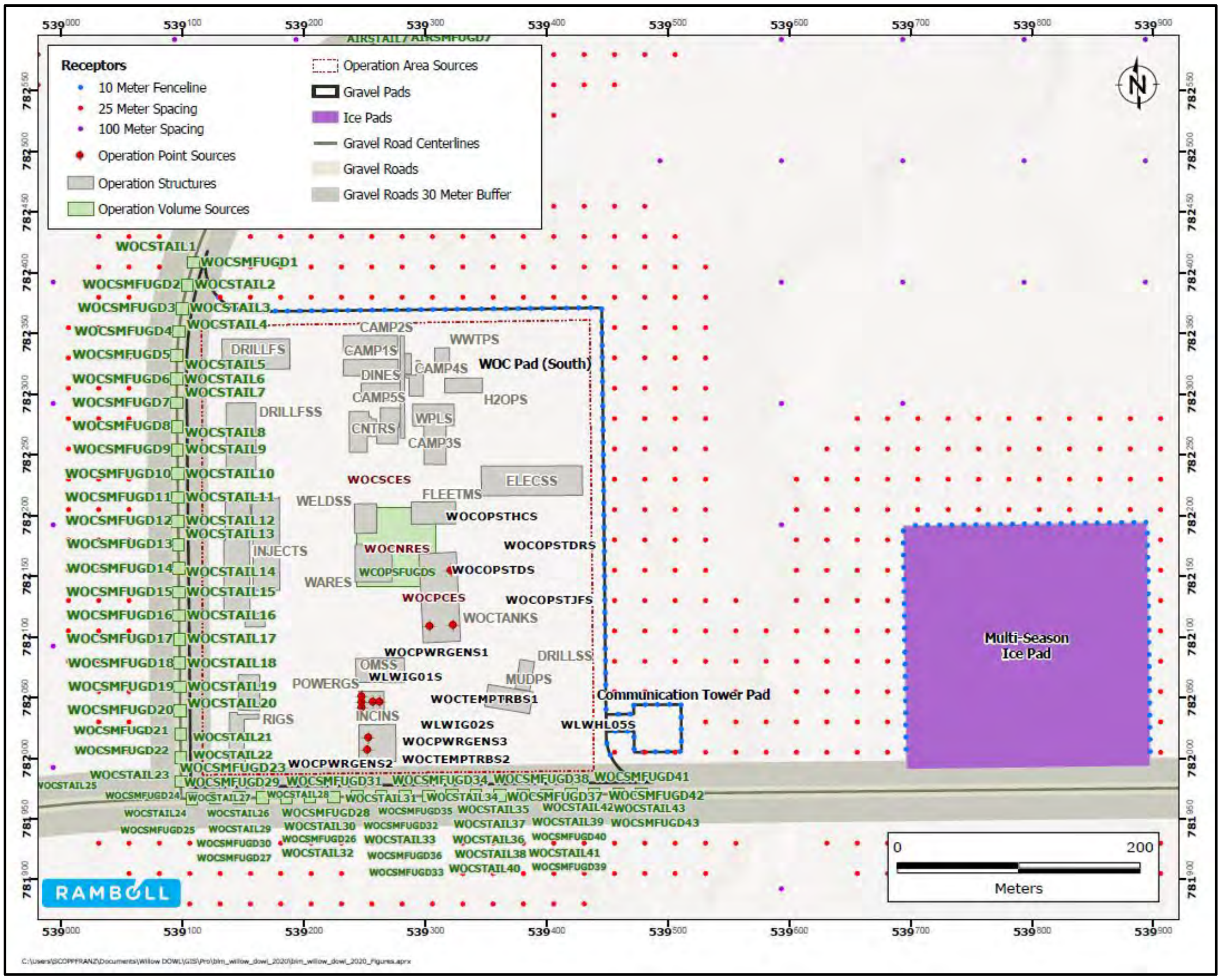

Figure A.2-27. Alternative C Near-field Model Scenario 5 Source Locations at WOC South.

Table A.2-13. Alternative C Near-field Model Scenario 5 Emissions Source Descriptions and In-stack Ratios

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
WOCOPSTDRN	POINT	WOC - Storage Tanks - VFRT/ DRA (drag reducing agent)	-	-
BT1OPSLH	POINT	BT1 - Line Heater	0.05	Diesel or natural gas heaters, or boiler
BT1OPSBG	POINT	BT1 - Backup Generator	0.2	Diesel tailpipe from non-road equipment
BT1OPSFUG	VOLUME	BT1 - Fugitive Components	-	-
BT1OPSFUGD	VOLUME	BT1 - Wind Erosion Fugitive Dust	-	-
BT1OPSTEB	POINT	BT1 - Storage Tanks - VFRT/ Emulsion Breaker/ Pad Buster	-	-
BT1OPSTD	POINT	BT1 - Storage Tanks - VFRT/ Diesel	-	-
BT1OPSTCO	POINT	BT1 - Storage Tanks - VFRT/ Portable Temp Crude Oil	-	-
BT1WICTH	POINT	BT1 - Well Intervention Main Equipment - Coil Tubing Heater	0.05	Diesel or natural gas heaters, or boiler
BT1WICTE	POINT	BT1 - Well Intervention Main Equipment - Coil Tubing Engine	0.2	Diesel tailpipe from non-road equipment
BT1WILCTE	POINT	BT1 - Well Intervention Main Equipment - Large Coil Tubing Engine	0.1	Diesel tailpipe from non-road equipment
BT2OPSLH	POINT	BT2 - Line Heater	0.05	Diesel or natural gas heaters, or boiler
BT2OPSBG	POINT	BT2 - Backup Generator	0.2	Diesel tailpipe from non-road equipment
BT2OPSFUG	VOLUME	BT2 - Fugitive Components	-	-
BT2OPSFUGD	VOLUME	BT2 - Wind Erosion Fugitive Dust	-	-
BT2WICTH	POINT	BT2 - Well Intervention Main Equipment - Coil Tubing Heater	0.05	Diesel or natural gas heaters, or boiler
BT2WICTE	POINT	BT2 - Well Intervention Main Equipment - Coil Tubing Engine	0.2	Diesel tailpipe from non-road equipment
BT2WILCTE	POINT	BT2 - Well Intervention Main Equipment - Large Coil Tubing Engine	0.1	Diesel tailpipe from non-road equipment
BT3OPSLH	POINT	BT3 - Line Heater	0	-
BT3OPSBG	POINT	BT3 - Backup Generator	0	-
BT3OPSFUG	VOLUME	BT3 - Fugitive Components	-	-
BT3OPSFUGD	VOLUME	BT3 - Wind Erosion Fugitive Dust	-	-
BT3WICTH	POINT	BT3 - Well Intervention Main Equipment - Coil Tubing Heater	0.05	Diesel or natural gas heaters, or boiler
BT3WICTE	POINT	BT3 - Well Intervention Main Equipment - Coil Tubing Engine	0.2	Diesel tailpipe from non-road equipment
BT3WILCTE	POINT	BT3 - Well Intervention Main Equipment - Large Coil Tubing Engine	0.1	Diesel tailpipe from non-road equipment
BT4OPSLH	POINT	BT4 - Line Heater	0.05	Diesel or natural gas heaters, or boiler
BT4OPSBG	POINT	BT4 - Backup Generator	0.2	Diesel tailpipe from non-road equipment
BT4OPSFUG	VOLUME	BT4 - Fugitive Components	-	-
BT4OPSFUGD	VOLUME	BT4 - Wind Erosion Fugitive Dust	-	-
BT4OPSTEB	POINT	BT4 - Storage Tanks - VFRT/ Emulsion Breaker/ Pad Buster	-	-
BT4OPSTD	POINT	BT4 - Storage Tanks - VFRT/ Diesel	-	-

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
BT4OPSTCO	POINT	BT4 - Storage Tanks - VFRT/ Portable Temp Crude Oil	-	-
BT4WICTH	POINT	BT4 - Well Intervention Main Equipment - Coil Tubing Heater	0.05	Diesel or natural gas heaters, or boiler
BT4WICTE	POINT	BT4 - Well Intervention Main Equipment - Coil Tubing Engine	0.2	Diesel tailpipe from non-road equipment
BT4WILCTE	POINT	BT4 - Well Intervention Main Equipment - Large Coil Tubing Engine	0.1	Diesel tailpipe from non-road equipment
BT5OPSLH	POINT	BT5 - Line Heater	0.05	Diesel or natural gas heaters, or boiler
BT5OPSBG	POINT	BT5 - Backup Generator	0.2	Diesel tailpipe from non-road equipment
BT5OPSFUG	VOLUME	BT5 - Fugitive Components	-	-
BT5OPSFUGD	VOLUME	BT5 - Wind Erosion Fugitive Dust	-	-
BT5WICTH	POINT	BT5 - Well Intervention Main Equipment - Coil Tubing Heater	0.05	Diesel or natural gas heaters, or boiler
BT5WICTE	POINT	BT5 - Well Intervention Main Equipment - Coil Tubing Engine	0.2	Diesel tailpipe from non-road equipment
BT5WILCTE	POINT	BT5 - Well Intervention Main Equipment - Large Coil Tubing Engine	0.1	Diesel tailpipe from non-road equipment
WLWTG03A	POINT	WPF - Stationary Combustion Sources - Injection/Compression Turbine	0.3	Natural gas-fired turbines
WLWTG03B	POINT	WPF - Stationary Combustion Sources - Injection/Compression Turbine	0.3	Natural gas-fired turbines
WLWTG01A	POINT	WPF - Stationary Combustion Sources - Power Generation Turbine	0.3	Natural gas-fired turbines
WLWTG01B	POINT	WPF - Stationary Combustion Sources - Power Generation Turbine	0.3	Natural gas-fired turbines
WLWTG02A	POINT	WPF - Stationary Combustion Sources - Power Generation Turbine	0.3	Natural gas-fired turbines
WLWTG02B	POINT	WPF - Stationary Combustion Sources - Power Generation Turbine	0.3	Natural gas-fired turbines
WLWTG04	POINT	WPF - Stationary Combustion Sources - Backup Power Generation Turbine (Dual Fuel)	0.3	Natural gas-fired turbines
WLWTG05	POINT	WPF - Stationary Combustion Sources - Backup Power Generation Turbine (Dual Fuel)	0.3	Natural gas-fired turbines
WLWGL05	POINT	WPF - Stationary Combustion Sources - Black Start Engine	0.2	Diesel tailpipe from non-road equipment
WLWHG03	POINT	WPF - Stationary Combustion Sources - Crude Production Heater	0.05	Diesel or natural gas heaters, or boiler
WLWHG04	POINT	WPF - Stationary Combustion Sources - Crude Production Heater	0.05	Diesel or natural gas heaters, or boiler
WLWHG01	POINT	WPF - Stationary Combustion Sources - Utility Heat Medium (UHM) Heater	0.05	Diesel or natural gas heaters, or boiler
WLWHG02	POINT	WPF - Stationary Combustion Sources - Utility Heat Medium (UHM) Heater	0.05	Diesel or natural gas heaters, or boiler
WLWHG06	POINT	WPF - Stationary Combustion Sources - Hot Oil Heater	0.05	Diesel or natural gas heaters, or boiler
WLWFGLP	POINT	WPF - Stationary Combustion Sources - LP Flare (pilot/purge/assist)	0.5	USEPA default value
WLWFGHP	POINT	WPF - Stationary Combustion Sources - HP Flare (pilot/purge/assist)	0.5	USEPA default value
WCFOPSDS	POINT	WPF - Stationary Combustion Sources - Diesel Fueling Station	-	-

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
WCFOPSTSO	POINT	WPF - Storage Tanks - VFRT/ Slop Oil	-	-
WCFOPSTCO	POINT	WPF - Storage Tanks - VFRT/ Portable Temp Crude Oil	-	-
WCFOPSTUD	POINT	WPF - Storage Tanks - VFRT/ ULSD	-	-
WCFOPSTLD	POINT	WPF - Storage Tanks - VFRT/ LEPD	-	-
WCFOPSTEB	POINT	WPF - Storage Tanks - VFRT/ Emulsion Breaker/ Pad Buster	-	-
WCFOPSFUG	VOLUME	WPF - Fugitive Equipment Leaks	-	-
WCFOPSFUGD	VOLUME	WPF - Wind Erosion Fugitive Dust	-	-
WOCPWRGENN1	POINT	WOC - Stationary Combustion Sources N - Power Generation	0.1	Diesel engines
WOCPWRGENN2	POINT	WOC - Stationary Combustion Sources N - Power Generation	0.1	Diesel engines
WOCPWRGENN3	POINT	WOC - Stationary Combustion Sources N - Power Generation	0.1	Diesel engines
WLWIG01S	POINT	WOC - Stationary Combustion Sources - Incinerator	0.5	USEPA default value
WLWIG02S	POINT	WOC - Stationary Combustion Sources - Incinerator	0.5	USEPA default value
WLWHL05S	POINT	WOC - Stationary Combustion Sources - Mud Plant Glycol Boiler	0.05	Diesel or natural gas heaters, or boiler
WOCOPSTJFS	POINT	WOC - Storage Tanks - VFRT/ Aircraft Jet Fuel	-	-
WOCOPSTHCS	POINT	WOC - Storage Tanks - VFRT/ Hydrocarbon	-	-
WOCOPSTDS	POINT	WOC - Storage Tanks - VFRT/ Diesel	-	-
WILLOWAIR1S	AREAPOLY	WOC - Aircraft Activity (Willow Airstrip) - Release Height 50.8m	0.5	USEPA default value
WILLOWAIR2S	AREAPOLY	WOC - Aircraft Activity (Willow Airstrip) - Release Height 152.4m	0.5	USEPA default value
WILLOWAIR3S	AREAPOLY	WOC - Aircraft Activity (Willow Airstrip) - Release Height 254m	0.5	USEPA default value
WOCOPSFUGDS	VOLUME	WOC - Wind Erosion Fugitive Dust - Wind Erosion	-	-
WCFPCE1	AREAPOLY	WPF - Non-mobile Support Equipment - Portable External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFPCE2	AREAPOLY	WPF - Non-mobile Support Equipment - Portable External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFPCE3	AREAPOLY	WPF - Non-mobile Support Equipment - Portable External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFPCE4	AREAPOLY	WPF - Non-mobile Support Equipment - Portable External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFPCE5	AREAPOLY	WPF - Non-mobile Support Equipment - Portable External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFPCE6	AREAPOLY	WPF - Non-mobile Support Equipment - Portable External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
WCFPCE7	AREAPOLY	WPF - Non-mobile Support Equipment - Portable External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFSCE1	AREAPOLY	WPF - Non-mobile Support Equipment - Stationary External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFSCE2	AREAPOLY	WPF - Non-mobile Support Equipment - Stationary External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFSCE3	AREAPOLY	WPF - Non-mobile Support Equipment - Stationary External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFSCE4	AREAPOLY	WPF - Non-mobile Support Equipment - Stationary External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFSCE5	AREAPOLY	WPF - Non-mobile Support Equipment - Stationary External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFSCE6	AREAPOLY	WPF - Non-mobile Support Equipment - Stationary External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFSCE7	AREAPOLY	WPF - Non-mobile Support Equipment - Stationary External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFNRE1	AREAPOLY	WPF - Non-mobile Support Equipment - Internal Combustion Equipment Non-Road Engines <140 HP	0.2	Diesel tailpipe from non-road equipment
WCFNRE2	AREAPOLY	WPF - Non-mobile Support Equipment - Internal Combustion Equipment Non-Road Engines <140 HP	0.2	Diesel tailpipe from non-road equipment
WCFNRE3	AREAPOLY	WPF - Non-mobile Support Equipment - Internal Combustion Equipment Non-Road Engines <140 HP	0.2	Diesel tailpipe from non-road equipment
WCFNRE4	AREAPOLY	WPF - Non-mobile Support Equipment - Internal Combustion Equipment Non-Road Engines <140 HP	0.2	Diesel tailpipe from non-road equipment
WCFNRE5	AREAPOLY	WPF - Non-mobile Support Equipment - Internal Combustion Equipment Non-Road Engines <140 HP	0.2	Diesel tailpipe from non-road equipment
WCFNRE6	AREAPOLY	WPF - Non-mobile Support Equipment - Internal Combustion Equipment Non-Road Engines <140 HP	0.2	Diesel tailpipe from non-road equipment
WCFNRE7	AREAPOLY	WPF - Non-mobile Support Equipment - Internal Combustion Equipment Non-Road Engines <140 HP	0.2	Diesel tailpipe from non-road equipment
WLW2GEN	POINT	WPF - Non-mobile Support Equipment - Internal Combustion Equipment Non-Road Engines >140 HP	0.15	Diesel tailpipe from non-road equipment
BT3NRE1	AREAPOLY	BT3 - Routine Operations Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
BT3WIN1	AREAPOLY	BT3 - Well Intervention Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
3WELLINTE	POINT	BT3 - Well Intervention Non-Mobile Support Equipment - Total Engine	0.1	Diesel tailpipe from non-road equipment
BT1NRE1	AREAPOLY	BT1 - Routine Operations Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
BT1WIN1	AREAPOLY	BT1 - Well Intervention Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
1WELLINTE	POINT	BT1 - Well Intervention Non-Mobile Support Equipment - Total Engine	0.1	Diesel tailpipe from non-road equipment
BT2NRE1	AREAPOLY	BT2 - Routine Operations Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
BT2WIN1	AREAPOLY	BT2 - Well Intervention Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
2WELLINTE	POINT	BT2 - Well Intervention Non-Mobile Support Equipment - Total Engine	0.1	Diesel tailpipe from non-road equipment
BT4NRE1	AREAPOLY	BT4 - Routine Operations Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
BT4WIN1	AREAPOLY	BT4 - Well Intervention Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
4WELLINTE	POINT	BT4 - Well Intervention Non-Mobile Support Equipment - Total Engine	0.1	Diesel tailpipe from non-road equipment
BT5NRE1	AREAPOLY	BT5 - Routine Operations Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
BT5WIN1	AREAPOLY	BT5 - Well Intervention Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
5WELLINTE	POINT	BT5 - Well Intervention Non-Mobile Support Equipment - Total Engine	0.1	Diesel tailpipe from non-road equipment
WOCPCES	AREAPOLY	WOC - Non-mobile Support Equipment - Portable External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WOCSCES	AREAPOLY	WOC - Non-mobile Support Equipment - Stationary External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WOCNRES	AREAPOLY	WOC - Non-mobile Support Equipment - Internal Combustion Equipment Non-Road Engines <140 HP	0.2	Diesel tailpipe from non-road equipment
1TAIL1	VOLUME	Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL2	VOLUME	Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL3	VOLUME	Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL4	VOLUME	Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL5	VOLUME	Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL6	VOLUME	Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
2TAIL1	VOLUME	Mobile Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL2	VOLUME	Mobile Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL3	VOLUME	Mobile Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL4	VOLUME	Mobile Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL5	VOLUME	Mobile Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL6	VOLUME	Mobile Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
3TAIL1	VOLUME	Mobile Equipment Tailpipe - BT3	0.15	Diesel tailpipe from on-road vehicles
3TAIL2	VOLUME	Mobile Equipment Tailpipe - BT3	0.15	Diesel tailpipe from on-road vehicles
3TAIL3	VOLUME	Mobile Equipment Tailpipe - BT3	0.15	Diesel tailpipe from on-road vehicles
3TAIL4	VOLUME	Mobile Equipment Tailpipe - BT3	0.15	Diesel tailpipe from on-road vehicles
3TAIL5	VOLUME	Mobile Equipment Tailpipe - BT3	0.15	Diesel tailpipe from on-road vehicles
3TAIL6	VOLUME	Mobile Equipment Tailpipe - BT3	0.15	Diesel tailpipe from on-road vehicles
3TAIL7	VOLUME	Mobile Equipment Tailpipe - BT3	0.15	Diesel tailpipe from on-road vehicles
4TAIL1	VOLUME	Mobile Equipment Tailpipe - BT4	0.15	Diesel tailpipe from on-road vehicles
4TAIL2	VOLUME	Mobile Equipment Tailpipe - BT4	0.15	Diesel tailpipe from on-road vehicles
4TAIL3	VOLUME	Mobile Equipment Tailpipe - BT4	0.15	Diesel tailpipe from on-road vehicles
4TAIL4	VOLUME	Mobile Equipment Tailpipe - BT4	0.15	Diesel tailpipe from on-road vehicles
4TAIL5	VOLUME	Mobile Equipment Tailpipe - BT4	0.15	Diesel tailpipe from on-road vehicles
4TAIL6	VOLUME	Mobile Equipment Tailpipe - BT4	0.15	Diesel tailpipe from on-road vehicles
4TAIL7	VOLUME	Mobile Equipment Tailpipe - BT4	0.15	Diesel tailpipe from on-road vehicles
5TAIL1	VOLUME	Mobile Equipment Tailpipe - BT5	0.15	Diesel tailpipe from on-road vehicles
5TAIL2	VOLUME	Mobile Equipment Tailpipe - BT5	0.15	Diesel tailpipe from on-road vehicles
5TAIL3	VOLUME	Mobile Equipment Tailpipe - BT5	0.15	Diesel tailpipe from on-road vehicles
5TAIL4	VOLUME	Mobile Equipment Tailpipe - BT5	0.15	Diesel tailpipe from on-road vehicles
5TAIL5	VOLUME	Mobile Equipment Tailpipe - BT5	0.15	Diesel tailpipe from on-road vehicles
5TAIL6	VOLUME	Mobile Equipment Tailpipe - BT5	0.15	Diesel tailpipe from on-road vehicles
5TAIL7	VOLUME	Mobile Equipment Tailpipe - BT5	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL1	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL2	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL3	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL4	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL5	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL6	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL7	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL8	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL9	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL10	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL11	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
WOCSTAIL12	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL13	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL14	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL15	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL16	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL17	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL18	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL19	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL20	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL21	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL22	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL23	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL24	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL25	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL26	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL27	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL28	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL29	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL30	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL31	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL32	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL33	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL34	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL35	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL36	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL37	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL38	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL39	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL40	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL41	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL42	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCSTAIL43	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
AIRSTAIL1	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
AIRSTAIL2	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
AIRSTAIL3	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
AIRSTAIL4	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
AIRSTAIL5	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
AIRSTAIL6	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
AIRSTAIL7	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL1	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL2	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL3	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL4	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL5	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL6	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL7	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL8	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL9	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL10	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL11	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL12	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL13	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL14	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL15	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL16	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL17	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL18	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL19	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL20	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL21	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL22	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL23	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL24	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL25	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
WOCNTAIL26	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL27	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL28	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL29	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL30	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCNTAIL31	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
AIRNTAIL1	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
AIRNTAIL2	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
AIRNTAIL3	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
AIRNTAIL4	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
AIRNTAIL5	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
AIRNTAIL6	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
AIRNTAIL7	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL1	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL2	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL3	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL4	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL5	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL6	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL7	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL8	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL9	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL10	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL11	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL12	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL13	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL14	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL15	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL16	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL17	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL18	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL19	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
WCFTAIL20	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
1MFUGD1	VOLUME	Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD2	VOLUME	Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD3	VOLUME	Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD4	VOLUME	Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD5	VOLUME	Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD6	VOLUME	Mobile Equipment Fugitive Dust - BT1	-	-
2MFUGD1	VOLUME	Mobile Equipment Fugitive Dust - BT2	-	-
2MFUGD2	VOLUME	Mobile Equipment Fugitive Dust - BT2	-	-
2MFUGD3	VOLUME	Mobile Equipment Fugitive Dust - BT2	-	-
2MFUGD4	VOLUME	Mobile Equipment Fugitive Dust - BT2	-	-
2MFUGD5	VOLUME	Mobile Equipment Fugitive Dust - BT2	-	-
2MFUGD6	VOLUME	Mobile Equipment Fugitive Dust - BT2	-	-
3MFUGD1	VOLUME	Mobile Equipment Fugitive Dust - BT3	-	-
3MFUGD2	VOLUME	Mobile Equipment Fugitive Dust - BT3	-	-
3MFUGD3	VOLUME	Mobile Equipment Fugitive Dust - BT3	-	-
3MFUGD4	VOLUME	Mobile Equipment Fugitive Dust - BT3	-	-
3MFUGD5	VOLUME	Mobile Equipment Fugitive Dust - BT3	-	-
3MFUGD6	VOLUME	Mobile Equipment Fugitive Dust - BT3	-	-
3MFUGD7	VOLUME	Mobile Equipment Fugitive Dust - BT3	-	-
4MFUGD1	VOLUME	Mobile Equipment Fugitive Dust - BT4	-	-
4MFUGD2	VOLUME	Mobile Equipment Fugitive Dust - BT4	-	-
4MFUGD3	VOLUME	Mobile Equipment Fugitive Dust - BT4	-	-
4MFUGD4	VOLUME	Mobile Equipment Fugitive Dust - BT4	-	-
4MFUGD5	VOLUME	Mobile Equipment Fugitive Dust - BT4	-	-
4MFUGD6	VOLUME	Mobile Equipment Fugitive Dust - BT4	-	-
4MFUGD7	VOLUME	Mobile Equipment Fugitive Dust - BT4	-	-
5MFUGD1	VOLUME	Mobile Equipment Fugitive Dust - BT5	-	-
5MFUGD2	VOLUME	Mobile Equipment Fugitive Dust - BT5	-	-
5MFUGD3	VOLUME	Mobile Equipment Fugitive Dust - BT5	-	-
5MFUGD4	VOLUME	Mobile Equipment Fugitive Dust - BT5	-	-
5MFUGD5	VOLUME	Mobile Equipment Fugitive Dust - BT5	-	-

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
5MFUGD6	VOLUME	Mobile Equipment Fugitive Dust - BT5	-	-
5MFUGD7	VOLUME	Mobile Equipment Fugitive Dust - BT5	-	-
WCFMFUGD1	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD2	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD3	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD4	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD5	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD6	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD7	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD8	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD9	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD10	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD11	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD12	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD13	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD14	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD15	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD16	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD17	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD18	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD19	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD20	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WOCSMFUGD1	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD2	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD3	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD4	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD5	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD6	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD7	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD8	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD9	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD10	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
WOCSMFUGD11	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD12	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD13	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD14	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD15	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD16	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD17	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD18	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD19	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD20	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD21	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD22	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD23	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD24	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD25	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD26	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD27	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD28	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD29	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD30	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD31	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD32	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD33	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD34	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD35	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD36	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD37	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD38	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD39	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD40	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD41	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCSMFUGD42	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
WOCSMFUGD43	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
AIRSMFUGD1	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
AIRSMFUGD2	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
AIRSMFUGD3	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
AIRSMFUGD4	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
AIRSMFUGD5	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
AIRSMFUGD6	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
AIRSMFUGD7	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCTEMPTRBS1	POINT	WOC - Stationary Combustion Sources	0.3	-
WOCTEMPTRBS2	POINT	WOC - Stationary Combustion Sources	0.3	-
WOCTEMPTRBN1	POINT	WOC - Stationary Combustion Sources N	0.3	-
WOCTEMPTRBN2	POINT	WOC - Stationary Combustion Sources N	0.3	-
WOCPCEN	AREAPOLY	WOC - Non-mobile Support Equipment N	0.05	Diesel or natural gas heaters, or boiler
WOCSCEN	AREAPOLY	WOC - Non-mobile Support Equipment N	0.05	Diesel or natural gas heaters, or boiler
WOCNREN	AREAPOLY	WOC - Non-mobile Support Equipment N	0.2	Diesel tailpipe from non-road equipment
WOCNMFUGD1	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD2	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD3	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD4	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD5	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD6	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD7	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD8	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD9	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD10	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD11	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD12	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD13	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD14	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD15	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD16	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD17	VOLUME	Mobile Equipment Fugitive Dust	-	-

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
WOCNMFUGD18	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD19	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD20	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD21	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD22	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD23	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD24	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD25	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD26	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD27	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD28	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD29	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD30	VOLUME	Mobile Equipment Fugitive Dust	-	-
WOCNMFUGD31	VOLUME	Mobile Equipment Fugitive Dust	-	-
AIRNMFUGD1	VOLUME	Mobile Equipment Fugitive Dust	-	-
AIRNMFUGD2	VOLUME	Mobile Equipment Fugitive Dust	-	-
AIRNMFUGD3	VOLUME	Mobile Equipment Fugitive Dust	-	-
AIRNMFUGD4	VOLUME	Mobile Equipment Fugitive Dust	-	-
AIRNMFUGD5	VOLUME	Mobile Equipment Fugitive Dust	-	-
AIRNMFUGD6	VOLUME	Mobile Equipment Fugitive Dust	-	-
AIRNMFUGD7	VOLUME	Mobile Equipment Fugitive Dust	-	-
WILLOWAIR1N	AREAPOLY	WOC - Aircraft Activity (Willow Airstrip) N	0.5	USEPA default value
WILLOWAIR2N	AREAPOLY	WOC - Aircraft Activity (Willow Airstrip) N	0.5	USEPA default value
WILLOWAIR3N	AREAPOLY	WOC - Aircraft Activity (Willow Airstrip) N	0.5	USEPA default value
WOCOPSFUGDN	VOLUME	WOC - Wind Erosion Fugitive Dust N	-	-
WOCOPSTDRS	POINT	WOC - Storage Tanks N	-	-
WOCPWRGENS1	POINT	WOC - Stationary Combustion Sources	0.1	Diesel engines
WOCPWRGENS2	POINT	WOC - Stationary Combustion Sources	0.1	Diesel engines
WOCPWRGENS3	POINT	WOC - Stationary Combustion Sources	0.1	Diesel engines
WLWIG01N	POINT	WOC - Stationary Combustion Sources - Incinerator	0.5	USEPA default value
WLWIG02N	POINT	WOC - Stationary Combustion Sources - Incinerator	0.5	USEPA default value
WLWHL05N	POINT	WOC - Stationary Combustion Sources N	0.05	Diesel or natural gas heaters, or boiler

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
WOCOPSTJFN	POINT	WOC - Storage Tanks N	-	-
WOCOPSTHCN	POINT	WOC - Storage Tanks N	-	-
WOCOPSTDN	POINT	WOC - Storage Tanks N	-	-
RFDGMT1	POINT	RFD - GMT1	0.2	Reasonable Foreseeable Development
RFDGMT2	POINT	RFD - GMT2	0.2	Reasonable Foreseeable Development
RFDCD5	POINT	RFD - CD5	0.2	Reasonable Foreseeable Development
RFDGWPDS1	POINT	RFD - Greater Willow Project Drill Site #1	0.15	Reasonable Foreseeable Development
RFDGWPDS2	POINT	RFD - Greater Willow Project Drill Site #2	0.15	Reasonable Foreseeable Development

Table A.2-14. Alternative C Near-field Model Scenario 5 Emissions Stack Parameters

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
WOCOPSTDRN	POINT	3.05	5.4864	0.1016	1.67652176	294.2611111	-	-	-	-	-
BT1OPSLH	POINT	2.7432	12.8	0.94	5.7	529	-	-	-	-	-
BT1OPSBG	POINT	2.7432	6.1	0.46	15.1	795	-	-	-	-	-
BT1OPSFUG	VOLUME	2.7432	3.7	-	-	-	15.1	3.38	-	-	-
BT1OPSFUGD	VOLUME	2.7432	3.7	-	-	-	26.74	3.38	-	-	-
BT1OPSTEB	POINT	2.7432	5.4864	0.1016	1.67652176	283.15	-	-	-	-	-
BT1OPSTD	POINT	2.7432	5.4864	0.1016	1.67652176	299.8166667	-	-	-	-	-
BT1OPSTCO	POINT	2.7432	5.4864	0.1016	1.67652176	277.5944444	-	-	-	-	-
BT1WICTH	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT1WICTE	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT1WILCTE	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT2OPSLH	POINT	2.7432	12.8	0.94	5.7	529	-	-	-	-	-
BT2OPSBG	POINT	2.7432	6.1	0.46	15.1	795	-	-	-	-	-
BT2OPSFUG	VOLUME	2.7432	3.7	-	-	-	15.1	3.38	-	-	-
BT2OPSFUGD	VOLUME	2.7432	3.7	-	-	-	26.74	3.38	-	-	-
BT2WICTH	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT2WICTE	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT2WILCTE	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
BT3OPSLH	POINT	2.7432	12.8	0.94	5.7	529	-	-	-	-	-
BT3OPSBG	POINT	2.7432	6.1	0.46	15.1	795	-	-	-	-	-
BT3OPSFUG	VOLUME	3.66	3.7	-	-	-	15.1	3.38	-	-	-
BT3OPSFUGD	VOLUME	3.66	3.7	-	-	-	26.74	3.38	-	-	-
BT3WICTH	POINT	3.66	3.7	0.356	41.6	644	-	-	-	-	-
BT3WICTE	POINT	3.66	3.7	0.356	41.6	644	-	-	-	-	-
BT3WILCTE	POINT	3.66	3.7	0.356	41.6	644	-	-	-	-	-
BT4OPSLH	POINT	2.7432	12.8	0.94	5.7	529	-	-	-	-	-
BT4OPSBG	POINT	2.7432	6.1	0.46	15.1	795	-	-	-	-	-
BT4OPSFUG	VOLUME	2.7432	3.7	-	-	-	15.1	3.38	-	-	-
BT4OPSFUGD	VOLUME	2.7432	3.7	-	-	-	15.1	3.38	-	-	-
BT4OPSTEB	POINT	2.7432	5.4864	0.1016	1.67652176	283.15	-	-	-	-	-
BT4OPSTD	POINT	2.7432	5.4864	0.1016	1.67652176	299.8166667	-	-	-	-	-
BT4OPSTCO	POINT	2.7432	5.4864	0.1016	1.67652176	277.5944444	-	-	-	-	-
BT4WICTH	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT4WICTE	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT4WILCTE	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT5OPSLH	POINT	2.7432	12.2	0.94	5.7	529	-	-	-	-	-
BT5OPSBG	POINT	2.7432	6.1	0.46	15.1	795	-	-	-	-	-
BT5OPSFUG	VOLUME	2.7432	3.7	-	-	-	15.1	3.38	-	-	-
BT5OPSFUGD	VOLUME	2.7432	3.7	-	-	-	26.74	3.38	-	-	-
BT5WICTH	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT5WICTE	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT5WILCTE	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
WLWTG03A	POINT	3.66	25	2	30	370	-	-	-	-	-
WLWTG03B	POINT	3.66	25	2	30	370	-	-	-	-	-
WLWTG01A	POINT	3.66	30	2	35	370	-	-	-	-	-
WLWTG01B	POINT	3.66	30	2	35	370	-	-	-	-	-
WLWTG02A	POINT	3.66	30	2	35	370	-	-	-	-	-
WLWTG02B	POINT	3.66	30	2	35	370	-	-	-	-	-
WLWTG04	POINT	3.66	25	2	30	550	-	-	-	-	-
WLWTG05	POINT	3.66	25	2	30	550	-	-	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
WLWGL05	POINT	3.66	8	0.3	20	760	-	-	-	-	-
WLWHG03	POINT	3.66	25	1	10	525	-	-	-	-	-
WLWHG04	POINT	3.66	25	1	10	525	-	-	-	-	-
WLWHG01	POINT	3.66	25	1	10	525	-	-	-	-	-
WLWHG02	POINT	3.66	25	1	10	525	-	-	-	-	-
WLWHG06	POINT	3.66	25	1	10	525	-	-	-	-	-
WLWFGLP	POINT	3.66	25	0.2	20	1273	-	-	-	-	-
WLWFGHP	POINT	3.66	25	0.2	20	1273	-	-	-	-	-
WCFOPSDS	POINT	3.66	5.5	0.1	1.68	0	-	-	-	-	-
WCFOPSTSO	POINT	3.66	5.4864	0.1016	1.67652176	319.2611111	-	-	-	-	-
WCFOPSTCO	POINT	3.66	5.4864	0.1016	1.67652176	277.5944444	-	-	-	-	-
WCFOPSTUD	POINT	3.66	12.8016	0.1524	0.74512078	299.8166667	-	-	-	-	-
WCFOPSTLD	POINT	3.66	5.4864	0.1016	1.67652176	299.8166667	-	-	-	-	-
WCFOPSTEB	POINT	3.66	5.4864	0.1016	1.67652176	283.15	-	-	-	-	-
WCFOPSFUG	VOLUME	3.66	3.7	-	-	-	15.1	3.38	-	-	-
WCFOPSFUGD	VOLUME	3.66	3.7	-	-	-	15.1	3.38	-	-	-
WOCPWRGENN1	POINT	3.05	15	0.3	20	760	-	-	-	-	-
WOCPWRGENN2	POINT	3.05	15	0.3	20	760	-	-	-	-	-
WOCPWRGENN3	POINT	3.05	15	0.3	20	760	-	-	-	-	-
WLWIG01S	POINT	3.05	20	0.3	10	1200	-	-	-	-	-
WLWIG02S	POINT	3.05	20	0.3	10	1200	-	-	-	-	-
WLWHL05S	POINT	3.05	13.19	0.3	10	525	-	-	-	-	-
WOCOPSTJFS	POINT	3.05	5.4864	0.1016	1.67652176	283.15	-	-	-	-	-
WOCOPSTHCS	POINT	3.05	5.4864	0.1016	1.67652176	0	-	-	-	-	-
WOCOPSTDS	POINT	3.05	5.4864	0.1016	1.67652176	299.8166667	-	-	-	-	-
WILLOWAIR1S	AREAPOLY	3.6576	50.8	-	-	-	-	23.63	-	-	-
WILLOWAIR2S	AREAPOLY	3.6576	152.4	-	-	-	-	23.63	-	-	-
WILLOWAIR3S	AREAPOLY	3.6576	254	-	-	-	-	23.63	-	-	-
WOCOPSFUGDS	VOLUME	3.05	3.7	-	-	-	9.07	3.38	-	-	-
WCFPCE1	AREAPOLY	3.66	13.3	-	-	-	-	12.37	-	-	-
WCFPCE2	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFPCE3	AREAPOLY	3.66	9.38	-	-	-	-	8.72	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
WCFPCE4	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFPCE5	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFPCE6	AREAPOLY	3.66	13.3	-	-	-	-	12.37	-	-	-
WCFPCE7	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFSCE1	AREAPOLY	3.66	13.3	-	-	-	-	12.37	-	-	-
WCFSCE2	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFSCE3	AREAPOLY	3.66	9.38	-	-	-	-	8.72	-	-	-
WCFSCE4	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFSCE5	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFSCE6	AREAPOLY	3.66	13.3	-	-	-	-	12.37	-	-	-
WCFSCE7	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFNRE1	AREAPOLY	3.66	13.3	-	-	-	-	12.37	-	-	-
WCFNRE2	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFNRE3	AREAPOLY	3.66	9.38	-	-	-	-	8.72	-	-	-
WCFNRE4	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFNRE5	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFNRE6	AREAPOLY	3.66	13.3	-	-	-	-	12.37	-	-	-
WCFNRE7	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WLW2GEN	POINT	3.66	6.1	0.46	15.1	795	-	-	-	-	-
BT3NRE1	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
BT3WIN1	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
3WELLINTE	POINT	3.66	6.1	0.46	15.1	795	-	-	-	-	-
BT1NRE1	AREAPOLY	2.74	3.63	-	-	-	-	3.38	-	-	-
BT1WIN1	AREAPOLY	2.74	3.63	-	-	-	-	3.38	-	-	-
1WELLINTE	POINT	2.7432	6.1	0.46	15.1	795	-	-	-	-	-
BT2NRE1	AREAPOLY	2.74	3.63	-	-	-	-	3.38	-	-	-
BT2WIN1	AREAPOLY	2.74	3.63	-	-	-	-	3.38	-	-	-
2WELLINTE	POINT	2.7432	6.1	0.46	15.1	795	-	-	-	-	-
BT4NRE1	AREAPOLY	2.74	3.63	-	-	-	-	3.38	-	-	-
BT4WIN1	AREAPOLY	2.74	3.63	-	-	-	-	3.38	-	-	-
4WELLINTE	POINT	2.7432	6.1	0.46	15.1	795	-	-	-	-	-
BT5NRE1	AREAPOLY	2.74	3.63	-	-	-	-	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
BT5WIN1	AREAPOLY	2.74	3.63	-	-	-	-	3.38	-	-	-
5WELLINTE	POINT	2.7432	6.1	0.46	15.1	795	-	-	-	-	-
WOCPCES	AREAPOLY	3.05	3.63	-	-	-	-	3.38	-	-	-
WOCSCES	AREAPOLY	3.05	3.63	-	-	-	-	3.38	-	-	-
WOCNRES	AREAPOLY	3.05	3.63	-	-	-	-	3.38	-	-	-
1TAIL1	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL2	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL3	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL4	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL5	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL6	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
2TAIL1	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2TAIL2	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2TAIL3	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2TAIL4	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2TAIL5	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2TAIL6	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
3TAIL1	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
3TAIL2	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
3TAIL3	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
3TAIL4	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
3TAIL5	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
3TAIL6	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
3TAIL7	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4TAIL1	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4TAIL2	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4TAIL3	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4TAIL4	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4TAIL5	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4TAIL6	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4TAIL7	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5TAIL1	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
5TAIL2	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5TAIL3	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5TAIL4	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5TAIL5	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5TAIL6	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5TAIL7	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
WOCSTAIL1	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL2	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL3	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL4	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL5	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL6	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL7	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL8	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL9	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL10	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL11	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL12	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL13	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL14	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL15	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL16	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL17	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL18	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL19	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL20	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL21	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL22	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL23	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL24	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL25	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL26	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
WOCSTAIL27	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL28	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL29	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL30	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL31	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL32	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL33	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL34	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL35	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL36	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL37	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL38	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL39	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL40	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL41	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL42	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSTAIL43	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
AIRSTAIL1	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRSTAIL2	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRSTAIL3	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRSTAIL4	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRSTAIL5	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRSTAIL6	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRSTAIL7	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
WOCNTAIL1	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL2	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL3	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL4	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL5	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL6	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL7	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL8	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
WOCNTAIL9	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL10	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL11	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL12	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL13	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL14	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL15	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL16	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL17	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL18	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL19	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL20	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL21	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL22	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL23	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL24	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL25	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL26	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL27	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL28	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL29	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL30	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNTAIL31	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
AIRNTAIL1	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRNTAIL2	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRNTAIL3	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRNTAIL4	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRNTAIL5	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRNTAIL6	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRNTAIL7	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
WCFTAIL1	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL2	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
WCFTAIL3	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL4	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL5	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL6	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL7	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL8	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL9	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL10	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL11	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL12	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL13	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL14	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL15	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL16	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL17	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL18	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL19	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL20	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD1	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD2	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD3	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD4	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD5	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD6	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
2MFUGD1	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2MFUGD2	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2MFUGD3	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2MFUGD4	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2MFUGD5	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2MFUGD6	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
3MFUGD1	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
3MFUGD2	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
3MFUGD3	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
3MFUGD4	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
3MFUGD5	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
3MFUGD6	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
3MFUGD7	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4MFUGD1	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4MFUGD2	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4MFUGD3	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4MFUGD4	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4MFUGD5	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4MFUGD6	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4MFUGD7	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5MFUGD1	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5MFUGD2	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5MFUGD3	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5MFUGD4	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5MFUGD5	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5MFUGD6	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5MFUGD7	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
WCFMFUGD1	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD2	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD3	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD4	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD5	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD6	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD7	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD8	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD9	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD10	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD11	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD12	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD13	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
WCFMFUGD14	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD15	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD16	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD17	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD18	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD19	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD20	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD1	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD2	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD3	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD4	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD5	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD6	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD7	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD8	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD9	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD10	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD11	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD12	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD13	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD14	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD15	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD16	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD17	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD18	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD19	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD20	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD21	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD22	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD23	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD24	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD25	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
WOCSMFUGD26	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD27	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD28	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD29	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD30	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD31	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD32	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD33	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD34	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD35	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD36	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD37	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD38	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD39	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD40	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD41	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD42	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCSMFUGD43	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
AIRSMFUGD1	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRSMFUGD2	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRSMFUGD3	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRSMFUGD4	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRSMFUGD5	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRSMFUGD6	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRSMFUGD7	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
WOCTEMPTRBS1	POINT	3.05	30	2	30	550	-	-	-	-	-
WOCTEMPTRBS2	POINT	3.05	30	2	30	550	-	-	-	-	-
WOCTEMPTRBN1	POINT	3.05	30	2	30	550	-	-	-	-	-
WOCTEMPTRBN2	POINT	3.05	30	2	30	550	-	-	-	-	-
WOCPCEN	AREAPOLY	3.05	3.63	-	-	-	-	3.38	-	-	-
WOCSCEN	AREAPOLY	3.05	3.63	-	-	-	-	3.38	-	-	-
WOCNREN	AREAPOLY	3.05	3.63	-	-	-	-	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
WOCNMFUGD1	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD2	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD3	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD4	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD5	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD6	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD7	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD8	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD9	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD10	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD11	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD12	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD13	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD14	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD15	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD16	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD17	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD18	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD19	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD20	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD21	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD22	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD23	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD24	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD25	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD26	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD27	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD28	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD29	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD30	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCNMFUGD31	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
AIRNMFUGD1	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
AIRNMFUGD2	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRNMFUGD3	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRNMFUGD4	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRNMFUGD5	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRNMFUGD6	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRNMFUGD7	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
WILLOWAIR1N	AREAPOLY	3.6576	50.8	-	-	-	-	23.63	-	-	-
WILLOWAIR2N	AREAPOLY	3.6576	152.4	-	-	-	-	23.63	-	-	-
WILLOWAIR3N	AREAPOLY	3.6576	254	-	-	-	-	23.63	-	-	-
WOCOPSFUGDN	VOLUME	3.05	3.7	-	-	-	9.07	3.38	-	-	-
WOCOPSTDRS	POINT	3.05	5.4864	0.1016	1.67652176	294.2611111	-	-	-	-	-
WOCPWRGENS1	POINT	3.05	15	0.3	20	760	-	-	-	-	-
WOCPWRGENS2	POINT	3.05	15	0.3	20	760	-	-	-	-	-
WOCPWRGENS3	POINT	3.05	15	0.3	20	760	-	-	-	-	-
WLWIG01N	POINT	3.05	20	0.3	10	1200	-	-	-	-	-
WLWIG02N	POINT	3.05	20	0.3	10	1200	-	-	-	-	-
WLWHL05N	POINT	3.05	13.19	0.3	10	525	-	-	-	-	-
WOCOPSTJFN	POINT	3.05	5.4864	0.1016	1.67652176	283.15	-	-	-	-	-
WOCOPSTHCN	POINT	3.05	5.4864	0.1016	1.67652176	0	-	-	-	-	-
WOCOPSTDN	POINT	3.05	5.4864	0.1016	1.67652176	299.8166667	-	-	-	-	-
RFDGMT1	POINT	1.524	4.88	0.305	35	820	-	-	-	-	-
RFDGMT2	POINT	1.524	12.2	0.94	5.7	529	-	-	-	-	-
RFDCD5	POINT	1.524	4.88	0.305	35	820	-	-	-	-	-
RFDGWPDS1	POINT	1.524	3.7	0.356	41.6	644	-	-	-	-	-
RFDGWPDS2	POINT	1.524	3.7	0.356	41.6	644	-	-	-	-	-

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Table A.2-15. Alternative C Near-field Model Scenario 5 Emissions Rates

Source ID	Modeled Emission Rates (g/s)																					Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	Benzene 1-hr	Benzene Annual[1]	Toluene 1-hr	Toluene Annual[1]	E-Benzene 1-hr	E-Benzene Annual[1]	Xylenes 1-hr	Xylenes Annual[1]	n-Hexane 1-hr	n-Hexane Annual[1]	Formaldehyde 1-hr	Formaldehyde Annual[1]	
WOCOPSTDRN	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.85E-05	5.85E-05	2.85E-05	2.85E-05	3.88E-06	3.88E-06	1.14E-05	1.14E-05	6.29E-05	6.29E-05	0.00E+00	0.00E+00	8760
BT1OPSLH	5.19E-02	6.18E-02	6.18E-02	4.69E-03	4.69E-03	4.69E-03	4.17E-03	4.17E-03	4.17E-03	1.30E-06	1.30E-06	2.10E-06	2.10E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.11E-03	1.11E-03	4.63E-05	4.63E-05	8760
BT1OPSBG	1.16E+00	1.16E+00	6.63E-02	3.35E-02	3.35E-02	1.91E-03	2.21E-03	2.21E-03	1.26E-04	1.10E-03	6.29E-05	3.99E-04	2.28E-05	0.00E+00	0.00E+00	2.74E-04	1.56E-05	0.00E+00	0.00E+00	1.12E-04	6.39E-06	500
BT1OPSFUG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.80E-03	2.80E-03	8.20E-03	8.20E-03	7.37E-02	7.37E-02	1.45E-01	1.45E-01	1.80E-01	1.80E-01	0.00E+00	0.00E+00	8760
BT1OPSFUGD	0.00E+00	0.00E+00	0.00E+00	3.52E-02	5.29E-03	5.29E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
BT1OPSTEB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.19E-05	5.19E-05	4.73E-05	4.73E-05	3.74E-06	3.74E-06	1.55E-05	1.55E-05	2.17E-04	2.17E-04	0.00E+00	0.00E+00	8760
BT1OPSTD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.31E-07	4.31E-07	5.90E-06	5.90E-06	8.63E-07	8.63E-07	1.58E-05	1.58E-05	1.44E-07	1.44E-07	0.00E+00	0.00E+00	8760
BT1OPSTCO	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.98E-05	9.98E-05	4.37E-05	4.37E-05	5.32E-06	5.32E-06	1.54E-05	1.54E-05	1.13E-04	1.13E-04	0.00E+00	0.00E+00	8760
BT1WICTH	4.57E-02	1.83E-01	7.20E-02	2.17E-02	1.94E-02	7.67E-03	1.94E-03	1.94E-03	7.67E-04	1.95E-06	7.71E-07	5.66E-05	2.23E-05	5.81E-07	2.29E-07	9.95E-07	3.93E-07	0.00E+00	0.00E+00	3.01E-04	1.19E-04	288
BT1WICTE	6.21E-02	9.32E-02	3.68E-02	4.97E-03	4.97E-03	1.96E-03	8.23E-05	8.23E-05	3.25E-05	4.94E-05	1.95E-05	2.16E-05	8.54E-06	0.00E+00	0.00E+00	1.51E-05	5.95E-06	0.00E+00	0.00E+00	6.24E-05	2.46E-05	288
BT1WILCTE	4.75E-01	8.68E-01	3.43E-01	2.71E-02	2.71E-02	1.07E-02	1.00E-03	1.00E-03	3.95E-04	4.48E-04	1.77E-04	1.62E-04	6.40E-05	0.00E+00	0.00E+00	1.11E-04	4.40E-05	0.00E+00	0.00E+00	4.56E-05	1.80E-05	288
BT2OPSLH	5.19E-02	6.18E-02	6.18E-02	4.69E-03	4.69E-03	4.69E-03	4.17E-03	4.17E-03	4.17E-03	1.30E-06	1.30E-06	2.10E-06	2.10E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.11E-03	1.11E-03	4.63E-05	4.63E-05	8760
BT2OPSBG	1.16E+00	1.16E+00	6.63E-02	3.35E-02	3.35E-02	1.91E-03	2.21E-03	2.21E-03	1.26E-04	1.10E-03	6.29E-05	3.99E-04	2.28E-05	0.00E+00	0.00E+00	2.74E-04	1.56E-05	0.00E+00	0.00E+00	1.12E-04	6.39E-06	500
BT2OPSFUG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.80E-03	2.80E-03	8.20E-03	8.20E-03	7.37E-02	7.37E-02	1.45E-01	1.45E-01	1.80E-01	1.80E-01	0.00E+00	0.00E+00	8760
BT2OPSFUGD	0.00E+00	0.00E+00	0.00E+00	2.74E-02	4.11E-03	4.11E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
BT2WICTH	4.57E-02	1.83E-01	7.20E-02	2.17E-02	1.94E-02	7.67E-03	1.94E-03	1.94E-03	7.67E-04	1.95E-06	7.71E-07	5.66E-05	2.23E-05	5.81E-07	2.29E-07	9.95E-07	3.93E-07	0.00E+00	0.00E+00	3.01E-04	1.19E-04	288
BT2WICTE	6.21E-02	9.32E-02	3.68E-02	4.97E-03	4.97E-03	1.96E-03	8.23E-05	8.23E-05	3.25E-05	4.94E-05	1.95E-05	2.16E-05	8.54E-06	0.00E+00	0.00E+00	1.51E-05	5.95E-06	0.00E+00	0.00E+00	6.24E-05	2.46E-05	288
BT2WILCTE	4.75E-01	8.68E-01	3.43E-01	2.71E-02	2.71E-02	1.07E-02	1.00E-03	1.00E-03	3.95E-04	4.48E-04	1.77E-04	1.62E-04	6.40E-05	0.00E+00	0.00E+00	1.11E-04	4.40E-05	0.00E+00	0.00E+00	4.56E-05	1.80E-05	288
BT3OPSLH	5.19E-02	6.18E-02	6.18E-02	4.69E-03	4.69E-03	4.69E-03	4.17E-03	4.17E-03	4.17E-03	1.30E-06	1.30E-06	2.10E-06	2.10E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.11E-03	1.11E-03	4.63E-05	4.63E-05	8760
BT3OPSBG	1.16E+00	1.16E+00	6.63E-02	3.35E-02	3.35E-02	1.91E-03	2.21E-03	2.21E-03	1.26E-04	1.10E-03	6.29E-05	3.99E-04	2.28E-05	0.00E+00	0.00E+00	2.74E-04	1.56E-05	0.00E+00	0.00E+00	1.12E-04	6.39E-06	500
BT3OPSFUG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.80E-03	2.80E-03	8.20E-03	8.20E-03	7.37E-02	7.37E-02	1.45E-01	1.45E-01	1.80E-01	1.80E-01	0.00E+00	0.00E+00	8760
BT3OPSFUGD	0.00E+00	0.00E+00	0.00E+00	2.57E-02	3.86E-03	3.86E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
BT3WICTH	4.57E-02	1.83E-01	7.20E-02	2.17E-02	1.94E-02	7.67E-03	1.94E-03	1.94E-03	7.67E-04	1.95E-06	7.71E-07	5.66E-05	2.23E-05	5.81E-07	2.29E-07	9.95E-07	3.93E-07	0.00E+00	0.00E+00	3.01E-04	1.19E-04	288
BT3WICTE	6.21E-02	9.32E-02	3.68E-02	4.97E-03	4.97E-03	1.96E-03	8.23E-05	8.23E-05	3.25E-05	4.94E-05	1.95E-05	2.16E-05	8.54E-06	0.00E+00	0.00E+00	1.51E-05	5.95E-06	0.00E+00	0.00E+00	6.24E-05	2.46E-05	288
BT3WILCTE	4.75E-01	8.68E-01	3.43E-01	2.71E-02	2.71E-02	1.07E-02	1.00E-03	1.00E-03	3.95E-04	4.48E-04	1.77E-04	1.62E-04	6.40E-05	0.00E+00	0.00E+00	1.11E-04	4.40E-05	0.00E+00	0.00E+00	4.56E-05	1.80E-05	288

Source ID	Modeled Emission Rates (g/s)																					Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	Benzene 1-hr	Benzene Annual[1]	Toluene 1-hr	Toluene Annual[1]	E-Benzene 1-hr	E-Benzene Annual[1]	Xylenes 1-hr	Xylenes Annual[1]	n-Hexane 1-hr	n-Hexane Annual[1]	Formaldehyde 1-hr	Formaldehyde Annual[1]	
BT4OPSLH	5.19E-02	6.18E-02	6.18E-02	4.69E-03	4.69E-03	4.69E-03	4.17E-03	4.17E-03	4.17E-03	1.30E-06	1.30E-06	2.10E-06	2.10E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.11E-03	1.11E-03	4.63E-05	4.63E-05	8760
BT4OPSBG	1.16E+00	1.16E+00	6.63E-02	3.35E-02	3.35E-02	1.91E-03	2.21E-03	2.21E-03	1.26E-04	1.10E-03	6.29E-05	3.99E-04	2.28E-05	0.00E+00	0.00E+00	2.74E-04	1.56E-05	0.00E+00	0.00E+00	1.12E-04	6.39E-06	500
BT4OPSFUG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.20E-03	2.20E-03	6.44E-03	6.44E-03	5.81E-02	5.81E-02	1.14E-01	1.14E-01	1.42E-01	1.42E-01	0.00E+00	0.00E+00	8760
BT4OPSFUGD	0.00E+00	0.00E+00	0.00E+00	2.34E-02	3.52E-03	3.52E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
BT4OPSTEB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.19E-05	5.19E-05	4.73E-05	4.73E-05	3.74E-06	3.74E-06	1.55E-05	1.55E-05	2.17E-04	2.17E-04	0.00E+00	0.00E+00	8760
BT4OPSTD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.31E-07	4.31E-07	5.90E-06	5.90E-06	8.63E-07	8.63E-07	1.58E-05	1.58E-05	1.44E-07	1.44E-07	0.00E+00	0.00E+00	8760
BT4OPSTCO	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.98E-05	9.98E-05	4.37E-05	4.37E-05	5.32E-06	5.32E-06	1.54E-05	1.54E-05	1.13E-04	1.13E-04	0.00E+00	0.00E+00	8760
BT4WICTH	4.57E-02	1.83E-01	7.20E-02	2.17E-02	1.94E-02	7.67E-03	1.94E-03	1.94E-03	7.67E-04	1.95E-06	7.71E-07	5.66E-05	2.23E-05	5.81E-07	2.29E-07	9.95E-07	3.93E-07	0.00E+00	0.00E+00	3.01E-04	1.19E-04	288
BT4WICTE	6.21E-02	9.32E-02	3.68E-02	4.97E-03	4.97E-03	1.96E-03	8.23E-05	8.23E-05	3.25E-05	4.94E-05	1.95E-05	2.16E-05	8.54E-06	0.00E+00	0.00E+00	1.51E-05	5.95E-06	0.00E+00	0.00E+00	6.24E-05	2.46E-05	288
BT4WILCTE	4.75E-01	8.68E-01	3.43E-01	2.71E-02	2.71E-02	1.07E-02	1.00E-03	1.00E-03	3.95E-04	4.48E-04	1.77E-04	1.62E-04	6.40E-05	0.00E+00	0.00E+00	1.11E-04	4.40E-05	0.00E+00	0.00E+00	4.56E-05	1.80E-05	288
BT5OPSLH	5.19E-02	6.18E-02	6.18E-02	4.69E-03	4.69E-03	4.69E-03	4.17E-03	4.17E-03	4.17E-03	1.30E-06	1.30E-06	2.10E-06	2.10E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.11E-03	1.11E-03	4.63E-05	4.63E-05	8760
BT5OPSBG	1.16E+00	1.16E+00	6.63E-02	3.35E-02	3.35E-02	1.91E-03	2.21E-03	2.21E-03	1.26E-04	1.10E-03	6.29E-05	3.99E-04	2.28E-05	0.00E+00	0.00E+00	2.74E-04	1.56E-05	0.00E+00	0.00E+00	1.12E-04	6.39E-06	500
BT5OPSFUG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.20E-03	2.20E-03	6.44E-03	6.44E-03	5.81E-02	5.81E-02	1.14E-01	1.14E-01	1.42E-01	1.42E-01	0.00E+00	0.00E+00	8760
BT5OPSFUGD	0.00E+00	0.00E+00	0.00E+00	2.18E-02	3.27E-03	3.27E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
BT5WICTH	4.57E-02	1.83E-01	7.20E-02	2.17E-02	1.94E-02	7.67E-03	1.94E-03	1.94E-03	7.67E-04	1.95E-06	7.71E-07	5.66E-05	2.23E-05	5.81E-07	2.29E-07	9.95E-07	3.93E-07	0.00E+00	0.00E+00	3.01E-04	1.19E-04	288
BT5WICTE	6.21E-02	9.32E-02	3.68E-02	4.97E-03	4.97E-03	1.96E-03	8.23E-05	8.23E-05	3.25E-05	4.94E-05	1.95E-05	2.16E-05	8.54E-06	0.00E+00	0.00E+00	1.51E-05	5.95E-06	0.00E+00	0.00E+00	6.24E-05	2.46E-05	288
BT5WILCTE	4.75E-01	8.68E-01	3.43E-01	2.71E-02	2.71E-02	1.07E-02	1.00E-03	1.00E-03	3.95E-04	4.48E-04	1.77E-04	1.62E-04	6.40E-05	0.00E+00	0.00E+00	1.11E-04	4.40E-05	0.00E+00	0.00E+00	4.56E-05	1.80E-05	288
WLWTG03A	1.93E+00	1.91E+00	1.91E+00	2.21E-01	2.21E-01	2.21E-01	2.22E-01	2.22E-01	2.22E-01	4.02E-04	4.02E-04	4.36E-03	4.36E-03	1.07E-03	1.07E-03	2.15E-03	2.15E-03	0.00E+00	0.00E+00	7.37E-03	7.37E-03	8760
WLWTG03B	1.93E+00	1.91E+00	1.91E+00	2.21E-01	2.21E-01	2.21E-01	2.22E-01	2.22E-01	2.22E-01	4.02E-04	4.02E-04	4.36E-03	4.36E-03	1.07E-03	1.07E-03	2.15E-03	2.15E-03	0.00E+00	0.00E+00	7.37E-03	7.37E-03	8760
WLWTG01A	1.47E+00	1.45E+00	1.45E+00	1.68E-01	1.68E-01	1.68E-01	1.69E-01	1.69E-01	1.69E-01	3.06E-04	3.06E-04	3.32E-03	3.32E-03	8.17E-04	8.17E-04	1.63E-03	1.63E-03	0.00E+00	0.00E+00	5.62E-03	5.62E-03	8760
WLWTG01B	1.47E+00	1.45E+00	1.45E+00	1.68E-01	1.68E-01	1.68E-01	1.69E-01	1.69E-01	1.69E-01	3.06E-04	3.06E-04	3.32E-03	3.32E-03	8.17E-04	8.17E-04	1.63E-03	1.63E-03	0.00E+00	0.00E+00	5.62E-03	5.62E-03	8760
WLWTG02A	1.47E+00	1.45E+00	1.45E+00	1.68E-01	1.68E-01	1.68E-01	1.69E-01	1.69E-01	1.69E-01	3.06E-04	3.06E-04	3.32E-03	3.32E-03	8.17E-04	8.17E-04	1.63E-03	1.63E-03	0.00E+00	0.00E+00	5.62E-03	5.62E-03	8760
WLWTG02B	1.47E+00	1.45E+00	1.45E+00	1.68E-01	1.68E-01	1.68E-01	1.69E-01	1.69E-01	1.69E-01	3.06E-04	3.06E-04	3.32E-03	3.32E-03	8.17E-04	8.17E-04	1.63E-03	1.63E-03	0.00E+00	0.00E+00	5.62E-03	5.62E-03	8760
WLWTG04	5.67E-01	6.08E-01	6.08E-01	5.28E-02	5.28E-02	5.28E-02	5.06E-02	5.06E-02	5.06E-02	1.17E-04	1.17E-04	1.05E-03	1.05E-03	2.59E-04	2.59E-04	5.19E-04	5.19E-04	0.00E+00	0.00E+00	1.81E-03	1.81E-03	8760
WLWTG05	5.67E-01	6.08E-01	6.08E-01	5.28E-02	5.28E-02	5.28E-02	5.06E-02	5.06E-02	5.06E-02	1.17E-04	1.17E-04	1.05E-03	1.05E-03	2.59E-04	2.59E-04	5.19E-04	5.19E-04	0.00E+00	0.00E+00	1.81E-03	1.81E-03	8760
WLWGL05	6.48E-01	1.19E+00	6.76E-02	3.70E-02	3.70E-02	2.11E-03	1.22E-03	1.22E-03	6.99E-05	6.12E-04	3.49E-05	2.22E-04	1.26E-05	0.00E+00	0.00E+00	1.52E-04	8.69E-06	0.00E+00	0.00E+00	6.22E-05	3.55E-06	500
WLWHG03	3.42E-01	4.08E-01	4.08E-01	3.10E-02	3.10E-02	3.10E-02	2.75E-02	2.75E-02	2.75E-02	8.56E-06	8.56E-06	1.39E-05	1.39E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.88E-05	1.88E-05	3.06E-04	3.06E-04	8760

Source ID	Modeled Emission Rates (g/s)																					Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	Benzene 1-hr	Benzene Annual[1]	Toluene 1-hr	Toluene Annual[1]	E-Benzene 1-hr	E-Benzene Annual[1]	Xylenes 1-hr	Xylenes Annual[1]	n-Hexane 1-hr	n-Hexane Annual[1]	Formaldehyde 1-hr	Formaldehyde Annual[1]	
WLWHG04	3.42E-01	4.08E-01	4.08E-01	3.10E-02	3.10E-02	3.10E-02	2.75E-02	2.75E-02	2.75E-02	8.56E-06	8.56E-06	1.39E-05	1.39E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.88E-05	1.88E-05	3.06E-04	3.06E-04	8760
WLWHG01	2.08E-01	2.47E-01	2.47E-01	1.88E-02	1.88E-02	1.88E-02	1.67E-02	1.67E-02	1.67E-02	5.19E-06	5.19E-06	8.40E-06	8.40E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.14E-05	1.14E-05	1.85E-04	1.85E-04	8760
WLWHG02	2.08E-01	2.47E-01	2.47E-01	1.88E-02	1.88E-02	1.88E-02	1.67E-02	1.67E-02	1.67E-02	5.19E-06	5.19E-06	8.40E-06	8.40E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.14E-05	1.14E-05	1.85E-04	1.85E-04	8760
WLWHG06	3.84E-01	4.57E-01	4.57E-01	3.47E-02	3.47E-02	3.47E-02	3.09E-02	3.09E-02	3.09E-02	9.60E-06	9.60E-06	1.55E-05	1.55E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.10E-05	2.10E-05	3.43E-04	3.43E-04	8760
WLWFGLP	4.15E-02	4.94E-02	4.94E-02	3.76E-03	3.76E-03	3.76E-03	3.34E-03	3.34E-03	3.34E-03	1.04E-06	1.04E-06	1.68E-06	1.68E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.11E-06	3.11E-06	3.71E-05	3.71E-05	8760
WLWFGHP	4.15E-02	4.94E-02	4.94E-02	3.76E-03	3.76E-03	3.76E-03	3.34E-03	3.34E-03	3.34E-03	1.04E-06	1.04E-06	1.68E-06	1.68E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.11E-06	3.11E-06	3.71E-05	3.71E-05	8760
WCFOPSDS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.71E-06	3.71E-06	4.50E-05	4.50E-05	6.45E-06	6.45E-06	1.20E-04	1.20E-04	8.06E-07	8.06E-07	0.00E+00	0.00E+00	8760
WCFOPSTSO	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.89E-04	6.89E-04	3.83E-04	3.83E-04	6.00E-05	6.00E-05	1.78E-04	1.78E-04	6.94E-04	6.94E-04	0.00E+00	0.00E+00	8760
WCFOPSTCO	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.98E-05	9.98E-05	4.37E-05	4.37E-05	5.32E-06	5.32E-06	1.54E-05	1.54E-05	1.13E-04	1.13E-04	0.00E+00	0.00E+00	8760
WCFOPSTUD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.31E-06	3.31E-06	4.01E-05	4.01E-05	5.75E-06	5.75E-06	1.07E-04	1.07E-04	7.19E-07	7.19E-07	0.00E+00	0.00E+00	8760
WCFOPSTLD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.88E-07	2.88E-07	3.88E-06	3.88E-06	5.75E-07	5.75E-07	1.05E-05	1.05E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
WCFOPSTEB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.19E-05	5.19E-05	4.73E-05	4.73E-05	3.74E-06	3.74E-06	1.55E-05	1.55E-05	2.17E-04	2.17E-04	0.00E+00	0.00E+00	8760
WCFOPSFUG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.52E-04	3.52E-04	1.49E-03	1.49E-03	1.41E-03	1.41E-03	2.22E-03	2.22E-03	1.33E-02	1.33E-02	0.00E+00	0.00E+00	8760
WCFOPSFUGD	0.00E+00	0.00E+00	0.00E+00	3.45E-02	5.17E-03	5.17E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCPWRGENN1	1.30E+00	1.30E+00	6.48E-01	3.70E-02	3.70E-02	1.85E-02	2.45E-03	2.45E-03	1.22E-03	1.22E-03	6.12E-04	4.43E-04	2.22E-04	0.00E+00	0.00E+00	3.04E-04	1.52E-04	0.00E+00	0.00E+00	1.24E-04	6.22E-05	4380
WOCPWRGENN2	1.30E+00	1.30E+00	6.48E-01	3.70E-02	3.70E-02	1.85E-02	2.45E-03	2.45E-03	1.22E-03	1.22E-03	6.12E-04	4.43E-04	2.22E-04	0.00E+00	0.00E+00	3.04E-04	1.52E-04	0.00E+00	0.00E+00	1.24E-04	6.22E-05	4380
WOCPWRGENN3	1.30E+00	1.30E+00	6.48E-01	3.70E-02	3.70E-02	1.85E-02	2.45E-03	2.45E-03	1.22E-03	1.22E-03	6.12E-04	4.43E-04	2.22E-04	0.00E+00	0.00E+00	3.04E-04	1.52E-04	0.00E+00	0.00E+00	1.24E-04	6.22E-05	4380
WLWIG01S	3.99E-02	9.94E-02	8.28E-02	1.36E-01	1.36E-01	1.13E-01	3.54E-03	3.54E-03	2.95E-03	9.34E-07	7.78E-07	1.51E-06	1.26E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.80E-06	2.33E-06	3.34E-05	2.78E-05	7300
WLWIG02S	3.99E-02	9.94E-02	8.28E-02	1.36E-01	1.36E-01	1.13E-01	3.54E-03	3.54E-03	2.95E-03	9.34E-07	7.78E-07	1.51E-06	1.26E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.80E-06	2.33E-06	3.34E-05	2.78E-05	7300
WLWHL05S	5.93E-03	2.37E-02	2.37E-02	2.82E-03	2.53E-03	2.53E-03	2.54E-04	2.54E-04	2.54E-04	2.54E-07	2.54E-07	7.36E-06	7.36E-06	7.55E-08	7.55E-08	1.29E-07	1.29E-07	0.00E+00	0.00E+00	3.92E-05	3.92E-05	8760
WOCOPSTJFS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.01E-06	1.01E-06	8.49E-06	8.49E-06	2.59E-06	2.59E-06	5.18E-06	5.18E-06	2.01E-06	2.01E-06	0.00E+00	0.00E+00	8760
WOCOPSTHCS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.50E-05	8.50E-05	3.37E-05	3.37E-05	3.60E-06	3.60E-06	1.05E-05	1.05E-05	1.02E-04	1.02E-04	0.00E+00	0.00E+00	8760
WOCOPSTDS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.88E-07	2.88E-07	2.73E-06	2.73E-06	4.31E-07	4.31E-07	7.19E-06	7.19E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
WILLOWAIR1S	9.89E-08	5.36E-08	5.36E-08	1.85E-09	1.85E-09	1.85E-09	7.10E-09	7.10E-09	7.10E-09	2.56E-10	2.56E-10	1.01E-10	1.01E-10	2.74E-11	2.74E-11	6.83E-11	6.83E-11	1.97E-12	1.97E-12	1.90E-09	1.90E-09	8760
WILLOWAIR2S	9.89E-08	5.36E-08	5.36E-08	1.85E-09	1.85E-09	1.85E-09	7.10E-09	7.10E-09	7.10E-09	2.56E-10	2.56E-10	1.01E-10	1.01E-10	2.74E-11	2.74E-11	6.83E-11	6.83E-11	1.97E-12	1.97E-12	1.90E-09	1.90E-09	8760
WILLOWAIR3S	9.89E-08	5.36E-08	5.36E-08	1.85E-09	1.85E-09	1.85E-09	7.10E-09	7.10E-09	7.10E-09	2.56E-10	2.56E-10	1.01E-10	1.01E-10	2.74E-11	2.74E-11	6.83E-11	6.83E-11	1.97E-12	1.97E-12	1.90E-09	1.90E-09	8760
WOCOPSFUGDS	0.00E+00	0.00E+00	0.00E+00	2.08E-01	3.12E-02	3.12E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380

Source ID	Modeled Emission Rates (g/s)																					Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	Benzene 1-hr	Benzene Annual[1]	Toluene 1-hr	Toluene Annual[1]	E-Benzene 1-hr	E-Benzene Annual[1]	Xylenes 1-hr	Xylenes Annual[1]	n-Hexane 1-hr	n-Hexane Annual[1]	Formaldehyde 1-hr	Formaldehyde Annual[1]	
WCFPCE1	4.48E-07	2.05E-06	2.05E-06	1.54E-07	1.52E-07	1.52E-07	2.65E-09	2.65E-09	2.65E-09	3.94E-10	3.94E-10	2.30E-10	2.30E-10	1.20E-10	1.20E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.04E-10	8.04E-10	8760
WCFPCE2	4.48E-07	2.05E-06	2.05E-06	1.54E-07	1.52E-07	1.52E-07	2.65E-09	2.65E-09	2.65E-09	3.94E-10	3.94E-10	2.30E-10	2.30E-10	1.20E-10	1.20E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.04E-10	8.04E-10	8760
WCFPCE3	4.48E-07	2.05E-06	2.05E-06	1.54E-07	1.52E-07	1.52E-07	2.65E-09	2.65E-09	2.65E-09	3.94E-10	3.94E-10	2.30E-10	2.30E-10	1.20E-10	1.20E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.04E-10	8.04E-10	8760
WCFPCE4	4.48E-07	2.05E-06	2.05E-06	1.54E-07	1.52E-07	1.52E-07	2.65E-09	2.65E-09	2.65E-09	3.94E-10	3.94E-10	2.30E-10	2.30E-10	1.20E-10	1.20E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.04E-10	8.04E-10	8760
WCFPCE5	4.48E-07	2.05E-06	2.05E-06	1.54E-07	1.52E-07	1.52E-07	2.65E-09	2.65E-09	2.65E-09	3.94E-10	3.94E-10	2.30E-10	2.30E-10	1.20E-10	1.20E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.04E-10	8.04E-10	8760
WCFPCE6	4.48E-07	2.05E-06	2.05E-06	1.54E-07	1.52E-07	1.52E-07	2.65E-09	2.65E-09	2.65E-09	3.94E-10	3.94E-10	2.30E-10	2.30E-10	1.20E-10	1.20E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.04E-10	8.04E-10	8760
WCFPCE7	4.48E-07	2.05E-06	2.05E-06	1.54E-07	1.52E-07	1.52E-07	2.65E-09	2.65E-09	2.65E-09	3.94E-10	3.94E-10	2.30E-10	2.30E-10	1.20E-10	1.20E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.04E-10	8.04E-10	8760
WCFSCE1	3.32E-07	4.16E-07	4.16E-07	3.18E-08	3.18E-08	3.18E-08	2.83E-08	2.83E-08	2.83E-08	8.80E-12	8.80E-12	1.42E-11	1.42E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.64E-11	2.64E-11	3.14E-10	3.14E-10	8760
WCFSCE2	3.32E-07	4.16E-07	4.16E-07	3.18E-08	3.18E-08	3.18E-08	2.83E-08	2.83E-08	2.83E-08	8.80E-12	8.80E-12	1.42E-11	1.42E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.64E-11	2.64E-11	3.14E-10	3.14E-10	8760
WCFSCE3	3.32E-07	4.16E-07	4.16E-07	3.18E-08	3.18E-08	3.18E-08	2.83E-08	2.83E-08	2.83E-08	8.80E-12	8.80E-12	1.42E-11	1.42E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.64E-11	2.64E-11	3.14E-10	3.14E-10	8760
WCFSCE4	3.32E-07	4.16E-07	4.16E-07	3.18E-08	3.18E-08	3.18E-08	2.83E-08	2.83E-08	2.83E-08	8.80E-12	8.80E-12	1.42E-11	1.42E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.64E-11	2.64E-11	3.14E-10	3.14E-10	8760
WCFSCE5	3.32E-07	4.16E-07	4.16E-07	3.18E-08	3.18E-08	3.18E-08	2.83E-08	2.83E-08	2.83E-08	8.80E-12	8.80E-12	1.42E-11	1.42E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.64E-11	2.64E-11	3.14E-10	3.14E-10	8760
WCFSCE6	3.32E-07	4.16E-07	4.16E-07	3.18E-08	3.18E-08	3.18E-08	2.83E-08	2.83E-08	2.83E-08	8.80E-12	8.80E-12	1.42E-11	1.42E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.64E-11	2.64E-11	3.14E-10	3.14E-10	8760
WCFSCE7	3.32E-07	4.16E-07	4.16E-07	3.18E-08	3.18E-08	3.18E-08	2.83E-08	2.83E-08	2.83E-08	8.80E-12	8.80E-12	1.42E-11	1.42E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.64E-11	2.64E-11	3.14E-10	3.14E-10	8760
WCFNRE1	1.98E-06	9.17E-06	9.17E-06	6.51E-07	6.51E-07	6.51E-07	3.21E-09	3.21E-09	3.21E-09	1.93E-09	1.93E-09	8.47E-10	8.47E-10	5.90E-10	5.90E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.44E-09	2.44E-09	8760
WCFNRE2	1.98E-06	9.17E-06	9.17E-06	6.51E-07	6.51E-07	6.51E-07	3.21E-09	3.21E-09	3.21E-09	1.93E-09	1.93E-09	8.47E-10	8.47E-10	5.90E-10	5.90E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.44E-09	2.44E-09	8760
WCFNRE3	1.98E-06	9.17E-06	9.17E-06	6.51E-07	6.51E-07	6.51E-07	3.21E-09	3.21E-09	3.21E-09	1.93E-09	1.93E-09	8.47E-10	8.47E-10	5.90E-10	5.90E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.44E-09	2.44E-09	8760
WCFNRE4	1.98E-06	9.17E-06	9.17E-06	6.51E-07	6.51E-07	6.51E-07	3.21E-09	3.21E-09	3.21E-09	1.93E-09	1.93E-09	8.47E-10	8.47E-10	5.90E-10	5.90E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.44E-09	2.44E-09	8760
WCFNRE5	1.98E-06	9.17E-06	9.17E-06	6.51E-07	6.51E-07	6.51E-07	3.21E-09	3.21E-09	3.21E-09	1.93E-09	1.93E-09	8.47E-10	8.47E-10	5.90E-10	5.90E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.44E-09	2.44E-09	8760
WCFNRE6	1.98E-06	9.17E-06	9.17E-06	6.51E-07	6.51E-07	6.51E-07	3.21E-09	3.21E-09	3.21E-09	1.93E-09	1.93E-09	8.47E-10	8.47E-10	5.90E-10	5.90E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.44E-09	2.44E-09	8760
WCFNRE7	1.98E-06	9.17E-06	9.17E-06	6.51E-07	6.51E-07	6.51E-07	3.21E-09	3.21E-09	3.21E-09	1.93E-09	1.93E-09	8.47E-10	8.47E-10	5.90E-10	5.90E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.44E-09	2.44E-09	8760
WLW2GEN	1.19E-01	5.87E-01	6.08E-01	3.46E-02	3.46E-02	3.53E-02	3.51E-04	3.51E-04	3.51E-04	1.91E-04	2.05E-04	7.62E-05	8.20E-05	5.24E-05	5.24E-05	2.47E-07	4.32E-06	0.00E+00	0.00E+00	1.24E-04	1.41E-04	8760
BT3NRE1	1.95E-06	2.08E-06	2.08E-07	2.09E-07	2.06E-07	2.06E-08	4.32E-09	4.32E-09	4.32E-10	1.33E-09	1.33E-10	6.42E-10	6.42E-11	6.32E-13	6.32E-14	4.06E-10	4.06E-11	0.00E+00	0.00E+00	1.23E-09	1.23E-10	876
BT3WIN1	2.64E-06	3.70E-06	1.46E-06	3.79E-07	3.61E-07	1.43E-07	1.81E-08	1.81E-08	7.15E-09	1.71E-09	6.73E-10	1.19E-09	4.68E-10	4.57E-12	1.80E-12	5.24E-10	2.07E-10	0.00E+00	0.00E+00	4.37E-09	1.72E-09	288
3WELLINTE	2.46E-01	2.81E-01	1.11E-01	1.40E-02	1.40E-02	5.54E-03	5.18E-04	5.18E-04	2.04E-04	2.32E-04	9.15E-05	8.40E-05	3.31E-05	0.00E+00	0.00E+00	5.77E-05	2.28E-05	0.00E+00	0.00E+00	2.36E-05	9.30E-06	288
BT1NRE1	1.95E-06	2.08E-06	2.08E-07	2.09E-07	2.06E-07	2.06E-08	4.32E-09	4.32E-09	4.32E-10	1.33E-09	1.33E-10	6.42E-10	6.42E-11	6.32E-13	6.32E-14	4.06E-10	4.06E-11	0.00E+00	0.00E+00	1.23E-09	1.23E-10	876
BT1WIN1	2.64E-06	3.70E-06	1.46E-06	3.79E-07	3.61E-07	1.43E-07	1.81E-08	1.81E-08	7.15E-09	1.71E-09	6.73E-10	1.19E-09	4.68E-10	4.57E-12	1.80E-12	5.24E-10	2.07E-10	0.00E+00	0.00E+00	4.37E-09	1.72E-09	288

Source ID	Modeled Emission Rates (g/s)																					Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	Benzene 1-hr	Benzene Annual[1]	Toluene 1-hr	Toluene Annual[1]	E-Benzene 1-hr	E-Benzene Annual[1]	Xylenes 1-hr	Xylenes Annual[1]	n-Hexane 1-hr	n-Hexane Annual[1]	Formaldehyde 1-hr	Formaldehyde Annual[1]	
1WELLINTE	1.31E-03	5.26E-03	2.07E-03	6.26E-04	5.60E-04	2.21E-04	5.60E-05	5.60E-05	2.21E-05	5.63E-08	2.22E-08	1.63E-06	6.43E-07	1.67E-08	6.60E-09	2.87E-08	1.13E-08	0.00E+00	0.00E+00	8.68E-06	3.42E-06	288
BT2NRE1	1.95E-06	2.08E-06	2.08E-07	2.09E-07	2.06E-07	2.06E-08	4.32E-09	4.32E-09	4.32E-10	1.33E-09	1.33E-10	6.42E-10	6.42E-11	6.32E-13	6.32E-14	4.06E-10	4.06E-11	0.00E+00	0.00E+00	1.23E-09	1.23E-10	876
BT2WIN1	2.64E-06	3.70E-06	1.46E-06	3.79E-07	3.61E-07	1.43E-07	1.81E-08	1.81E-08	7.15E-09	1.71E-09	6.73E-10	1.19E-09	4.68E-10	4.57E-12	1.80E-12	5.24E-10	2.07E-10	0.00E+00	0.00E+00	4.37E-09	1.72E-09	288
2WELLINTE	2.46E-01	2.81E-01	1.11E-01	1.40E-02	1.40E-02	5.54E-03	5.18E-04	5.18E-04	2.04E-04	2.32E-04	9.15E-05	8.40E-05	3.31E-05	0.00E+00	0.00E+00	5.77E-05	2.28E-05	0.00E+00	0.00E+00	2.36E-05	9.30E-06	288
BT4NRE1	1.95E-06	2.08E-06	2.08E-07	2.09E-07	2.06E-07	2.06E-08	4.32E-09	4.32E-09	4.32E-10	1.33E-09	1.33E-10	6.42E-10	6.42E-11	6.32E-13	6.32E-14	4.06E-10	4.06E-11	0.00E+00	0.00E+00	1.23E-09	1.23E-10	876
BT4WIN1	2.64E-06	3.70E-06	1.46E-06	3.79E-07	3.61E-07	1.43E-07	1.81E-08	1.81E-08	7.15E-09	1.71E-09	6.73E-10	1.19E-09	4.68E-10	4.57E-12	1.80E-12	5.24E-10	2.07E-10	0.00E+00	0.00E+00	4.37E-09	1.72E-09	288
4WELLINTE	2.46E-01	2.81E-01	1.11E-01	1.40E-02	1.40E-02	5.54E-03	5.18E-04	5.18E-04	2.04E-04	2.32E-04	9.15E-05	8.40E-05	3.31E-05	0.00E+00	0.00E+00	5.77E-05	2.28E-05	0.00E+00	0.00E+00	2.36E-05	9.30E-06	288
BT5NRE1	1.95E-06	2.08E-06	2.08E-07	2.09E-07	2.06E-07	2.06E-08	4.32E-09	4.32E-09	4.32E-10	1.33E-09	1.33E-10	6.42E-10	6.42E-11	6.32E-13	6.32E-14	4.06E-10	4.06E-11	0.00E+00	0.00E+00	1.23E-09	1.23E-10	876
BT5WIN1	2.64E-06	3.70E-06	1.46E-06	3.79E-07	3.61E-07	1.43E-07	1.81E-08	1.81E-08	7.15E-09	1.71E-09	6.73E-10	1.19E-09	4.68E-10	4.57E-12	1.80E-12	5.24E-10	2.07E-10	0.00E+00	0.00E+00	4.37E-09	1.72E-09	288
5WELLINTE	2.46E-01	2.81E-01	1.11E-01	1.40E-02	1.40E-02	5.54E-03	5.18E-04	5.18E-04	2.04E-04	2.32E-04	9.15E-05	8.40E-05	3.31E-05	0.00E+00	0.00E+00	5.77E-05	2.28E-05	0.00E+00	0.00E+00	2.36E-05	9.30E-06	288
WOCPCES	7.88E-08	3.56E-07	3.56E-07	2.83E-08	2.75E-08	2.75E-08	7.86E-10	7.86E-10	7.86E-10	6.22E-11	6.22E-11	4.67E-11	4.67E-11	1.90E-11	1.90E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.83E-10	1.83E-10	8760
WOCSCES	6.12E-08	1.07E-07	1.07E-07	8.44E-09	8.44E-09	8.44E-09	7.50E-09	7.50E-09	7.50E-09	2.33E-12	2.33E-12	3.77E-12	3.77E-12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.99E-12	6.99E-12	8.33E-11	8.33E-11	8760
WOCNRES	5.55E-07	2.47E-06	1.86E-06	2.08E-07	1.99E-07	1.35E-07	7.98E-09	7.98E-09	1.46E-09	3.82E-10	3.76E-10	3.77E-10	1.89E-10	1.17E-10	1.15E-10	3.74E-12	4.27E-13	0.00E+00	0.00E+00	1.61E-09	6.04E-10	8760
1TAIL1	1.34E-05	1.16E-05	1.16E-05	1.40E-06	5.49E-07	5.49E-07	5.61E-08	5.61E-08	5.61E-08	1.44E-08	1.44E-08	1.58E-08	1.58E-08	5.68E-09	5.68E-09	1.68E-08	1.68E-08	5.71E-09	5.71E-09	1.61E-07	1.61E-07	8760
1TAIL2	1.34E-05	1.16E-05	1.16E-05	1.40E-06	5.49E-07	5.49E-07	5.61E-08	5.61E-08	5.61E-08	1.44E-08	1.44E-08	1.58E-08	1.58E-08	5.68E-09	5.68E-09	1.68E-08	1.68E-08	5.71E-09	5.71E-09	1.61E-07	1.61E-07	8760
1TAIL3	1.34E-05	1.16E-05	1.16E-05	1.40E-06	5.49E-07	5.49E-07	5.61E-08	5.61E-08	5.61E-08	1.44E-08	1.44E-08	1.58E-08	1.58E-08	5.68E-09	5.68E-09	1.68E-08	1.68E-08	5.71E-09	5.71E-09	1.61E-07	1.61E-07	8760
1TAIL4	1.34E-05	1.16E-05	1.16E-05	1.40E-06	5.49E-07	5.49E-07	5.61E-08	5.61E-08	5.61E-08	1.44E-08	1.44E-08	1.58E-08	1.58E-08	5.68E-09	5.68E-09	1.68E-08	1.68E-08	5.71E-09	5.71E-09	1.61E-07	1.61E-07	8760
1TAIL5	1.34E-05	1.16E-05	1.16E-05	1.40E-06	5.49E-07	5.49E-07	5.61E-08	5.61E-08	5.61E-08	1.44E-08	1.44E-08	1.58E-08	1.58E-08	5.68E-09	5.68E-09	1.68E-08	1.68E-08	5.71E-09	5.71E-09	1.61E-07	1.61E-07	8760
1TAIL6	1.34E-05	1.16E-05	1.16E-05	1.40E-06	5.49E-07	5.49E-07	5.61E-08	5.61E-08	5.61E-08	1.44E-08	1.44E-08	1.58E-08	1.58E-08	5.68E-09	5.68E-09	1.68E-08	1.68E-08	5.71E-09	5.71E-09	1.61E-07	1.61E-07	8760
2TAIL1	1.34E-05	1.16E-05	1.16E-05	1.40E-06	5.49E-07	5.49E-07	5.61E-08	5.61E-08	5.61E-08	1.44E-08	1.44E-08	1.58E-08	1.58E-08	5.68E-09	5.68E-09	1.68E-08	1.68E-08	5.71E-09	5.71E-09	1.61E-07	1.61E-07	8760
2TAIL2	1.34E-05	1.16E-05	1.16E-05	1.40E-06	5.49E-07	5.49E-07	5.61E-08	5.61E-08	5.61E-08	1.44E-08	1.44E-08	1.58E-08	1.58E-08	5.68E-09	5.68E-09	1.68E-08	1.68E-08	5.71E-09	5.71E-09	1.61E-07	1.61E-07	8760
2TAIL3	1.34E-05	1.16E-05	1.16E-05	1.40E-06	5.49E-07	5.49E-07	5.61E-08	5.61E-08	5.61E-08	1.44E-08	1.44E-08	1.58E-08	1.58E-08	5.68E-09	5.68E-09	1.68E-08	1.68E-08	5.71E-09	5.71E-09	1.61E-07	1.61E-07	8760
2TAIL4	1.34E-05	1.16E-05	1.16E-05	1.40E-06	5.49E-07	5.49E-07	5.61E-08	5.61E-08	5.61E-08	1.44E-08	1.44E-08	1.58E-08	1.58E-08	5.68E-09	5.68E-09	1.68E-08	1.68E-08	5.71E-09	5.71E-09	1.61E-07	1.61E-07	8760
2TAIL5	1.34E-05	1.16E-05	1.16E-05	1.40E-06	5.49E-07	5.49E-07	5.61E-08	5.61E-08	5.61E-08	1.44E-08	1.44E-08	1.58E-08	1.58E-08	5.68E-09	5.68E-09	1.68E-08	1.68E-08	5.71E-09	5.71E-09	1.61E-07	1.61E-07	8760
2TAIL6	1.34E-05	1.16E-05	1.16E-05	1.40E-06	5.49E-07	5.49E-07	5.61E-08	5.61E-08	5.61E-08	1.44E-08	1.44E-08	1.58E-08	1.58E-08	5.68E-09	5.68E-09	1.68E-08	1.68E-08	5.71E-09	5.71E-09	1.61E-07	1.61E-07	8760
3TAIL1	1.15E-05	9.95E-06	9.95E-06	1.20E-06	4.71E-07	4.71E-07	4.81E-08	4.81E-08	4.81E-08	1.24E-08	1.24E-08	1.35E-08	1.35E-08	4.87E-09	4.87E-09	1.44E-08	1.44E-08	4.89E-09	4.89E-09	1.38E-07	1.38E-07	8760
3TAIL2	1.15E-05	9.95E-06	9.95E-06	1.20E-06	4.71E-07	4.71E-07	4.81E-08	4.81E-08	4.81E-08	1.24E-08	1.24E-08	1.35E-08	1.35E-08	4.87E-09	4.87E-09	1.44E-08	1.44E-08	4.89E-09	4.89E-09	1.38E-07	1.38E-07	8760

Source ID	Modeled Emission Rates (g/s)																					Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	Benzene 1-hr	Benzene Annual[1]	Toluene 1-hr	Toluene Annual[1]	E-Benzene 1-hr	E-Benzene Annual[1]	Xylenes 1-hr	Xylenes Annual[1]	n-Hexane 1-hr	n-Hexane Annual[1]	Formaldehyde 1-hr	Formaldehyde Annual[1]	
3TAIL3	1.15E-05	9.95E-06	9.95E-06	1.20E-06	4.71E-07	4.71E-07	4.81E-08	4.81E-08	4.81E-08	1.24E-08	1.24E-08	1.35E-08	1.35E-08	4.87E-09	4.87E-09	1.44E-08	1.44E-08	4.89E-09	4.89E-09	1.38E-07	1.38E-07	8760
3TAIL4	1.15E-05	9.95E-06	9.95E-06	1.20E-06	4.71E-07	4.71E-07	4.81E-08	4.81E-08	4.81E-08	1.24E-08	1.24E-08	1.35E-08	1.35E-08	4.87E-09	4.87E-09	1.44E-08	1.44E-08	4.89E-09	4.89E-09	1.38E-07	1.38E-07	8760
3TAIL5	1.15E-05	9.95E-06	9.95E-06	1.20E-06	4.71E-07	4.71E-07	4.81E-08	4.81E-08	4.81E-08	1.24E-08	1.24E-08	1.35E-08	1.35E-08	4.87E-09	4.87E-09	1.44E-08	1.44E-08	4.89E-09	4.89E-09	1.38E-07	1.38E-07	8760
3TAIL6	1.15E-05	9.95E-06	9.95E-06	1.20E-06	4.71E-07	4.71E-07	4.81E-08	4.81E-08	4.81E-08	1.24E-08	1.24E-08	1.35E-08	1.35E-08	4.87E-09	4.87E-09	1.44E-08	1.44E-08	4.89E-09	4.89E-09	1.38E-07	1.38E-07	8760
3TAIL7	1.15E-05	9.95E-06	9.95E-06	1.20E-06	4.71E-07	4.71E-07	4.81E-08	4.81E-08	4.81E-08	1.24E-08	1.24E-08	1.35E-08	1.35E-08	4.87E-09	4.87E-09	1.44E-08	1.44E-08	4.89E-09	4.89E-09	1.38E-07	1.38E-07	8760
4TAIL1	1.15E-05	9.95E-06	9.95E-06	1.20E-06	4.71E-07	4.71E-07	4.81E-08	4.81E-08	4.81E-08	1.24E-08	1.24E-08	1.35E-08	1.35E-08	4.87E-09	4.87E-09	1.44E-08	1.44E-08	4.89E-09	4.89E-09	1.38E-07	1.38E-07	8760
4TAIL2	1.15E-05	9.95E-06	9.95E-06	1.20E-06	4.71E-07	4.71E-07	4.81E-08	4.81E-08	4.81E-08	1.24E-08	1.24E-08	1.35E-08	1.35E-08	4.87E-09	4.87E-09	1.44E-08	1.44E-08	4.89E-09	4.89E-09	1.38E-07	1.38E-07	8760
4TAIL3	1.15E-05	9.95E-06	9.95E-06	1.20E-06	4.71E-07	4.71E-07	4.81E-08	4.81E-08	4.81E-08	1.24E-08	1.24E-08	1.35E-08	1.35E-08	4.87E-09	4.87E-09	1.44E-08	1.44E-08	4.89E-09	4.89E-09	1.38E-07	1.38E-07	8760
4TAIL4	1.15E-05	9.95E-06	9.95E-06	1.20E-06	4.71E-07	4.71E-07	4.81E-08	4.81E-08	4.81E-08	1.24E-08	1.24E-08	1.35E-08	1.35E-08	4.87E-09	4.87E-09	1.44E-08	1.44E-08	4.89E-09	4.89E-09	1.38E-07	1.38E-07	8760
4TAIL5	1.15E-05	9.95E-06	9.95E-06	1.20E-06	4.71E-07	4.71E-07	4.81E-08	4.81E-08	4.81E-08	1.24E-08	1.24E-08	1.35E-08	1.35E-08	4.87E-09	4.87E-09	1.44E-08	1.44E-08	4.89E-09	4.89E-09	1.38E-07	1.38E-07	8760
4TAIL6	1.15E-05	9.95E-06	9.95E-06	1.20E-06	4.71E-07	4.71E-07	4.81E-08	4.81E-08	4.81E-08	1.24E-08	1.24E-08	1.35E-08	1.35E-08	4.87E-09	4.87E-09	1.44E-08	1.44E-08	4.89E-09	4.89E-09	1.38E-07	1.38E-07	8760
4TAIL7	1.15E-05	9.95E-06	9.95E-06	1.20E-06	4.71E-07	4.71E-07	4.81E-08	4.81E-08	4.81E-08	1.24E-08	1.24E-08	1.35E-08	1.35E-08	4.87E-09	4.87E-09	1.44E-08	1.44E-08	4.89E-09	4.89E-09	1.38E-07	1.38E-07	8760
5TAIL1	1.15E-05	9.95E-06	9.95E-06	1.20E-06	4.71E-07	4.71E-07	4.81E-08	4.81E-08	4.81E-08	1.24E-08	1.24E-08	1.35E-08	1.35E-08	4.87E-09	4.87E-09	1.44E-08	1.44E-08	4.89E-09	4.89E-09	1.38E-07	1.38E-07	8760
5TAIL2	1.15E-05	9.95E-06	9.95E-06	1.20E-06	4.71E-07	4.71E-07	4.81E-08	4.81E-08	4.81E-08	1.24E-08	1.24E-08	1.35E-08	1.35E-08	4.87E-09	4.87E-09	1.44E-08	1.44E-08	4.89E-09	4.89E-09	1.38E-07	1.38E-07	8760
5TAIL3	1.15E-05	9.95E-06	9.95E-06	1.20E-06	4.71E-07	4.71E-07	4.81E-08	4.81E-08	4.81E-08	1.24E-08	1.24E-08	1.35E-08	1.35E-08	4.87E-09	4.87E-09	1.44E-08	1.44E-08	4.89E-09	4.89E-09	1.38E-07	1.38E-07	8760
5TAIL4	1.15E-05	9.95E-06	9.95E-06	1.20E-06	4.71E-07	4.71E-07	4.81E-08	4.81E-08	4.81E-08	1.24E-08	1.24E-08	1.35E-08	1.35E-08	4.87E-09	4.87E-09	1.44E-08	1.44E-08	4.89E-09	4.89E-09	1.38E-07	1.38E-07	8760
5TAIL5	1.15E-05	9.95E-06	9.95E-06	1.20E-06	4.71E-07	4.71E-07	4.81E-08	4.81E-08	4.81E-08	1.24E-08	1.24E-08	1.35E-08	1.35E-08	4.87E-09	4.87E-09	1.44E-08	1.44E-08	4.89E-09	4.89E-09	1.38E-07	1.38E-07	8760
5TAIL6	1.15E-05	9.95E-06	9.95E-06	1.20E-06	4.71E-07	4.71E-07	4.81E-08	4.81E-08	4.81E-08	1.24E-08	1.24E-08	1.35E-08	1.35E-08	4.87E-09	4.87E-09	1.44E-08	1.44E-08	4.89E-09	4.89E-09	1.38E-07	1.38E-07	8760
5TAIL7	1.15E-05	9.95E-06	9.95E-06	1.20E-06	4.71E-07	4.71E-07	4.81E-08	4.81E-08	4.81E-08	1.24E-08	1.24E-08	1.35E-08	1.35E-08	4.87E-09	4.87E-09	1.44E-08	1.44E-08	4.89E-09	4.89E-09	1.38E-07	1.38E-07	8760
WOCSTAIL1	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	1.56E-08	1.56E-08	1.70E-08	1.70E-08	6.13E-09	6.13E-09	1.82E-08	1.82E-08	6.16E-09	6.16E-09	1.73E-07	1.73E-07	8760
WOCSTAIL2	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	1.56E-08	1.56E-08	1.70E-08	1.70E-08	6.13E-09	6.13E-09	1.82E-08	1.82E-08	6.16E-09	6.16E-09	1.73E-07	1.73E-07	8760
WOCSTAIL3	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	1.56E-08	1.56E-08	1.70E-08	1.70E-08	6.13E-09	6.13E-09	1.82E-08	1.82E-08	6.16E-09	6.16E-09	1.73E-07	1.73E-07	8760
WOCSTAIL4	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	1.56E-08	1.56E-08	1.70E-08	1.70E-08	6.13E-09	6.13E-09	1.82E-08	1.82E-08	6.16E-09	6.16E-09	1.73E-07	1.73E-07	8760
WOCSTAIL5	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	1.56E-08	1.56E-08	1.70E-08	1.70E-08	6.13E-09	6.13E-09	1.82E-08	1.82E-08	6.16E-09	6.16E-09	1.73E-07	1.73E-07	8760
WOCSTAIL6	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	1.56E-08	1.56E-08	1.70E-08	1.70E-08	6.13E-09	6.13E-09	1.82E-08	1.82E-08	6.16E-09	6.16E-09	1.73E-07	1.73E-07	8760
WOCSTAIL7	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	1.56E-08	1.56E-08	1.70E-08	1.70E-08	6.13E-09	6.13E-09	1.82E-08	1.82E-08	6.16E-09	6.16E-09	1.73E-07	1.73E-07	8760
WOCSTAIL8	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	1.56E-08	1.56E-08	1.70E-08	1.70E-08	6.13E-09	6.13E-09	1.82E-08	1.82E-08	6.16E-09	6.16E-09	1.73E-07	1.73E-07	8760

Source ID	Modeled Emission Rates (g/s)																					Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	Benzene 1-hr	Benzene Annual[1]	Toluene 1-hr	Toluene Annual[1]	E-Benzene 1-hr	E-Benzene Annual[1]	Xylenes 1-hr	Xylenes Annual[1]	n-Hexane 1-hr	n-Hexane Annual[1]	Formaldehyde 1-hr	Formaldehyde Annual[1]	
WOCSTAIL9	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	1.56E-08	1.56E-08	1.70E-08	1.70E-08	6.13E-09	6.13E-09	1.82E-08	1.82E-08	6.16E-09	6.16E-09	1.73E-07	1.73E-07	8760
WOCSTAIL10	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	1.56E-08	1.56E-08	1.70E-08	1.70E-08	6.13E-09	6.13E-09	1.82E-08	1.82E-08	6.16E-09	6.16E-09	1.73E-07	1.73E-07	8760
WOCSTAIL11	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	1.56E-08	1.56E-08	1.70E-08	1.70E-08	6.13E-09	6.13E-09	1.82E-08	1.82E-08	6.16E-09	6.16E-09	1.73E-07	1.73E-07	8760
WOCSTAIL12	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	1.56E-08	1.56E-08	1.70E-08	1.70E-08	6.13E-09	6.13E-09	1.82E-08	1.82E-08	6.16E-09	6.16E-09	1.73E-07	1.73E-07	8760
WOCSTAIL13	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	1.56E-08	1.56E-08	1.70E-08	1.70E-08	6.13E-09	6.13E-09	1.82E-08	1.82E-08	6.16E-09	6.16E-09	1.73E-07	1.73E-07	8760
WOCSTAIL14	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	1.56E-08	1.56E-08	1.70E-08	1.70E-08	6.13E-09	6.13E-09	1.82E-08	1.82E-08	6.16E-09	6.16E-09	1.73E-07	1.73E-07	8760
WOCSTAIL15	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	1.56E-08	1.56E-08	1.70E-08	1.70E-08	6.13E-09	6.13E-09	1.82E-08	1.82E-08	6.16E-09	6.16E-09	1.73E-07	1.73E-07	8760
WOCSTAIL16	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	1.56E-08	1.56E-08	1.70E-08	1.70E-08	6.13E-09	6.13E-09	1.82E-08	1.82E-08	6.16E-09	6.16E-09	1.73E-07	1.73E-07	8760
WOCSTAIL17	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	1.56E-08	1.56E-08	1.70E-08	1.70E-08	6.13E-09	6.13E-09	1.82E-08	1.82E-08	6.16E-09	6.16E-09	1.73E-07	1.73E-07	8760
WOCSTAIL18	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	1.56E-08	1.56E-08	1.70E-08	1.70E-08	6.13E-09	6.13E-09	1.82E-08	1.82E-08	6.16E-09	6.16E-09	1.73E-07	1.73E-07	8760
WOCSTAIL19	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	1.56E-08	1.56E-08	1.70E-08	1.70E-08	6.13E-09	6.13E-09	1.82E-08	1.82E-08	6.16E-09	6.16E-09	1.73E-07	1.73E-07	8760
WOCSTAIL20	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	1.56E-08	1.56E-08	1.70E-08	1.70E-08	6.13E-09	6.13E-09	1.82E-08	1.82E-08	6.16E-09	6.16E-09	1.73E-07	1.73E-07	8760
WOCSTAIL21	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	1.56E-08	1.56E-08	1.70E-08	1.70E-08	6.13E-09	6.13E-09	1.82E-08	1.82E-08	6.16E-09	6.16E-09	1.73E-07	1.73E-07	8760
WOCSTAIL22	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	1.56E-08	1.56E-08	1.70E-08	1.70E-08	6.13E-09	6.13E-09	1.82E-08	1.82E-08	6.16E-09	6.16E-09	1.73E-07	1.73E-07	8760
WOCSTAIL23	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	1.56E-08	1.56E-08	1.70E-08	1.70E-08	6.13E-09	6.13E-09	1.82E-08	1.82E-08	6.16E-09	6.16E-09	1.73E-07	1.73E-07	8760
WOCSTAIL24	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	1.56E-08	1.56E-08	1.70E-08	1.70E-08	6.13E-09	6.13E-09	1.82E-08	1.82E-08	6.16E-09	6.16E-09	1.73E-07	1.73E-07	8760
WOCSTAIL25	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	1.56E-08	1.56E-08	1.70E-08	1.70E-08	6.13E-09	6.13E-09	1.82E-08	1.82E-08	6.16E-09	6.16E-09	1.73E-07	1.73E-07	8760
WOCSTAIL26	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	1.56E-08	1.56E-08	1.70E-08	1.70E-08	6.13E-09	6.13E-09	1.82E-08	1.82E-08	6.16E-09	6.16E-09	1.73E-07	1.73E-07	8760
WOCSTAIL27	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	1.56E-08	1.56E-08	1.70E-08	1.70E-08	6.13E-09	6.13E-09	1.82E-08	1.82E-08	6.16E-09	6.16E-09	1.73E-07	1.73E-07	8760
WOCSTAIL28	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	1.56E-08	1.56E-08	1.70E-08	1.70E-08	6.13E-09	6.13E-09	1.82E-08	1.82E-08	6.16E-09	6.16E-09	1.73E-07	1.73E-07	8760
WOCSTAIL29	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	1.56E-08	1.56E-08	1.70E-08	1.70E-08	6.13E-09	6.13E-09	1.82E-08	1.82E-08	6.16E-09	6.16E-09	1.73E-07	1.73E-07	8760
WOCSTAIL30	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	1.56E-08	1.56E-08	1.70E-08	1.70E-08	6.13E-09	6.13E-09	1.82E-08	1.82E-08	6.16E-09	6.16E-09	1.73E-07	1.73E-07	8760
WOCSTAIL31	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	1.56E-08	1.56E-08	1.70E-08	1.70E-08	6.13E-09	6.13E-09	1.82E-08	1.82E-08	6.16E-09	6.16E-09	1.73E-07	1.73E-07	8760
WOCSTAIL32	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	1.56E-08	1.56E-08	1.70E-08	1.70E-08	6.13E-09	6.13E-09	1.82E-08	1.82E-08	6.16E-09	6.16E-09	1.73E-07	1.73E-07	8760
WOCSTAIL33	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	1.56E-08	1.56E-08	1.70E-08	1.70E-08	6.13E-09	6.13E-09	1.82E-08	1.82E-08	6.16E-09	6.16E-09	1.73E-07	1.73E-07	8760
WOCSTAIL34	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	1.56E-08	1.56E-08	1.70E-08	1.70E-08	6.13E-09	6.13E-09	1.82E-08	1.82E-08	6.16E-09	6.16E-09	1.73E-07	1.73E-07	8760
WOCSTAIL35	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	1.56E-08	1.56E-08	1.70E-08	1.70E-08	6.13E-09	6.13E-09	1.82E-08	1.82E-08	6.16E-09	6.16E-09	1.73E-07	1.73E-07	8760

Source ID	Modeled Emission Rates (g/s)																					Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	Benzene 1-hr	Benzene Annual[1]	Toluene 1-hr	Toluene Annual[1]	E-Benzene 1-hr	E-Benzene Annual[1]	Xylenes 1-hr	Xylenes Annual[1]	n-Hexane 1-hr	n-Hexane Annual[1]	Formaldehyde 1-hr	Formaldehyde Annual[1]	
WOCSTAIL36	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	1.56E-08	1.56E-08	1.70E-08	1.70E-08	6.13E-09	6.13E-09	1.82E-08	1.82E-08	6.16E-09	6.16E-09	1.73E-07	1.73E-07	8760
WOCSTAIL37	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	1.56E-08	1.56E-08	1.70E-08	1.70E-08	6.13E-09	6.13E-09	1.82E-08	1.82E-08	6.16E-09	6.16E-09	1.73E-07	1.73E-07	8760
WOCSTAIL38	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	1.56E-08	1.56E-08	1.70E-08	1.70E-08	6.13E-09	6.13E-09	1.82E-08	1.82E-08	6.16E-09	6.16E-09	1.73E-07	1.73E-07	8760
WOCSTAIL39	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	1.56E-08	1.56E-08	1.70E-08	1.70E-08	6.13E-09	6.13E-09	1.82E-08	1.82E-08	6.16E-09	6.16E-09	1.73E-07	1.73E-07	8760
WOCSTAIL40	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	1.56E-08	1.56E-08	1.70E-08	1.70E-08	6.13E-09	6.13E-09	1.82E-08	1.82E-08	6.16E-09	6.16E-09	1.73E-07	1.73E-07	8760
WOCSTAIL41	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	1.56E-08	1.56E-08	1.70E-08	1.70E-08	6.13E-09	6.13E-09	1.82E-08	1.82E-08	6.16E-09	6.16E-09	1.73E-07	1.73E-07	8760
WOCSTAIL42	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	1.56E-08	1.56E-08	1.70E-08	1.70E-08	6.13E-09	6.13E-09	1.82E-08	1.82E-08	6.16E-09	6.16E-09	1.73E-07	1.73E-07	8760
WOCSTAIL43	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	1.56E-08	1.56E-08	1.70E-08	1.70E-08	6.13E-09	6.13E-09	1.82E-08	1.82E-08	6.16E-09	6.16E-09	1.73E-07	1.73E-07	8760
AIRSTAIL1	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	1.56E-08	1.56E-08	1.70E-08	1.70E-08	6.13E-09	6.13E-09	1.82E-08	1.82E-08	6.16E-09	6.16E-09	1.73E-07	1.73E-07	8760
AIRSTAIL2	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	1.56E-08	1.56E-08	1.70E-08	1.70E-08	6.13E-09	6.13E-09	1.82E-08	1.82E-08	6.16E-09	6.16E-09	1.73E-07	1.73E-07	8760
AIRSTAIL3	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	1.56E-08	1.56E-08	1.70E-08	1.70E-08	6.13E-09	6.13E-09	1.82E-08	1.82E-08	6.16E-09	6.16E-09	1.73E-07	1.73E-07	8760
AIRSTAIL4	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	1.56E-08	1.56E-08	1.70E-08	1.70E-08	6.13E-09	6.13E-09	1.82E-08	1.82E-08	6.16E-09	6.16E-09	1.73E-07	1.73E-07	8760
AIRSTAIL5	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	1.56E-08	1.56E-08	1.70E-08	1.70E-08	6.13E-09	6.13E-09	1.82E-08	1.82E-08	6.16E-09	6.16E-09	1.73E-07	1.73E-07	8760
AIRSTAIL6	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	1.56E-08	1.56E-08	1.70E-08	1.70E-08	6.13E-09	6.13E-09	1.82E-08	1.82E-08	6.16E-09	6.16E-09	1.73E-07	1.73E-07	8760
AIRSTAIL7	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.93E-07	5.93E-07	6.05E-08	6.05E-08	6.05E-08	1.56E-08	1.56E-08	1.70E-08	1.70E-08	6.13E-09	6.13E-09	1.82E-08	1.82E-08	6.16E-09	6.16E-09	1.73E-07	1.73E-07	8760
WOCNTAIL1	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	1.55E-08	1.55E-08	1.70E-08	1.70E-08	6.11E-09	6.11E-09	1.81E-08	1.81E-08	6.14E-09	6.14E-09	1.73E-07	1.73E-07	8760
WOCNTAIL2	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	1.55E-08	1.55E-08	1.70E-08	1.70E-08	6.11E-09	6.11E-09	1.81E-08	1.81E-08	6.14E-09	6.14E-09	1.73E-07	1.73E-07	8760
WOCNTAIL3	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	1.55E-08	1.55E-08	1.70E-08	1.70E-08	6.11E-09	6.11E-09	1.81E-08	1.81E-08	6.14E-09	6.14E-09	1.73E-07	1.73E-07	8760
WOCNTAIL4	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	1.55E-08	1.55E-08	1.70E-08	1.70E-08	6.11E-09	6.11E-09	1.81E-08	1.81E-08	6.14E-09	6.14E-09	1.73E-07	1.73E-07	8760
WOCNTAIL5	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	1.55E-08	1.55E-08	1.70E-08	1.70E-08	6.11E-09	6.11E-09	1.81E-08	1.81E-08	6.14E-09	6.14E-09	1.73E-07	1.73E-07	8760
WOCNTAIL6	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	1.55E-08	1.55E-08	1.70E-08	1.70E-08	6.11E-09	6.11E-09	1.81E-08	1.81E-08	6.14E-09	6.14E-09	1.73E-07	1.73E-07	8760
WOCNTAIL7	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	1.55E-08	1.55E-08	1.70E-08	1.70E-08	6.11E-09	6.11E-09	1.81E-08	1.81E-08	6.14E-09	6.14E-09	1.73E-07	1.73E-07	8760
WOCNTAIL8	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	1.55E-08	1.55E-08	1.70E-08	1.70E-08	6.11E-09	6.11E-09	1.81E-08	1.81E-08	6.14E-09	6.14E-09	1.73E-07	1.73E-07	8760
WOCNTAIL9	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	1.55E-08	1.55E-08	1.70E-08	1.70E-08	6.11E-09	6.11E-09	1.81E-08	1.81E-08	6.14E-09	6.14E-09	1.73E-07	1.73E-07	8760
WOCNTAIL10	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	1.55E-08	1.55E-08	1.70E-08	1.70E-08	6.11E-09	6.11E-09	1.81E-08	1.81E-08	6.14E-09	6.14E-09	1.73E-07	1.73E-07	8760
WOCNTAIL11	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	1.55E-08	1.55E-08	1.70E-08	1.70E-08	6.11E-09	6.11E-09	1.81E-08	1.81E-08	6.14E-09	6.14E-09	1.73E-07	1.73E-07	8760
WOCNTAIL12	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	1.55E-08	1.55E-08	1.70E-08	1.70E-08	6.11E-09	6.11E-09	1.81E-08	1.81E-08	6.14E-09	6.14E-09	1.73E-07	1.73E-07	8760

Source ID	Modeled Emission Rates (g/s)																					Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	Benzene 1-hr	Benzene Annual[1]	Toluene 1-hr	Toluene Annual[1]	E-Benzene 1-hr	E-Benzene Annual[1]	Xylenes 1-hr	Xylenes Annual[1]	n-Hexane 1-hr	n-Hexane Annual[1]	Formaldehyde 1-hr	Formaldehyde Annual[1]	
WOCNTAIL13	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	1.55E-08	1.55E-08	1.70E-08	1.70E-08	6.11E-09	6.11E-09	1.81E-08	1.81E-08	6.14E-09	6.14E-09	1.73E-07	1.73E-07	8760
WOCNTAIL14	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	1.55E-08	1.55E-08	1.70E-08	1.70E-08	6.11E-09	6.11E-09	1.81E-08	1.81E-08	6.14E-09	6.14E-09	1.73E-07	1.73E-07	8760
WOCNTAIL15	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	1.55E-08	1.55E-08	1.70E-08	1.70E-08	6.11E-09	6.11E-09	1.81E-08	1.81E-08	6.14E-09	6.14E-09	1.73E-07	1.73E-07	8760
WOCNTAIL16	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	1.55E-08	1.55E-08	1.70E-08	1.70E-08	6.11E-09	6.11E-09	1.81E-08	1.81E-08	6.14E-09	6.14E-09	1.73E-07	1.73E-07	8760
WOCNTAIL17	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	1.55E-08	1.55E-08	1.70E-08	1.70E-08	6.11E-09	6.11E-09	1.81E-08	1.81E-08	6.14E-09	6.14E-09	1.73E-07	1.73E-07	8760
WOCNTAIL18	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	1.55E-08	1.55E-08	1.70E-08	1.70E-08	6.11E-09	6.11E-09	1.81E-08	1.81E-08	6.14E-09	6.14E-09	1.73E-07	1.73E-07	8760
WOCNTAIL19	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	1.55E-08	1.55E-08	1.70E-08	1.70E-08	6.11E-09	6.11E-09	1.81E-08	1.81E-08	6.14E-09	6.14E-09	1.73E-07	1.73E-07	8760
WOCNTAIL20	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	1.55E-08	1.55E-08	1.70E-08	1.70E-08	6.11E-09	6.11E-09	1.81E-08	1.81E-08	6.14E-09	6.14E-09	1.73E-07	1.73E-07	8760
WOCNTAIL21	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	1.55E-08	1.55E-08	1.70E-08	1.70E-08	6.11E-09	6.11E-09	1.81E-08	1.81E-08	6.14E-09	6.14E-09	1.73E-07	1.73E-07	8760
WOCNTAIL22	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	1.55E-08	1.55E-08	1.70E-08	1.70E-08	6.11E-09	6.11E-09	1.81E-08	1.81E-08	6.14E-09	6.14E-09	1.73E-07	1.73E-07	8760
WOCNTAIL23	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	1.55E-08	1.55E-08	1.70E-08	1.70E-08	6.11E-09	6.11E-09	1.81E-08	1.81E-08	6.14E-09	6.14E-09	1.73E-07	1.73E-07	8760
WOCNTAIL24	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	1.55E-08	1.55E-08	1.70E-08	1.70E-08	6.11E-09	6.11E-09	1.81E-08	1.81E-08	6.14E-09	6.14E-09	1.73E-07	1.73E-07	8760
WOCNTAIL25	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	1.55E-08	1.55E-08	1.70E-08	1.70E-08	6.11E-09	6.11E-09	1.81E-08	1.81E-08	6.14E-09	6.14E-09	1.73E-07	1.73E-07	8760
WOCNTAIL26	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	1.55E-08	1.55E-08	1.70E-08	1.70E-08	6.11E-09	6.11E-09	1.81E-08	1.81E-08	6.14E-09	6.14E-09	1.73E-07	1.73E-07	8760
WOCNTAIL27	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	1.55E-08	1.55E-08	1.70E-08	1.70E-08	6.11E-09	6.11E-09	1.81E-08	1.81E-08	6.14E-09	6.14E-09	1.73E-07	1.73E-07	8760
WOCNTAIL28	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	1.55E-08	1.55E-08	1.70E-08	1.70E-08	6.11E-09	6.11E-09	1.81E-08	1.81E-08	6.14E-09	6.14E-09	1.73E-07	1.73E-07	8760
WOCNTAIL29	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	1.55E-08	1.55E-08	1.70E-08	1.70E-08	6.11E-09	6.11E-09	1.81E-08	1.81E-08	6.14E-09	6.14E-09	1.73E-07	1.73E-07	8760
WOCNTAIL30	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	1.55E-08	1.55E-08	1.70E-08	1.70E-08	6.11E-09	6.11E-09	1.81E-08	1.81E-08	6.14E-09	6.14E-09	1.73E-07	1.73E-07	8760
WOCNTAIL31	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	1.55E-08	1.55E-08	1.70E-08	1.70E-08	6.11E-09	6.11E-09	1.81E-08	1.81E-08	6.14E-09	6.14E-09	1.73E-07	1.73E-07	8760
AIRNTAIL1	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	1.55E-08	1.55E-08	1.70E-08	1.70E-08	6.11E-09	6.11E-09	1.81E-08	1.81E-08	6.14E-09	6.14E-09	1.73E-07	1.73E-07	8760
AIRNTAIL2	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	1.55E-08	1.55E-08	1.70E-08	1.70E-08	6.11E-09	6.11E-09	1.81E-08	1.81E-08	6.14E-09	6.14E-09	1.73E-07	1.73E-07	8760
AIRNTAIL3	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	1.55E-08	1.55E-08	1.70E-08	1.70E-08	6.11E-09	6.11E-09	1.81E-08	1.81E-08	6.14E-09	6.14E-09	1.73E-07	1.73E-07	8760
AIRNTAIL4	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	1.55E-08	1.55E-08	1.70E-08	1.70E-08	6.11E-09	6.11E-09	1.81E-08	1.81E-08	6.14E-09	6.14E-09	1.73E-07	1.73E-07	8760
AIRNTAIL5	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	1.55E-08	1.55E-08	1.70E-08	1.70E-08	6.11E-09	6.11E-09	1.81E-08	1.81E-08	6.14E-09	6.14E-09	1.73E-07	1.73E-07	8760
AIRNTAIL6	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	1.55E-08	1.55E-08	1.70E-08	1.70E-08	6.11E-09	6.11E-09	1.81E-08	1.81E-08	6.14E-09	6.14E-09	1.73E-07	1.73E-07	8760
AIRNTAIL7	1.44E-05	1.25E-05	1.25E-05	1.51E-06	5.91E-07	5.91E-07	6.03E-08	6.03E-08	6.03E-08	1.55E-08	1.55E-08	1.70E-08	1.70E-08	6.11E-09	6.11E-09	1.81E-08	1.81E-08	6.14E-09	6.14E-09	1.73E-07	1.73E-07	8760
WCFTAIL1	1.48E-05	1.29E-05	1.29E-05	1.56E-06	6.10E-07	6.10E-07	6.22E-08	6.22E-08	6.22E-08	1.60E-08	1.60E-08	1.75E-08	1.75E-08	6.30E-09	6.30E-09	1.87E-08	1.87E-08	6.33E-09	6.33E-09	1.78E-07	1.78E-07	8760

Source ID	Modeled Emission Rates (g/s)																					Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	Benzene 1-hr	Benzene Annual[1]	Toluene 1-hr	Toluene Annual[1]	E-Benzene 1-hr	E-Benzene Annual[1]	Xylenes 1-hr	Xylenes Annual[1]	n-Hexane 1-hr	n-Hexane Annual[1]	Formaldehyde 1-hr	Formaldehyde Annual[1]	
WCFTAIL2	1.48E-05	1.29E-05	1.29E-05	1.56E-06	6.10E-07	6.10E-07	6.22E-08	6.22E-08	6.22E-08	1.60E-08	1.60E-08	1.75E-08	1.75E-08	6.30E-09	6.30E-09	1.87E-08	1.87E-08	6.33E-09	6.33E-09	1.78E-07	1.78E-07	8760
WCFTAIL3	1.48E-05	1.29E-05	1.29E-05	1.56E-06	6.10E-07	6.10E-07	6.22E-08	6.22E-08	6.22E-08	1.60E-08	1.60E-08	1.75E-08	1.75E-08	6.30E-09	6.30E-09	1.87E-08	1.87E-08	6.33E-09	6.33E-09	1.78E-07	1.78E-07	8760
WCFTAIL4	1.48E-05	1.29E-05	1.29E-05	1.56E-06	6.10E-07	6.10E-07	6.22E-08	6.22E-08	6.22E-08	1.60E-08	1.60E-08	1.75E-08	1.75E-08	6.30E-09	6.30E-09	1.87E-08	1.87E-08	6.33E-09	6.33E-09	1.78E-07	1.78E-07	8760
WCFTAIL5	1.48E-05	1.29E-05	1.29E-05	1.56E-06	6.10E-07	6.10E-07	6.22E-08	6.22E-08	6.22E-08	1.60E-08	1.60E-08	1.75E-08	1.75E-08	6.30E-09	6.30E-09	1.87E-08	1.87E-08	6.33E-09	6.33E-09	1.78E-07	1.78E-07	8760
WCFTAIL6	1.48E-05	1.29E-05	1.29E-05	1.56E-06	6.10E-07	6.10E-07	6.22E-08	6.22E-08	6.22E-08	1.60E-08	1.60E-08	1.75E-08	1.75E-08	6.30E-09	6.30E-09	1.87E-08	1.87E-08	6.33E-09	6.33E-09	1.78E-07	1.78E-07	8760
WCFTAIL7	1.48E-05	1.29E-05	1.29E-05	1.56E-06	6.10E-07	6.10E-07	6.22E-08	6.22E-08	6.22E-08	1.60E-08	1.60E-08	1.75E-08	1.75E-08	6.30E-09	6.30E-09	1.87E-08	1.87E-08	6.33E-09	6.33E-09	1.78E-07	1.78E-07	8760
WCFTAIL8	1.48E-05	1.29E-05	1.29E-05	1.56E-06	6.10E-07	6.10E-07	6.22E-08	6.22E-08	6.22E-08	1.60E-08	1.60E-08	1.75E-08	1.75E-08	6.30E-09	6.30E-09	1.87E-08	1.87E-08	6.33E-09	6.33E-09	1.78E-07	1.78E-07	8760
WCFTAIL9	1.48E-05	1.29E-05	1.29E-05	1.56E-06	6.10E-07	6.10E-07	6.22E-08	6.22E-08	6.22E-08	1.60E-08	1.60E-08	1.75E-08	1.75E-08	6.30E-09	6.30E-09	1.87E-08	1.87E-08	6.33E-09	6.33E-09	1.78E-07	1.78E-07	8760
WCFTAIL10	1.48E-05	1.29E-05	1.29E-05	1.56E-06	6.10E-07	6.10E-07	6.22E-08	6.22E-08	6.22E-08	1.60E-08	1.60E-08	1.75E-08	1.75E-08	6.30E-09	6.30E-09	1.87E-08	1.87E-08	6.33E-09	6.33E-09	1.78E-07	1.78E-07	8760
WCFTAIL11	1.48E-05	1.29E-05	1.29E-05	1.56E-06	6.10E-07	6.10E-07	6.22E-08	6.22E-08	6.22E-08	1.60E-08	1.60E-08	1.75E-08	1.75E-08	6.30E-09	6.30E-09	1.87E-08	1.87E-08	6.33E-09	6.33E-09	1.78E-07	1.78E-07	8760
WCFTAIL12	1.48E-05	1.29E-05	1.29E-05	1.56E-06	6.10E-07	6.10E-07	6.22E-08	6.22E-08	6.22E-08	1.60E-08	1.60E-08	1.75E-08	1.75E-08	6.30E-09	6.30E-09	1.87E-08	1.87E-08	6.33E-09	6.33E-09	1.78E-07	1.78E-07	8760
WCFTAIL13	1.48E-05	1.29E-05	1.29E-05	1.56E-06	6.10E-07	6.10E-07	6.22E-08	6.22E-08	6.22E-08	1.60E-08	1.60E-08	1.75E-08	1.75E-08	6.30E-09	6.30E-09	1.87E-08	1.87E-08	6.33E-09	6.33E-09	1.78E-07	1.78E-07	8760
WCFTAIL14	1.48E-05	1.29E-05	1.29E-05	1.56E-06	6.10E-07	6.10E-07	6.22E-08	6.22E-08	6.22E-08	1.60E-08	1.60E-08	1.75E-08	1.75E-08	6.30E-09	6.30E-09	1.87E-08	1.87E-08	6.33E-09	6.33E-09	1.78E-07	1.78E-07	8760
WCFTAIL15	1.48E-05	1.29E-05	1.29E-05	1.56E-06	6.10E-07	6.10E-07	6.22E-08	6.22E-08	6.22E-08	1.60E-08	1.60E-08	1.75E-08	1.75E-08	6.30E-09	6.30E-09	1.87E-08	1.87E-08	6.33E-09	6.33E-09	1.78E-07	1.78E-07	8760
WCFTAIL16	1.48E-05	1.29E-05	1.29E-05	1.56E-06	6.10E-07	6.10E-07	6.22E-08	6.22E-08	6.22E-08	1.60E-08	1.60E-08	1.75E-08	1.75E-08	6.30E-09	6.30E-09	1.87E-08	1.87E-08	6.33E-09	6.33E-09	1.78E-07	1.78E-07	8760
WCFTAIL17	1.48E-05	1.29E-05	1.29E-05	1.56E-06	6.10E-07	6.10E-07	6.22E-08	6.22E-08	6.22E-08	1.60E-08	1.60E-08	1.75E-08	1.75E-08	6.30E-09	6.30E-09	1.87E-08	1.87E-08	6.33E-09	6.33E-09	1.78E-07	1.78E-07	8760
WCFTAIL18	1.48E-05	1.29E-05	1.29E-05	1.56E-06	6.10E-07	6.10E-07	6.22E-08	6.22E-08	6.22E-08	1.60E-08	1.60E-08	1.75E-08	1.75E-08	6.30E-09	6.30E-09	1.87E-08	1.87E-08	6.33E-09	6.33E-09	1.78E-07	1.78E-07	8760
WCFTAIL19	1.48E-05	1.29E-05	1.29E-05	1.56E-06	6.10E-07	6.10E-07	6.22E-08	6.22E-08	6.22E-08	1.60E-08	1.60E-08	1.75E-08	1.75E-08	6.30E-09	6.30E-09	1.87E-08	1.87E-08	6.33E-09	6.33E-09	1.78E-07	1.78E-07	8760
WCFTAIL20	1.48E-05	1.29E-05	1.29E-05	1.56E-06	6.10E-07	6.10E-07	6.22E-08	6.22E-08	6.22E-08	1.60E-08	1.60E-08	1.75E-08	1.75E-08	6.30E-09	6.30E-09	1.87E-08	1.87E-08	6.33E-09	6.33E-09	1.78E-07	1.78E-07	8760
1MFUGD1	0.00E+00	0.00E+00	0.00E+00	3.52E-03	3.52E-04	3.52E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD2	0.00E+00	0.00E+00	0.00E+00	3.52E-03	3.52E-04	3.52E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD3	0.00E+00	0.00E+00	0.00E+00	3.52E-03	3.52E-04	3.52E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD4	0.00E+00	0.00E+00	0.00E+00	3.52E-03	3.52E-04	3.52E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD5	0.00E+00	0.00E+00	0.00E+00	3.52E-03	3.52E-04	3.52E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD6	0.00E+00	0.00E+00	0.00E+00	3.52E-03	3.52E-04	3.52E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD1	0.00E+00	0.00E+00	0.00E+00	3.52E-03	3.52E-04	3.52E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD2	0.00E+00	0.00E+00	0.00E+00	3.52E-03	3.52E-04	3.52E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380

Source ID	Modeled Emission Rates (g/s)																					Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	Benzene 1-hr	Benzene Annual[1]	Toluene 1-hr	Toluene Annual[1]	E-Benzene 1-hr	E-Benzene Annual[1]	Xylenes 1-hr	Xylenes Annual[1]	n-Hexane 1-hr	n-Hexane Annual[1]	Formaldehyde 1-hr	Formaldehyde Annual[1]	
2MFUGD3	0.00E+00	0.00E+00	0.00E+00	3.52E-03	3.52E-04	3.52E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD4	0.00E+00	0.00E+00	0.00E+00	3.52E-03	3.52E-04	3.52E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD5	0.00E+00	0.00E+00	0.00E+00	3.52E-03	3.52E-04	3.52E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD6	0.00E+00	0.00E+00	0.00E+00	3.52E-03	3.52E-04	3.52E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
3MFUGD1	0.00E+00	0.00E+00	0.00E+00	3.01E-03	3.01E-04	3.01E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
3MFUGD2	0.00E+00	0.00E+00	0.00E+00	3.01E-03	3.01E-04	3.01E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
3MFUGD3	0.00E+00	0.00E+00	0.00E+00	3.01E-03	3.01E-04	3.01E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
3MFUGD4	0.00E+00	0.00E+00	0.00E+00	3.01E-03	3.01E-04	3.01E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
3MFUGD5	0.00E+00	0.00E+00	0.00E+00	3.01E-03	3.01E-04	3.01E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
3MFUGD6	0.00E+00	0.00E+00	0.00E+00	3.01E-03	3.01E-04	3.01E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
3MFUGD7	0.00E+00	0.00E+00	0.00E+00	3.01E-03	3.01E-04	3.01E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
4MFUGD1	0.00E+00	0.00E+00	0.00E+00	3.01E-03	3.01E-04	3.01E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
4MFUGD2	0.00E+00	0.00E+00	0.00E+00	3.01E-03	3.01E-04	3.01E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
4MFUGD3	0.00E+00	0.00E+00	0.00E+00	3.01E-03	3.01E-04	3.01E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
4MFUGD4	0.00E+00	0.00E+00	0.00E+00	3.01E-03	3.01E-04	3.01E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
4MFUGD5	0.00E+00	0.00E+00	0.00E+00	3.01E-03	3.01E-04	3.01E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
4MFUGD6	0.00E+00	0.00E+00	0.00E+00	3.01E-03	3.01E-04	3.01E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
4MFUGD7	0.00E+00	0.00E+00	0.00E+00	3.01E-03	3.01E-04	3.01E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
5MFUGD1	0.00E+00	0.00E+00	0.00E+00	3.01E-03	3.01E-04	3.01E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
5MFUGD2	0.00E+00	0.00E+00	0.00E+00	3.01E-03	3.01E-04	3.01E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
5MFUGD3	0.00E+00	0.00E+00	0.00E+00	3.01E-03	3.01E-04	3.01E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
5MFUGD4	0.00E+00	0.00E+00	0.00E+00	3.01E-03	3.01E-04	3.01E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
5MFUGD5	0.00E+00	0.00E+00	0.00E+00	3.01E-03	3.01E-04	3.01E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
5MFUGD6	0.00E+00	0.00E+00	0.00E+00	3.01E-03	3.01E-04	3.01E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
5MFUGD7	0.00E+00	0.00E+00	0.00E+00	3.01E-03	3.01E-04	3.01E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD1	0.00E+00	0.00E+00	0.00E+00	3.90E-03	3.90E-04	3.90E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD2	0.00E+00	0.00E+00	0.00E+00	3.90E-03	3.90E-04	3.90E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380

Source ID	Modeled Emission Rates (g/s)																					Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	Benzene 1-hr	Benzene Annual[1]	Toluene 1-hr	Toluene Annual[1]	E-Benzene 1-hr	E-Benzene Annual[1]	Xylenes 1-hr	Xylenes Annual[1]	n-Hexane 1-hr	n-Hexane Annual[1]	Formaldehyde 1-hr	Formaldehyde Annual[1]	
WCFMFUGD3	0.00E+00	0.00E+00	0.00E+00	3.90E-03	3.90E-04	3.90E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD4	0.00E+00	0.00E+00	0.00E+00	3.90E-03	3.90E-04	3.90E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD5	0.00E+00	0.00E+00	0.00E+00	3.90E-03	3.90E-04	3.90E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD6	0.00E+00	0.00E+00	0.00E+00	3.90E-03	3.90E-04	3.90E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD7	0.00E+00	0.00E+00	0.00E+00	3.90E-03	3.90E-04	3.90E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD8	0.00E+00	0.00E+00	0.00E+00	3.90E-03	3.90E-04	3.90E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD9	0.00E+00	0.00E+00	0.00E+00	3.90E-03	3.90E-04	3.90E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD10	0.00E+00	0.00E+00	0.00E+00	3.90E-03	3.90E-04	3.90E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD11	0.00E+00	0.00E+00	0.00E+00	3.90E-03	3.90E-04	3.90E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD12	0.00E+00	0.00E+00	0.00E+00	3.90E-03	3.90E-04	3.90E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD13	0.00E+00	0.00E+00	0.00E+00	3.90E-03	3.90E-04	3.90E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD14	0.00E+00	0.00E+00	0.00E+00	3.90E-03	3.90E-04	3.90E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD15	0.00E+00	0.00E+00	0.00E+00	3.90E-03	3.90E-04	3.90E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD16	0.00E+00	0.00E+00	0.00E+00	3.90E-03	3.90E-04	3.90E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD17	0.00E+00	0.00E+00	0.00E+00	3.90E-03	3.90E-04	3.90E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD18	0.00E+00	0.00E+00	0.00E+00	3.90E-03	3.90E-04	3.90E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD19	0.00E+00	0.00E+00	0.00E+00	3.90E-03	3.90E-04	3.90E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD20	0.00E+00	0.00E+00	0.00E+00	3.90E-03	3.90E-04	3.90E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD1	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD2	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD3	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD4	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD5	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD6	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD7	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD8	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD9	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380

Source ID	Modeled Emission Rates (g/s)																					Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	Benzene 1-hr	Benzene Annual[1]	Toluene 1-hr	Toluene Annual[1]	E-Benzene 1-hr	E-Benzene Annual[1]	Xylenes 1-hr	Xylenes Annual[1]	n-Hexane 1-hr	n-Hexane Annual[1]	Formaldehyde 1-hr	Formaldehyde Annual[1]	
WOCSMFUGD10	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD11	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD12	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD13	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD14	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD15	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD16	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD17	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD18	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD19	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD20	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD21	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD22	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD23	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD24	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD25	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD26	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD27	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD28	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD29	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD30	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD31	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD32	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD33	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD34	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD35	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD36	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380

Source ID	Modeled Emission Rates (g/s)																					Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	Benzene 1-hr	Benzene Annual[1]	Toluene 1-hr	Toluene Annual[1]	E-Benzene 1-hr	E-Benzene Annual[1]	Xylenes 1-hr	Xylenes Annual[1]	n-Hexane 1-hr	n-Hexane Annual[1]	Formaldehyde 1-hr	Formaldehyde Annual[1]	
WOCSMFUGD37	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD38	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD39	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD40	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD41	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD42	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCSMFUGD43	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
AIRSMFUGD1	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
AIRSMFUGD2	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
AIRSMFUGD3	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
AIRSMFUGD4	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
AIRSMFUGD5	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
AIRSMFUGD6	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
AIRSMFUGD7	0.00E+00	0.00E+00	0.00E+00	3.79E-03	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCTEMPTRBS1	4.41E-01	4.35E-01	4.35E-01	5.04E-02	5.04E-02	5.04E-02	5.06E-02	5.06E-02	5.06E-02	9.17E-05	9.17E-05	9.93E-04	9.93E-04	2.45E-04	2.45E-04	4.89E-04	4.89E-04	0.00E+00	0.00E+00	1.68E-03	1.68E-03	8760
WOCTEMPTRBS2	4.41E-01	4.35E-01	4.35E-01	5.04E-02	5.04E-02	5.04E-02	5.06E-02	5.06E-02	5.06E-02	9.17E-05	9.17E-05	9.93E-04	9.93E-04	2.45E-04	2.45E-04	4.89E-04	4.89E-04	0.00E+00	0.00E+00	1.68E-03	1.68E-03	8760
WOCTEMPTRBN1	4.41E-01	4.35E-01	4.35E-01	5.04E-02	5.04E-02	5.04E-02	5.06E-02	5.06E-02	5.06E-02	9.17E-05	9.17E-05	9.93E-04	9.93E-04	2.45E-04	2.45E-04	4.89E-04	4.89E-04	0.00E+00	0.00E+00	1.68E-03	1.68E-03	8760
WOCTEMPTRBN2	4.41E-01	4.35E-01	4.35E-01	5.04E-02	5.04E-02	5.04E-02	5.06E-02	5.06E-02	5.06E-02	9.17E-05	9.17E-05	9.93E-04	9.93E-04	2.45E-04	2.45E-04	4.89E-04	4.89E-04	0.00E+00	0.00E+00	1.68E-03	1.68E-03	8760
WOCPCEN	7.88E-08	3.56E-07	3.56E-07	2.83E-08	2.75E-08	2.75E-08	7.86E-10	7.86E-10	7.86E-10	6.22E-11	6.22E-11	4.67E-11	4.67E-11	1.90E-11	1.90E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.83E-10	1.83E-10	8760
WOCSCEN	6.12E-08	1.07E-07	1.07E-07	8.44E-09	8.44E-09	8.44E-09	7.50E-09	7.50E-09	7.50E-09	2.33E-12	2.33E-12	3.77E-12	3.77E-12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.99E-12	6.99E-12	8.33E-11	8.33E-11	8760
WOCNREN	5.55E-07	2.47E-06	1.86E-06	2.08E-07	1.99E-07	1.35E-07	7.98E-09	7.98E-09	1.46E-09	3.82E-10	3.76E-10	3.77E-10	1.89E-10	1.17E-10	1.15E-10	3.74E-12	4.27E-13	0.00E+00	0.00E+00	1.61E-09	6.04E-10	8760
WOCNMFUGD1	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.78E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD2	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD3	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD4	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD5	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD6	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380

Source ID	Modeled Emission Rates (g/s)																					Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	Benzene 1-hr	Benzene Annual[1]	Toluene 1-hr	Toluene Annual[1]	E-Benzene 1-hr	E-Benzene Annual[1]	Xylenes 1-hr	Xylenes Annual[1]	n-Hexane 1-hr	n-Hexane Annual[1]	Formaldehyde 1-hr	Formaldehyde Annual[1]	
WOCNMFUGD7	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD8	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD9	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD10	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD11	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD12	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD13	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD14	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD15	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD16	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD17	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD18	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD19	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD20	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD21	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD22	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD23	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD24	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD25	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD26	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD27	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD28	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD29	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD30	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCNMFUGD31	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
AIRNMFUGD1	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
AIRNMFUGD2	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380

Source ID	Modeled Emission Rates (g/s)																					Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	Benzene 1-hr	Benzene Annual[1]	Toluene 1-hr	Toluene Annual[1]	E-Benzene 1-hr	E-Benzene Annual[1]	Xylenes 1-hr	Xylenes Annual[1]	n-Hexane 1-hr	n-Hexane Annual[1]	Formaldehyde 1-hr	Formaldehyde Annual[1]	
AIRNMFUGD3	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
AIRNMFUGD4	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
AIRNMFUGD5	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
AIRNMFUGD6	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
AIRNMFUGD7	0.00E+00	0.00E+00	0.00E+00	3.78E-03	3.78E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WILLOWAIR1N	2.10E-08	7.86E-09	7.86E-09	3.04E-10	3.04E-10	3.04E-10	1.18E-09	1.18E-09	1.18E-09	4.31E-11	4.31E-11	1.78E-11	1.78E-11	4.70E-12	4.70E-12	1.16E-11	1.16E-11	8.56E-13	8.56E-13	3.18E-10	3.18E-10	8760
WILLOWAIR2N	2.10E-08	7.86E-09	7.86E-09	3.04E-10	3.04E-10	3.04E-10	1.18E-09	1.18E-09	1.18E-09	4.31E-11	4.31E-11	1.78E-11	1.78E-11	4.70E-12	4.70E-12	1.16E-11	1.16E-11	8.56E-13	8.56E-13	3.18E-10	3.18E-10	8760
WILLOWAIR3N	2.10E-08	7.86E-09	7.86E-09	3.04E-10	3.04E-10	3.04E-10	1.18E-09	1.18E-09	1.18E-09	4.31E-11	4.31E-11	1.78E-11	1.78E-11	4.70E-12	4.70E-12	1.16E-11	1.16E-11	8.56E-13	8.56E-13	3.18E-10	3.18E-10	8760
WOCOPSFUGDN	0.00E+00	0.00E+00	0.00E+00	1.64E-01	2.45E-02	2.45E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCOPSTDRS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.85E-05	5.85E-05	2.85E-05	2.85E-05	3.88E-06	3.88E-06	1.14E-05	1.14E-05	6.29E-05	6.29E-05	0.00E+00	0.00E+00	8760
WOCPWRGENS1	1.30E+00	1.30E+00	6.48E-01	3.70E-02	3.70E-02	1.85E-02	2.45E-03	2.45E-03	1.22E-03	1.22E-03	6.12E-04	4.43E-04	2.22E-04	0.00E+00	0.00E+00	3.04E-04	1.52E-04	0.00E+00	0.00E+00	1.24E-04	6.22E-05	4380
WOCPWRGENS2	1.30E+00	1.30E+00	6.48E-01	3.70E-02	3.70E-02	1.85E-02	2.45E-03	2.45E-03	1.22E-03	1.22E-03	6.12E-04	4.43E-04	2.22E-04	0.00E+00	0.00E+00	3.04E-04	1.52E-04	0.00E+00	0.00E+00	1.24E-04	6.22E-05	4380
WOCPWRGENS3	1.30E+00	1.30E+00	6.48E-01	3.70E-02	3.70E-02	1.85E-02	2.45E-03	2.45E-03	1.22E-03	1.22E-03	6.12E-04	4.43E-04	2.22E-04	0.00E+00	0.00E+00	3.04E-04	1.52E-04	0.00E+00	0.00E+00	1.24E-04	6.22E-05	4380
WLWIG01N	3.99E-02	9.94E-02	8.28E-02	1.36E-01	1.36E-01	1.13E-01	3.54E-03	3.54E-03	2.95E-03	9.34E-07	7.78E-07	1.51E-06	1.26E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.80E-06	2.33E-06	3.34E-05	2.78E-05	7300
WLWIG02N	3.99E-02	9.94E-02	8.28E-02	1.36E-01	1.36E-01	1.13E-01	3.54E-03	3.54E-03	2.95E-03	9.34E-07	7.78E-07	1.51E-06	1.26E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.80E-06	2.33E-06	3.34E-05	2.78E-05	7300
WLWHL05N	5.93E-03	2.37E-02	2.37E-02	2.82E-03	2.53E-03	2.53E-03	2.54E-04	2.54E-04	2.54E-04	2.54E-07	2.54E-07	7.36E-06	7.36E-06	7.55E-08	7.55E-08	1.29E-07	1.29E-07	0.00E+00	0.00E+00	3.92E-05	3.92E-05	8760
WOCOPSTJFN	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.01E-06	1.01E-06	8.49E-06	8.49E-06	2.59E-06	2.59E-06	5.18E-06	5.18E-06	2.01E-06	2.01E-06	0.00E+00	0.00E+00	8760
WOCOPSTHCN	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.50E-05	8.50E-05	3.37E-05	3.37E-05	3.60E-06	3.60E-06	1.05E-05	1.05E-05	1.02E-04	1.02E-04	0.00E+00	0.00E+00	8760
WOCOPSTDN	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.88E-07	2.88E-07	2.73E-06	2.73E-06	4.31E-07	4.31E-07	7.19E-06	7.19E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
RFDGMT1	3.50E-01	3.50E-01	2.69E+00	3.50E-01	3.50E-01	9.50E-02	3.80E-02	3.80E-02	1.96E-02	8.87E-03	8.87E-03	3.32E-03	3.32E-03	1.29E-02	1.29E-02	1.51E-02	1.51E-02	6.49E-02	6.49E-02	3.69E-03	3.69E-03	8760
RFDGMT2	4.06E+00	7.21E+00	7.34E-01	4.06E+00	6.44E-01	7.71E-02	1.40E-02	1.40E-02	6.33E-03	4.03E-04	4.03E-04	4.60E-04	4.60E-04	3.16E-04	3.16E-04	5.75E-04	5.75E-04	6.62E-03	6.62E-03	4.03E-04	4.03E-04	8760
RFDCD5	1.82E+00	2.15E+00	2.15E+00	1.27E-01	1.27E-01	1.27E-01	2.70E-01	2.70E-01	2.70E-01	6.26E-02	6.26E-02	2.31E-02	2.31E-02	5.05E-02	5.05E-02	6.60E-02	6.60E-02	2.54E-01	2.54E-01	1.73E-02	1.73E-02	8760
RFDGWPDS1	1.25E+01	4.25E+00	4.25E+00	2.84E-01	2.84E-01	2.84E-01	3.87E-02	3.87E-02	3.87E-02	3.02E-03	3.02E-03	8.32E-03	8.32E-03	7.37E-02	7.37E-02	1.45E-01	1.45E-01	1.81E-01	1.81E-01	5.98E-05	5.98E-05	8760
RFDGWPDS2	1.25E+01	4.25E+00	4.25E+00	2.84E-01	2.84E-01	2.84E-01	3.87E-02	3.87E-02	3.87E-02	3.02E-03	3.02E-03	8.32E-03	8.32E-03	7.37E-02	7.37E-02	1.45E-01	1.45E-01	1.81E-01	1.81E-01	5.98E-05	5.98E-05	8760

1. Annual emission rate calculations are based on the number of actual daily operating hours provided in the EI. If actual daily operating hour timeframes were not known, 8760 hours were assumed.

A.3 Alternative D

A.3.1 Scenario 1: Construction

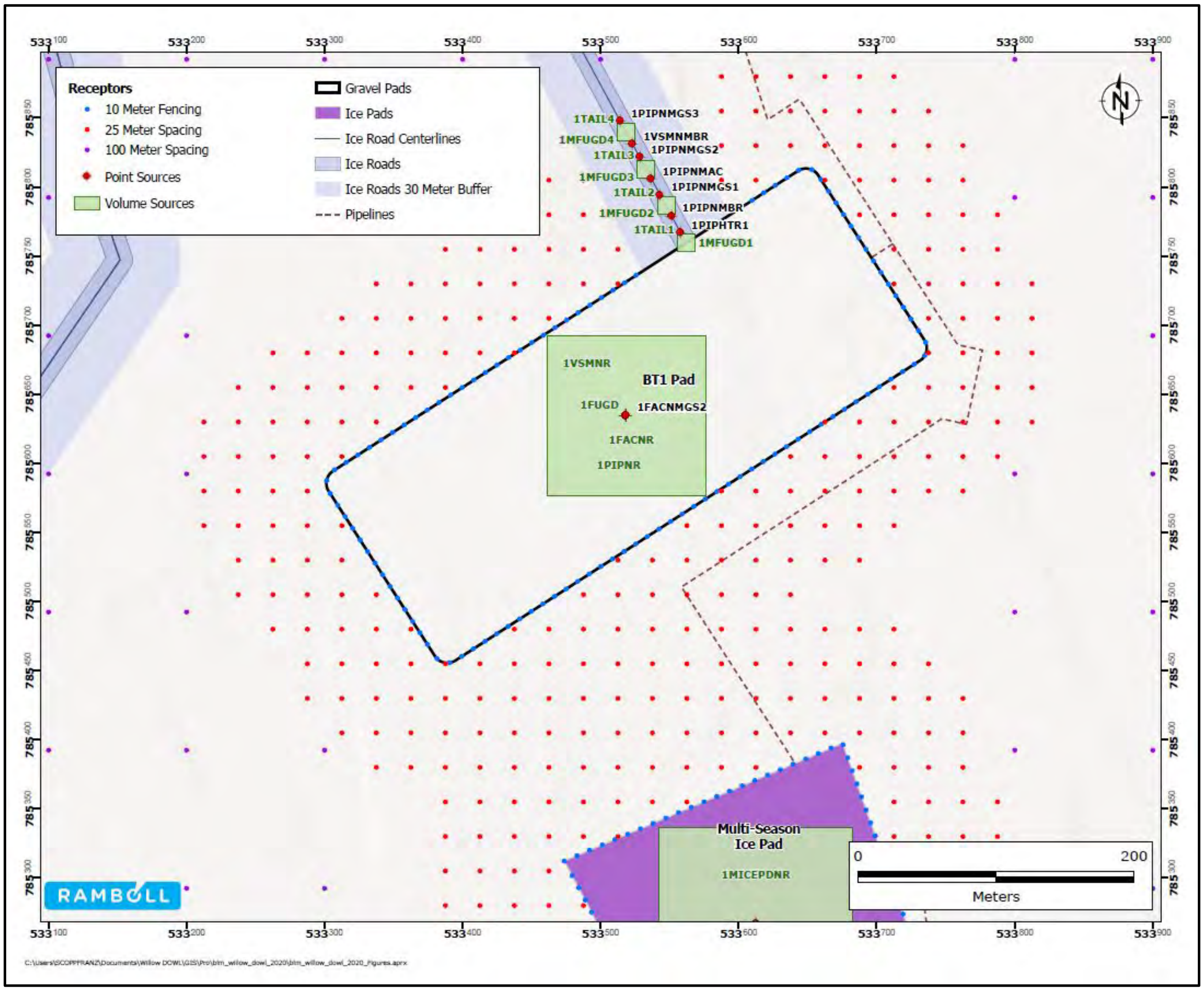

Figure A.3-1. Alternative D Near-field Model Scenario 1 Source Locations at BT1 with Ice Pad.

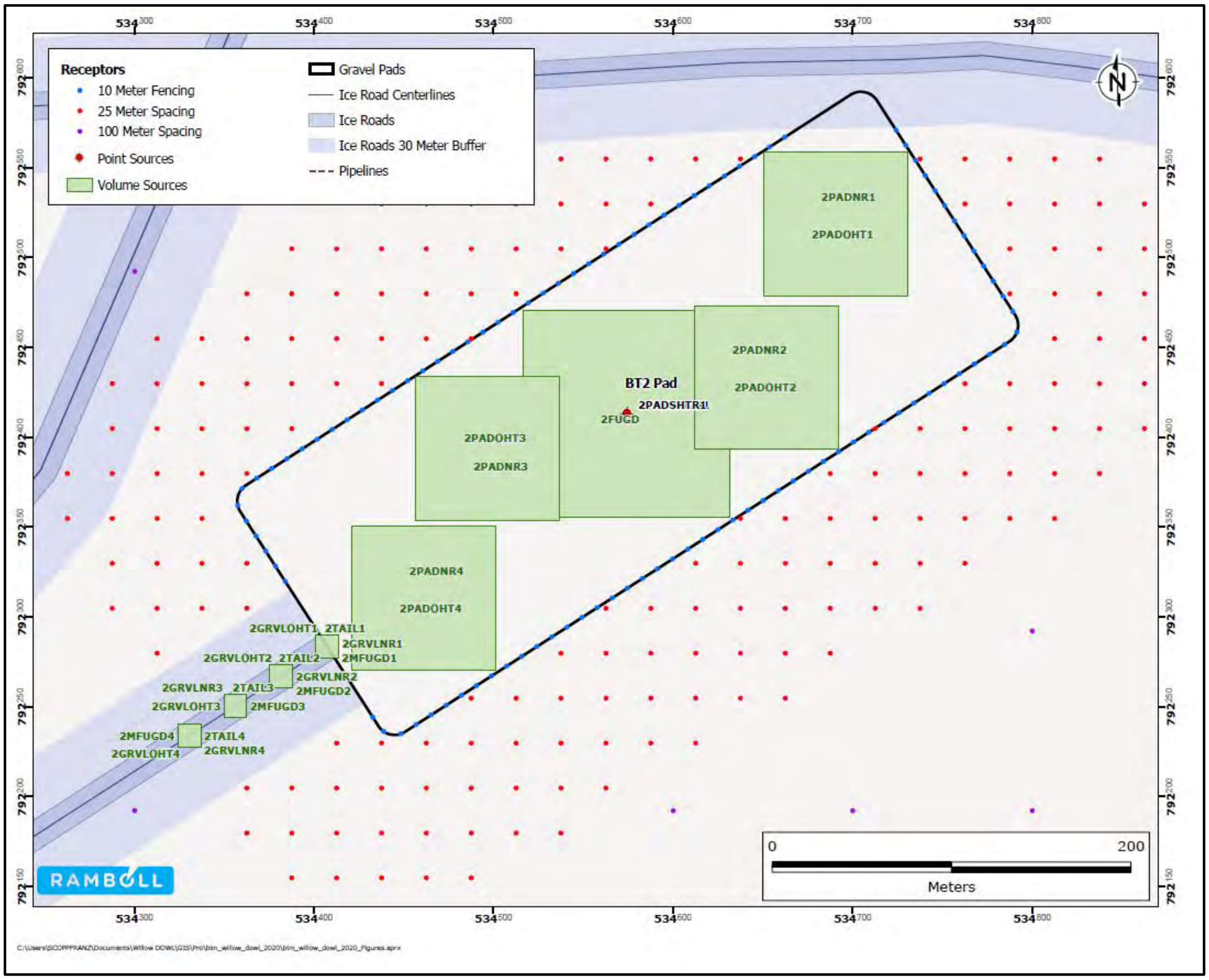

Figure A.3-2. Alternative D Near-field Model Scenario 1 Source Locations at BT2.

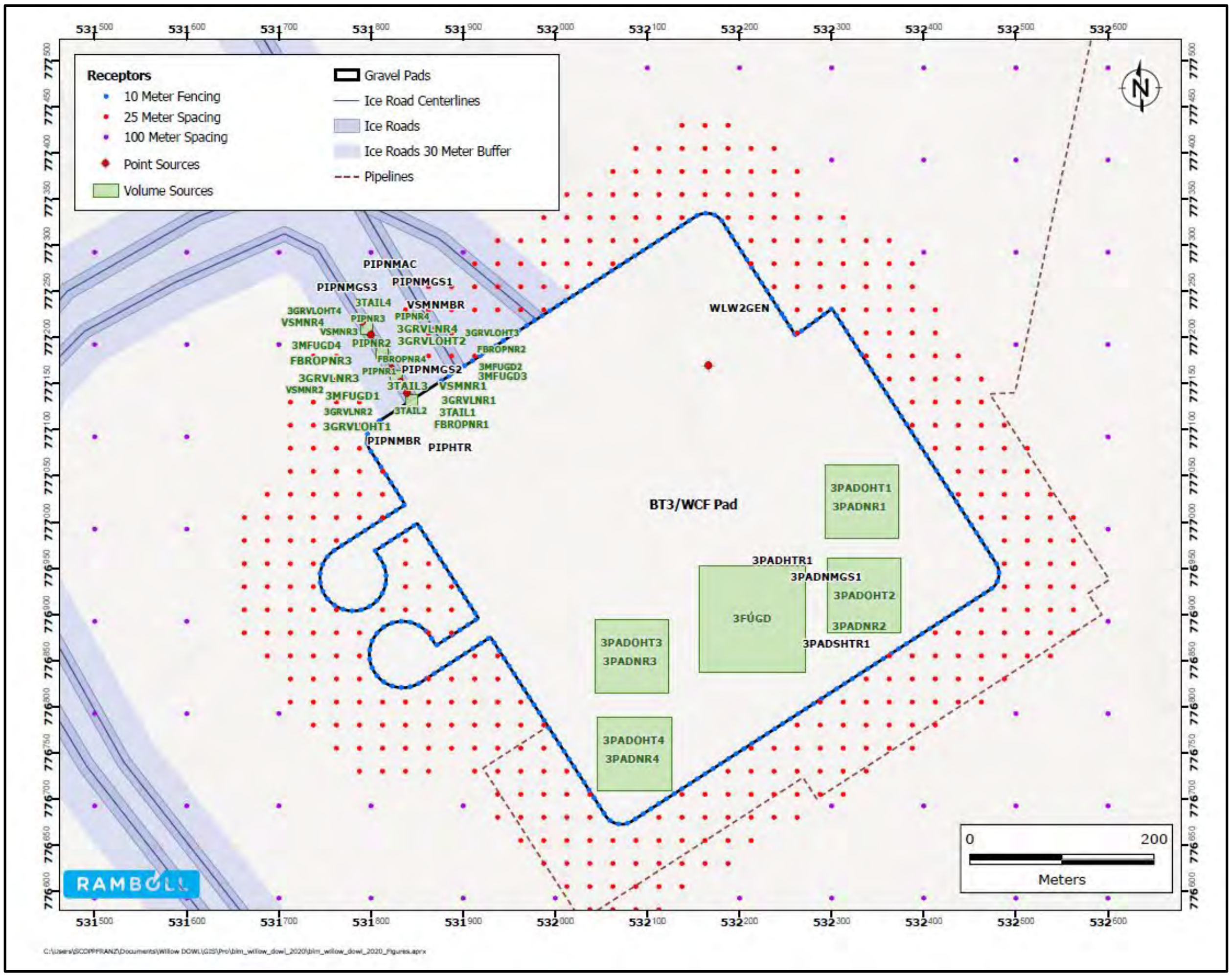

Figure A.3-3. Alternative D Near-field Model Scenario 1 Source Locations at BT3/WPF.

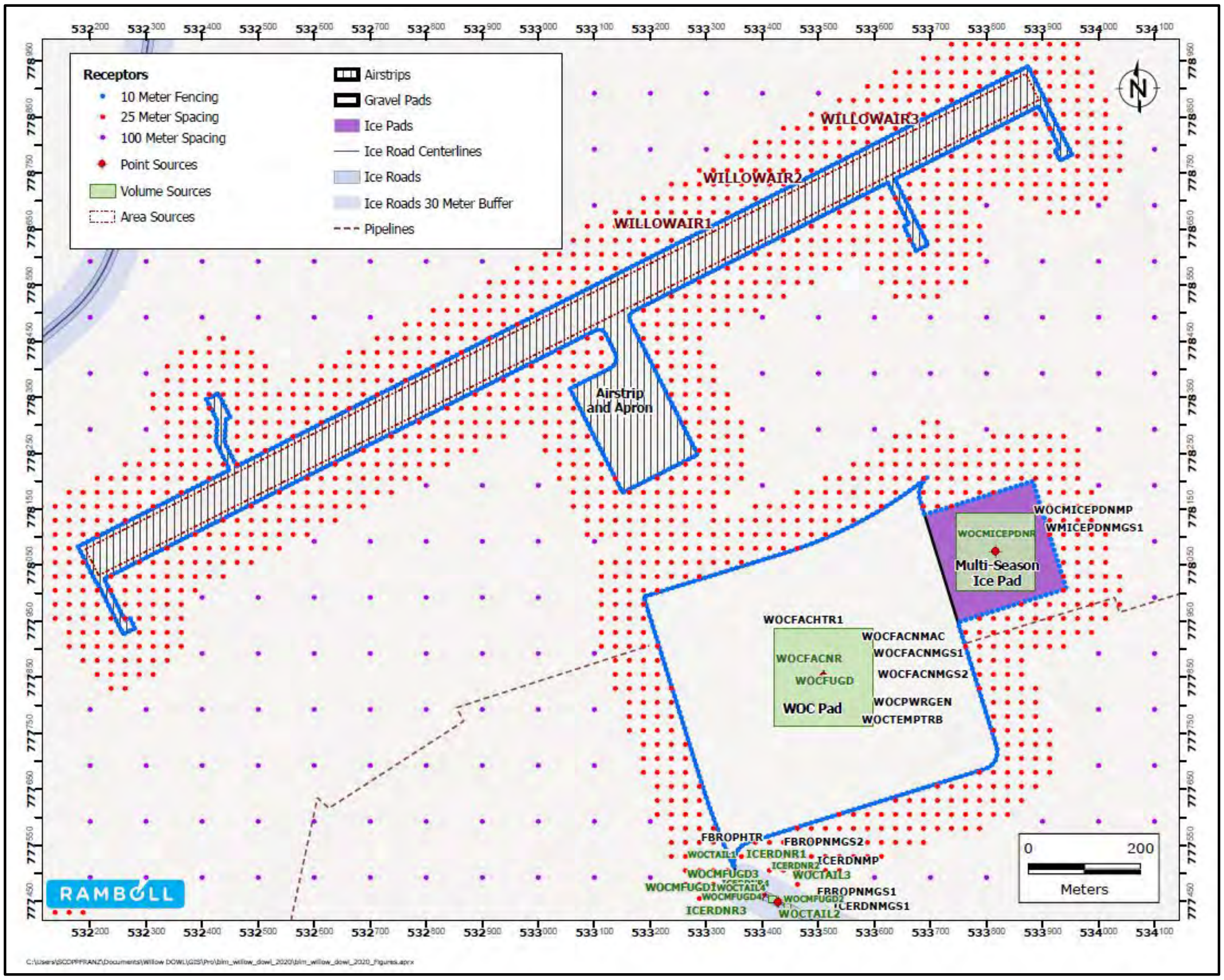

Figure A.3-4. Alternative D Near-field Model Scenario 1 Source Locations at Airstrip/Willow Operations Center.

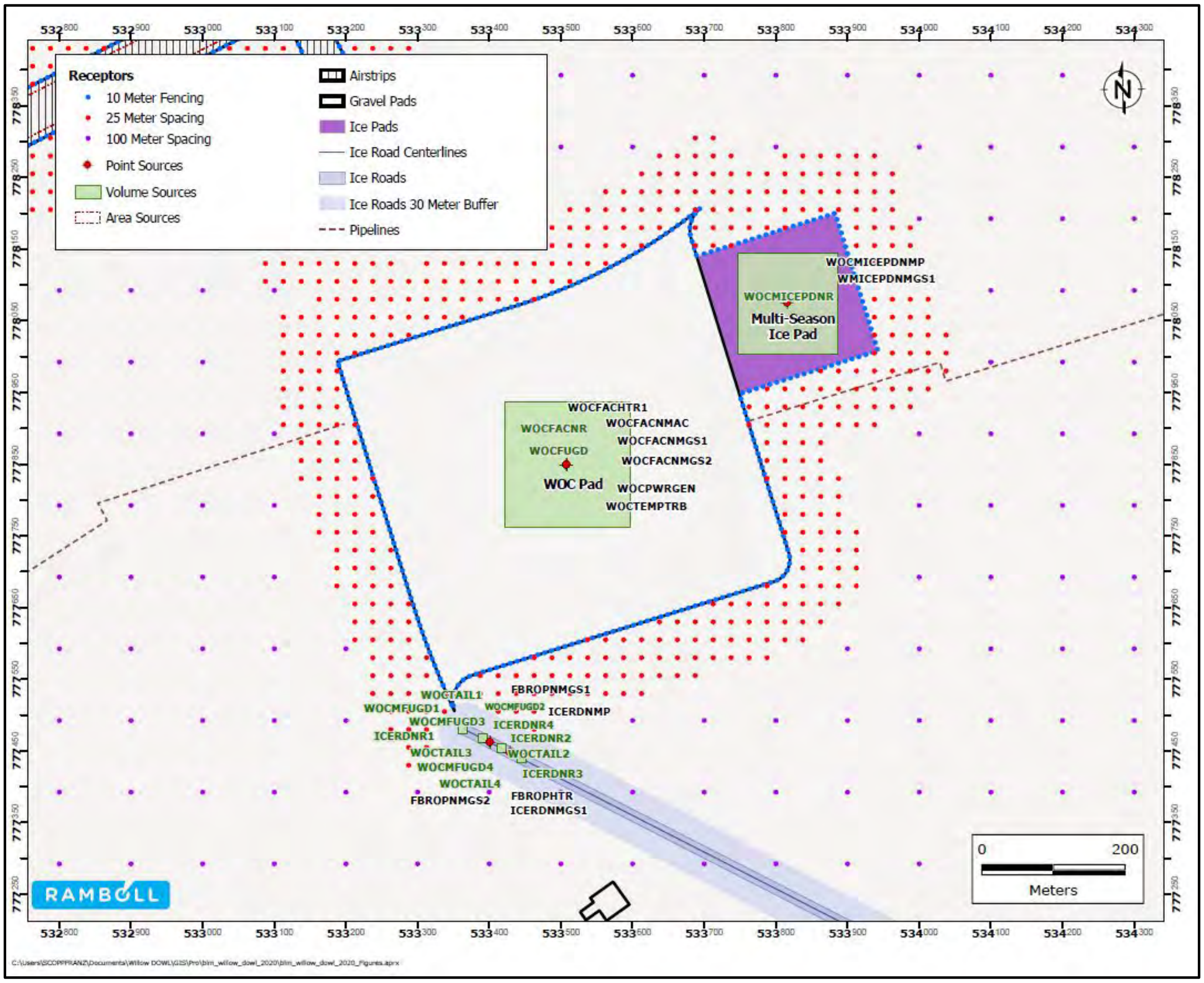

Figure A.3-5. Alternative D Near-field Model Scenario 1 Source Locations at WOC.

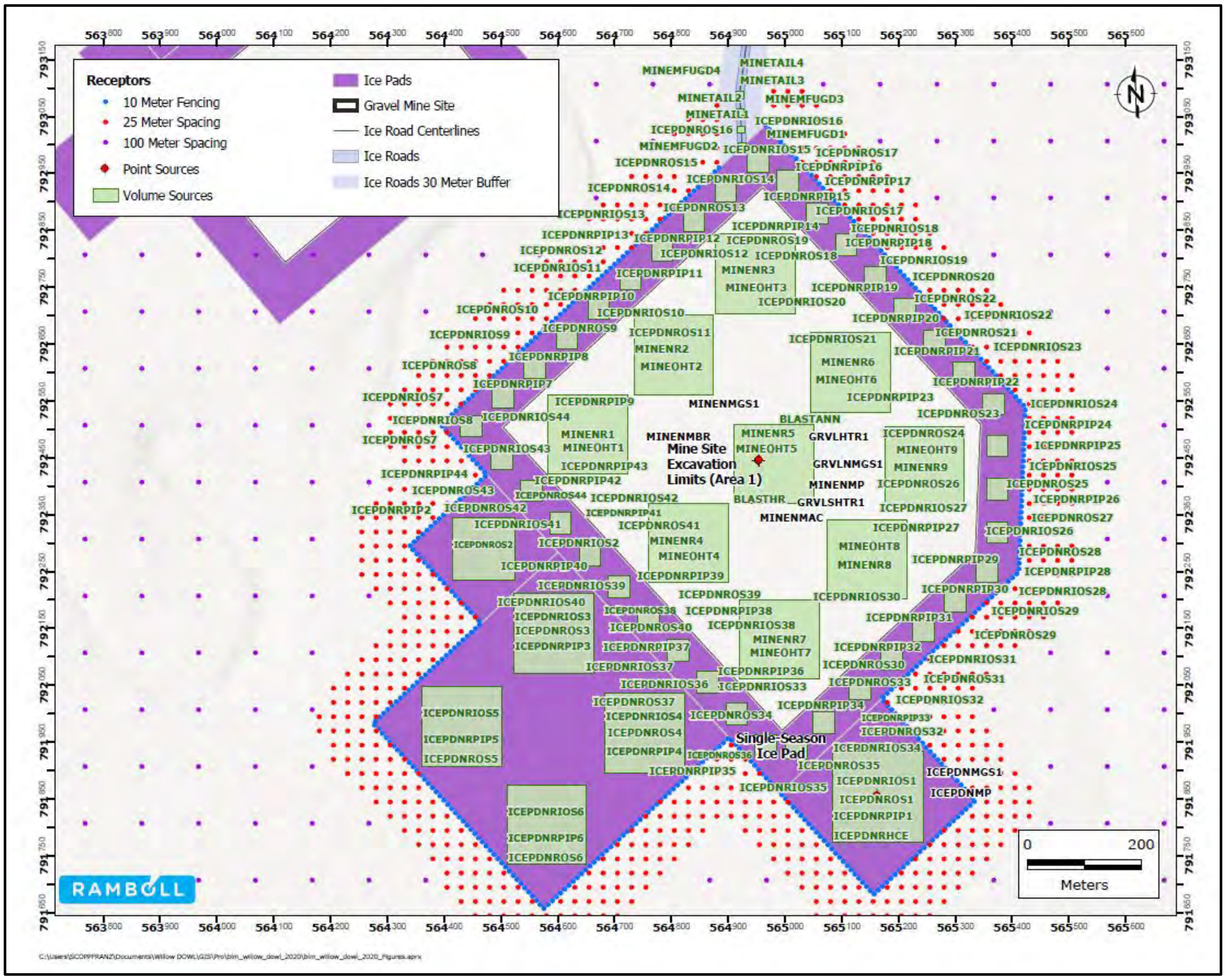

Figure A.3-6. Alternative D Near-field Model Scenario 1 Source Locations at Gravel Mine Site.

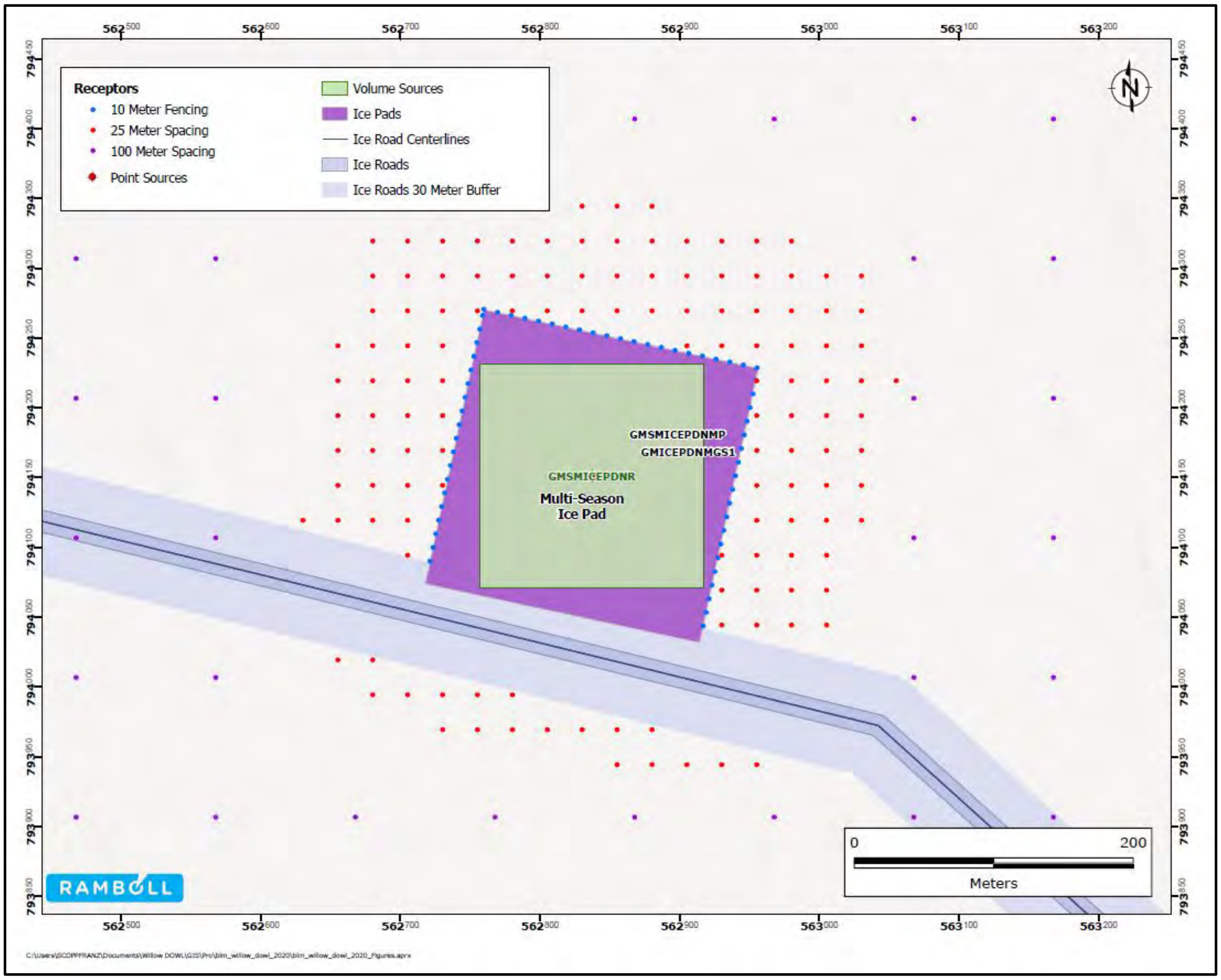

Figure A.3-7. Alternative D Near-field Model Scenario 1 Source Locations at Mine Camp.

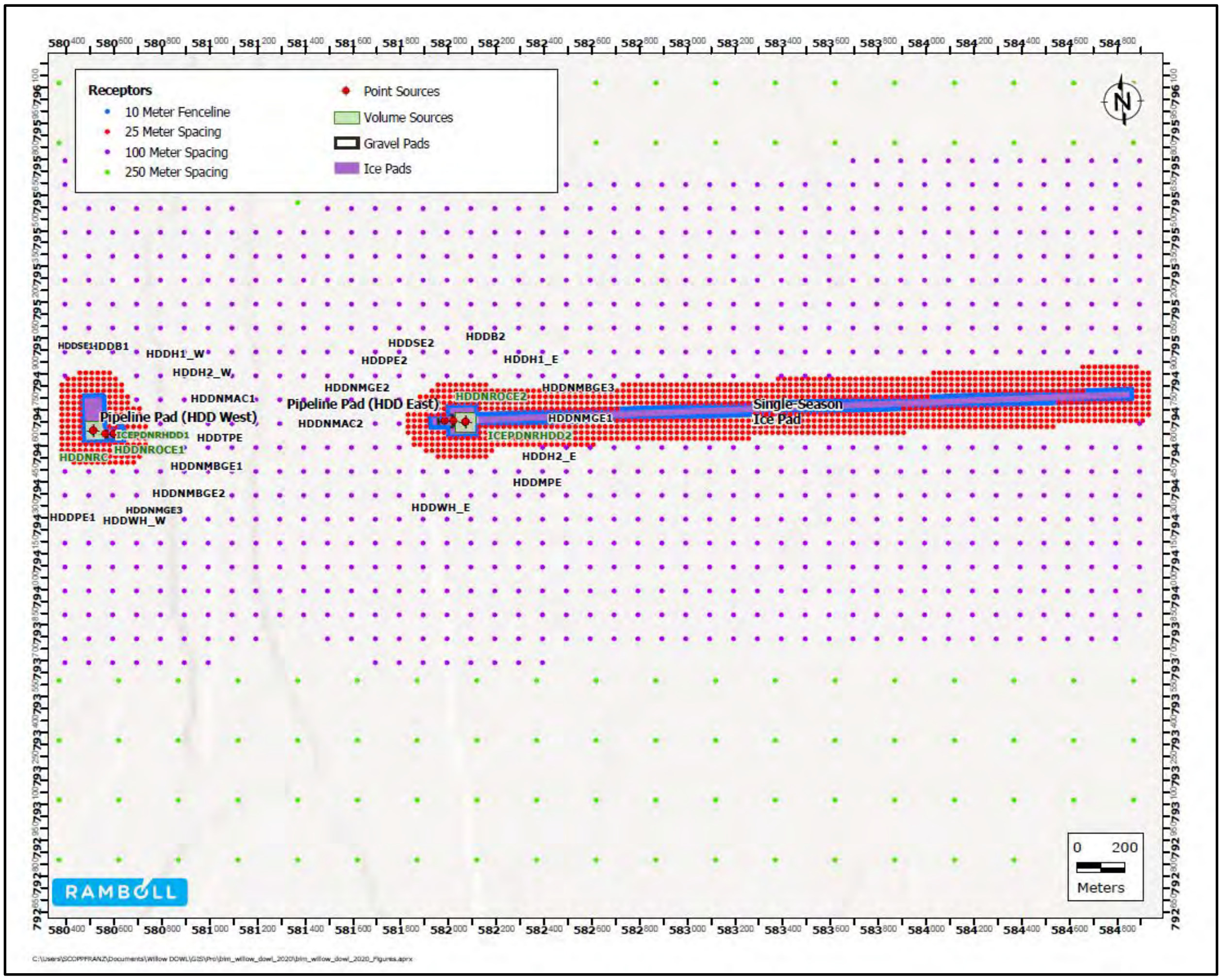

Figure A.3-8. Alternative D Near-field Model Scenario 1 Source Locations at HDD (wide view).

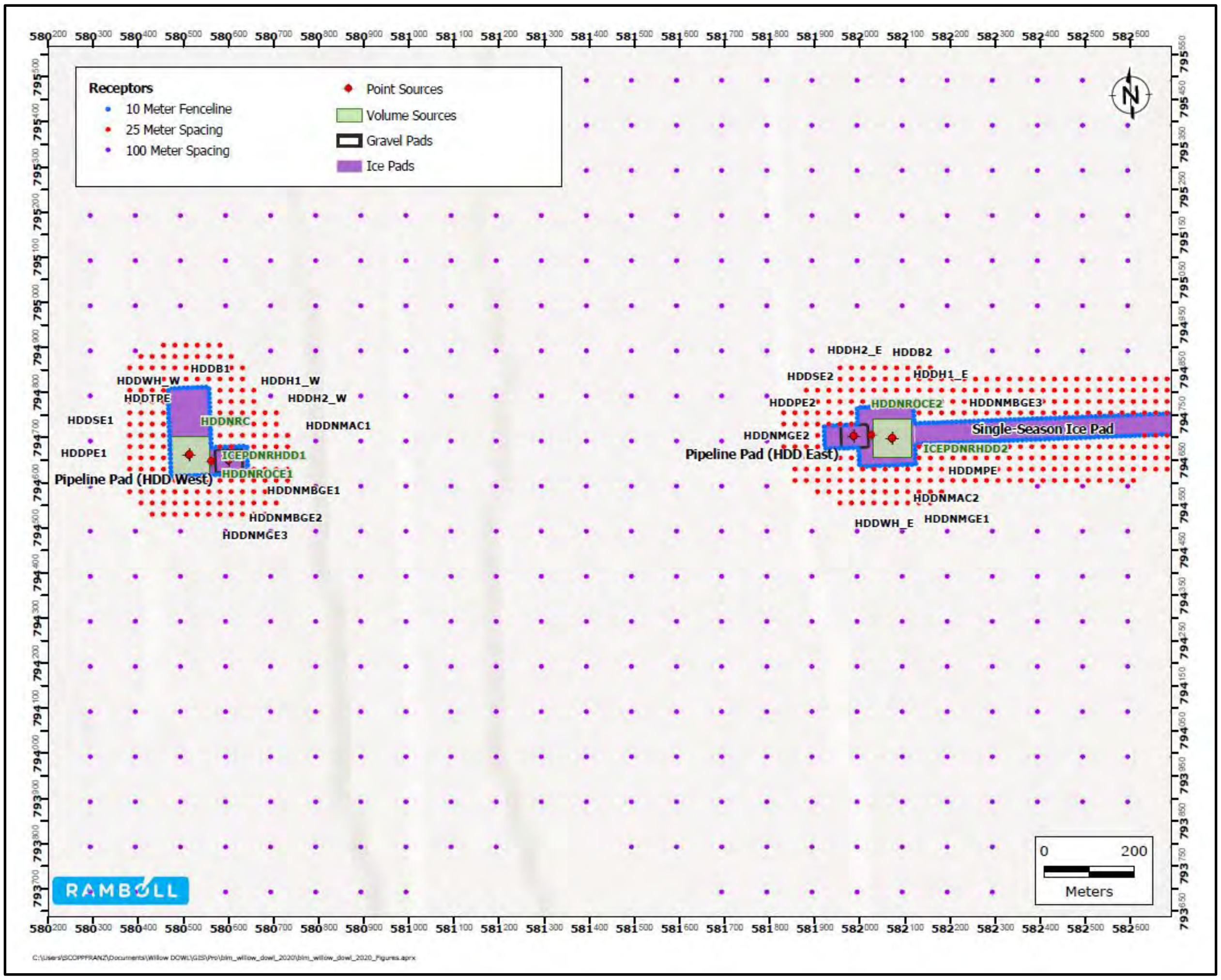

Figure A.3-9. Alternative C Near-field Model Scenario 1 Source Locations at HDD (close-up view).

Table A.3-1. Alternative D Near-field Model Scenario 1 Emissions Source Descriptions and In-stack Ratios

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
2PADHTR1	POINT	BT2 - Pad Construction - Construction Heaters	0.05	Diesel or natural gas heaters, or boiler
2PADSHTR1	POINT	BT2 - Pad Construction - Construction Shop Heaters	0.05	Diesel or natural gas heaters, or boiler
2PADNMGS1	POINT	BT2 - Pad Construction - Generator Sets	0.1	Diesel engines
2FUGD	VOLUME	BT2 - Wind Erosion Fugitive Dust - Wind Erosion Fugitive Dust	-	-
3PADHTR1	POINT	BT3 - Pad Construction - Construction Heaters	0.05	Diesel or natural gas heaters, or boiler
3PADSHTR1	POINT	BT3 - Pad Construction - Construction Shop Heaters	0.05	Diesel or natural gas heaters, or boiler
3PADNMGS1	POINT	BT3 - Pad Construction - Generator Sets	0.1	Diesel engines
3FUGD	VOLUME	BT3 - Wind Erosion Fugitive Dust - Wind Erosion Fugitive Dust	-	-
ALPAIR1	AREAPOLY	Aircraft Activity (Alpine Airstrip) - Release Height 50.8m	0.5	USEPA default value
ALPAIR2	AREAPOLY	Aircraft Activity (Alpine Airstrip) - Release Height 152.4m	0.5	USEPA default value
ALPAIR3	AREAPOLY	Aircraft Activity (Alpine Airstrip) - Release Height 254m	0.5	USEPA default value
BDGHTR1	POINT	Bridge Installation - Construction Heater #1	0.05	Diesel or natural gas heaters, or boiler
BDGHTR2	POINT	Bridge Installation - Construction Heater #2	0.05	Diesel or natural gas heaters, or boiler
BDGNMAC1	POINT	Bridge Installation - Air Compressors	0.1	Diesel engines
BDGNMAC2	POINT	Bridge Installation - Air Compressors	0.1	Diesel engines
BDGNR	VOLUME	Bridge Installation - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
BDGNMBR	POINT	Bridge Installation - Bore/Drill Rigs	0.2	Diesel tailpipe from non-road equipment
BDGNMGS1	POINT	Bridge Installation - Generator Sets	0.1	Diesel engines
BDGNMGS2	POINT	Bridge Installation - Generator Sets	0.1	Diesel engines
MINENMAC	POINT	Gravel Mining - Air Compressors	0.1	Diesel engines
MINENMBR	POINT	Gravel Mining - Bore/Drill Rigs	0.2	Diesel tailpipe from non-road equipment
MINENMGS1	POINT	Gravel Mining - Generator Sets	0.1	Diesel engines
MINENMP	POINT	Gravel Mining - Pumps	0.2	Diesel tailpipe from non-road equipment
BLASTANN	VOLUME	Blasting Emissions - Blasting Long Term	0.5	USEPA default value
BLASTHR	VOLUME	Blasting Emissions - Blasting Short Term	0.5	USEPA default value
GRVLHTR1	POINT	Gravel Roads Construction - Construction Heaters	0.05	Diesel or natural gas heaters, or boiler

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
GRVLSHTR1	POINT	Gravel Roads Construction - Construction Shop Heaters	0.05	Diesel or natural gas heaters, or boiler
GRVLNMGS1	POINT	Gravel Roads Construction - Generator Sets	0.1	Diesel engines
ICERDNMGS1	POINT	Seasonal Ice Road Construction - Generator Sets	0.1	Diesel engines
ICERDNMP	POINT	Seasonal Ice Road Construction - Pumps	0.2	Diesel tailpipe from non-road equipment
ICEPDNMGS1	POINT	Single Season Ice Pad Construction - Generator Sets	0.1	Diesel engines
ICEPDNMP	POINT	Single Season Ice Pad Construction - Pumps	0.2	Diesel tailpipe from non-road equipment
1MICEPDNR	VOLUME	Multi-Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
1MICEPDNMGS1	POINT	Multi-Season Ice Pad Construction - Generator Sets	0.1	Diesel engines
1MICEPDNMP	POINT	Multi-Season Ice Pad Construction - Pumps	0.2	Diesel tailpipe from non-road equipment
WOCMICEPDNR	VOLUME	Multi-Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
WMICEPDNMGS1	POINT	Multi-Season Ice Pad Construction - Generator Sets	0.1	Diesel engines
WOCMICEPDNMP	POINT	Multi-Season Ice Pad Construction - Pumps	0.2	Diesel tailpipe from non-road equipment
GMSMICEPDNR	VOLUME	Multi-Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
GMICEPDNMGS1	POINT	Multi-Season Ice Pad Construction - Generator Sets	0.1	Diesel engines
GMSMICEPDNMP	POINT	Multi-Season Ice Pad Construction - Pumps	0.2	Diesel tailpipe from non-road equipment
STCKPL	VOLUME	Stockpile Fugitive Dust - Stockpile	-	-
FBROPHTR	POINT	Fiber Optic Line Installation - Construction Heaters	0.05	Diesel or natural gas heaters, or boiler
FBROPNMGS1	POINT	Fiber Optic Line Installation - Generator Sets	0.1	Diesel engines
FBROPNMGS2	POINT	Fiber Optic Line Installation - Generator Sets	0.1	Diesel engines
PIPHTR	POINT	Pipeline Installation - Construction Heaters	0.05	Diesel or natural gas heaters, or boiler
PIPNMAC	POINT	Pipeline Installation - Air Compressors	0.1	Diesel engines
PIPNMBR	POINT	Pipeline Installation - Bore/Drill Rigs	0.2	Diesel tailpipe from non-road equipment
PIPNMGS1	POINT	Pipeline Installation - Generator Sets	0.1	Diesel engines
PIPNMGS2	POINT	Pipeline Installation - Generator Sets	0.1	Diesel engines
PIPNMGS3	POINT	Pipeline Installation - Generator Sets	0.1	Diesel engines
VSMNMBR	POINT	Vertical Support Member Construction - Bore/Drill Rigs	0.2	Diesel tailpipe from non-road equipment
HDDPE1	POINT	Boring Equipment - Primary Power Engine #1	0.2	Diesel tailpipe from non-road equipment

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
HDDPE2	POINT	Boring Equipment - Primary Power Engine #2	0.2	Diesel tailpipe from non-road equipment
HDDSE1	POINT	Boring Equipment - Secondary Power Engine #1	0.2	Diesel tailpipe from non-road equipment
HDDSE2	POINT	Boring Equipment - Secondary Power Engine #2	0.2	Diesel tailpipe from non-road equipment
HDDMPE	POINT	Boring Equipment - Mud Pump Engine	0.2	Diesel tailpipe from non-road equipment
HDDTPE	POINT	Boring Equipment - Transfer Pump Engine	0.2	Diesel tailpipe from non-road equipment
HDDB1	POINT	Boring Equipment - Boiler #1	0.05	Diesel or natural gas heaters, or boiler
HDDB2	POINT	Boring Equipment - Boiler #2	0.05	Diesel or natural gas heaters, or boiler
HDDH1_W	POINT	Boring Equipment - Heater #1 - West	0.1	Diesel engines
HDDH1_E	POINT	Boring Equipment - Heater #1 - East	0.1	Diesel engines
HDDH2_W	POINT	Boring Equipment - Heater #2 - West	0.1	Diesel engines
HDDH2_E	POINT	Boring Equipment - Heater #2 - East	0.1	Diesel engines
HDDWH_W	POINT	Boring Equipment - Water Heater - West	0.1	Diesel engines
HDDWH_E	POINT	Boring Equipment - Water Heater - East	0.1	Diesel engines
HDDNMGE1	POINT	Non-Mobile Support Equipment - Generator Sets	0.1	Diesel engines
HDDNMGE2	POINT	Non-Mobile Support Equipment - Generator Sets	0.1	Diesel engines
HDDNMGE3	POINT	Non-Mobile Support Equipment - Generator Sets	0.1	Diesel engines
HDDNMBGE1	POINT	Non-Mobile Support Equipment - Backup Generator Sets	0.1	Diesel engines
HDDNMBGE2	POINT	Non-Mobile Support Equipment - Backup Generator Sets	0.1	Diesel engines
HDDNMBGE3	POINT	Non-Mobile Support Equipment - Backup Generator Sets	0.1	Diesel engines
HDDNMAC1	POINT	Non-Mobile Support Equipment - Air Compressors #1	0.1	Diesel engines
HDDNMAC2	POINT	Non-Mobile Support Equipment - Air Compressors #2	0.1	Diesel engines
HDDNROCE1	VOLUME	Non-Mobile Support Equipment - Other Construction Equipment #1	0.2	Diesel tailpipe from non-road equipment
HDDNROCE2	VOLUME	Non-Mobile Support Equipment - Other Construction Equipment #2	0.2	Diesel tailpipe from non-road equipment
HDDNRC	VOLUME	Non-Mobile Support Equipment - Cranes	0.2	Diesel tailpipe from non-road equipment
WOCPWRGEN	POINT	Temporary Power Generation - Power Generation	0.1	Diesel engines
WOCTEMPTRB	POINT	Temporary Power Generation - Power Generation Turbine	0.3	Natural gas-fired turbines

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
WOCFACHTR1	POINT	Facilities Installation-WOC - Heaters	0.05	Diesel or natural gas heaters, or boiler
WOCFACNMAC	POINT	Facilities Installation-WOC - Air Compressors	0.1	Diesel engines
WOCFACNR	VOLUME	Facilities Installation-WOC - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
WOCFACNMGS1	POINT	Facilities Installation-WOC - Generator Sets	0.1	Diesel engines
WOCFACNMGS2	POINT	Facilities Installation-WOC - Generator Sets	0.1	Diesel engines
WILLOWAIR1	AREAPOLY	Aircraft Activity (Willow Airstrip) - Release Height 50.8m	0.5	USEPA default value
WILLOWAIR2	AREAPOLY	Aircraft Activity (Willow Airstrip) - Release Height 152.4m	0.5	USEPA default value
WILLOWAIR3	AREAPOLY	Aircraft Activity (Willow Airstrip) - Release Height 254m	0.5	USEPA default value
2TAIL1	VOLUME	Mobile Support Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL2	VOLUME	Mobile Support Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL3	VOLUME	Mobile Support Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL4	VOLUME	Mobile Support Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
3TAIL1	VOLUME	Mobile Support Equipment Tailpipe - BT3	0.15	Diesel tailpipe from on-road vehicles
3TAIL2	VOLUME	Mobile Support Equipment Tailpipe - BT3	0.15	Diesel tailpipe from on-road vehicles
3TAIL3	VOLUME	Mobile Support Equipment Tailpipe - BT3	0.15	Diesel tailpipe from on-road vehicles
3TAIL4	VOLUME	Mobile Support Equipment Tailpipe - BT3	0.15	Diesel tailpipe from on-road vehicles
1TAIL1	VOLUME	Mobile Support Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL2	VOLUME	Mobile Support Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL3	VOLUME	Mobile Support Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL4	VOLUME	Mobile Support Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL1	VOLUME	Mobile Support Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL2	VOLUME	Mobile Support Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL3	VOLUME	Mobile Support Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL4	VOLUME	Mobile Support Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
MINETAIL1	VOLUME	Mobile Support Equipment Tailpipe - MINE	0.15	Diesel tailpipe from on-road vehicles
MINETAIL2	VOLUME	Mobile Support Equipment Tailpipe - MINE	0.15	Diesel tailpipe from on-road vehicles
MINETAIL3	VOLUME	Mobile Support Equipment Tailpipe - MINE	0.15	Diesel tailpipe from on-road vehicles

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
MINETAIL4	VOLUME	Mobile Support Equipment Tailpipe - MINE	0.15	Diesel tailpipe from on-road vehicles
1MFUGD1	VOLUME	Mobile Support Equipment Fugitive Dust - BT1	-	-
1MFUGD2	VOLUME	Mobile Support Equipment Fugitive Dust - BT1	-	-
1MFUGD3	VOLUME	Mobile Support Equipment Fugitive Dust - BT1	-	-
1MFUGD4	VOLUME	Mobile Support Equipment Fugitive Dust - BT1	-	-
2MFUGD1	VOLUME	Mobile Support Equipment Fugitive Dust - BT2	-	-
2MFUGD2	VOLUME	Mobile Support Equipment Fugitive Dust - BT2	-	-
2MFUGD3	VOLUME	Mobile Support Equipment Fugitive Dust - BT2	-	-
2MFUGD4	VOLUME	Mobile Support Equipment Fugitive Dust - BT2	-	-
3MFUGD1	VOLUME	Mobile Support Equipment Fugitive Dust - BT3	-	-
3MFUGD2	VOLUME	Mobile Support Equipment Fugitive Dust - BT3	-	-
3MFUGD3	VOLUME	Mobile Support Equipment Fugitive Dust - BT3	-	-
3MFUGD4	VOLUME	Mobile Support Equipment Fugitive Dust - BT3	-	-
WOCMFUGD1	VOLUME	Mobile Support Equipment Fugitive Dust - WOC	-	-
WOCMFUGD2	VOLUME	Mobile Support Equipment Fugitive Dust - WOC	-	-
WOCMFUGD3	VOLUME	Mobile Support Equipment Fugitive Dust - WOC	-	-
WOCMFUGD4	VOLUME	Mobile Support Equipment Fugitive Dust - WOC	-	-
MINEMFUGD1	VOLUME	Mobile Support Equipment Fugitive Dust - MINE	-	-
MINEMFUGD2	VOLUME	Mobile Support Equipment Fugitive Dust - MINE	-	-
MINEMFUGD3	VOLUME	Mobile Support Equipment Fugitive Dust - MINE	-	-
MINEMFUGD4	VOLUME	Mobile Support Equipment Fugitive Dust - MINE	-	-
2GRVLNR1	VOLUME	Gravel Roads Construction - BT2 Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
2GRVLNR2	VOLUME	Gravel Roads Construction - BT2 Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
2GRVLNR3	VOLUME	Gravel Roads Construction - BT2 Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
2GRVLNR4	VOLUME	Gravel Roads Construction - BT2 Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
3GRVLNR1	VOLUME	Gravel Roads Construction - BT3 Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
3GRVLNR2	VOLUME	Gravel Roads Construction - BT3 Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
3GRVLNR3	VOLUME	Gravel Roads Construction - BT3 Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
3GRVLNR4	VOLUME	Gravel Roads Construction - BT3 Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRHCE	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS1	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS2	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS3	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS4	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS5	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS6	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS7	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS8	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS9	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS10	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS11	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS12	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS13	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS14	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS15	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS16	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS17	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS18	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS19	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS20	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS21	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS22	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS23	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS24	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
ICEPDNROS25	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS26	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS27	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS28	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS29	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS30	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS31	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS32	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS33	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS34	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS35	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS36	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS37	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS38	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS39	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS40	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS41	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS42	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS43	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNROS44	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS1	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS2	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS3	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS4	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS5	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS6	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS7	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
ICEPDNRIOS8	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS9	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS10	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS11	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS12	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS13	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS14	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS15	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS16	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS17	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS18	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS19	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS20	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS21	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS22	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS23	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS24	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS25	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS26	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS27	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS28	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS29	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS30	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS31	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS32	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS33	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS34	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
ICEPDNRIOS35	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS36	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS37	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS38	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS39	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS40	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS41	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS42	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS43	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRIOS44	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP1	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP2	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP3	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP4	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP5	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP6	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP7	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP8	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP9	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP10	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP11	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP12	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP13	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP14	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP15	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP16	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP17	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
ICEPDNRPIP18	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP19	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP20	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP21	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP22	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP23	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP24	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP25	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP26	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP27	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP28	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP29	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP30	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP31	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP32	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP33	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP34	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP35	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP36	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP37	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP38	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP39	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP40	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP41	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP42	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP43	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRPIP44	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
ICEPDNRHDD1	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICEPDNRHDD2	VOLUME	Single Season Ice Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICERDNR1	VOLUME	Seasonal Ice Road Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICERDNR2	VOLUME	Seasonal Ice Road Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICERDNR3	VOLUME	Seasonal Ice Road Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
ICERDNR4	VOLUME	Seasonal Ice Road Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
PIPNR1	VOLUME	Pipeline Installation - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
PIPNR2	VOLUME	Pipeline Installation - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
PIPNR3	VOLUME	Pipeline Installation - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
PIPNR4	VOLUME	Pipeline Installation - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
VSMNR1	VOLUME	Vertical Support Member Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
VSMNR2	VOLUME	Vertical Support Member Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
VSMNR3	VOLUME	Vertical Support Member Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
VSMNR4	VOLUME	Vertical Support Member Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
FBROPNR1	VOLUME	Fiber Optic Line Installation - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
FBROPNR2	VOLUME	Fiber Optic Line Installation - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
FBROPNR3	VOLUME	Fiber Optic Line Installation - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
FBROPNR4	VOLUME	Fiber Optic Line Installation - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
2PADNR1	VOLUME	BT2 - Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
2PADNR2	VOLUME	BT2 - Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
2PADNR3	VOLUME	BT2 - Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
2PADNR4	VOLUME	BT2 - Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
3PADNR1	VOLUME	BT3 - Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
3PADNR2	VOLUME	BT3 - Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
3PADNR3	VOLUME	BT3 - Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
3PADNR4	VOLUME	BT3 - Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
MINENR1	VOLUME	Gravel Mining - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
MINENR2	VOLUME	Gravel Mining - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
MINENR3	VOLUME	Gravel Mining - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
MINENR4	VOLUME	Gravel Mining - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
MINENR5	VOLUME	Gravel Mining - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
MINENR6	VOLUME	Gravel Mining - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
MINENR7	VOLUME	Gravel Mining - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
MINENR8	VOLUME	Gravel Mining - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
MINENR9	VOLUME	Gravel Mining - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
2PADOHT1	VOLUME	BT2 - Pad Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
2PADOHT2	VOLUME	BT2 - Pad Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
2PADOHT3	VOLUME	BT2 - Pad Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
2PADOHT4	VOLUME	BT2 - Pad Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
3PADOHT1	VOLUME	BT3 - Pad Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
3PADOHT2	VOLUME	BT3 - Pad Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
3PADOHT3	VOLUME	BT3 - Pad Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
3PADOHT4	VOLUME	BT3 - Pad Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
2GRVLOHT1	VOLUME	Gravel Roads Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
2GRVLOHT2	VOLUME	Gravel Roads Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
2GRVLOHT3	VOLUME	Gravel Roads Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
2GRVLOHT4	VOLUME	Gravel Roads Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
3GRVLOHT1	VOLUME	Gravel Roads Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
3GRVLOHT2	VOLUME	Gravel Roads Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
3GRVLOHT3	VOLUME	Gravel Roads Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
3GRVLOHT4	VOLUME	Gravel Roads Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
MINEOHT1	VOLUME	Gravel Mining - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
MINEOHT2	VOLUME	Gravel Mining - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
MINEOHT3	VOLUME	Gravel Mining - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
MINEOHT4	VOLUME	Gravel Mining - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
MINEOHT5	VOLUME	Gravel Mining - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
MINEOHT6	VOLUME	Gravel Mining - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
MINEOHT7	VOLUME	Gravel Mining - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
MINEOHT8	VOLUME	Gravel Mining - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
MINEOHT9	VOLUME	Gravel Mining - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
WLW2GEN	POINT	Stationary Combustion Sources - WPF - WPF Internal Combustion Equipment Non-Road Engines >140 HP	0.1	Diesel engines

Table A.3-2. Alternative C Near-field Model Scenario 1 Emissions Stack Parameters

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
2PADHTR1	POINT	2.7432	12.2	0.94	5.7	529	-	-	-	-	-
2PADSHTR1	POINT	2.7432	12.2	0.94	5.7	529	-	-	-	-	-
2PADNMGS1	POINT	2.7432	6.5	0.2	47	761	-	-	-	-	-
2FUGD	VOLUME	2.7432	3.66	-	-	-	26.74419	3.38	-	-	-
3PADHTR1	POINT	2.7432	12.2	0.94	5.7	529	-	-	-	-	-
3PADSHTR1	POINT	2.7432	12.2	0.94	5.7	529	-	-	-	-	-
3PADNMGS1	POINT	2.7432	6.5	0.2	47	761	-	-	-	-	-
3FUGD	VOLUME	3.6576	3.66	-	-	-	26.74419	3.38	-	-	-
ALPAIR1	AREAPOLY	3.6576	50.8	-	-	-	-	23.63	-	-	-
ALPAIR2	AREAPOLY	3.6576	152.4	-	-	-	-	23.63	-	-	-
ALPAIR3	AREAPOLY	3.6576	254	-	-	-	-	23.63	-	-	-
BDGHTR1	POINT	2.1336	12.2	0.94	5.7	529	-	-	-	-	-
BDGHTR2	POINT	2.1336	12.2	0.94	5.7	529	-	-	-	-	-
BDGNMAC1	POINT	2.1336	13.3	0.4	10.5	614	-	-	-	-	-
BDGNMAC2	POINT	2.1336	13.3	0.4	10.5	614	-	-	-	-	-
BDGNR	VOLUME	2.1336	3.66	-	-	-	11.62791	3.38	-	-	-
BDGNMBR	POINT	2.1336	13.3	0.4	10.5	614	-	-	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
BDGNMGS1	POINT	2.1336	6.1	0.46	15.1	795	-	-	-	-	-
BDGNMGS2	POINT	2.1336	6.5	0.2	47	761	-	-	-	-	-
MINENMAC	POINT	0	13.3	0.4	10.5	614	-	-	-	-	-
MINENMBR	POINT	0	13.3	0.4	10.5	614	-	-	-	-	-
MINENMGS1	POINT	0	6.5	0.2	47	761	-	-	-	-	-
MINENMP	POINT	0	13.3	0.4	10.5	614	-	-	-	-	-
BLASTANN	VOLUME	0	50	-	-	-	11.62791	11.63	-	-	-
BLASTHR	VOLUME	0	50	-	-	-	11.62791	11.63	-	-	-
GRVLHTR1	POINT	2.1336	12.2	0.94	5.7	529	-	-	-	-	-
GRVLSHTR1	POINT	2.1336	12.2	0.94	5.7	529	-	-	-	-	-
GRVLNMGS1	POINT	2.1336	6.5	0.2	47	761	-	-	-	-	-
ICERDNMGS1	POINT	1.5	6.5	0.2	47	761	-	-	-	-	-
ICERDNMP	POINT	1.5	13.3	0.4	10.5	614	-	-	-	-	-
ICEPDNMGS1	POINT	1.5	6.5	0.2	47	761	-	-	-	-	-
ICEPDNMP	POINT	1.5	13.3	0.4	10.5	614	-	-	-	-	-
1MICEPDNR	VOLUME	3.048	3.66	-	-	-	32.55814	3.38	-	-	-
1MICEPDNMGS1	POINT	3.048	6.5	0.2	47	761	-	-	-	-	-
1MICEPDNMP	POINT	3.048	13.3	0.4	10.5	614	-	-	-	-	-
WOCMICEPDNR	VOLUME	3.048	3.66	-	-	-	32.55814	3.38	-	-	-
WMICEPDNMGS1	POINT	3.048	6.5	0.2	47	761	-	-	-	-	-
WOCMICEPDNMP	POINT	3.048	13.3	0.4	10.5	614	-	-	-	-	-
GMSMICEPDNR	VOLUME	3.048	3.66	-	-	-	37.2093	3.38	-	-	-
GMICEPDNMGS1	POINT	3.048	6.5	0.2	47	761	-	-	-	-	-
GMSMICEPDNMP	POINT	3.048	13.3	0.4	10.5	614	-	-	-	-	-
STCKPL	VOLUME	1.52	3.66	-	-	-	46.51163	3.38	-	-	-
FBROPHTR	POINT	2.1336	12.2	0.94	5.7	529	-	-	-	-	-
FBROPNMGS1	POINT	2.1336	6.1	0.46	15.1	795	-	-	-	-	-
FBROPNMGS2	POINT	2.1336	6.5	0.2	47	761	-	-	-	-	-
PIPHTR	POINT	2.1336	12.2	0.94	5.7	529	-	-	-	-	-
PIPNMAC	POINT	2.1336	13.3	0.4	10.5	614	-	-	-	-	-
PIPNMBR	POINT	2.1336	13.3	0.4	10.5	614	-	-	-	-	-
PIPNMGS1	POINT	2.1336	6.1	0.46	15.1	795	-	-	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
PIPNMGS2	POINT	2.1336	6.5	0.2	47	761	-	-	-	-	-
PIPNMGS3	POINT	2.1336	6.5	0.2	47	761	-	-	-	-	-
VSMNMBR	POINT	2.1336	13.3	0.4	10.5	614	-	-	-	-	-
HDDPE1	POINT	1.5	13.3	0.4	10.5	614	-	-	-	-	-
HDDPE2	POINT	1.5	13.3	0.4	10.5	614	-	-	-	-	-
HDDSE1	POINT	1.5	13.3	0.4	10.5	614	-	-	-	-	-
HDDSE2	POINT	1.5	13.3	0.4	10.5	614	-	-	-	-	-
HDDMPE	POINT	1.5	10.4	0.13	43.5	750	-	-	-	-	-
HDDTPE	POINT	1.5	10.4	0.13	43.5	750	-	-	-	-	-
HDDB1	POINT	1.5	11.9	0.279	11.7	450	-	-	-	-	-
HDDB2	POINT	1.5	11.9	0.279	11.7	450	-	-	-	-	-
HDDH1_W	POINT	1.5	10.5	0.3	3.2	533	-	-	-	-	-
HDDH1_E	POINT	1.5	10.5	0.3	3.2	533	-	-	-	-	-
HDDH2_W	POINT	1.5	10.5	0.3	3.2	533	-	-	-	-	-
HDDH2_E	POINT	1.5	10.5	0.3	3.2	533	-	-	-	-	-
HDDWH_W	POINT	1.5	10.5	0.3	3.2	533	-	-	-	-	-
HDDWH_E	POINT	1.5	10.5	0.3	3.2	533	-	-	-	-	-
HDDNMGE1	POINT	1.5	6.1	0.46	15.1	795	-	-	-	-	-
HDDNMGE2	POINT	1.5	6.1	0.46	15.1	795	-	-	-	-	-
HDDNMGE3	POINT	1.5	6.1	0.46	15.1	795	-	-	-	-	-
HDDNMBGE1	POINT	1.5	6.1	0.46	15.1	795	-	-	-	-	-
HDDNMBGE2	POINT	1.5	6.1	0.46	15.1	795	-	-	-	-	-
HDDNMBGE3	POINT	1.5	6.1	0.46	15.1	795	-	-	-	-	-
HDDNMAC1	POINT	1.5	13.3	0.4	10.5	614	-	-	-	-	-
HDDNMAC2	POINT	1.5	13.3	0.4	10.5	614	-	-	-	-	-
HDDNROCE1	VOLUME	1.5	0	-	-	-	19.76744	8.7	-	-	-
HDDNROCE2	VOLUME	1.5	0	-	-	-	19.76744	8.7	-	-	-
HDDNRC	VOLUME	1.5	0	-	-	-	19.76744	8.7	-	-	-
WOCPWRGEN	POINT	3.048	8.6	0.3	20	760	-	-	-	-	-
WOCTEMPTRB	POINT	3.048	25	2	30	550	-	-	-	-	-
WOCFACHTR1	POINT	3.048	12.2	0.94	5.7	529	-	-	-	-	-
WOCFACNMAC	POINT	3.048	13.3	0.4	10.5	614	-	-	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
WOCFACNR	VOLUME	3.048	3.66	-	-	-	40.69767	3.38	-	-	-
WOCFACNMGS1	POINT	3.048	6.1	0.46	15.1	795	-	-	-	-	-
WOCFACNMGS2	POINT	3.048	6.5	0.2	47	761	-	-	-	-	-
WILLOWAIR1	AREAPOLY	3.6576	50.8	-	-	-	-	23.63	-	-	-
WILLOWAIR2	AREAPOLY	3.6576	152.4	-	-	-	-	23.63	-	-	-
WILLOWAIR3	AREAPOLY	3.6576	254	-	-	-	-	23.63	-	-	-
2TAIL1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2TAIL2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2TAIL3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2TAIL4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
3TAIL1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
3TAIL2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
3TAIL3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
3TAIL4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
1TAIL1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
1TAIL2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
1TAIL3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
1TAIL4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
WOCTAIL1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
WOCTAIL2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
WOCTAIL3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
WOCTAIL4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
MINETAIL1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
MINETAIL2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
MINETAIL3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
MINETAIL4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
1MFUGD1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
1MFUGD2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
1MFUGD3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
1MFUGD4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2MFUGD1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2MFUGD2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
2MFUGD3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2MFUGD4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
3MFUGD1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
3MFUGD2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
3MFUGD3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
3MFUGD4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
WOCMFUGD1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
WOCMFUGD2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
WOCMFUGD3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
WOCMFUGD4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
MINEMFUGD1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
MINEMFUGD2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
MINEMFUGD3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
MINEMFUGD4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2GRVLNR1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2GRVLNR2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2GRVLNR3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2GRVLNR4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
3GRVLNR1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
3GRVLNR2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
3GRVLNR3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
3GRVLNR4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
ICEPDNRHCE	VOLUME	2.1336	3.66	-	-	-	37.21	3.38	-	-	-
ICEPDNROS1	VOLUME	2.1336	3.66	-	-	-	37.21	3.38	-	-	-
ICEPDNROS2	VOLUME	2.1336	3.66	-	-	-	25.58	3.38	-	-	-
ICEPDNROS3	VOLUME	2.1336	3.66	-	-	-	32.56	3.38	-	-	-
ICEPDNROS4	VOLUME	2.1336	3.66	-	-	-	32.56	3.38	-	-	-
ICEPDNROS5	VOLUME	2.1336	3.66	-	-	-	32.56	3.38	-	-	-
ICEPDNROS6	VOLUME	2.1336	3.66	-	-	-	32.56	3.38	-	-	-
ICEPDNROS7	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS8	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS9	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
ICEPDNROS10	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS11	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS12	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS13	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS14	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS15	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS16	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS17	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS18	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS19	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS20	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS21	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS22	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS23	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS24	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS25	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS26	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS27	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS28	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS29	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS30	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS31	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS32	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS33	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS34	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS35	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS36	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS37	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS38	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS39	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS40	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS41	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
ICEPDNROS42	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS43	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNROS44	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS1	VOLUME	2.1336	3.66	-	-	-	37.21	3.38	-	-	-
ICEPDNRIOS2	VOLUME	2.1336	3.66	-	-	-	25.58	3.38	-	-	-
ICEPDNRIOS3	VOLUME	2.1336	3.66	-	-	-	32.56	3.38	-	-	-
ICEPDNRIOS4	VOLUME	2.1336	3.66	-	-	-	32.56	3.38	-	-	-
ICEPDNRIOS5	VOLUME	2.1336	3.66	-	-	-	32.56	3.38	-	-	-
ICEPDNRIOS6	VOLUME	2.1336	3.66	-	-	-	32.56	3.38	-	-	-
ICEPDNRIOS7	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS8	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS9	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS10	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS11	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS12	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS13	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS14	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS15	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS16	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS17	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS18	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS19	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS20	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS21	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS22	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS23	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS24	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS25	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS26	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS27	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS28	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS29	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
ICEPDNRIOS30	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS31	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS32	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS33	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS34	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS35	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS36	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS37	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS38	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS39	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS40	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS41	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS42	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS43	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRIOS44	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP1	VOLUME	2.1336	3.66	-	-	-	37.21	3.38	-	-	-
ICEPDNRPIP2	VOLUME	2.1336	3.66	-	-	-	25.58	3.38	-	-	-
ICEPDNRPIP3	VOLUME	2.1336	3.66	-	-	-	32.56	3.38	-	-	-
ICEPDNRPIP4	VOLUME	2.1336	3.66	-	-	-	32.56	3.38	-	-	-
ICEPDNRPIP5	VOLUME	2.1336	3.66	-	-	-	32.56	3.38	-	-	-
ICEPDNRPIP6	VOLUME	2.1336	3.66	-	-	-	32.56	3.38	-	-	-
ICEPDNRPIP7	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP8	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP9	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP10	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP11	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP12	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP13	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP14	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP15	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP16	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP17	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
ICEPDNRPIP18	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP19	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP20	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP21	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP22	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP23	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP24	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP25	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP26	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP27	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP28	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP29	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP30	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP31	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP32	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP33	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP34	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP35	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP36	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP37	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP38	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP39	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP40	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP41	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP42	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP43	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRPIP44	VOLUME	2.1336	3.66	-	-	-	8.860465	3.38	-	-	-
ICEPDNRHDD1	VOLUME	2.1336	3.66	-	-	-	19.76744	3.38	-	-	-
ICEPDNRHDD2	VOLUME	2.1336	3.66	-	-	-	19.76744	3.38	-	-	-
ICERDNR1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
ICERDNR2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
ICERDNR3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
ICERDNR4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
PIPNR1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
PIPNR2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
PIPNR3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
PIPNR4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
VSMNR1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
VSMNR2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
VSMNR3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
VSMNR4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
FBROPNR1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
FBROPNR2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
FBROPNR3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
FBROPNR4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2PADNR1	VOLUME	2.7432	3.66	-	-	-	18.60465	3.38	-	-	-
2PADNR2	VOLUME	2.7432	3.66	-	-	-	18.60465	3.38	-	-	-
2PADNR3	VOLUME	2.7432	3.66	-	-	-	18.60465	3.38	-	-	-
2PADNR4	VOLUME	2.7432	3.66	-	-	-	18.60465	3.38	-	-	-
3PADNR1	VOLUME	2.7432	3.66	-	-	-	18.60465	3.38	-	-	-
3PADNR2	VOLUME	2.7432	3.66	-	-	-	18.60465	3.38	-	-	-
3PADNR3	VOLUME	2.7432	3.66	-	-	-	18.60465	3.38	-	-	-
3PADNR4	VOLUME	2.7432	3.66	-	-	-	18.60465	3.38	-	-	-
MINENR1	VOLUME	0	3.66	-	-	-	32.56	3.38	-	-	-
MINENR2	VOLUME	0	3.66	-	-	-	32.56	3.38	-	-	-
MINENR3	VOLUME	0	3.66	-	-	-	32.56	3.38	-	-	-
MINENR4	VOLUME	0	3.66	-	-	-	32.56	3.38	-	-	-
MINENR5	VOLUME	0	3.66	-	-	-	32.56	3.38	-	-	-
MINENR6	VOLUME	0	3.66	-	-	-	32.56	3.38	-	-	-
MINENR7	VOLUME	0	3.66	-	-	-	32.56	3.38	-	-	-
MINENR8	VOLUME	0	3.66	-	-	-	32.56	3.38	-	-	-
MINENR9	VOLUME	0	3.66	-	-	-	32.56	3.38	-	-	-
2PADOHT1	VOLUME	2.7432	3.66	-	-	-	18.60465	3.38	-	-	-
2PADOHT2	VOLUME	2.7432	3.66	-	-	-	18.60465	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
2PADOHT3	VOLUME	2.7432	3.66	-	-	-	18.60465	3.38	-	-	-
2PADOHT4	VOLUME	2.7432	3.66	-	-	-	18.60465	3.38	-	-	-
3PADOHT1	VOLUME	2.7432	3.66	-	-	-	18.60465	3.38	-	-	-
3PADOHT2	VOLUME	2.7432	3.66	-	-	-	18.60465	3.38	-	-	-
3PADOHT3	VOLUME	2.7432	3.66	-	-	-	18.60465	3.38	-	-	-
3PADOHT4	VOLUME	2.7432	3.66	-	-	-	18.60465	3.38	-	-	-
2GRVLOHT1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2GRVLOHT2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2GRVLOHT3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
2GRVLOHT4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
3GRVLOHT1	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
3GRVLOHT2	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
3GRVLOHT3	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
3GRVLOHT4	VOLUME	2.1336	3.66	-	-	-	14.17674	3.38	-	-	-
MINEOHT1	VOLUME	0	3.66	-	-	-	32.56	3.38	-	-	-
MINEOHT2	VOLUME	0	3.66	-	-	-	32.56	3.38	-	-	-
MINEOHT3	VOLUME	0	3.66	-	-	-	32.56	3.38	-	-	-
MINEOHT4	VOLUME	0	3.66	-	-	-	32.56	3.38	-	-	-
MINEOHT5	VOLUME	0	3.66	-	-	-	32.56	3.38	-	-	-
MINEOHT6	VOLUME	0	3.66	-	-	-	32.56	3.38	-	-	-
MINEOHT7	VOLUME	0	3.66	-	-	-	32.56	3.38	-	-	-
MINEOHT8	VOLUME	0	3.66	-	-	-	32.56	3.38	-	-	-
MINEOHT9	VOLUME	0	3.66	-	-	-	32.56	3.38	-	-	-
WLW2GEN	POINT	3.66	10.4	0.13	43.5	750	-	-	-	-	-

Table A.3-3. Alternative D Near-field Model Scenario 1 Emissions Rates

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
2PADHTR1	1.35E-02	5.41E-02	4.98E-02	6.44E-03	5.76E-03	5.31E-03	5.76E-04	5.76E-04	5.31E-04	4704
2PADSHTR1	4.67E-03	1.87E-02	1.72E-02	2.22E-03	1.99E-03	1.83E-03	1.99E-04	1.99E-04	1.83E-04	4704
2PADNMGS1	1.32E-02	2.49E-02	2.29E-02	1.96E-03	1.90E-03	1.75E-03	2.13E-05	2.13E-05	1.96E-05	4704
2FUGD	0.00E+00	0.00E+00	0.00E+00	2.88E-02	4.32E-03	4.32E-03	0.00E+00	0.00E+00	0.00E+00	4380
3PADHTR1	1.35E-02	5.41E-02	4.98E-02	6.44E-03	5.76E-03	5.31E-03	5.76E-04	5.76E-04	5.31E-04	4704
3PADSHTR1	4.67E-03	1.87E-02	1.72E-02	2.22E-03	1.99E-03	1.83E-03	1.99E-04	1.99E-04	1.83E-04	4704
3PADNMGS1	1.32E-02	2.49E-02	2.29E-02	1.96E-03	1.90E-03	1.75E-03	2.13E-05	2.13E-05	1.96E-05	4704
3FUGD	0.00E+00	0.00E+00	0.00E+00	2.88E-02	4.32E-03	4.32E-03	0.00E+00	0.00E+00	0.00E+00	4380
ALPAIR1	3.92E-08	2.75E-08	2.75E-08	8.08E-10	8.08E-10	8.08E-10	3.78E-09	3.78E-09	3.78E-09	8760
ALPAIR2	3.92E-08	2.75E-08	2.75E-08	8.08E-10	8.08E-10	8.08E-10	3.78E-09	3.78E-09	3.78E-09	8760
ALPAIR3	3.92E-08	2.75E-08	2.75E-08	8.08E-10	8.08E-10	8.08E-10	3.78E-09	3.78E-09	3.78E-09	8760
BDGHTR1	1.22E-03	4.87E-03	5.53E-04	5.79E-04	5.19E-04	5.89E-05	5.19E-05	5.19E-05	5.89E-06	249
BDGHTR2	3.65E-03	1.46E-02	1.66E-03	1.74E-03	1.56E-03	1.77E-04	1.56E-04	1.56E-04	1.77E-05	249
BDGNMAC1	9.36E-04	1.43E-03	1.08E-04	1.23E-04	1.19E-04	9.02E-06	3.55E-06	3.55E-06	2.69E-07	166
BDGNMAC2	1.87E-03	2.85E-03	2.16E-04	2.46E-04	2.38E-04	1.80E-05	7.10E-06	7.10E-06	5.37E-07	166
BDGNR	1.00E-02	3.27E-02	2.75E-03	1.48E-03	1.44E-03	1.16E-04	7.85E-05	7.85E-05	6.06E-06	Varies
BDGNMBR	1.53E-03	6.41E-03	4.85E-04	3.18E-04	3.08E-04	2.33E-05	8.02E-06	8.02E-06	6.07E-07	166
BDGNMGS1	4.41E-03	1.08E-02	1.63E-03	6.79E-04	6.58E-04	9.97E-05	9.24E-06	9.24E-06	1.40E-06	332
BDGNMGS2	3.57E-03	6.72E-03	1.02E-03	5.29E-04	5.13E-04	7.77E-05	5.75E-06	5.75E-06	8.71E-07	332
MINENMAC	3.66E-03	5.08E-02	4.67E-02	5.21E-04	5.05E-04	4.65E-04	4.76E-05	4.76E-05	4.38E-05	2688
MINENMBR	8.08E-02	2.88E-01	2.65E-01	1.21E-02	1.18E-02	1.08E-02	3.35E-04	3.35E-04	3.09E-04	2688
MINENMGS1	2.95E-02	5.57E-02	5.13E-02	4.38E-03	4.25E-03	3.91E-03	4.76E-05	4.76E-05	4.39E-05	2688
MINENMP	1.59E-02	7.95E-02	7.32E-03	2.76E-03	2.68E-03	2.47E-04	7.07E-05	7.07E-05	6.51E-06	269
BLASTANN	0.00E+00	0.00E+00	1.26E+00	0.00E+00	0.00E+00	7.38E-03	0.00E+00	0.00E+00	0.00E+00	2896
BLASTHR	8.79E+00	2.23E+00	1.26E+00	2.26E-01	1.30E-02	7.38E-03	2.62E-01	2.62E-01	1.49E-01	2896
GRVLHTR1	9.39E-03	3.75E-02	3.46E-02	4.47E-03	4.00E-03	3.68E-03	4.00E-04	4.00E-04	3.68E-04	2688
GRVLSHTR1	3.24E-03	1.30E-02	1.19E-02	1.54E-03	1.38E-03	1.27E-03	1.38E-04	1.38E-04	1.27E-04	2688
GRVLNMGS1	9.17E-03	1.73E-02	1.59E-02	1.36E-03	1.32E-03	1.21E-03	1.48E-05	1.48E-05	1.36E-05	2688
ICERDNMGS1	4.12E-01	2.32E-01	2.39E-02	6.12E-02	5.93E-02	6.11E-03	6.65E-04	6.65E-04	6.85E-05	526
ICERDNMP	1.03E+00	1.15E+00	1.18E-01	1.55E-01	1.50E-01	1.55E-02	4.47E-03	4.47E-03	4.60E-04	526
ICEPDNMGS1	5.36E-02	6.91E-02	3.49E-02	7.95E-03	7.71E-03	3.89E-03	8.65E-05	8.65E-05	4.37E-05	2579

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
ICEPDNMP	1.34E-01	3.43E-01	1.73E-01	2.02E-02	1.96E-02	9.87E-03	5.81E-04	5.81E-04	2.93E-04	2579
1MICEPDNR	9.68E-04	7.04E-02	6.48E-02	1.26E-04	1.22E-04	1.13E-04	4.41E-06	4.41E-06	3.45E-06	92
1MICEPDNMGS1	1.92E-03	6.91E-02	1.25E-03	2.85E-04	2.76E-04	5.00E-06	3.10E-06	3.10E-06	5.60E-08	92
1MICEPDNMP	4.78E-03	3.43E-01	6.19E-03	7.22E-04	7.01E-04	1.27E-05	2.08E-05	2.08E-05	3.76E-07	92
WOCMICEPDNR	9.68E-04	7.04E-02	6.48E-02	1.26E-04	1.22E-04	1.13E-04	4.41E-06	4.41E-06	3.45E-06	92
WMICEPDNMGS1	1.92E-03	6.91E-02	1.25E-03	2.85E-04	2.76E-04	5.00E-06	3.10E-06	3.10E-06	5.60E-08	92
WOCMICEPDNMP	4.78E-03	3.43E-01	6.19E-03	7.22E-04	7.01E-04	1.27E-05	2.08E-05	2.08E-05	3.76E-07	92
GMSMICEPDNR	9.68E-04	7.04E-02	6.48E-02	1.26E-04	1.22E-04	1.13E-04	4.41E-06	4.41E-06	3.45E-06	92
GMICEPDNMGS1	1.92E-03	6.91E-02	1.25E-03	2.85E-04	2.76E-04	5.00E-06	3.10E-06	3.10E-06	5.60E-08	92
GMSMICEPDNMP	4.78E-03	3.43E-01	6.19E-03	7.22E-04	7.01E-04	1.27E-05	2.08E-05	2.08E-05	3.76E-07	92
STCKPL	0.00E+00	0.00E+00	0.00E+00	6.63E-01	1.00E-01	1.00E-01	0.00E+00	0.00E+00	0.00E+00	0
FBROPHTR	1.95E-02	7.79E-02	5.38E-02	9.27E-03	8.30E-03	2.15E-03	8.30E-04	8.30E-04	5.73E-04	1512
FBROPNMGS1	2.35E-02	5.73E-02	1.98E-02	3.62E-03	3.51E-03	9.09E-04	4.93E-05	4.93E-05	1.70E-05	756
FBROPNMGS2	1.90E-02	3.59E-02	2.48E-02	2.82E-03	2.74E-03	7.08E-04	3.07E-05	3.07E-05	2.12E-05	1512
PIPHTR	9.91E-02	3.96E-01	1.60E-01	4.72E-02	4.22E-02	1.70E-02	4.22E-03	4.22E-03	1.70E-03	882
PIPNMAC	3.35E-01	1.06E+00	3.21E-01	4.96E-02	4.81E-02	1.45E-02	1.80E-03	1.80E-03	5.44E-04	662
PIPNMBR	1.79E-01	7.26E-01	2.19E-01	3.83E-02	3.71E-02	1.12E-02	8.98E-04	8.98E-04	2.71E-04	662
PIPNMGS1	1.44E-01	3.50E-01	1.41E-01	2.21E-02	2.14E-02	8.63E-03	3.01E-04	3.01E-04	1.21E-04	882
PIPNMGS2	7.75E-02	8.02E-02	3.23E-02	7.23E-03	7.02E-03	2.83E-03	6.89E-05	6.89E-05	2.78E-05	882
PIPNMGS3	1.45E-01	2.74E-01	1.10E-01	2.15E-02	2.09E-02	8.41E-03	2.34E-04	2.34E-04	9.43E-05	882
VSMNMBR	9.07E-02	3.81E-01	1.21E-01	1.89E-02	1.83E-02	5.80E-03	4.77E-04	4.77E-04	1.51E-04	693
HDDPE1	3.51E-01	6.42E-01	6.42E-01	2.01E-02	2.01E-02	2.01E-02	6.64E-04	6.64E-04	6.64E-04	2190
HDDPE2	2.73E-01	4.98E-01	4.98E-01	1.56E-02	1.56E-02	1.56E-02	5.15E-04	5.15E-04	5.15E-04	2190
HDDSE1	3.51E-01	6.42E-01	6.42E-02	2.01E-02	2.01E-02	2.01E-03	6.64E-04	6.64E-04	6.64E-05	219
HDDSE2	1.30E-01	2.46E-01	2.46E-02	7.46E-03	7.46E-03	7.46E-04	2.47E-04	2.47E-04	2.47E-05	219
HDDMPE	3.51E-01	6.42E-01	6.42E-01	2.01E-02	2.01E-02	2.01E-02	6.64E-04	6.64E-04	6.64E-04	2190
HDDTPE	1.50E-01	2.83E-01	2.83E-01	8.58E-03	8.58E-03	8.58E-03	2.84E-04	2.84E-04	2.84E-04	2190
HDDB1	7.87E-03	3.15E-02	3.15E-02	3.75E-03	3.35E-03	3.35E-03	3.35E-04	3.35E-04	3.35E-04	2190
HDDB2	1.57E-02	6.30E-02	6.30E-02	7.50E-03	6.71E-03	6.71E-03	6.71E-04	6.71E-04	6.71E-04	2190
HDDH1_W	2.40E-02	9.59E-02	9.59E-02	1.14E-02	1.02E-02	1.02E-02	1.02E-03	1.02E-03	1.02E-03	2190
HDDH1_E	2.40E-02	9.59E-02	9.59E-02	1.14E-02	1.02E-02	1.02E-02	1.02E-03	1.02E-03	1.02E-03	2190
HDDH2_W	1.10E-02	4.38E-02	4.38E-02	5.22E-03	4.67E-03	4.67E-03	4.67E-04	4.67E-04	4.67E-04	2190

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
HDDH2_E	1.10E-02	4.38E-02	4.38E-02	5.22E-03	4.67E-03	4.67E-03	4.67E-04	4.67E-04	4.67E-04	2190
HDDWH_W	5.69E-03	2.28E-02	2.28E-02	2.71E-03	2.42E-03	2.42E-03	2.42E-04	2.42E-04	2.42E-04	2190
HDDWH_E	5.69E-03	2.28E-02	2.28E-02	2.71E-03	2.42E-03	2.42E-03	2.42E-04	2.42E-04	2.42E-04	2190
HDDNMGE1	1.28E+00	1.46E+00	1.46E+00	7.31E-02	7.31E-02	7.31E-02	2.70E-03	2.70E-03	2.70E-03	2190
HDDNMGE2	6.14E-01	7.02E-01	7.02E-01	3.51E-02	3.51E-02	3.51E-02	1.29E-03	1.29E-03	1.29E-03	2190
HDDNMGE3	7.68E-01	8.77E-01	8.77E-01	4.39E-02	4.39E-02	4.39E-02	1.62E-03	1.62E-03	1.62E-03	2190
HDDNMBGE1	1.28E+00	1.46E+00	1.46E-01	7.31E-02	7.31E-02	7.31E-03	2.70E-03	2.70E-03	2.70E-04	219
HDDNMBGE2	6.14E-01	7.02E-01	7.02E-02	3.51E-02	3.51E-02	3.51E-03	1.29E-03	1.29E-03	1.29E-04	219
HDDNMBGE3	6.14E-01	7.02E-01	7.02E-02	3.51E-02	3.51E-02	3.51E-03	1.29E-03	1.29E-03	1.29E-04	219
HDDNMAC1	4.62E-03	2.13E-02	7.11E-03	8.81E-04	8.54E-04	2.85E-04	5.90E-05	5.90E-05	1.97E-05	730
HDDNMAC2	4.62E-03	2.13E-02	7.11E-03	8.81E-04	8.54E-04	2.85E-04	5.90E-05	5.90E-05	1.97E-05	730
HDDNROCE1	6.99E-03	2.11E-02	7.04E-03	1.22E-03	1.18E-03	3.93E-04	5.95E-05	5.95E-05	1.98E-05	730
HDDNROCE2	6.99E-03	2.11E-02	7.04E-03	1.22E-03	1.18E-03	3.93E-04	5.95E-05	5.95E-05	1.98E-05	730
HDDNRC	3.45E-03	1.68E-02	5.60E-03	5.90E-04	5.73E-04	1.91E-04	6.33E-05	6.33E-05	2.11E-05	730
WOCPWRGEN	3.89E+00	3.89E+00	1.94E+00	1.11E-01	1.11E-01	5.56E-02	7.35E-03	7.35E-03	3.67E-03	4380
WOCTEMPTRB	5.29E+00	6.96E+00	6.96E+00	1.83E-01	1.83E-01	1.83E-01	2.37E-02	2.37E-02	2.37E-02	8760
WOCFACHTR1	8.19E-02	3.28E-01	1.26E-01	3.90E-02	3.49E-02	1.34E-02	3.49E-03	3.49E-03	1.34E-03	1680
WOCFACNMAC	3.60E-02	5.48E-02	5.26E-03	4.72E-03	4.58E-03	4.39E-04	1.36E-04	1.36E-04	1.31E-05	420
WOCFACNR	2.29E-01	3.49E-01	2.24E-01	3.16E-02	3.07E-02	2.07E-02	5.61E-04	5.61E-04	3.51E-04	1260
WOCFACNMGS1	4.94E-02	1.78E-01	6.83E-02	1.07E-02	1.03E-02	3.96E-03	2.10E-04	2.10E-04	8.06E-05	1680
WOCFACNMGS2	8.00E-02	1.51E-01	5.78E-02	1.19E-02	1.15E-02	4.41E-03	1.29E-04	1.29E-04	4.95E-05	1680
WILLOWAIR1	9.04E-08	2.07E-08	2.07E-08	1.34E-09	1.34E-09	1.34E-09	4.68E-09	4.68E-09	4.68E-09	8760
WILLOWAIR2	9.04E-08	2.07E-08	2.07E-08	1.34E-09	1.34E-09	1.34E-09	4.68E-09	4.68E-09	4.68E-09	8760
WILLOWAIR3	9.04E-08	2.07E-08	2.07E-08	1.34E-09	1.34E-09	1.34E-09	4.68E-09	4.68E-09	4.68E-09	8760
2TAIL1	1.07E-02	2.63E-02	1.83E-02	1.49E-03	1.43E-03	9.94E-04	6.93E-05	6.93E-05	4.83E-05	8760
2TAIL2	1.07E-02	2.63E-02	1.83E-02	1.49E-03	1.43E-03	9.94E-04	6.93E-05	6.93E-05	4.83E-05	8760
2TAIL3	1.07E-02	2.63E-02	1.83E-02	1.49E-03	1.43E-03	9.94E-04	6.93E-05	6.93E-05	4.83E-05	8760
2TAIL4	1.07E-02	2.63E-02	1.83E-02	1.49E-03	1.43E-03	9.94E-04	6.93E-05	6.93E-05	4.83E-05	8760
3TAIL1	1.07E-02	2.63E-02	1.83E-02	1.49E-03	1.43E-03	9.94E-04	6.93E-05	6.93E-05	4.83E-05	8760
3TAIL2	1.07E-02	2.63E-02	1.83E-02	1.49E-03	1.43E-03	9.94E-04	6.93E-05	6.93E-05	4.83E-05	8760
3TAIL3	1.07E-02	2.63E-02	1.83E-02	1.49E-03	1.43E-03	9.94E-04	6.93E-05	6.93E-05	4.83E-05	8760
3TAIL4	1.07E-02	2.63E-02	1.83E-02	1.49E-03	1.43E-03	9.94E-04	6.93E-05	6.93E-05	4.83E-05	8760

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
1TAIL1	3.85E-04	4.64E-04	4.64E-04	4.07E-05	2.43E-05	2.43E-05	1.66E-06	1.66E-06	1.66E-06	8760
1TAIL2	3.85E-04	4.64E-04	4.64E-04	4.07E-05	2.43E-05	2.43E-05	1.66E-06	1.66E-06	1.66E-06	8760
1TAIL3	3.85E-04	4.64E-04	4.64E-04	4.07E-05	2.43E-05	2.43E-05	1.66E-06	1.66E-06	1.66E-06	8760
1TAIL4	3.85E-04	4.64E-04	4.64E-04	4.07E-05	2.43E-05	2.43E-05	1.66E-06	1.66E-06	1.66E-06	8760
WOCTAIL1	3.85E-04	4.64E-04	4.64E-04	4.07E-05	2.43E-05	2.43E-05	1.66E-06	1.66E-06	1.66E-06	8760
WOCTAIL2	3.85E-04	4.64E-04	4.64E-04	4.07E-05	2.43E-05	2.43E-05	1.66E-06	1.66E-06	1.66E-06	8760
WOCTAIL3	3.85E-04	4.64E-04	4.64E-04	4.07E-05	2.43E-05	2.43E-05	1.66E-06	1.66E-06	1.66E-06	8760
WOCTAIL4	3.85E-04	4.64E-04	4.64E-04	4.07E-05	2.43E-05	2.43E-05	1.66E-06	1.66E-06	1.66E-06	8760
MINETAIL1	1.07E-02	2.63E-02	1.83E-02	1.49E-03	1.43E-03	9.94E-04	6.93E-05	6.93E-05	4.83E-05	8760
MINETAIL2	1.07E-02	2.63E-02	1.83E-02	1.49E-03	1.43E-03	9.94E-04	6.93E-05	6.93E-05	4.83E-05	8760
MINETAIL3	1.07E-02	2.63E-02	1.83E-02	1.49E-03	1.43E-03	9.94E-04	6.93E-05	6.93E-05	4.83E-05	8760
MINETAIL4	1.07E-02	2.63E-02	1.83E-02	1.49E-03	1.43E-03	9.94E-04	6.93E-05	6.93E-05	4.83E-05	8760
1MFUGD1	0.00E+00	0.00E+00	0.00E+00	3.50E-02	3.50E-03	3.50E-03	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD2	0.00E+00	0.00E+00	0.00E+00	3.50E-02	3.50E-03	3.50E-03	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD3	0.00E+00	0.00E+00	0.00E+00	3.50E-02	3.50E-03	3.50E-03	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD4	0.00E+00	0.00E+00	0.00E+00	3.50E-02	3.50E-03	3.50E-03	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD1	0.00E+00	0.00E+00	0.00E+00	3.50E-02	3.50E-03	3.50E-03	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD2	0.00E+00	0.00E+00	0.00E+00	3.50E-02	3.50E-03	3.50E-03	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD3	0.00E+00	0.00E+00	0.00E+00	3.50E-02	3.50E-03	3.50E-03	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD4	0.00E+00	0.00E+00	0.00E+00	3.50E-02	3.50E-03	3.50E-03	0.00E+00	0.00E+00	0.00E+00	4380
3MFUGD1	0.00E+00	0.00E+00	0.00E+00	3.50E-02	3.50E-03	3.50E-03	0.00E+00	0.00E+00	0.00E+00	4380
3MFUGD2	0.00E+00	0.00E+00	0.00E+00	3.50E-02	3.50E-03	3.50E-03	0.00E+00	0.00E+00	0.00E+00	4380
3MFUGD3	0.00E+00	0.00E+00	0.00E+00	3.50E-02	3.50E-03	3.50E-03	0.00E+00	0.00E+00	0.00E+00	4380
3MFUGD4	0.00E+00	0.00E+00	0.00E+00	3.50E-02	3.50E-03	3.50E-03	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD1	0.00E+00	0.00E+00	0.00E+00	3.50E-02	3.50E-03	3.50E-03	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD2	0.00E+00	0.00E+00	0.00E+00	3.50E-02	3.50E-03	3.50E-03	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD3	0.00E+00	0.00E+00	0.00E+00	3.50E-02	3.50E-03	3.50E-03	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD4	0.00E+00	0.00E+00	0.00E+00	3.50E-02	3.50E-03	3.50E-03	0.00E+00	0.00E+00	0.00E+00	4380
MINEMFUGD1	0.00E+00	0.00E+00	0.00E+00	3.50E-02	3.50E-03	3.50E-03	0.00E+00	0.00E+00	0.00E+00	4380
MINEMFUGD2	0.00E+00	0.00E+00	0.00E+00	3.50E-02	3.50E-03	3.50E-03	0.00E+00	0.00E+00	0.00E+00	4380
MINEMFUGD3	0.00E+00	0.00E+00	0.00E+00	3.50E-02	3.50E-03	3.50E-03	0.00E+00	0.00E+00	0.00E+00	4380
MINEMFUGD4	0.00E+00	0.00E+00	0.00E+00	3.50E-02	3.50E-03	3.50E-03	0.00E+00	0.00E+00	0.00E+00	4380

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
2GRVLNR1	1.17E-05	3.07E-05	2.64E-05	1.61E-06	1.56E-06	1.35E-06	1.26E-07	1.26E-07	1.08E-07	Varies
2GRVLNR2	1.17E-05	3.07E-05	2.64E-05	1.61E-06	1.56E-06	1.35E-06	1.26E-07	1.26E-07	1.08E-07	Varies
2GRVLNR3	1.17E-05	3.07E-05	2.64E-05	1.61E-06	1.56E-06	1.35E-06	1.26E-07	1.26E-07	1.08E-07	Varies
2GRVLNR4	1.17E-05	3.07E-05	2.64E-05	1.61E-06	1.56E-06	1.35E-06	1.26E-07	1.26E-07	1.08E-07	Varies
3GRVLNR1	1.17E-05	3.07E-05	2.64E-05	1.61E-06	1.56E-06	1.35E-06	1.26E-07	1.26E-07	1.08E-07	Varies
3GRVLNR2	1.17E-05	3.07E-05	2.64E-05	1.61E-06	1.56E-06	1.35E-06	1.26E-07	1.26E-07	1.08E-07	Varies
3GRVLNR3	1.17E-05	3.07E-05	2.64E-05	1.61E-06	1.56E-06	1.35E-06	1.26E-07	1.26E-07	1.08E-07	Varies
3GRVLNR4	1.17E-05	3.07E-05	2.64E-05	1.61E-06	1.56E-06	1.35E-06	1.26E-07	1.26E-07	1.08E-07	Varies
ICEPDNRHCE	4.10E-02	1.07E-01	9.84E-02	5.34E-03	5.18E-03	4.77E-03	1.87E-04	1.87E-04	1.72E-04	2579
ICEPDNROS1	5.37E-04	1.40E-03	1.29E-03	6.98E-05	6.77E-05	6.23E-05	2.44E-06	2.44E-06	2.25E-06	2579
ICEPDNROS2	5.37E-04	1.40E-03	1.29E-03	6.98E-05	6.77E-05	6.23E-05	2.44E-06	2.44E-06	2.25E-06	2579
ICEPDNROS3	5.37E-04	1.40E-03	1.29E-03	6.98E-05	6.77E-05	6.23E-05	2.44E-06	2.44E-06	2.25E-06	2579
ICEPDNROS4	5.37E-04	1.40E-03	1.29E-03	6.98E-05	6.77E-05	6.23E-05	2.44E-06	2.44E-06	2.25E-06	2579
ICEPDNROS5	5.37E-04	1.40E-03	1.29E-03	6.98E-05	6.77E-05	6.23E-05	2.44E-06	2.44E-06	2.25E-06	2579
ICEPDNROS6	5.37E-04	1.40E-03	1.29E-03	6.98E-05	6.77E-05	6.23E-05	2.44E-06	2.44E-06	2.25E-06	2579
ICEPDNROS7	5.37E-04	1.40E-03	1.29E-03	6.98E-05	6.77E-05	6.23E-05	2.44E-06	2.44E-06	2.25E-06	2579
ICEPDNROS8	5.37E-04	1.40E-03	1.29E-03	6.98E-05	6.77E-05	6.23E-05	2.44E-06	2.44E-06	2.25E-06	2579
ICEPDNROS9	5.37E-04	1.40E-03	1.29E-03	6.98E-05	6.77E-05	6.23E-05	2.44E-06	2.44E-06	2.25E-06	2579
ICEPDNROS10	5.37E-04	1.40E-03	1.29E-03	6.98E-05	6.77E-05	6.23E-05	2.44E-06	2.44E-06	2.25E-06	2579
ICEPDNROS11	5.37E-04	1.40E-03	1.29E-03	6.98E-05	6.77E-05	6.23E-05	2.44E-06	2.44E-06	2.25E-06	2579
ICEPDNROS12	5.37E-04	1.40E-03	1.29E-03	6.98E-05	6.77E-05	6.23E-05	2.44E-06	2.44E-06	2.25E-06	2579
ICEPDNROS13	5.37E-04	1.40E-03	1.29E-03	6.98E-05	6.77E-05	6.23E-05	2.44E-06	2.44E-06	2.25E-06	2579
ICEPDNROS14	5.37E-04	1.40E-03	1.29E-03	6.98E-05	6.77E-05	6.23E-05	2.44E-06	2.44E-06	2.25E-06	2579
ICEPDNROS15	5.37E-04	1.40E-03	1.29E-03	6.98E-05	6.77E-05	6.23E-05	2.44E-06	2.44E-06	2.25E-06	2579
ICEPDNROS16	5.37E-04	1.40E-03	1.29E-03	6.98E-05	6.77E-05	6.23E-05	2.44E-06	2.44E-06	2.25E-06	2579
ICEPDNROS17	5.37E-04	1.40E-03	1.29E-03	6.98E-05	6.77E-05	6.23E-05	2.44E-06	2.44E-06	2.25E-06	2579
ICEPDNROS18	5.37E-04	1.40E-03	1.29E-03	6.98E-05	6.77E-05	6.23E-05	2.44E-06	2.44E-06	2.25E-06	2579
ICEPDNROS19	5.37E-04	1.40E-03	1.29E-03	6.98E-05	6.77E-05	6.23E-05	2.44E-06	2.44E-06	2.25E-06	2579
ICEPDNROS20	5.37E-04	1.40E-03	1.29E-03	6.98E-05	6.77E-05	6.23E-05	2.44E-06	2.44E-06	2.25E-06	2579
ICEPDNROS21	5.37E-04	1.40E-03	1.29E-03	6.98E-05	6.77E-05	6.23E-05	2.44E-06	2.44E-06	2.25E-06	2579
ICEPDNROS22	5.37E-04	1.40E-03	1.29E-03	6.98E-05	6.77E-05	6.23E-05	2.44E-06	2.44E-06	2.25E-06	2579
ICEPDNROS23	5.37E-04	1.40E-03	1.29E-03	6.98E-05	6.77E-05	6.23E-05	2.44E-06	2.44E-06	2.25E-06	2579

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
ICEPDNROS24	5.37E-04	1.40E-03	1.29E-03	6.98E-05	6.77E-05	6.23E-05	2.44E-06	2.44E-06	2.25E-06	2579
ICEPDNROS25	5.37E-04	1.40E-03	1.29E-03	6.98E-05	6.77E-05	6.23E-05	2.44E-06	2.44E-06	2.25E-06	2579
ICEPDNROS26	5.37E-04	1.40E-03	1.29E-03	6.98E-05	6.77E-05	6.23E-05	2.44E-06	2.44E-06	2.25E-06	2579
ICEPDNROS27	5.37E-04	1.40E-03	1.29E-03	6.98E-05	6.77E-05	6.23E-05	2.44E-06	2.44E-06	2.25E-06	2579
ICEPDNROS28	5.37E-04	1.40E-03	1.29E-03	6.98E-05	6.77E-05	6.23E-05	2.44E-06	2.44E-06	2.25E-06	2579
ICEPDNROS29	5.37E-04	1.40E-03	1.29E-03	6.98E-05	6.77E-05	6.23E-05	2.44E-06	2.44E-06	2.25E-06	2579
ICEPDNROS30	5.37E-04	1.40E-03	1.29E-03	6.98E-05	6.77E-05	6.23E-05	2.44E-06	2.44E-06	2.25E-06	2579
ICEPDNROS31	5.37E-04	1.40E-03	1.29E-03	6.98E-05	6.77E-05	6.23E-05	2.44E-06	2.44E-06	2.25E-06	2579
ICEPDNROS32	5.37E-04	1.40E-03	1.29E-03	6.98E-05	6.77E-05	6.23E-05	2.44E-06	2.44E-06	2.25E-06	2579
ICEPDNROS33	5.37E-04	1.40E-03	1.29E-03	6.98E-05	6.77E-05	6.23E-05	2.44E-06	2.44E-06	2.25E-06	2579
ICEPDNROS34	5.37E-04	1.40E-03	1.29E-03	6.98E-05	6.77E-05	6.23E-05	2.44E-06	2.44E-06	2.25E-06	2579
ICEPDNROS35	5.37E-04	1.40E-03	1.29E-03	6.98E-05	6.77E-05	6.23E-05	2.44E-06	2.44E-06	2.25E-06	2579
ICEPDNROS36	5.37E-04	1.40E-03	1.29E-03	6.98E-05	6.77E-05	6.23E-05	2.44E-06	2.44E-06	2.25E-06	2579
ICEPDNROS37	5.37E-04	1.40E-03	1.29E-03	6.98E-05	6.77E-05	6.23E-05	2.44E-06	2.44E-06	2.25E-06	2579
ICEPDNROS38	5.37E-04	1.40E-03	1.29E-03	6.98E-05	6.77E-05	6.23E-05	2.44E-06	2.44E-06	2.25E-06	2579
ICEPDNROS39	5.37E-04	1.40E-03	1.29E-03	6.98E-05	6.77E-05	6.23E-05	2.44E-06	2.44E-06	2.25E-06	2579
ICEPDNROS40	5.37E-04	1.40E-03	1.29E-03	6.98E-05	6.77E-05	6.23E-05	2.44E-06	2.44E-06	2.25E-06	2579
ICEPDNROS41	5.37E-04	1.40E-03	1.29E-03	6.98E-05	6.77E-05	6.23E-05	2.44E-06	2.44E-06	2.25E-06	2579
ICEPDNROS42	5.37E-04	1.40E-03	1.29E-03	6.98E-05	6.77E-05	6.23E-05	2.44E-06	2.44E-06	2.25E-06	2579
ICEPDNROS43	5.37E-04	1.40E-03	1.29E-03	6.98E-05	6.77E-05	6.23E-05	2.44E-06	2.44E-06	2.25E-06	2579
ICEPDNROS44	5.37E-04	1.40E-03	1.29E-03	6.98E-05	6.77E-05	6.23E-05	2.44E-06	2.44E-06	2.25E-06	2579
ICEPDNRIOS1	3.09E-03	8.05E-03	7.41E-03	4.02E-04	3.90E-04	3.59E-04	1.41E-05	1.41E-05	1.29E-05	2579
ICEPDNRIOS2	3.09E-03	8.05E-03	7.41E-03	4.02E-04	3.90E-04	3.59E-04	1.41E-05	1.41E-05	1.29E-05	2579
ICEPDNRIOS3	3.09E-03	8.05E-03	7.41E-03	4.02E-04	3.90E-04	3.59E-04	1.41E-05	1.41E-05	1.29E-05	2579
ICEPDNRIOS4	3.09E-03	8.05E-03	7.41E-03	4.02E-04	3.90E-04	3.59E-04	1.41E-05	1.41E-05	1.29E-05	2579
ICEPDNRIOS5	3.09E-03	8.05E-03	7.41E-03	4.02E-04	3.90E-04	3.59E-04	1.41E-05	1.41E-05	1.29E-05	2579
ICEPDNRIOS6	3.09E-03	8.05E-03	7.41E-03	4.02E-04	3.90E-04	3.59E-04	1.41E-05	1.41E-05	1.29E-05	2579
ICEPDNRIOS7	3.09E-03	8.05E-03	7.41E-03	4.02E-04	3.90E-04	3.59E-04	1.41E-05	1.41E-05	1.29E-05	2579
ICEPDNRIOS8	3.09E-03	8.05E-03	7.41E-03	4.02E-04	3.90E-04	3.59E-04	1.41E-05	1.41E-05	1.29E-05	2579
ICEPDNRIOS9	3.09E-03	8.05E-03	7.41E-03	4.02E-04	3.90E-04	3.59E-04	1.41E-05	1.41E-05	1.29E-05	2579
ICEPDNRIOS10	3.09E-03	8.05E-03	7.41E-03	4.02E-04	3.90E-04	3.59E-04	1.41E-05	1.41E-05	1.29E-05	2579
ICEPDNRIOS11	3.09E-03	8.05E-03	7.41E-03	4.02E-04	3.90E-04	3.59E-04	1.41E-05	1.41E-05	1.29E-05	2579

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
ICEPDNRIOS12	3.09E-03	8.05E-03	7.41E-03	4.02E-04	3.90E-04	3.59E-04	1.41E-05	1.41E-05	1.29E-05	2579
ICEPDNRIOS13	3.09E-03	8.05E-03	7.41E-03	4.02E-04	3.90E-04	3.59E-04	1.41E-05	1.41E-05	1.29E-05	2579
ICEPDNRIOS14	3.09E-03	8.05E-03	7.41E-03	4.02E-04	3.90E-04	3.59E-04	1.41E-05	1.41E-05	1.29E-05	2579
ICEPDNRIOS15	3.09E-03	8.05E-03	7.41E-03	4.02E-04	3.90E-04	3.59E-04	1.41E-05	1.41E-05	1.29E-05	2579
ICEPDNRIOS16	3.09E-03	8.05E-03	7.41E-03	4.02E-04	3.90E-04	3.59E-04	1.41E-05	1.41E-05	1.29E-05	2579
ICEPDNRIOS17	3.09E-03	8.05E-03	7.41E-03	4.02E-04	3.90E-04	3.59E-04	1.41E-05	1.41E-05	1.29E-05	2579
ICEPDNRIOS18	3.09E-03	8.05E-03	7.41E-03	4.02E-04	3.90E-04	3.59E-04	1.41E-05	1.41E-05	1.29E-05	2579
ICEPDNRIOS19	3.09E-03	8.05E-03	7.41E-03	4.02E-04	3.90E-04	3.59E-04	1.41E-05	1.41E-05	1.29E-05	2579
ICEPDNRIOS20	3.09E-03	8.05E-03	7.41E-03	4.02E-04	3.90E-04	3.59E-04	1.41E-05	1.41E-05	1.29E-05	2579
ICEPDNRIOS21	3.09E-03	8.05E-03	7.41E-03	4.02E-04	3.90E-04	3.59E-04	1.41E-05	1.41E-05	1.29E-05	2579
ICEPDNRIOS22	3.09E-03	8.05E-03	7.41E-03	4.02E-04	3.90E-04	3.59E-04	1.41E-05	1.41E-05	1.29E-05	2579
ICEPDNRIOS23	3.09E-03	8.05E-03	7.41E-03	4.02E-04	3.90E-04	3.59E-04	1.41E-05	1.41E-05	1.29E-05	2579
ICEPDNRIOS24	3.09E-03	8.05E-03	7.41E-03	4.02E-04	3.90E-04	3.59E-04	1.41E-05	1.41E-05	1.29E-05	2579
ICEPDNRIOS25	3.09E-03	8.05E-03	7.41E-03	4.02E-04	3.90E-04	3.59E-04	1.41E-05	1.41E-05	1.29E-05	2579
ICEPDNRIOS26	3.09E-03	8.05E-03	7.41E-03	4.02E-04	3.90E-04	3.59E-04	1.41E-05	1.41E-05	1.29E-05	2579
ICEPDNRIOS27	3.09E-03	8.05E-03	7.41E-03	4.02E-04	3.90E-04	3.59E-04	1.41E-05	1.41E-05	1.29E-05	2579
ICEPDNRIOS28	3.09E-03	8.05E-03	7.41E-03	4.02E-04	3.90E-04	3.59E-04	1.41E-05	1.41E-05	1.29E-05	2579
ICEPDNRIOS29	3.09E-03	8.05E-03	7.41E-03	4.02E-04	3.90E-04	3.59E-04	1.41E-05	1.41E-05	1.29E-05	2579
ICEPDNRIOS30	3.09E-03	8.05E-03	7.41E-03	4.02E-04	3.90E-04	3.59E-04	1.41E-05	1.41E-05	1.29E-05	2579
ICEPDNRIOS31	3.09E-03	8.05E-03	7.41E-03	4.02E-04	3.90E-04	3.59E-04	1.41E-05	1.41E-05	1.29E-05	2579
ICEPDNRIOS32	3.09E-03	8.05E-03	7.41E-03	4.02E-04	3.90E-04	3.59E-04	1.41E-05	1.41E-05	1.29E-05	2579
ICEPDNRIOS33	3.09E-03	8.05E-03	7.41E-03	4.02E-04	3.90E-04	3.59E-04	1.41E-05	1.41E-05	1.29E-05	2579
ICEPDNRIOS34	3.09E-03	8.05E-03	7.41E-03	4.02E-04	3.90E-04	3.59E-04	1.41E-05	1.41E-05	1.29E-05	2579
ICEPDNRIOS35	3.09E-03	8.05E-03	7.41E-03	4.02E-04	3.90E-04	3.59E-04	1.41E-05	1.41E-05	1.29E-05	2579
ICEPDNRIOS36	3.09E-03	8.05E-03	7.41E-03	4.02E-04	3.90E-04	3.59E-04	1.41E-05	1.41E-05	1.29E-05	2579
ICEPDNRIOS37	3.09E-03	8.05E-03	7.41E-03	4.02E-04	3.90E-04	3.59E-04	1.41E-05	1.41E-05	1.29E-05	2579
ICEPDNRIOS38	3.09E-03	8.05E-03	7.41E-03	4.02E-04	3.90E-04	3.59E-04	1.41E-05	1.41E-05	1.29E-05	2579
ICEPDNRIOS39	3.09E-03	8.05E-03	7.41E-03	4.02E-04	3.90E-04	3.59E-04	1.41E-05	1.41E-05	1.29E-05	2579
ICEPDNRIOS40	3.09E-03	8.05E-03	7.41E-03	4.02E-04	3.90E-04	3.59E-04	1.41E-05	1.41E-05	1.29E-05	2579
ICEPDNRIOS41	3.09E-03	8.05E-03	7.41E-03	4.02E-04	3.90E-04	3.59E-04	1.41E-05	1.41E-05	1.29E-05	2579
ICEPDNRIOS42	3.09E-03	8.05E-03	7.41E-03	4.02E-04	3.90E-04	3.59E-04	1.41E-05	1.41E-05	1.29E-05	2579
ICEPDNRIOS43	3.09E-03	8.05E-03	7.41E-03	4.02E-04	3.90E-04	3.59E-04	1.41E-05	1.41E-05	1.29E-05	2579

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
ICEPDNRIOS44	3.09E-03	8.05E-03	7.41E-03	4.02E-04	3.90E-04	3.59E-04	1.41E-05	1.41E-05	1.29E-05	2579
ICEPDNRPIP1	3.47E-03	9.04E-03	8.32E-03	4.52E-04	4.38E-04	4.03E-04	1.58E-05	1.58E-05	1.45E-05	2579
ICEPDNRPIP2	3.47E-03	9.04E-03	8.32E-03	4.52E-04	4.38E-04	4.03E-04	1.58E-05	1.58E-05	1.45E-05	2579
ICEPDNRPIP3	3.47E-03	9.04E-03	8.32E-03	4.52E-04	4.38E-04	4.03E-04	1.58E-05	1.58E-05	1.45E-05	2579
ICEPDNRPIP4	3.47E-03	9.04E-03	8.32E-03	4.52E-04	4.38E-04	4.03E-04	1.58E-05	1.58E-05	1.45E-05	2579
ICEPDNRPIP5	3.47E-03	9.04E-03	8.32E-03	4.52E-04	4.38E-04	4.03E-04	1.58E-05	1.58E-05	1.45E-05	2579
ICEPDNRPIP6	3.47E-03	9.04E-03	8.32E-03	4.52E-04	4.38E-04	4.03E-04	1.58E-05	1.58E-05	1.45E-05	2579
ICEPDNRPIP7	3.47E-03	9.04E-03	8.32E-03	4.52E-04	4.38E-04	4.03E-04	1.58E-05	1.58E-05	1.45E-05	2579
ICEPDNRPIP8	3.47E-03	9.04E-03	8.32E-03	4.52E-04	4.38E-04	4.03E-04	1.58E-05	1.58E-05	1.45E-05	2579
ICEPDNRPIP9	3.47E-03	9.04E-03	8.32E-03	4.52E-04	4.38E-04	4.03E-04	1.58E-05	1.58E-05	1.45E-05	2579
ICEPDNRPIP10	3.47E-03	9.04E-03	8.32E-03	4.52E-04	4.38E-04	4.03E-04	1.58E-05	1.58E-05	1.45E-05	2579
ICEPDNRPIP11	3.47E-03	9.04E-03	8.32E-03	4.52E-04	4.38E-04	4.03E-04	1.58E-05	1.58E-05	1.45E-05	2579
ICEPDNRPIP12	3.47E-03	9.04E-03	8.32E-03	4.52E-04	4.38E-04	4.03E-04	1.58E-05	1.58E-05	1.45E-05	2579
ICEPDNRPIP13	3.47E-03	9.04E-03	8.32E-03	4.52E-04	4.38E-04	4.03E-04	1.58E-05	1.58E-05	1.45E-05	2579
ICEPDNRPIP14	3.47E-03	9.04E-03	8.32E-03	4.52E-04	4.38E-04	4.03E-04	1.58E-05	1.58E-05	1.45E-05	2579
ICEPDNRPIP15	3.47E-03	9.04E-03	8.32E-03	4.52E-04	4.38E-04	4.03E-04	1.58E-05	1.58E-05	1.45E-05	2579
ICEPDNRPIP16	3.47E-03	9.04E-03	8.32E-03	4.52E-04	4.38E-04	4.03E-04	1.58E-05	1.58E-05	1.45E-05	2579
ICEPDNRPIP17	3.47E-03	9.04E-03	8.32E-03	4.52E-04	4.38E-04	4.03E-04	1.58E-05	1.58E-05	1.45E-05	2579
ICEPDNRPIP18	3.47E-03	9.04E-03	8.32E-03	4.52E-04	4.38E-04	4.03E-04	1.58E-05	1.58E-05	1.45E-05	2579
ICEPDNRPIP19	3.47E-03	9.04E-03	8.32E-03	4.52E-04	4.38E-04	4.03E-04	1.58E-05	1.58E-05	1.45E-05	2579
ICEPDNRPIP20	3.47E-03	9.04E-03	8.32E-03	4.52E-04	4.38E-04	4.03E-04	1.58E-05	1.58E-05	1.45E-05	2579
ICEPDNRPIP21	3.47E-03	9.04E-03	8.32E-03	4.52E-04	4.38E-04	4.03E-04	1.58E-05	1.58E-05	1.45E-05	2579
ICEPDNRPIP22	3.47E-03	9.04E-03	8.32E-03	4.52E-04	4.38E-04	4.03E-04	1.58E-05	1.58E-05	1.45E-05	2579
ICEPDNRPIP23	3.47E-03	9.04E-03	8.32E-03	4.52E-04	4.38E-04	4.03E-04	1.58E-05	1.58E-05	1.45E-05	2579
ICEPDNRPIP24	3.47E-03	9.04E-03	8.32E-03	4.52E-04	4.38E-04	4.03E-04	1.58E-05	1.58E-05	1.45E-05	2579
ICEPDNRPIP25	3.47E-03	9.04E-03	8.32E-03	4.52E-04	4.38E-04	4.03E-04	1.58E-05	1.58E-05	1.45E-05	2579
ICEPDNRPIP26	3.47E-03	9.04E-03	8.32E-03	4.52E-04	4.38E-04	4.03E-04	1.58E-05	1.58E-05	1.45E-05	2579
ICEPDNRPIP27	3.47E-03	9.04E-03	8.32E-03	4.52E-04	4.38E-04	4.03E-04	1.58E-05	1.58E-05	1.45E-05	2579
ICEPDNRPIP28	3.47E-03	9.04E-03	8.32E-03	4.52E-04	4.38E-04	4.03E-04	1.58E-05	1.58E-05	1.45E-05	2579
ICEPDNRPIP29	3.47E-03	9.04E-03	8.32E-03	4.52E-04	4.38E-04	4.03E-04	1.58E-05	1.58E-05	1.45E-05	2579
ICEPDNRPIP30	3.47E-03	9.04E-03	8.32E-03	4.52E-04	4.38E-04	4.03E-04	1.58E-05	1.58E-05	1.45E-05	2579
ICEPDNRPIP31	3.47E-03	9.04E-03	8.32E-03	4.52E-04	4.38E-04	4.03E-04	1.58E-05	1.58E-05	1.45E-05	2579

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
ICEPDNRPIP32	3.47E-03	9.04E-03	8.32E-03	4.52E-04	4.38E-04	4.03E-04	1.58E-05	1.58E-05	1.45E-05	2579
ICEPDNRPIP33	3.47E-03	9.04E-03	8.32E-03	4.52E-04	4.38E-04	4.03E-04	1.58E-05	1.58E-05	1.45E-05	2579
ICEPDNRPIP34	3.47E-03	9.04E-03	8.32E-03	4.52E-04	4.38E-04	4.03E-04	1.58E-05	1.58E-05	1.45E-05	2579
ICEPDNRPIP35	3.47E-03	9.04E-03	8.32E-03	4.52E-04	4.38E-04	4.03E-04	1.58E-05	1.58E-05	1.45E-05	2579
ICEPDNRPIP36	3.47E-03	9.04E-03	8.32E-03	4.52E-04	4.38E-04	4.03E-04	1.58E-05	1.58E-05	1.45E-05	2579
ICEPDNRPIP37	3.47E-03	9.04E-03	8.32E-03	4.52E-04	4.38E-04	4.03E-04	1.58E-05	1.58E-05	1.45E-05	2579
ICEPDNRPIP38	3.47E-03	9.04E-03	8.32E-03	4.52E-04	4.38E-04	4.03E-04	1.58E-05	1.58E-05	1.45E-05	2579
ICEPDNRPIP39	3.47E-03	9.04E-03	8.32E-03	4.52E-04	4.38E-04	4.03E-04	1.58E-05	1.58E-05	1.45E-05	2579
ICEPDNRPIP40	3.47E-03	9.04E-03	8.32E-03	4.52E-04	4.38E-04	4.03E-04	1.58E-05	1.58E-05	1.45E-05	2579
ICEPDNRPIP41	3.47E-03	9.04E-03	8.32E-03	4.52E-04	4.38E-04	4.03E-04	1.58E-05	1.58E-05	1.45E-05	2579
ICEPDNRPIP42	3.47E-03	9.04E-03	8.32E-03	4.52E-04	4.38E-04	4.03E-04	1.58E-05	1.58E-05	1.45E-05	2579
ICEPDNRPIP43	3.47E-03	9.04E-03	8.32E-03	4.52E-04	4.38E-04	4.03E-04	1.58E-05	1.58E-05	1.45E-05	2579
ICEPDNRPIP44	3.47E-03	9.04E-03	8.32E-03	4.52E-04	4.38E-04	4.03E-04	1.58E-05	1.58E-05	1.45E-05	2579
ICEPDNRHDD1	1.56E-02	4.08E-02	3.75E-02	2.04E-03	1.98E-03	1.82E-03	7.12E-05	7.12E-05	6.56E-05	2579
ICEPDNRHDD2	1.39E-02	3.62E-02	3.33E-02	1.81E-03	1.75E-03	1.62E-03	6.33E-05	6.33E-05	5.82E-05	2579
ICERDNR1	1.37E-03	1.56E-03	1.27E-04	1.78E-04	1.73E-04	1.42E-05	6.24E-06	6.24E-06	5.10E-07	526
ICERDNR2	1.37E-03	1.56E-03	1.27E-04	1.78E-04	1.73E-04	1.42E-05	6.24E-06	6.24E-06	5.10E-07	526
ICERDNR3	1.37E-03	1.56E-03	1.27E-04	1.78E-04	1.73E-04	1.42E-05	6.24E-06	6.24E-06	5.10E-07	526
ICERDNR4	1.37E-03	1.56E-03	1.27E-04	1.78E-04	1.73E-04	1.42E-05	6.24E-06	6.24E-06	5.10E-07	526
PIPNR1	2.35E-05	8.43E-05	6.10E-05	3.61E-06	3.50E-06	2.53E-06	2.67E-07	2.67E-07	1.91E-07	Varies
PIPNR2	2.35E-05	8.43E-05	6.10E-05	3.61E-06	3.50E-06	2.53E-06	2.67E-07	2.67E-07	1.91E-07	Varies
PIPNR3	2.35E-05	8.43E-05	6.10E-05	3.61E-06	3.50E-06	2.53E-06	2.67E-07	2.67E-07	1.91E-07	Varies
PIPNR4	2.35E-05	8.43E-05	6.10E-05	3.61E-06	3.50E-06	2.53E-06	2.67E-07	2.67E-07	1.91E-07	Varies
VSMNR1	8.93E-06	2.38E-05	2.21E-05	1.27E-06	1.23E-06	1.21E-06	4.63E-08	4.63E-08	4.11E-08	Varies
VSMNR2	8.93E-06	2.38E-05	2.21E-05	1.27E-06	1.23E-06	1.21E-06	4.63E-08	4.63E-08	4.11E-08	Varies
VSMNR3	8.93E-06	2.38E-05	2.21E-05	1.27E-06	1.23E-06	1.21E-06	4.63E-08	4.63E-08	4.11E-08	Varies
VSMNR4	8.93E-06	2.38E-05	2.21E-05	1.27E-06	1.23E-06	1.21E-06	4.63E-08	4.63E-08	4.11E-08	Varies
FBROPNR1	2.15E-06	3.56E-06	2.68E-06	2.83E-07	2.74E-07	9.47E-08	7.46E-09	7.46E-09	4.40E-09	Varies
FBROPNR2	2.15E-06	3.56E-06	2.68E-06	2.83E-07	2.74E-07	9.47E-08	7.46E-09	7.46E-09	4.40E-09	Varies
FBROPNR3	2.15E-06	3.56E-06	2.68E-06	2.83E-07	2.74E-07	9.47E-08	7.46E-09	7.46E-09	4.40E-09	Varies
FBROPNR4	2.15E-06	3.56E-06	2.68E-06	2.83E-07	2.74E-07	9.47E-08	7.46E-09	7.46E-09	4.40E-09	Varies
2PADNR1	1.48E-02	3.87E-02	3.33E-02	2.04E-03	1.97E-03	1.70E-03	1.59E-04	1.59E-04	1.37E-04	Varies

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
2PADNR2	1.48E-02	3.87E-02	3.33E-02	2.04E-03	1.97E-03	1.70E-03	1.59E-04	1.59E-04	1.37E-04	Varies
2PADNR3	1.48E-02	3.87E-02	3.33E-02	2.04E-03	1.97E-03	1.70E-03	1.59E-04	1.59E-04	1.37E-04	Varies
2PADNR4	1.48E-02	3.87E-02	3.33E-02	2.04E-03	1.97E-03	1.70E-03	1.59E-04	1.59E-04	1.37E-04	Varies
3PADNR1	1.48E-02	3.87E-02	3.33E-02	2.04E-03	1.97E-03	1.70E-03	1.59E-04	1.59E-04	1.37E-04	Varies
3PADNR2	1.48E-02	3.87E-02	3.33E-02	2.04E-03	1.97E-03	1.70E-03	1.59E-04	1.59E-04	1.37E-04	Varies
3PADNR3	1.48E-02	3.87E-02	3.33E-02	2.04E-03	1.97E-03	1.70E-03	1.59E-04	1.59E-04	1.37E-04	Varies
3PADNR4	1.48E-02	3.87E-02	3.33E-02	2.04E-03	1.97E-03	1.70E-03	1.59E-04	1.59E-04	1.37E-04	Varies
MINENR1	1.93E-02	4.51E-02	2.63E-02	2.65E-03	2.57E-03	1.62E-03	1.09E-04	1.09E-04	5.93E-05	Varies
MINENR2	1.93E-02	4.51E-02	2.63E-02	2.65E-03	2.57E-03	1.62E-03	1.09E-04	1.09E-04	5.93E-05	Varies
MINENR3	1.93E-02	4.51E-02	2.63E-02	2.65E-03	2.57E-03	1.62E-03	1.09E-04	1.09E-04	5.93E-05	Varies
MINENR4	1.93E-02	4.51E-02	2.63E-02	2.65E-03	2.57E-03	1.62E-03	1.09E-04	1.09E-04	5.93E-05	Varies
MINENR5	1.93E-02	4.51E-02	2.63E-02	2.65E-03	2.57E-03	1.62E-03	1.09E-04	1.09E-04	5.93E-05	Varies
MINENR6	1.93E-02	4.51E-02	2.63E-02	2.65E-03	2.57E-03	1.62E-03	1.09E-04	1.09E-04	5.93E-05	Varies
MINENR7	1.93E-02	4.51E-02	2.63E-02	2.65E-03	2.57E-03	1.62E-03	1.09E-04	1.09E-04	5.93E-05	Varies
MINENR8	1.93E-02	4.51E-02	2.63E-02	2.65E-03	2.57E-03	1.62E-03	1.09E-04	1.09E-04	5.93E-05	Varies
MINENR9	1.93E-02	4.51E-02	2.63E-02	2.65E-03	2.57E-03	1.62E-03	1.09E-04	1.09E-04	5.93E-05	Varies
2PADOHT1	2.06E-02	5.16E-02	3.56E-02	2.90E-03	2.81E-03	1.94E-03	1.35E-04	1.35E-04	9.34E-05	1512
2PADOHT2	2.06E-02	5.16E-02	3.56E-02	2.90E-03	2.81E-03	1.94E-03	1.35E-04	1.35E-04	9.34E-05	1512
2PADOHT3	2.06E-02	5.16E-02	3.56E-02	2.90E-03	2.81E-03	1.94E-03	1.35E-04	1.35E-04	9.34E-05	1512
2PADOHT4	2.06E-02	5.16E-02	3.56E-02	2.90E-03	2.81E-03	1.94E-03	1.35E-04	1.35E-04	9.34E-05	1512
3PADOHT1	2.06E-02	5.16E-02	3.56E-02	2.90E-03	2.81E-03	1.94E-03	1.35E-04	1.35E-04	9.34E-05	1512
3PADOHT2	2.06E-02	5.16E-02	3.56E-02	2.90E-03	2.81E-03	1.94E-03	1.35E-04	1.35E-04	9.34E-05	1512
3PADOHT3	2.06E-02	5.16E-02	3.56E-02	2.90E-03	2.81E-03	1.94E-03	1.35E-04	1.35E-04	9.34E-05	1512
3PADOHT4	2.06E-02	5.16E-02	3.56E-02	2.90E-03	2.81E-03	1.94E-03	1.35E-04	1.35E-04	9.34E-05	1512
2GRVLOHT1	2.35E-05	5.89E-05	4.07E-05	3.31E-06	3.21E-06	2.21E-06	1.54E-07	1.54E-07	1.07E-07	1512
2GRVLOHT2	2.35E-05	5.89E-05	4.07E-05	3.31E-06	3.21E-06	2.21E-06	1.54E-07	1.54E-07	1.07E-07	1512
2GRVLOHT3	2.35E-05	5.89E-05	4.07E-05	3.31E-06	3.21E-06	2.21E-06	1.54E-07	1.54E-07	1.07E-07	1512
2GRVLOHT4	2.35E-05	5.89E-05	4.07E-05	3.31E-06	3.21E-06	2.21E-06	1.54E-07	1.54E-07	1.07E-07	1512
3GRVLOHT1	2.35E-05	5.89E-05	4.07E-05	3.31E-06	3.21E-06	2.21E-06	1.54E-07	1.54E-07	1.07E-07	1512
3GRVLOHT2	2.35E-05	5.89E-05	4.07E-05	3.31E-06	3.21E-06	2.21E-06	1.54E-07	1.54E-07	1.07E-07	1512
3GRVLOHT3	2.35E-05	5.89E-05	4.07E-05	3.31E-06	3.21E-06	2.21E-06	1.54E-07	1.54E-07	1.07E-07	1512
3GRVLOHT4	2.35E-05	5.89E-05	4.07E-05	3.31E-06	3.21E-06	2.21E-06	1.54E-07	1.54E-07	1.07E-07	1512

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
MINEOHT1	9.16E-03	2.29E-02	1.58E-02	1.29E-03	1.25E-03	8.62E-04	6.01E-05	6.01E-05	4.15E-05	1512
MINEOHT2	9.16E-03	2.29E-02	1.58E-02	1.29E-03	1.25E-03	8.62E-04	6.01E-05	6.01E-05	4.15E-05	1512
MINEOHT3	9.16E-03	2.29E-02	1.58E-02	1.29E-03	1.25E-03	8.62E-04	6.01E-05	6.01E-05	4.15E-05	1512
MINEOHT4	9.16E-03	2.29E-02	1.58E-02	1.29E-03	1.25E-03	8.62E-04	6.01E-05	6.01E-05	4.15E-05	1512
MINEOHT5	9.16E-03	2.29E-02	1.58E-02	1.29E-03	1.25E-03	8.62E-04	6.01E-05	6.01E-05	4.15E-05	1512
MINEOHT6	9.16E-03	2.29E-02	1.58E-02	1.29E-03	1.25E-03	8.62E-04	6.01E-05	6.01E-05	4.15E-05	1512
MINEOHT7	9.16E-03	2.29E-02	1.58E-02	1.29E-03	1.25E-03	8.62E-04	6.01E-05	6.01E-05	4.15E-05	1512
MINEOHT8	9.16E-03	2.29E-02	1.58E-02	1.29E-03	1.25E-03	8.62E-04	6.01E-05	6.01E-05	4.15E-05	1512
MINEOHT9	9.16E-03	2.29E-02	1.58E-02	1.29E-03	1.25E-03	8.62E-04	6.01E-05	6.01E-05	4.15E-05	1512
WLW2GEN	1.25E-01	2.28E-01	1.30E-02	7.13E-03	7.13E-03	4.07E-04	0.00E+00	0.00E+00	0.00E+00	500

A.3.2 Scenario 4: Development Drilling

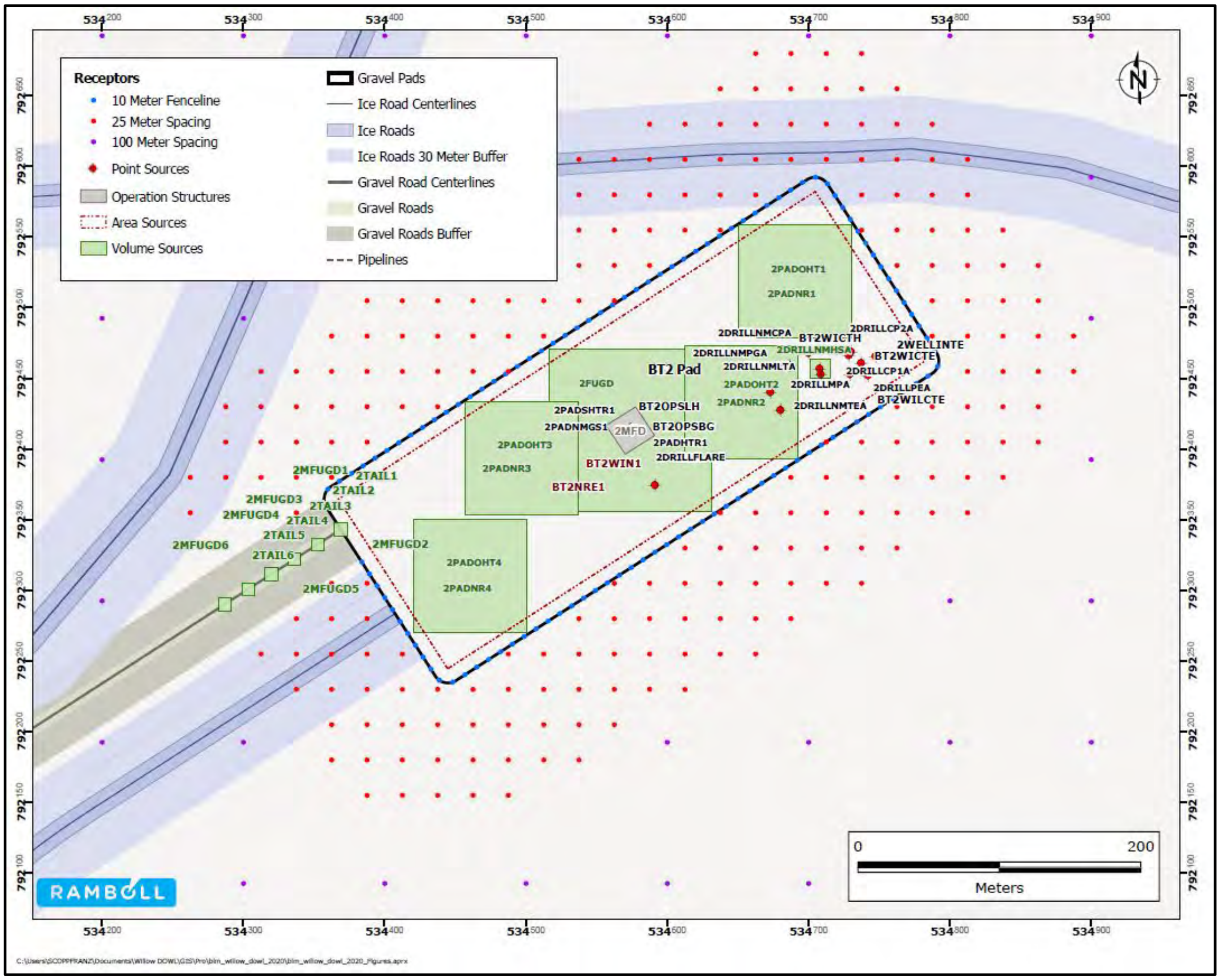

Figure A.3-10. Alternative D Near-field Model Scenario 4 Source Locations at BT2.

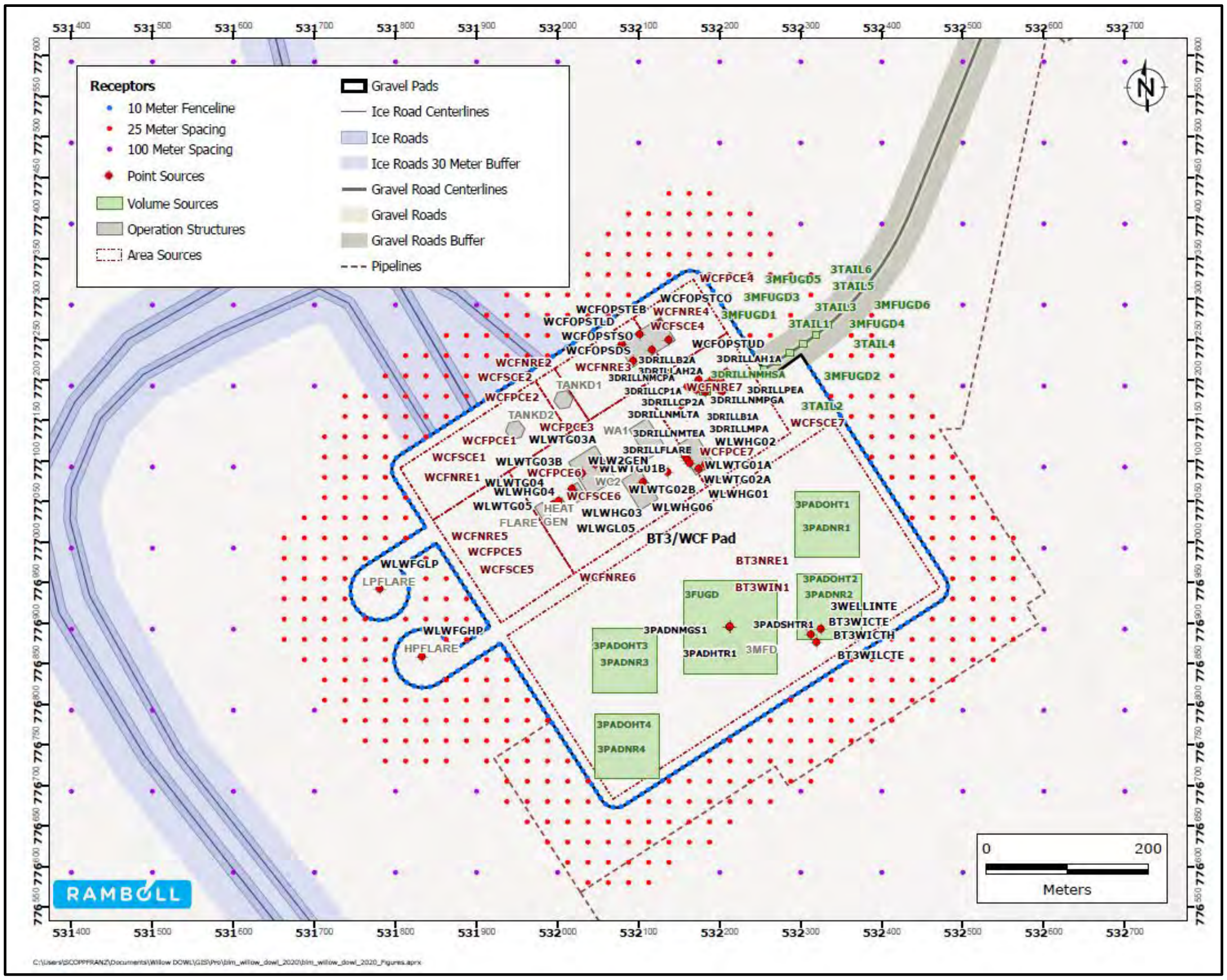

Figure A.3-11. Alternative D Near-field Model Scenario 4 Source Locations at BT3.

Table A.3-4. Alternative D Near-field Model Scenario 4 Emissions Source Descriptions and In-stack Ratios

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
WOCOPSTDR	POINT	WOC - Storage Tanks - VFRT/ DRA (drag reducing agent)	-	-
BT1OPSLH	POINT	BT1 - Line Heater	0.05	Diesel or natural gas heaters, or boiler
BT1OPSBG	POINT	BT1 - Backup Generator	0.2	Diesel tailpipe from non-road equipment
BT1OPSFUG	VOLUME	BT1 - Fugitive Components	-	-
BT1OPSFUGD	VOLUME	BT1 - Wind Erosion Fugitive Dust	-	-
BT1OPSTEB	POINT	BT1 - Storage Tanks - VFRT/ Emulsion Breaker/ Pad Buster	-	-
BT1OPSTD	POINT	BT1 - Storage Tanks - VFRT/ Diesel	-	-
BT1OPSTCO	POINT	BT1 - Storage Tanks - VFRT/ Portable Temp Crude Oil	-	-
BT1WICTH	POINT	BT1 - Well Intervention Main Equipment - Coil Tubing Heater	0.05	Diesel or natural gas heaters, or boiler
BT1WICTE	POINT	BT1 - Well Intervention Main Equipment - Coil Tubing Engine	0.1	Diesel engines
BT1WILCTE	POINT	BT1 - Well Intervention Main Equipment - Large Coil Tubing Engine	0.1	Diesel engines
BT2OPSLH	POINT	BT2 - Line Heater	0.05	Diesel or natural gas heaters, or boiler
BT2OPSBG	POINT	BT2 - Backup Generator	0.2	Diesel tailpipe from non-road equipment
BT2OPSFUG	VOLUME	BT2 - Fugitive Components	-	-
BT2OPSFUGD	VOLUME	BT2 - Wind Erosion Fugitive Dust	-	-
BT2WICTH	POINT	BT2 - Well Intervention Main Equipment - Coil Tubing Heater	0.05	Diesel or natural gas heaters, or boiler
BT2WICTE	POINT	BT2 - Well Intervention Main Equipment - Coil Tubing Engine	0.1	Diesel engines
BT2WILCTE	POINT	BT2 - Well Intervention Main Equipment - Large Coil Tubing Engine	0.1	Diesel engines
BT3OPSFUG	VOLUME	BT3 - Fugitive Components	-	-
BT3OPSFUGD	VOLUME	BT3 - Wind Erosion Fugitive Dust	-	-
BT3WICTH	POINT	BT3 - Well Intervention Main Equipment - Coil Tubing Heater	0.05	Diesel or natural gas heaters, or boiler
BT3WICTE	POINT	BT3 - Well Intervention Main Equipment - Coil Tubing Engine	0.1	Diesel engines
BT3WILCTE	POINT	BT3 - Well Intervention Main Equipment - Large Coil Tubing Engine	0.1	Diesel engines
BT4OPSLH	POINT	BT4 - Line Heater	0.05	Diesel or natural gas heaters, or boiler
BT4OPSBG	POINT	BT4 - Backup Generator	0.2	Diesel tailpipe from non-road equipment
BT4OPSFUG	VOLUME	BT4 - Fugitive Components	-	-
BT4OPSFUGD	VOLUME	BT4 - Wind Erosion Fugitive Dust	-	-
BT4OPSTEB	POINT	BT4 - Storage Tanks - VFRT/ Emulsion Breaker/ Pad Buster	-	-
BT4OPSTD	POINT	BT4 - Storage Tanks - VFRT/ Diesel	-	-
BT4OPSTCO	POINT	BT4 - Storage Tanks - VFRT/ Portable Temp Crude Oil	-	-
BT4WICTH	POINT	BT4 - Well Intervention Main Equipment - Coil Tubing Heater	0.05	Diesel or natural gas heaters, or boiler

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
BT4WICTE	POINT	BT4 - Well Intervention Main Equipment - Coil Tubing Engine	0.1	Diesel engines
BT4WILCTE	POINT	BT4 - Well Intervention Main Equipment - Large Coil Tubing Engine	0.1	Diesel engines
BT5OPSLH	POINT	BT5 - Line Heater	0.05	Diesel or natural gas heaters, or boiler
BT5OPSBG	POINT	BT5 - Backup Generator	0.2	Diesel tailpipe from non-road equipment
BT5OPSFUG	VOLUME	BT5 - Fugitive Components	-	-
BT5OPSFUGD	VOLUME	BT5 - Wind Erosion Fugitive Dust	-	-
BT5WICTH	POINT	BT5 - Well Intervention Main Equipment - Coil Tubing Heater	0.05	Diesel or natural gas heaters, or boiler
BT5WICTE	POINT	BT5 - Well Intervention Main Equipment - Coil Tubing Engine	0.1	Diesel engines
BT5WILCTE	POINT	BT5 - Well Intervention Main Equipment - Large Coil Tubing Engine	0.1	Diesel engines
WLWTG03A	POINT	WPF - Stationary Combustion Sources - Injection/Compression Turbine	0.3	Natural gas-fired turbines
WLWTG03B	POINT	WPF - Stationary Combustion Sources - Injection/Compression Turbine	0.3	Natural gas-fired turbines
WLWTG01A	POINT	WPF - Stationary Combustion Sources - Power Generation Turbine	0.3	Natural gas-fired turbines
WLWTG01B	POINT	WPF - Stationary Combustion Sources - Power Generation Turbine	0.3	Natural gas-fired turbines
WLWTG02A	POINT	WPF - Stationary Combustion Sources - Power Generation Turbine	0.3	Natural gas-fired turbines
WLWTG02B	POINT	WPF - Stationary Combustion Sources - Power Generation Turbine	0.3	Natural gas-fired turbines
WLWTG04	POINT	WPF - Stationary Combustion Sources - Backup Power Generation Turbine (Dual Fuel)	0.3	Natural gas-fired turbines
WLWTG05	POINT	WPF - Stationary Combustion Sources - Backup Power Generation Turbine (Dual Fuel)	0.3	Natural gas-fired turbines
WLWGL05	POINT	WPF - Stationary Combustion Sources - Black Start Engine	0.1	Diesel engines
WLWHG03	POINT	WPF - Stationary Combustion Sources - Crude Production Heater	0.05	Diesel or natural gas heaters, or boiler
WLWHG04	POINT	WPF - Stationary Combustion Sources - Crude Production Heater	0.05	Diesel or natural gas heaters, or boiler
WLWHG01	POINT	WPF - Stationary Combustion Sources - Utility Heat Medium (UHM) Heater	0.05	Diesel or natural gas heaters, or boiler
WLWHG02	POINT	WPF - Stationary Combustion Sources - Utility Heat Medium (UHM) Heater	0.05	Diesel or natural gas heaters, or boiler
WLWHG06	POINT	WPF - Stationary Combustion Sources - Hot Oil Heater	0.05	Diesel or natural gas heaters, or boiler
WLWFGLP	POINT	WPF - Stationary Combustion Sources - LP Flare (pilot/purge/assist)	0.5	USEPA default value
WLWFGHP	POINT	WPF - Stationary Combustion Sources - HP Flare (pilot/purge/assist)	0.5	USEPA default value
WCFOPSDS	POINT	WPF - Stationary Combustion Sources - Diesel Fueling Station	-	-
WCFOPSTSO	POINT	WPF - Storage Tanks - VFRT/ Slop Oil	-	-
WCFOPSTCO	POINT	WPF - Storage Tanks - VFRT/ Portable Temp Crude Oil	-	-

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
WCFOPSTUD	POINT	WPF - Storage Tanks - VFRT/ ULSD	-	-
WCFOPSTLD	POINT	WPF - Storage Tanks - VFRT/ LEPD	-	-
WCFOPSTEB	POINT	WPF - Storage Tanks - VFRT/ Emulsion Breaker/ Pad Buster	-	-
WCFOPSFUG	VOLUME	WPF - Fugitive Equipment Leaks	-	-
WCFOPSFUGD	VOLUME	WPF - Wind Erosion Fugitive Dust	-	-
WOCPWRGEN1	POINT	WOC - Stationary Combustion Sources - Power Generation	0.1	Diesel engines
WOCPWRGEN2	POINT	WOC - Stationary Combustion Sources - Power Generation	0.1	Diesel engines
WOCPWRGEN3	POINT	WOC - Stationary Combustion Sources - Power Generation	0.1	Diesel engines
WLWIG01	POINT	WOC - Stationary Combustion Sources - Incinerator	0.5	USEPA default value
WLWIG02	POINT	WOC - Stationary Combustion Sources - Incinerator	0.5	USEPA default value
WLWHL05	POINT	WOC - Stationary Combustion Sources - Mud Plant Glycol Boiler	0.05	Diesel or natural gas heaters, or boiler
WOCOPSTJF	POINT	WOC - Storage Tanks - VFRT/ Aircraft Jet Fuel	-	-
WOCOPSTHC	POINT	WOC - Storage Tanks - VFRT/ Hydrocarbon	-	-
WOCOPSTD	POINT	WOC - Storage Tanks - VFRT/ Diesel	-	-
WILLOWAIR1	AREAPOLY	WOC - Aircraft Activity (Willow Airstrip) - Release Height 50.8m	0.5	USEPA default value
WILLOWAIR2	AREAPOLY	WOC - Aircraft Activity (Willow Airstrip) - Release Height 152.4m	0.5	USEPA default value
WILLOWAIR3	AREAPOLY	WOC - Aircraft Activity (Willow Airstrip) - Release Height 254m	0.5	USEPA default value
WOCOPSFUGD	VOLUME	WOC - Wind Erosion Fugitive Dust - Wind Erosion	-	-
WCFPCE1	AREAPOLY	WPF - Non-mobile Support Equipment - Portable External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFPCE2	AREAPOLY	WPF - Non-mobile Support Equipment - Portable External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFPCE3	AREAPOLY	WPF - Non-mobile Support Equipment - Portable External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFPCE4	AREAPOLY	WPF - Non-mobile Support Equipment - Portable External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFPCE5	AREAPOLY	WPF - Non-mobile Support Equipment - Portable External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFPCE6	AREAPOLY	WPF - Non-mobile Support Equipment - Portable External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFPCE7	AREAPOLY	WPF - Non-mobile Support Equipment - Portable External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
WCFSCE1	AREAPOLY	WPF - Non-mobile Support Equipment - Stationary External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFSCE2	AREAPOLY	WPF - Non-mobile Support Equipment - Stationary External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFSCE3	AREAPOLY	WPF - Non-mobile Support Equipment - Stationary External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFSCE4	AREAPOLY	WPF - Non-mobile Support Equipment - Stationary External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFSCE5	AREAPOLY	WPF - Non-mobile Support Equipment - Stationary External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFSCE6	AREAPOLY	WPF - Non-mobile Support Equipment - Stationary External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFSCE7	AREAPOLY	WPF - Non-mobile Support Equipment - Stationary External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFNRE1	AREAPOLY	WPF - Non-mobile Support Equipment - Internal Combustion Equipment Non-Road Engines <140 HP	0.2	Diesel tailpipe from non-road equipment
WCFNRE2	AREAPOLY	WPF - Non-mobile Support Equipment - Internal Combustion Equipment Non-Road Engines <140 HP	0.2	Diesel tailpipe from non-road equipment
WCFNRE3	AREAPOLY	WPF - Non-mobile Support Equipment - Internal Combustion Equipment Non-Road Engines <140 HP	0.2	Diesel tailpipe from non-road equipment
WCFNRE4	AREAPOLY	WPF - Non-mobile Support Equipment - Internal Combustion Equipment Non-Road Engines <140 HP	0.2	Diesel tailpipe from non-road equipment
WCFNRE5	AREAPOLY	WPF - Non-mobile Support Equipment - Internal Combustion Equipment Non-Road Engines <140 HP	0.2	Diesel tailpipe from non-road equipment
WCFNRE6	AREAPOLY	WPF - Non-mobile Support Equipment - Internal Combustion Equipment Non-Road Engines <140 HP	0.2	Diesel tailpipe from non-road equipment
WCFNRE7	AREAPOLY	WPF - Non-mobile Support Equipment - Internal Combustion Equipment Non-Road Engines <140 HP	0.2	Diesel tailpipe from non-road equipment
WLW2GEN	POINT	WPF - Non-mobile Support Equipment - Internal Combustion Equipment Non-Road Engines >140 HP	0.1	Diesel engines
BT3NRE1	AREAPOLY	BT3 - Routine Operations Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
BT3WIN1	AREAPOLY	BT3 - Well Intervention Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
3WELLINTE	POINT	BT3 - Well Intervention Non-Mobile Support Equipment - Total Engine	0.1	Diesel engines

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
BT1NRE1	AREAPOLY	BT1 - Routine Operations Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
BT1WIN1	AREAPOLY	BT1 - Well Intervention Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
1WELLINTE	POINT	BT1 - Well Intervention Non-Mobile Support Equipment - Total Engine	0.1	Diesel engines
BT2NRE1	AREAPOLY	BT2 - Routine Operations Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
BT2WIN1	AREAPOLY	BT2 - Well Intervention Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
2WELLINTE	POINT	BT2 - Well Intervention Non-Mobile Support Equipment - Total Engine	0.1	Diesel engines
BT4NRE1	AREAPOLY	BT4 - Routine Operations Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
BT4WIN1	AREAPOLY	BT4 - Well Intervention Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
4WELLINTE	POINT	BT4 - Well Intervention Non-Mobile Support Equipment - Total Engine	0.1	Diesel engines
BT5NRE1	AREAPOLY	BT5 - Routine Operations Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
BT5WIN1	AREAPOLY	BT5 - Well Intervention Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
5WELLINTE	POINT	BT5 - Well Intervention Non-Mobile Support Equipment - Total Engine	0.1	Diesel engines
WOCPCE	AREAPOLY	WOC - Non-mobile Support Equipment - Portable External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WOCSCE	AREAPOLY	WOC - Non-mobile Support Equipment - Stationary External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WOCNRE	AREAPOLY	WOC - Non-mobile Support Equipment - Internal Combustion Equipment Non-Road Engines <140 HP	0.2	Diesel tailpipe from non-road equipment
1TAIL1	VOLUME	Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL2	VOLUME	Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL3	VOLUME	Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL4	VOLUME	Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL5	VOLUME	Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL6	VOLUME	Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL7	VOLUME	Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL8	VOLUME	Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL9	VOLUME	Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
2TAIL1	VOLUME	Mobile Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL2	VOLUME	Mobile Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL3	VOLUME	Mobile Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL4	VOLUME	Mobile Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL5	VOLUME	Mobile Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
2TAIL6	VOLUME	Mobile Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
3TAIL1	VOLUME	Mobile Equipment Tailpipe - BT3	0.15	Diesel tailpipe from on-road vehicles
3TAIL2	VOLUME	Mobile Equipment Tailpipe - BT3	0.15	Diesel tailpipe from on-road vehicles
3TAIL3	VOLUME	Mobile Equipment Tailpipe - BT3	0.15	Diesel tailpipe from on-road vehicles
3TAIL4	VOLUME	Mobile Equipment Tailpipe - BT3	0.15	Diesel tailpipe from on-road vehicles
3TAIL5	VOLUME	Mobile Equipment Tailpipe - BT3	0.15	Diesel tailpipe from on-road vehicles
3TAIL6	VOLUME	Mobile Equipment Tailpipe - BT3	0.15	Diesel tailpipe from on-road vehicles
4TAIL1	VOLUME	Mobile Equipment Tailpipe - BT4	0.15	Diesel tailpipe from on-road vehicles
4TAIL2	VOLUME	Mobile Equipment Tailpipe - BT4	0.15	Diesel tailpipe from on-road vehicles
4TAIL3	VOLUME	Mobile Equipment Tailpipe - BT4	0.15	Diesel tailpipe from on-road vehicles
4TAIL4	VOLUME	Mobile Equipment Tailpipe - BT4	0.15	Diesel tailpipe from on-road vehicles
4TAIL5	VOLUME	Mobile Equipment Tailpipe - BT4	0.15	Diesel tailpipe from on-road vehicles
4TAIL6	VOLUME	Mobile Equipment Tailpipe - BT4	0.15	Diesel tailpipe from on-road vehicles
4TAIL7	VOLUME	Mobile Equipment Tailpipe - BT4	0.15	Diesel tailpipe from on-road vehicles
5TAIL1	VOLUME	Mobile Equipment Tailpipe - BT5	0.15	Diesel tailpipe from on-road vehicles
5TAIL2	VOLUME	Mobile Equipment Tailpipe - BT5	0.15	Diesel tailpipe from on-road vehicles
5TAIL3	VOLUME	Mobile Equipment Tailpipe - BT5	0.15	Diesel tailpipe from on-road vehicles
5TAIL4	VOLUME	Mobile Equipment Tailpipe - BT5	0.15	Diesel tailpipe from on-road vehicles
5TAIL5	VOLUME	Mobile Equipment Tailpipe - BT5	0.15	Diesel tailpipe from on-road vehicles
5TAIL6	VOLUME	Mobile Equipment Tailpipe - BT5	0.15	Diesel tailpipe from on-road vehicles
5TAIL7	VOLUME	Mobile Equipment Tailpipe - BT5	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL1	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL2	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL3	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL4	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL5	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL6	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL7	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL8	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL9	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL10	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL11	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
WOCTAIL12	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL13	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL14	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL15	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL16	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL17	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL18	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL19	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL20	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL21	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL22	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL23	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL24	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL25	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL26	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL27	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL28	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL29	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL30	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL31	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL32	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL33	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL34	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL35	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL36	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL37	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL38	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL39	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL40	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL41	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL42	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL43	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
WOCTAIL44	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL45	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL46	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL47	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL48	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL49	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL50	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL51	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL52	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL53	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL54	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL55	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL56	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL57	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL58	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL59	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL60	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL61	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL62	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL63	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
AIRTAIL1	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
AIRTAIL2	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
AIRTAIL3	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
AIRTAIL4	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
AIRTAIL5	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
AIRTAIL6	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
AIRTAIL7	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL1	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL2	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL3	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL4	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL5	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
WCFTAIL6	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
1MFUGD1	VOLUME	Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD2	VOLUME	Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD3	VOLUME	Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD4	VOLUME	Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD5	VOLUME	Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD6	VOLUME	Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD7	VOLUME	Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD8	VOLUME	Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD9	VOLUME	Mobile Equipment Fugitive Dust - BT1	-	-
2MFUGD1	VOLUME	Mobile Equipment Fugitive Dust - BT2	-	-
2MFUGD2	VOLUME	Mobile Equipment Fugitive Dust - BT2	-	-
2MFUGD3	VOLUME	Mobile Equipment Fugitive Dust - BT2	-	-
2MFUGD4	VOLUME	Mobile Equipment Fugitive Dust - BT2	-	-
2MFUGD5	VOLUME	Mobile Equipment Fugitive Dust - BT2	-	-
2MFUGD6	VOLUME	Mobile Equipment Fugitive Dust - BT2	-	-
3MFUGD1	VOLUME	Mobile Equipment Fugitive Dust - BT3	-	-
3MFUGD2	VOLUME	Mobile Equipment Fugitive Dust - BT3	-	-
3MFUGD3	VOLUME	Mobile Equipment Fugitive Dust - BT3	-	-
3MFUGD4	VOLUME	Mobile Equipment Fugitive Dust - BT3	-	-
3MFUGD5	VOLUME	Mobile Equipment Fugitive Dust - BT3	-	-
3MFUGD6	VOLUME	Mobile Equipment Fugitive Dust - BT3	-	-
4MFUGD1	VOLUME	Mobile Equipment Fugitive Dust - BT4	-	-
4MFUGD2	VOLUME	Mobile Equipment Fugitive Dust - BT4	-	-
4MFUGD3	VOLUME	Mobile Equipment Fugitive Dust - BT4	-	-
4MFUGD4	VOLUME	Mobile Equipment Fugitive Dust - BT4	-	-
4MFUGD5	VOLUME	Mobile Equipment Fugitive Dust - BT4	-	-
4MFUGD6	VOLUME	Mobile Equipment Fugitive Dust - BT4	-	-
4MFUGD7	VOLUME	Mobile Equipment Fugitive Dust - BT5	-	-
5MFUGD1	VOLUME	Mobile Equipment Fugitive Dust - BT5	-	-
5MFUGD2	VOLUME	Mobile Equipment Fugitive Dust - BT5	-	-
5MFUGD3	VOLUME	Mobile Equipment Fugitive Dust - BT5	-	-

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
5MFUGD4	VOLUME	Mobile Equipment Fugitive Dust - BT5	-	-
5MFUGD5	VOLUME	Mobile Equipment Fugitive Dust - BT5	-	-
5MFUGD6	VOLUME	Mobile Equipment Fugitive Dust - BT5	-	-
5MFUGD7	VOLUME	Mobile Equipment Fugitive Dust - BT5	-	-
WCFMFUGD1	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD2	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD3	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD4	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD5	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD6	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WOCMFUGD1	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD2	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD3	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD4	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD5	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD6	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD7	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD8	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD9	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD10	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD11	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD12	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD13	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD14	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD15	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD16	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD17	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD18	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD19	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD20	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD21	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD22	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
WOCMFUGD23	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD24	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD25	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD26	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD27	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD28	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD29	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD30	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD31	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD32	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD33	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD34	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD35	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD36	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD37	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD38	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD39	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD40	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD41	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD42	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD43	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD44	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD45	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD46	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD47	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD48	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD49	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD50	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD51	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD52	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD53	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD54	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
WOCMFUGD55	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD56	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD57	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD58	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD59	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD60	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD61	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD62	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD63	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
AIRMFUGD1	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
AIRMFUGD2	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
AIRMFUGD3	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
AIRMFUGD4	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
AIRMFUGD5	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
AIRMFUGD6	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
AIRMFUGD7	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCTEMPTRB1	POINT	WOC - Stationary Combustion Sources - Power Generation Turbine	0.3	Natural gas-fired turbines
WOCTEMPTRB2	POINT	WOC - Stationary Combustion Sources - Power Generation Turbine	0.3	Natural gas-fired turbines
RFDGMT1	POINT	RFD - GMT1	0.2	Diesel tailpipe from non-road equipment
RFDGMT2	POINT	RFD - GMT2	0.2	Diesel tailpipe from non-road equipment
RFDGWPDS1	POINT	RFD - Greater Willow Project Drill Site #1	0.15	Diesel engines/natural gas-fired turbines
RFDGWPDS2	POINT	RFD - Greater Willow Project Drill Site #2	0.15	Diesel engines/natural gas-fired turbines
RFDCD5	POINT	RFD - CD5	0.2	Diesel tailpipe from non-road equipment
2DRILLPEA	POINT	BT2 - Drill Rigs - Primary Power Engines	0.1	Diesel engines
2DRILLCP1A	POINT	BT2 - Drill Rigs - Cement Pumping Unit #1	0.2	Diesel tailpipe from non-road equipment
2DRILLCP2A	POINT	BT2 - Drill Rigs - Cement Pumping Unit #2	0.2	Diesel tailpipe from non-road equipment
2DRILLB1A	POINT	BT2 - Drill Rigs - Boiler #1	0.05	Diesel or natural gas heaters, or boiler
2DRILLB2A	POINT	BT2 - Drill Rigs - Boiler #2	0.05	Diesel or natural gas heaters, or boiler
2DRILLAH1A	POINT	BT2 - Drill Rigs - Air Heater #1	0.05	Diesel or natural gas heaters, or boiler
2DRILLAH2A	POINT	BT2 - Drill Rigs - Air Heater #2	0.05	Diesel or natural gas heaters, or boiler
2DRILLMPA	POINT	BT2 - Drill Rigs - Mud Pit Heater	0.05	Diesel or natural gas heaters, or boiler
2DRILLNMTEA	POINT	BT2 - Drilling Non-Mobile Support Equipment - Total Engine	0.1	Diesel engines

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
2DRILLNMLTA	POINT	BT2 - Drilling Non-Mobile Support Equipment - Total Lighting Engine	0.2	Diesel tailpipe from non-road equipment
2DRILLNMPGA	POINT	BT2 - Drilling Non-Mobile Support Equipment - Total Portable Generators	0.1	Diesel engines
2DRILLNMCPA	POINT	BT2 - Drilling Non-Mobile Support Equipment - Total Portable Welders/Compressor Engine	0.1	Diesel engines
2DRILLNMHSA	VOLUME	BT2 - Drilling Non-Mobile Support Equipment - Portable Heaters & Snow Melters	0.05	Diesel tailpipe from non-road equipment
2DRILLFLARE	POINT	BT2 - Drilling Well Flowback and Flaring - Total Flaring Emissions	0.5	USEPA default value
3DRILLPEA	POINT	BT3 - Drill Rigs - Primary Power Engines	0.1	Diesel tailpipe from non-road equipment
3DRILLCP1A	POINT	BT3 - Drill Rigs - Cement Pumping Unit #1	0.2	Diesel tailpipe from non-road equipment
3DRILLCP2A	POINT	BT3 - Drill Rigs - Cement Pumping Unit #2	0.2	Diesel tailpipe from non-road equipment
3DRILLB1A	POINT	BT3 - Drill Rigs - Boiler #1	0.05	Diesel or natural gas heaters, or boiler
3DRILLB2A	POINT	BT3 - Drill Rigs - Boiler #2	0.05	Diesel or natural gas heaters, or boiler
3DRILLAH1A	POINT	BT3 - Drill Rigs - Air Heater #1	0.05	Diesel or natural gas heaters, or boiler
3DRILLAH2A	POINT	BT3 - Drill Rigs - Air Heater #2	0.05	Diesel or natural gas heaters, or boiler
3DRILLMPA	POINT	BT3 - Drill Rigs - Mud Pit Heater	0.05	Diesel or natural gas heaters, or boiler
3DRILLNMTEA	POINT	BT3 - Drilling Non-Mobile Support Equipment - Total Engine	0.1	Diesel tailpipe from non-road equipment
3DRILLNMLTA	POINT	BT3 - Drilling Non-Mobile Support Equipment - Total Lighting Engine	0.2	Diesel tailpipe from non-road equipment
3DRILLNMPGA	POINT	BT3 - Drilling Non-Mobile Support Equipment - Total Portable Generators	0.1	Diesel tailpipe from non-road equipment
3DRILLNMCPA	POINT	BT3 - Drilling Non-Mobile Support Equipment - Total Portable Welders/Compressor Engine	0.1	Diesel tailpipe from non-road equipment
3DRILLNMHSA	VOLUME	BT3 - Drilling Non-Mobile Support Equipment - Portable Heaters & Snow Melters	0.05	Diesel tailpipe from non-road equipment
3DRILLFLARE	POINT	BT3 - Drilling Well Flowback and Flaring - Total Flaring Emissions	0.5	USEPA default value
2PADHTR1	POINT	BT2 - Pad Construction - Construction Heaters	0.05	Diesel or natural gas heaters, or boiler
2PADSHTR1	POINT	BT2 - Pad Construction - Construction Shop Heaters	0.05	Diesel or natural gas heaters, or boiler
2PADNMGS1	POINT	BT2 - Pad Construction - Generator Sets	0.1	Diesel tailpipe from non-road equipment
3PADHTR1	POINT	BT3 - Pad Construction - Construction Heaters	0.05	Diesel or natural gas heaters, or boiler
3PADSHTR1	POINT	BT3 - Pad Construction - Construction Shop Heaters	0.05	Diesel or natural gas heaters, or boiler
3PADNMGS1	POINT	BT3 - Pad Construction - Generator Sets	0.1	Diesel tailpipe from non-road equipment
2PADNR1	VOLUME	BT2 - Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
2PADNR2	VOLUME	BT2 - Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
2PADNR3	VOLUME	BT2 - Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
2PADNR4	VOLUME	BT2 - Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
3PADNR1	VOLUME	BT3 - Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
3PADNR2	VOLUME	BT3 - Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
3PADNR3	VOLUME	BT3 - Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
3PADNR4	VOLUME	BT3 - Pad Construction - Nonroad Equipment	0.2	Diesel tailpipe from non-road equipment
2PADOHT1	VOLUME	BT2 - Pad Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
2PADOHT2	VOLUME	BT2 - Pad Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
2PADOHT3	VOLUME	BT2 - Pad Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
2PADOHT4	VOLUME	BT2 - Pad Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
3PADOHT1	VOLUME	BT3 - Pad Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
3PADOHT2	VOLUME	BT3 - Pad Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
3PADOHT3	VOLUME	BT3 - Pad Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
3PADOHT4	VOLUME	BT3 - Pad Construction - Off Highway Trucks	0.2	Diesel tailpipe from non-road equipment
2FUGD	VOLUME	BT2 - Wind Erosion Fugitive Dust	-	-
3FUGD	VOLUME	BT3 - Wind Erosion Fugitive Dust	-	-

Table A.3-5. Alternative D Near-field Model Scenario 4 Emissions Stack Parameters

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
WOCOPSTDR	POINT	3.05	5.4864	0.1016	1.67652	294.261111	-	-	-	-	-
BT1OPSLH	POINT	2.7432	12.2	0.94	5.7	529	-	-	-	-	-
BT1OPSBG	POINT	2.7432	6.1	0.46	15.1	795	-	-	-	-	-
BT1OPSFUG	VOLUME	2.7432	3.7	-	-	-	15.1	3.38	-	-	-
BT1OPSFUGD	VOLUME	2.7432	3.7	-	-	-	26.74	3.38	-	-	-
BT1OPSTEB	POINT	2.7432	5.4864	0.1016	1.67652	283.15	-	-	-	-	-
BT1OPSTD	POINT	2.7432	5.4864	0.1016	1.67652	299.816667	-	-	-	-	-
BT1OPSTCO	POINT	2.7432	5.4864	0.1016	1.67652	277.594444	-	-	-	-	-
BT1WICTH	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT1WICTE	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT1WILCTE	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
BT2OPSLH	POINT	2.7432	12.2	0.94	5.7	529	-	-	-	-	-
BT2OPSBG	POINT	2.7432	6.1	0.46	15.1	795	-	-	-	-	-
BT2OPSFUG	VOLUME	2.7432	3.7	-	-	-	15.1	3.38	-	-	-
BT2OPSFUGD	VOLUME	2.7432	3.7	-	-	-	26.74	3.38	-	-	-
BT2WICTH	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT2WICTE	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT2WILCTE	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT3OPSFUG	VOLUME	3.66	3.7	-	-	-	15.1	3.38	-	-	-
BT3OPSFUGD	VOLUME	3.66	3.7	-	-	-	26.74	3.38	-	-	-
BT3WICTH	POINT	3.66	3.7	0.356	41.6	644	-	-	-	-	-
BT3WICTE	POINT	3.66	3.7	0.356	41.6	644	-	-	-	-	-
BT3WILCTE	POINT	3.66	3.7	0.356	41.6	644	-	-	-	-	-
BT4OPSLH	POINT	2.7432	12.2	0.94	5.7	529	-	-	-	-	-
BT4OPSBG	POINT	2.7432	6.1	0.46	15.1	795	-	-	-	-	-
BT4OPSFUG	VOLUME	2.7432	3.7	-	-	-	15.1	3.38	-	-	-
BT4OPSFUGD	VOLUME	2.7432	3.7	-	-	-	15.1	3.38	-	-	-
BT4OPSTEB	POINT	2.7432	5.4864	0.1016	1.67652	283.15	-	-	-	-	-
BT4OPSTD	POINT	2.7432	5.4864	0.1016	1.67652	299.816667	-	-	-	-	-
BT4OPSTCO	POINT	2.7432	5.4864	0.1016	1.67652	277.594444	-	-	-	-	-
BT4WICTH	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT4WICTE	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT4WILCTE	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT5OPSLH	POINT	2.7432	12.2	0.94	5.7	529	-	-	-	-	-
BT5OPSBG	POINT	2.7432	6.1	0.46	15.1	795	-	-	-	-	-
BT5OPSFUG	VOLUME	2.7432	3.7	-	-	-	15.1	3.38	-	-	-
BT5OPSFUGD	VOLUME	2.7432	3.7	-	-	-	26.74	3.38	-	-	-
BT5WICTH	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT5WICTE	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT5WILCTE	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
WLWTG03A	POINT	3.66	25	2	30	370	-	-	-	-	-
WLWTG03B	POINT	3.66	25	2	30	370	-	-	-	-	-
WLWTG01A	POINT	3.66	30	2	35	370	-	-	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
WLWTG01B	POINT	3.66	30	2	35	370	-	-	-	-	-
WLWTG02A	POINT	3.66	30	2	35	370	-	-	-	-	-
WLWTG02B	POINT	3.66	30	2	35	370	-	-	-	-	-
WLWTG04	POINT	3.66	25	2	30	550	-	-	-	-	-
WLWTG05	POINT	3.66	25	2	30	550	-	-	-	-	-
WLWGL05	POINT	3.66	5.5	0.3	20	760	-	-	-	-	-
WLWHG03	POINT	3.66	25	1	10	525	-	-	-	-	-
WLWHG04	POINT	3.66	25	1	10	525	-	-	-	-	-
WLWHG01	POINT	3.66	25	1	10	525	-	-	-	-	-
WLWHG02	POINT	3.66	25	1	10	525	-	-	-	-	-
WLWHG06	POINT	3.66	25	1	10	525	-	-	-	-	-
WLWFGLP	POINT	3.66	25	0.2	20	1273	-	-	-	-	-
WLWFGHP	POINT	3.66	25	0.2	20	1273	-	-	-	-	-
WCFOPSDS	POINT	3.66	5.5	0.1	1.68	0	-	-	-	-	-
WCFOPSTSO	POINT	3.66	5.4864	0.1016	1.67652	319.261111	-	-	-	-	-
WCFOPSTCO	POINT	3.66	5.4864	0.1016	1.67652	277.594444	-	-	-	-	-
WCFOPSTUD	POINT	3.66	12.8016	0.1524	0.74512	299.816667	-	-	-	-	-
WCFOPSTLD	POINT	3.66	5.4864	0.1016	1.67652	299.816667	-	-	-	-	-
WCFOPSTEB	POINT	3.66	5.4864	0.1016	1.67652	283.15	-	-	-	-	-
WCFOPSFUG	VOLUME	3.66	3.7	-	-	-	15.1	3.38	-	-	-
WCFOPSFUGD	VOLUME	3.66	3.7	-	-	-	15.1	3.38	-	-	-
WOCPWRGEN1	POINT	3.05	8.6	0.3	20	760	-	-	-	-	-
WOCPWRGEN2	POINT	3.05	8.6	0.3	20	760	-	-	-	-	-
WOCPWRGEN3	POINT	3.05	8.6	0.3	20	760	-	-	-	-	-
WLWIG01	POINT	3.05	20	0.3	10	1200	-	-	-	-	-
WLWIG02	POINT	3.05	20	0.3	10	1200	-	-	-	-	-
WLWHL05	POINT	3.05	5.5	0.3	10	525	-	-	-	-	-
WOCOPSTJF	POINT	3.05	5.4864	0.1016	1.67652	283.15	-	-	-	-	-
WOCOPSTHC	POINT	3.05	5.4864	0.1016	1.67652	0	-	-	-	-	-
WOCOPSTD	POINT	3.05	5.4864	0.1016	1.67652	299.816667	-	-	-	-	-
WILLOWAIR1	AREAPOLY	3.6576	50.8	-	-	-	-	23.63	-	-	-
WILLOWAIR2	AREAPOLY	3.6576	152.4	-	-	-	-	23.63	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
WILLOWAIR3	AREAPOLY	3.6576	254	-	-	-	-	23.63	-	-	-
WOCOPSFUGD	VOLUME	3.05	3.7	-	-	-	15.1	3.38	-	-	-
WCFPCE1	AREAPOLY	3.66	13.3	-	-	-	-	12.37	-	-	-
WCFPCE2	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFPCE3	AREAPOLY	3.66	9.38	-	-	-	-	8.72	-	-	-
WCFPCE4	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFPCE5	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFPCE6	AREAPOLY	3.66	13.3	-	-	-	-	12.37	-	-	-
WCFPCE7	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFSCE1	AREAPOLY	3.66	13.3	-	-	-	-	12.37	-	-	-
WCFSCE2	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFSCE3	AREAPOLY	3.66	9.38	-	-	-	-	8.72	-	-	-
WCFSCE4	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFSCE5	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFSCE6	AREAPOLY	3.66	13.3	-	-	-	-	12.37	-	-	-
WCFSCE7	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFNRE1	AREAPOLY	3.66	13.3	-	-	-	-	12.37	-	-	-
WCFNRE2	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFNRE3	AREAPOLY	3.66	9.38	-	-	-	-	8.72	-	-	-
WCFNRE4	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFNRE5	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFNRE6	AREAPOLY	3.66	13.3	-	-	-	-	12.37	-	-	-
WCFNRE7	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WLW2GEN	POINT	3.66	6.1	0.46	15.1	795	-	-	-	-	-
BT3NRE1	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
BT3WIN1	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
3WELLINTE	POINT	3.66	6.1	0.46	15.1	795	-	-	-	-	-
BT1NRE1	AREAPOLY	2.74	3.63	-	-	-	-	3.38	-	-	-
BT1WIN1	AREAPOLY	2.74	3.63	-	-	-	-	3.38	-	-	-
1WELLINTE	POINT	2.7432	6.1	0.46	15.1	795	-	-	-	-	-
BT2NRE1	AREAPOLY	2.74	3.63	-	-	-	-	3.38	-	-	-
BT2WIN1	AREAPOLY	2.74	3.63	-	-	-	-	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
2WELLINTE	POINT	2.7432	6.1	0.46	15.1	795	-	-	-	-	-
BT4NRE1	AREAPOLY	2.74	3.63	-	-	-	-	3.38	-	-	-
BT4WIN1	AREAPOLY	2.74	3.63	-	-	-	-	3.38	-	-	-
4WELLINTE	POINT	2.7432	6.1	0.46	15.1	795	-	-	-	-	-
BT5NRE1	AREAPOLY	2.74	3.63	-	-	-	-	3.38	-	-	-
BT5WIN1	AREAPOLY	2.74	3.63	-	-	-	-	3.38	-	-	-
5WELLINTE	POINT	2.7432	6.1	0.46	15.1	795	-	-	-	-	-
WOCPCE	AREAPOLY	3.05	3.63	-	-	-	-	3.38	-	-	-
WOCSCE	AREAPOLY	3.05	3.63	-	-	-	-	3.38	-	-	-
WOCNRE	AREAPOLY	3.05	3.63	-	-	-	-	3.38	-	-	-
1TAIL1	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL2	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL3	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL4	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL5	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL6	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL7	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL8	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL9	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
2TAIL1	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2TAIL2	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2TAIL3	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2TAIL4	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2TAIL5	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2TAIL6	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
3TAIL1	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
3TAIL2	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
3TAIL3	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
3TAIL4	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
3TAIL5	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
3TAIL6	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
4TAIL1	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
4TAIL2	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4TAIL3	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4TAIL4	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4TAIL5	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4TAIL6	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4TAIL7	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5TAIL1	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5TAIL2	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5TAIL3	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5TAIL4	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5TAIL5	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5TAIL6	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5TAIL7	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
WOCTAIL1	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL2	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL3	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL4	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL5	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL6	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL7	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL8	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL9	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL10	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL11	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL12	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL13	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL14	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL15	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL16	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL17	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL18	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL19	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
WOCTAIL20	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL21	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL22	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL23	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL24	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL25	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL26	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL27	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL28	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL29	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL30	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL31	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL32	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL33	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL34	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL35	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL36	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL37	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL38	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL39	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL40	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL41	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL42	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL43	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL44	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL45	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL46	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL47	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL48	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL49	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL50	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL51	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
WOCTAIL52	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL53	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL54	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL55	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL56	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL57	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL58	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL59	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL60	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL61	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL62	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL63	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
AIRTAIL1	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRTAIL2	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRTAIL3	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRTAIL4	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRTAIL5	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRTAIL6	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRTAIL7	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
WCFTAIL1	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL2	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL3	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL4	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL5	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL6	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD1	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD2	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD3	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD4	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD5	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD6	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD7	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
1MFUGD8	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD9	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
2MFUGD1	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2MFUGD2	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2MFUGD3	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2MFUGD4	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2MFUGD5	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2MFUGD6	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
3MFUGD1	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
3MFUGD2	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
3MFUGD3	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
3MFUGD4	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
3MFUGD5	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
3MFUGD6	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
4MFUGD1	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4MFUGD2	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4MFUGD3	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4MFUGD4	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4MFUGD5	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4MFUGD6	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4MFUGD7	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5MFUGD1	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5MFUGD2	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5MFUGD3	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5MFUGD4	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5MFUGD5	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5MFUGD6	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5MFUGD7	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
WCFMFUGD1	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD2	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD3	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD4	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
WCFMFUGD5	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD6	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD1	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD2	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD3	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD4	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD5	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD6	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD7	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD8	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD9	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD10	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD11	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD12	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD13	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD14	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD15	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD16	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD17	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD18	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD19	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD20	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD21	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD22	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD23	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD24	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD25	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD26	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD27	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD28	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD29	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD30	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
WOCMFUGD31	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD32	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD33	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD34	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD35	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD36	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD37	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD38	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD39	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD40	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD41	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD42	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD43	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD44	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD45	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD46	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD47	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD48	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD49	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD50	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD51	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD52	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD53	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD54	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD55	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD56	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD57	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD58	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD59	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD60	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD61	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD62	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
WOCMFUGD63	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
AIRMFUGD1	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRMFUGD2	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRMFUGD3	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRMFUGD4	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRMFUGD5	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRMFUGD6	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRMFUGD7	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
WOCTEMPTRB1	POINT	3.05	30	2	30	550	-	-	-	-	-
WOCTEMPTRB2	POINT	3.05	30	2	30	550	-	-	-	-	-
RFDGMT1	POINT	1.524	4.88	0.305	35	820	-	-	-	-	-
RFDGMT2	POINT	1.524	12.2	0.94	5.7	529	-	-	-	-	-
RFDGWPDS1	POINT	1.524	3.7	0.356	41.6	644	-	-	-	-	-
RFDGWPDS2	POINT	1.524	3.7	0.356	41.6	644	-	-	-	-	-
RFDCD5	POINT	1.524	4.88	0.305	35	820	-	-	-	-	-
2DRILLPEA	POINT	2.7432	13.3	0.4	10.5	614	-	-	-	-	-
2DRILLCP1A	POINT	2.7432	10.4	0.13	43.5	750	-	-	-	-	-
2DRILLCP2A	POINT	2.7432	10.4	0.13	43.5	750	-	-	-	-	-
2DRILLB1A	POINT	2.7432	11.9	0.279	11.7	450	-	-	-	-	-
2DRILLB2A	POINT	2.7432	11.9	0.279	11.7	450	-	-	-	-	-
2DRILLAH1A	POINT	2.7432	10.5	0.3	3.2	533	-	-	-	-	-
2DRILLAH2A	POINT	2.7432	10.5	0.3	3.2	533	-	-	-	-	-
2DRILLMPA	POINT	2.7432	7.2	0.3	10.8	533	-	-	-	-	-
2DRILLNMTEA	POINT	2.7432	6.5	0.3	47	761	-	-	-	-	-
2DRILLNMLTA	POINT	2.7432	6.1	0.3	15.1	795	-	-	-	-	-
2DRILLNMPGA	POINT	2.7432	6.1	0.3	15.1	795	-	-	-	-	-
2DRILLNMCPA	POINT	2.74	3.7	0.3	46	689	-	-	-	-	-
2DRILLNMHSA	VOLUME	2.7432	3.7	-	-	-	13.95	3.38	-	-	-
2DRILLFLARE	POINT	2.7432	10.1	0.3	6.1	1033	-	-	-	-	-
3DRILLPEA	POINT	3.6576	13.3	0.4	10.5	614	-	-	-	-	-
3DRILLCP1A	POINT	3.6576	10.4	0.13	43.5	750	-	-	-	-	-
3DRILLCP2A	POINT	3.6576	10.4	0.13	43.5	750	-	-	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
3DRILLB1A	POINT	3.6576	11.9	0.279	11.7	450	-	-	-	-	-
3DRILLB2A	POINT	3.6576	11.9	0.279	11.7	450	-	-	-	-	-
3DRILLAH1A	POINT	3.6576	10.5	0.3	3.2	533	-	-	-	-	-
3DRILLAH2A	POINT	3.6576	10.5	0.3	3.2	533	-	-	-	-	-
3DRILLMPA	POINT	3.6576	7.2	0.3	10.8	533	-	-	-	-	-
3DRILLNMTEA	POINT	3.6576	6.5	0.3	47	761	-	-	-	-	-
3DRILLNMLTA	POINT	3.6576	6.1	0.3	15.1	795	-	-	-	-	-
3DRILLNMPGA	POINT	3.6576	6.1	0.3	15.1	795	-	-	-	-	-
3DRILLNMCPA	POINT	2.74	3.7	0.3	46	689	-	-	-	-	-
3DRILLNMHSA	VOLUME	3.6576	3.7	-	-	-	13.95	3.38	-	-	-
3DRILLFLARE	POINT	3.6576	10.1	0.3	6.1	1033	-	-	-	-	-
2PADHTR1	POINT	2.7432	12.2	0.94	5.7	529	-	-	-	-	-
2PADSHTR1	POINT	2.7432	12.2	0.94	5.7	529	-	-	-	-	-
2PADNMGS1	POINT	2.7432	6.5	0.2	47	761	-	-	-	-	-
3PADHTR1	POINT	2.7432	12.2	0.94	5.7	529	-	-	-	-	-
3PADSHTR1	POINT	2.7432	12.2	0.94	5.7	529	-	-	-	-	-
3PADNMGS1	POINT	2.7432	6.5	0.2	47	761	-	-	-	-	-
2PADNR1	VOLUME	2.7432	3.66	-	-	-	18.6047	3.38	-	-	-
2PADNR2	VOLUME	2.7432	3.66	-	-	-	18.6047	3.38	-	-	-
2PADNR3	VOLUME	2.7432	3.66	-	-	-	18.6047	3.38	-	-	-
2PADNR4	VOLUME	2.7432	3.66	-	-	-	18.6047	3.38	-	-	-
3PADNR1	VOLUME	2.7432	3.66	-	-	-	18.6047	3.38	-	-	-
3PADNR2	VOLUME	2.7432	3.66	-	-	-	18.6047	3.38	-	-	-
3PADNR3	VOLUME	2.7432	3.66	-	-	-	18.6047	3.38	-	-	-
3PADNR4	VOLUME	2.7432	3.66	-	-	-	18.6047	3.38	-	-	-
2PADOHT1	VOLUME	2.7432	3.66	-	-	-	18.6047	3.38	-	-	-
2PADOHT2	VOLUME	2.7432	3.66	-	-	-	18.6047	3.38	-	-	-
2PADOHT3	VOLUME	2.7432	3.66	-	-	-	18.6047	3.38	-	-	-
2PADOHT4	VOLUME	2.7432	3.66	-	-	-	18.6047	3.38	-	-	-
3PADOHT1	VOLUME	2.7432	3.66	-	-	-	18.6047	3.38	-	-	-
3PADOHT2	VOLUME	2.7432	3.66	-	-	-	18.6047	3.38	-	-	-
3PADOHT3	VOLUME	2.7432	3.66	-	-	-	18.6047	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
3PADOHT4	VOLUME	2.7432	3.66	-	-	-	18.6047	3.38	-	-	-
2FUGD	VOLUME	2.7432	3.66	-	-	-	26.7442	3.38	-	-	-
3FUGD	VOLUME	3.6576	3.66	-	-	-	26.7442	3.38	-	-	-

Table A.3-6. Alternative D Near-field Model Scenario 4 Emissions Rates

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
WOCOPSTDR	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
BT1OPSLH	5.19E-02	6.18E-02	6.18E-02	4.69E-03	4.69E-03	4.69E-03	4.17E-03	4.17E-03	4.17E-03	8760
BT1OPSBG	1.16E+00	1.16E+00	6.63E-02	3.35E-02	3.35E-02	1.91E-03	2.21E-03	2.21E-03	1.26E-04	500
BT1OPSFUG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
BT1OPSFUGD	0.00E+00	0.00E+00	0.00E+00	2.57E-02	3.86E-03	3.86E-03	0.00E+00	0.00E+00	0.00E+00	4380
BT1OPSTEB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
BT1OPSTD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
BT1OPSTCO	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
BT1WICTH	4.57E-02	1.83E-01	7.20E-02	2.17E-02	1.94E-02	7.67E-03	1.94E-03	1.94E-03	7.67E-04	288
BT1WICTE	6.21E-02	9.32E-02	3.68E-02	4.97E-03	4.97E-03	1.96E-03	8.23E-05	8.23E-05	3.25E-05	288
BT1WILCTE	4.75E-01	8.68E-01	3.43E-01	2.71E-02	2.71E-02	1.07E-02	1.00E-03	1.00E-03	3.95E-04	288
BT2OPSLH	5.19E-02	6.18E-02	6.18E-02	4.69E-03	4.69E-03	4.69E-03	4.17E-03	4.17E-03	4.17E-03	8760
BT2OPSBG	1.16E+00	1.16E+00	6.63E-02	3.35E-02	3.35E-02	1.91E-03	2.21E-03	2.21E-03	1.26E-04	500
BT2OPSFUG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
BT2OPSFUGD	0.00E+00	0.00E+00	0.00E+00	2.57E-02	3.86E-03	3.86E-03	0.00E+00	0.00E+00	0.00E+00	4380
BT2WICTH	4.57E-02	1.83E-01	7.20E-02	2.17E-02	1.94E-02	7.67E-03	1.94E-03	1.94E-03	7.67E-04	288
BT2WICTE	6.21E-02	9.32E-02	3.68E-02	4.97E-03	4.97E-03	1.96E-03	8.23E-05	8.23E-05	3.25E-05	288
BT2WILCTE	4.75E-01	8.68E-01	3.43E-01	2.71E-02	2.71E-02	1.07E-02	1.00E-03	1.00E-03	3.95E-04	288
BT3OPSFUG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
BT3OPSFUGD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
BT3WICTH	4.57E-02	1.83E-01	7.20E-02	2.17E-02	1.94E-02	7.67E-03	1.94E-03	1.94E-03	7.67E-04	288
BT3WICTE	6.21E-02	9.32E-02	3.68E-02	4.97E-03	4.97E-03	1.96E-03	8.23E-05	8.23E-05	3.25E-05	288
BT3WILCTE	4.75E-01	8.68E-01	3.43E-01	2.71E-02	2.71E-02	1.07E-02	1.00E-03	1.00E-03	3.95E-04	288

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
BT4OPSLH	5.19E-02	6.18E-02	6.18E-02	4.69E-03	4.69E-03	4.69E-03	4.17E-03	4.17E-03	4.17E-03	8760
BT4OPSBG	1.16E+00	1.16E+00	6.63E-02	3.35E-02	3.35E-02	1.91E-03	2.21E-03	2.21E-03	1.26E-04	500
BT4OPSFUG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
BT4OPSFUGD	0.00E+00	0.00E+00	0.00E+00	2.18E-02	3.27E-03	3.27E-03	0.00E+00	0.00E+00	0.00E+00	4380
BT4OPSTEB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
BT4OPSTD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
BT4OPSTCO	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
BT4WICTH	4.57E-02	1.83E-01	7.20E-02	2.17E-02	1.94E-02	7.67E-03	1.94E-03	1.94E-03	7.67E-04	288
BT4WICTE	6.21E-02	9.32E-02	3.68E-02	4.97E-03	4.97E-03	1.96E-03	8.23E-05	8.23E-05	3.25E-05	288
BT4WILCTE	4.75E-01	8.68E-01	3.43E-01	2.71E-02	2.71E-02	1.07E-02	1.00E-03	1.00E-03	3.95E-04	288
BT5OPSLH	5.19E-02	6.18E-02	6.18E-02	4.69E-03	4.69E-03	4.69E-03	4.17E-03	4.17E-03	4.17E-03	8760
BT5OPSBG	1.16E+00	1.16E+00	6.63E-02	3.35E-02	3.35E-02	1.91E-03	2.21E-03	2.21E-03	1.26E-04	500
BT5OPSFUG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
BT5OPSFUGD	0.00E+00	0.00E+00	0.00E+00	2.18E-02	3.27E-03	3.27E-03	0.00E+00	0.00E+00	0.00E+00	4380
BT5WICTH	4.57E-02	1.83E-01	7.20E-02	2.17E-02	1.94E-02	7.67E-03	1.94E-03	1.94E-03	7.67E-04	288
BT5WICTE	6.21E-02	9.32E-02	3.68E-02	4.97E-03	4.97E-03	1.96E-03	8.23E-05	8.23E-05	3.25E-05	288
BT5WILCTE	4.75E-01	8.68E-01	3.43E-01	2.71E-02	2.71E-02	1.07E-02	1.00E-03	1.00E-03	3.95E-04	288
WLWTG03A	1.93E+00	1.91E+00	1.91E+00	2.21E-01	2.21E-01	2.21E-01	2.22E-01	2.22E-01	2.22E-01	8760
WLWTG03B	1.93E+00	1.91E+00	1.91E+00	2.21E-01	2.21E-01	2.21E-01	2.22E-01	2.22E-01	2.22E-01	8760
WLWTG01A	1.47E+00	1.45E+00	1.45E+00	1.68E-01	1.68E-01	1.68E-01	1.69E-01	1.69E-01	1.69E-01	8760
WLWTG01B	1.47E+00	1.45E+00	1.45E+00	1.68E-01	1.68E-01	1.68E-01	1.69E-01	1.69E-01	1.69E-01	8760
WLWTG02A	1.47E+00	1.45E+00	1.45E+00	1.68E-01	1.68E-01	1.68E-01	1.69E-01	1.69E-01	1.69E-01	8760
WLWTG02B	1.47E+00	1.45E+00	1.45E+00	1.68E-01	1.68E-01	1.68E-01	1.69E-01	1.69E-01	1.69E-01	8760
WLWTG04	5.67E-01	6.08E-01	6.08E-01	5.28E-02	5.28E-02	5.28E-02	5.06E-02	5.06E-02	5.06E-02	8760
WLWTG05	5.67E-01	6.08E-01	6.08E-01	5.28E-02	5.28E-02	5.28E-02	5.06E-02	5.06E-02	5.06E-02	8760
WLWGL05	6.48E-01	1.19E+00	6.76E-02	3.70E-02	3.70E-02	2.11E-03	1.22E-03	1.22E-03	6.99E-05	500
WLWHG03	3.42E-01	4.08E-01	4.08E-01	3.10E-02	3.10E-02	3.10E-02	2.75E-02	2.75E-02	2.75E-02	8760
WLWHG04	3.42E-01	4.08E-01	4.08E-01	3.10E-02	3.10E-02	3.10E-02	2.75E-02	2.75E-02	2.75E-02	8760
WLWHG01	2.08E-01	2.47E-01	2.47E-01	1.88E-02	1.88E-02	1.88E-02	1.67E-02	1.67E-02	1.67E-02	8760
WLWHG02	2.08E-01	2.47E-01	2.47E-01	1.88E-02	1.88E-02	1.88E-02	1.67E-02	1.67E-02	1.67E-02	8760
WLWHG06	3.84E-01	4.57E-01	4.57E-01	3.47E-02	3.47E-02	3.47E-02	3.09E-02	3.09E-02	3.09E-02	8760
WLWFGLP	4.15E-02	4.94E-02	4.94E-02	3.76E-03	3.76E-03	3.76E-03	3.34E-03	3.34E-03	3.34E-03	8760

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
WLWFGHP	4.15E-02	4.94E-02	4.94E-02	3.76E-03	3.76E-03	3.76E-03	3.34E-03	3.34E-03	3.34E-03	8760
WCFOPSDS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
WCFOPSTSO	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
WCFOPSTCO	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
WCFOPSTUD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
WCFOPSTLD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
WCFOPSTEB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
WCFOPSFUG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
WCFOPSFUGD	0.00E+00	0.00E+00	0.00E+00	9.79E-02	1.47E-02	1.47E-02	0.00E+00	0.00E+00	0.00E+00	4380
WOCPWRGEN1	1.30E+00	1.30E+00	6.48E-01	3.70E-02	3.70E-02	1.85E-02	2.45E-03	2.45E-03	1.22E-03	4380
WOCPWRGEN2	1.30E+00	1.30E+00	6.48E-01	3.70E-02	3.70E-02	1.85E-02	2.45E-03	2.45E-03	1.22E-03	4380
WOCPWRGEN3	1.30E+00	1.30E+00	6.48E-01	3.70E-02	3.70E-02	1.85E-02	2.45E-03	2.45E-03	1.22E-03	4380
WLWIG01	3.99E-02	9.94E-02	8.28E-02	1.36E-01	1.36E-01	1.13E-01	3.54E-03	3.54E-03	2.95E-03	7300
WLWIG02	3.99E-02	9.94E-02	8.28E-02	1.36E-01	1.36E-01	1.13E-01	3.54E-03	3.54E-03	2.95E-03	7300
WLWHL05	5.93E-03	2.37E-02	2.37E-02	2.82E-03	2.53E-03	2.53E-03	2.54E-04	2.54E-04	2.54E-04	8760
WOCOPSTJF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
WOCOPSTHC	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
WOCOPSTD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
WILLOWAIR1	1.51E-07	4.48E-08	4.48E-08	1.87E-09	1.87E-09	1.87E-09	6.62E-09	6.62E-09	6.62E-09	8760
WILLOWAIR2	1.51E-07	4.48E-08	4.48E-08	1.87E-09	1.87E-09	1.87E-09	6.62E-09	6.62E-09	6.62E-09	8760
WILLOWAIR3	1.51E-07	4.48E-08	4.48E-08	1.87E-09	1.87E-09	1.87E-09	6.62E-09	6.62E-09	6.62E-09	8760
WOCOPSFUGD	0.00E+00	0.00E+00	0.00E+00	1.62E-01	2.43E-02	2.43E-02	0.00E+00	0.00E+00	0.00E+00	4380
WCFPCE1	3.26E-07	1.49E-06	1.49E-06	1.12E-07	1.11E-07	1.11E-07	1.93E-09	1.93E-09	1.93E-09	8760
WCFPCE2	3.26E-07	1.49E-06	1.49E-06	1.12E-07	1.11E-07	1.11E-07	1.93E-09	1.93E-09	1.93E-09	8760
WCFPCE3	3.26E-07	1.49E-06	1.49E-06	1.12E-07	1.11E-07	1.11E-07	1.93E-09	1.93E-09	1.93E-09	8760
WCFPCE4	3.26E-07	1.49E-06	1.49E-06	1.12E-07	1.11E-07	1.11E-07	1.93E-09	1.93E-09	1.93E-09	8760
WCFPCE5	3.26E-07	1.49E-06	1.49E-06	1.12E-07	1.11E-07	1.11E-07	1.93E-09	1.93E-09	1.93E-09	8760
WCFPCE6	3.26E-07	1.49E-06	1.49E-06	1.12E-07	1.11E-07	1.11E-07	1.93E-09	1.93E-09	1.93E-09	8760
WCFPCE7	3.26E-07	1.49E-06	1.49E-06	1.12E-07	1.11E-07	1.11E-07	1.93E-09	1.93E-09	1.93E-09	8760
WCFSCE1	2.42E-07	3.03E-07	3.03E-07	2.32E-08	2.32E-08	2.32E-08	2.06E-08	2.06E-08	2.06E-08	8760
WCFSCE2	2.42E-07	3.03E-07	3.03E-07	2.32E-08	2.32E-08	2.32E-08	2.06E-08	2.06E-08	2.06E-08	8760
WCFSCE3	2.42E-07	3.03E-07	3.03E-07	2.32E-08	2.32E-08	2.32E-08	2.06E-08	2.06E-08	2.06E-08	8760

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
WCFSCE4	2.42E-07	3.03E-07	3.03E-07	2.32E-08	2.32E-08	2.32E-08	2.06E-08	2.06E-08	2.06E-08	8760
WCFSCE5	2.42E-07	3.03E-07	3.03E-07	2.32E-08	2.32E-08	2.32E-08	2.06E-08	2.06E-08	2.06E-08	8760
WCFSCE6	2.42E-07	3.03E-07	3.03E-07	2.32E-08	2.32E-08	2.32E-08	2.06E-08	2.06E-08	2.06E-08	8760
WCFSCE7	2.42E-07	3.03E-07	3.03E-07	2.32E-08	2.32E-08	2.32E-08	2.06E-08	2.06E-08	2.06E-08	8760
WCFNRE1	1.44E-06	6.68E-06	6.68E-06	4.74E-07	4.74E-07	4.74E-07	2.34E-09	2.34E-09	2.34E-09	8760
WCFNRE2	1.44E-06	6.68E-06	6.68E-06	4.74E-07	4.74E-07	4.74E-07	2.34E-09	2.34E-09	2.34E-09	8760
WCFNRE3	1.44E-06	6.68E-06	6.68E-06	4.74E-07	4.74E-07	4.74E-07	2.34E-09	2.34E-09	2.34E-09	8760
WCFNRE4	1.44E-06	6.68E-06	6.68E-06	4.74E-07	4.74E-07	4.74E-07	2.34E-09	2.34E-09	2.34E-09	8760
WCFNRE5	1.44E-06	6.68E-06	6.68E-06	4.74E-07	4.74E-07	4.74E-07	2.34E-09	2.34E-09	2.34E-09	8760
WCFNRE6	1.44E-06	6.68E-06	6.68E-06	4.74E-07	4.74E-07	4.74E-07	2.34E-09	2.34E-09	2.34E-09	8760
WCFNRE7	1.44E-06	6.68E-06	6.68E-06	4.74E-07	4.74E-07	4.74E-07	2.34E-09	2.34E-09	2.34E-09	8760
WLW2GEN	1.19E-01	5.87E-01	6.08E-01	3.46E-02	3.46E-02	3.53E-02	3.51E-04	3.51E-04	3.51E-04	8760
BT3NRE1	9.65E-07	1.03E-06	1.03E-07	1.03E-07	1.02E-07	1.02E-08	2.14E-09	2.14E-09	2.14E-10	876
BT3WIN1	1.31E-06	1.83E-06	7.23E-07	1.88E-07	1.79E-07	7.05E-08	8.96E-09	8.96E-09	3.53E-09	288
3WELLINTE	2.46E-01	2.81E-01	1.11E-01	1.40E-02	1.40E-02	5.54E-03	5.18E-04	5.18E-04	2.04E-04	288
BT1NRE1	9.65E-07	1.03E-06	1.03E-07	1.03E-07	1.02E-07	1.02E-08	2.14E-09	2.14E-09	2.14E-10	876
BT1WIN1	1.31E-06	1.83E-06	7.23E-07	1.88E-07	1.79E-07	7.05E-08	8.96E-09	8.96E-09	3.53E-09	288
1WELLINTE	2.46E-01	2.81E-01	1.11E-01	1.40E-02	1.40E-02	5.54E-03	5.18E-04	5.18E-04	2.04E-04	288
BT2NRE1	9.65E-07	1.03E-06	1.03E-07	1.03E-07	1.02E-07	1.02E-08	2.14E-09	2.14E-09	2.14E-10	876
BT2WIN1	1.31E-06	1.83E-06	7.23E-07	1.88E-07	1.79E-07	7.05E-08	8.96E-09	8.96E-09	3.53E-09	288
2WELLINTE	2.46E-01	2.81E-01	1.11E-01	1.40E-02	1.40E-02	5.54E-03	5.18E-04	5.18E-04	2.04E-04	288
BT4NRE1	9.65E-07	1.03E-06	1.03E-07	1.03E-07	1.02E-07	1.02E-08	2.14E-09	2.14E-09	2.14E-10	876
BT4WIN1	1.31E-06	1.83E-06	7.23E-07	1.88E-07	1.79E-07	7.05E-08	8.96E-09	8.96E-09	3.53E-09	288
4WELLINTE	2.46E-01	2.81E-01	1.11E-01	1.40E-02	1.40E-02	5.54E-03	5.18E-04	5.18E-04	2.04E-04	288
BT5NRE1	9.65E-07	1.03E-06	1.03E-07	1.03E-07	1.02E-07	1.02E-08	2.14E-09	2.14E-09	2.14E-10	876
BT5WIN1	1.31E-06	1.83E-06	7.23E-07	1.88E-07	1.79E-07	7.05E-08	8.96E-09	8.96E-09	3.53E-09	288
5WELLINTE	2.46E-01	2.81E-01	1.11E-01	1.40E-02	1.40E-02	5.54E-03	5.18E-04	5.18E-04	2.04E-04	288
WOCPCE	4.07E-08	1.84E-07	1.84E-07	1.46E-08	1.42E-08	1.42E-08	4.06E-10	4.06E-10	4.06E-10	VARIES
WOCSCE	3.16E-08	5.51E-08	5.51E-08	4.36E-09	4.36E-09	4.36E-09	3.87E-09	3.87E-09	3.87E-09	8760
WOCNRE	2.87E-07	1.27E-06	9.60E-07	1.08E-07	1.03E-07	6.96E-08	4.13E-09	4.13E-09	7.57E-10	8760
1TAIL1	2.03E-05	1.55E-05	1.55E-05	1.71E-06	7.35E-07	7.35E-07	6.60E-08	6.60E-08	6.60E-08	8760
1TAIL2	2.03E-05	1.55E-05	1.55E-05	1.71E-06	7.35E-07	7.35E-07	6.60E-08	6.60E-08	6.60E-08	8760

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
1TAIL3	2.03E-05	1.55E-05	1.55E-05	1.71E-06	7.35E-07	7.35E-07	6.60E-08	6.60E-08	6.60E-08	8760
1TAIL4	2.03E-05	1.55E-05	1.55E-05	1.71E-06	7.35E-07	7.35E-07	6.60E-08	6.60E-08	6.60E-08	8760
1TAIL5	2.03E-05	1.55E-05	1.55E-05	1.71E-06	7.35E-07	7.35E-07	6.60E-08	6.60E-08	6.60E-08	8760
1TAIL6	2.03E-05	1.55E-05	1.55E-05	1.71E-06	7.35E-07	7.35E-07	6.60E-08	6.60E-08	6.60E-08	8760
1TAIL7	2.03E-05	1.55E-05	1.55E-05	1.71E-06	7.35E-07	7.35E-07	6.60E-08	6.60E-08	6.60E-08	8760
1TAIL8	2.03E-05	1.55E-05	1.55E-05	1.71E-06	7.35E-07	7.35E-07	6.60E-08	6.60E-08	6.60E-08	8760
1TAIL9	2.03E-05	1.55E-05	1.55E-05	1.71E-06	7.35E-07	7.35E-07	6.60E-08	6.60E-08	6.60E-08	8760
2TAIL1	3.04E-05	2.33E-05	3.37E-05	2.56E-06	1.10E-06	1.61E-06	9.90E-08	9.90E-08	1.34E-07	8760
2TAIL2	3.04E-05	2.33E-05	3.37E-05	2.56E-06	1.10E-06	1.61E-06	9.90E-08	9.90E-08	1.67E-07	8760
2TAIL3	3.04E-05	2.33E-05	3.37E-05	2.56E-06	1.10E-06	1.61E-06	9.90E-08	9.90E-08	1.67E-07	8760
2TAIL4	3.04E-05	2.33E-05	3.37E-05	2.56E-06	1.10E-06	1.61E-06	9.90E-08	9.90E-08	1.67E-07	8760
2TAIL5	3.04E-05	2.33E-05	3.37E-05	2.56E-06	1.10E-06	1.61E-06	9.90E-08	9.90E-08	1.67E-07	8760
2TAIL6	3.04E-05	2.33E-05	3.37E-05	2.56E-06	1.10E-06	1.61E-06	9.90E-08	9.90E-08	1.67E-07	8760
3TAIL1	3.04E-05	2.33E-05	3.37E-05	2.56E-06	1.10E-06	1.61E-06	9.90E-08	9.90E-08	1.67E-07	8760
3TAIL2	3.04E-05	2.33E-05	3.37E-05	2.56E-06	1.10E-06	1.61E-06	9.90E-08	9.90E-08	1.67E-07	8760
3TAIL3	3.04E-05	2.33E-05	3.37E-05	2.56E-06	1.10E-06	1.61E-06	9.90E-08	9.90E-08	1.67E-07	8760
3TAIL4	3.04E-05	2.33E-05	3.37E-05	2.56E-06	1.10E-06	1.61E-06	9.90E-08	9.90E-08	1.67E-07	8760
3TAIL5	3.04E-05	2.33E-05	3.37E-05	2.56E-06	1.10E-06	1.61E-06	9.90E-08	9.90E-08	1.67E-07	8760
3TAIL6	3.04E-05	2.33E-05	3.37E-05	2.56E-06	1.10E-06	1.61E-06	9.90E-08	9.90E-08	1.67E-07	8760
4TAIL1	2.61E-05	1.99E-05	1.99E-05	2.19E-06	9.46E-07	9.46E-07	8.48E-08	8.48E-08	8.48E-08	8760
4TAIL2	2.61E-05	1.99E-05	1.99E-05	2.19E-06	9.46E-07	9.46E-07	8.48E-08	8.48E-08	8.48E-08	8760
4TAIL3	2.61E-05	1.99E-05	1.99E-05	2.19E-06	9.46E-07	9.46E-07	8.48E-08	8.48E-08	8.48E-08	8760
4TAIL4	2.61E-05	1.99E-05	1.99E-05	2.19E-06	9.46E-07	9.46E-07	8.48E-08	8.48E-08	8.48E-08	8760
4TAIL5	2.61E-05	1.99E-05	1.99E-05	2.19E-06	9.46E-07	9.46E-07	8.48E-08	8.48E-08	8.48E-08	8760
4TAIL6	2.61E-05	1.99E-05	1.99E-05	2.19E-06	9.46E-07	9.46E-07	8.48E-08	8.48E-08	8.48E-08	8760
4TAIL7	2.61E-05	1.99E-05	1.99E-05	2.19E-06	9.46E-07	9.46E-07	8.48E-08	8.48E-08	8.48E-08	8760
5TAIL1	2.61E-05	1.99E-05	1.99E-05	2.19E-06	9.46E-07	9.46E-07	8.48E-08	8.48E-08	8.48E-08	8760
5TAIL2	2.61E-05	1.99E-05	1.99E-05	2.19E-06	9.46E-07	9.46E-07	8.48E-08	8.48E-08	8.48E-08	8760
5TAIL3	2.61E-05	1.99E-05	1.99E-05	2.19E-06	9.46E-07	9.46E-07	8.48E-08	8.48E-08	8.48E-08	8760
5TAIL4	2.61E-05	1.99E-05	1.99E-05	2.19E-06	9.46E-07	9.46E-07	8.48E-08	8.48E-08	8.48E-08	8760
5TAIL5	2.61E-05	1.99E-05	1.99E-05	2.19E-06	9.46E-07	9.46E-07	8.48E-08	8.48E-08	8.48E-08	8760
5TAIL6	2.61E-05	1.99E-05	1.99E-05	2.19E-06	9.46E-07	9.46E-07	8.48E-08	8.48E-08	8.48E-08	8760

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
5TAIL7	2.61E-05	1.99E-05	1.99E-05	2.19E-06	9.46E-07	9.46E-07	8.48E-08	8.48E-08	8.48E-08	8760
WOCTAIL1	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL2	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL3	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL4	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL5	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL6	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL7	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL8	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL9	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL10	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL11	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL12	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL13	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL14	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL15	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL16	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL17	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL18	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL19	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL20	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL21	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL22	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL23	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL24	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL25	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL26	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL27	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL28	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL29	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL30	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL31	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
WOCTAIL32	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL33	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL34	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL35	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL36	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL37	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL38	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL39	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL40	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL41	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL42	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL43	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL44	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL45	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL46	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL47	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL48	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL49	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL50	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL51	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL52	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL53	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL54	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL55	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL56	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL57	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL58	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL59	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL60	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL61	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL62	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WOCTAIL63	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
AIRTAIL1	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
AIRTAIL2	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
AIRTAIL3	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
AIRTAIL4	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
AIRTAIL5	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
AIRTAIL6	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
AIRTAIL7	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	8760
WCFTAIL1	3.04E-05	2.33E-05	2.33E-05	2.56E-06	1.10E-06	1.10E-06	9.90E-08	9.90E-08	9.90E-08	8760
WCFTAIL2	3.04E-05	2.33E-05	2.33E-05	2.56E-06	1.10E-06	1.10E-06	9.90E-08	9.90E-08	9.90E-08	8760
WCFTAIL3	3.04E-05	2.33E-05	2.33E-05	2.56E-06	1.10E-06	1.10E-06	9.90E-08	9.90E-08	9.90E-08	8760
WCFTAIL4	3.04E-05	2.33E-05	2.33E-05	2.56E-06	1.10E-06	1.10E-06	9.90E-08	9.90E-08	9.90E-08	8760
WCFTAIL5	3.04E-05	2.33E-05	2.33E-05	2.56E-06	1.10E-06	1.10E-06	9.90E-08	9.90E-08	9.90E-08	8760
WCFTAIL6	3.04E-05	2.33E-05	2.33E-05	2.56E-06	1.10E-06	1.10E-06	9.90E-08	9.90E-08	9.90E-08	8760
1MFUGD1	0.00E+00	0.00E+00	0.00E+00	4.43E-03	4.43E-04	4.43E-04	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD2	0.00E+00	0.00E+00	0.00E+00	4.43E-03	4.43E-04	4.43E-04	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD3	0.00E+00	0.00E+00	0.00E+00	4.43E-03	4.43E-04	4.43E-04	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD4	0.00E+00	0.00E+00	0.00E+00	4.43E-03	4.43E-04	4.43E-04	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD5	0.00E+00	0.00E+00	0.00E+00	4.43E-03	4.43E-04	4.43E-04	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD6	0.00E+00	0.00E+00	0.00E+00	4.43E-03	4.43E-04	4.43E-04	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD7	0.00E+00	0.00E+00	0.00E+00	4.43E-03	4.43E-04	4.43E-04	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD8	0.00E+00	0.00E+00	0.00E+00	4.43E-03	4.43E-04	4.43E-04	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD9	0.00E+00	0.00E+00	0.00E+00	4.43E-03	4.43E-04	4.43E-04	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD1	0.00E+00	0.00E+00	0.00E+00	6.65E-03	6.65E-04	8.61E-04	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD2	0.00E+00	0.00E+00	0.00E+00	6.65E-03	6.65E-04	8.61E-04	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD3	0.00E+00	0.00E+00	0.00E+00	6.65E-03	6.65E-04	8.61E-04	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD4	0.00E+00	0.00E+00	0.00E+00	6.65E-03	6.65E-04	8.61E-04	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD5	0.00E+00	0.00E+00	0.00E+00	6.65E-03	6.65E-04	8.61E-04	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD6	0.00E+00	0.00E+00	0.00E+00	6.65E-03	6.65E-04	8.61E-04	0.00E+00	0.00E+00	0.00E+00	4380
3MFUGD1	0.00E+00	0.00E+00	0.00E+00	6.65E-03	6.65E-04	8.61E-04	0.00E+00	0.00E+00	0.00E+00	4380
3MFUGD2	0.00E+00	0.00E+00	0.00E+00	6.65E-03	6.65E-04	8.61E-04	0.00E+00	0.00E+00	0.00E+00	4380
3MFUGD3	0.00E+00	0.00E+00	0.00E+00	6.65E-03	6.65E-04	8.61E-04	0.00E+00	0.00E+00	0.00E+00	4380
3MFUGD4	0.00E+00	0.00E+00	0.00E+00	6.65E-03	6.65E-04	8.61E-04	0.00E+00	0.00E+00	0.00E+00	4380

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
3MFUGD5	0.00E+00	0.00E+00	0.00E+00	6.65E-03	6.65E-04	8.61E-04	0.00E+00	0.00E+00	0.00E+00	4380
3MFUGD6	0.00E+00	0.00E+00	0.00E+00	6.65E-03	6.65E-04	6.65E-04	0.00E+00	0.00E+00	0.00E+00	4380
4MFUGD1	0.00E+00	0.00E+00	0.00E+00	5.70E-03	5.70E-04	5.70E-04	0.00E+00	0.00E+00	0.00E+00	4380
4MFUGD2	0.00E+00	0.00E+00	0.00E+00	5.70E-03	5.70E-04	5.70E-04	0.00E+00	0.00E+00	0.00E+00	4380
4MFUGD3	0.00E+00	0.00E+00	0.00E+00	5.70E-03	5.70E-04	5.70E-04	0.00E+00	0.00E+00	0.00E+00	4380
4MFUGD4	0.00E+00	0.00E+00	0.00E+00	5.70E-03	5.70E-04	5.70E-04	0.00E+00	0.00E+00	0.00E+00	4380
4MFUGD5	0.00E+00	0.00E+00	0.00E+00	5.70E-03	5.70E-04	5.70E-04	0.00E+00	0.00E+00	0.00E+00	4380
4MFUGD6	0.00E+00	0.00E+00	0.00E+00	5.70E-03	5.70E-04	5.70E-04	0.00E+00	0.00E+00	0.00E+00	4380
4MFUGD7	0.00E+00	0.00E+00	0.00E+00	5.70E-03	5.70E-04	5.70E-04	0.00E+00	0.00E+00	0.00E+00	4380
5MFUGD1	0.00E+00	0.00E+00	0.00E+00	5.70E-03	5.70E-04	5.70E-04	0.00E+00	0.00E+00	0.00E+00	4380
5MFUGD2	0.00E+00	0.00E+00	0.00E+00	5.70E-03	5.70E-04	5.70E-04	0.00E+00	0.00E+00	0.00E+00	4380
5MFUGD3	0.00E+00	0.00E+00	0.00E+00	5.70E-03	5.70E-04	5.70E-04	0.00E+00	0.00E+00	0.00E+00	4380
5MFUGD4	0.00E+00	0.00E+00	0.00E+00	5.70E-03	5.70E-04	5.70E-04	0.00E+00	0.00E+00	0.00E+00	4380
5MFUGD5	0.00E+00	0.00E+00	0.00E+00	5.70E-03	5.70E-04	5.70E-04	0.00E+00	0.00E+00	0.00E+00	4380
5MFUGD6	0.00E+00	0.00E+00	0.00E+00	5.70E-03	5.70E-04	5.70E-04	0.00E+00	0.00E+00	0.00E+00	4380
5MFUGD7	0.00E+00	0.00E+00	0.00E+00	5.70E-03	5.70E-04	5.70E-04	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD1	0.00E+00	0.00E+00	0.00E+00	6.65E-03	6.65E-04	6.65E-04	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD2	0.00E+00	0.00E+00	0.00E+00	6.65E-03	6.65E-04	6.65E-04	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD3	0.00E+00	0.00E+00	0.00E+00	6.65E-03	6.65E-04	6.65E-04	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD4	0.00E+00	0.00E+00	0.00E+00	6.65E-03	6.65E-04	6.65E-04	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD5	0.00E+00	0.00E+00	0.00E+00	6.65E-03	6.65E-04	6.65E-04	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD6	0.00E+00	0.00E+00	0.00E+00	6.65E-03	6.65E-04	6.65E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD1	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD2	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD3	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD4	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD5	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD6	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD7	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD8	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD9	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD10	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
WOCMFUGD11	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD12	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD13	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD14	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD15	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD16	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD17	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD18	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD19	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD20	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD21	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD22	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD23	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD24	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD25	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD26	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD27	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD28	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD29	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD30	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD31	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD32	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD33	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD34	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD35	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD36	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD37	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD38	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD39	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD40	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD41	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD42	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
WOCMFUGD43	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD44	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD45	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD46	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD47	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD48	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD49	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD50	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD51	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD52	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD53	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD54	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD55	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD56	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD57	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD58	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD59	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD60	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD61	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD62	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD63	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
AIRMFUGD1	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
AIRMFUGD2	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
AIRMFUGD3	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
AIRMFUGD4	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
AIRMFUGD5	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
AIRMFUGD6	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
AIRMFUGD7	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	4380
WOCTEMPTRB1	4.41E-01	4.35E-01	4.35E-01	5.04E-02	5.04E-02	5.04E-02	5.06E-02	5.06E-02	5.06E-02	8760
WOCTEMPTRB2	4.41E-01	4.35E-01	4.35E-01	5.04E-02	5.04E-02	5.04E-02	5.06E-02	5.06E-02	5.06E-02	8760
RFDGMT1	3.50E-01	3.50E-01	2.69E+00	3.50E-01	3.50E-01	9.50E-02	3.80E-02	3.80E-02	1.96E-02	8760
RFDGMT2	4.06E+00	7.21E+00	7.34E-01	4.06E+00	6.44E-01	7.71E-02	1.40E-02	1.40E-02	6.33E-03	8760

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
RFDGWPDS1	1.25E+01	4.25E+00	4.25E+00	2.84E-01	2.84E-01	2.84E-01	3.87E-02	3.87E-02	3.87E-02	8760
RFDGWPDS2	1.25E+01	4.25E+00	4.25E+00	2.84E-01	2.84E-01	2.84E-01	3.87E-02	3.87E-02	3.87E-02	8760
RFDCD5	1.82E+00	2.15E+00	2.15E+00	1.27E-01	1.27E-01	1.27E-01	2.70E-01	2.70E-01	2.70E-01	8760
2DRILLPEA	1.07E+00	2.05E-01	2.05E-01	9.17E-03	9.17E-03	9.17E-03	5.64E-04	5.64E-04	5.64E-04	8760
2DRILLCP1A	1.75E-01	2.00E-02	1.14E-03	1.00E-03	1.00E-03	5.71E-05	3.31E-04	3.31E-04	1.89E-05	500
2DRILLCP2A	1.75E-01	2.00E-02	1.14E-03	1.00E-03	1.00E-03	5.71E-05	3.31E-04	3.31E-04	1.89E-05	500
2DRILLB1A	1.53E-02	6.12E-02	6.12E-02	7.28E-03	6.51E-03	6.51E-03	6.51E-04	6.51E-04	6.51E-04	8760
2DRILLB2A	1.53E-02	6.12E-02	6.12E-02	7.28E-03	6.51E-03	6.51E-03	6.51E-04	6.51E-04	6.51E-04	8760
2DRILLAH1A	1.83E-02	7.30E-02	7.30E-02	8.69E-03	7.78E-03	7.78E-03	7.78E-04	7.78E-04	7.78E-04	8760
2DRILLAH2A	9.13E-03	3.65E-02	3.65E-02	4.35E-03	3.89E-03	3.89E-03	3.89E-04	3.89E-04	3.89E-04	8760
2DRILLMPA	1.37E-02	5.48E-02	5.48E-02	6.52E-03	5.83E-03	5.83E-03	5.83E-04	5.83E-04	5.83E-04	8760
2DRILLNMTEA	4.91E-01	5.61E-01	5.61E-01	2.81E-02	2.81E-02	2.81E-02	1.04E-03	1.04E-03	1.04E-03	8760
2DRILLNMLTA	7.22E-02	8.20E-02	8.20E-02	8.75E-03	8.75E-03	8.75E-03	7.24E-05	7.24E-05	7.24E-05	8760
2DRILLNMPGA	3.51E-02	3.30E-02	3.30E-02	2.81E-03	2.81E-03	2.81E-03	4.64E-05	4.64E-05	4.64E-05	8760
2DRILLNMCPA	5.97E-02	5.61E-02	5.61E-02	4.77E-03	4.77E-03	4.77E-03	7.90E-05	7.90E-05	7.90E-05	8760
2DRILLNMHSA	2.15E-02	8.59E-02	8.59E-02	1.02E-02	9.15E-03	9.15E-03	9.15E-04	9.15E-04	9.15E-04	8760
2DRILLFLARE	1.08E+00	1.98E-01	9.38E-02	4.79E-05	4.79E-05	2.27E-05	1.16E-02	1.16E-02	5.47E-03	1728
3DRILLPEA	1.07E+00	2.05E-01	2.05E-01	9.17E-03	9.17E-03	9.17E-03	5.64E-04	5.64E-04	5.64E-04	8760
3DRILLCP1A	1.75E-01	2.00E-02	1.14E-03	1.00E-03	1.00E-03	5.71E-05	3.31E-04	3.31E-04	1.89E-05	500
3DRILLCP2A	1.75E-01	2.00E-02	1.14E-03	1.00E-03	1.00E-03	5.71E-05	3.31E-04	3.31E-04	1.89E-05	500
3DRILLB1A	1.53E-02	6.12E-02	6.12E-02	7.28E-03	6.51E-03	6.51E-03	6.51E-04	6.51E-04	6.51E-04	8760
3DRILLB2A	1.53E-02	6.12E-02	6.12E-02	7.28E-03	6.51E-03	6.51E-03	6.51E-04	6.51E-04	6.51E-04	8760
3DRILLAH1A	1.83E-02	7.30E-02	7.30E-02	8.69E-03	7.78E-03	7.78E-03	7.78E-04	7.78E-04	7.78E-04	8760
3DRILLAH2A	9.13E-03	3.65E-02	3.65E-02	4.35E-03	3.89E-03	3.89E-03	3.89E-04	3.89E-04	3.89E-04	8760
3DRILLMPA	1.37E-02	5.48E-02	5.48E-02	6.52E-03	5.83E-03	5.83E-03	5.83E-04	5.83E-04	5.83E-04	8760
3DRILLNMTEA	4.91E-01	5.61E-01	5.61E-01	2.81E-02	2.81E-02	2.81E-02	1.04E-03	1.04E-03	1.04E-03	8760
3DRILLNMLTA	7.22E-02	8.20E-02	8.20E-02	8.75E-03	8.75E-03	8.75E-03	7.24E-05	7.24E-05	7.24E-05	8760
3DRILLNMPGA	3.51E-02	3.30E-02	3.30E-02	2.81E-03	2.81E-03	2.81E-03	4.64E-05	4.64E-05	4.64E-05	8760
3DRILLNMCPA	5.97E-02	5.61E-02	5.61E-02	4.77E-03	4.77E-03	4.77E-03	7.90E-05	7.90E-05	7.90E-05	8760
3DRILLNMHSA	2.15E-02	8.59E-02	8.59E-02	1.02E-02	9.15E-03	9.15E-03	9.15E-04	9.15E-04	9.15E-04	8760
3DRILLFLARE	1.08E+00	1.98E-01	3.91E-02	4.79E-05	4.79E-05	9.44E-06	1.16E-02	1.16E-02	2.28E-03	1728
2PADHTR1	1.35E-02	5.41E-02	4.98E-02	6.44E-03	5.76E-03	5.31E-03	5.76E-04	5.76E-04	5.31E-04	4704

Source ID	Modeled Emission Rates (g/s)									Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	
2PADSHTR1	4.67E-03	1.87E-02	1.72E-02	2.22E-03	1.99E-03	1.83E-03	1.99E-04	1.99E-04	1.83E-04	4704
2PADNMGS1	1.32E-02	2.49E-02	2.29E-02	1.96E-03	1.90E-03	1.75E-03	2.13E-05	2.13E-05	1.96E-05	4704
3PADHTR1	1.35E-02	5.41E-02	4.98E-02	6.44E-03	5.76E-03	5.31E-03	5.76E-04	5.76E-04	5.31E-04	4704
3PADSHTR1	4.67E-03	1.87E-02	1.72E-02	2.22E-03	1.99E-03	1.83E-03	1.99E-04	1.99E-04	1.83E-04	4704
3PADNMGS1	1.32E-02	2.49E-02	2.29E-02	1.96E-03	1.90E-03	1.75E-03	2.13E-05	2.13E-05	1.96E-05	4704
2PADNR1	1.48E-02	3.87E-02	3.33E-02	2.04E-03	1.97E-03	1.70E-03	1.59E-04	1.59E-04	1.37E-04	VARIES
2PADNR2	1.48E-02	3.87E-02	3.33E-02	2.04E-03	1.97E-03	1.70E-03	1.59E-04	1.59E-04	1.37E-04	VARIES
2PADNR3	1.48E-02	3.87E-02	3.33E-02	2.04E-03	1.97E-03	1.70E-03	1.59E-04	1.59E-04	1.37E-04	VARIES
2PADNR4	1.48E-02	3.87E-02	3.33E-02	2.04E-03	1.97E-03	1.70E-03	1.59E-04	1.59E-04	1.37E-04	VARIES
3PADNR1	1.48E-02	3.87E-02	3.33E-02	2.04E-03	1.97E-03	1.70E-03	1.59E-04	1.59E-04	1.37E-04	VARIES
3PADNR2	1.48E-02	3.87E-02	3.33E-02	2.04E-03	1.97E-03	1.70E-03	1.59E-04	1.59E-04	1.37E-04	VARIES
3PADNR3	1.48E-02	3.87E-02	3.33E-02	2.04E-03	1.97E-03	1.70E-03	1.59E-04	1.59E-04	1.37E-04	VARIES
3PADNR4	1.48E-02	3.87E-02	3.33E-02	2.04E-03	1.97E-03	1.70E-03	1.59E-04	1.59E-04	1.37E-04	VARIES
2PADOHT1	2.06E-02	5.16E-02	3.56E-02	2.90E-03	2.81E-03	1.94E-03	1.35E-04	1.35E-04	9.34E-05	1512
2PADOHT2	2.06E-02	5.16E-02	3.56E-02	2.90E-03	2.81E-03	1.94E-03	1.35E-04	1.35E-04	9.34E-05	1512
2PADOHT3	2.06E-02	5.16E-02	3.56E-02	2.90E-03	2.81E-03	1.94E-03	1.35E-04	1.35E-04	9.34E-05	1512
2PADOHT4	2.06E-02	5.16E-02	3.56E-02	2.90E-03	2.81E-03	1.94E-03	1.35E-04	1.35E-04	9.34E-05	1512
3PADOHT1	2.06E-02	5.16E-02	3.56E-02	2.90E-03	2.81E-03	1.94E-03	1.35E-04	1.35E-04	9.34E-05	1512
3PADOHT2	2.06E-02	5.16E-02	3.56E-02	2.90E-03	2.81E-03	1.94E-03	1.35E-04	1.35E-04	9.34E-05	1512
3PADOHT3	2.06E-02	5.16E-02	3.56E-02	2.90E-03	2.81E-03	1.94E-03	1.35E-04	1.35E-04	9.34E-05	1512
3PADOHT4	2.06E-02	5.16E-02	3.56E-02	2.90E-03	2.81E-03	1.94E-03	1.35E-04	1.35E-04	9.34E-05	1512
2FUGD	0.00E+00	0.00E+00	0.00E+00	2.88E-02	4.32E-03	4.32E-03	0.00E+00	0.00E+00	0.00E+00	4380
3FUGD	0.00E+00	0.00E+00	0.00E+00	2.88E-02	4.32E-03	4.32E-03	0.00E+00	0.00E+00	0.00E+00	4380

A.3.3 Scenario 5: Routine Operations

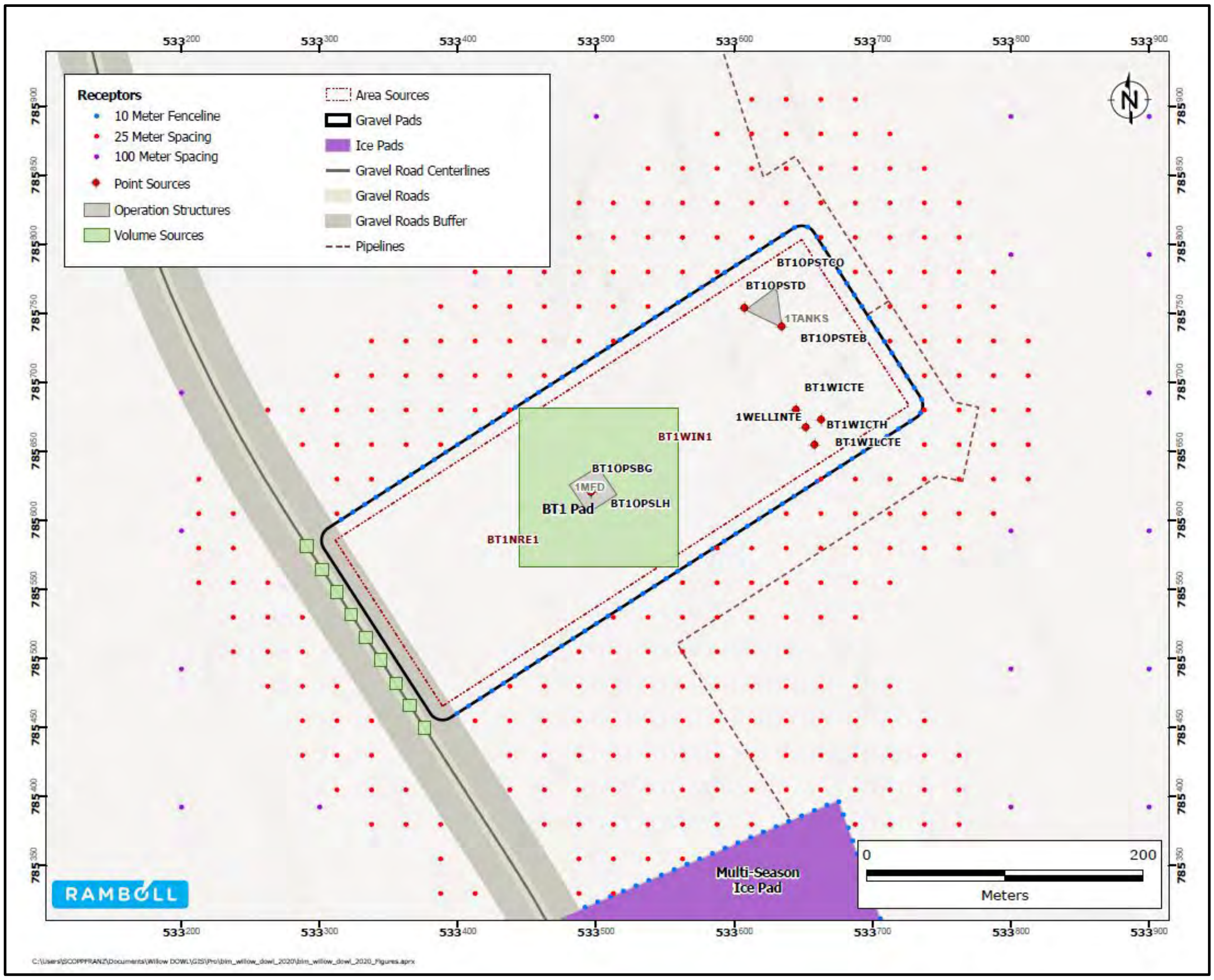

Figure A.3-12. Alternative D Near-field Model Scenario 5 Source Locations at BT1.

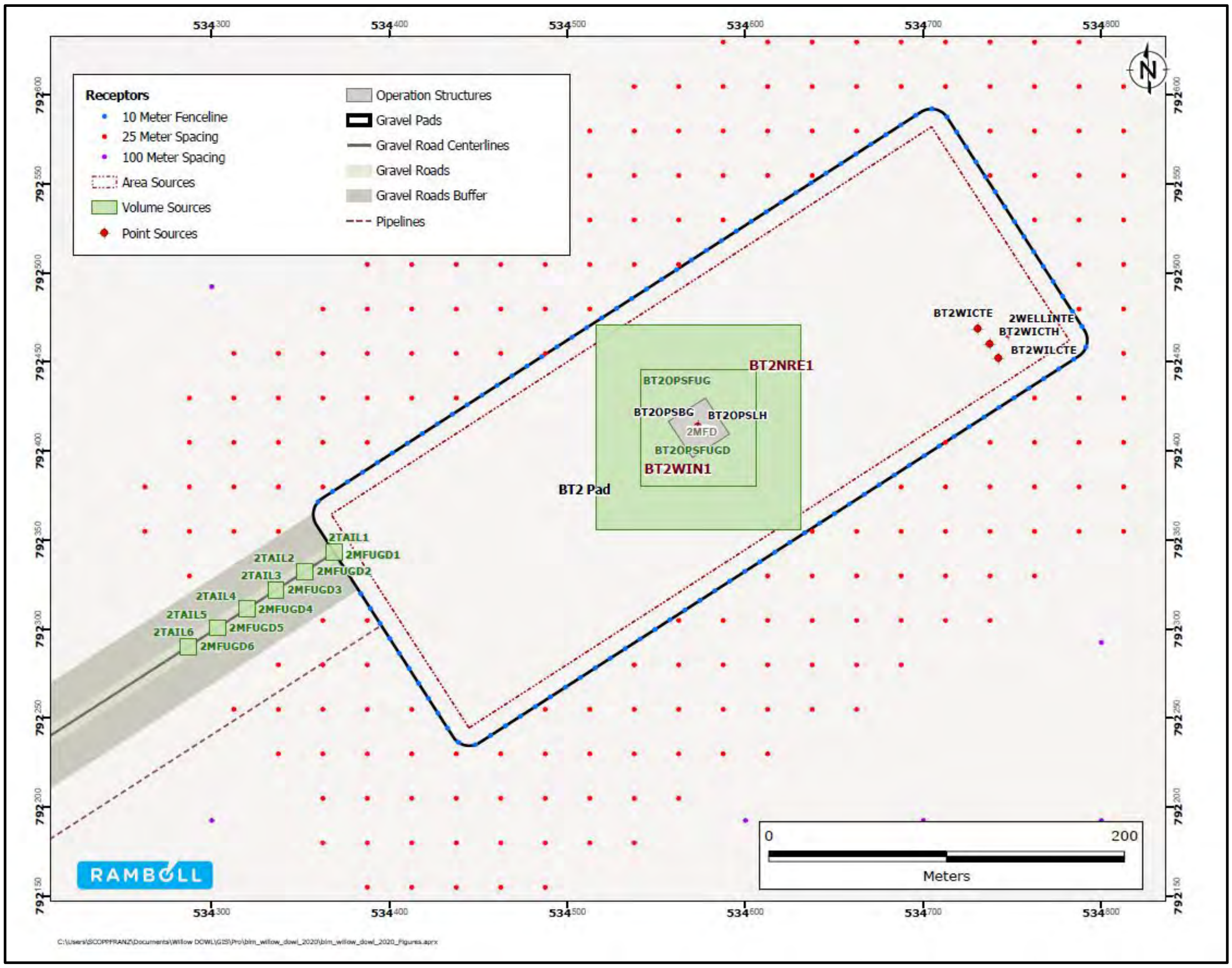

Figure A.3-13. Alternative D Near-field Model Scenario 5 Source Locations at BT2.

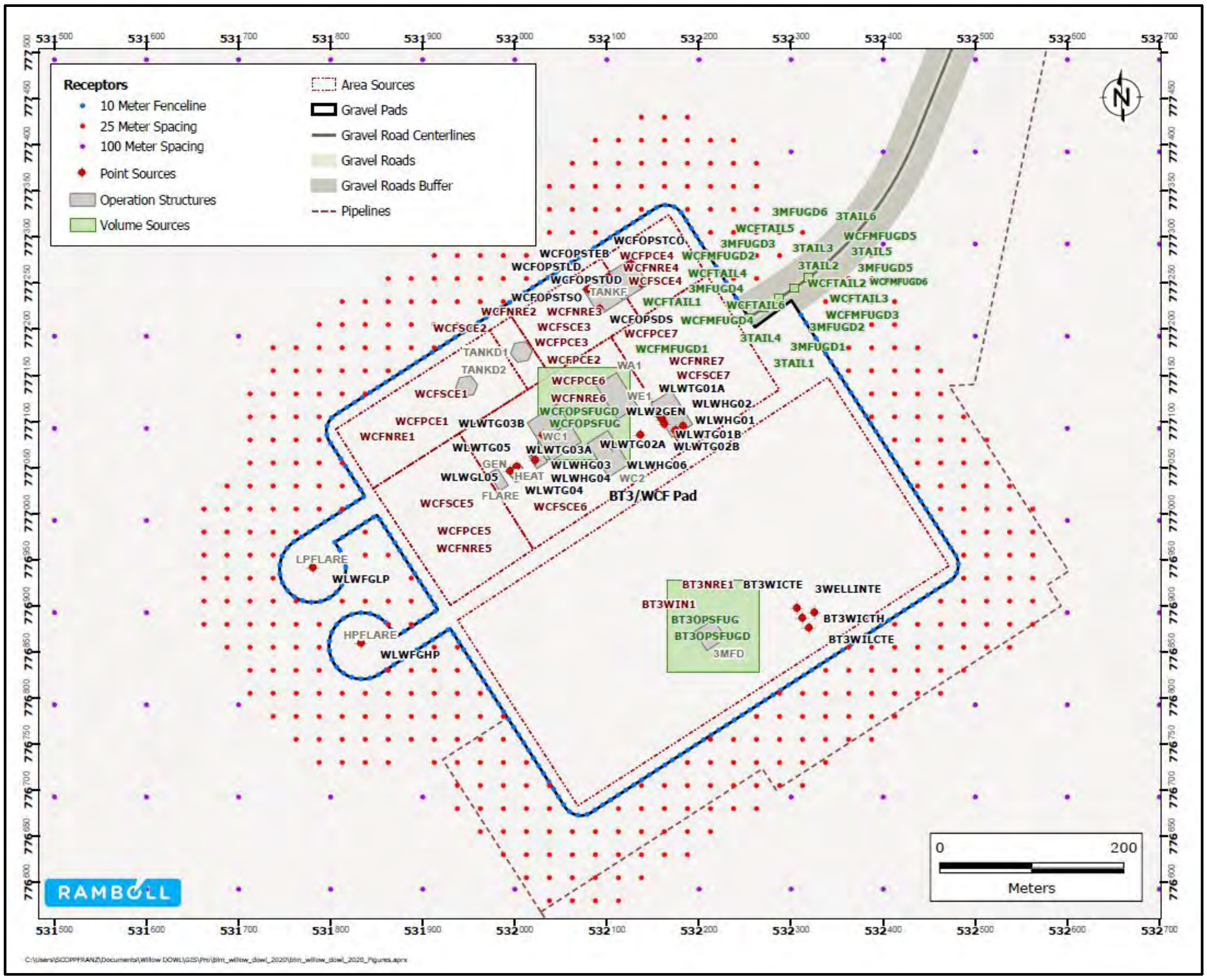

Figure A.3-14. Alternative D Near-field Model Scenario 5 Source Locations at BT3/WPF.

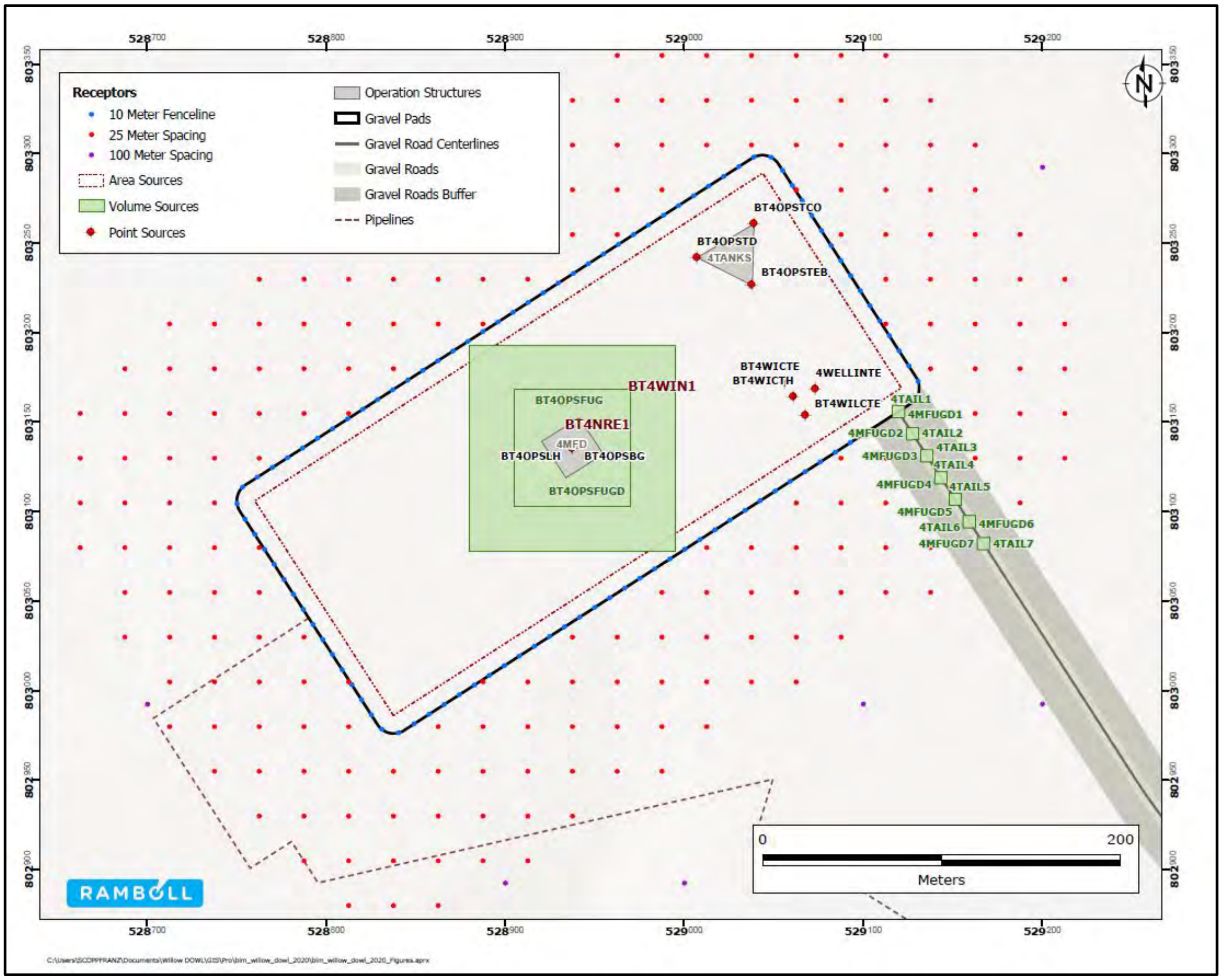

Figure A.3-15. Alternative D Near-field Model Scenario 5 Source Locations at BT4.

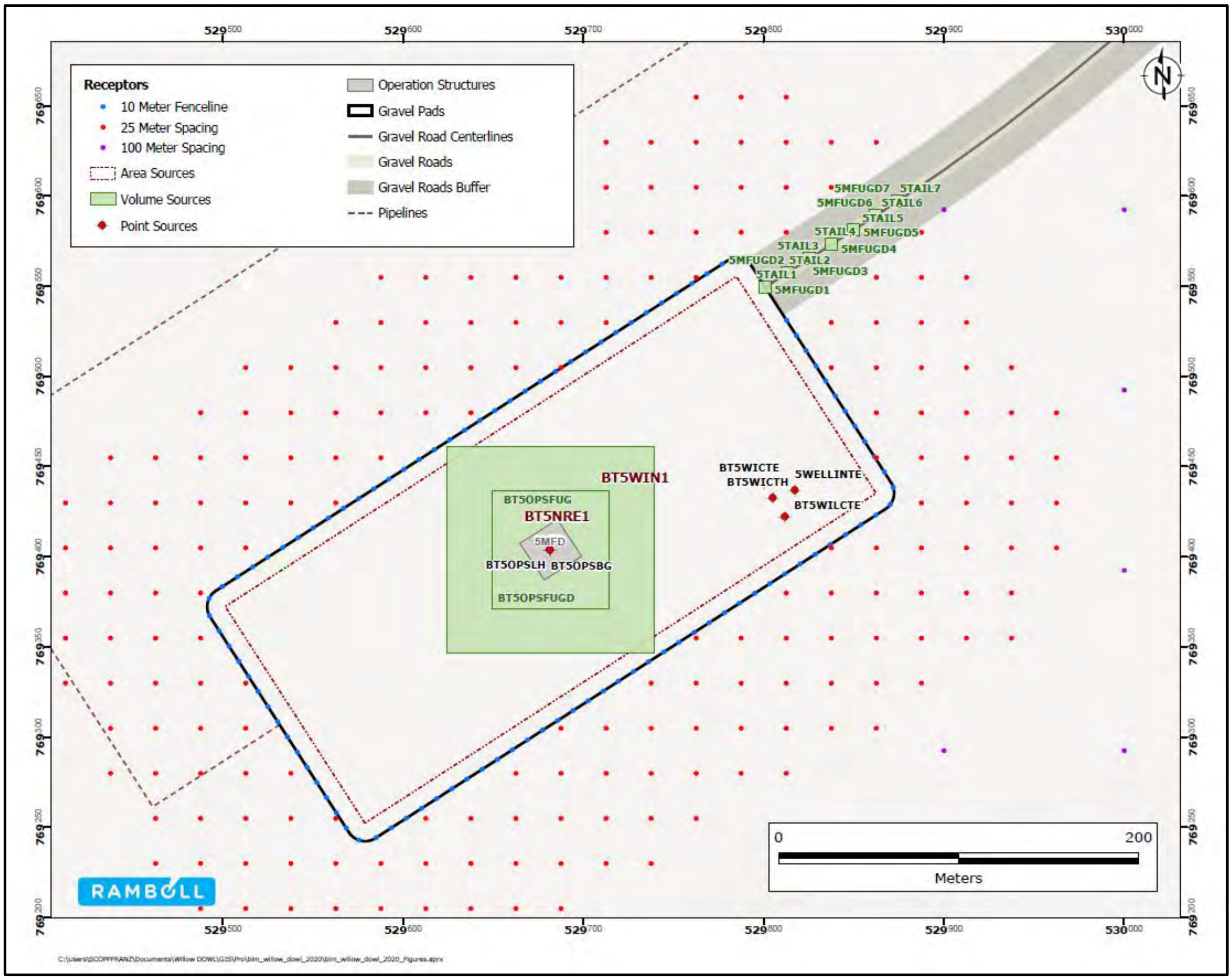

Figure A.3-16. Alternative D Near-field Model Scenario 5 Source Locations at BT5.

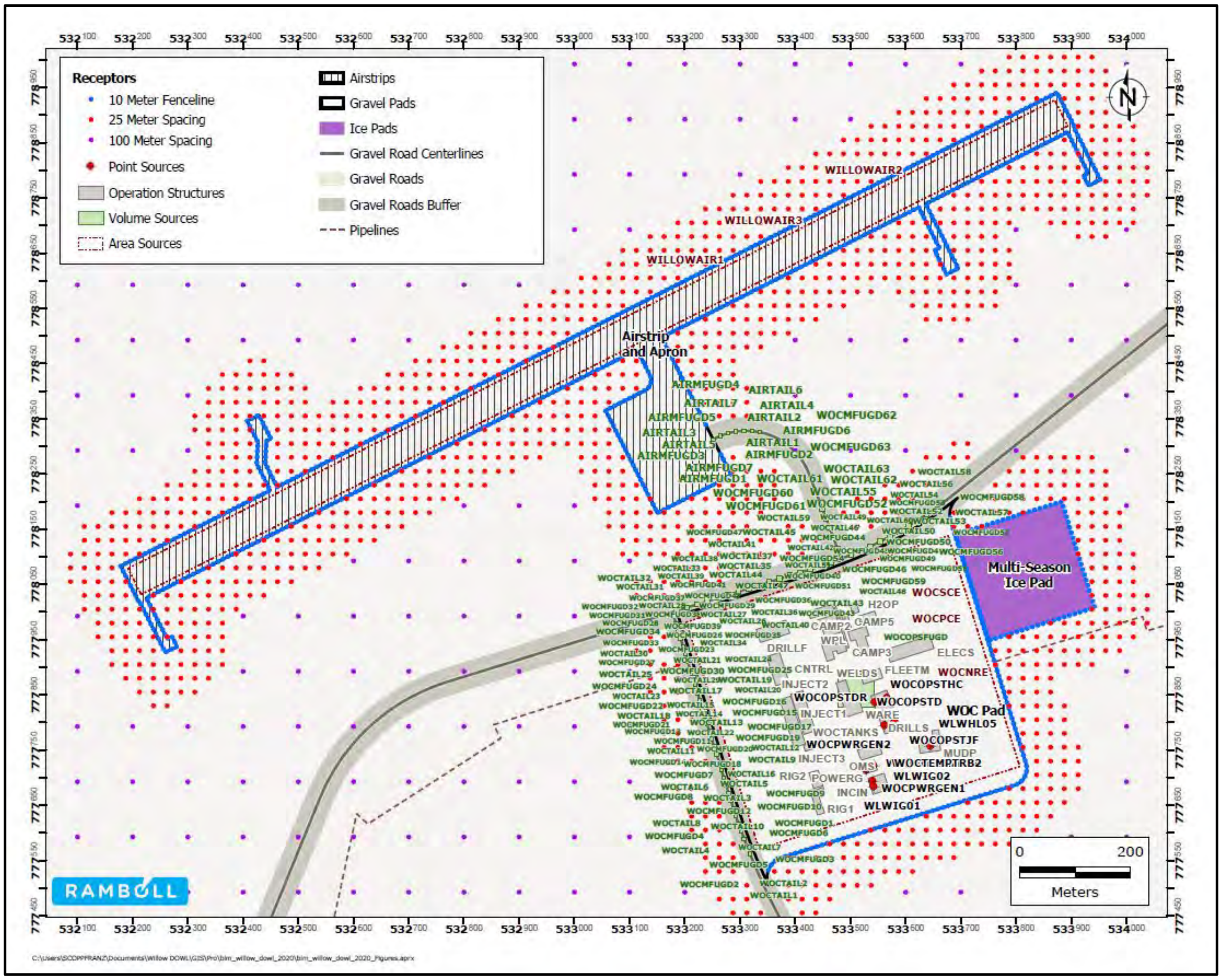

Figure A.3-17. Alternative D Near-field Model Scenario 5 Source Locations at Airstrip.

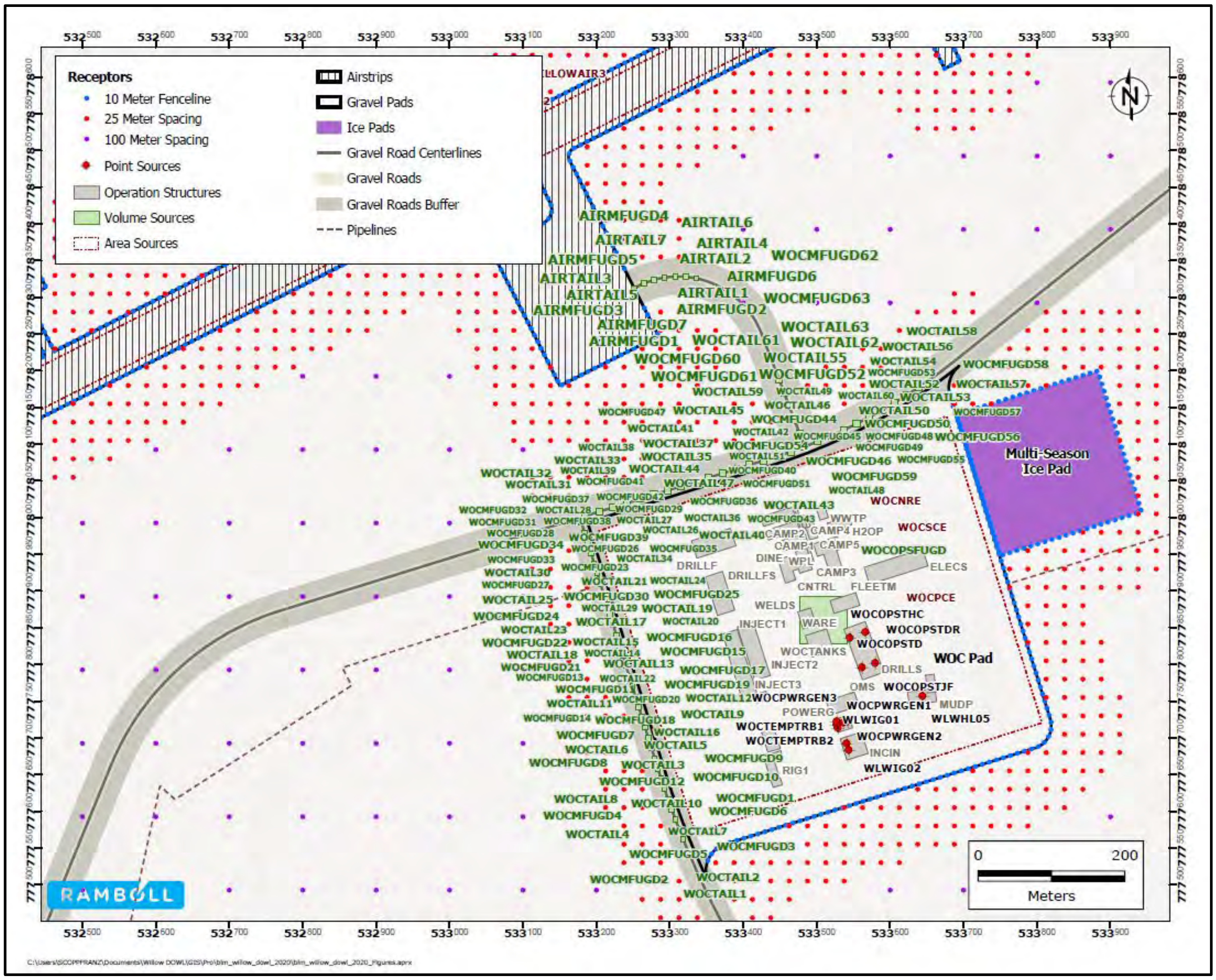

Figure A.3-18. Alternative D Near-field Model Scenario 5 Source Locations at Willow Operations Center

Table A.3-7. Alternative D Near-field Model Scenario 5 Emissions Source Descriptions and In-stack Ratios

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
WOCOPSTDR	POINT	WOC - Storage Tanks - VFRT/ DRA (drag reducing agent)	-	-
BT1OPSLH	POINT	BT1 - Line Heater	0.05	Diesel or natural gas heaters, or boiler
BT1OPSBG	POINT	BT1 - Backup Generator	0.2	Diesel tailpipe from non-road equipment
BT1OPSFUG	VOLUME	BT1 - Fugitive Components	-	-
BT1OPSFUGD	VOLUME	BT1 - Wind Erosion Fugitive Dust	-	-
BT1OPSTEB	POINT	BT1 - Storage Tanks - VFRT/ Emulsion Breaker/ Pad Buster	-	-
BT1OPSTD	POINT	BT1 - Storage Tanks - VFRT/ Diesel	-	-
BT1OPSTCO	POINT	BT1 - Storage Tanks - VFRT/ Portable Temp Crude Oil	-	-
BT1WICTH	POINT	BT1 - Well Intervention Main Equipment - Coil Tubing Heater	0.05	Diesel or natural gas heaters, or boiler
BT1WICTE	POINT	BT1 - Well Intervention Main Equipment - Coil Tubing Engine	0.1	Diesel engines
BT1WILCTE	POINT	BT1 - Well Intervention Main Equipment - Large Coil Tubing Engine	0.1	Diesel engines
BT2OPSLH	POINT	BT2 - Line Heater	0.05	Diesel or natural gas heaters, or boiler
BT2OPSBG	POINT	BT2 - Backup Generator	0.2	Diesel tailpipe from non-road equipment
BT2OPSFUG	VOLUME	BT2 - Fugitive Components	-	-
BT2OPSFUGD	VOLUME	BT2 - Wind Erosion Fugitive Dust	-	-
BT2WICTH	POINT	BT2 - Well Intervention Main Equipment - Coil Tubing Heater	0.05	Diesel or natural gas heaters, or boiler
BT2WICTE	POINT	BT2 - Well Intervention Main Equipment - Coil Tubing Engine	0.1	Diesel engines
BT2WILCTE	POINT	BT2 - Well Intervention Main Equipment - Large Coil Tubing Engine	0.1	Diesel engines
BT3OPSFUG	VOLUME	BT3 - Fugitive Components	-	-
BT3OPSFUGD	VOLUME	BT3 - Wind Erosion Fugitive Dust	-	-
BT3WICTH	POINT	BT3 - Well Intervention Main Equipment - Coil Tubing Heater	0.05	Diesel or natural gas heaters, or boiler
BT3WICTE	POINT	BT3 - Well Intervention Main Equipment - Coil Tubing Engine	0.1	Diesel engines
BT3WILCTE	POINT	BT3 - Well Intervention Main Equipment - Large Coil Tubing Engine	0.1	Diesel engines
BT4OPSLH	POINT	BT4 - Line Heater	0.05	Diesel or natural gas heaters, or boiler
BT4OPSBG	POINT	BT4 - Backup Generator	0.2	Diesel tailpipe from non-road equipment
BT4OPSFUG	VOLUME	BT4 - Fugitive Components	-	-
BT4OPSFUGD	VOLUME	BT4 - Wind Erosion Fugitive Dust	-	-
BT4OPSTEB	POINT	BT4 - Storage Tanks - VFRT/ Emulsion Breaker/ Pad Buster	-	-
BT4OPSTD	POINT	BT4 - Storage Tanks - VFRT/ Diesel	-	-
BT4OPSTCO	POINT	BT4 - Storage Tanks - VFRT/ Portable Temp Crude Oil	-	-
BT4WICTH	POINT	BT4 - Well Intervention Main Equipment - Coil Tubing Heater	0.05	Diesel or natural gas heaters, or boiler

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
BT4WICTE	POINT	BT4 - Well Intervention Main Equipment - Coil Tubing Engine	0.1	Diesel engines
BT4WILCTE	POINT	BT4 - Well Intervention Main Equipment - Large Coil Tubing Engine	0.1	Diesel engines
BT5OPSLH	POINT	BT5 - Line Heater	0.05	Diesel or natural gas heaters, or boiler
BT5OPSBG	POINT	BT5 - Backup Generator	0.2	Diesel tailpipe from non-road equipment
BT5OPSFUG	VOLUME	BT5 - Fugitive Components	-	-
BT5OPSFUGD	VOLUME	BT5 - Wind Erosion Fugitive Dust	-	-
BT5WICTH	POINT	BT5 - Well Intervention Main Equipment - Coil Tubing Heater	0.05	Diesel or natural gas heaters, or boiler
BT5WICTE	POINT	BT5 - Well Intervention Main Equipment - Coil Tubing Engine	0.1	Diesel engines
BT5WILCTE	POINT	BT5 - Well Intervention Main Equipment - Large Coil Tubing Engine	0.1	Diesel engines
WLWTG03A	POINT	WPF - Stationary Combustion Sources - Injection/Compression Turbine	0.3	Natural gas-fired turbines
WLWTG03B	POINT	WPF - Stationary Combustion Sources - Injection/Compression Turbine	0.3	Natural gas-fired turbines
WLWTG01A	POINT	WPF - Stationary Combustion Sources - Power Generation Turbine	0.3	Natural gas-fired turbines
WLWTG01B	POINT	WPF - Stationary Combustion Sources - Power Generation Turbine	0.3	Natural gas-fired turbines
WLWTG02A	POINT	WPF - Stationary Combustion Sources - Power Generation Turbine	0.3	Natural gas-fired turbines
WLWTG02B	POINT	WPF - Stationary Combustion Sources - Power Generation Turbine	0.3	Natural gas-fired turbines
WLWTG04	POINT	WPF - Stationary Combustion Sources - Backup Power Generation Turbine (Dual Fuel)	0.3	Natural gas-fired turbines
WLWTG05	POINT	WPF - Stationary Combustion Sources - Backup Power Generation Turbine (Dual Fuel)	0.3	Natural gas-fired turbines
WLWGL05	POINT	WPF - Stationary Combustion Sources - Black Start Engine	0.1	Diesel engines
WLWHG03	POINT	WPF - Stationary Combustion Sources - Crude Production Heater	0.05	Diesel or natural gas heaters, or boiler
WLWHG04	POINT	WPF - Stationary Combustion Sources - Crude Production Heater	0.05	Diesel or natural gas heaters, or boiler
WLWHG01	POINT	WPF - Stationary Combustion Sources - Utility Heat Medium (UHM) Heater	0.05	Diesel or natural gas heaters, or boiler
WLWHG02	POINT	WPF - Stationary Combustion Sources - Utility Heat Medium (UHM) Heater	0.05	Diesel or natural gas heaters, or boiler
WLWHG06	POINT	WPF - Stationary Combustion Sources - Hot Oil Heater	0.05	Diesel or natural gas heaters, or boiler
WLWFGLP	POINT	WPF - Stationary Combustion Sources - LP Flare (pilot/purge/assist)	0.5	USEPA default value
WLWFGHP	POINT	WPF - Stationary Combustion Sources - HP Flare (pilot/purge/assist)	0.5	USEPA default value
WCFOPSDS	POINT	WPF - Stationary Combustion Sources - Diesel Fueling Station	-	-
WCFOPSTSO	POINT	WPF - Storage Tanks - VFRT/ Slop Oil	-	-
WCFOPSTCO	POINT	WPF - Storage Tanks - VFRT/ Portable Temp Crude Oil	-	-

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
WCFOPSTUD	POINT	WPF - Storage Tanks - VFRT/ ULSD	-	-
WCFOPSTLD	POINT	WPF - Storage Tanks - VFRT/ LEPD	-	-
WCFOPSTEB	POINT	WPF - Storage Tanks - VFRT/ Emulsion Breaker/ Pad Buster	-	-
WCFOPSFUG	VOLUME	WPF - Fugitive Equipment Leaks	-	-
WCFOPSFUGD	VOLUME	WPF - Wind Erosion Fugitive Dust	-	-
WOCPWRGEN1	POINT	WOC - Stationary Combustion Sources - Power Generation	0.1	Diesel engines
WOCPWRGEN2	POINT	WOC - Stationary Combustion Sources - Power Generation	0.1	Diesel engines
WOCPWRGEN3	POINT	WOC - Stationary Combustion Sources - Power Generation	0.1	Diesel engines
WLWIG01	POINT	WOC - Stationary Combustion Sources - Incinerator	0.5	USEPA default value
WLWIG02	POINT	WOC - Stationary Combustion Sources - Incinerator	0.5	USEPA default value
WLWHL05	POINT	WOC - Stationary Combustion Sources - Mud Plant Glycol Boiler	0.05	Diesel or natural gas heaters, or boiler
WOCOPSTJF	POINT	WOC - Storage Tanks - VFRT/ Aircraft Jet Fuel	-	-
WOCOPSTHC	POINT	WOC - Storage Tanks - VFRT/ Hydrocarbon	-	-
WOCOPSTD	POINT	WOC - Storage Tanks - VFRT/ Diesel	-	-
WILLOWAIR1	AREAPOLY	WOC - Aircraft Activity (Willow Airstrip) - Release Height 50.8m	0.5	USEPA default value
WILLOWAIR2	AREAPOLY	WOC - Aircraft Activity (Willow Airstrip) - Release Height 152.4m	0.5	USEPA default value
WILLOWAIR3	AREAPOLY	WOC - Aircraft Activity (Willow Airstrip) - Release Height 254m	0.5	USEPA default value
WOCOPSFUGD	VOLUME	WOC - Wind Erosion Fugitive Dust - Wind Erosion	-	-
WCFPCE1	AREAPOLY	WPF - Non-mobile Support Equipment - Portable External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFPCE2	AREAPOLY	WPF - Non-mobile Support Equipment - Portable External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFPCE3	AREAPOLY	WPF - Non-mobile Support Equipment - Portable External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFPCE4	AREAPOLY	WPF - Non-mobile Support Equipment - Portable External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFPCE5	AREAPOLY	WPF - Non-mobile Support Equipment - Portable External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFPCE6	AREAPOLY	WPF - Non-mobile Support Equipment - Portable External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFPCE7	AREAPOLY	WPF - Non-mobile Support Equipment - Portable External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
WCFSCE1	AREAPOLY	WPF - Non-mobile Support Equipment - Stationary External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFSCE2	AREAPOLY	WPF - Non-mobile Support Equipment - Stationary External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFSCE3	AREAPOLY	WPF - Non-mobile Support Equipment - Stationary External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFSCE4	AREAPOLY	WPF - Non-mobile Support Equipment - Stationary External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFSCE5	AREAPOLY	WPF - Non-mobile Support Equipment - Stationary External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFSCE6	AREAPOLY	WPF - Non-mobile Support Equipment - Stationary External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFSCE7	AREAPOLY	WPF - Non-mobile Support Equipment - Stationary External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WCFNRE1	AREAPOLY	WPF - Non-mobile Support Equipment - Internal Combustion Equipment Non-Road Engines <140 HP	0.2	Diesel tailpipe from non-road equipment
WCFNRE2	AREAPOLY	WPF - Non-mobile Support Equipment - Internal Combustion Equipment Non-Road Engines <140 HP	0.2	Diesel tailpipe from non-road equipment
WCFNRE3	AREAPOLY	WPF - Non-mobile Support Equipment - Internal Combustion Equipment Non-Road Engines <140 HP	0.2	Diesel tailpipe from non-road equipment
WCFNRE4	AREAPOLY	WPF - Non-mobile Support Equipment - Internal Combustion Equipment Non-Road Engines <140 HP	0.2	Diesel tailpipe from non-road equipment
WCFNRE5	AREAPOLY	WPF - Non-mobile Support Equipment - Internal Combustion Equipment Non-Road Engines <140 HP	0.2	Diesel tailpipe from non-road equipment
WCFNRE6	AREAPOLY	WPF - Non-mobile Support Equipment - Internal Combustion Equipment Non-Road Engines <140 HP	0.2	Diesel tailpipe from non-road equipment
WCFNRE7	AREAPOLY	WPF - Non-mobile Support Equipment - Internal Combustion Equipment Non-Road Engines <140 HP	0.2	Diesel tailpipe from non-road equipment
WLW2GEN	POINT	WPF - Non-mobile Support Equipment - Internal Combustion Equipment Non-Road Engines >140 HP	0.1	Diesel engines
BT3NRE1	AREAPOLY	BT3 - Routine Operations Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
BT3WIN1	AREAPOLY	BT3 - Well Intervention Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
3WELLINTE	POINT	BT3 - Well Intervention Non-Mobile Support Equipment - Total Engine	0.1	Diesel engines

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
BT1NRE1	AREAPOLY	BT1 - Routine Operations Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
BT1WIN1	AREAPOLY	BT1 - Well Intervention Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
1WELLINTE	POINT	BT1 - Well Intervention Non-Mobile Support Equipment - Total Engine	0.1	Diesel engines
BT2NRE1	AREAPOLY	BT2 - Routine Operations Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
BT2WIN1	AREAPOLY	BT2 - Well Intervention Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
2WELLINTE	POINT	BT2 - Well Intervention Non-Mobile Support Equipment - Total Engine	0.1	Diesel engines
BT4NRE1	AREAPOLY	BT4 - Routine Operations Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
BT4WIN1	AREAPOLY	BT4 - Well Intervention Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
4WELLINTE	POINT	BT4 - Well Intervention Non-Mobile Support Equipment - Total Engine	0.1	Diesel engines
BT5NRE1	AREAPOLY	BT5 - Routine Operations Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
BT5WIN1	AREAPOLY	BT5 - Well Intervention Non-Mobile Support Equipment	0.2	Diesel tailpipe from non-road equipment
5WELLINTE	POINT	BT5 - Well Intervention Non-Mobile Support Equipment - Total Engine	0.1	Diesel engines
WOCPCE	AREAPOLY	WOC - Non-mobile Support Equipment - Portable External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WOCSCE	AREAPOLY	WOC - Non-mobile Support Equipment - Stationary External Combustion Equipment	0.05	Diesel or natural gas heaters, or boiler
WOCNRE	AREAPOLY	WOC - Non-mobile Support Equipment - Internal Combustion Equipment Non-Road Engines <140 HP	0.2	Diesel tailpipe from non-road equipment
1TAIL1	VOLUME	Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL2	VOLUME	Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL3	VOLUME	Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL4	VOLUME	Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL5	VOLUME	Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL6	VOLUME	Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL7	VOLUME	Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL8	VOLUME	Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
1TAIL9	VOLUME	Mobile Equipment Tailpipe - BT1	0.15	Diesel tailpipe from on-road vehicles
2TAIL1	VOLUME	Mobile Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL2	VOLUME	Mobile Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL3	VOLUME	Mobile Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL4	VOLUME	Mobile Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
2TAIL5	VOLUME	Mobile Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
2TAIL6	VOLUME	Mobile Equipment Tailpipe - BT2	0.15	Diesel tailpipe from on-road vehicles
3TAIL1	VOLUME	Mobile Equipment Tailpipe - BT3	0.15	Diesel tailpipe from on-road vehicles
3TAIL2	VOLUME	Mobile Equipment Tailpipe - BT3	0.15	Diesel tailpipe from on-road vehicles
3TAIL3	VOLUME	Mobile Equipment Tailpipe - BT3	0.15	Diesel tailpipe from on-road vehicles
3TAIL4	VOLUME	Mobile Equipment Tailpipe - BT3	0.15	Diesel tailpipe from on-road vehicles
3TAIL5	VOLUME	Mobile Equipment Tailpipe - BT3	0.15	Diesel tailpipe from on-road vehicles
3TAIL6	VOLUME	Mobile Equipment Tailpipe - BT3	0.15	Diesel tailpipe from on-road vehicles
4TAIL1	VOLUME	Mobile Equipment Tailpipe - BT4	0.15	Diesel tailpipe from on-road vehicles
4TAIL2	VOLUME	Mobile Equipment Tailpipe - BT4	0.15	Diesel tailpipe from on-road vehicles
4TAIL3	VOLUME	Mobile Equipment Tailpipe - BT4	0.15	Diesel tailpipe from on-road vehicles
4TAIL4	VOLUME	Mobile Equipment Tailpipe - BT4	0.15	Diesel tailpipe from on-road vehicles
4TAIL5	VOLUME	Mobile Equipment Tailpipe - BT4	0.15	Diesel tailpipe from on-road vehicles
4TAIL6	VOLUME	Mobile Equipment Tailpipe - BT4	0.15	Diesel tailpipe from on-road vehicles
4TAIL7	VOLUME	Mobile Equipment Tailpipe - BT4	0.15	Diesel tailpipe from on-road vehicles
5TAIL1	VOLUME	Mobile Equipment Tailpipe - BT5	0.15	Diesel tailpipe from on-road vehicles
5TAIL2	VOLUME	Mobile Equipment Tailpipe - BT5	0.15	Diesel tailpipe from on-road vehicles
5TAIL3	VOLUME	Mobile Equipment Tailpipe - BT5	0.15	Diesel tailpipe from on-road vehicles
5TAIL4	VOLUME	Mobile Equipment Tailpipe - BT5	0.15	Diesel tailpipe from on-road vehicles
5TAIL5	VOLUME	Mobile Equipment Tailpipe - BT5	0.15	Diesel tailpipe from on-road vehicles
5TAIL6	VOLUME	Mobile Equipment Tailpipe - BT5	0.15	Diesel tailpipe from on-road vehicles
5TAIL7	VOLUME	Mobile Equipment Tailpipe - BT5	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL1	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL2	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL3	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL4	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL5	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL6	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL7	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL8	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL9	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL10	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL11	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
WOCTAIL12	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL13	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL14	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL15	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL16	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL17	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL18	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL19	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL20	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL21	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL22	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL23	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL24	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL25	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL26	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL27	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL28	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL29	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL30	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL31	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL32	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL33	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL34	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL35	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL36	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL37	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL38	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL39	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL40	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL41	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL42	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL43	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
WOCTAIL44	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL45	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL46	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL47	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL48	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL49	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL50	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL51	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL52	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL53	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL54	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL55	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL56	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL57	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL58	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL59	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL60	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL61	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL62	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WOCTAIL63	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
AIRTAIL1	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
AIRTAIL2	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
AIRTAIL3	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
AIRTAIL4	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
AIRTAIL5	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
AIRTAIL6	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
AIRTAIL7	VOLUME	Mobile Equipment Tailpipe - WOC	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL1	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL2	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL3	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL4	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
WCFTAIL5	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
WCFTAIL6	VOLUME	Mobile Equipment Tailpipe - WPF	0.15	Diesel tailpipe from on-road vehicles
1MFUGD1	VOLUME	Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD2	VOLUME	Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD3	VOLUME	Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD4	VOLUME	Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD5	VOLUME	Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD6	VOLUME	Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD7	VOLUME	Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD8	VOLUME	Mobile Equipment Fugitive Dust - BT1	-	-
1MFUGD9	VOLUME	Mobile Equipment Fugitive Dust - BT1	-	-
2MFUGD1	VOLUME	Mobile Equipment Fugitive Dust - BT2	-	-
2MFUGD2	VOLUME	Mobile Equipment Fugitive Dust - BT2	-	-
2MFUGD3	VOLUME	Mobile Equipment Fugitive Dust - BT2	-	-
2MFUGD4	VOLUME	Mobile Equipment Fugitive Dust - BT2	-	-
2MFUGD5	VOLUME	Mobile Equipment Fugitive Dust - BT2	-	-
2MFUGD6	VOLUME	Mobile Equipment Fugitive Dust - BT2	-	-
3MFUGD1	VOLUME	Mobile Equipment Fugitive Dust - BT3	-	-
3MFUGD2	VOLUME	Mobile Equipment Fugitive Dust - BT3	-	-
3MFUGD3	VOLUME	Mobile Equipment Fugitive Dust - BT3	-	-
3MFUGD4	VOLUME	Mobile Equipment Fugitive Dust - BT3	-	-
3MFUGD5	VOLUME	Mobile Equipment Fugitive Dust - BT3	-	-
3MFUGD6	VOLUME	Mobile Equipment Fugitive Dust - BT3	-	-
4MFUGD1	VOLUME	Mobile Equipment Fugitive Dust - BT4	-	-
4MFUGD2	VOLUME	Mobile Equipment Fugitive Dust - BT4	-	-
4MFUGD3	VOLUME	Mobile Equipment Fugitive Dust - BT4	-	-
4MFUGD4	VOLUME	Mobile Equipment Fugitive Dust - BT4	-	-
4MFUGD5	VOLUME	Mobile Equipment Fugitive Dust - BT4	-	-
4MFUGD6	VOLUME	Mobile Equipment Fugitive Dust - BT4	-	-
4MFUGD7	VOLUME	Mobile Equipment Fugitive Dust - BT5	-	-
5MFUGD1	VOLUME	Mobile Equipment Fugitive Dust - BT5	-	-
5MFUGD2	VOLUME	Mobile Equipment Fugitive Dust - BT5	-	-
5MFUGD3	VOLUME	Mobile Equipment Fugitive Dust - BT5	-	-

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
5MFUGD4	VOLUME	Mobile Equipment Fugitive Dust - BT5	-	-
5MFUGD5	VOLUME	Mobile Equipment Fugitive Dust - BT5	-	-
5MFUGD6	VOLUME	Mobile Equipment Fugitive Dust - BT5	-	-
5MFUGD7	VOLUME	Mobile Equipment Fugitive Dust - BT5	-	-
WCFMFUGD1	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD2	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD3	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD4	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD5	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WCFMFUGD6	VOLUME	Mobile Equipment Fugitive Dust - WPF	-	-
WOCMFUGD1	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD2	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD3	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD4	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD5	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD6	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD7	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD8	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD9	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD10	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD11	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD12	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD13	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD14	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD15	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD16	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD17	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD18	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD19	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD20	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD21	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD22	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
WOCMFUGD23	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD24	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD25	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD26	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD27	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD28	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD29	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD30	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD31	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD32	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD33	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD34	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD35	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD36	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD37	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD38	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD39	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD40	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD41	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD42	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD43	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD44	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD45	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD46	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD47	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD48	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD49	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD50	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD51	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD52	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD53	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD54	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
WOCMFUGD55	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD56	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD57	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD58	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD59	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD60	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD61	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD62	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
WOCMFUGD63	VOLUME	Mobile Equipment Fugitive Dust - WOC	-	-
AIRMFUGD1	VOLUME	Mobile Equipment Fugitive Dust – WOC	-	-
AIRMFUGD2	VOLUME	Mobile Equipment Fugitive Dust – WOC	-	-
AIRMFUGD3	VOLUME	Mobile Equipment Fugitive Dust – WOC	-	-
AIRMFUGD4	VOLUME	Mobile Equipment Fugitive Dust – WOC	-	-
AIRMFUGD5	VOLUME	Mobile Equipment Fugitive Dust – WOC	-	-
AIRMFUGD6	VOLUME	Mobile Equipment Fugitive Dust – WOC	-	-
AIRMFUGD7	VOLUME	Mobile Equipment Fugitive Dust – WOC	-	-
WOCTEMPTRB1	POINT	WOC - Stationary Combustion Sources - Power Generation Turbine	0.3	Natural gas-fired turbines
WOCTEMPTRB2	POINT	WOC - Stationary Combustion Sources - Power Generation Turbine	0.3	Natural gas-fired turbines
RFDGMT1	POINT	RFD - GMT1	0.2	Diesel tailpipe from non-road equipment
RFDGMT2	POINT	RFD - GMT2	0.2	Diesel tailpipe from non-road equipment
RFDGWPDS1	POINT	RFD - Greater Willow Project Drill Site #1	0.15	Diesel engines/natural gas-fired turbines
RFDGWPDS2	POINT	RFD - Greater Willow Project Drill Site #2	0.15	Diesel engines/natural gas-fired turbines
RFDCD5	POINT	RFD - CD5	0.2	Diesel tailpipe from non-road equipment

Table A.3-8. Alternative D Near-field Model Scenario 5 Emissions Stack Parameters

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
WOCOPSTDR	POINT	3.05	5.4864	0.1016	1.676522	294.2611	-	-	-	-	-
BT1OPSLH	POINT	2.7432	12.2	0.94	5.7	529	-	-	-	-	-
BT1OPSBG	POINT	2.7432	6.1	0.46	15.1	795	-	-	-	-	-
BT1OPSFUG	VOLUME	2.7432	3.7	-	-	-	15.1	3.38	-	-	-
BT1OPSFUGD	VOLUME	2.7432	3.7	-	-	-	26.74	3.38	-	-	-
BT1OPSTEB	POINT	2.7432	5.4864	0.1016	1.676522	283.15	-	-	-	-	-
BT1OPSTD	POINT	2.7432	5.4864	0.1016	1.676522	299.8167	-	-	-	-	-
BT1OPSTCO	POINT	2.7432	5.4864	0.1016	1.676522	277.5944	-	-	-	-	-
BT1WICTH	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT1WICTE	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT1WILCTE	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT2OPSLH	POINT	2.7432	12.2	0.94	5.7	529	-	-	-	-	-
BT2OPSBG	POINT	2.7432	6.1	0.46	15.1	795	-	-	-	-	-
BT2OPSFUG	VOLUME	2.7432	3.7	-	-	-	15.1	3.38	-	-	-
BT2OPSFUGD	VOLUME	2.7432	3.7	-	-	-	26.74	3.38	-	-	-
BT2WICTH	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT2WICTE	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT2WILCTE	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT3OPSFUG	VOLUME	3.66	3.7	-	-	-	15.1	3.38	-	-	-
BT3OPSFUGD	VOLUME	3.66	3.7	-	-	-	26.74	3.38	-	-	-
BT3WICTH	POINT	3.66	3.7	0.356	41.6	644	-	-	-	-	-
BT3WICTE	POINT	3.66	3.7	0.356	41.6	644	-	-	-	-	-
BT3WILCTE	POINT	3.66	3.7	0.356	41.6	644	-	-	-	-	-
BT4OPSLH	POINT	2.7432	12.2	0.94	5.7	529	-	-	-	-	-
BT4OPSBG	POINT	2.7432	6.1	0.46	15.1	795	-	-	-	-	-
BT4OPSFUG	VOLUME	2.7432	3.7	-	-	-	15.1	3.38	-	-	-
BT4OPSFUGD	VOLUME	2.7432	3.7	-	-	-	15.1	3.38	-	-	-
BT4OPSTEB	POINT	2.7432	5.4864	0.1016	1.676522	283.15	-	-	-	-	-
BT4OPSTD	POINT	2.7432	5.4864	0.1016	1.676522	299.8167	-	-	-	-	-
BT4OPSTCO	POINT	2.7432	5.4864	0.1016	1.676522	277.5944	-	-	-	-	-
BT4WICTH	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
BT4WICTE	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT4WILCTE	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT5OPSLH	POINT	2.7432	12.2	0.94	5.7	529	-	-	-	-	-
BT5OPSBG	POINT	2.7432	6.1	0.46	15.1	795	-	-	-	-	-
BT5OPSFUG	VOLUME	2.7432	3.7	-	-	-	15.1	3.38	-	-	-
BT5OPSFUGD	VOLUME	2.7432	3.7	-	-	-	26.74	3.38	-	-	-
BT5WICTH	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT5WICTE	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
BT5WILCTE	POINT	2.7432	3.7	0.356	41.6	644	-	-	-	-	-
WLWTG03A	POINT	3.66	25	2	30	370	-	-	-	-	-
WLWTG03B	POINT	3.66	25	2	30	370	-	-	-	-	-
WLWTG01A	POINT	3.66	30	2	35	370	-	-	-	-	-
WLWTG01B	POINT	3.66	30	2	35	370	-	-	-	-	-
WLWTG02A	POINT	3.66	30	2	35	370	-	-	-	-	-
WLWTG02B	POINT	3.66	30	2	35	370	-	-	-	-	-
WLWTG04	POINT	3.66	25	2	30	550	-	-	-	-	-
WLWTG05	POINT	3.66	25	2	30	550	-	-	-	-	-
WLWGL05	POINT	3.66	5.5	0.3	20	760	-	-	-	-	-
WLWHG03	POINT	3.66	25	1	10	525	-	-	-	-	-
WLWHG04	POINT	3.66	25	1	10	525	-	-	-	-	-
WLWHG01	POINT	3.66	25	1	10	525	-	-	-	-	-
WLWHG02	POINT	3.66	25	1	10	525	-	-	-	-	-
WLWHG06	POINT	3.66	25	1	10	525	-	-	-	-	-
WLWFGLP	POINT	3.66	25	0.2	20	1273	-	-	-	-	-
WLWFGHP	POINT	3.66	25	0.2	20	1273	-	-	-	-	-
WCFOPSDS	POINT	3.66	5.5	0.1	1.68	0	-	-	-	-	-
WCFOPSTSO	POINT	3.66	5.4864	0.1016	1.676522	319.2611	-	-	-	-	-
WCFOPSTCO	POINT	3.66	5.4864	0.1016	1.676522	277.5944	-	-	-	-	-
WCFOPSTUD	POINT	3.66	12.8016	0.1524	0.745121	299.8167	-	-	-	-	-
WCFOPSTLD	POINT	3.66	5.4864	0.1016	1.676522	299.8167	-	-	-	-	-
WCFOPSTEB	POINT	3.66	5.4864	0.1016	1.676522	283.15	-	-	-	-	-
WCFOPSFUG	VOLUME	3.66	3.7	-	-	-	15.1	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
WCFOPSFUGD	VOLUME	3.66	3.7	-	-	-	15.1	3.38	-	-	-
WOCPWRGEN1	POINT	3.05	8.6	0.3	20	760	-	-	-	-	-
WOCPWRGEN2	POINT	3.05	8.6	0.3	20	760	-	-	-	-	-
WOCPWRGEN3	POINT	3.05	8.6	0.3	20	760	-	-	-	-	-
WLWIG01	POINT	3.05	20	0.3	10	1200	-	-	-	-	-
WLWIG02	POINT	3.05	20	0.3	10	1200	-	-	-	-	-
WLWHL05	POINT	3.05	5.5	0.3	10	525	-	-	-	-	-
WOCOPSTJF	POINT	3.05	5.4864	0.1016	1.676522	283.15	-	-	-	-	-
WOCOPSTHC	POINT	3.05	5.4864	0.1016	1.676522	0	-	-	-	-	-
WOCOPSTD	POINT	3.05	5.4864	0.1016	1.676522	299.8167	-	-	-	-	-
WILLOWAIR1	AREAPOLY	3.6576	50.8	-	-	-	-	23.63	-	-	-
WILLOWAIR2	AREAPOLY	3.6576	152.4	-	-	-	-	23.63	-	-	-
WILLOWAIR3	AREAPOLY	3.6576	254	-	-	-	-	23.63	-	-	-
WOCOPSFUGD	VOLUME	3.05	3.7	-	-	-	15.1	3.38	-	-	-
WCFPCE1	AREAPOLY	3.66	13.3	-	-	-	-	12.37	-	-	-
WCFPCE2	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFPCE3	AREAPOLY	3.66	9.38	-	-	-	-	8.72	-	-	-
WCFPCE4	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFPCE5	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFPCE6	AREAPOLY	3.66	13.3	-	-	-	-	12.37	-	-	-
WCFPCE7	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFSCE1	AREAPOLY	3.66	13.3	-	-	-	-	12.37	-	-	-
WCFSCE2	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFSCE3	AREAPOLY	3.66	9.38	-	-	-	-	8.72	-	-	-
WCFSCE4	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFSCE5	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFSCE6	AREAPOLY	3.66	13.3	-	-	-	-	12.37	-	-	-
WCFSCE7	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFNRE1	AREAPOLY	3.66	13.3	-	-	-	-	12.37	-	-	-
WCFNRE2	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFNRE3	AREAPOLY	3.66	9.38	-	-	-	-	8.72	-	-	-
WCFNRE4	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
WCFNRE5	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WCFNRE6	AREAPOLY	3.66	13.3	-	-	-	-	12.37	-	-	-
WCFNRE7	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
WLW2GEN	POINT	3.66	6.1	0.46	15.1	795	-	-	-	-	-
BT3NRE1	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
BT3WIN1	AREAPOLY	3.66	3.63	-	-	-	-	3.38	-	-	-
3WELLINTE	POINT	3.66	6.1	0.46	15.1	795	-	-	-	-	-
BT1NRE1	AREAPOLY	2.74	3.63	-	-	-	-	3.38	-	-	-
BT1WIN1	AREAPOLY	2.74	3.63	-	-	-	-	3.38	-	-	-
1WELLINTE	POINT	2.7432	6.1	0.46	15.1	795	-	-	-	-	-
BT2NRE1	AREAPOLY	2.74	3.63	-	-	-	-	3.38	-	-	-
BT2WIN1	AREAPOLY	2.74	3.63	-	-	-	-	3.38	-	-	-
2WELLINTE	POINT	2.7432	6.1	0.46	15.1	795	-	-	-	-	-
BT4NRE1	AREAPOLY	2.74	3.63	-	-	-	-	3.38	-	-	-
BT4WIN1	AREAPOLY	2.74	3.63	-	-	-	-	3.38	-	-	-
4WELLINTE	POINT	2.7432	6.1	0.46	15.1	795	-	-	-	-	-
BT5NRE1	AREAPOLY	2.74	3.63	-	-	-	-	3.38	-	-	-
BT5WIN1	AREAPOLY	2.74	3.63	-	-	-	-	3.38	-	-	-
5WELLINTE	POINT	2.7432	6.1	0.46	15.1	795	-	-	-	-	-
WOCPCE	AREAPOLY	3.05	3.63	-	-	-	-	3.38	-	-	-
WOCSCE	AREAPOLY	3.05	3.63	-	-	-	-	3.38	-	-	-
WOCNRE	AREAPOLY	3.05	3.63	-	-	-	-	3.38	-	-	-
1TAIL1	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL2	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL3	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL4	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL5	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL6	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL7	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL8	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1TAIL9	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
2TAIL1	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
2TAIL2	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2TAIL3	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2TAIL4	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2TAIL5	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2TAIL6	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
3TAIL1	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
3TAIL2	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
3TAIL3	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
3TAIL4	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
3TAIL5	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
3TAIL6	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
4TAIL1	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4TAIL2	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4TAIL3	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4TAIL4	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4TAIL5	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4TAIL6	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4TAIL7	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5TAIL1	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5TAIL2	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5TAIL3	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5TAIL4	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5TAIL5	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5TAIL6	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5TAIL7	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
WOCTAIL1	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL2	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL3	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL4	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL5	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL6	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL7	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
WOCTAIL8	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL9	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL10	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL11	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL12	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL13	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL14	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL15	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL16	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL17	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL18	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL19	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL20	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL21	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL22	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL23	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL24	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL25	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL26	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL27	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL28	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL29	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL30	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL31	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL32	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL33	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL34	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL35	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL36	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL37	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL38	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL39	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
WOCTAIL40	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL41	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL42	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL43	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL44	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL45	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL46	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL47	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL48	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL49	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL50	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL51	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL52	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL53	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL54	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL55	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL56	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL57	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL58	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL59	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL60	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL61	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL62	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCTAIL63	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
AIRTAIL1	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRTAIL2	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRTAIL3	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRTAIL4	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRTAIL5	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRTAIL6	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRTAIL7	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
WCFTAIL1	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
WCFTAIL2	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL3	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL4	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL5	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFTAIL6	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD1	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD2	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD3	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD4	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD5	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD6	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD7	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD8	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
1MFUGD9	VOLUME	2.13	3.66	-	-	-	9.07	3.38	-	-	-
2MFUGD1	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2MFUGD2	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2MFUGD3	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2MFUGD4	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2MFUGD5	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
2MFUGD6	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
3MFUGD1	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
3MFUGD2	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
3MFUGD3	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
3MFUGD4	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
3MFUGD5	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
3MFUGD6	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
4MFUGD1	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4MFUGD2	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4MFUGD3	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4MFUGD4	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4MFUGD5	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
4MFUGD6	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
4MFUGD7	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5MFUGD1	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5MFUGD2	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5MFUGD3	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5MFUGD4	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5MFUGD5	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5MFUGD6	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
5MFUGD7	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
WCFMFUGD1	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD2	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD3	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD4	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD5	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WCFMFUGD6	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD1	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD2	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD3	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD4	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD5	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD6	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD7	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD8	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD9	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD10	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD11	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD12	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD13	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD14	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD15	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD16	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD17	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD18	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
WOCMFUGD19	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD20	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD21	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD22	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD23	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD24	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD25	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD26	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD27	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD28	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD29	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD30	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD31	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD32	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD33	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD34	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD35	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD36	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD37	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD38	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD39	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD40	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD41	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD42	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD43	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD44	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD45	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD46	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD47	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD48	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD49	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD50	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
WOCMFUGD51	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD52	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD53	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD54	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD55	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD56	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD57	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD58	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD59	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD60	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD61	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD62	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
WOCMFUGD63	VOLUME	2.1336	3.66	-	-	-	9.07	3.38	-	-	-
AIRMFUGD1	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRMFUGD2	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRMFUGD3	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRMFUGD4	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRMFUGD5	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRMFUGD6	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
AIRMFUGD7	VOLUME	2.1336	3.66	-	-	-	6.8	3.38	-	-	-
WOCTEMPTRB1	POINT	3.05	30	2	30	550	-	-	-	-	-
WOCTEMPTRB2	POINT	3.05	30	2	30	550	-	-	-	-	-
RFDGMT1	POINT	1.524	4.88	0.305	35	820	-	-	-	-	-
RFDGMT2	POINT	1.524	12.2	0.94	5.7	529	-	-	-	-	-
RFDGWPDS1	POINT	1.524	3.7	0.356	41.6	644	-	-	-	-	-
RFDGWPDS2	POINT	1.524	3.7	0.356	41.6	644	-	-	-	-	-
RFDCD5	POINT	1.524	4.88	0.305	35	820	-	-	-	-	-

Table A.3-9. Alternative D Near-field Model Scenario 5 Emissions Rates

Source ID	Modeled Emission Rates (g/s)																					Annual Hours
	CO 1-hr and 8-hr	NO_x 1-hr	NO_x Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	Benzene 1-hr	Benzene Annual[1]	Toluene 1-hr	Toluene Annual[1]	E-Benzene 1-hr	E-Benzene Annual[1]	Xylenes 1-hr	Xylenes Annual[1]	n-Hexane 1-hr	n-Hexane Annual[1]	Formaldehyde 1-hr	Formaldehyde Annual[1]	
WOCOPSTDR	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.85E-05	5.85E-05	2.85E-05	2.85E-05	3.88E-06	3.88E-06	1.14E-05	1.14E-05	6.29E-05	6.29E-05	0.00E+00	0.00E+00	8760
BT1OPSLH	5.19E-02	6.18E-02	6.18E-02	4.69E-03	4.69E-03	4.69E-03	4.17E-03	4.17E-03	4.17E-03	1.30E-06	1.30E-06	2.10E-06	2.10E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.11E-03	1.11E-03	4.63E-05	4.63E-05	8760
BT1OPSBG	1.16E+00	1.16E+00	6.63E-02	3.35E-02	3.35E-02	1.91E-03	2.21E-03	2.21E-03	1.26E-04	1.10E-03	6.29E-05	3.99E-04	2.28E-05	0.00E+00	0.00E+00	2.74E-04	1.56E-05	0.00E+00	0.00E+00	1.12E-04	6.39E-06	500
BT1OPSFUG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.80E-03	2.80E-03	8.20E-03	8.20E-03	7.37E-02	7.37E-02	1.45E-01	1.45E-01	1.80E-01	1.80E-01	0.00E+00	0.00E+00	8760
BT1OPSFUGD	0.00E+00	0.00E+00	0.00E+00	2.57E-02	3.86E-03	3.86E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
BT1OPSTEB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.19E-05	5.19E-05	4.73E-05	4.73E-05	3.74E-06	3.74E-06	1.55E-05	1.55E-05	2.17E-04	2.17E-04	0.00E+00	0.00E+00	8760
BT1OPSTD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.31E-07	4.31E-07	5.90E-06	5.90E-06	8.63E-07	8.63E-07	1.58E-05	1.58E-05	1.44E-07	1.44E-07	0.00E+00	0.00E+00	8760
BT1OPSTCO	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.98E-05	9.98E-05	4.37E-05	4.37E-05	5.32E-06	5.32E-06	1.54E-05	1.54E-05	1.13E-04	1.13E-04	0.00E+00	0.00E+00	8760
BT1WICTH	4.57E-02	1.83E-01	7.20E-02	2.17E-02	1.94E-02	7.67E-03	1.94E-03	1.94E-03	7.67E-04	1.95E-06	7.71E-07	5.66E-05	2.23E-05	5.81E-07	2.29E-07	9.95E-07	3.93E-07	0.00E+00	0.00E+00	3.01E-04	1.19E-04	288
BT1WICTE	6.21E-02	9.32E-02	3.68E-02	4.97E-03	4.97E-03	1.96E-03	8.23E-05	8.23E-05	3.25E-05	4.94E-05	1.95E-05	2.16E-05	8.54E-06	0.00E+00	0.00E+00	1.51E-05	5.95E-06	0.00E+00	0.00E+00	6.24E-05	2.46E-05	288
BT1WILCTE	4.75E-01	8.68E-01	3.43E-01	2.71E-02	2.71E-02	1.07E-02	1.00E-03	1.00E-03	3.95E-04	4.48E-04	1.77E-04	1.62E-04	6.40E-05	0.00E+00	0.00E+00	1.11E-04	4.40E-05	0.00E+00	0.00E+00	4.56E-05	1.80E-05	288
BT2OPSLH	5.19E-02	6.18E-02	6.18E-02	4.69E-03	4.69E-03	4.69E-03	4.17E-03	4.17E-03	4.17E-03	1.30E-06	1.30E-06	2.10E-06	2.10E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.11E-03	1.11E-03	4.63E-05	4.63E-05	8760
BT2OPSBG	1.16E+00	1.16E+00	6.63E-02	3.35E-02	3.35E-02	1.91E-03	2.21E-03	2.21E-03	1.26E-04	1.10E-03	6.29E-05	3.99E-04	2.28E-05	0.00E+00	0.00E+00	2.74E-04	1.56E-05	0.00E+00	0.00E+00	1.12E-04	6.39E-06	500
BT2OPSFUG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.80E-03	2.80E-03	8.20E-03	8.20E-03	7.37E-02	7.37E-02	1.45E-01	1.45E-01	1.80E-01	1.80E-01	0.00E+00	0.00E+00	8760
BT2OPSFUGD	0.00E+00	0.00E+00	0.00E+00	2.57E-02	3.86E-03	3.86E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
BT2WICTH	4.57E-02	1.83E-01	7.20E-02	2.17E-02	1.94E-02	7.67E-03	1.94E-03	1.94E-03	7.67E-04	1.95E-06	7.71E-07	5.66E-05	2.23E-05	5.81E-07	2.29E-07	9.95E-07	3.93E-07	0.00E+00	0.00E+00	3.01E-04	1.19E-04	288
BT2WICTE	6.21E-02	9.32E-02	3.68E-02	4.97E-03	4.97E-03	1.96E-03	8.23E-05	8.23E-05	3.25E-05	4.94E-05	1.95E-05	2.16E-05	8.54E-06	0.00E+00	0.00E+00	1.51E-05	5.95E-06	0.00E+00	0.00E+00	6.24E-05	2.46E-05	288
BT2WILCTE	4.75E-01	8.68E-01	3.43E-01	2.71E-02	2.71E-02	1.07E-02	1.00E-03	1.00E-03	3.95E-04	4.48E-04	1.77E-04	1.62E-04	6.40E-05	0.00E+00	0.00E+00	1.11E-04	4.40E-05	0.00E+00	0.00E+00	4.56E-05	1.80E-05	288
BT3OPSFUG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.75E-03	2.75E-03	8.02E-03	8.02E-03	7.29E-02	7.29E-02	1.44E-01	1.44E-01	1.77E-01	1.77E-01	0.00E+00	0.00E+00	8760
BT3OPSFUGD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
BT3WICTH	4.57E-02	1.83E-01	7.20E-02	2.17E-02	1.94E-02	7.67E-03	1.94E-03	1.94E-03	7.67E-04	1.95E-06	7.71E-07	5.66E-05	2.23E-05	5.81E-07	2.29E-07	9.95E-07	3.93E-07	0.00E+00	0.00E+00	3.01E-04	1.19E-04	288
BT3WICTE	6.21E-02	9.32E-02	3.68E-02	4.97E-03	4.97E-03	1.96E-03	8.23E-05	8.23E-05	3.25E-05	4.94E-05	1.95E-05	2.16E-05	8.54E-06	0.00E+00	0.00E+00	1.51E-05	5.95E-06	0.00E+00	0.00E+00	6.24E-05	2.46E-05	288
BT3WILCTE	4.75E-01	8.68E-01	3.43E-01	2.71E-02	2.71E-02	1.07E-02	1.00E-03	1.00E-03	3.95E-04	4.48E-04	1.77E-04	1.62E-04	6.40E-05	0.00E+00	0.00E+00	1.11E-04	4.40E-05	0.00E+00	0.00E+00	4.56E-05	1.80E-05	288
BT4OPSLH	5.19E-02	6.18E-02	6.18E-02	4.69E-03	4.69E-03	4.69E-03	4.17E-03	4.17E-03	4.17E-03	1.30E-06	1.30E-06	2.10E-06	2.10E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.11E-03	1.11E-03	4.63E-05	4.63E-05	8760
BT4OPSBG	1.16E+00	1.16E+00	6.63E-02	3.35E-02	3.35E-02	1.91E-03	2.21E-03	2.21E-03	1.26E-04	1.10E-03	6.29E-05	3.99E-04	2.28E-05	0.00E+00	0.00E+00	2.74E-04	1.56E-05	0.00E+00	0.00E+00	1.12E-04	6.39E-06	500
BT4OPSFUG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.20E-03	2.20E-03	6.44E-03	6.44E-03	5.81E-02	5.81E-02	1.14E-01	1.14E-01	1.42E-01	1.42E-01	0.00E+00	0.00E+00	8760
BT4OPSFUGD	0.00E+00	0.00E+00	0.00E+00	2.18E-02	3.27E-03	3.27E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
BT4OPSTEB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.19E-05	5.19E-05	4.73E-05	4.73E-05	3.74E-06	3.74E-06	1.55E-05	1.55E-05	2.17E-04	2.17E-04	0.00E+00	0.00E+00	8760
BT4OPSTD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.31E-07	4.31E-07	5.90E-06	5.90E-06	8.63E-07	8.63E-07	1.58E-05	1.58E-05	1.44E-07	1.44E-07	0.00E+00	0.00E+00	8760
BT4OPSTCO	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.98E-05	9.98E-05	4.37E-05	4.37E-05	5.32E-06	5.32E-06	1.54E-05	1.54E-05	1.13E-04	1.13E-04	0.00E+00	0.00E+00	8760
BT4WICTH	4.57E-02	1.83E-01	7.20E-02	2.17E-02	1.94E-02	7.67E-03	1.94E-03	1.94E-03	7.67E-04	1.95E-06	7.71E-07	5.66E-05	2.23E-05	5.81E-07	2.29E-07	9.95E-07	3.93E-07	0.00E+00	0.00E+00	3.01E-04	1.19E-04	288
BT4WICTE	6.21E-02	9.32E-02	3.68E-02	4.97E-03	4.97E-03	1.96E-03	8.23E-05	8.23E-05	3.25E-05	4.94E-05	1.95E-05	2.16E-05	8.54E-06	0.00E+00	0.00E+00	1.51E-05	5.95E-06	0.00E+00	0.00E+00	6.24E-05	2.46E-05	288
BT4WILCTE	4.75E-01	8.68E-01	3.43E-01	2.71E-02	2.71E-02	1.07E-02	1.00E-03	1.00E-03	3.95E-04	4.48E-04	1.77E-04	1.62E-04	6.40E-05	0.00E+00	0.00E+00	1.11E-04	4.40E-05	0.00E+00	0.00E+00	4.56E-05	1.80E-05	288
BT5OPSLH	5.19E-02	6.18E-02	6.18E-02	4.69E-03	4.69E-03	4.69E-03	4.17E-03	4.17E-03	4.17E-03	1.30E-06	1.30E-06	2.10E-06	2.10E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.11E-03	1.11E-03	4.63E-05	4.63E-05	8760
BT5OPSBG	1.16E+00	1.16E+00	6.63E-02	3.35E-02	3.35E-02	1.91E-03	2.21E-03	2.21E-03	1.26E-04	1.10E-03	6.29E-05	3.99E-04	2.28E-05	0.00E+00	0.00E+00	2.74E-04	1.56E-05	0.00E+00	0.00E+00	1.12E-04	6.39E-06	500
BT5OPSFUG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.20E-03	2.20E-03	6.44E-03	6.44E-03	5.81E-02	5.81E-02	1.14E-01	1.14E-01	1.42E-01	1.42E-01	0.00E+00	0.00E+00	8760
BT5OPSFUGD	0.00E+00	0.00E+00	0.00E+00	2.18E-02	3.27E-03	3.27E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
BT5WICTH	4.57E-02	1.83E-01	7.20E-02	2.17E-02	1.94E-02	7.67E-03	1.94E-03	1.94E-03	7.67E-04	1.95E-06	7.71E-07	5.66E-05	2.23E-05	5.81E-07	2.29E-07	9.95E-07	3.93E-07	0.00E+00	0.00E+00	3.01E-04	1.19E-04	288
BT5WICTE	6.21E-02	9.32E-02	3.68E-02	4.97E-03	4.97E-03	1.96E-03	8.23E-05	8.23E-05	3.25E-05	4.94E-05	1.95E-05	2.16E-05	8.54E-06	0.00E+00	0.00E+00	1.51E-05	5.95E-06	0.00E+00	0.00E+00	6.24E-05	2.46E-05	288
BT5WILCTE	4.75E-01	8.68E-01	3.43E-01	2.71E-02	2.71E-02	1.07E-02	1.00E-03	1.00E-03	3.95E-04	4.48E-04	1.77E-04	1.62E-04	6.40E-05	0.00E+00	0.00E+00	1.11E-04	4.40E-05	0.00E+00	0.00E+00	4.56E-05	1.80E-05	288
WLWTG03A	1.93E+00	1.91E+00	1.91E+00	2.21E-01	2.21E-01	2.21E-01	2.22E-01	2.22E-01	2.22E-01	4.02E-04	4.02E-04	4.36E-03	4.36E-03	1.07E-03	1.07E-03	2.15E-03	2.15E-03	0.00E+00	0.00E+00	7.37E-03	7.37E-03	8760
WLWTG03B	1.93E+00	1.91E+00	1.91E+00	2.21E-01	2.21E-01	2.21E-01	2.22E-01	2.22E-01	2.22E-01	4.02E-04	4.02E-04	4.36E-03	4.36E-03	1.07E-03	1.07E-03	2.15E-03	2.15E-03	0.00E+00	0.00E+00	7.37E-03	7.37E-03	8760
WLWTG01A	1.47E+00	1.45E+00	1.45E+00	1.68E-01	1.68E-01	1.68E-01	1.69E-01	1.69E-01	1.69E-01	3.06E-04	3.06E-04	3.32E-03	3.32E-03	8.17E-04	8.17E-04	1.63E-03	1.63E-03	0.00E+00	0.00E+00	5.62E-03	5.62E-03	8760
WLWTG01B	1.47E+00	1.45E+00	1.45E+00	1.68E-01	1.68E-01	1.68E-01	1.69E-01	1.69E-01	1.69E-01	3.06E-04	3.06E-04	3.32E-03	3.32E-03	8.17E-04	8.17E-04	1.63E-03	1.63E-03	0.00E+00	0.00E+00	5.62E-03	5.62E-03	8760
WLWTG02A	1.47E+00	1.45E+00	1.45E+00	1.68E-01	1.68E-01	1.68E-01	1.69E-01	1.69E-01	1.69E-01	3.06E-04	3.06E-04	3.32E-03	3.32E-03	8.17E-04	8.17E-04	1.63E-03	1.63E-03	0.00E+00	0.00E+00	5.62E-03	5.62E-03	8760
WLWTG02B	1.47E+00	1.45E+00	1.45E+00	1.68E-01	1.68E-01	1.68E-01	1.69E-01	1.69E-01	1.69E-01	3.06E-04	3.06E-04	3.32E-03	3.32E-03	8.17E-04	8.17E-04	1.63E-03	1.63E-03	0.00E+00	0.00E+00	5.62E-03	5.62E-03	8760
WLWTG04	5.67E-01	6.08E-01	6.08E-01	5.28E-02	5.28E-02	5.28E-02	5.06E-02	5.06E-02	5.06E-02	1.17E-04	1.17E-04	1.05E-03	1.05E-03	2.59E-04	2.59E-04	5.19E-04	5.19E-04	0.00E+00	0.00E+00	1.81E-03	1.81E-03	8760
WLWTG05	5.67E-01	6.08E-01	6.08E-01	5.28E-02	5.28E-02	5.28E-02	5.06E-02	5.06E-02	5.06E-02	1.17E-04	1.17E-04	1.05E-03	1.05E-03	2.59E-04	2.59E-04	5.19E-04	5.19E-04	0.00E+00	0.00E+00	1.81E-03	1.81E-03	8760
WLWGL05	6.48E-01	1.19E+00	6.76E-02	3.70E-02	3.70E-02	2.11E-03	1.22E-03	1.22E-03	6.99E-05	6.12E-04	3.49E-05	2.22E-04	1.26E-05	0.00E+00	0.00E+00	1.52E-04	8.69E-06	0.00E+00	0.00E+00	6.22E-05	3.55E-06	500
WLWHG03	3.42E-01	4.08E-01	4.08E-01	3.10E-02	3.10E-02	3.10E-02	2.75E-02	2.75E-02	2.75E-02	8.56E-06	8.56E-06	1.39E-05	1.39E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.88E-05	1.88E-05	3.06E-04	3.06E-04	8760
WLWHG04	3.42E-01	4.08E-01	4.08E-01	3.10E-02	3.10E-02	3.10E-02	2.75E-02	2.75E-02	2.75E-02	8.56E-06	8.56E-06	1.39E-05	1.39E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.88E-05	1.88E-05	3.06E-04	3.06E-04	8760
WLWHG01	2.08E-01	2.47E-01	2.47E-01	1.88E-02	1.88E-02	1.88E-02	1.67E-02	1.67E-02	1.67E-02	5.19E-06	5.19E-06	8.40E-06	8.40E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.14E-05	1.14E-05	1.85E-04	1.85E-04	8760
WLWHG02	2.08E-01	2.47E-01	2.47E-01	1.88E-02	1.88E-02	1.88E-02	1.67E-02	1.67E-02	1.67E-02	5.19E-06	5.19E-06	8.40E-06	8.40E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.14E-05	1.14E-05	1.85E-04	1.85E-04	8760
WLWHG06	3.84E-01	4.57E-01	4.57E-01	3.47E-02	3.47E-02	3.47E-02	3.09E-02	3.09E-02	3.09E-02	9.60E-06	9.60E-06	1.55E-05	1.55E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.10E-05	2.10E-05	3.43E-04	3.43E-04	8760

Source ID	Modeled Emission Rates (g/s)																					Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	Benzene 1-hr	Benzene Annual[1]	Toluene 1-hr	Toluene Annual[1]	E-Benzene 1-hr	E-Benzene Annual[1]	Xylenes 1-hr	Xylenes Annual[1]	n-Hexane 1-hr	n-Hexane Annual[1]	Formaldehyde 1-hr	Formaldehyde Annual[1]	
WLWFGLP	4.15E-02	4.94E-02	4.94E-02	3.76E-03	3.76E-03	3.76E-03	3.34E-03	3.34E-03	3.34E-03	1.04E-06	1.04E-06	1.68E-06	1.68E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.11E-06	3.11E-06	3.71E-05	3.71E-05	8760
WLWFGHP	4.15E-02	4.94E-02	4.94E-02	3.76E-03	3.76E-03	3.76E-03	3.34E-03	3.34E-03	3.34E-03	1.04E-06	1.04E-06	1.68E-06	1.68E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.11E-06	3.11E-06	3.71E-05	3.71E-05	8760
WCFOPSDS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.71E-06	3.71E-06	4.50E-05	4.50E-05	6.45E-06	6.45E-06	1.20E-04	1.20E-04	8.06E-07	8.06E-07	0.00E+00	0.00E+00	8760
WCFOPSTSO	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.89E-04	6.89E-04	3.83E-04	3.83E-04	6.00E-05	6.00E-05	1.78E-04	1.78E-04	6.94E-04	6.94E-04	0.00E+00	0.00E+00	8760
WCFOPSTCO	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.98E-05	9.98E-05	4.37E-05	4.37E-05	5.32E-06	5.32E-06	1.54E-05	1.54E-05	1.13E-04	1.13E-04	0.00E+00	0.00E+00	8760
WCFOPSTUD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.31E-06	3.31E-06	4.01E-05	4.01E-05	5.75E-06	5.75E-06	1.07E-04	1.07E-04	7.19E-07	7.19E-07	0.00E+00	0.00E+00	8760
WCFOPSTLD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.88E-07	2.88E-07	3.88E-06	3.88E-06	5.75E-07	5.75E-07	1.05E-05	1.05E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
WCFOPSTEB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.19E-05	5.19E-05	4.73E-05	4.73E-05	3.74E-06	3.74E-06	1.55E-05	1.55E-05	2.17E-04	2.17E-04	0.00E+00	0.00E+00	8760
WCFOPSFUG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.52E-04	3.52E-04	1.49E-03	1.49E-03	1.41E-03	1.41E-03	2.22E-03	2.22E-03	1.33E-02	1.33E-02	0.00E+00	0.00E+00	8760
WCFOPSFUGD	0.00E+00	0.00E+00	0.00E+00	9.79E-02	1.47E-02	1.47E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCPWRGEN1	1.30E+00	1.30E+00	6.48E-01	3.70E-02	3.70E-02	1.85E-02	2.45E-03	2.45E-03	1.22E-03	1.22E-03	6.12E-04	4.43E-04	2.22E-04	0.00E+00	0.00E+00	3.04E-04	1.52E-04	0.00E+00	0.00E+00	1.24E-04	6.22E-05	4380
WOCPWRGEN2	1.30E+00	1.30E+00	6.48E-01	3.70E-02	3.70E-02	1.85E-02	2.45E-03	2.45E-03	1.22E-03	1.22E-03	6.12E-04	4.43E-04	2.22E-04	0.00E+00	0.00E+00	3.04E-04	1.52E-04	0.00E+00	0.00E+00	1.24E-04	6.22E-05	4380
WOCPWRGEN3	1.30E+00	1.30E+00	6.48E-01	3.70E-02	3.70E-02	1.85E-02	2.45E-03	2.45E-03	1.22E-03	1.22E-03	6.12E-04	4.43E-04	2.22E-04	0.00E+00	0.00E+00	3.04E-04	1.52E-04	0.00E+00	0.00E+00	1.24E-04	6.22E-05	4380
WLWIG01	3.99E-02	9.94E-02	8.28E-02	1.36E-01	1.36E-01	1.13E-01	3.54E-03	3.54E-03	2.95E-03	9.34E-07	7.78E-07	1.51E-06	1.26E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.80E-06	2.33E-06	3.34E-05	2.78E-05	7300
WLWIG02	3.99E-02	9.94E-02	8.28E-02	1.36E-01	1.36E-01	1.13E-01	3.54E-03	3.54E-03	2.95E-03	9.34E-07	7.78E-07	1.51E-06	1.26E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.80E-06	2.33E-06	3.34E-05	2.78E-05	7300
WLWHL05	5.93E-03	2.37E-02	2.37E-02	2.82E-03	2.53E-03	2.53E-03	2.54E-04	2.54E-04	2.54E-04	2.54E-07	2.54E-07	7.36E-06	7.36E-06	7.55E-08	7.55E-08	1.29E-07	1.29E-07	0.00E+00	0.00E+00	3.92E-05	3.92E-05	8760
WOCOPSTJF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.01E-06	1.01E-06	8.49E-06	8.49E-06	2.59E-06	2.59E-06	5.18E-06	5.18E-06	2.01E-06	2.01E-06	0.00E+00	0.00E+00	8760
WOCOPSTHC	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.50E-05	8.50E-05	3.37E-05	3.37E-05	3.60E-06	3.60E-06	1.05E-05	1.05E-05	1.02E-04	1.02E-04	0.00E+00	0.00E+00	8760
WOCOPSTD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.88E-07	2.88E-07	2.73E-06	2.73E-06	4.31E-07	4.31E-07	7.19E-06	7.19E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8760
WILLOWAIR1	1.51E-07	4.48E-08	4.48E-08	1.87E-09	1.87E-09	1.87E-09	6.62E-09	6.62E-09	6.62E-09	4.23E-10	4.23E-10	1.81E-10	1.81E-10	4.82E-11	4.82E-11	1.16E-10	1.16E-10	1.23E-11	1.23E-11	3.08E-09	3.08E-09	8760
WILLOWAIR2	1.51E-07	4.48E-08	4.48E-08	1.87E-09	1.87E-09	1.87E-09	6.62E-09	6.62E-09	6.62E-09	4.23E-10	4.23E-10	1.81E-10	1.81E-10	4.82E-11	4.82E-11	1.16E-10	1.16E-10	1.23E-11	1.23E-11	3.08E-09	3.08E-09	8760
WILLOWAIR3	1.51E-07	4.48E-08	4.48E-08	1.87E-09	1.87E-09	1.87E-09	6.62E-09	6.62E-09	6.62E-09	4.23E-10	4.23E-10	1.81E-10	1.81E-10	4.82E-11	4.82E-11	1.16E-10	1.16E-10	1.23E-11	1.23E-11	3.08E-09	3.08E-09	8760
WOCOPSFUGD	0.00E+00	0.00E+00	0.00E+00	1.62E-01	2.43E-02	2.43E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WCFPCE1	3.26E-07	1.49E-06	1.49E-06	1.12E-07	1.11E-07	1.11E-07	1.93E-09	1.93E-09	1.93E-09	2.87E-10	2.87E-10	1.67E-10	1.67E-10	8.76E-11	8.76E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.85E-10	5.85E-10	8760
WCFPCE2	3.26E-07	1.49E-06	1.49E-06	1.12E-07	1.11E-07	1.11E-07	1.93E-09	1.93E-09	1.93E-09	2.87E-10	2.87E-10	1.67E-10	1.67E-10	8.76E-11	8.76E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.85E-10	5.85E-10	8760
WCFPCE3	3.26E-07	1.49E-06	1.49E-06	1.12E-07	1.11E-07	1.11E-07	1.93E-09	1.93E-09	1.93E-09	2.87E-10	2.87E-10	1.67E-10	1.67E-10	8.76E-11	8.76E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.85E-10	5.85E-10	8760
WCFPCE4	3.26E-07	1.49E-06	1.49E-06	1.12E-07	1.11E-07	1.11E-07	1.93E-09	1.93E-09	1.93E-09	2.87E-10	2.87E-10	1.67E-10	1.67E-10	8.76E-11	8.76E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.85E-10	5.85E-10	8760
WCFPCE5	3.26E-07	1.49E-06	1.49E-06	1.12E-07	1.11E-07	1.11E-07	1.93E-09	1.93E-09	1.93E-09	2.87E-10	2.87E-10	1.67E-10	1.67E-10	8.76E-11	8.76E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.85E-10	5.85E-10	8760
WCFPCE6	3.26E-07	1.49E-06	1.49E-06	1.12E-07	1.11E-07	1.11E-07	1.93E-09	1.93E-09	1.93E-09	2.87E-10	2.87E-10	1.67E-10	1.67E-10	8.76E-11	8.76E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.85E-10	5.85E-10	8760
WCFPCE7	3.26E-07	1.49E-06	1.49E-06	1.12E-07	1.11E-07	1.11E-07	1.93E-09	1.93E-09	1.93E-09	2.87E-10	2.87E-10	1.67E-10	1.67E-10	8.76E-11	8.76E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.85E-10	5.85E-10	8760
WCFSCE1	2.42E-07	3.03E-07	3.03E-07	2.32E-08	2.32E-08	2.32E-08	2.06E-08	2.06E-08	2.06E-08	6.41E-12	6.41E-12	1.04E-11	1.04E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.92E-11	1.92E-11	2.29E-10	2.29E-10	8760
WCFSCE2	2.42E-07	3.03E-07	3.03E-07	2.32E-08	2.32E-08	2.32E-08	2.06E-08	2.06E-08	2.06E-08	6.41E-12	6.41E-12	1.04E-11	1.04E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.92E-11	1.92E-11	2.29E-10	2.29E-10	8760
WCFSCE3	2.42E-07	3.03E-07	3.03E-07	2.32E-08	2.32E-08	2.32E-08	2.06E-08	2.06E-08	2.06E-08	6.41E-12	6.41E-12	1.04E-11	1.04E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.92E-11	1.92E-11	2.29E-10	2.29E-10	8760
WCFSCE4	2.42E-07	3.03E-07	3.03E-07	2.32E-08	2.32E-08	2.32E-08	2.06E-08	2.06E-08	2.06E-08	6.41E-12	6.41E-12	1.04E-11	1.04E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.92E-11	1.92E-11	2.29E-10	2.29E-10	8760
WCFSCE5	2.42E-07	3.03E-07	3.03E-07	2.32E-08	2.32E-08	2.32E-08	2.06E-08	2.06E-08	2.06E-08	6.41E-12	6.41E-12	1.04E-11	1.04E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.92E-11	1.92E-11	2.29E-10	2.29E-10	8760
WCFSCE6	2.42E-07	3.03E-07	3.03E-07	2.32E-08	2.32E-08	2.32E-08	2.06E-08	2.06E-08	2.06E-08	6.41E-12	6.41E-12	1.04E-11	1.04E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.92E-11	1.92E-11	2.29E-10	2.29E-10	8760
WCFSCE7	2.42E-07	3.03E-07	3.03E-07	2.32E-08	2.32E-08	2.32E-08	2.06E-08	2.06E-08	2.06E-08	6.41E-12	6.41E-12	1.04E-11	1.04E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.92E-11	1.92E-11	2.29E-10	2.29E-10	8760
WCFNRE1	1.44E-06	6.68E-06	6.68E-06	4.74E-07	4.74E-07	4.74E-07	2.34E-09	2.34E-09	2.34E-09	1.41E-09	1.41E-09	6.17E-10	6.17E-10	4.30E-10	4.30E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.78E-09	1.78E-09	8760
WCFNRE2	1.44E-06	6.68E-06	6.68E-06	4.74E-07	4.74E-07	4.74E-07	2.34E-09	2.34E-09	2.34E-09	1.41E-09	1.41E-09	6.17E-10	6.17E-10	4.30E-10	4.30E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.78E-09	1.78E-09	8760
WCFNRE3	1.44E-06	6.68E-06	6.68E-06	4.74E-07	4.74E-07	4.74E-07	2.34E-09	2.34E-09	2.34E-09	1.41E-09	1.41E-09	6.17E-10	6.17E-10	4.30E-10	4.30E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.78E-09	1.78E-09	8760
WCFNRE4	1.44E-06	6.68E-06	6.68E-06	4.74E-07	4.74E-07	4.74E-07	2.34E-09	2.34E-09	2.34E-09	1.41E-09	1.41E-09	6.17E-10	6.17E-10	4.30E-10	4.30E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.78E-09	1.78E-09	8760
WCFNRE5	1.44E-06	6.68E-06	6.68E-06	4.74E-07	4.74E-07	4.74E-07	2.34E-09	2.34E-09	2.34E-09	1.41E-09	1.41E-09	6.17E-10	6.17E-10	4.30E-10	4.30E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.78E-09	1.78E-09	8760
WCFNRE6	1.44E-06	6.68E-06	6.68E-06	4.74E-07	4.74E-07	4.74E-07	2.34E-09	2.34E-09	2.34E-09	1.41E-09	1.41E-09	6.17E-10	6.17E-10	4.30E-10	4.30E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.78E-09	1.78E-09	8760
WCFNRE7	1.44E-06	6.68E-06	6.68E-06	4.74E-07	4.74E-07	4.74E-07	2.34E-09	2.34E-09	2.34E-09	1.41E-09	1.41E-09	6.17E-10	6.17E-10	4.30E-10	4.30E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.78E-09	1.78E-09	8760
WLW2GEN	1.19E-01	5.87E-01	6.08E-01	3.46E-02	3.46E-02	3.53E-02	3.51E-04	3.51E-04	3.51E-04	1.91E-04	2.05E-04	7.62E-05	8.20E-05	5.24E-05	5.24E-05	2.47E-07	4.32E-06	0.00E+00	0.00E+00	1.24E-04	1.41E-04	8760
BT3NRE1	9.65E-07	1.03E-06	1.03E-07	1.03E-07	1.02E-07	1.02E-08	2.14E-09	2.14E-09	2.14E-10	6.57E-10	6.57E-11	3.18E-10	3.18E-11	3.12E-13	3.12E-14	2.01E-10	2.01E-11	0.00E+00	0.00E+00	6.10E-10	6.10E-11	876
BT3WIN1	1.31E-06	1.83E-06	7.23E-07	1.88E-07	1.79E-07	7.05E-08	8.96E-09	8.96E-09	3.53E-09	8.44E-10	3.33E-10	5.87E-10	2.32E-10	2.26E-12	8.91E-13	2.59E-10	1.02E-10	0.00E+00	0.00E+00	2.16E-09	8.53E-10	288
3WELLINTE	2.46E-01	2.81E-01	1.11E-01	1.40E-02	1.40E-02	5.54E-03	5.18E-04	5.18E-04	2.04E-04	2.32E-04	9.15E-05	8.40E-05	3.31E-05	0.00E+00	0.00E+00	5.77E-05	2.28E-05	0.00E+00	0.00E+00	2.36E-05	9.30E-06	288
BT1NRE1	9.65E-07	1.03E-06	1.03E-07	1.03E-07	1.02E-07	1.02E-08	2.14E-09	2.14E-09	2.14E-10	6.57E-10	6.57E-11	3.18E-10	3.18E-11	3.12E-13	3.12E-14	2.01E-10	2.01E-11	0.00E+00	0.00E+00	6.10E-10	6.10E-11	876
BT1WIN1	1.31E-06	1.83E-06	7.23E-07	1.88E-07	1.79E-07	7.05E-08	8.96E-09	8.96E-09	3.53E-09	8.44E-10	3.33E-10	5.87E-10	2.32E-10	2.26E-12	8.91E-13	2.59E-10	1.02E-10	0.00E+00	0.00E+00	2.16E-09	8.53E-10	288
1WELLINTE	2.46E-01	2.81E-01	1.11E-01	1.40E-02	1.40E-02	5.54E-03	5.18E-04	5.18E-04	2.04E-04	2.32E-04	9.15E-05	8.40E-05	3.31E-05	0.00E+00	0.00E+00	5.77E-05	2.28E-05	0.00E+00	0.00E+00	2.36E-05	9.30E-06	288
BT2NRE1	9.65E-07	1.03E-06	1.03E-07	1.03E-07	1.02E-07	1.02E-08	2.14E-09	2.14E-09	2.14E-10	6.57E-10	6.57E-11	3.18E-10	3.18E-11	3.12E-13	3.12E-14	2.01E-10	2.01E-11	0.00E+00	0.00E+00	6.10E-10	6.10E-11	876
BT2WIN1	1.31E-06	1.83E-06	7.23E-07	1.88E-07	1.79E-07	7.05E-08	8.96E-09	8.96E-09	3.53E-09	8.44E-10	3.33E-10	5.87E-10	2.32E-10	2.26E-12	8.91E-13	2.59E-10	1.02E-10	0.00E+00	0.00E+00	2.16E-09	8.53E-10	288
2WELLINTE	2.46E-01	2.81E-01	1.11E-01	1.40E-02	1.40E-02	5.54E-03	5.18E-04	5.18E-04	2.04E-04	2.32E-04	9.15E-05	8.40E-05	3.31E-05	0.00E+00	0.00E+00	5.77E-05	2.28E-05	0.00E+00	0.00E+00	2.36E-05	9.30E-06	288
BT4NRE1	9.65E-07	1.03E-06	1.03E-07	1.03E-07	1.02E-07	1.02E-08	2.14E-09	2.14E-09	2.14E-10	6.57E-10	6.57E-11	3.18E-10	3.18E-11	3.12E-13	3.12E-14	2.01E-10	2.01E-11	0.00E+00	0.00E+00	6.10E-10	6.10E-11	876

Source ID	Modeled Emission Rates (g/s)																					Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	Benzene 1-hr	Benzene Annual[1]	Toluene 1-hr	Toluene Annual[1]	E-Benzene 1-hr	E-Benzene Annual[1]	Xylenes 1-hr	Xylenes Annual[1]	n-Hexane 1-hr	n-Hexane Annual[1]	Formaldehyde 1-hr	Formaldehyde Annual[1]	
BT4WIN1	1.31E-06	1.83E-06	7.23E-07	1.88E-07	1.79E-07	7.05E-08	8.96E-09	8.96E-09	3.53E-09	8.44E-10	3.33E-10	5.87E-10	2.32E-10	2.26E-12	8.91E-13	2.59E-10	1.02E-10	0.00E+00	0.00E+00	2.16E-09	8.53E-10	288
4WELLINTE	2.46E-01	2.81E-01	1.11E-01	1.40E-02	1.40E-02	5.54E-03	5.18E-04	5.18E-04	2.04E-04	2.32E-04	9.15E-05	8.40E-05	3.31E-05	0.00E+00	0.00E+00	5.77E-05	2.28E-05	0.00E+00	0.00E+00	2.36E-05	9.30E-06	288
BT5NRE1	9.65E-07	1.03E-06	1.03E-07	1.03E-07	1.02E-07	1.02E-08	2.14E-09	2.14E-09	2.14E-10	6.57E-10	6.57E-11	3.18E-10	3.18E-11	3.12E-13	3.12E-14	2.01E-10	2.01E-11	0.00E+00	0.00E+00	6.10E-10	6.10E-11	876
BT5WIN1	1.31E-06	1.83E-06	7.23E-07	1.88E-07	1.79E-07	7.05E-08	8.96E-09	8.96E-09	3.53E-09	8.44E-10	3.33E-10	5.87E-10	2.32E-10	2.26E-12	8.91E-13	2.59E-10	1.02E-10	0.00E+00	0.00E+00	2.16E-09	8.53E-10	288
5WELLINTE	2.46E-01	2.81E-01	1.11E-01	1.40E-02	1.40E-02	5.54E-03	5.18E-04	5.18E-04	2.04E-04	2.32E-04	9.15E-05	8.40E-05	3.31E-05	0.00E+00	0.00E+00	5.77E-05	2.28E-05	0.00E+00	0.00E+00	2.36E-05	9.30E-06	288
WOCPCE	4.07E-08	1.84E-07	1.84E-07	1.46E-08	1.42E-08	1.42E-08	4.06E-10	4.06E-10	4.06E-10	3.21E-11	3.21E-11	2.41E-11	2.41E-11	9.81E-12	9.81E-12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.46E-11	9.46E-11	VARIES
WOCSCE	3.16E-08	5.51E-08	5.51E-08	4.36E-09	4.36E-09	4.36E-09	3.87E-09	3.87E-09	3.87E-09	1.20E-12	1.20E-12	1.95E-12	1.95E-12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.61E-12	3.61E-12	4.30E-11	4.30E-11	8760
WOCNRE	2.87E-07	1.27E-06	9.60E-07	1.08E-07	1.03E-07	6.96E-08	4.13E-09	4.13E-09	7.57E-10	1.98E-10	1.94E-10	1.95E-10	9.75E-11	6.03E-11	5.93E-11	1.93E-12	2.21E-13	0.00E+00	0.00E+00	8.31E-10	3.12E-10	8760
1TAIL1	2.03E-05	1.55E-05	1.55E-05	1.71E-06	7.35E-07	7.35E-07	6.60E-08	6.60E-08	6.60E-08	2.11E-08	2.11E-08	2.07E-08	2.07E-08	8.06E-09	8.06E-09	2.17E-08	2.17E-08	7.64E-09	7.64E-09	2.31E-07	2.31E-07	8760
1TAIL2	2.03E-05	1.55E-05	1.55E-05	1.71E-06	7.35E-07	7.35E-07	6.60E-08	6.60E-08	6.60E-08	2.11E-08	2.11E-08	2.07E-08	2.07E-08	8.06E-09	8.06E-09	2.17E-08	2.17E-08	7.64E-09	7.64E-09	2.31E-07	2.31E-07	8760
1TAIL3	2.03E-05	1.55E-05	1.55E-05	1.71E-06	7.35E-07	7.35E-07	6.60E-08	6.60E-08	6.60E-08	2.11E-08	2.11E-08	2.07E-08	2.07E-08	8.06E-09	8.06E-09	2.17E-08	2.17E-08	7.64E-09	7.64E-09	2.31E-07	2.31E-07	8760
1TAIL4	2.03E-05	1.55E-05	1.55E-05	1.71E-06	7.35E-07	7.35E-07	6.60E-08	6.60E-08	6.60E-08	2.11E-08	2.11E-08	2.07E-08	2.07E-08	8.06E-09	8.06E-09	2.17E-08	2.17E-08	7.64E-09	7.64E-09	2.31E-07	2.31E-07	8760
1TAIL5	2.03E-05	1.55E-05	1.55E-05	1.71E-06	7.35E-07	7.35E-07	6.60E-08	6.60E-08	6.60E-08	2.11E-08	2.11E-08	2.07E-08	2.07E-08	8.06E-09	8.06E-09	2.17E-08	2.17E-08	7.64E-09	7.64E-09	2.31E-07	2.31E-07	8760
1TAIL6	2.03E-05	1.55E-05	1.55E-05	1.71E-06	7.35E-07	7.35E-07	6.60E-08	6.60E-08	6.60E-08	2.11E-08	2.11E-08	2.07E-08	2.07E-08	8.06E-09	8.06E-09	2.17E-08	2.17E-08	7.64E-09	7.64E-09	2.31E-07	2.31E-07	8760
1TAIL7	2.03E-05	1.55E-05	1.55E-05	1.71E-06	7.35E-07	7.35E-07	6.60E-08	6.60E-08	6.60E-08	2.11E-08	2.11E-08	2.07E-08	2.07E-08	8.06E-09	8.06E-09	2.17E-08	2.17E-08	7.64E-09	7.64E-09	2.31E-07	2.31E-07	8760
1TAIL8	2.03E-05	1.55E-05	1.55E-05	1.71E-06	7.35E-07	7.35E-07	6.60E-08	6.60E-08	6.60E-08	2.11E-08	2.11E-08	2.07E-08	2.07E-08	8.06E-09	8.06E-09	2.17E-08	2.17E-08	7.64E-09	7.64E-09	2.31E-07	2.31E-07	8760
1TAIL9	2.03E-05	1.55E-05	1.55E-05	1.71E-06	7.35E-07	7.35E-07	6.60E-08	6.60E-08	6.60E-08	2.11E-08	2.11E-08	2.07E-08	2.07E-08	8.06E-09	8.06E-09	2.17E-08	2.17E-08	7.64E-09	7.64E-09	2.31E-07	2.31E-07	8760
2TAIL1	3.04E-05	2.33E-05	2.33E-05	2.56E-06	1.10E-06	1.10E-06	9.90E-08	9.90E-08	9.90E-08	3.16E-08	3.16E-08	3.11E-08	3.11E-08	1.21E-08	1.21E-08	3.26E-08	3.26E-08	1.15E-08	1.15E-08	3.46E-07	3.46E-07	8760
2TAIL2	3.04E-05	2.33E-05	2.33E-05	2.56E-06	1.10E-06	1.10E-06	9.90E-08	9.90E-08	9.90E-08	3.16E-08	3.16E-08	3.11E-08	3.11E-08	1.21E-08	1.21E-08	3.26E-08	3.26E-08	1.15E-08	1.15E-08	3.46E-07	3.46E-07	8760
2TAIL3	3.04E-05	2.33E-05	2.33E-05	2.56E-06	1.10E-06	1.10E-06	9.90E-08	9.90E-08	9.90E-08	3.16E-08	3.16E-08	3.11E-08	3.11E-08	1.21E-08	1.21E-08	3.26E-08	3.26E-08	1.15E-08	1.15E-08	3.46E-07	3.46E-07	8760
2TAIL4	3.04E-05	2.33E-05	2.33E-05	2.56E-06	1.10E-06	1.10E-06	9.90E-08	9.90E-08	9.90E-08	3.16E-08	3.16E-08	3.11E-08	3.11E-08	1.21E-08	1.21E-08	3.26E-08	3.26E-08	1.15E-08	1.15E-08	3.46E-07	3.46E-07	8760
2TAIL5	3.04E-05	2.33E-05	2.33E-05	2.56E-06	1.10E-06	1.10E-06	9.90E-08	9.90E-08	9.90E-08	3.16E-08	3.16E-08	3.11E-08	3.11E-08	1.21E-08	1.21E-08	3.26E-08	3.26E-08	1.15E-08	1.15E-08	3.46E-07	3.46E-07	8760
2TAIL6	3.04E-05	2.33E-05	2.33E-05	2.56E-06	1.10E-06	1.10E-06	9.90E-08	9.90E-08	9.90E-08	3.16E-08	3.16E-08	3.11E-08	3.11E-08	1.21E-08	1.21E-08	3.26E-08	3.26E-08	1.15E-08	1.15E-08	3.46E-07	3.46E-07	8760
3TAIL1	3.04E-05	2.33E-05	2.33E-05	2.56E-06	1.10E-06	1.10E-06	9.90E-08	9.90E-08	9.90E-08	3.16E-08	3.16E-08	3.11E-08	3.11E-08	1.21E-08	1.21E-08	3.26E-08	3.26E-08	1.15E-08	1.15E-08	3.46E-07	3.46E-07	8760
3TAIL2	3.04E-05	2.33E-05	2.33E-05	2.56E-06	1.10E-06	1.10E-06	9.90E-08	9.90E-08	9.90E-08	3.16E-08	3.16E-08	3.11E-08	3.11E-08	1.21E-08	1.21E-08	3.26E-08	3.26E-08	1.15E-08	1.15E-08	3.46E-07	3.46E-07	8760
3TAIL3	3.04E-05	2.33E-05	2.33E-05	2.56E-06	1.10E-06	1.10E-06	9.90E-08	9.90E-08	9.90E-08	3.16E-08	3.16E-08	3.11E-08	3.11E-08	1.21E-08	1.21E-08	3.26E-08	3.26E-08	1.15E-08	1.15E-08	3.46E-07	3.46E-07	8760
3TAIL4	3.04E-05	2.33E-05	2.33E-05	2.56E-06	1.10E-06	1.10E-06	9.90E-08	9.90E-08	9.90E-08	3.16E-08	3.16E-08	3.11E-08	3.11E-08	1.21E-08	1.21E-08	3.26E-08	3.26E-08	1.15E-08	1.15E-08	3.46E-07	3.46E-07	8760
3TAIL5	3.04E-05	2.33E-05	2.33E-05	2.56E-06	1.10E-06	1.10E-06	9.90E-08	9.90E-08	9.90E-08	3.16E-08	3.16E-08	3.11E-08	3.11E-08	1.21E-08	1.21E-08	3.26E-08	3.26E-08	1.15E-08	1.15E-08	3.46E-07	3.46E-07	8760
3TAIL6	3.04E-05	2.33E-05	2.33E-05	2.56E-06	1.10E-06	1.10E-06	9.90E-08	9.90E-08	9.90E-08	3.16E-08	3.16E-08	3.11E-08	3.11E-08	1.21E-08	1.21E-08	3.26E-08	3.26E-08	1.15E-08	1.15E-08	3.46E-07	3.46E-07	8760
4TAIL1	2.61E-05	1.99E-05	1.99E-05	2.19E-06	9.46E-07	9.46E-07	8.48E-08	8.48E-08	8.48E-08	2.71E-08	2.71E-08	2.67E-08	2.67E-08	1.04E-08	1.04E-08	2.79E-08	2.79E-08	9.82E-09	9.82E-09	2.97E-07	2.97E-07	8760
4TAIL2	2.61E-05	1.99E-05	1.99E-05	2.19E-06	9.46E-07	9.46E-07	8.48E-08	8.48E-08	8.48E-08	2.71E-08	2.71E-08	2.67E-08	2.67E-08	1.04E-08	1.04E-08	2.79E-08	2.79E-08	9.82E-09	9.82E-09	2.97E-07	2.97E-07	8760
4TAIL3	2.61E-05	1.99E-05	1.99E-05	2.19E-06	9.46E-07	9.46E-07	8.48E-08	8.48E-08	8.48E-08	2.71E-08	2.71E-08	2.67E-08	2.67E-08	1.04E-08	1.04E-08	2.79E-08	2.79E-08	9.82E-09	9.82E-09	2.97E-07	2.97E-07	8760
4TAIL4	2.61E-05	1.99E-05	1.99E-05	2.19E-06	9.46E-07	9.46E-07	8.48E-08	8.48E-08	8.48E-08	2.71E-08	2.71E-08	2.67E-08	2.67E-08	1.04E-08	1.04E-08	2.79E-08	2.79E-08	9.82E-09	9.82E-09	2.97E-07	2.97E-07	8760
4TAIL5	2.61E-05	1.99E-05	1.99E-05	2.19E-06	9.46E-07	9.46E-07	8.48E-08	8.48E-08	8.48E-08	2.71E-08	2.71E-08	2.67E-08	2.67E-08	1.04E-08	1.04E-08	2.79E-08	2.79E-08	9.82E-09	9.82E-09	2.97E-07	2.97E-07	8760
4TAIL6	2.61E-05	1.99E-05	1.99E-05	2.19E-06	9.46E-07	9.46E-07	8.48E-08	8.48E-08	8.48E-08	2.71E-08	2.71E-08	2.67E-08	2.67E-08	1.04E-08	1.04E-08	2.79E-08	2.79E-08	9.82E-09	9.82E-09	2.97E-07	2.97E-07	8760
4TAIL7	2.61E-05	1.99E-05	1.99E-05	2.19E-06	9.46E-07	9.46E-07	8.48E-08	8.48E-08	8.48E-08	2.71E-08	2.71E-08	2.67E-08	2.67E-08	1.04E-08	1.04E-08	2.79E-08	2.79E-08	9.82E-09	9.82E-09	2.97E-07	2.97E-07	8760
5TAIL1	2.61E-05	1.99E-05	1.99E-05	2.19E-06	9.46E-07	9.46E-07	8.48E-08	8.48E-08	8.48E-08	2.71E-08	2.71E-08	2.67E-08	2.67E-08	1.04E-08	1.04E-08	2.79E-08	2.79E-08	9.82E-09	9.82E-09	2.97E-07	2.97E-07	8760
5TAIL2	2.61E-05	1.99E-05	1.99E-05	2.19E-06	9.46E-07	9.46E-07	8.48E-08	8.48E-08	8.48E-08	2.71E-08	2.71E-08	2.67E-08	2.67E-08	1.04E-08	1.04E-08	2.79E-08	2.79E-08	9.82E-09	9.82E-09	2.97E-07	2.97E-07	8760
5TAIL3	2.61E-05	1.99E-05	1.99E-05	2.19E-06	9.46E-07	9.46E-07	8.48E-08	8.48E-08	8.48E-08	2.71E-08	2.71E-08	2.67E-08	2.67E-08	1.04E-08	1.04E-08	2.79E-08	2.79E-08	9.82E-09	9.82E-09	2.97E-07	2.97E-07	8760
5TAIL4	2.61E-05	1.99E-05	1.99E-05	2.19E-06	9.46E-07	9.46E-07	8.48E-08	8.48E-08	8.48E-08	2.71E-08	2.71E-08	2.67E-08	2.67E-08	1.04E-08	1.04E-08	2.79E-08	2.79E-08	9.82E-09	9.82E-09	2.97E-07	2.97E-07	8760
5TAIL5	2.61E-05	1.99E-05	1.99E-05	2.19E-06	9.46E-07	9.46E-07	8.48E-08	8.48E-08	8.48E-08	2.71E-08	2.71E-08	2.67E-08	2.67E-08	1.04E-08	1.04E-08	2.79E-08	2.79E-08	9.82E-09	9.82E-09	2.97E-07	2.97E-07	8760
5TAIL6	2.61E-05	1.99E-05	1.99E-05	2.19E-06	9.46E-07	9.46E-07	8.48E-08	8.48E-08	8.48E-08	2.71E-08	2.71E-08	2.67E-08	2.67E-08	1.04E-08	1.04E-08	2.79E-08	2.79E-08	9.82E-09	9.82E-09	2.97E-07	2.97E-07	8760
5TAIL7	2.61E-05	1.99E-05	1.99E-05	2.19E-06	9.46E-07	9.46E-07	8.48E-08	8.48E-08	8.48E-08	2.71E-08	2.71E-08	2.67E-08	2.67E-08	1.04E-08	1.04E-08	2.79E-08	2.79E-08	9.82E-09	9.82E-09	2.97E-07	2.97E-07	8760
WOCTAIL1	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL2	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL3	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL4	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL5	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL6	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL7	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL8	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL9	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL10	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL11	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL12	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760

Source ID	Modeled Emission Rates (g/s)																					Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	Benzene 1-hr	Benzene Annual[1]	Toluene 1-hr	Toluene Annual[1]	E-Benzene 1-hr	E-Benzene Annual[1]	Xylenes 1-hr	Xylenes Annual[1]	n-Hexane 1-hr	n-Hexane Annual[1]	Formaldehyde 1-hr	Formaldehyde Annual[1]	
WOCTAIL13	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL14	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL15	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL16	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL17	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL18	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL19	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL20	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL21	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL22	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL23	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL24	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL25	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL26	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL27	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL28	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL29	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL30	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL31	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL32	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL33	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL34	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL35	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL36	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL37	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL38	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL39	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL40	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL41	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL42	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL43	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL44	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL45	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL46	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL47	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL48	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL49	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL50	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL51	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL52	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL53	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL54	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL55	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL56	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL57	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL58	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL59	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL60	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL61	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL62	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WOCTAIL63	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
AIRTAIL1	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
AIRTAIL2	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
AIRTAIL3	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
AIRTAIL4	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760

Source ID	Modeled Emission Rates (g/s)																					Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	Benzene 1-hr	Benzene Annual[1]	Toluene 1-hr	Toluene Annual[1]	E-Benzene 1-hr	E-Benzene Annual[1]	Xylenes 1-hr	Xylenes Annual[1]	n-Hexane 1-hr	n-Hexane Annual[1]	Formaldehyde 1-hr	Formaldehyde Annual[1]	
AIRTAIL5	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
AIRTAIL6	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
AIRTAIL7	5.22E-06	3.99E-06	3.99E-06	4.39E-07	1.89E-07	1.89E-07	1.70E-08	1.70E-08	1.70E-08	5.42E-09	5.42E-09	5.33E-09	5.33E-09	2.07E-09	2.07E-09	5.59E-09	5.59E-09	1.96E-09	1.96E-09	5.94E-08	5.94E-08	8760
WCFTAIL1	3.04E-05	2.33E-05	2.33E-05	2.56E-06	1.10E-06	1.10E-06	9.90E-08	9.90E-08	9.90E-08	3.16E-08	3.16E-08	3.11E-08	3.11E-08	1.21E-08	1.21E-08	3.26E-08	3.26E-08	1.15E-08	1.15E-08	3.46E-07	3.46E-07	8760
WCFTAIL2	3.04E-05	2.33E-05	2.33E-05	2.56E-06	1.10E-06	1.10E-06	9.90E-08	9.90E-08	9.90E-08	3.16E-08	3.16E-08	3.11E-08	3.11E-08	1.21E-08	1.21E-08	3.26E-08	3.26E-08	1.15E-08	1.15E-08	3.46E-07	3.46E-07	8760
WCFTAIL3	3.04E-05	2.33E-05	2.33E-05	2.56E-06	1.10E-06	1.10E-06	9.90E-08	9.90E-08	9.90E-08	3.16E-08	3.16E-08	3.11E-08	3.11E-08	1.21E-08	1.21E-08	3.26E-08	3.26E-08	1.15E-08	1.15E-08	3.46E-07	3.46E-07	8760
WCFTAIL4	3.04E-05	2.33E-05	2.33E-05	2.56E-06	1.10E-06	1.10E-06	9.90E-08	9.90E-08	9.90E-08	3.16E-08	3.16E-08	3.11E-08	3.11E-08	1.21E-08	1.21E-08	3.26E-08	3.26E-08	1.15E-08	1.15E-08	3.46E-07	3.46E-07	8760
WCFTAIL5	3.04E-05	2.33E-05	2.33E-05	2.56E-06	1.10E-06	1.10E-06	9.90E-08	9.90E-08	9.90E-08	3.16E-08	3.16E-08	3.11E-08	3.11E-08	1.21E-08	1.21E-08	3.26E-08	3.26E-08	1.15E-08	1.15E-08	3.46E-07	3.46E-07	8760
WCFTAIL6	3.04E-05	2.33E-05	2.33E-05	2.56E-06	1.10E-06	1.10E-06	9.90E-08	9.90E-08	9.90E-08	3.16E-08	3.16E-08	3.11E-08	3.11E-08	1.21E-08	1.21E-08	3.26E-08	3.26E-08	1.15E-08	1.15E-08	3.46E-07	3.46E-07	8760
1MFUGD1	0.00E+00	0.00E+00	0.00E+00	4.43E-03	4.43E-04	4.43E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD2	0.00E+00	0.00E+00	0.00E+00	4.43E-03	4.43E-04	4.43E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD3	0.00E+00	0.00E+00	0.00E+00	4.43E-03	4.43E-04	4.43E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD4	0.00E+00	0.00E+00	0.00E+00	4.43E-03	4.43E-04	4.43E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD5	0.00E+00	0.00E+00	0.00E+00	4.43E-03	4.43E-04	4.43E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD6	0.00E+00	0.00E+00	0.00E+00	4.43E-03	4.43E-04	4.43E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD7	0.00E+00	0.00E+00	0.00E+00	4.43E-03	4.43E-04	4.43E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD8	0.00E+00	0.00E+00	0.00E+00	4.43E-03	4.43E-04	4.43E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
1MFUGD9	0.00E+00	0.00E+00	0.00E+00	4.43E-03	4.43E-04	4.43E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD1	0.00E+00	0.00E+00	0.00E+00	6.65E-03	6.65E-04	6.65E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD2	0.00E+00	0.00E+00	0.00E+00	6.65E-03	6.65E-04	6.65E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD3	0.00E+00	0.00E+00	0.00E+00	6.65E-03	6.65E-04	6.65E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD4	0.00E+00	0.00E+00	0.00E+00	6.65E-03	6.65E-04	6.65E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD5	0.00E+00	0.00E+00	0.00E+00	6.65E-03	6.65E-04	6.65E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
2MFUGD6	0.00E+00	0.00E+00	0.00E+00	6.65E-03	6.65E-04	6.65E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
3MFUGD1	0.00E+00	0.00E+00	0.00E+00	6.65E-03	6.65E-04	6.65E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
3MFUGD2	0.00E+00	0.00E+00	0.00E+00	6.65E-03	6.65E-04	6.65E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
3MFUGD3	0.00E+00	0.00E+00	0.00E+00	6.65E-03	6.65E-04	6.65E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
3MFUGD4	0.00E+00	0.00E+00	0.00E+00	6.65E-03	6.65E-04	6.65E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
3MFUGD5	0.00E+00	0.00E+00	0.00E+00	6.65E-03	6.65E-04	6.65E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
3MFUGD6	0.00E+00	0.00E+00	0.00E+00	6.65E-03	6.65E-04	6.65E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
4MFUGD1	0.00E+00	0.00E+00	0.00E+00	5.70E-03	5.70E-04	5.70E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
4MFUGD2	0.00E+00	0.00E+00	0.00E+00	5.70E-03	5.70E-04	5.70E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
4MFUGD3	0.00E+00	0.00E+00	0.00E+00	5.70E-03	5.70E-04	5.70E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
4MFUGD4	0.00E+00	0.00E+00	0.00E+00	5.70E-03	5.70E-04	5.70E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
4MFUGD5	0.00E+00	0.00E+00	0.00E+00	5.70E-03	5.70E-04	5.70E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
4MFUGD6	0.00E+00	0.00E+00	0.00E+00	5.70E-03	5.70E-04	5.70E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
4MFUGD7	0.00E+00	0.00E+00	0.00E+00	5.70E-03	5.70E-04	5.70E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
5MFUGD1	0.00E+00	0.00E+00	0.00E+00	5.70E-03	5.70E-04	5.70E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
5MFUGD2	0.00E+00	0.00E+00	0.00E+00	5.70E-03	5.70E-04	5.70E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
5MFUGD3	0.00E+00	0.00E+00	0.00E+00	5.70E-03	5.70E-04	5.70E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
5MFUGD4	0.00E+00	0.00E+00	0.00E+00	5.70E-03	5.70E-04	5.70E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
5MFUGD5	0.00E+00	0.00E+00	0.00E+00	5.70E-03	5.70E-04	5.70E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
5MFUGD6	0.00E+00	0.00E+00	0.00E+00	5.70E-03	5.70E-04	5.70E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
5MFUGD7	0.00E+00	0.00E+00	0.00E+00	5.70E-03	5.70E-04	5.70E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD1	0.00E+00	0.00E+00	0.00E+00	6.65E-03	6.65E-04	6.65E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD2	0.00E+00	0.00E+00	0.00E+00	6.65E-03	6.65E-04	6.65E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD3	0.00E+00	0.00E+00	0.00E+00	6.65E-03	6.65E-04	6.65E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD4	0.00E+00	0.00E+00	0.00E+00	6.65E-03	6.65E-04	6.65E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD5	0.00E+00	0.00E+00	0.00E+00	6.65E-03	6.65E-04	6.65E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WCFMFUGD6	0.00E+00	0.00E+00	0.00E+00	6.65E-03	6.65E-04	6.65E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD1	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD2	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD3	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD4	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD5	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380

Source ID	Modeled Emission Rates (g/s)																					Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	Benzene 1-hr	Benzene Annual[1]	Toluene 1-hr	Toluene Annual[1]	E-Benzene 1-hr	E-Benzene Annual[1]	Xylenes 1-hr	Xylenes Annual[1]	n-Hexane 1-hr	n-Hexane Annual[1]	Formaldehyde 1-hr	Formaldehyde Annual[1]	
WOCMFUGD6	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD7	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD8	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD9	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD10	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD11	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD12	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD13	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD14	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD15	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD16	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD17	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD18	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD19	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD20	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD21	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD22	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD23	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD24	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD25	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD26	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD27	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD28	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD29	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD30	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD31	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD32	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD33	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD34	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD35	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD36	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD37	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD38	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD39	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD40	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD41	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD42	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD43	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD44	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD45	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD46	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD47	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD48	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD49	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD50	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD51	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD52	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD53	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD54	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD55	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD56	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD57	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD58	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD59	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD60	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380

Source ID	Modeled Emission Rates (g/s)																					Annual Hours
	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	Benzene 1-hr	Benzene Annual[1]	Toluene 1-hr	Toluene Annual[1]	E-Benzene 1-hr	E-Benzene Annual[1]	Xylenes 1-hr	Xylenes Annual[1]	n-Hexane 1-hr	n-Hexane Annual[1]	Formaldehyde 1-hr	Formaldehyde Annual[1]	
WOCMFUGD61	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD62	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCMFUGD63	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
AIRMFUGD1	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
AIRMFUGD2	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
AIRMFUGD3	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
AIRMFUGD4	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
AIRMFUGD5	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
AIRMFUGD6	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
AIRMFUGD7	0.00E+00	0.00E+00	0.00E+00	1.14E-03	1.14E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4380
WOCTEMPTRB1	4.41E-01	4.35E-01	4.35E-01	5.04E-02	5.04E-02	5.04E-02	5.06E-02	5.06E-02	5.06E-02	9.17E-05	9.17E-05	9.93E-04	9.93E-04	2.45E-04	2.45E-04	4.89E-04	4.89E-04	0.00E+00	0.00E+00	1.68E-03	1.68E-03	8760
WOCTEMPTRB2	4.41E-01	4.35E-01	4.35E-01	5.04E-02	5.04E-02	5.04E-02	5.06E-02	5.06E-02	5.06E-02	9.17E-05	9.17E-05	9.93E-04	9.93E-04	2.45E-04	2.45E-04	4.89E-04	4.89E-04	0.00E+00	0.00E+00	1.68E-03	1.68E-03	8760
RFDGMT1	3.50E-01	3.50E-01	2.69E+00	3.50E-01	3.50E-01	1.29E-01	1.67E-01	1.67E-01	1.67E-01	8.87E-03	8.87E-03	3.32E-03	3.32E-03	1.29E-02	1.29E-02	1.51E-02	1.51E-02	6.49E-02	6.49E-02	3.69E-03	3.69E-03	8760
RFDGMT2	4.06E+00	7.21E+00	7.34E-01	4.06E+00	6.44E-01	7.71E-02	1.40E-02	1.40E-02	6.33E-03	4.03E-04	4.03E-04	4.60E-04	4.60E-04	3.16E-04	3.16E-04	5.75E-04	5.75E-04	6.62E-03	6.62E-03	4.03E-04	4.03E-04	8760
RFDGWPDS1	1.25E+01	4.25E+00	4.25E+00	2.84E-01	2.84E-01	2.84E-01	3.87E-02	3.87E-02	3.87E-02	3.02E-03	3.02E-03	8.32E-03	8.32E-03	7.37E-02	7.37E-02	1.45E-01	1.45E-01	1.81E-01	1.81E-01	5.98E-05	5.98E-05	8760
RFDGWPDS2	1.25E+01	4.25E+00	4.25E+00	2.84E-01	2.84E-01	2.84E-01	3.87E-02	3.87E-02	3.87E-02	3.02E-03	3.02E-03	8.32E-03	8.32E-03	7.37E-02	7.37E-02	1.45E-01	1.45E-01	1.81E-01	1.81E-01	5.98E-05	5.98E-05	8760
RFDCD5	1.82E+00	2.15E+00	2.15E+00	1.27E-01	1.27E-01	1.27E-01	2.70E-01	2.70E-01	2.70E-01	6.26E-02	6.26E-02	2.31E-02	2.31E-02	5.05E-02	5.05E-02	6.60E-02	6.60E-02	2.54E-01	2.54E-01	1.73E-02	1.73E-02	8760

1. Annual emission rate calculations are based on the number of actual daily operating hours provided in the EI. If actual daily operating hour timeframes were not known, 8760 hours were assumed.

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Attachment B

Willow MDP CAMx Model Performance Evaluation

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CONTENTS

TABLES

FIGURES

B.1 Executive Summary

This document presents results of the Willow model performance evaluation for the CAMx modeling of the 2012 Base Case simulation at a 4 km resolution. Specifically, results for maximum daily 8-hour ozone (MDA8) and 24-hr averaged $PM_{2.5}$ and $PM_{2.5}$ species (sulfate, nitrate, ammonium, elemental carbon (EC), organic carbon (OC), crustal soil, and sodium) are presented.

Overall, the model performs well with best annual-based performances for ozone. Specifically, annual-based normalized mean bias (NMB) for ozone fall within the goal range for ozone listed in Emery, et al. (2017) of ±5%.

However, the model presents temporal biases for with under-prediction in the colder months and over-prediction in the warmer months, especially when observational data is very low. Performances during individual quarters are worse than annual-based performances, and annual-based errors are generally higher than annual-based biases because the opposing signs of the biases throughout the year cancel each other out. For example, even though annual-based NMB for ozone falls within the goal range listed in Emery, et al (2017), the annual-based and quarterly-based normalized mean error (NME) values for ozone fall outside the criteria value of 25% listed in Emery, et al. (2017).

$PM_{2.5}$ is systematically biased low at all sites throughout the year. For $PM_{2.5}$ species, all quarterly mean fractional error (MFE) and mean fractional bias (MFB) values for nitrate, ammonium, and crustal soil at Deadhorse and Wainwright are within criteria ranges established in bugle plots. Most of the MFB and MFE values for EC and sodium fall within criteria ranges. MFB and MFE results for sulfate are more mixed. Speciated data like sulfate, nitrate, and ammonium are biased high in quarter 3 when observational data tends to be very low. Crustal soil is consistently over-predicted throughout the year at Deadhorse but biased low during Q1 and Q4 at Wainwright. OC is systematically biased low with all MFB and MFE values falling outside criteria ranges.

In summary, the model performs well excluding difficulties reproducing very low observational data and exhibits systematic biases for OC and crustal soil. Note that the goals and other criteria used in the MPE are not bright-line (pass/fail) thresholds.

Table B.1-1 Annually-based NMB and NME values at 3 monitoring locations (Nuiqsut, Deadhorse, and Wainwright) and averaged across all available sites in the 4 km modeling domain (domain-wide). Criteria ranges for each pollutant established in Emery et al. (2017) are also presented. Bolded values represent values that fall outside of criteria ranges established in Emery, et al., if available.

Metric	Pollutant	Emery et al. (2017) criteria	Domain-wide	Nuiqsut	Deadhorse	Wainwright
NMB	Ozone	±15%	-3.72	-1.46	--	--
	$PM_{2.5}$	±30%	**-59.8**	**-50.8**	**-75.7**	**-72.1**
	Sulfate	±30%	--	--	**31.8**	**68.4**
	Nitrate	±60%	--	--	-6.63	-27.6
	Ammonium	±30%	--	--	**-54.0**	-27.6
	EC	±40%	--	--	**-76.2**	**-76.8**
	OC	±50%	--	--	**-95.6**	**-98.1**
	Crustal Soil	--	--	--	166	2.04
	Sodium	--	--	--	-33.3	89.8

Metric	Pollutant	Emery et al. (2017) criteria	Domain-wide	Nuiqsut	Deadhorse	Wainwright
NME	Ozone	25%	**29.0**	**33.3**	--	--
	$PM_{2.5}$	50%	**63.2**	**55.8**	**76.0**	**74.3**
	Sulfate	50%	--	--	**103**	**126**
	Nitrate	115%	--	--	90.1	67.2
	Ammonium	50%	--	--	**55.6**	40.2
	EC	75%	--	--	**77.6**	**86.3**
	OC	65%	--	--	**95.6**	**98.1**
	Crustal Soil	--	--	--	225	122
	Sodium	--	--	--	105	205

B.2 Introduction

An operational evaluation of photochemical model performance for the 2012 base year scenario was carried out by comparing model results from the 4 km domain to available ambient air quality observations. As discussed in section 2 and shown in previous studies (ADEC, 2011), ambient air quality monitoring data suitable for model evaluation are extremely limited in this area, and due to this limited availability, U.S. EPA's automated model evaluation tool (AMET[1]) could not be used for this analysis. Instead, model predictions averaged over 9-grid cell blocks centered on individual monitoring sites were used for comparison with the measurements on a site-by-site basis. A previous study (Stoeckenius, Jung, Koo, Sha, & Morris, 2017) conducted in this area showed that model performance results for 24-hour $PM_{2.5}$ using 9-grid cell averages had little difference from results using the single grid cell containing the monitoring site, suggesting the use of the 9-grid cell averages is adequate for this evaluation.

The pollutants analyzed in this performance analysis are the maximum daily 8-hour average (MDA8) ozone, 24-hr averaged $PM_{2.5}$, and 24-hr averaged species of $PM_{2.5}$, including sulfate, nitrate, ammonium, organic carbon (OC), elemental carbon (EC), sodium, and crustal soil. Standard statistical measures of model performance as recommended in U.S. EPA guidance (U.S. EPA, 2018) were used for this analysis. These metrics are defined as described in Table B.2-1. Scatter, density, timeseries, and bugle plots (Boylan & Russell, 2006) are presented to further evaluate the performance of the model data as recommended in U.S. EPA guidance (U.S. EPA, 2018). Note that time series and density plots are only presented for two monitoring sites for ozone and one monitoring site for $PM_{2.5}$ due to limited temporal resolution in observational data of other monitoring locations.

Table B.2-1 presents the specific definition for the statistical metrics evaluated for each pollutant in this study using all available observational site-days across the year 2012. Emery, et al. (2017), recommends setting goals/criteria of NMB at ±5%/±15% for ozone; ±10%/±30% for 24-hour $PM_{2.5}$, sulfate, and ammonium; ±15%/±65% for 24-hour nitrate; ±15%/±50% for 24-hour OC; and ±20%/±40% for 24-hour EC, and setting goals/criteria for NME at 15%/25% for ozone; 35%/50% for 24-hour $PM_{2.5}$, sulfate, and ammonium; 65%/115% for 24-hour nitrate; 45%/65% for 24-hour OC; and 50%/75% for 24-hour EC (Emery et al., 2017). These recommendations are based on the top third (goal) and top two thirds (criteria) of performances reported in studies reviewed in Emery, et al. (2017). These goals and criteria standards were developed mainly using model applications in the continental United States, but as no other information exists, the same standards were compared to results from this arctic modeling application. Further, Simon, et al. (2012) presents a synthesis of model performance results from

[1] https://github.com/USEPA/AMET/blob/1.3/docs/AMET_Users_Guide_v1.md

multiple studies across the continental United States. 25th, 50th, and 75th percentile statistics from the collection of all studies considered in Simon, et al. (2012) that are available for the pollutants analyzed in this report are presented with the MPE results for performance comparison purposes. The authors recognize the underlying modeling data have different horizontal extents, averaging periods, and further considerations that may contribute to the spread in the reported model performance.

Table B.2-1 Definitions of model performance statistics

Statistical Measure	Mathematical Expression	Units
NMB: Normalized Mean Bias	$\frac{\sum_{i=1}^{N}(P_i - O_i)}{\sum_{i=1}^{N} O_i} * 100$	%
NME: Normalized Mean Error	$\frac{\sum_{i=1}^{N}\lvert P_i - O_i\rvert}{\sum_{i=1}^{N} O_i} * 100$	%
MNB: Mean Normalized Bias	$\frac{I}{N}\sum_{i=1}^{N}\left(\frac{(P_i - O_i)}{O_i}\right) * 100$	%
MNGE: Mean Normalized Gross Error	$\frac{I}{N}\sum_{i=1}^{N}\left(\frac{\lvert P_i - O_i\rvert}{O_i}\right) * 100$	%
MFB: Mean Fractional Bias	$\frac{2}{N}\sum_{i=1}^{N}\left(\frac{(P_i - O_i)}{(P_i + O_i)}\right) * 100$	%
MFE: Mean Fractional Error	$\frac{2}{N}\sum_{i=1}^{N}\left(\frac{\lvert P_i - O_i\rvert}{(P_i + O_i)}\right) * 100$	%
Mean Obs: Mean of Observations	$\frac{I}{N}\sum_{i=1}^{N} O_i$	ppb (ozone) µg m^{-3} ($PM_{2.5}$ and species)
Mean Mod: Mean of Model Concentrations	$\frac{I}{N}\sum_{i=1}^{N} P_i$	ppb (ozone) µg m^{-3} ($PM_{2.5}$ and species)

B.2.1 Monitoring Sites Within 4 km Domain

Modeling results were spatially and temporally paired with air quality data from monitoring stations within the 4 km modeling domain, presented in Figure B.2-1. Air monitoring sites with data available for at least portions of 2012 are listed in Table B.2-2. Four sites (APAD, DS1F, BRW, CCP) were located in coastal portions of the domain. The APAD, DS1F, and CCP monitoring sites were originally established to satisfy PSD permitting requirements for new major sources. As such, they are located close to sources of emissions and subject to near-source impacts that may not be well represented by CAMx using a 4 km grid.

Ozone and $PM_{2.5}$ results are presented for domain-wide analyses across all monitoring stations (5 sites for ozone and 4 sites for $PM_{2.5}$) and for a single site, Nuiqsut, near the location of interest. For $PM_{2.5}$ species, observational data were only available at two monitoring stations, Deadhorse and Wainwright, so results are presented individually for these sites. Statistical metrics are presented on an annual and quarterly basis due to limited availability of measurement data making monthly analyses less meaningful.

Due to low ambient concentrations of ozone, filtering was not used for performance analyses of ozone. In other words, a minimum concentration threshold (e.g., <40 ppb) for inclusion of ozone in performance analyses was not set, and all daily ozone model and observed values were used in the performance analyses. This method follows the recommendation set in Emery, et al. (2017) for no cutoff values for any statistics reported for ozone.

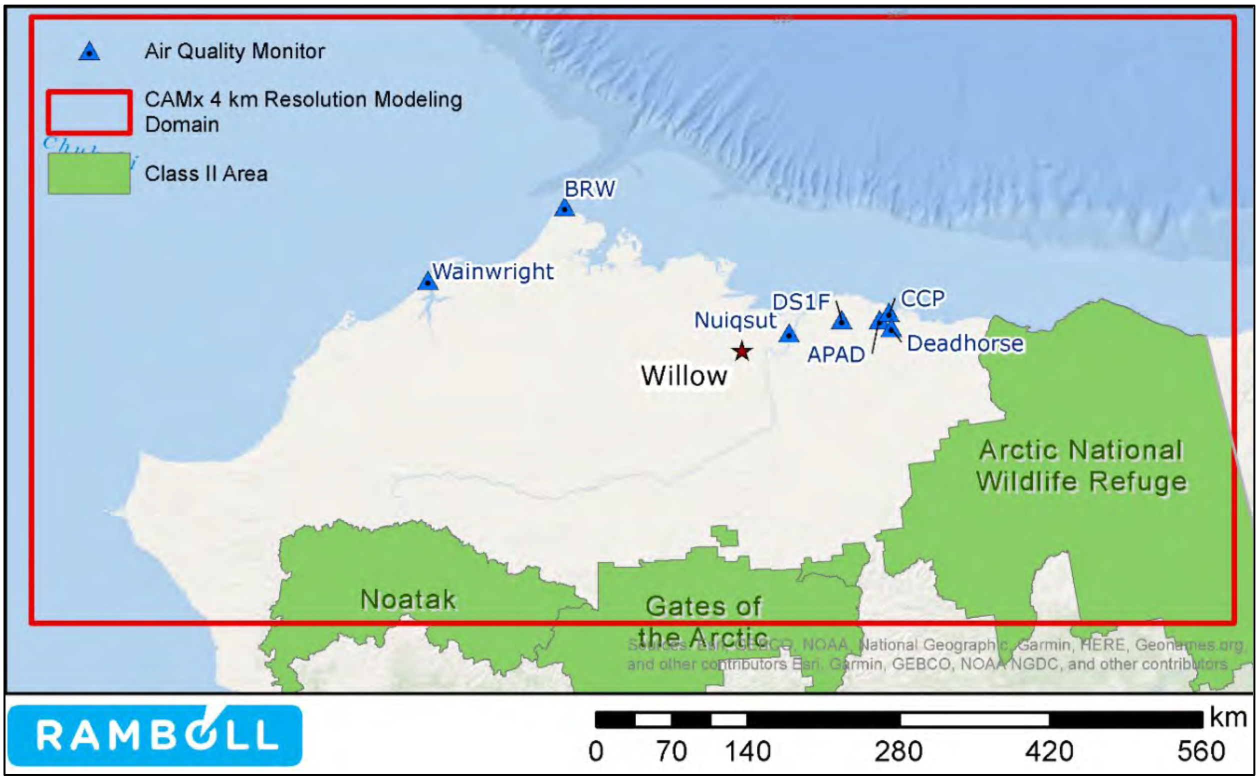

Figure B.2-1 Monitoring locations within 4 km modeling domain.

Table B.2-2 Monitoring site descriptions.

Site Name	Site ID	Source	Lat	Lon	Species
APAD	02185APAD	AK Permit Data	70.26611	-148.7563	O_3
DS1F	02185DS1F	AK Permit Data	70.29917	-149.6847	O_3
BRW	02185XBRW	NOAA	71.323	-156.6114	O_3
CCP	02185XCCP	AK Permit Data	70.31936	-148.5166	O_3, $PM_{2.5}$
Nuiqsut		CPAI	70.22361	-150.9996	$PM_{2.5}$
Deadhorse		ADEC	70.22201	-148.4223	$PM_{2.5}$ components (NO3, SO4, EC, OC, NH4)
Wainwright		ADEC	70.64111	-160.007	$PM_{2.5}$ components (NO3, SO4, EC, OC, NH4)

a AK Permit Data from ADEC air quality permit files as supplied for use in BOEM study by the ADEC; NOAA ESRL published data for the Barrow Observatory (http://www.esrl.noaa.gov/gmd/obop/brw/); ConocoPhillips Alaska, Inc. (CPAI)

B.2.2 Ozone Evaluation

Model performance evaluation results for ozone are summarized in Table B.2-3 and Figure B.2-2 to Figure B.2-4. Peak observed ozone concentrations are less than 50 ppb at all sites with lowest values occurring during March to April and maximum concentrations occurring during November to February. Modeled concentrations show a general underprediction of ozone in the colder months (Q1 and Q4) and overprediction during the warmer months (Q2 and Q3).

Table B.2-3 shows that the model generally has the best performance during Q3. Figure B.2-2 and Figure B.2-3 show time series plots comparing modeled data with observations for Nuiqsut and CCP respectively. These figures indicate that the model was unable to reproduce the periods of very low (<10 ppb) ozone from March to May and underestimated higher observed ozone values from November to February. A similar trend occurred at all other measurement locations in the modeling domain. Figure B.2-4 shows scatter plots of modeled data compared to observations for all available sites in the 4 km domain and indicates that the model performs similarly across all sites for ozone.

Table B.2-4 provides domain-wide NMB and NME for ozone statistics compared to other studies presented in Simon et al. (2012). Notice that a limitation of this comparison is that the statistics derived in this study for Alaska might not be representative of the typical values Simon et al. (2012) provided since that study focused on model evaluations over the continental US. Table B.2-4 shows that annual-averaged NMB have a small negative bias while the studies reported in Simon et al. (2012) generally over-predicted ozone. Table B.2-4 also shows that NME values for this study are higher than the 75th percentile of the reported NME values in Simon et al. (2012).

The annual domain-wide NMB falls within the goal range for ozone listed in Emery, et al. (2017) of ±5%, but domain-wide NMB values for each quarter fall outside this goal, and, except for Q3, fall outside the criteria range of ±15% established in Emery, et al. (2017). Except for Q3, NME values for the domain-wide analysis and at Nuiqsut fall outside the criteria value of 25% listed in Emery, et al. (2017).

Table B.2-3 Statistical metrics for ozone averaged across all monitoring locations (domain-wide) and at Nuiqsut. Bolded values represent values that fall outside of criteria ranges established in Emery, et al., if available.

Sites	Statistical Measure	Annual	Q1[a]	Q2a	Q3	Q4
All sites 4 km Domain	NMB	-3.72	**-16.1**	**24.6**	10.7	**-22.8**
	NME	**29.0**	**39.9**	**42.5**	15.2	**25.8**
	MNB	19.1	35.5	62.2	13.7	-21.6
	MNGE	45.8	81.6	75.0	17.6	25.5
	MFB	-0.445	-9.37	27.9	11.1	-28.1
	MFE	32.9	48.7	42.6	15.3	31.8
	Mean Obs	27.0	25.5	23.3	24.3	33.9
	Mean Mod	26.0	21.4	29.1	26.9	26.2
Nuiqsut	NMB	-1.46	-14.5	**34.3**	8.55	**-24.0**
	NME	**33.3**	**49.8**	**49.3**	13.4	**27.0**
	MNB	46.5	115	80.7	11.3	-22.4
	MNGE	74.0	165	90.9	15.1	26.6
	MFB	4.38	-0.575	36.0	9.23	-29.3
	MFE	38.6	62.4	47.6	13.4	33.1
	Mean Obs	25.5	23.5	21.3	24.3	33.5
	Mean Mod	25.1	20.1	28.5	26.4	25.5

[a]Quarter 1 (Q1) is averaged over January, February, and March
Quarter 2 (Q2) is averaged over April, May, and June
Quarter 3 (Q3) is averaged over July, August, and September
Quarter 4 (Q4) is averaged over October, November, and December

Table B.2-4 Statistical metrics for this study, statistical metrics reported in Simon et al. (2012), and criteria values reported in Emery et al. (2017) for ozone. Bolded values represent values that fall outside of criteria ranges established in Emery, et al., if available.

Pollutant	Statistical Measure	Annual 4 km-Domain	Simon et al. 25th percentile	Simon et al. 50th percentile	Simon et al. 75th percentile	Emery et al. Criteria Value
Ozone	NMB	-3.72	3.9	6.1	7.8	±15%
	NME	**29.0**	16.0	17.0	17.2	25%

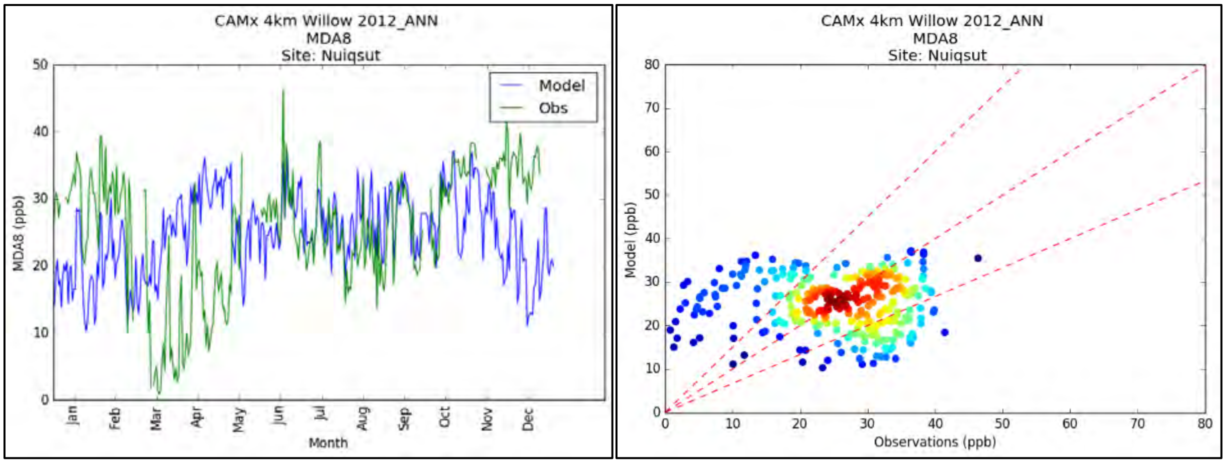

Figure B.2-2 Ozone results at Nuiqsut: daily time series (left) and density scatter plot (right) with hotter colors indicating greater density of data points.

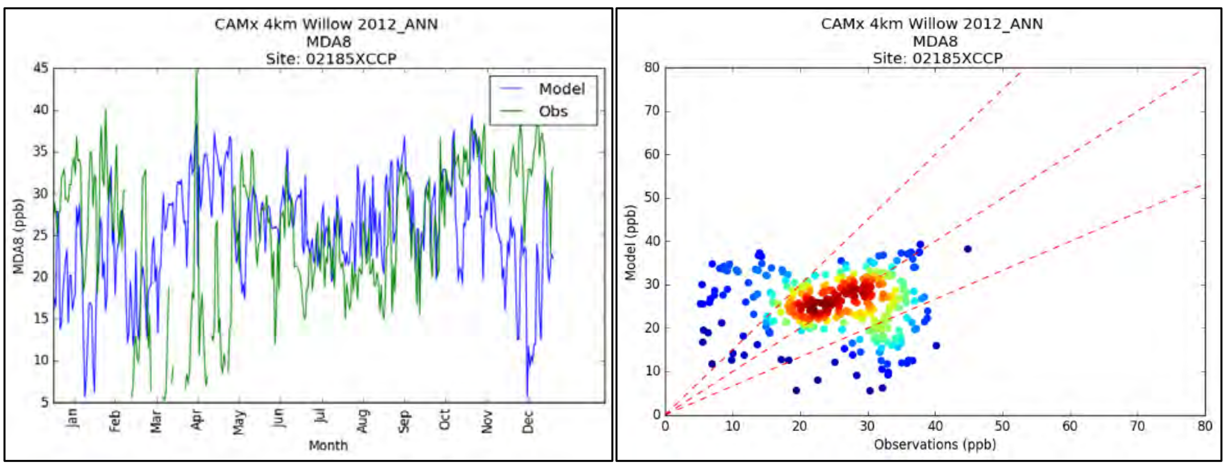

Figure B.2-3 Ozone results at 02185XCCP: daily time series (left) and density scatter plot (right) with hotter colors indicating greater density of data points.

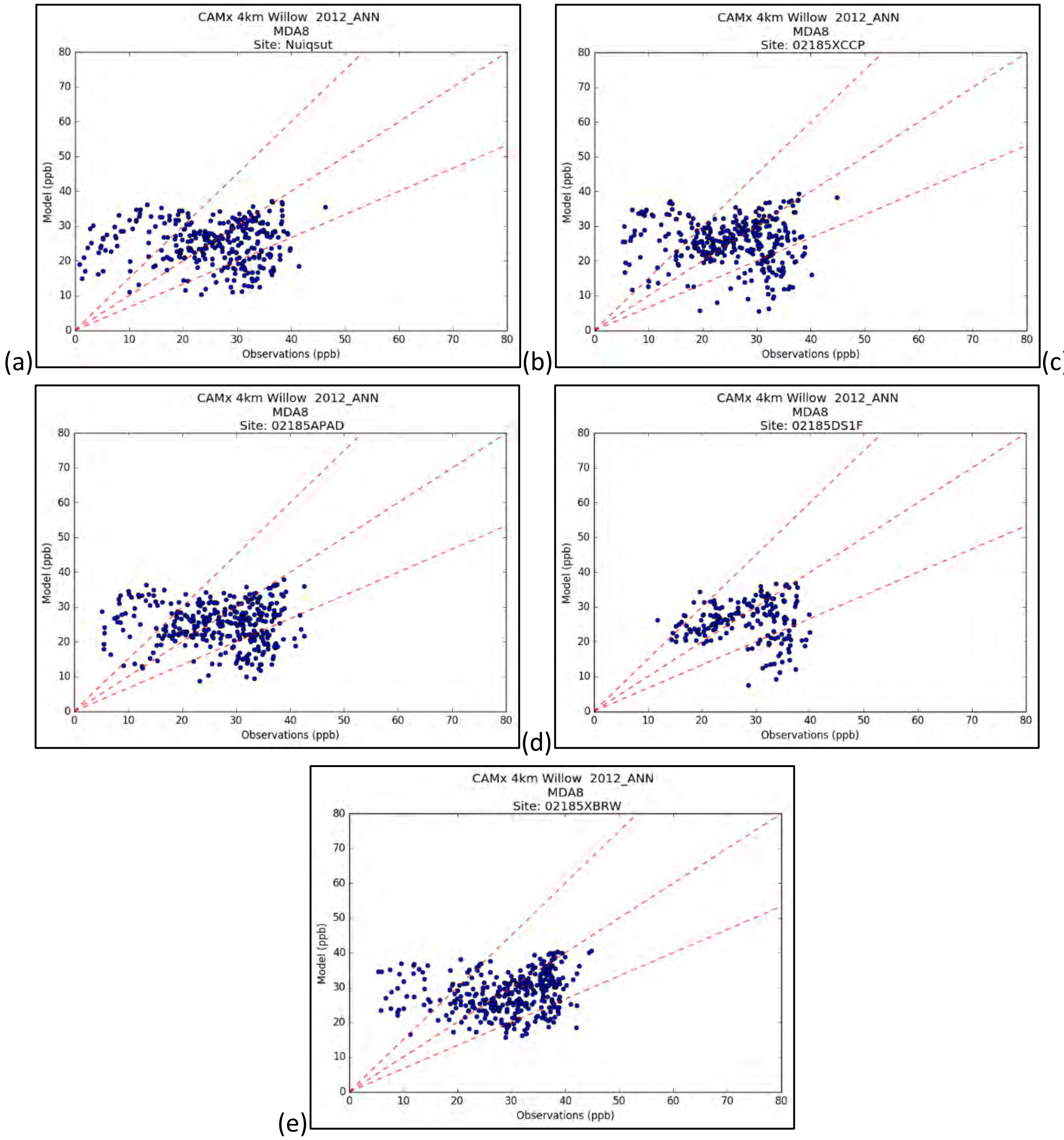

Figure B.2-4 Ozone scatter plots: (a) Nuiqsut, (b) 02185XCCP, (c) 02185APAD, (d) 02185DS1F, and (e) 0185XBRW.

B.2.3 Total $PM_{2.5}$

Model performance evaluation results for total $PM_{2.5}$ are summarized in Table B.2-5 and Figure B.2-5 to Figure B.2-7. Figure B.2-6 shows scatter plots of model data compared to observations for all available sites in the 4 km domain. The figure illustrates that the amount of observations at Nuiqsut is significantly higher than at the other sites and, therefore, the statistics are more reliable and representative at this site. Table B.2-5 summarizes the performance statistics for total $PM_{2.5}$ and shows that, in general, the model under-predicts $PM_{2.5}$ during all quarters. NME values are relatively consistent throughout the year with the highest values occurring in Q4. Figure B.2-5 presents a timeseries comparison of model and observed concentrations of $PM_{2.5}$ at Nuiqsut. The figure shows model under-prediction throughout the year.

Figure B.2-7 shows the bugle plots that compare both MFB and MFE with average concentrations. The figure shows that the annual-average MFE and MFB for each monitoring location except Nuiqsut falls outside the criteria range. The bugle plots for Nuiqsut show that the model performs within the criteria for Q1 and Q2. Domain-wide annual NMB and Nuiqsut NMB (Table B.2-4)are outside the criteria range for $PM_{2.5}$ listed in Emery, et al. (2017) of ±30%.All reported NME values (all quarters for domain-wide analysis and Nuiqsut) fall above of the criteria value of 30% listed in Emery, et al. (2017).

Table B.2-6 provides domain-wide NMB and NME for $PM_{2.5}$ statistics compared to other studies presented in Simon et al. (2012). The NMB and NME statistics indicate that the current model performance results generally fall outside the 25th to 75th percentile range of values of other studies reported in Simon et al. (2012).

Table B.2-5 Statistical metrics for $PM_{2.5}$ averaged across all monitoring locations (domain-wide) and at Nuiqsut, Deadhorse and Wainwright. Bolded values represent values that fall outside of criteria ranges established in Emery, et al., if available.

Sites	Statistical Measure	Annual	Q1[a]	Q2	Q3	Q4
All sites 4 km Domain	NMB	**-59.8**	**-66.5**	**-47.9**	**-49.1**	**-74.1**
	NME	**63.2**	**67.8**	**55.2**	**52.9**	**75.2**
	MNB	-44.7	-53.2	-25.7	-38.8	-62.3
	MNGE	55.9	58.5	50.1	49.4	66
	MFB	-73.5	-85	-48.4	-59.8	-102
	MFE	80.8	88.5	64	65.8	106
	Mean Obs	3.43	3.54	3.6	2.87	3.69
	Mean Mod	1.38	1.19	1.88	1.46	1.0
Nuiqsut	NMB	**-50.8**	**-58.6**	**-31.1**	**-44.5**	**-67.4**
	NME	**55.8**	**60.5**	42.4	49.9	**69.1**
	MNB	-38.5	-47.3	-16	-34.2	-56.6
	MNGE	51.4	53.7	42.4	48.5	61.2
	MFB	-62.3	-73.5	-31.8	-53.6	-90.6
	MFE	70.9	77.8	49.5	61.6	94.6
	Mean Obs	2.83	2.92	2.79	2.62	2.99
	Mean Mod	1.39	1.21	1.93	1.45	0.975
Deadhorse	NMB	**-75.7**	**-82.2**	**-75.3**	**-51.3**	**-83.8**
	NME	**76.0**	**82.2**	**75.3**	**52.9**	**83.8**
	MNB	-67.7	-77.2	-69.6	-46.9	-81.6
	MNGE	68.2	77.2	69.6	48.5	81.6
	MFB	-111	-132	-113	-67.7	-140
	MFE	111	132	113	69.3	140
	Mean Obs	5.7	7.22	7.03	2.97	6.27
	Mean Mod	1.38	1.28	1.74	1.45	1.02
Wainwright	NMB	**-72.1**	**-85.7**	**-64.5**	**-59.2**	**-79.7**
	NME	**74.3**	**85.7**	**72**	**59.2**	**80.6**
	MNB	-54.6	-84.3	-28.2	-50.6	-66.9
	MNGE	69.2	84.3	76.2	50.6	71.3
	MFB	-96.7	-147	-68.2	-76.8	-114
	MFE	105	147	94	76.8	118
	Mean Obs	4.3	5.89	4.08	3.81	3.96
	Mean Mod	1.2	0.844	1.45	1.55	0.802

[a]Quarter 1 (Q1) is averaged over January, February, and March
Quarter 2 (Q2) is averaged over April, May, and June

Quarter 3 (Q3) is averaged over July, August, and September
Quarter 4 (Q4) is averaged over October, November, and December

Table B.2-6 Statistical metrics for this study, statistical metrics reported in Simon et al. (2012), and criteria values reported in Emery et al. (2017) for $PM_{2.5}$. Bolded values represent values that fall outside of criteria ranges established in Emery, et al., if available.

Pollutant	Statistical Measure	Annual 4 km-Domain	Simon et al. 25th percentile	Simon et al. 50th percentile	Simon et al. 75th percentile	Emery et al. Criteria Value
$PM_{2.5}$	NMB	**-59.8**	-21.1	0.0	10.4	±30%
	NME	**63.2**	36.9	41.2	50.7	50%
	MFB	-73.5	-33.5	-12.0	-3.0	--
	MFE	80.8	34.0	49.0	54.0	--

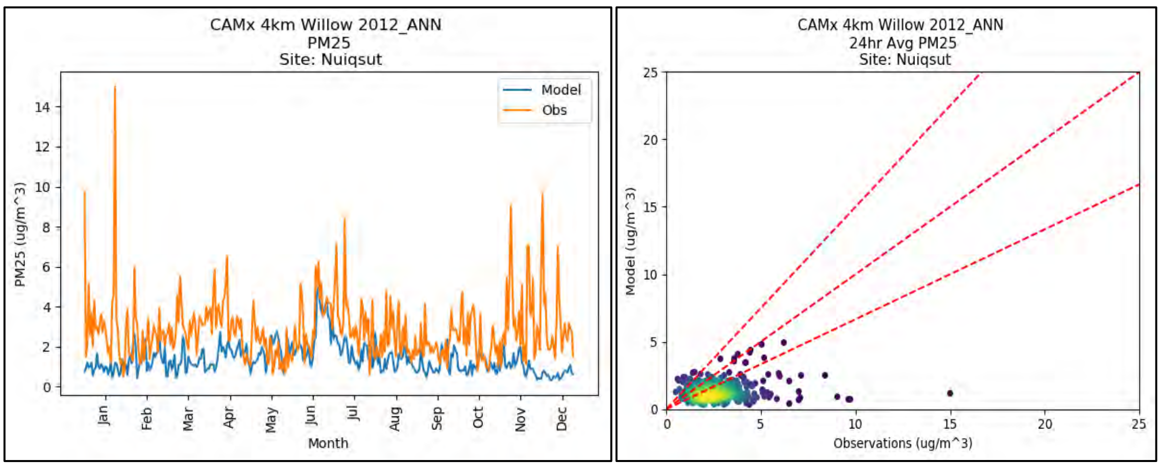

Figure B.2-5 $PM_{2.5}$ results at Nuiqsut: daily time series (left) and density scatter plot (right) with hotter colors indicating greater density of data points.

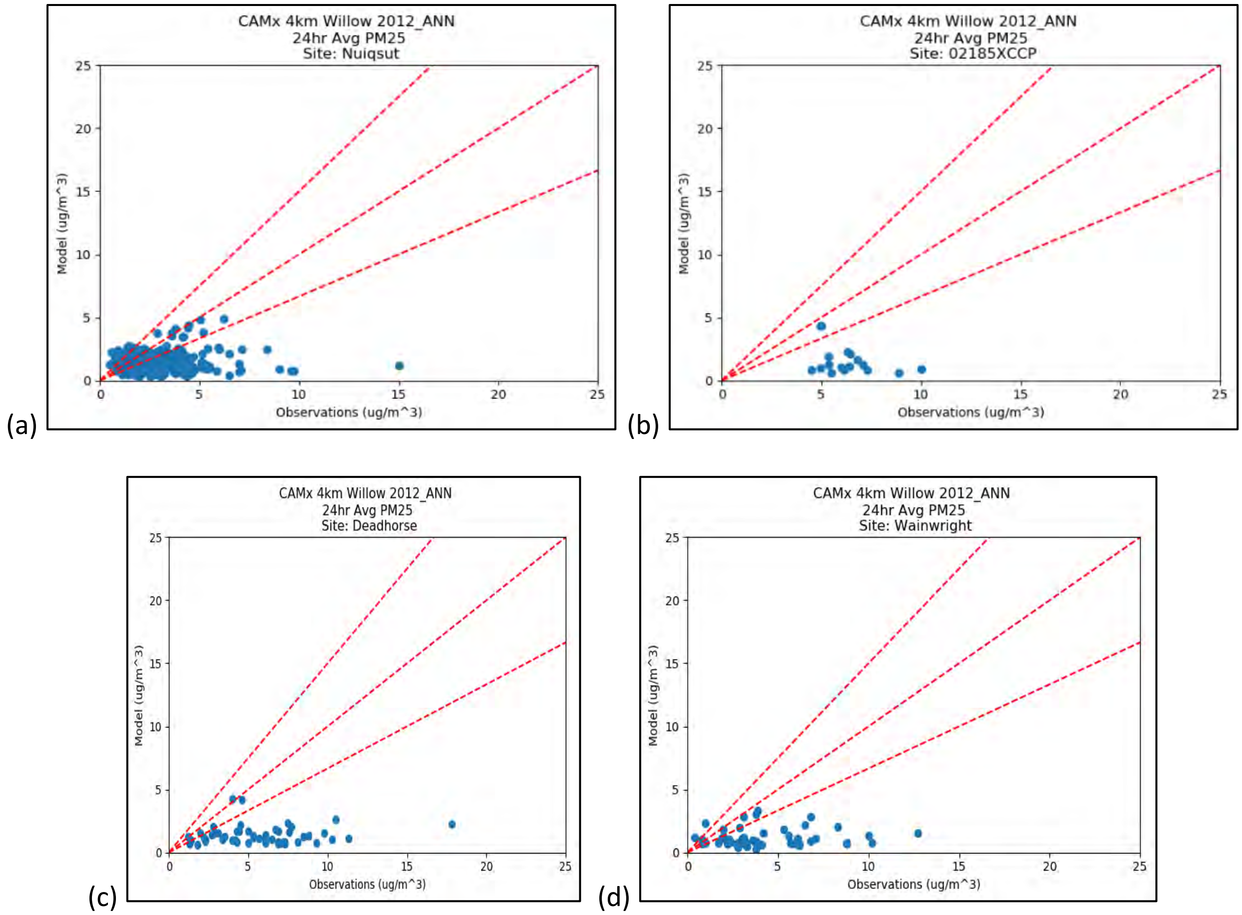

Figure B.2-6 $PM_{2.5}$ scatter plots: (a) Nuiqsut, (b) 02185XCCP, (c) Deadhorse, and (d) Wainwright.

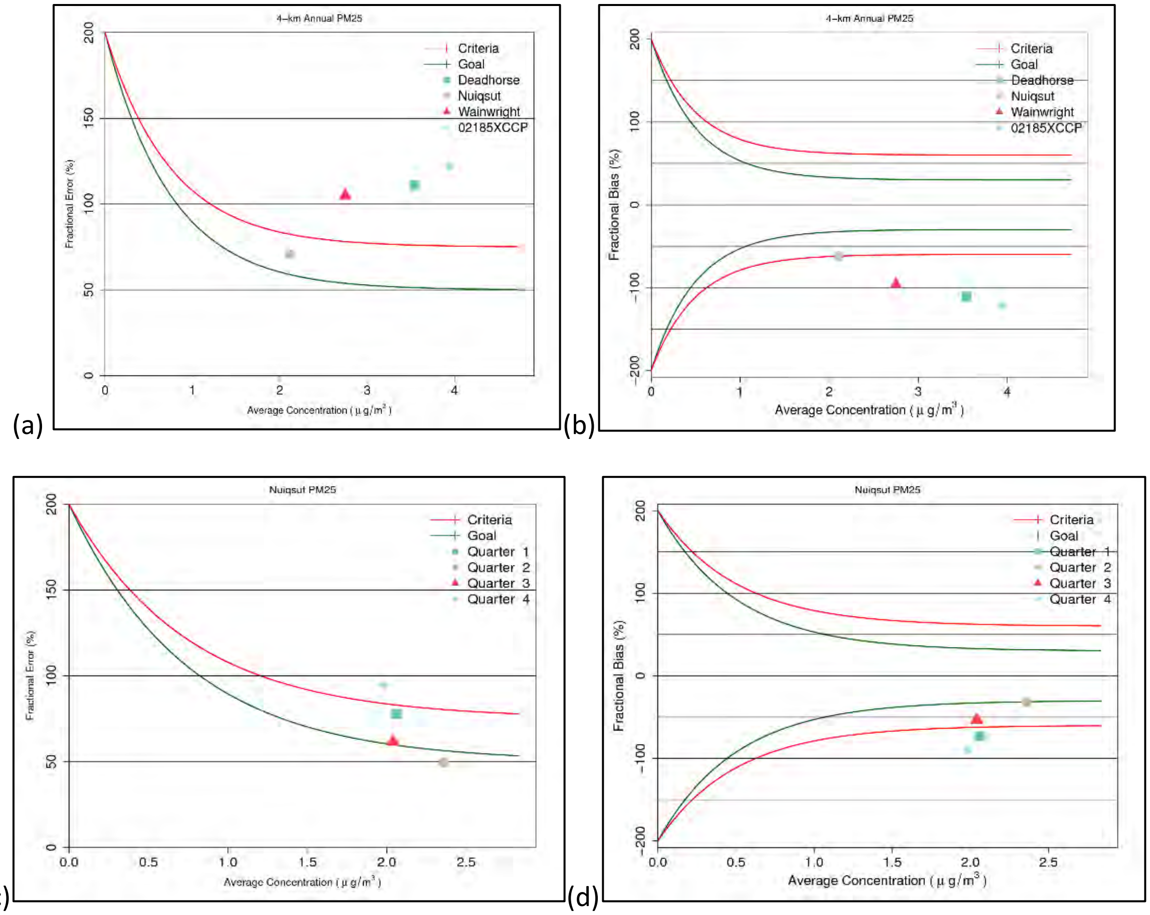

Figure B.2-7 Bugle plots for (a) annually-based fractional error and (b) annually-based fractional bias of $PM_{2.5}$ at all monitoring sites and for (c) quarterly-based fractional error and (d) quarterly-based fractional bias of $PM_{2.5}$ at Nuiqsut.

B.2.4 Speciated $PM_{2.5}$

The following seven $PM_{2.5}$ species were modeled and evaluated at the Deadhorse and Wainwright monitoring locations: sulfate (SO_4), nitrate (NO_3), ammonium (NH_4), OC, EC, sodium, and fine soil.

B.2.4.1 Sulfate

Table B.2-7 summarizes the performance metrics for sulfate. The table shows that for sulfate, NMB and NME values at both monitoring locations are outside the criteria ranges established in Emery, et al. (2017) (±30% for NMB and 50% for NME) except for Q4 NMB at Wainwright, and all NMB and NME values fall outside the 25^{th}-75^{th} percentile range of performances of other studies reported in Simon et al. (2012). The model generally overpredicts sulfate throughout the year, except during Q1. The worst performance occurs during Q3 when observational values of sulfate are very low. Nevertheless, at Deadhorse, all MFE values fall within or near the goal value, as shown by the bugle plots (Figure B.2-8). MFB values for Q2 and Q4 at Deadhorse are within the goal range, but Q1 and Q3 have MFB values outside the criteria range. Similar performance for sulfate occurs at Wainwright, except Q1 MFB is inside the goal range and Q4 MFE is outside the criteria range.

Table B.2-7 Statistical metrics for sulfate at Deadhorse and Wainwright. Bolded values represent values that fall outside of criteria ranges established in Emery, et al., if available.

Sites	Statistical Measure	Annual	Q1	Q2	Q3	Q4
Deadhorse	NMB	**31.8**	**-66.8**	**37.6**	**417**	**44.0**
	NME	**103**	**66.8**	**79.8**	**417**	**92.5**
	MNB	203	-62.8	156	485	127
	MNGE	238	62.8	179	485	158
	MFB	41.7	-98.0	37.5	133	35.2
	MFE	93.5	98.0	68.6	133	79.2
	Mean Obs	0.525	1.17	0.73	0.148	0.327
	Mean Mod	0.691	0.388	1.00	0.765	0.471
Wainwright	NMB	**68.4**	**-61.0**	**73.8**	**387**	18.5
	NME	**126**	**61.7**	**117**	**387**	**59.1**
	MNB	246	-54.5	338	502	57.6
	MNGE	280	56.5	359	502	92.9
	MFB	41.4	-83.5	53.8	130	9.02
	MFE	89.8	85.4	81.9	130	57.5
	Mean Obs	0.454	0.754	0.559	0.224	0.402
	Mean Mod	0.764	0.294	0.972	1.09	0.477

[a]Quarter 1 (Q1) is averaged over January, February, and March
Quarter 2 (Q2) is averaged over April, May, and June
Quarter 3 (Q3) is averaged over July, August, and September
Quarter 4 (Q4) is averaged over October, November, and December

Table B.2-8 Statistical metrics for this study, statistical metrics reported in Simon et al. (2012), and criteria values reported in Emery et al. (2017) for sulfate. Bolded values represent values that fall outside of criteria ranges established in Emery, et al., if available.

Pollutant	Statistical Measure	Deadhorse	Wainwright	Simon et al. 25th percentile	Simon et al. 50th percentile	Simon et al. 75th percentile	Emery et al. Criteria Value
SO_4	NMB	**31.8**	**68.4**	-8.2	-1.7	10.4	±30%
	NME	**103**	**126**	22.2	26.9	41.0	50%
	MFB	41.7	41.4	-19.8	-2.5	1.0	--
	MFE	93.5	89.8	27.0	41.0	57.0	--

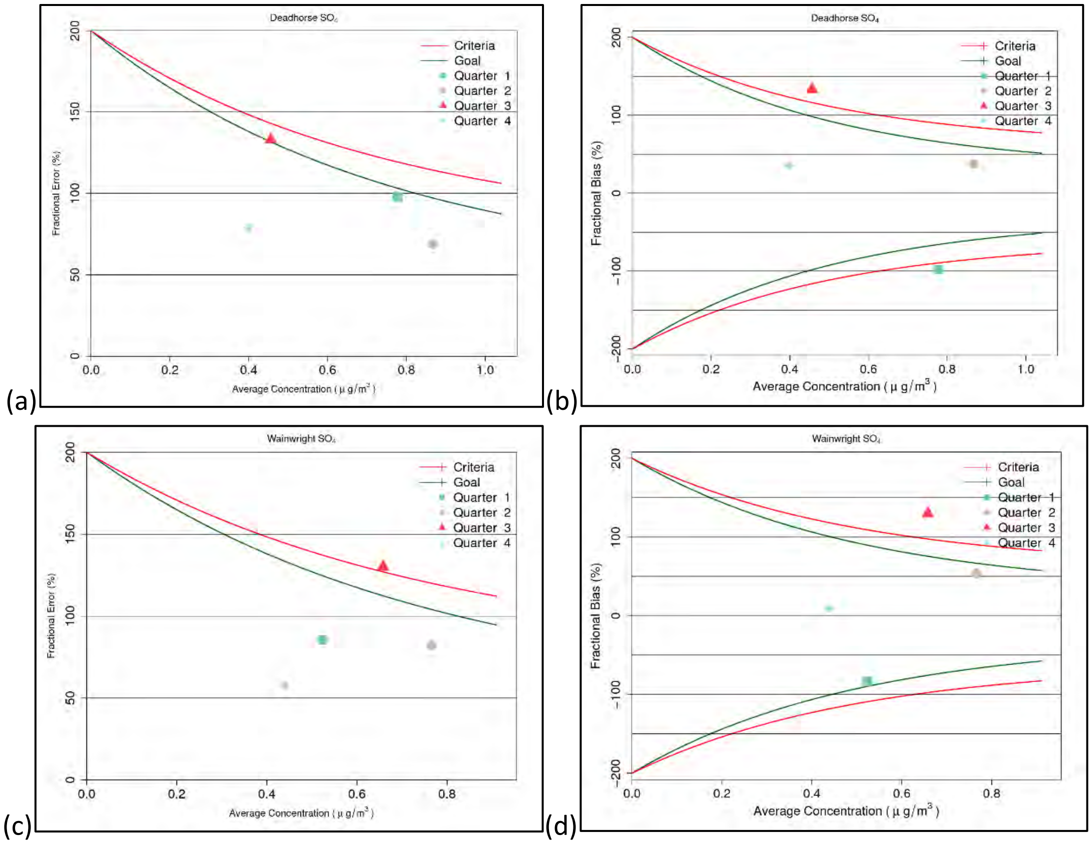

Figure B.2-8 Bugle plots for (a) fractional error and (b) fractional bias of sulfate at Deadhorse and for (c) fractional error and (d) fractional bias of sulfate at Wainwright.

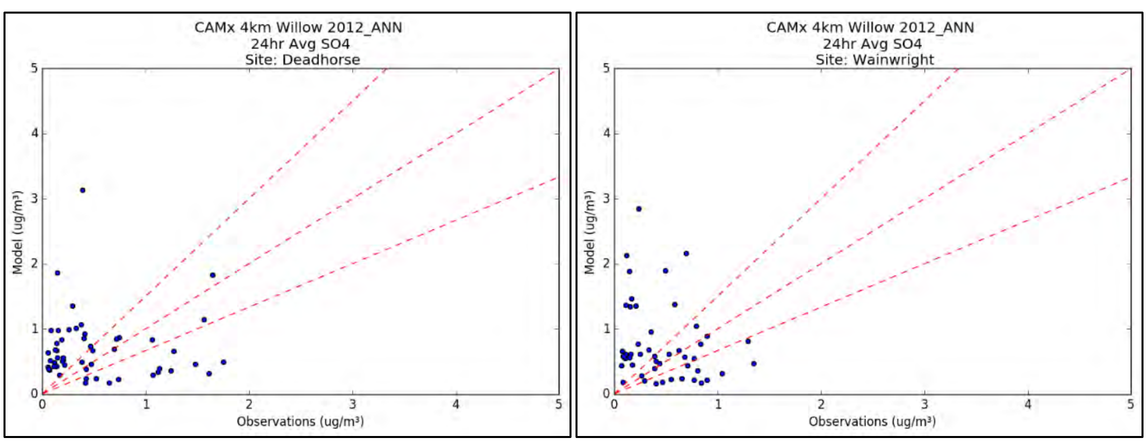

Figure B.2-9 Sulfate scatter plots: Deadhorse (left) and Wainwright (right).

B.2.4.2 Nitrate

Table B.2-9 summarizes the performance metrics for nitrate. The table shows that, in general, nitrate has better performance than sulfate with lower biases and errors during most quarters. All NMB and NME values fall within the criteria ranges established in Emery, et al. (2017) (±65% for NMB and 115% for NME) except Q3 NME and NMB at Deadhorse and Q2 NMB at Wainwright (though the Q2 NMB value is close at -67.1%), though it should be noted the criteria in Emery, et al. (2017) are stricter for sulfate than nitrate. Like sulfate, the worse performance for nitrate occurs during Q3 at Deadhorse when observational values are very low. Excluding Q3 at Deadhorse, the NMB and NME metrics at each location for each quarter are within or perform better than the 25th-75th percentile range reported in Simon et al. (2012). Figure B.2-10 shows that all MFB and MFE metrics fall well within the goal criteria. MFB values for Q1 and Q4 at Wainwright are near zero, suggesting the model performs well for nitrate.

Table B.2-9 Statistical metrics for nitrate at Deadhorse and Wainwright. Bolded values represent values that fall outside of criteria ranges established in Emery, et al., if available.

Sites	Statistical Measure	Annual	Q1	Q2	Q3	Q4
Deadhorse	NMB	-6.63	-35.8	-40.3	**352**	-20.4
	NME	90.1	59.4	76	**370**	74.3
	MNB	54.9	-24.3	-18.2	355	8.02
	MNGE	131	60.7	69.3	368	105
	MFB	-35.5	-50.0	-55.7	49.1	-55.0
	MFE	85.7	76.0	88.1	65.9	103
	Mean Obs	0.201	0.391	0.202	0.080	0.138
	Mean Mod	0.188	0.251	0.121	0.361	0.11
Wainwright	NMB	-27.6	15.4	**-67.1**	-38.2	-14.0
	NME	67.2	76.9	68.3	52.9	60.5
	MNB	-11.9	37.3	-57.6	-23.7	22.4
	MNGE	61.7	81.0	60.6	46.4	51.3
	MFB	-41.9	3.57	-95.4	-40.6	2.24
	MFE	74.0	62.4	98.2	59.1	53.2
	Mean Obs	0.160	0.204	0.152	0.170	0.123
	Mean Mod	0.116	0.236	0.050	0.105	0.106

[a]Quarter 1 (Q1) is averaged over January, February, and March
Quarter 2 (Q2) is averaged over April, May, and June
Quarter 3 (Q3) is averaged over July, August, and September
Quarter 4 (Q4) is averaged over October, November, and December

Table B.2-10 Statistical metrics for this study, statistical metrics reported in Simon et al. (2012), and criteria values reported in Emery et al. (2017) for nitrate. Bolded values represent values that fall outside of criteria ranges, if available (none presented in this table).

Pollutant	Statistical Measure	Deadhorse	Wainwright	Simon et al. 25th percentile	Simon et al. 50th percentile	Simon et al. 75th percentile	Emery et al. Criteria Value
NO_3	NMB	-6.63	-27.6	-49.1	-7.7	11.1	±65%
	NME	90.1	67.2	66.6	73.0	79.7	115%
	MFB	-35.5	-41.9	-136.8	-35.5	-2.5	--
	MFE	85.7	74.0	81.0	100.0	156.0	--

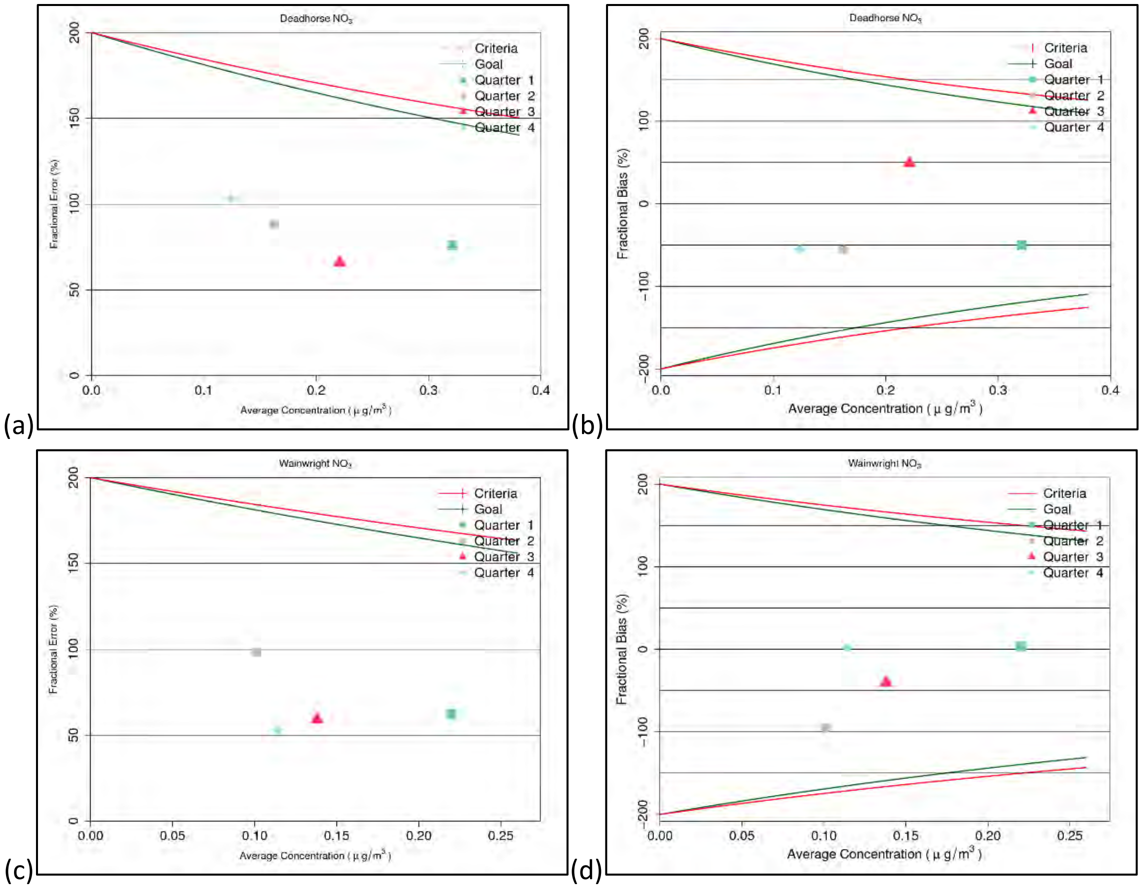

Figure B.2-10 Bugle plots for (a) fractional error and (b) fractional bias of nitrate at Deadhorse and for (c) fractional error and (d) fractional bias of nitrate at Wainwright.

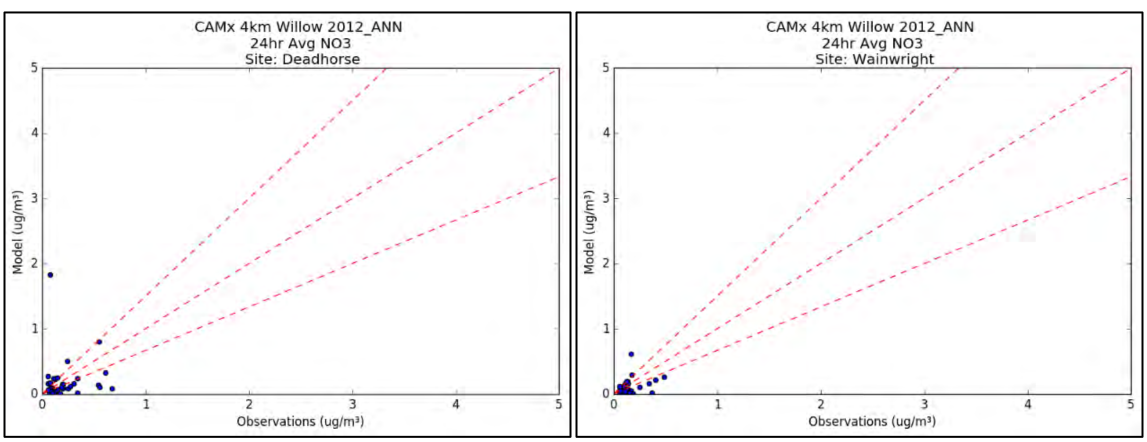

Figure B.2-11 Nitrate scatter plots: Deadhorse (left) and Wainwright (right).

B.2.4.3 Ammonium

Table B.2-11 summarizes the performance metrics for ammonium. Model results generally under-predict ammonium except during Q3. The model performs better at Wainwright than Deadhorse, with all NMB and NME values at Wainwright, except NMB for Q2, falling within the criteria ranges established in Emery, et al. (2017) (±30% for NMB and 50% for NME), but only NMB and NME values for Q4 at Deadhorse falling within that criteria range (it should be noted Q3 performance values at Deadhorse could not be calculated due to lack of measurement data). However, NME values for Q1 and Q2 at Deadhorse are close to the criteria value (57.6% and 55.7%, respectively), suggesting good model performance for ammonium throughout the year at both locations. Further, bugle plots in Figure B.2-12 show that all MFB and MFE values for ammonium fall well within goal ranges at both Deadhorse and Wainwright.

Table B.2-11 Statistical metrics for ammonium at Deadhorse and Wainwright. Bolded values represent values that fall outside of criteria ranges established in Emery, et al., if available.

Sites	Statistical Measure	Annual	Q1	Q2	Q3	Q4
Deadhorse	NMB	**-54.0**	**-57.6**	**-53.8**	NA	-23.3
	NME	**55.6**	**57.6**	**55.7**	NA	36.7
	MNB	-48.1	-59.5	-46.5	NA	-22.1
	MNGE	51.8	59.5	49.8	NA	36.9
	MFB	-71.3	-87.6	-69.9	NA	-31.4
	MFE	74.7	87.6	73.0	NA	44.8
	Mean Obs	0.264	0.328	0.262	NA	0.100
	Mean Mod	0.122	0.139	0.121	NA	0.0767
Wainwright	NMB	-27.6	-18.9	**-42.8**	19.2	-30.0
	NME	40.2	38.5	44.1	42.3	30.0
	MNB	-18.8	-11.7	-38.8	26.0	-25.0
	MNGE	37.5	38.0	40.7	44.2	25.0
	MFB	-29.4	-21.8	-52.6	17.1	-31.2
	MFE	43.4	39.8	54.5	38.2	31.2
	Mean Obs	0.151	0.174	0.181	0.0867	0.100
	Mean Mod	0.110	0.141	0.104	0.103	0.0700

[a]Quarter 1 (Q1) is averaged over January, February, and March
Quarter 2 (Q2) is averaged over April, May, and June
Quarter 3 (Q3) is averaged over July, August, and September
Quarter 4 (Q4) is averaged over October, November, and December

Table B.2-12 Statistical metrics for this study, statistical metrics reported in Simon et al. (2012), and criteria values reported in Emery et al. (2017) for ammonium. Bolded values represent values that fall outside of criteria ranges established in Emery, et al., if available.

Pollutant	Statistical Measure	Deadhorse	Wainwright	Simon et al. 25th percentile	Simon et al. 50th percentile	Simon et al. 75th percentile	Emery et al. Criteria Value
NH_4	NMB	**-54.0**	-27.6	-16.8	-2.9	6.5	±30%
	NME	**55.6**	40.2	26.8	37.4	47.3	50%
	MFB	-71.3	-29.4	-37.3	-4.5	0.0	--
	MFE	74.7	43.4	22.3	41.0	54.8	--

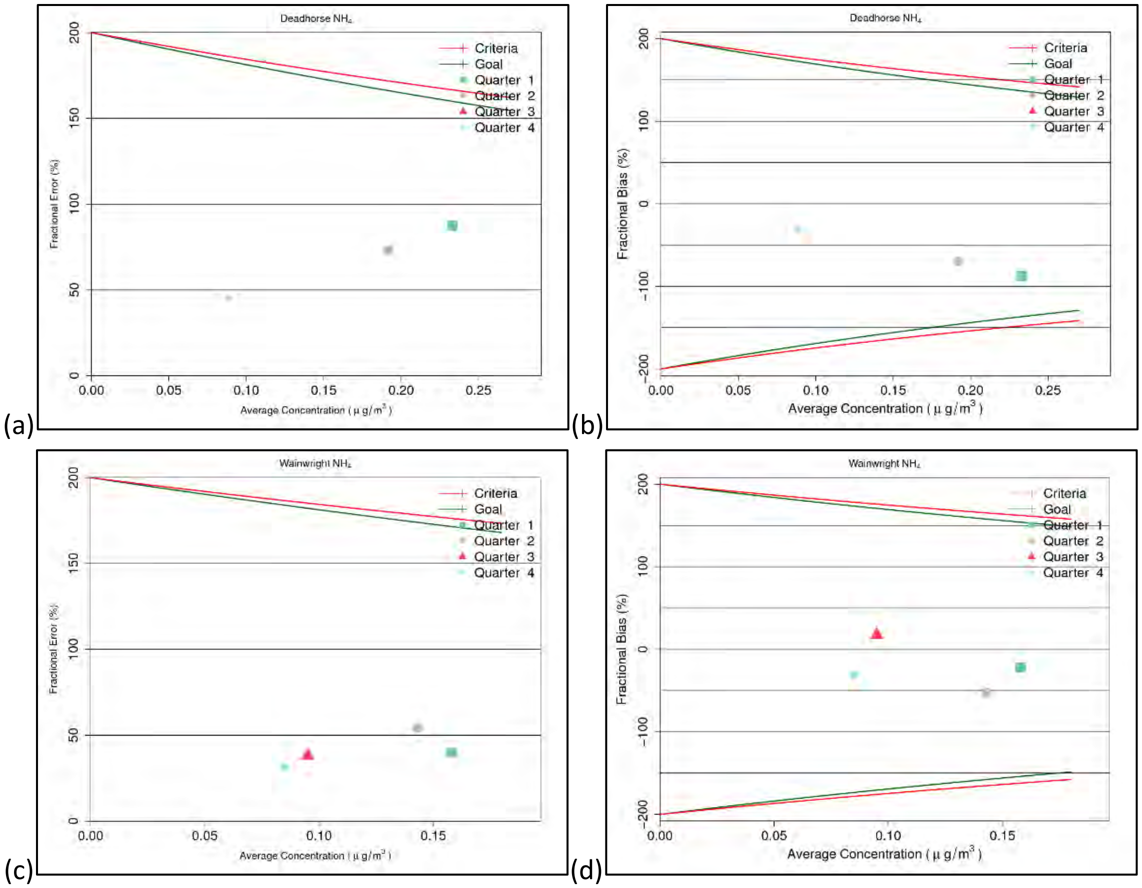

Figure B.2-12 Bugle plots for (a) fractional error and (b) fractional bias of ammonium at Deadhorse and for (c) fractional error and (d) fractional bias of ammonium at Wainwright.

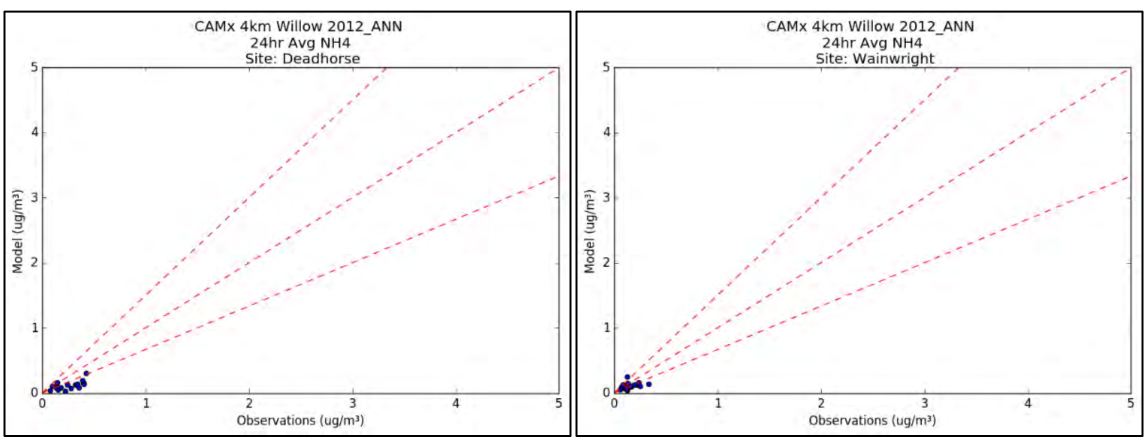

Figure B.2-13 Ammonium scatter plots: Deadhorse (left) and Wainwright (right).

B.2.4.4 Organic Carbon

Table B.2-13 summarizes the performance metrics for OC. The model systematically under-predicts OC throughout the year at both Deadhorse and Wainwright. All NMB and NME values are outside the criteria ranges established in Emery, et al. (2017) (±50% for NMB and 65% for NME) and outside the

25th-75th percentile range reported in Simon et al. (2012). Further, the bugle plots (Figure B.2-14) show that MFB and MFE are outside the criteria ranges for all quarters at both monitoring stations, with MFB being consistently negative.

Table B.2-13 Statistical metrics for OC at Deadhorse and Wainwright. Bolded values represent values that fall outside of criteria ranges established in Emery, et al., if available.

Sites	Statistical Measure	Annual	Q1	Q2	Q3	Q4
Deadhorse	NMB	**-95.6**	**-97.7**	**-95.5**	**-91.0**	**-94.8**
	NME	**95.6**	**97.7**	**95.5**	**91.0**	**94.8**
	MNB	-94.1	-97.6	-95.1	-90.7	-94.6
	MNGE	94.1	97.6	95.1	90.7	94.6
	MFB	-178	-191	-182	-167	-180
	MFE	178	191	182	167	180
	Mean Obs	2.82	7.17	2.28	1.29	2.59
	Mean Mod	0.125	0.167	0.102	0.116	0.135
Wainwright	NMB	**-98.1**	**-98.7**	**-98.4**	**-97.4**	**-96.8**
	NME	**98.1**	**98.7**	**98.4**	**97.4**	**96.8**
	MNB	-97.6	-98.0	-98.0	-97.6	-96.9
	MNGE	97.6	98.0	98.0	97.6	96.9
	MFB	-191	-192	-192	-191	-188
	MFE	191	192	192	191	188
	Mean Obs	1.58	2.61	2.01	1.31	0.716
	Mean Mod	0.0306	0.0344	0.0321	0.0336	0.0231

[a]Quarter 1 (Q1) is averaged over January, February, and March
Quarter 2 (Q2) is averaged over April, May, and June
Quarter 3 (Q3) is averaged over July, August, and September
Quarter 4 (Q4) is averaged over October, November, and December

Table B.2-14 Statistical metrics for this study, statistical metrics reported in Simon et al. (2012), and criteria values reported in Emery et al. (2017) for OC. Bolded values represent values that fall outside of criteria ranges established in Emery, et al., if available.

Pollutant	Statistical Measure	Deadhorse	Wainwright	Simon et al 25th percentile	Simon et al 50th percentile	Simon et al 75th percentile	Emery et al. Criteria Value
OC	NMB	**-95.6**	**-98.1**	-30.8	5.2	19.6	±50%
	NME	**95.6**	**98.1**	47.5	52.7	67.0	65%
	MFB	-178	-191	-58.0	-37.0	-1.5	--
	MFE	178	191	43.0	49.0	64.0	--

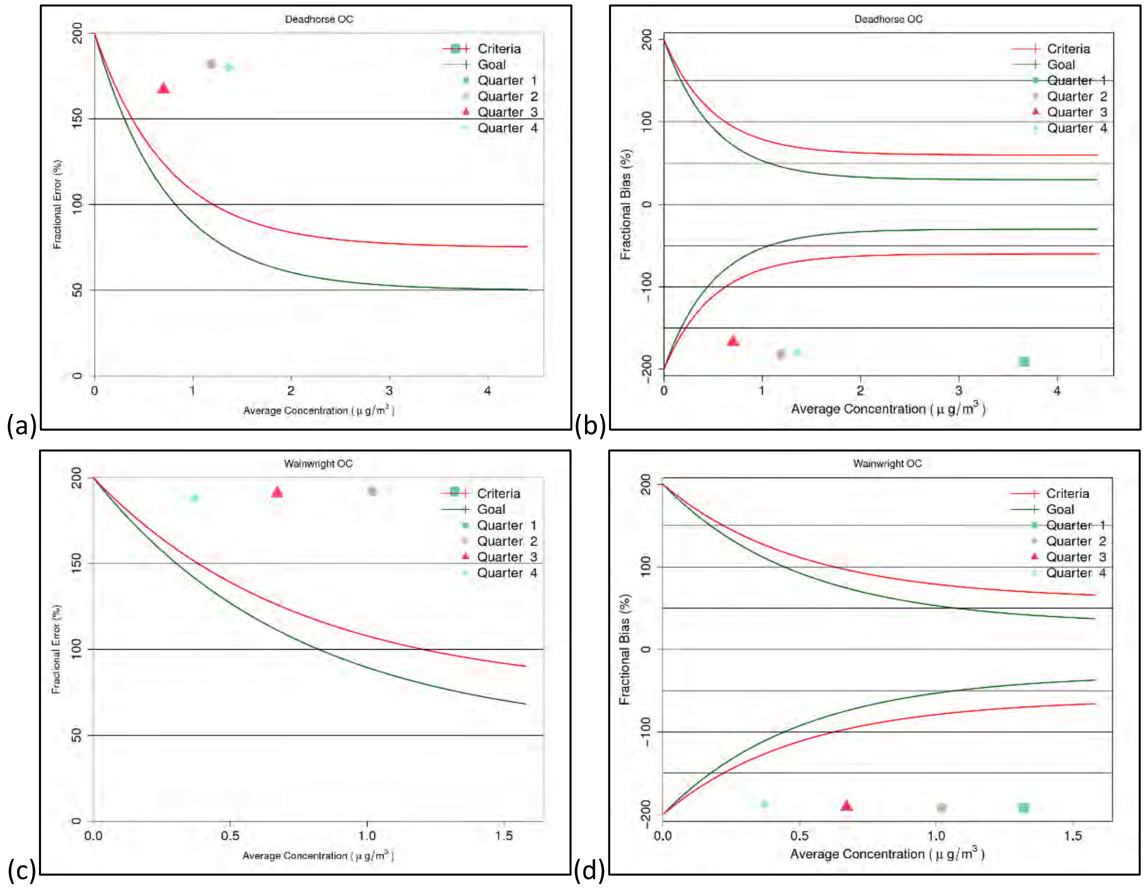

Figure B.2-14 Bugle plots for (a) fractional error and (b) fractional bias of OC at Deadhorse and for (c) fractional error and (d) fractional bias of OC at Wainwright.

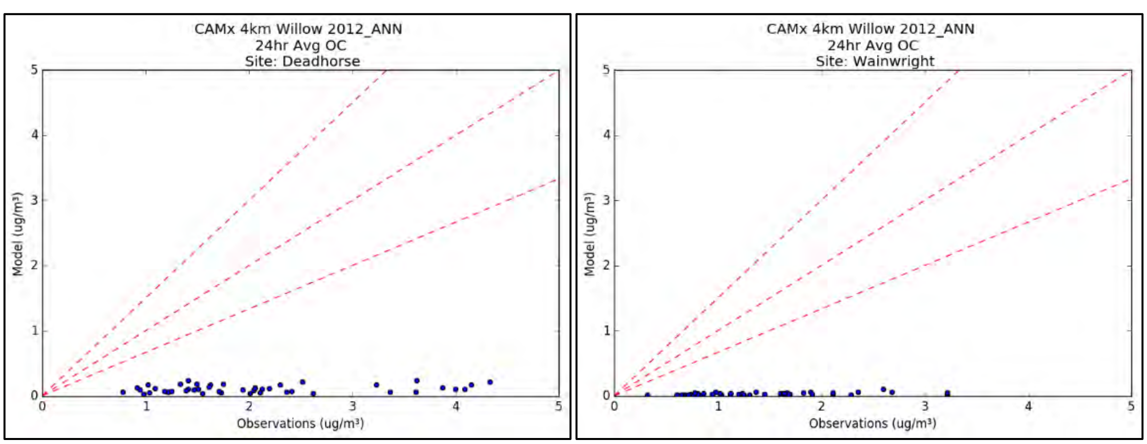

Figure B.2-15 OC scatter plots: Deadhorse (left) and Wainwright (right).

B.2.4.5 Elemental Carbon

Table B.2-15 summarizes the performance metrics for EC. The model performance for EC is similar to OC with consistently negative biases, suggesting systematic under-prediction. Similar to OC, all NMB and NME values (except Q3 and Q4 NME at Deadhorse) are outside the criteria ranges established in Emery, et al. (2017) (±40% for NMB and 75% for NME), though many NME values are close to the criteria (e.g., Q2 at Deadhorse has a NME of 80.5%). All NME and NMB values at both sites are outside the 25th-75th percentile range reported in Simon et al. (2012), though the values reported in Simon et al. (2012) show that other modeling results also consistently under-predicted EC.

Table B.2-15 Statistical metrics for EC at Deadhorse and Wainwright. Bolded values represent values that fall outside of criteria ranges established in Emery, et al., if available.

Sites	Statistical Measure	Annual	Q1	Q2	Q3	Q4
Deadhorse	NMB	**-76.2**	**-83.3**	**-78.3**	**-65.2**	**-72.7**
	NME	**77.6**	**83.3**	**80.5**	71.0	72.7
	MNB	-69.5	-83.4	-77.3	-55.8	-68.0
	MNGE	73.3	83.4	77.3	69.9	68.0
	MFB	-116	-144	-129	-94.6	-111
	MFE	119	144	129	104	111
	Mean Obs	0.537	1.10	0.469	0.313	0.507
	Mean Mod	0.128	0.183	0.102	0.109	0.139
Wainwright	NMB	**-76.8**	**-82.9**	**-49.2**	**-89.7**	**-75.4**
	NME	**86.3**	**82.9**	**96.6**	**89.7**	**81.2**
	MNB	-10.9	-71.2	107	-81.4	-28.8
	MNGE	102	71.2	159	81.4	85.9
	MFB	-76.0	-119	12.3	-144	-82.4
	MFE	114	119	93.8	144	111
	Mean Obs	0.129	0.200	0.0738	0.170	0.0986
	Mean Mod	0.030	0.0343	0.0375	0.0175	0.0243

[a]Quarter 1 (Q1) is averaged over January, February, and March
Quarter 2 (Q2) is averaged over April, May, and June
Quarter 3 (Q3) is averaged over July, August, and September
Quarter 4 (Q4) is averaged over October, November, and December

Table B.2-16 Statistical metrics for this study, statistical metrics reported in Simon et al. (2012), and criteria values reported in Emery et al. (2017) for EC. Bolded values represent values that fall outside of criteria ranges established in Emery, et al., if available.

Pollutant	Statistical Measure	Deadhorse	Wainwright	Simon et al. 25th percentile	Simon et al. 50th percentile	Simon et al. 75th percentile	Emery et al. Criteria Value
EC	NMB	**-76.2**	**-76.8**	-29.4	-21.0	-3.0	±40%
	NME	**77.6**	**86.3**	40.7	52.5	59.5	75%
	MFB	-116	-76.0	-34.0	-7.0	2.8	--
	MFE	119	114	41.5	52.0	66.3	--

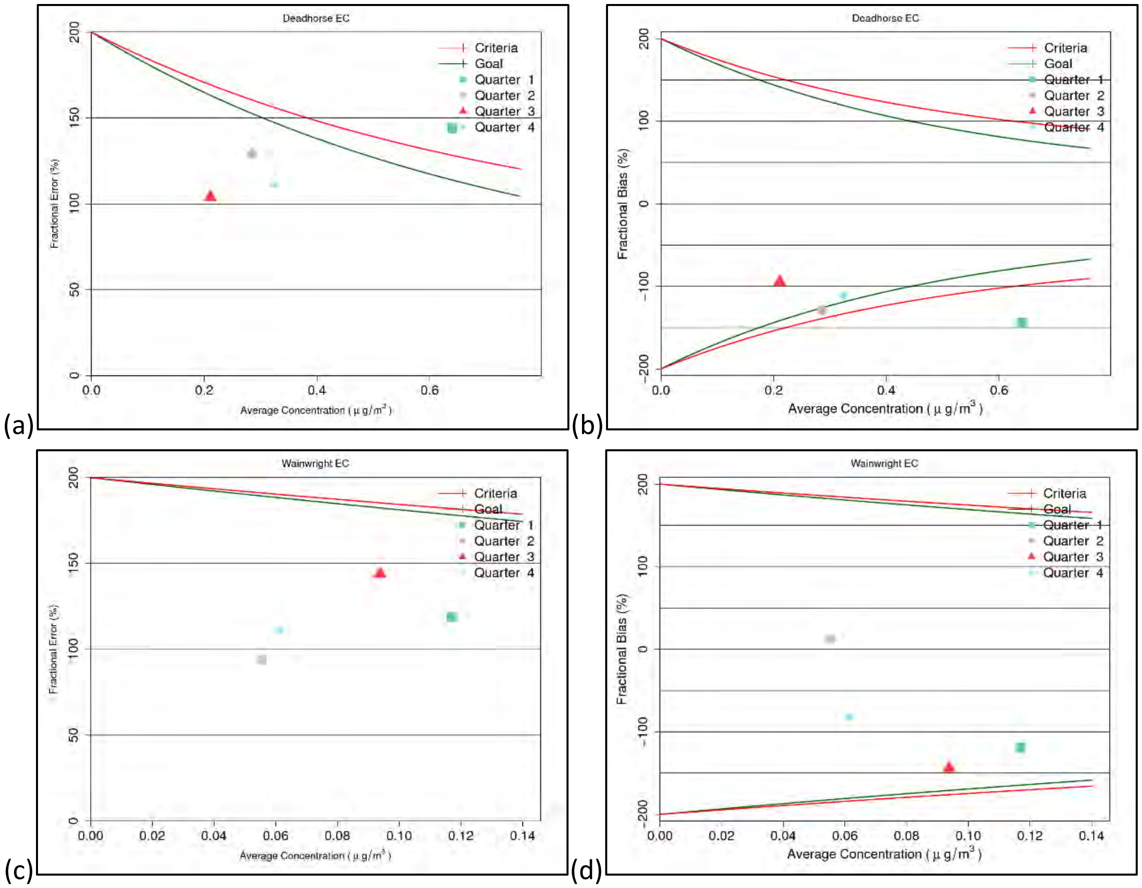

Figure B.2-16 Bugle plots for (a) fractional error and (b) fractional bias of EC at Deadhorse and for (c) fractional error and (d) fractional bias of EC at Wainwright.

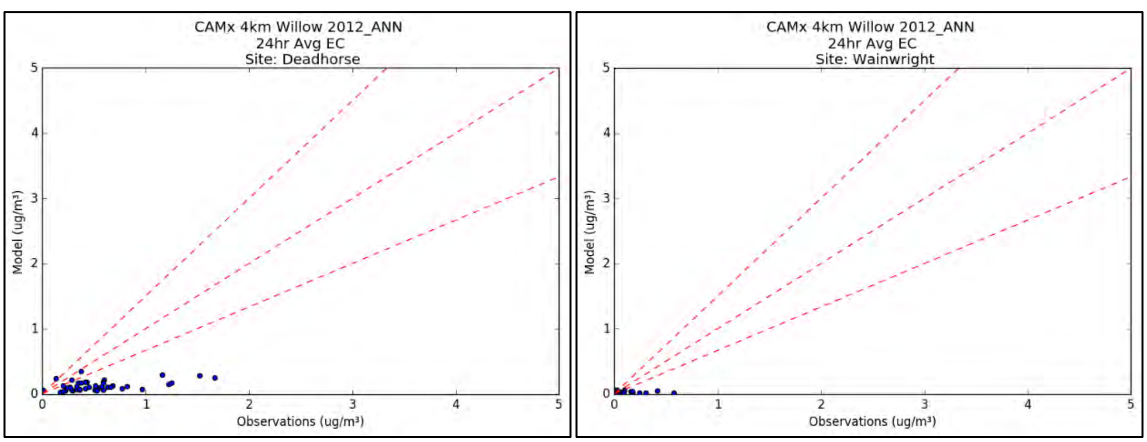

Figure B.2-17 EC scatter plots: Deadhorse (left) and Wainwright (right).

B.2.4.6 Sodium and Fine Soil

Criteria and percentiles ranges were not presented in Emery, et al. (2017) nor Simon et al. (2012) for Na nor soil, so performance evaluation of these species groups relies on the metrics, scatter plots, and bugle plots. Dust emissions adjustments resulted in significant improvement in both NME and NMB for crustal soil at both sites, as shown by comparing Table B.2-17 and Table B.2-18 (see section B.2.5 for further details). Nevertheless, the model is systematically biased high for soil at Deadhorse and biased high during Q2 and Q3 at Wainwright, but modeled soil is biased low during Q1 and Q4 at Wainwright (Table B.2-17). Sodium results show systematic positive biases at Wainwright and positive biases for Q3 and Q4 at Deadhorse, but the model is biased low for Q1 and Q2 at Deadhorse. As seen in the bugle plots for soil (Figure B.2-18) the MFE and MFB for each site for each quarter fall within the criteria ranges. For sodium (Figure B.2-20), all MFE and MFB values for both sites fall within the criteria ranges except for Q3 at Wainwright, suggesting adequate model performance for sea salt emissions.

Table B.2-17 Statistical metrics for crustal soil at Deadhorse and Wainwright

Sites	Statistical Measure	Annual	Q1	Q2	Q3	Q4
Deadhorse	NMB	166	232	296	302	19.1
	NME	225	274	312	335	117
	MNB	840	652	1340	820	536
	MNGE	859	665	1350	829	576
	MFB	88.7	112	107	112	38.4
	MFE	116	130	118	125	98.5
	Mean Obs	0.112	0.09	0.106	0.0653	0.175
	Mean Mod	0.297	0.299	0.419	0.263	0.208
Wainwright	NMB	2.04	-27.7	194	19.5	-67.4
	NME	122	104	230	122	89
	MNB	249	264	485	117	153
	MNGE	306	314	496	175	257
	MFB	14.4	26.2	92.8	10.7	-62.6
	MFE	105	102	107	96.1	114
	Mean Obs	0.187	0.157	0.106	0.169	0.314
	Mean Mod	0.19	0.113	0.311	0.201	0.102

Table B.2-18 Statistical metrics for crustal soil at Deadhorse and Wainwright using emissions pre-adjustment

Sites	Statistical Measure	Annual	Q1	Q2	Q3	Q4
Deadhorse	NMB	693	232	1010	2320	19.1
	NME	746	274	1020	2320	117
	MNB	3180	652	5350	5590	536
	MNGE	3200	665	5360	5590	576
	MFB	112	112	130	175	38.4
	MFE	136	130	140	175	98.5
	Mean Obs	0.112	0.0900	0.106	0.0653	0.175
	Mean Mod	0.885	0.299	1.17	1.58	0.208
Wainwright	NMB	339	-27.0	1010	836	-66.9
	NME	436	105	1050	850	89.0
	MNB	1180	270	2430	1700	154
	MNGE	1230	319	2450	1700	257
	MFB	57.0	27.1	127	131	-60.9
	MFE	124	103	141	135	113
	Mean Obs	0.187	0.157	0.106	0.169	0.314
	Mean Mod	0.819	0.114	1.18	1.58	0.104

[a]Quarter 1 (Q1) is averaged over January, February, and March
Quarter 2 (Q2) is averaged over April, May, and June

Quarter 3 (Q3) is averaged over July, August, and September
Quarter 4 (Q4) is averaged over October, November, and December

Table B.2-19 Statistical metrics for sodium at Deadhorse and Wainwright.

Sites	Statistical Measure	Annual	Q1	Q2	Q3	Q4
Deadhorse	NMB	-33.3	-33.1	-71.8	89.6	49.6
	NME	105	105	94.6	120	154
	MNB	93.1	-16.3	26.3	160	152
	MNGE	173	103	132	187	237
	MFB	-24.8	-81.1	-65.5	44.3	-23.1
	MFE	107	123	119	79.2	116
	Mean Obs	0.472	0.219	1.17	0.248	0.151
	Mean Mod	0.315	0.146	0.330	0.469	0.225
Wainwright	NMB	89.9	18.9	122	66.3	294
	NME	205	134	166	205	314
	MNB	585	131	109	1820	179
	MNGE	625	224	152	1840	199
	MFB	32.9	-51.8	17.1	92.6	48.9
	MFE	93.5	91.3	76.3	129	78.3
	Mean Obs	0.226	0.0964	0.0953	0.573	0.0800
	Mean Mod	0.428	0.115	0.212	0.953	0.315

[a]Quarter 1 (Q1) is averaged over January, February, and March
Quarter 2 (Q2) is averaged over April, May, and June
Quarter 3 (Q3) is averaged over July, August, and September
Quarter 4 (Q4) is averaged over October, November, and December.

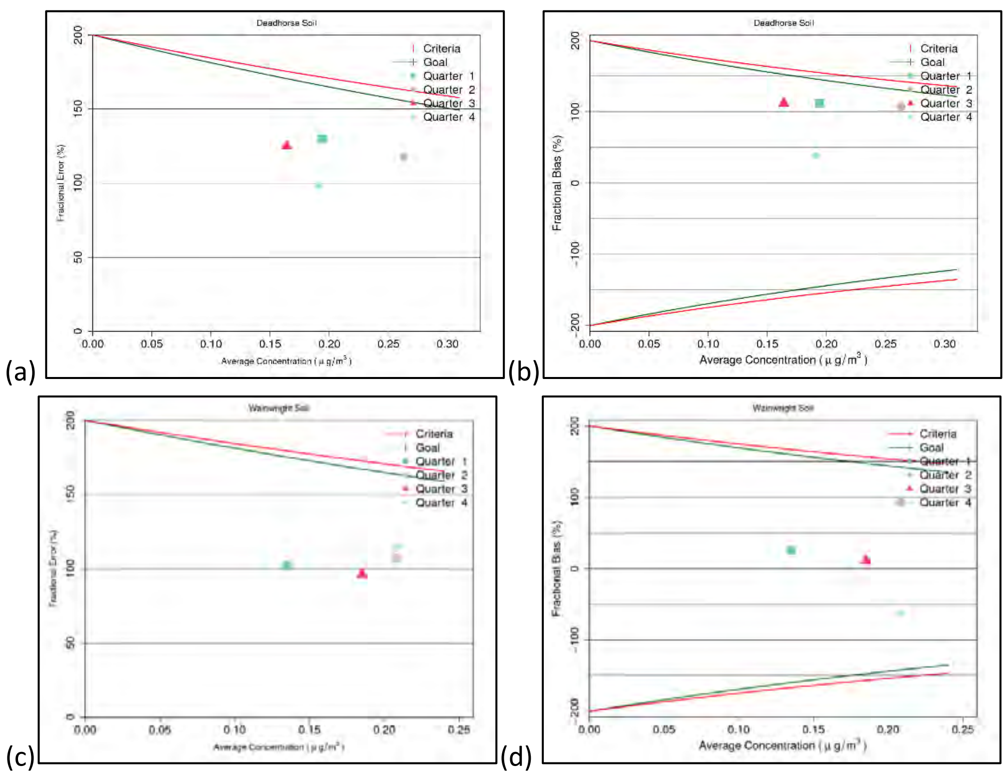

Figure B.2-18 Bugle plots for (a) fractional error and (b) fractional bias of crustal soil at Deadhorse and for (c) fractional error and (d) fractional bias of crustal soil at Wainwright.

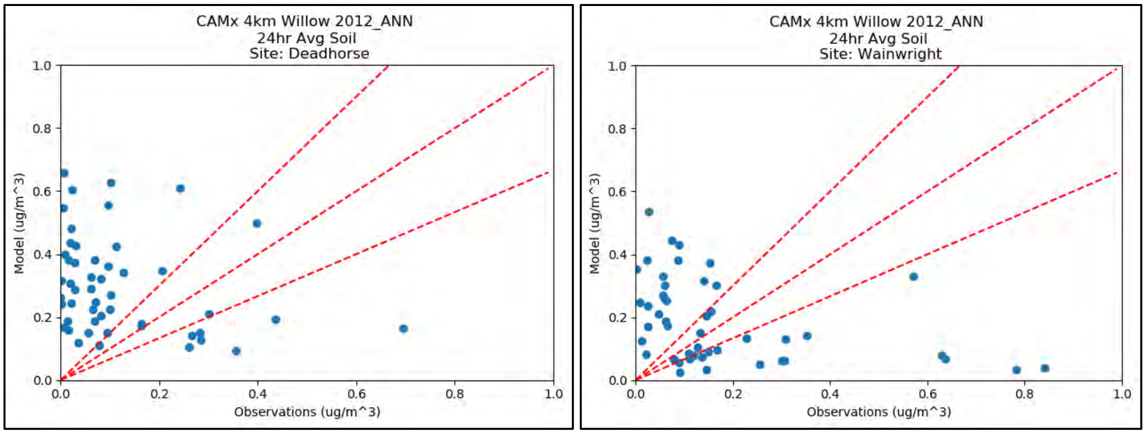

Figure B.2-19 Soil scatter plots: Deadhorse (left) and Wainwright (right).

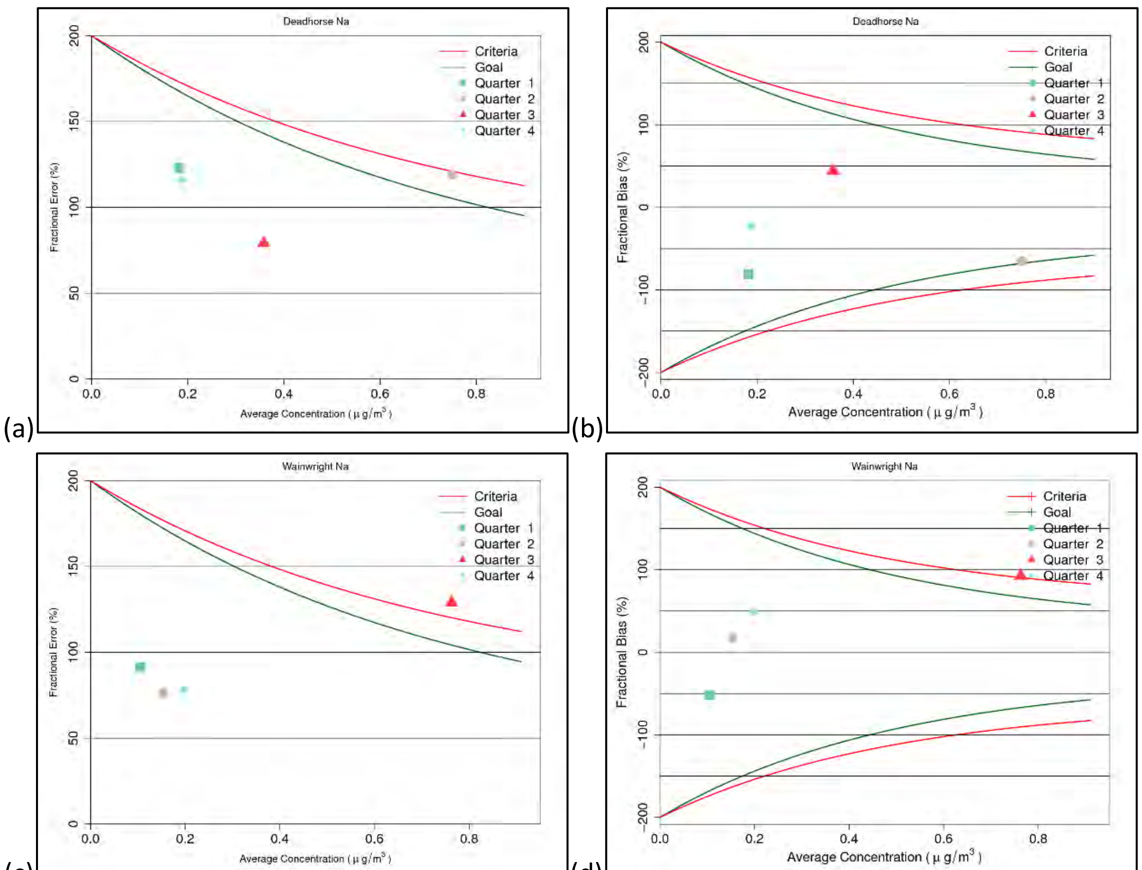

Figure B.2-20 Bugle plots for (a) fractional error and (b) fractional bias of sodium at Deadhorse and for (c) fractional error and (d) fractional bias of sodium at Wainwright.

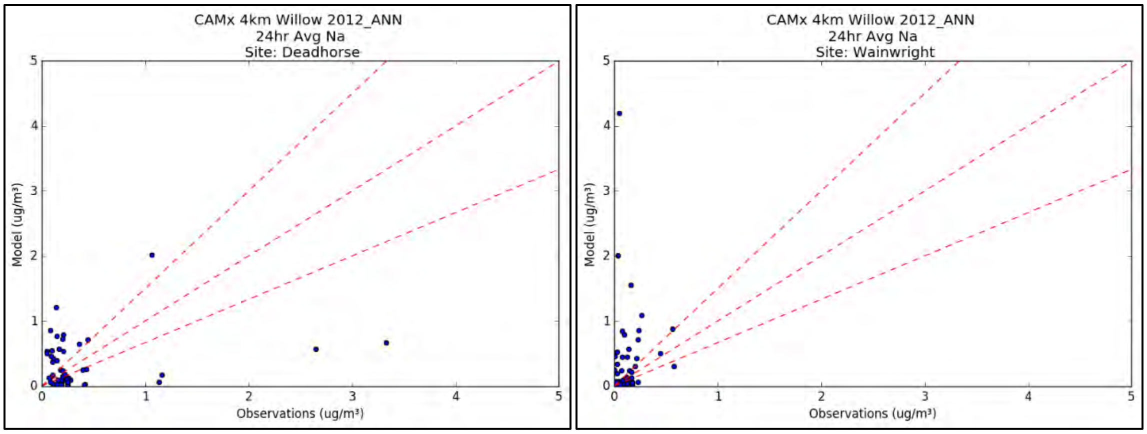

Figure B.2-21 Sodium scatter plots: Deadhorse (left) and Wainwright (right).

B.2.5 Regional Unpaved Road Dust Evaluation

This study originally relied on unpaved fugitive dust emissions from BOEM modeling platform. A comparison of the modeled fine soil concentrations with speciated monitored soil concentrations at Deadhorse and Wainwright sites showed very high modeled concentrations as discussed below. Note that monitored soil is not readily available in the observations and hence it was calculated using the IMPROVE network soil definition (i.e., SOIL = 2.20*Al + 2.49*Si + 1.63*Ca + 2.42*Fe + 1.94*Ti, reference:http://vista.cira.colostate.edu/improve/Publications/GrayLit/023_SoilEquation/Soil_Eq_Evaluation.pdf)

Three type of analyses were conducted at both monitoring sites:

1. Comparison of 24-hour concentrations
2. Evaluation of monthly normalized mean bias (NMB) and normalized median bias (NMeB)
3. Evaluation of quarterly normalized mean bias and normalized median bias

For both monitoring sites, the modeled soil concentrations were at least an order of magnitude larger than monitored values during summertime and can exceed observations by two orders of magnitude on some dates as shown in Figure B.2-22. This over-estimate is larger and more consistent at Deadhorse than at Wainwright which is due to the former's close proximity to the majority of the dust emissions.

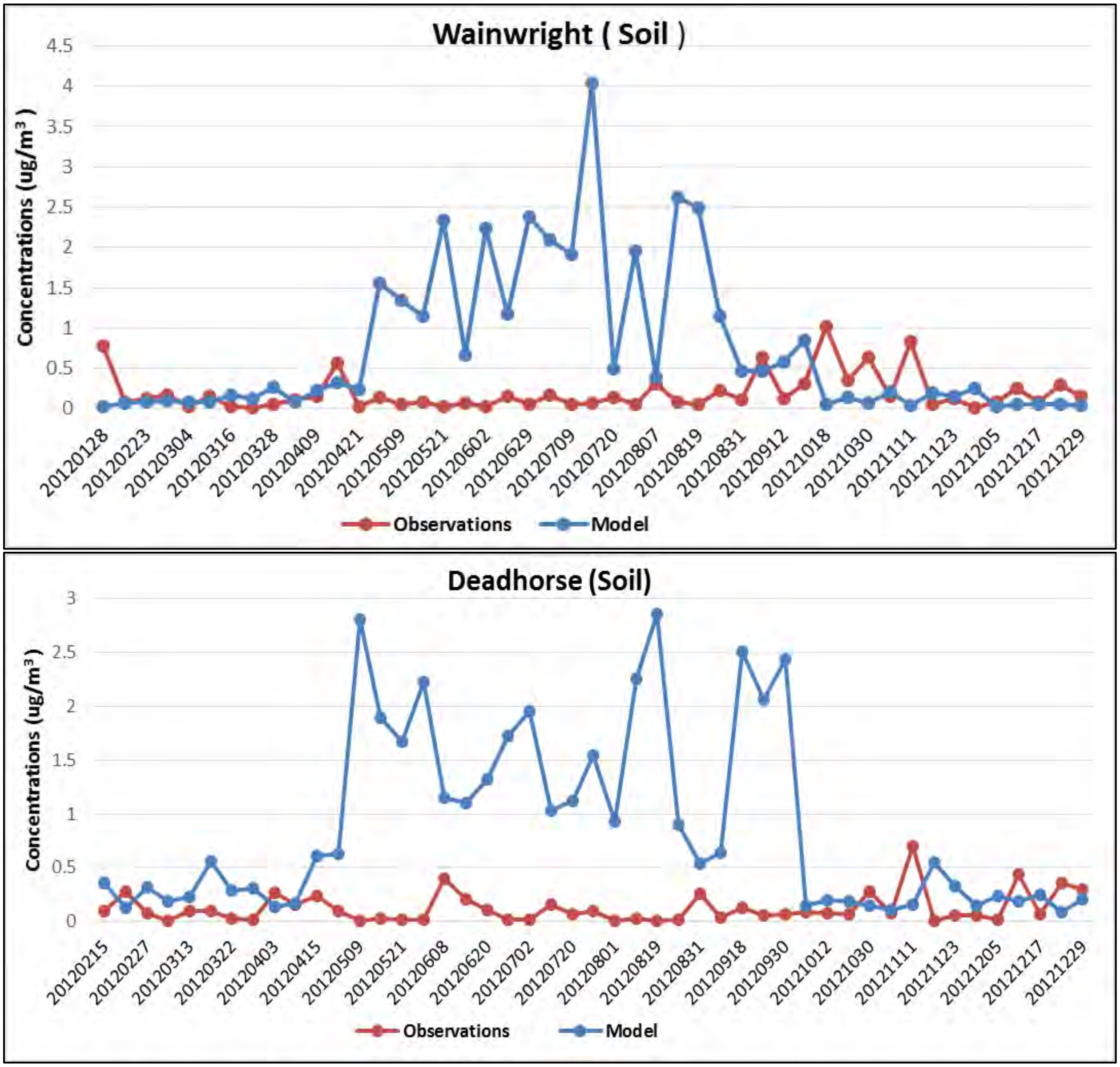

Figure B.2-22 Timeseries of 24-hour daily values from Monitoring and Modeled concentrations at Wainwright and Deadhorse.

Here are the specific finding for each of the analyses methods.

1. Daily 24-hour concentrations are a factor of 10 greater than monitored concentrations for all dates except for 4 days out of 21 at Deadhorse and 9 days out of 21 at Wainwright. It is expected that there would be dates when the dust emissions would have a smaller contribution to overall monitored soil due to variability in daily transport patterns. This is particularly true at Wainwright which is a coastal site and only has a moderate influence from anthropogenic dust sources.
2. Normalized Mean Bias (NMB) and Normalized Median Bias (NMeB) values exceed 1000%, which is equivalent to a factor of 10 difference, at Deadhorse and Wainwright for all months except June at deadhorse, and September at wainwright.

3. NMB and NMeB values exceed 1000%, which is equivalent to a factor of 10 difference, during Q2 and Q3 at deadhorse and Q2 at Wainwright. During Q3 at wainwright NMB is <1000%, but NMeB >1000% as shown in Table B.2-17.

Finally the new dust reduced modeled soil concentrations were compared with the monitoring data and it appears close to the monitoring data and able to moderately capture the temporal trend in the monitoring data as shown in Figure B.2-23. Based on this evaluation we improved the dust emissions from the BOEM platform.

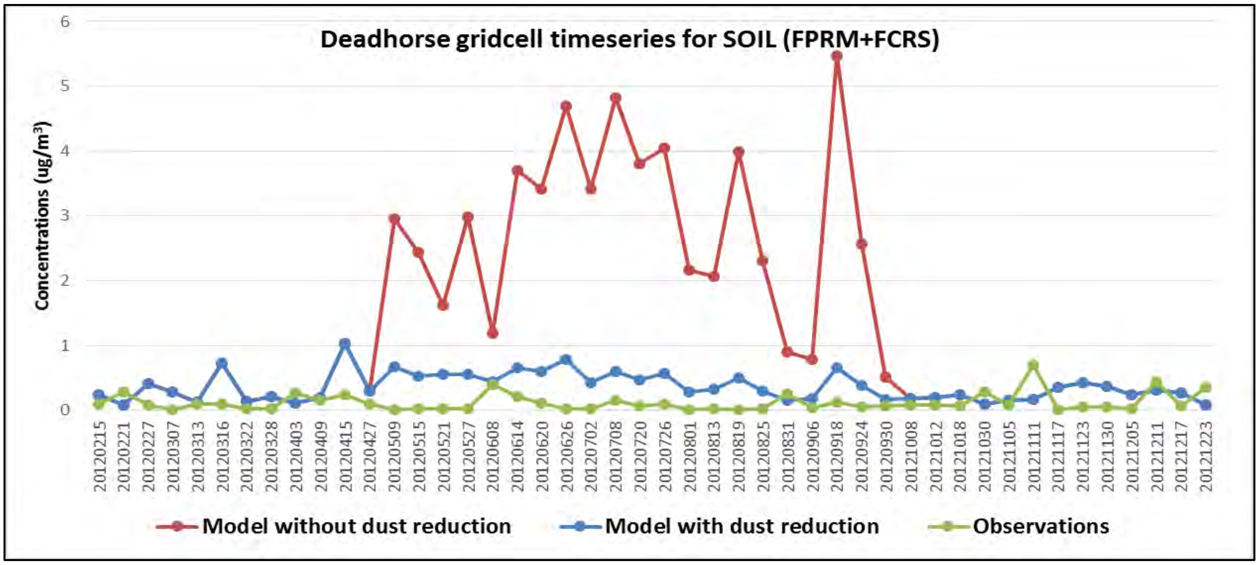

Figure B.2-23 Timeseries comparison of model scenario "with dust reduction" and "without dust reduction" with monitoring data at Deadhorse site.

B.2.6 Summary and Conclusions of MPE

A detailed model performance evaluation is presented for ozone, $PM_{2.5}$, and $PM_{2.5}$ species (sulfate, nitrate, ammonium, OC, EC, sodium, and soil) for the 4 km base-case modeling simulation. The model performance results should be interpreted with care given that contemporaneous air quality observations were very limited for this area.

The model performance generally falls within expected criteria ranges for ozone, but the model performed worse during periods of peak high and low observational data. Overall, the model is biased low for ozone during Q1 and Q4 and biased high during Q2 and Q3. $PM_{2.5}$ model results are systematically biased low at all sites during all quarters. Additionally, Annual-based $PM_{2.5}$ MFE and MFB fall within criteria ranges at Nuiqsut but not the other sites.

Sulfate, nitrate, and ammonium performed the worst in Q3 with high positive biases. For each of these species groups, the observational data tended to be low during Q3. For nitrate and ammonium, model results are under-predicted except during Q3. Sulfate is over-predicted except during Q1, and soil is over-predicted throughout the year. Nitrate, ammonium, and crustal soil perform best out of these species groups with MFE and MFB for all quarters across both monitoring sites within criteria ranges. For sulfate, MFB and MFE results are mixed.

OC and EC are systematically under-predicted throughout the year at Wainwright and Deadhorse. EC performs better than OC, as shown by the bugle plots. None of the MFE or MFB values for OC are within the criteria ranges, but all (except Q1 at Deadhorse) MFE and MFB estimates for EC are within criteria ranges.

Even with known difficulties with modeling sea salt emissions, the model performed well for sodium. The model is biased high for sodium except during Q1 and Q2 at Deadhorse, but almost all MFB and MFE values are within criteria ranges.

Overall, the model performs well at the limited available observational sites, excluding an inability to reproduce peak high and low concentrations for ozone and systematic low biases for EC and OC. Most of the modeled species have MFB and MFE that fall well within the goal and criteria ranges. Nitrate and ammonium performed particularly well with all of the NMB and NME values falling within the goal or criteria ranges established in Emery, et al. (2017). The goals and other criteria used in the MPE are not bright-line (pass/fail) thresholds.

B.3 References

ADEC. (2011). A preliminary assessment of fugitive dust from roads in eight Alaskan villages in the Northwest Arctic Borough.

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Attachment C

Willow Development Emissions Inventory Report Alternative B and Module Delivery Option 3 (Proponent's Proposed Project)

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Willow Development Emissions Inventory Report Alternative B – Option 3

1.0 Introduction and Purpose

ConocoPhillips Alaska, Inc. (CPAI), as operator and working interest owner, proposes to develop hydrocarbon resources from federal oil and gas leases in the Northeast Planning Area of the National Petroleum Reserve-Alaska (NPR-A). The Willow Master Development Plan (MDP) addresses a series of infrastructure components that would be constructed over an approximately nine-year period for the purpose of oil and gas development in the NPR-A. The Willow MDP area (Plan Area) is located on the North Slope of Alaska, in the northeast section of the NPR-A. The majority of the proposed facilities associated with the Willow MDP are on leased federal lands, and the proposed drillsites are in the Bear Tooth Unit (BTU). See CPAI's Willow MDP Environmental Evaluation Document (EED) for additional information on the location of the proposed project.

Supporting infrastructure would be located in the Greater Mooses Tooth Unit (GMTU), on un-unitized lands within the NPR-A, on lands owned by the Kuukpik Corporation, the Alaska Native Claims Settlement Act (ANCSA) village corporation for Nuiqsut, and on lands owned and managed by the State of Alaska. A proposed road corridor providing access to the Plan Area would tie into the access road in the GMTU to the east. Proposed pipelines would tie into existing pipeline infrastructure at a tie-in pad near Colville Delta 4 North (CD4N), the Alpine Central Facility (ACF), and the Kuparuk River Unit Central Processing Facility 2 (CPF2). Proposed pipelines cross lands owned by Kuukpik Corporation and the State of Alaska. Large modules are proposed to be transported via sealift barge to Oliktok Dock (Option 3), via gravel road to Drill Site (DS2P), and via heavy-haul ice road west across the Colville River to the Willow access road just west of the Greater Mooses Tooth 2 Drill Site (GMT2). A gravel site is proposed on federally managed lands within the GMTU and in un-unitized lands. None of the proposed Willow facilities would be located on Native allotments or private land, except that the pipelines would use existing pipeline corridors, some of which are on private land.

CPAI's purpose for the Willow Development is the economic production and transportation to market of oil and gas resources from the BTU, while protecting important surface resources and ensuring safe operations. The Willow Development would produce multiphase product (oil, gas, and water) that would be carried by pipeline to new processing facilities at the Willow Central Processing Facility (WCF). Sales-quality crude oil produced at the WCF would be transported to a tie-in pad near CD4N at Alpine, where it would tie into the existing Alpine Sales Oil Pipeline. From the tie-in point, it would be transported to the Kuparuk Pipeline and to the Trans-Alaska Pipeline System (TAPS) for shipment to market (see CPAI's Willow MDP EED for a depiction of the proposed pipeline system).

2.0 Proposed Project Description

CPAI's proposed project would provide the shortest road access from GMTU to the proposed Willow facilities. It includes five drillsite locations necessary to economically develop Plan Area oil resources, a WCF, a Willow Operations Center (WOC) containing project support facilities, and an airstrip with an apron. Access to the Plan Area from GMTU and to proposed drillsites from the WCF and the WOC would be via gravel roads and would include seven bridge crossings. Access to the Plan Area would also be provided by air using fixed wing aircraft and helicopters and a Plan Area airstrip near the WOC, and, during construction, by ice road. The proposed project includes module delivery via sealift barge to the existing Oliktok Dock and staged mobilization of modules to the Plan Area by existing gravel roads and ice roads.

The proposed project includes infield pipelines to transport produced fluids from drillsites to the WCF and an oil export pipeline, the Willow Pipeline, to transport sales-quality crude oil from the WCF to a tie-in point with the Alpine Pipeline near CD4N. Other support pipelines include a seawater pipeline, diesel pipeline, and freshwater pipeline. Gravel valve pads would be constructed at pipeline crossing locations over Judy Creek and Fish Creek. All pipelines would be parallel to proposed or existing gravel roads.

The proposed project also includes development of a new gravel mine in the Tiŋmiaqsiuġvik Area to support project construction and a constructed freshwater reservoir (CFWR) for a reliable freshwater source within the Plan Area. An overview and graphical depiction of the proposed project including road routing, pad locations, gravel mine site, reservoir, and dock location is provided in the Willow MDP EED.

2.1 Construction

CPAI proposes to construct the Willow Development on a nine-year construction schedule beginning in late 2020 and completing in 2029. This nine-year period will include construction of five drillsites, the WCF, WOC, airstrip, gravel access roads, pipelines, communications facilities, living quarters, and other infrastructure to support long-term operations. CPAI will also construct and operate temporary facilities including a gravel mine, seasonal ice roads, single-season and multi-season ice pads, and temporary camp facilities for worker housing to support construction activities, as well as making infrastructure improvements at Oliktok Dock, staging areas, and roads for module delivery and transport.

2.1.1 Gravel Sourcing

A total of approximately 5.0 million cubic yards of material will be required for the Willow Development, including improvements to Oliktok Dock, to fill approximately 453 surface acres. CPAI plans to source most of this gravel from two mine sites with a maximum final mine pit disturbance area of approximately 150 acres in the Tiŋmiaqsiuġvik Area over six winter construction seasons. Gravel for infrastructure improvements at Oliktok Dock, staging areas, and roads for module transport would be sourced from an existing gravel source in Kuparuk. Blasting is required to loosen material from the gravel source, and heavy equipment is required to remove the material. After blasting, these materials will be removed in multiple lifts. The mine site excavation would take place in three separate removal activities: (1) removal of organic materials; (2) removal of inorganic overburden; and (3) removal of suitable gravel material in approximately 20-foot lifts. Initial lifts will be for the removal of overburden, which will be stockpiled adjacent to the pit on a seasonal ice pad. Subsequent lifts will supply the gravel for the project. In addition to blasting, gravel sourcing would be conducted with a variety of diesel-fired nonroad equipment, such as crushers, dozers, drills, excavators, light plants, loaders, air compressors, trimmers, water pumps, and welders, as well as mobile support equipment. When gravel extraction is complete, the site will be rehabilitated, and stockpiled overburden will be backfilled to contour the mined pit into a natural habitat.

2.1.2 Ice Road and Ice Pad Construction

Ice roads would be used primarily during construction to support gravel infrastructure and pipeline construction, for lake access, and to access the selected gravel source(s). Single-season and multi-season ice pads would be used to house construction camps, stage construction equipment or materials, and support other construction activities. Ice road construction is dependent upon ground temperature and precipitation (i.e., sufficient snow for pre-packing of routes) and typically begins in November or December. The annual ice road season for the Willow Development is expected to be 90 days long, from the end of January through the end of April each year.

Ice roads and pads are constructed by smoothing or compacting the snow surface and/or placing water or ice on the ground surface. Then, water trucks apply water over the route or location until the ice pad or road surface is built up to the desired thickness. Ice roads are marked with stakes to facilitate driving and assist with snow removal. Ice roads and pads are maintained throughout the ice road season by monitoring for litter, contamination, and degradation and cleaning or repairing, as necessary. All stakes and contamination are cleared when the ice road or pad is closed for the season. Multi-season ice pads are constructed similarly to single-season ice pads, with compacted snow over a base layer of ice, except they also include a vapor barrier and foam insulation to prevent melting. Ice road and ice pad construction is conducted with a variety of diesel-fired nonroad equipment, such as graders, loaders, pumpers, snowblowers, light plants, and trimmers, as well as on-road mobile support equipment.

2.1.3 Gravel Road and Pad Construction and Facilities Installation

After gravel extraction, gravel is transported from the mine or storage location via off-road belly dump B70 haul trucks and placed during winter construction seasons. Other diesel-fired nonroad equipment, including graders and compactors, are used to place the gravel during the winter, but also to work the gravel to melt remaining frozen materials and compact the gravel and create road and pad surfaces during the summer season following gravel placement.

2.1.4 Bridge and Culvert Construction

CPAI proposes to construct multiple bridges to allow for road access throughout the Willow Development. Multi-span bridges are constructed on steel pile pier groups, made up of sets of four pilings positioned approximately 40 to 70 feet apart. Shorter crossings will be traversed by single-span bridges or culvert batteries. All span-style bridges include sheet pile abutments for erosion protection at each end of the bridge. Estimated bridge crossings range from 40 to 420 feet in length. Bridges would be constructed during winter from ice roads and pads. Bridge construction is conducted with a variety of diesel-fired nonroad equipment, including cranes, loaders, drills, small generators, hammers, compressors, light plants, manlifts, and small heaters, as well as mobile on-road support equipment.

2.1.5 Pipelines and Supporting Infrastructure Construction

CPAI plans to construct infield pipelines within the Willow Development and import/export pipelines connecting the Willow Development to the Colville River and Kuparuk River Units. Most of the pipeline would be constructed aboveground and supported on common horizontal support members (HSMs) that would be supported by vertical support members (VSMs) placed approximately 55 feet apart across open tundra to protect permafrost. VSMs are constructed by embedding a vertical steel pipe piling in holes drilled in the permafrost and adding a sand/water slurry surrounding the pipe pile to freeze it in place. VSMs would have a typical diameter of 12 to 24 inches and total disturbance footprint diameter of 18 to 32 inches for each pipe pile. Seasonal ice roads would be constructed to access right-of-ways for the construction of VSMs, pipelines, and other infrastructure suspended on VSMs, including fiber optic cables and power cables.

At Fish Creek and Judy Creek bridge crossings, pipelines would be constructed on structural steel supports attached to the bridge girders, below the bridge deck. Gravel valve pads would also be constructed on each side of the Fish Creek and Judy Creek bridge crossings to isolate produced fluids pipelines and minimize potential spill impacts. At smaller streams, pipelines would be installed approximately perpendicular to the channel, with VSMs on each side of the crossing to avoid VSM placement in streams to the extent practicable.

VSMs are constructed using primarily nonroad engines and equipment, including drills, trenchers, loaders, and cranes, as well as on-road mobile support equipment. Similarly, pipelines, powerlines, and fiber optic cables are suspended from VSMs using a variety of diesel-fired nonroad equipment, such as compressors, derrick and telescoping cranes, side boom cranes, small generators, light plants, loaders, manlifts, drills, and small heaters, as well as on-road mobile support equipment.

All pipelines crossing the Colville River would be installed by boring beneath the river using horizontal directional drilling (HDD). The HDD process would involve drilling a borehole under the river that is large enough to accommodate the pipeline casing. This operation is supported by diesel-fired nonroad equipment, including generators, air compressors, winches, cranes, and small heaters and boilers. Throughout the process of drilling and enlarging the hole, a slurry made of naturally occurring nontoxic materials (typically bentonite clay and water) would be circulated through the drilling tools to lubricate the drill bit, remove drill cuttings, and hold the hole open. Pipelines and casing sections would be staged and welded together to form segments long enough to span the entire crossing (the pull string) on the exit side of the HDD crossing. Once the borehole is ready, the completed casing and pipelines are pulled back through the drilled hole using nonroad equipment. The Willow HDD would be completed during the winter construction season using adjacent ice pads to stage equipment and materials. Two new gravel pads would be constructed adjacent to the existing Alpine Pipeline HDD where the pipelines transition from above ground to below ground on either side of the river.

2.1.6 Infrastructure for Module Transport (Module Delivery Option 3: Ocean Point Crossing) and Bulk Materials Transport

The modules comprising the processing facilities at the WCF and drillsites would be delivered to the North Slope by sealift using low-draft barges towed by tugs during two open water seasons (ice-free periods) in 2024 and 2026. Bulk materials and smaller modules that can be transported on the Alpine Resupply Ice Road would also be delivered by sealift barge. Sealift barges would make deliveries during four open-water seasons during the summers of 2022 through 2024 and 2026.

Barge offloading is proposed at the existing Oliktok Dock. Sealift modules and bulk materials would be stored at an existing 12-acre pad located approximately two miles south of Oliktok Dock until winter and then transported to the Plan Area. Smaller modules and bulk materials would be transported to the Plan Area via existing gravel roads and the annual Alpine Resupply Ice Road. The larger WCF and drillsite modules would be transported to the Plan area via Self-Propelled Modular Transporters (SPMTs) along existing gravel roads to Kuparuk DS2P. The modules would then travel on a heavy-haul ice road to GMT2, crossing the Colville River via grounded ice in the area of Ocean Point. From GMT2 to the WCF, the modules would be transported on the Willow access gravel road.

To facilitate module and bulk materials transport with sealift barges to Oliktok Dock, several infrastructure improvements must be made. CPAI would raise the existing dock surface approximately 6 feet by adding structural components and a gravel ramp to accommodate the 25-foot-high side-shell sealift barges expected to be used for the proposed project. These improvements are all within the existing footprint of the dock area.

To facilitate transport of the larger WCF and drillsite modules during the winters of 2025 and 2027, a camp would be staged on a 15-acre ice pad near the DS2P access road. For transport of the larger modules, improvements to the existing staging area gravel pad near Oliktok Dock and gravel roads would also be made. These construction activities would be completed with the same types of diesel-fired nonroad and on-road mobile equipment described supporting other gravel and facilities construction throughout the Willow Development. See the Willow MDP EED for additional detail on Option 3: Ocean Point Crossing.

2.1.7 Construction Camp Facilities

CPAI would utilize various camps to house workers throughout the nine-year construction period. CPAI would utilize existing camps, including the Kuukpik Pad Camp, Alpine Operations Camp, Sharkstooth

Camp and Kuukpik Hotel near Nuiqsut, as well as temporary camps near and on the WOC and the near Kuparuk DS2P, and a permanent Willow Camp to be constructed at the WOC. Temporary camps to support drilling would be located at each of the drillsites or the WOC. Temporary construction camps near the WOC in 2021 would be powered by diesel-fired generators. The temporary construction camp on the WOC would be electrically powered by a multi-purpose power plant located at the WOC. That power plant would utilize liquid-fired turbines for power generation. The Willow Camp would be permanently switched over to electricity generated by the WCF once the facility comes online.

2.1.8 Constructed Freshwater Reservoir

CPAI proposes creation of a CFWR to ensure a reliable source of fresh water for the project while minimizing the need for water withdrawals from Willow-area lakes. It would consist of an 800-foot-long by 700-foot-wide by 50-foot-deep pit with 6:1 side slopes. An approximately 1,325-foot-long, 6- to 10-foot-deep connection would link the CFWR to Lake M0015 to support initial flooding and to facilitate annual recharge. The CFWR would be bordered by a 7-foot-high permanent berm. Equipment required to construct the CFWR would include the same types of equipment needed for gravel sourcing described in Section 2.1.1 to excavate the material and equipment for other gravel work described in Section 2.1.3 to finish surfacing the reservoir and building the berm.

2.2 Drilling

CPAI proposes to construct 251 wells throughout the Willow Development at five drillsites. Wells will be approximately evenly split between production and injection wells. Multiphase (oil, gas, and water) fluids will be gathered from production wells and sent for processing at the WCF. Injection wells will be used to inject gas, produced water, seawater, and miscible-injectant (MI) back into the producing formation to maintain formation pressure and as part of enhanced oil recovery. CPAI estimates that it will take approximately 15 to 30 days to drill each well and expects to begin pre-drilling in 2024 at the BT1 Drillsite. Pre-drilling activities would allow the WCF to be commissioned immediately following WCF construction by timing completion of a sufficient number of wells to provide the minimum fluid rates to commission the pipelines and facility. Pre-drilling eliminates a 1- to 2-year delay between construction and production of first oil. Assuming the use of two drill rigs continuously operating throughout the development, drilling would be complete by 2029.

Drilling is conducted with a drill rig containing electrically powered drill rig draw-works, top-drive, and pumps with heat supplied by diesel-fired air heaters and boilers. The drilling operation will be supported by small portable diesel-fired nonroad equipment, mobile equipment, and temporary storage tanks at the drillsites. The approximate 3.5-megawatt (MW) single drill rig electrical demand (approximately 7 MW for 2 drill rigs) can be satisfied by diesel-fired reciprocating engine-powered generators, certified USEPA Tier 4f, that travel with the drill rig or highline power generated at the WCF. CPAI plans to predominantly conduct their drilling operations on highline supplied electrical power throughout the life of project whenever possible. However, highline power may not be available for a period of time during construction before permanent power infrastructure is commissioned. Therefore, CPAI expects there to be a short period of time when power for the drill rigs is supplied by diesel-fired reciprocating engines only until highline electrical power is available. After that, diesel-fired engines that travel with the drill rig will be used as back-up if highline power is temporarily unavailable. All other portable support equipment will typically be powered by diesel fuel.

After a well is drilled, it is completed. To complete a production well, it sometimes is first hydraulically fractured, then it undergoes a well cleanout process known as a flowback. During the flowback, fluids and solids present in the well bore as part of the drilling and completion process are allowed to flow from the well until the fluids produced from the well are no longer contaminated with excessive solids or drilling fluids. Liquids and solids produced during the flowback are placed in portable tanks for disposal and gas is captured, flared, or vented depending on infrastructure availability. Immediately following the construction of each drillsite, CPAI anticipates that there will be a period of time before permanent infrastructure is in place to handle gas from flowbacks. If the infrastructure is not in place, CPAI will route any gas from flowbacks to a portable flare located at the drillsite. Once permanent facilities are available (pipelines and WCF), gas from flowbacks will be routed to the WCF and processed. CPAI conservatively assumes that all production and injection wells could be hydraulically fractured as part of the completion process. This would equate to hydraulically fracturing all 251 wells throughout the development.

Hydraulic fracturing in the Willow Development would be hydraulic fracturing of conventional resources which is intended to counter formation damage and stimulate and maximize recovery of resources. This is a very different purpose than hydraulic fracturing unconventional shale formations. Hydraulic fracturing of a well at Willow will be conducted in stages and to various depths by pumping proppant, made of water, sand, and chemical additives, at high pressure into a well drilled to create small length fractures in the formation in the immediate vicinity of the wellbore.

Hydraulic fracturing is expected to be conducted using 5 to 10 pumps powered by electric motors or engines (nonroad engines), certified USEPA Tier 4f for generator sets. When powered by engines the engines will run at high loads for short periods of time and idling or operating at low loads the remainder of the process. Similar to drilling, CPAI plans to predominantly conduct their hydraulic fracturing operations on highline supplied electrical power throughout the life of project whenever possible; however, there may be a short period of time during construction when the hydraulic fracturing unit operates on diesel only until highline electrical power is available. A typical frac operation for the Willow Development is expected to take approximately 6 days per well. These operations may also be supported by small nonroad engines and/or portable heaters, as necessary.

2.3 Operations

2.3.1 Willow Central Facility

The WCF would primarily consist of facilities necessary to generate power for the Willow Development, dehydrate and compress gas for fuel and reinjection, pump and inject seawater and produced water to the subsurface as part of pressure maintenance/water flood for secondary recovery, and separate and process production fluids and deliver sales-quality crude oil. Fluid separation and processing occurs through pressure drops, gravity separation, and heating followed by distillation and includes the production of sales-quality crude, produced water, and MI for enhanced oil recovery. Produced natural gas would be (1) used to fuel plant and facility equipment, (2) reinjected into a producing formation to maintain reservoir pressure and increase recovery, and/or (3) used for gas lift. Under plant startups, shutdowns, and upset conditions, natural gas may be flared. A simplified process flow diagram for major systems is presented in **Appendix A**.

WCF power generation and processing equipment would include:

- Turbine-driven power generators with waste heat recovery;
- Turbine-driven compressors with waste heat recovery;
- Gas strippers;
- Gas treatment facilities;
- Heat exchangers;
- Separators;
- Stabilizer unit;
- A flare system;

- Heaters;
- Oil vessels;
- Pumps;
- Pigging facilities;
- Metering facilities;
- Diesel fuel supply storage tank(s) and an associated fueling station;
- A tank farm, which could include methanol, sales oil or off-spec crude, crude flowback fluids, scale inhibitor, emulsion breaker, corrosion inhibitor, and minor volumes of other chemicals as required for operations;
- Warm storage facilities for equipment; and
- Portable heaters, light plants, and boilers, including the potential for a snowmelter.

At various times throughout the Willow Development's producing lifetime, temporary modules, maintenance buildings, pipelines, and other structures may be used at the WCF to address short-term needs. See the Willow MDP EED for the proposed WCF layout.

Refer to the "INPUTS" tabs in the "Willow_AltB_EI-Non-Construction-WCF+WOC+Airstrip.xlsx" spreadsheet referenced in **Appendix C** for sizing and major equipment assumptions for fuel burning equipment.

2.3.2 Willow Drillsites

Each drillsite has been sized and designed to accommodate all drilling and operations facilities, wellhead shelters, drill rig movement, drilling material storage, and well work equipment. Each drillsite could accommodate 40 to 70 wells at a 20-foot wellhead spacing. Additional typical drillsite facilities include:

- Fuel gas dehydration equipment, consisting of an electric heater and a knock-out pot;
- Pig launchers/receivers;
- Chemical injection facilities (including tanks within module, containment, and exterior tank fill connection);
- Production heater and associated equipment;
- Production operations storage tanks containing methanol, scale inhibitor, emulsion breaker, and/or corrosion inhibitor;
- Temporary tanks to support drilling and well work operations;
- Transformer platforms (oil-insulated);
- Pipe racks and/or manifold piping/valves;
- Portable heaters, light plants, and boilers including the potential for a snowmelter; and
- Back-up power generation.

All equipment described above, with the exception of the production heater and back-up power generation, is electrically powered, with power supplied from the WCF via cable run along the pipeline corridor. The production heater is powered by fuel gas, and its purpose is to heat the multiphase production fluids (oil, water, and gas) prior to shipment to the WCF for processing. Any back-up power generation installed at the drillsites would be diesel-fired reciprocating engine-powered generators, expected to meet USEPA Tier 4i emissions standards for non-generator sets or better.

Wells would be grouped into two general categories: producers and injectors. The production wells would generate the field's multiphase production while the injector wells would be used to inject water (i.e., treated seawater and/or produced water that has been processed at the WCF) and/or gas into the producing formation(s) to maintain reservoir pressure. See the Willow MDP EED for a typical drillsite layout.

Refer to the "INPUTS" tabs in the "Willow_AltB_EI-Construction-BT[X].xlsx" spreadsheet referenced in **Appendix C** for fuel burning equipment assumptions for the Willow drillsites.

2.3.3 Willow Operations Center

The base of operations for the Willow Development would be at the WOC. The WOC would be near to but separated from the WCF. The WOC location would minimize risk to personnel by placing permanently occupied buildings away from potential blast hazards associated with the WCF. The WOC would also be adjacent to the airstrip. See the Willow MDP EED for a typical layout of these facilities.

The WOC would contain accommodation and utility buildings and maintenance and storage facilities to support operations. These include:

- Permanent Willow Operations Camp facilities including living quarters, offices, meeting rooms, dining facilities, central control building, medical clinic, and wellness and camp maintenance facilities;
- Wastewater and water treatment plants, lab, and chemical storage;
- Water tanks;
- Class I underground injection control disposal well(s) (Class I disposal well[s]);
- Emergency Response Center, including spill response shop, fire department, and ambulance bay;
- Hazardous waste accumulation and storage;
- Fleet maintenance shop;
- Fabrication and weld shop;
- Warehouse;
- Storage tents;
- Drilling shop and mud plant;
- Small remote incinerator;
- Helipad, helicopter storage tent, and jet fuel tank and pump house;
- Staging areas;
- Craft maintenance shops and tool room to provide equipment repair, fabrication, and maintenance support;
- Tanks for diesel and drilling and cuttings storage;
- Portable heaters, light plants, and boilers including the potential for a snowmelter; and
- Turbine-driven and reciprocating engine-driven power generation.

Under normal operations, all equipment and facilities described above will be electrically powered, except for the power generation, portable equipment, and incinerator. Any back-up power generation installed at the WOC would be diesel-fired reciprocating engine-powered generators, expected to meet USEPA Tier

4i standards for non-generator sets or better. In addition to permanent surface structures, temporary surface structures such as camps, offices, shops, envirovacs, connexes, fuel and chemical storage areas, and warehouses may be used at the WOC to support projects.

Information regarding fuel burning equipment associated with Willow infrastructure can be found in "INPUTS" tabs in the "Willow_AltB_EI-Non-Construction-WCF+WOC+Airstrip.xlsx" spreadsheet referenced in **Appendix C**.

2.3.4 Willow Pipelines

The Willow Development would include infield lines and import/export lines. Infield lines carry a variety of products, including produced fluids, produced water, seawater, MI, and gas, between the WCF and each drillsite (including GMT2).

Import/export pipelines include the Willow sales-oil pipeline, a seawater pipeline, and a diesel pipeline. The Willow sales-oil pipeline would carry sales-quality crude oil from the WCF to a tie-in with the Alpine Pipeline near CD4N. The seawater pipeline would import seawater from existing infrastructure in Kuparuk to the Plan Area. The diesel pipeline would transport Ultra Low Sulfur Diesel (ULSD) from the Kuparuk Central Processing Facility 2 (CPF2) to the ACF. A freshwater pipeline would also transport fresh water from the primary freshwater sources to the WOC.

Infield lines would include the following pipelines connecting the WCF to each drillsite:

- Produced fluids pipeline – produced multiphase fluids from each drillsite to WCF for processing.
- Injection water pipeline – seawater or produced water transported from WCF for injection to support enhanced oil recovery.
- Gas pipeline – gas transported from WCF for artificial lift, pressure support, and fuel gas.
- MI pipeline – MI transported from WCF for injection to support enhanced oil recovery.

Pipeline length and service characteristics are presented in **Table 1**. All infield pipelines would be designed to allow pipeline inspection and maintenance (e.g., pigging) between each drillsite and the WCF. Permanent pigging facilities would be installed for the produced fluid and injection water pipelines. To limit the venting of volatile organic compounds (VOC) in the enclosed pigging structure, the barrel of the pig launcher/receiver is flooded with inert gas to clear the barrel of accumulated liquids and flammable gases prior to venting to atmosphere and opening the launcher/receiver.

Pipeline valves that can be closed in the event of an emergency would be installed on pipelines in hydrocarbon service at each side of the Judy Creek and Fish Creek crossings, isolating the section of pipeline between the valves to minimize potential spill impacts in the event of a leak or break. Four gravel valve pads (1.3 acres total) would be constructed to support the valve infrastructure. Valve pads would be located adjacent to gravel roads approximately 400 to 2,000 feet from the bridge crossings.

Pipelines would be supported on common HSMs that would be supported by VSMs. All pipelines would parallel new and existing gravel roads, typically at a distance from the roadways of 500 to 1,000 feet. Fiber optic cable and power cables would be suspended from the same pipeline VSMs via messenger cable attached to the HSMs.

Table 1 Pipeline Segments

Segment	Pipelines	Segment Length (miles)	Notes
BT4 to BT2	BT4 Infield Lines[1]	10.2	Pipeline on new set of VSMs.
BT2 to BT1	BT2 Infield Lines[1]	4.7	Pipeline on new set of VSMs; would also transport BT4 materials.
BT1 to WCF	BT1 Infield Lines[1]	4.3	Pipelines on new set of VSMs; would also transport BT2 and BT4 materials.
BT3 to WCF	BT3 Infield Lines[1]	4.2	Pipelines on new set of VSMs.
BT5 to WCF	BT5 Infield Lines[1]	9.8	Pipelines on new set of VSMs; shares VSMs with BT3 infield pipeline from BT5 Junction to WCF (2.8 miles).
GMT2 to WCF	GMT2 Infield Lines[1]	10.2	Shares new VSMs with Willow and seawater pipelines from GMT2 to WCF (10.2 miles).
CFWR to WCF to WOC	Freshwater	4.9	Shares new VSMs with BT3 infield pipeline from CFWR junction to WCF (1.7 miles) and treated water and fuel gas pipelines from WCF to WOC (2.8 miles).
WOC to WCF	Treated Water	2.8	Shares new VSMs with freshwater and fuel gas pipelines from WCF to WOC (2.8 miles).
WOC to WCF	Fuel Gas	2.8	Shares new VSMs with treated water and freshwater pipelines from WCF to WOC (2.8 miles).
WCF to CD4N tie-in	Willow Pipeline	33.3	Shares new VSMs with seawater from WCF to CD4N (33.0 miles).
CPF2 to WCF	Seawater	64.3	Shares new VSMs with Willow Pipeline from WCF to CD4N (33.0 miles) and diesel pipeline from CD4N to CPF2 (31.3 miles). Includes HDD crossing of Colville River.
CPF2 to CD1	Diesel	34.4	Shares new VSMs with seawater pipeline from CPF2 to CD4N (31.3 miles) and existing VSMs from CD4N to CD1 (3.1 miles). Includes HDD crossing of Colville River.

[1] Infield lines include produced fluids, injection water gas, and miscible-injectant pipelines.

Notes: WCF: Willow Central Processing Facility; CFWR: constructed freshwater reservoir; WOC: Willow Operations Center; BT: Bear Tooth; CD4N: Colville Delta 4 North; CD1: Colville Delta 1; CPF2: Kuparuk Central Processing Facility 2; VSMs: vertical support members; HDD: horizontal directional drilling.

2.3.5 Communications

Communications infrastructure throughout the field would be provided by fiber optic cables suspended from pipeline VSMs via messenger cable attached to the HSMs. Additionally, communication towers would be located at the WCF and at all drillsites. The communications tower associated with the WOC would be constructed on a separate, adjacent pad.

2.3.6 Access/Transportation

Access to the Plan Area from Alpine, Kuparuk, and/or Deadhorse would occur via ground transportation on ice roads, fixed-wing aircraft, and helicopter. Access from Alpine would also occur by gravel road. Anticipated ground, air, and marine traffic is detailed in the Willow MDP EED.

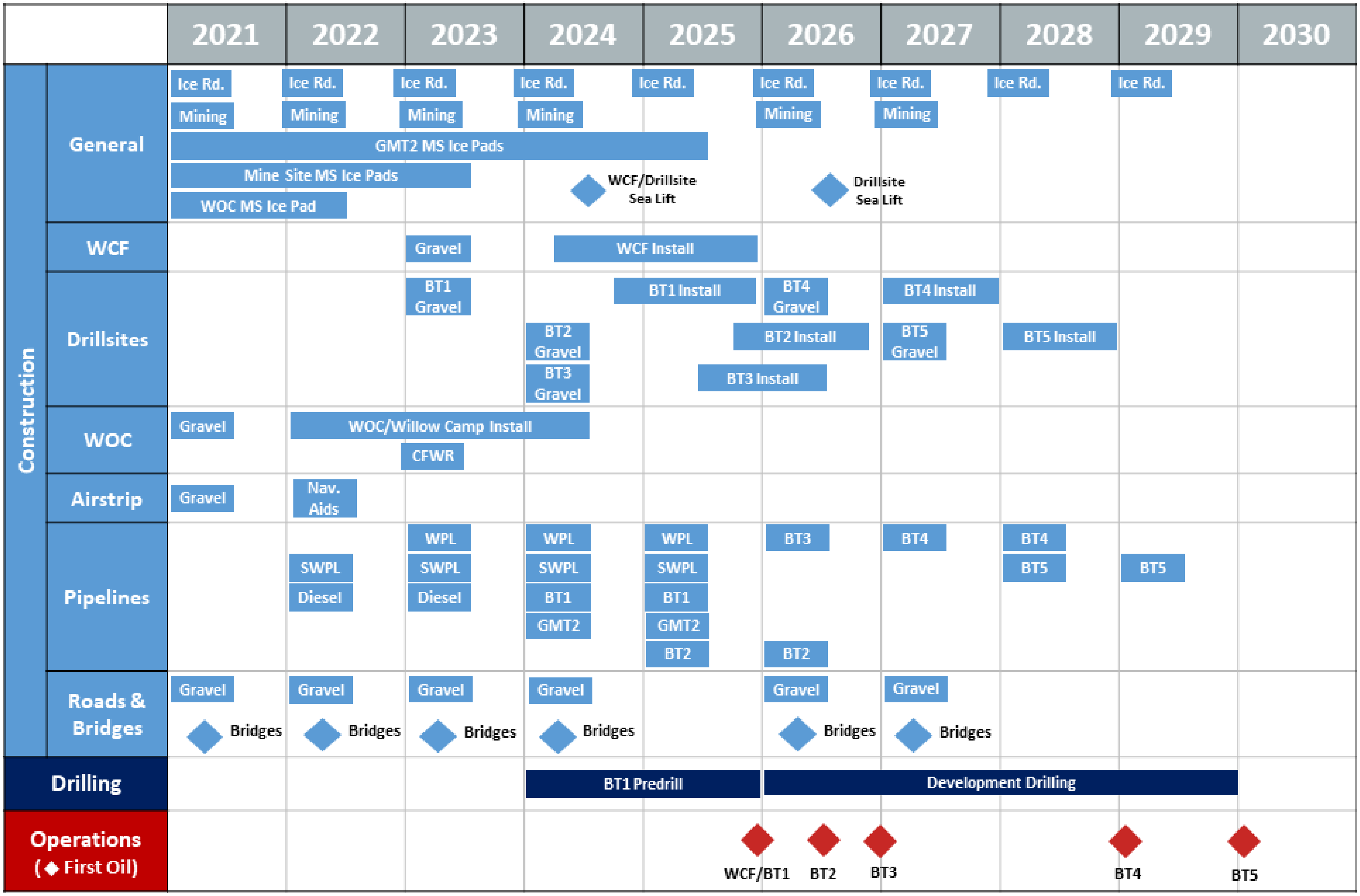
Ice roads would be used primarily during construction to support gravel infrastructure and pipeline construction, for lake access, and to access the selected gravel source(s). Due to heavy equipment size and frequency of construction traffic, safety considerations dictate use of separate ice roads for pipeline construction, gravel placement, and general traffic.

Year-round access to the Plan Area from Deadhorse, Alpine, Kuparuk, and/or other locations would be provided by aircraft. Air access would be supported by a 6,200-foot-long gravel airstrip with aprons located near the WOC. The airstrip would be capable of regular use by Hercules C-130, DC-6, Otter, CASA, and Bombardier Q400, or similar aircraft. Helicopters would be used to support project construction, ongoing environmental studies, ice road permit compliance, and, to a lesser extent, drilling and operations. Helicopter support of future exploration, including exploration wellhead inspections and "stick picking" from winter exploration activities, is not part of the Willow MDP but is described within the context of cumulative effects within the Willow MDP EED.

Details on air, sea, and road-based traffic throughout the project lifecycle are summarized in the Willow MDP EED and on the "INPUTS-[Type]_Traffic" tabs in applicable spreadsheets referenced in **Appendix C**.

2.4 Schedule

Construction of the Willow Development facilities is anticipated to occur over a nine-year period, with field work beginning in 2021 and completed in 2029. Drilling activities are anticipated to begin in 2024 with pre-drilling prior to facility start-up in order to provide enough production to commission the WCF. Drilling is anticipated to continue through 2029. WCF operations are expected to commence in 4Q 2025 with commissioning of the facility and first oil from the BT1 Drillsite. Production and operational activity will continue until the end of field life in 2050. **Figure** 1 provides a general schedule for key construction, drilling, and operations milestones for the Willow MDP.



Notes: Ice Rd.: Ice Road; WCF/Drillsite Sealift includes WCF, BT1, BT2, BT3 facilities; Drillsite Sealift includes BT4, BT5 facilities; GMT2: Greater Mooses Tooth 2; MS: multi-season; BT: Bear Tooth; WCF: Willow Central Processing Facility; WOC: Willow Operations Center; CFWR.: Constructed Freshwater Reservoir; Nav. Aids: Navigational Aids; WPL: Willow Pipeline; SWPL: Seawater Pipeline. SWPL and Diesel HDD in 2024; Operations continues to end of the life of the project in 2050

Figure 1 Willow Construction Schedule from Willow MDP EED

3.0 Emissions Inventory Development

An emissions inventory for the Willow Development was assembled based on the project description in CPAI's Willow MDP EED and highlighted in the previous sections. The emission inventory for CPAI's Preferred Alternative (Alternative B) and Sealift Module Delivery Option 3 (Ocean Point Crossing) includes project-specific emissions from development activities related to the following categories:

- Construction;
- Drilling;
- Routine operations;
- Well workovers and interventions; and
- Module delivery and transport.

For each of these categories, project-related emissions may occur from the following types of sources:

- Non-mobile combustion sources (e.g. turbines, reciprocating engines, and heaters);
- Mobile, on-road tailpipe combustion sources (e.g. vehicle traffic);
- Mobile, nonroad tailpipe combustion sources (e.g. construction equipment);
- Fugitive sources (e.g., fugitive dust, venting, or equipment leaks);
- Aircraft sources (e.g., airplane traffic); and
- Marine vessel sources (e.g., ocean-going boats and barges).

For each of these types of sources, emissions were calculated for the following pollutants:

- Criteria pollutants, including nitrogen oxides (NO_x), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter less than 10 microns in diameter (PM_{10}), and particulate matter less than 2.5 microns in diameter ($PM_{2.5}$).
- Volatile organic compounds (VOC).
- Hazardous air pollutants (HAPs), including benzene, toluene, ethylbenzene, xylenes, n-hexane, and formaldehyde.
- Greenhouse gases (GHGs), including carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O).

Calculations for each source of emissions and each pollutant were compiled into monthly summaries of emissions according to the proposed project schedule in **Figure** 1.

Given that the Willow Development is in the early stages of its design, the emissions inventory was developed by leveraging information from CPAI's other North Slope projects, including the GMT2 Drillsite in the GMTU and the ACF in the Colville River Unit. The emissions inventory for the five proposed Willow drillsites was developed directly using the GMT2 emissions inventory calculations compiled by Kleinfelder for the GMT2 Draft Supplemental Environmental Impact Statement (SEIS). This approach was used: (1) to facilitate the ease of review for Federal Land Managers (FLMs) with a familiar emissions inventory format; and (2) because those spreadsheets, calculations, and methodologies were reviewed and approved by FLMs through the GMT2 National Environmental Policy Act (NEPA) process. The Kleinfelder GMT2 emissions inventory spreadsheets were used, as is, to characterize emissions from the five Willow drillsites, except where Willow-specific inputs were updated. Where GMT2 emissions inventory spreadsheets were used as the basis for calculations, Kleinfelder's logo remains in those spreadsheets.

The emissions inventory for the WCF, WOC, and module delivery and transport activities were developed based on the emissions inventories for similar facilities and activities supporting the construction and operation of the ACF. This information was supplemented by equipment sizing information, newer emissions control and equipment technologies, and other Willow-specific design information developed by CPAI.

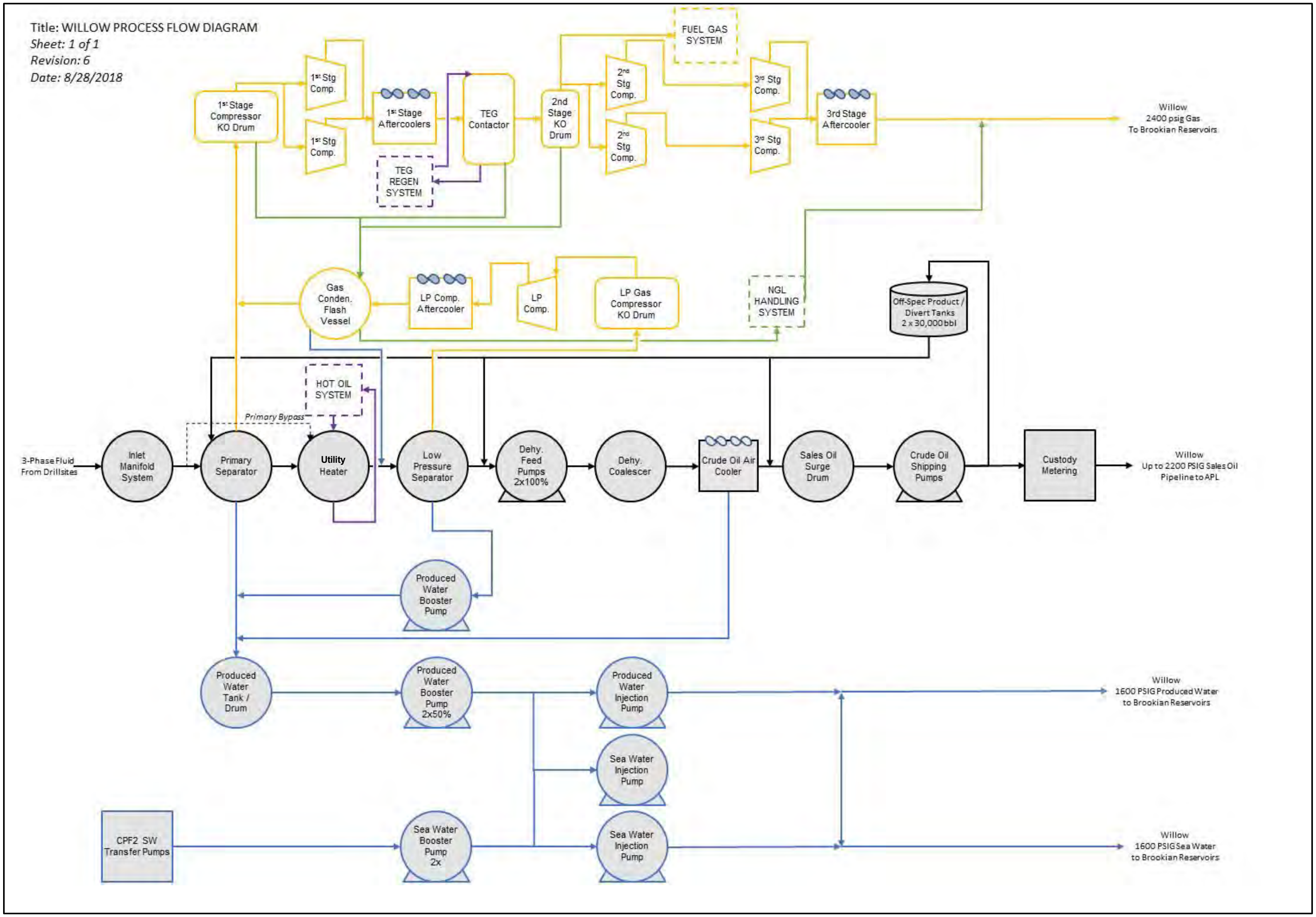
Using these resources, most emission calculations were performed using the following key references that are generally accepted for emission factors:

- AP-42, Chapter 1 (External Combustion Sources), Chapter 2 (Solid Waste Disposal), Chapter 3 (Stationary Internal Combustion Sources), Chapter 5 (Petroleum Industry), Chapter 7 (Liquid Storage Tanks), and Chapter 13 (Miscellaneous Sources).
- 40 Code of Federal Regulations (CFR) Part 98, Subpart A, Table A-1 (Global Warming Potentials) and Subpart C, Table C-1 (Default CO_2 Emission Factors) and Table C-2 (Default CH_4 and N_2O Emission Factors) for general stationary fuel combustion sources.
- Applicable federal requirements in 40 CFR Part 89 and Part 1039 (Control of Emissions from New and In-Use Nonroad Compression-Ignition Engines), 40 CFR 60 (Standards of Performance for New Stationary Sources), and 40 CFR 63 (National Emission Standards for Hazardous Air Pollutants for Source Categories).
- Limited representative vendor data from similar projects, such as ACF, for certain combustion sources.
- U.S. Environmental Protection Agency (USEPA) Protocol for Equipment Leak Emission Estimates (EPA-453/R-95-017).
- USEPA Motor Vehicle Emission Simulator (MOVES) 2014a model for on-road and nonroad mobile equipment emissions.
- Federal Aviation Administration (FAA) Aviation Environmental Design Tool (AEDT) model for aircraft emissions.
- USEPA TANKS emissions estimation software, Version 4.09D.
- USEPA Current Methodologies in Preparing Mobile Source Port-Related Emission Inventories, Final Report, April 2009, prepared by ICF International.

Tabular and graphical representations of key aspects of the Willow Development emissions inventory are summarized in **Appendix B**. Detailed emissions calculations, assumptions, and methodologies are outlined in the emissions calculation spreadsheets included in **Appendix C** (electronically enclosed) to reduce duplication of material.

Appendix A

Willow Central Processing Facility Process Flow Diagram


Title: WILLOW PROCESS FLOW DIAGRAM
Sheet: 1 of 1
Revision: 6
Date: 8/28/2018
FUEL GAS SYSTEM
1st Stage Compressor KO Drum
1st Stg Comp.
1st Stg Comp.
1st Stage Aftercoolers
TEG Contactor
TEG REGEN SYSTEM
2nd Stage KO Drum
2nd Stg Comp.
2nd Stg Comp.
3rd Stg Comp.
3rd Stg Comp.
3rd Stage Aftercooler
Willow 2400 psig Gas To Brookian Reservoirs
Gas Conden. Flash Vessel
LP Comp. Aftercooler
LP Comp.
LP Gas Compressor KO Drum
NGL HANDLING SYSTEM
Off-Spec Product / Divert Tanks 2 x 30,000 bbl
HOT OIL SYSTEM
Primary Bypass
3-Phase Fluid From Drillsites
Inlet Manifold System
Primary Separator
Utility Heater
Low Pressure Separator
Dehy. Feed Pumps 2x100%
Dehy. Coalescer
Crude Oil Air Cooler
Sales Oil Surge Drum
Crude Oil Shipping Pumps
Custody Metering
Willow Up to 2200 PSIG Sales Oil Pipeline to APL
Produced Water Booster Pump
Produced Water Tank / Drum
Produced Water Booster Pump 2x50%
Produced Water Injection Pump
Willow 1600 PSIG Produced Water to Brookian Reservoirs
Sea Water Injection Pump
CPF2 SW Transfer Pumps
Sea Water Booster Pump 2x
Sea Water Injection Pump
Willow 1600 PSIG Sea Water to Brookian Reservoirs

Appendix B

Summary Emissions Tables

Table B-1 List of Assumptions for Summary Tables

Table/Figure	Assumption/Note
Various	50% of all Project wells are producing wells, 50% are injection wells. Emissions related to both types of wells are summarized.
Table B-6	This table represents the total annual emissions for the Project Area divided by the planned 251 wells. We assume no difference in emissions between injection and producing wells. Emissions from new wells include all emissions related to construction and drilling, divided by the total number of wells and number of years considered to get an average annual emission rate for constructing and drilling each well. Emissions from wells >1 year represent emissions unrelated to construction and drilling and are representative of annual emissions from annual production/operations on a per well basis.
Figure B-1	Drilling will occur until 2029.

Table B-2 Project Alternative Emissions Summary (tpy) for a Typical Production Year

Pollutant	Existing Wells Emissions	Future Wells Emissions	No Action	Proposed Action	Total Emissions for Project Area (Existing + Future Wells)	Existing to Future Difference in Total Project Area Emissions (including Proposed Action)
NO_x	0	654.5	0.0	654.5	654.5	654.5
CO	0	620.7	0.0	620.7	620.7	620.7
SO_2	0	52.6	0.0	52.6	52.6	52.6
PM_{10}	0	170.0	0.0	170.0	170.0	170.0
$PM_{2.5}$	0	79.7	0.0	79.7	79.7	79.7
VOC	0	666.3	0.0	666.3	666.3	666.3

Table B-3a Annual Criteria Pollutant Emissions (tons) for Construction Only

Project Year	Calendar Year	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$	VOC
0	2020	20.5	32.7	0.9	1.3	0.5	1.3
1	2021	440.4	376.8	3.8	81.5	20.6	26.5
2	2022	462.9	388.0	4.9	102.5	23.3	26.5
3	2023	543.0	428.0	4.6	265.4	43.2	36.6
4	2024	609.6	443.2	3.9	218.2	42.3	46.8
5	2025	191.7	120.4	1.4	186.1	28.6	21.4
6	2026	182.8	155.9	3.3	113.9	19.5	18.2
7	2027	133.7	119.9	2.0	96.3	14.7	14.8
8	2028	29.5	14.2	0.1	39.7	5.5	3.4
9	2029	6.2	1.8	0.0	0.3	0.2	0.6
10	2030	0.0	0.0	0.0	0.0	0.0	0.0
11	2031	0.0	0.0	0.0	0.0	0.0	0.0
12	2032	0.0	0.0	0.0	0.0	0.0	0.0
13	2033	0.0	0.0	0.0	0.0	0.0	0.0
14	2034	0.0	0.0	0.0	0.0	0.0	0.0
15	2035	0.0	0.0	0.0	0.0	0.0	0.0
16-30	2036-2050	0.0	0.0	0.0	0.0	0.0	0.0

Table B-3b Annual Criteria Pollutant Emissions (tons) For Drilling and Completion Only

Project Year	Calendar Year	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$	VOC
0	2020	0.0	0.0	0.0	0.0	0.0	0.0
1	2021	0.0	0.0	0.0	0.0	0.0	0.0
2	2022	0.0	0.0	0.0	0.0	0.0	0.0
3	2023	3.8	5.3	0.0	0.3	0.3	0.4
4	2024	142.1	372.1	1.0	106.1	18.5	60.4
5	2025	143.7	372.7	1.0	138.5	21.8	60.6
6	2026	101.9	142.2	0.5	178.3	24.1	45.1
7	2027	106.6	141.3	0.5	291.9	35.7	36.2
8	2028	99.9	138.5	0.5	147.4	20.9	35.3
9	2029	106.6	141.3	0.5	291.9	35.7	36.2
10	2030	0.0	0.0	0.0	0.0	0.0	0.0
11	2031	0.0	0.0	0.0	0.0	0.0	0.0
12	2032	0.0	0.0	0.0	0.0	0.0	0.0
13	2033	0.0	0.0	0.0	0.0	0.0	0.0
14	2034	0.0	0.0	0.0	0.0	0.0	0.0
15	2035	0.0	0.0	0.0	0.0	0.0	0.0
16-30	2036-2050	0.0	0.0	0.0	0.0	0.0	0.0

Table B-3c Annual Criteria Pollutant Emissions (tons) For Production and Operations Only

Project Year	Calendar Year	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$	VOC
0	2020	0.0	0.0	0.0	0.0	0.0	0.0
1	2021	0.5	0.2	0.0	0.0	0.0	0.0
2	2022	0.5	1.5	0.0	0.0	0.0	0.0
3	2023	1.7	3.1	0.2	0.1	0.1	0.7
4	2024	5.2	7.3	0.6	2.1	0.5	1.3
5	2025	251.5	238.2	16.8	51.2	30.5	89.8
6	2026	635.7	606.9	52.4	165.0	78.6	405.9
7	2027	643.4	612.7	52.6	169.1	79.4	507.1
8	2028	644.3	613.4	52.6	171.5	79.7	507.1
9	2029	650.1	618.1	52.6	177.7	80.7	587.7
10	2030	654.5	620.7	52.6	178.0	80.9	666.7
11	2031	654.5	620.7	52.6	178.0	80.9	666.7
12	2032	654.5	620.7	52.6	170.0	79.7	666.3
13	2033	654.5	620.7	52.6	170.0	79.7	666.3
14	2034	654.5	620.7	52.6	170.0	79.7	666.3
15	2035	654.5	620.7	52.6	170.0	79.7	666.3
16-30	2036-2050	654.5	620.7	52.6	170.0	79.7	666.3

Table B-4 Well and Pads by Formation and Drilling Technology

Classification	New Wells	New Well Pads	Modification of Existing Well Pads	Single Well Pads	Multi-Well Pads	Expansion of Existing Well Pads	Total Pads
Directional Oil Wells	123	5	0	0	5	0	5
Directional Injection Wells	128		0	0		0	
Total	251	5	0	0	5	0	5

Table B-5a Emissions for Construction of All Drillsite Pads

Pollutant	Emission Factor [1] Short-Term (lb/hr-acre)	Emission Factor [1] Annual (ton/year-acre)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
NO_x	9.5E-02	4.2E-01	7.6E+00	3.3E+01
CO	4.3E-02	1.9E-01	3.5E+00	1.5E+01
SO_2	3.7E-04	1.6E-03	2.9E-02	1.3E-01
PM_{10}	1.1E-02	4.7E-02	8.5E-01	3.7E+00
$PM_{2.5}$	7.9E-03	3.5E-02	6.3E-01	2.8E+00
VOC	1.2E-02	5.4E-02	9.9E-01	4.3E+00
Benzene	3.2E-04	1.4E-03	2.5E-02	1.1E-01
Toluene	3.6E-04	1.6E-03	2.8E-02	1.2E-01
Ethylbenzene	7.0E-05	3.1E-04	5.6E-03	2.5E-02
Xylene	3.2E-04	1.4E-03	2.5E-02	1.1E-01
Formaldehyde	2.9E-03	1.3E-02	2.3E-01	1.0E+00
n-Hexane	3.9E-05	1.7E-04	3.1E-03	1.4E-02
CO_2e	5.2E+01	2.3E+02	4.1E+03	1.8E+04

[1] Emission factors are the emission rates divided by total acres of all drillsite pads.

Table B-5b Emissions for Construction of All Bridges

Pollutant	Emission Factor [1] Short-Term (lb/hr-acre)	Emission Factor [1] Annual (ton/year-acre)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
NO_x	2.2E+00	9.6E+00	4.9E-01	2.1E+00
CO	7.5E-01	3.3E+00	1.7E-01	7.3E-01
SO_2	8.7E-03	3.8E-02	1.9E-03	8.4E-03
PM_{10}	1.6E-01	7.0E-01	3.6E-02	1.6E-01
$PM_{2.5}$	1.5E-01	6.6E-01	3.3E-02	1.5E-01
VOC	2.0E-01	8.6E-01	4.4E-02	1.9E-01
Benzene	5.8E-03	2.5E-02	1.3E-03	5.6E-03
Toluene	5.8E-03	2.5E-02	1.3E-03	5.6E-03
Ethylbenzene	1.1E-03	4.6E-03	2.3E-04	1.0E-03
Xylene	4.4E-03	1.9E-02	9.8E-04	4.3E-03
Formaldehyde	4.7E-02	2.1E-01	1.0E-02	4.6E-02
n-Hexane	5.0E-04	2.2E-03	1.1E-04	4.8E-04
CO_2e	1.1E+03	4.9E+03	2.5E+02	1.1E+03

[1] Emission factors are the emission rates divided by total length in miles of bridges constructed.

Table B-5c Emissions for Construction of Gravel Roads and Support Pads

Pollutant	Emission Factor [1] Short-Term (lb/hr-acre)	Emission Factor [1] Annual (ton/year-acre)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
NO_x	3.9E-03	1.7E-02	1.1E+00	4.7E+00
CO	1.5E-03	6.5E-03	4.1E-01	1.8E+00
SO_2	1.5E-05	6.7E-05	4.2E-03	1.8E-02
PM_{10}	7.1E-03	3.1E-02	1.9E+00	8.4E+00
$PM_{2.5}$	1.3E-03	5.5E-03	3.4E-01	1.5E+00
VOC	6.3E-04	2.7E-03	1.7E-01	7.4E-01
Benzene	1.3E-05	5.8E-05	3.6E-03	1.6E-02
Toluene	1.9E-05	8.5E-05	5.3E-03	2.3E-02
Ethylbenzene	3.6E-06	1.6E-05	9.8E-04	4.3E-03
Xylene	2.0E-05	8.7E-05	5.4E-03	2.4E-02
Formaldehyde	1.4E-04	6.3E-04	3.9E-02	1.7E-01
n-Hexane	2.6E-06	1.1E-05	7.1E-04	3.1E-03
CO_2e	2.5E+00	1.1E+01	6.9E+02	3.0E+03

[1] Emission factors are the emission rates divided by total acres of all gravel roads and support pads (valve, pipeline, and water access/reservoir pads).

Table B-5d Emissions for Construction of Ice Roads and Ice Pads

Pollutant	Emission Factor [1] Short-Term (lb/hr-acre)	Emission Factor [1] Annual (ton/year-acre)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
NO_x	3.2E-03	1.4E-02	1.3E+01	5.9E+01
CO	8.7E-04	3.8E-03	3.6E+00	1.6E+01
SO_2	3.8E-06	1.7E-05	1.6E-02	6.9E-02
PM_{10}	1.1E-04	5.0E-04	4.7E-01	2.1E+00
$PM_{2.5}$	1.1E-04	4.9E-04	4.6E-01	2.0E+00
VOC	2.9E-04	1.3E-03	1.2E+00	5.2E+00
Benzene	6.1E-06	2.7E-05	2.5E-02	1.1E-01
Toluene	8.4E-06	3.7E-05	3.5E-02	1.5E-01
Ethylbenzene	1.7E-06	7.5E-06	7.1E-03	3.1E-02
Xylene	8.8E-06	3.8E-05	3.6E-02	1.6E-01
Formaldehyde	6.6E-05	2.9E-04	2.7E-01	1.2E+00
n-Hexane	1.2E-06	5.1E-06	4.8E-03	2.1E-02
CO_2e	7.3E-01	3.2E+00	3.0E+03	1.3E+04

[1] Emission factors are the emission rates divided by total acres of all ice roads and ice pads constructed through the life of the project.

Table B-5e Emissions for Construction of Powerlines and Fiber Optics

Pollutant	Emission Factor [1] Short-Term (lb/hr-acre)	Emission Factor [1] Annual (ton/year-acre)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
NO_x	7.7E-03	3.4E-02	2.5E-01	1.1E+00
CO	3.1E-03	1.4E-02	1.0E-01	4.5E-01
SO_2	3.4E-05	1.5E-04	1.1E-03	5.0E-03
PM_{10}	6.5E-04	2.8E-03	2.1E-02	9.4E-02
$PM_{2.5}$	6.1E-04	2.7E-03	2.0E-02	8.8E-02
VOC	8.0E-04	3.5E-03	2.7E-02	1.2E-01
Benzene	2.2E-05	9.8E-05	7.5E-04	3.3E-03
Toluene	2.2E-05	9.8E-05	7.4E-04	3.3E-03
Ethylbenzene	4.4E-06	1.9E-05	1.5E-04	6.4E-04
Xylene	1.8E-05	7.7E-05	5.8E-04	2.6E-03
Formaldehyde	1.9E-04	8.2E-04	6.2E-03	2.7E-02
n-Hexane	2.0E-06	8.8E-06	6.7E-05	2.9E-04
CO_2e	4.3E+00	1.9E+01	1.4E+02	6.2E+02

[1] Emission factors are the emission rates divided by total length in miles of fiber optics line constructed. Miles of powerline are assumed equal to the miles of fiber optic line constructed.

Table B-5f Emissions for Construction of Pipelines

Pollutant	Emission Factor [1] Short-Term (lb/hr-acre)	Emission Factor [1] Annual (ton/year-acre)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
NO_x	7.8E-02	3.4E-01	1.4E+01	6.3E+01
CO	5.0E-02	2.2E-01	9.2E+00	4.0E+01
SO_2	1.8E-04	7.8E-04	3.3E-02	1.4E-01
PM_{10}	3.9E-03	1.7E-02	7.2E-01	3.2E+00
$PM_{2.5}$	3.8E-03	1.7E-02	7.0E-01	3.1E+00
VOC	1.1E-02	4.8E-02	2.0E+00	8.9E+00
Benzene	9.1E-05	4.0E-04	1.7E-02	7.4E-02
Toluene	7.5E-05	3.3E-04	1.4E-02	6.1E-02
Ethylbenzene	1.1E-05	4.8E-05	2.1E-03	9.0E-03
Xylene	6.5E-05	2.8E-04	1.2E-02	5.3E-02
Formaldehyde	4.8E-04	2.1E-03	8.9E-02	3.9E-01
n-Hexane	6.7E-06	2.9E-05	1.2E-03	5.4E-03
CO_2e	2.0E+01	8.9E+01	3.8E+03	1.7E+04

[1] Emission factors are the emission rates divided by total length in miles of pipeline constructed.

Table B-5g Emissions for Construction of WCF

Pollutant	Emission Factor [1] Short-Term (lb/hr-acre)	Emission Factor [1] Annual (ton/year-acre)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
NO_x	4.3E-01	1.9E+00	9.9E+00	4.3E+01
CO	1.8E-01	8.0E-01	4.2E+00	1.8E+01
SO_2	1.4E-03	6.3E-03	3.3E-02	1.4E-01
PM_{10}	4.0E-02	1.7E-01	9.1E-01	4.0E+00
$PM_{2.5}$	3.3E-02	1.4E-01	7.5E-01	3.3E+00
VOC	5.3E-02	2.3E-01	1.2E+00	5.3E+00
Benzene	1.4E-03	6.1E-03	3.2E-02	1.4E-01
Toluene	1.5E-03	6.6E-03	3.4E-02	1.5E-01
Ethylbenzene	3.0E-04	1.3E-03	6.8E-03	3.0E-02
Xylene	1.3E-03	5.8E-03	3.0E-02	1.3E-01
Formaldehyde	1.2E-02	5.4E-02	2.8E-01	1.2E+00
n-Hexane	1.6E-04	7.0E-04	3.7E-03	1.6E-02
CO_2e	2.0E+02	9.0E+02	4.7E+03	2.0E+04

1 Emission factors are the emission rates divided by total acres of the WCF pad.

Table B-5h Emissions for Construction of WOC and Airstrip

Pollutant	Emission Factor [1] Short-Term (lb/hr-acre)	Emission Factor [1] Annual (ton/year-acre)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
NO_x	1.5E-01	6.7E-01	1.1E+01	4.9E+01
CO	7.4E-02	3.3E-01	5.5E+00	2.4E+01
SO_2	5.2E-04	2.3E-03	3.8E-02	1.7E-01
PM_{10}	1.6E-02	7.1E-02	1.2E+00	5.2E+00
$PM_{2.5}$	1.1E-02	4.6E-02	7.8E-01	3.4E+00
VOC	2.2E-02	9.8E-02	1.6E+00	7.2E+00
Benzene	4.9E-04	2.1E-03	3.6E-02	1.6E-01
Toluene	6.6E-04	2.9E-03	4.8E-02	2.1E-01
Ethylbenzene	1.2E-04	5.3E-04	8.9E-03	3.9E-02
Xylene	6.4E-04	2.8E-03	4.7E-02	2.1E-01
Formaldehyde	4.9E-03	2.2E-02	3.6E-01	1.6E+00
n-Hexane	8.3E-05	3.6E-04	6.1E-03	2.7E-02
CO_2e	8.3E+01	3.6E+02	6.1E+03	2.7E+04

1 Emission factors are the emission rates divided by total acres of the WOC and Airstrip.

Table B-5i Emissions for Bulk Materials Transport and Sealift Module Delivery Option 3 (Ocean Point Crossing)

Pollutant	Emission Factor [1] Short-Term (lb/hr-acre)	Emission Factor [1] Annual (ton/year-acre)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
NO_x	2.6E-01	1.2E+00	1.1E+01	4.9E+01
CO	1.3E-01	5.5E-01	5.3E+00	2.3E+01
SO_2	3.4E-03	1.5E-02	1.5E-01	6.4E-01
PM_{10}	1.2E-01	5.3E-01	5.1E+00	2.2E+01
$PM_{2.5}$	2.1E-02	9.3E-02	9.0E-01	4.0E+00
VOC	2.8E-02	1.2E-01	1.2E+00	5.2E+00
Benzene	4.3E-04	1.9E-03	1.8E-02	7.9E-02
Toluene	5.1E-04	2.3E-03	2.2E-02	9.6E-02
Ethylbenzene	1.2E-04	5.2E-04	5.0E-03	2.2E-02
Xylene	5.3E-04	2.3E-03	2.2E-02	9.8E-02
Formaldehyde	4.4E-03	1.9E-02	1.9E-01	8.2E-01
n-Hexane	8.6E-05	3.8E-04	3.7E-03	1.6E-02
CO_2e	7.5E+01	3.3E+02	3.2E+03	1.4E+04

1 Emission factors are the emission rates divided by the total weight of modules (WCF and drillsite modules) transferred via Oliktok Dock in thousands of tons (kton).

Table B-5j Emissions for Gravel Mining and Reservoir Development

Pollutant	Emission Factor [1] Short-Term (lb/hr-acre)	Emission Factor [1] Annual (ton/year-acre)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
NO_x	1.3E+00	5.7E+00	7.8E+00	3.4E+01
CO	3.4E+00	1.5E+01	2.0E+01	8.8E+01
SO_2	9.6E-02	4.2E-01	5.8E-01	2.5E+00
PM_{10}	1.1E-01	4.7E-01	6.5E-01	2.8E+00
$PM_{2.5}$	3.0E-02	1.3E-01	1.8E-01	7.9E-01
VOC	6.4E-02	2.8E-01	3.8E-01	1.7E+00
Benzene	1.6E-03	7.0E-03	9.6E-03	4.2E-02
Toluene	1.9E-03	8.5E-03	1.2E-02	5.1E-02
Ethylbenzene	3.7E-04	1.6E-03	2.2E-03	9.8E-03
Xylene	1.8E-03	8.0E-03	1.1E-02	4.8E-02
Formaldehyde	1.5E-02	6.6E-02	9.1E-02	4.0E-01
n-Hexane	2.3E-04	1.0E-03	1.4E-03	6.0E-03
CO_2e	2.0E+02	8.8E+02	1.2E+03	5.3E+03

1 Emission factors are the emission rates divided by total gravel volume in million cubic yards (MCY).

Table B-5k Emissions for Construction Traffic

Pollutant	Emission Factor [1] Short-Term (lb/hr-acre)	Emission Factor [1] Annual (ton/year-acre)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
NO_x	1.2E-04	5.3E-04	3.4E+00	1.5E+01
CO	1.1E-04	4.6E-04	3.0E+00	1.3E+01
SO_2	4.4E-07	1.9E-06	1.2E-02	5.4E-02
PM_{10}	9.0E-04	3.9E-03	2.5E+01	1.1E+02
$PM_{2.5}$	9.5E-05	4.2E-04	2.7E+00	1.2E+01
VOC	2.0E-05	8.5E-05	5.5E-01	2.4E+00
Benzene	1.5E-07	6.5E-07	4.1E-03	1.8E-02
Toluene	1.4E-07	5.9E-07	3.8E-03	1.7E-02
Ethylbenzene	5.5E-08	2.4E-07	1.5E-03	6.7E-03
Xylene	1.4E-07	6.3E-07	4.0E-03	1.8E-02
Formaldehyde	1.6E-06	7.2E-06	4.6E-02	2.0E-01
n-Hexane	4.6E-08	2.0E-07	1.3E-03	5.6E-03
CO_2e	5.3E-02	2.3E-01	1.5E+03	6.6E+03

1 Emission factors are the emission rates divided by total number of construction traffic miles in thousands of miles (kmile).

Table B-5l Emissions for Early Operations Power Generation the WOC

Pollutant	Emission Factor [1] Short-Term (lb/hr-acre)	Emission Factor [1] Annual (ton/year-acre)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
NO_x	4.8E-03	2.1E-02	7.1E+01	3.1E+02
CO	3.9E-03	1.7E-02	5.7E+01	2.5E+02
SO_2	1.5E-05	6.5E-05	2.2E-01	9.5E-01
PM_{10}	1.3E-04	5.7E-04	1.9E+00	8.3E+00
$PM_{2.5}$	1.3E-04	5.7E-04	1.9E+00	8.3E+00
VOC	2.0E-04	8.9E-04	3.0E+00	1.3E+01
Benzene	1.5E-06	6.4E-06	2.1E-02	9.3E-02
Toluene	3.6E-07	1.6E-06	5.3E-03	2.3E-02
Ethylbenzene	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Xylene	2.5E-07	1.1E-06	3.6E-03	1.6E-02
Formaldehyde	2.4E-06	1.1E-05	3.5E-02	1.6E-01
n-Hexane	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CO_2e	1.5E+00	6.8E+00	2.3E+04	9.9E+04

1 Emission factors are the emission rates divided by total power at the WOC in kilowatts electric (kWe).

Table B-5m Emissions for Drilling of All Wells at Drillsite Pads

Pollutant	Emission Factor [1] Short-Term (lb/hr-acre)	Emission Factor [1] Annual (ton/year-acre)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
NO_x	2.1E-01	9.2E-01	5.3E+01	2.3E+02
CO	4.6E-01	2.0E+00	1.2E+02	5.1E+02
SO_2	1.3E-03	5.8E-03	3.3E-01	1.4E+00
PM_{10}	1.4E-02	6.2E-02	3.6E+00	1.6E+01
$PM_{2.5}$	1.4E-02	6.0E-02	3.4E+00	1.5E+01
VOC	8.8E-02	3.8E-01	2.2E+01	9.7E+01
Benzene	3.4E-04	1.5E-03	8.5E-02	3.7E-01
Toluene	1.7E-04	7.6E-04	4.3E-02	1.9E-01
Ethylbenzene	1.1E-05	4.9E-05	2.8E-03	1.2E-02
Xylene	1.0E-04	4.4E-04	2.5E-02	1.1E-01
Formaldehyde	3.3E-04	1.5E-03	8.4E-02	3.7E-01
n-Hexane	2.1E-03	9.2E-03	5.3E-01	2.3E+00
CO_2e	1.2E+02	5.2E+02	3.0E+04	1.3E+05

[1] Emission factors are the emission rates divided by total number of wells drilled at all drillsite pads.

Table B-5n Emissions for Drilling Traffic

Pollutant	Emission Factor [1] Short-Term (lb/hr-acre)	Emission Factor [1] Annual (ton/year-acre)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
NO_x	7.8E-04	3.4E-03	3.8E+00	1.6E+01
CO	3.3E-04	1.4E-03	1.6E+00	6.9E+00
SO_2	2.9E-06	1.3E-05	1.4E-02	6.1E-02
PM_{10}	1.6E-02	6.9E-02	7.6E+01	3.3E+02
$PM_{2.5}$	1.6E-03	7.1E-03	7.8E+00	3.4E+01
VOC	1.0E-04	4.6E-04	5.0E-01	2.2E+00
Benzene	9.2E-07	4.0E-06	4.4E-03	1.9E-02
Toluene	1.1E-06	4.7E-06	5.2E-03	2.3E-02
Ethylbenzene	3.6E-07	1.6E-06	1.7E-03	7.7E-03
Xylene	1.2E-06	5.3E-06	5.9E-03	2.6E-02
Formaldehyde	1.1E-05	4.9E-05	5.3E-02	2.3E-01
n-Hexane	3.2E-07	1.4E-06	1.5E-03	6.7E-03
CO_2e	3.5E-01	1.5E+00	1.7E+03	7.4E+03

[1] Emission factors are the emission rates divided by total number of drilling traffic miles in thousands of miles (kmile).

Table B-5o Emissions for Operations of All Drillsite Pads

Pollutant	Emission Factor [1] Short-Term (lb/hr-acre)	Emission Factor [1] Annual (ton/year-acre)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
NO_x	1.5E+00	6.7E+00	7.7E+00	3.4E+01
CO	1.3E+00	5.6E+00	6.4E+00	2.8E+01
SO_2	3.5E-02	1.6E-01	1.8E-01	7.8E-01
PM_{10}	1.8E-01	7.9E-01	9.1E-01	4.0E+00
$PM_{2.5}$	9.9E-02	4.3E-01	4.9E-01	2.2E+00
VOC	2.1E+01	9.3E+01	1.1E+02	4.7E+02
Benzene	2.2E-02	9.5E-02	1.1E-01	4.7E-01
Toluene	6.0E-02	2.6E-01	3.0E-01	1.3E+00
Ethylbenzene	5.4E-01	2.3E+00	2.7E+00	1.2E+01
Xylene	1.1E+00	4.6E+00	5.3E+00	2.3E+01
Formaldehyde	6.5E-04	2.9E-03	3.3E-03	1.4E-02
n-Hexane	1.3E+00	5.8E+00	6.6E+00	2.9E+01
CO_2e	1.0E+03	4.5E+03	5.2E+03	2.3E+04

[1] Emission factors are the emission rates divided by number of drillsite pads.

Table B-5p Emissions for Operations of WCF

Pollutant	Emission Factor [1] Short-Term (lb/hr-acre)	Emission Factor [1] Annual (ton/year-acre)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
NO_x	5.7E-01	2.5E+00	1.1E+02	5.0E+02
CO	5.5E-01	2.4E+00	1.1E+02	4.8E+02
SO_2	5.4E-02	2.4E-01	1.1E+01	4.8E+01
PM_{10}	6.2E-02	2.7E-01	1.2E+01	5.4E+01
$PM_{2.5}$	6.1E-02	2.7E-01	1.2E+01	5.3E+01
VOC	2.1E-01	9.2E-01	4.2E+01	1.8E+02
Benzene	2.7E-04	1.2E-03	5.3E-02	2.3E-01
Toluene	1.2E-03	5.3E-03	2.4E-01	1.1E+00
Ethylbenzene	3.3E-04	1.5E-03	6.7E-02	2.9E-01
Xylene	6.6E-04	2.9E-03	1.3E-01	5.8E-01
Formaldehyde	2.0E-03	8.5E-03	3.9E-01	1.7E+00
n-Hexane	8.8E-03	3.9E-02	1.8E+00	7.7E+00
CO_2e	9.8E+02	4.3E+03	2.0E+05	8.5E+05

[1] Emission factors are the emission rates divided by WCF operating capacity in thousands of barrels per day (kbbl/day).

Table B-5q Emissions for Operations of WOC and Airstrip

Pollutant	Emission Factor [1] Short-Term (lb/hr-acre)	Emission Factor [1] Annual (ton/year-acre)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
NO_x	1.3E-01	5.7E-01	2.6E+01	1.1E+02
CO	1.2E-01	5.1E-01	2.3E+01	1.0E+02
SO_2	4.4E-03	1.9E-02	8.9E-01	3.9E+00
PM_{10}	1.8E-02	8.0E-02	3.7E+00	1.6E+01
$PM_{2.5}$	1.6E-02	7.2E-02	3.3E+00	1.4E+01
VOC	1.8E-02	7.7E-02	3.5E+00	1.5E+01
Benzene	8.6E-05	3.7E-04	1.7E-02	7.5E-02
Toluene	1.1E-04	4.7E-04	2.2E-02	9.5E-02
Ethylbenzene	2.0E-05	8.6E-05	3.9E-03	1.7E-02
Xylene	5.8E-05	2.6E-04	1.2E-02	5.1E-02
Formaldehyde	1.5E-04	6.5E-04	3.0E-02	1.3E-01
n-Hexane	4.3E-06	1.9E-05	8.7E-04	3.8E-03
CO_2e	9.4E+01	4.1E+02	1.9E+04	8.2E+04

[1] Emission factors are the emission rates divided by number of personnel housed at the WOC.

Table B-5r Emissions for Aircraft Flights

Pollutant	Emission Factor [1] Short-Term (lb/hr-acre)	Emission Factor [1] Annual (ton/year-acre)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
NO_x	1.1E-03	4.9E-03	6.3E-01	2.8E+00
CO	1.8E-03	7.9E-03	1.0E+00	4.4E+00
SO_2	1.5E-04	6.5E-04	8.3E-02	3.6E-01
PM_{10}	3.8E-05	1.7E-04	2.1E-02	9.3E-02
$PM_{2.5}$	3.8E-05	1.7E-04	2.1E-02	9.3E-02
VOC	3.4E-04	1.5E-03	1.9E-01	8.4E-01
Benzene	5.7E-06	2.5E-05	3.2E-03	1.4E-02
Toluene	2.2E-06	9.7E-06	1.2E-03	5.4E-03
Ethylbenzene	6.0E-07	2.6E-06	3.3E-04	1.5E-03
Xylene	1.5E-06	6.6E-06	8.5E-04	3.7E-03
Formaldehyde	4.2E-05	1.9E-04	2.4E-02	1.0E-01
n-Hexane	6.8E-09	3.0E-08	3.8E-06	1.7E-05
CO_2e	4.0E-01	1.7E+00	2.2E+02	9.8E+02

[1] Emission factors are the emission rates divided by the average number of flights per year.

Table B-5s Emissions for Operations Traffic

Pollutant	Emission Factor [1] Short-Term (lb/hr-acre)	Emission Factor [1] Annual (ton/year-acre)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
NO_x	1.2E-04	5.4E-04	6.7E-01	3.0E+00
CO	8.0E-05	3.5E-04	4.4E-01	1.9E+00
SO_2	4.9E-07	2.2E-06	2.7E-03	1.2E-02
PM_{10}	4.0E-03	1.8E-02	2.2E+01	9.6E+01
$PM_{2.5}$	4.1E-04	1.8E-03	2.2E+00	9.7E+00
VOC	1.8E-05	7.7E-05	9.6E-02	4.2E-01
Benzene	1.5E-07	6.7E-07	8.3E-04	3.6E-03
Toluene	1.7E-07	7.6E-07	9.5E-04	4.1E-03
Ethylbenzene	6.0E-08	2.6E-07	3.3E-04	1.4E-03
Xylene	1.9E-07	8.5E-07	1.1E-03	4.6E-03
Formaldehyde	1.8E-06	7.9E-06	9.8E-03	4.3E-02
n-Hexane	5.3E-08	2.3E-07	2.9E-04	1.3E-03
CO_2e	6.0E-02	2.6E-01	3.3E+02	1.4E+03

[1] Emission factors are the emission rates divided by total number of operation traffic miles in thousands of miles (kmile).

Table B-6 Average Annual Emissions per Well (ton/year/well)

Pollutant	New Directional Oil Well (Construction and Drilling)	Directional Oil Well > 1 Year (Production and Operations)	New Directional Injection Well (Construction and Drilling)	Directional Injection Well > 1 Year (Production and Operations)
NO_x	1.32	2.61	1.32	2.61
CO	1.35	2.47	1.35	2.47
SO_2	0.01	0.21	0.01	0.21
PM_{10}	0.90	0.68	0.90	0.68
$PM_{2.5}$	0.14	0.32	0.14	0.32
VOC	0.19	2.65	0.19	2.65
Benzene	1.64E-03	3.18E-03	1.64E-03	3.18E-03
Toluene	1.58E-03	9.92E-03	1.58E-03	9.92E-03
Ethylbenzene	3.02E-04	4.79E-02	3.02E-04	4.79E-02
Xylenes	1.45E-03	9.46E-02	1.45E-03	9.46E-02
Formaldehyde	1.18E-02	7.88E-03	1.18E-02	7.88E-03
n-Hexane	2.70E-03	1.46E-01	2.70E-03	1.46E-01
CO_2e	485	3,828	485	3,828

Table B-7 Estimated Rate of Development

Project Year	Calendar Year	Number of Drill Rigs Operating in the Willow Field	Number of Active Producing Wells Represented in the EI	Number of Active Injection Wells Represented in the EI
0	2020	0	0	0
1	2021	0	0	0
2	2022	0	0	0
3	2023	0	0	0
4	2024	2	0	0
5	2025	2	0	0
6	2026	2	41	43
7	2027	2	62	64
8	2028	2	82	85
9	2029	2	103	107
10	2030	0	123	128
11	2031	0	123	128
12	2032	0	123	128
13	2033	0	123	128
14	2034	0	123	128
15	2035	0	123	128
16	2036	0	123	128
17	2037	0	123	128
18	2038	0	123	128
19	2039	0	123	128
20	2040	0	123	128
21	2041	0	123	128
22	2042	0	123	128
23	2043	0	123	128
24	2044	0	123	128
25	2045	0	123	128
26	2046	0	123	128
27	2047	0	123	128
28	2048	0	123	128
29	2049	0	123	128
30	2050	0	123	128

Table B-8 Annual Emissions from Construction, Drilling, and Completion Activities

Project Year	Calendar Year	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$	VOC
0	2020	20.5	32.7	0.9	1.3	0.5	1.3
1	2021	440.4	376.8	3.8	81.5	20.6	26.5
2	2022	462.9	388.0	4.9	102.5	23.3	26.5
3	2023	546.8	433.3	4.6	265.7	43.5	37.1
4	2024	751.7	815.3	4.9	324.3	60.7	107.2
5	2025	335.3	493.2	2.4	324.6	50.3	82.0
6	2026	284.7	298.1	3.9	292.2	43.6	63.3
7	2027	240.3	261.2	2.6	388.1	50.4	51.0
8	2028	129.3	152.8	0.6	187.1	26.4	38.7
9	2029	112.8	143.0	0.5	292.1	36.0	36.8
10	2030	0.0	0.0	0.0	0.0	0.0	0.0
11	2031	0.0	0.0	0.0	0.0	0.0	0.0
12	2032	0.0	0.0	0.0	0.0	0.0	0.0
13	2033	0.0	0.0	0.0	0.0	0.0	0.0
14	2034	0.0	0.0	0.0	0.0	0.0	0.0
15	2035	0.0	0.0	0.0	0.0	0.0	0.0
16-30	2036-2050	0.0	0.0	0.0	0.0	0.0	0.0

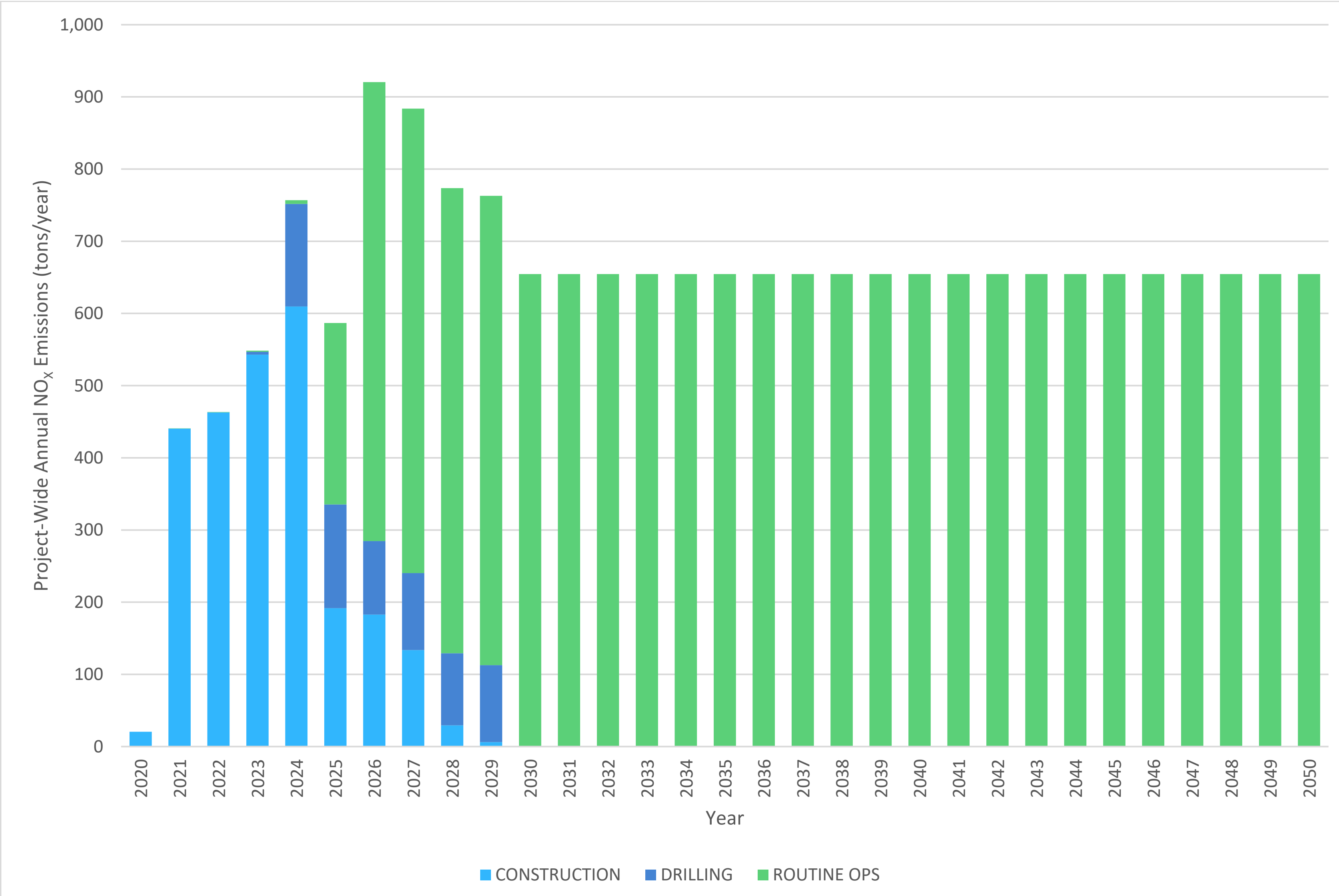


Figure B-1a Bar Chart of Annual Emissions for Each Phase of Development for NO_x

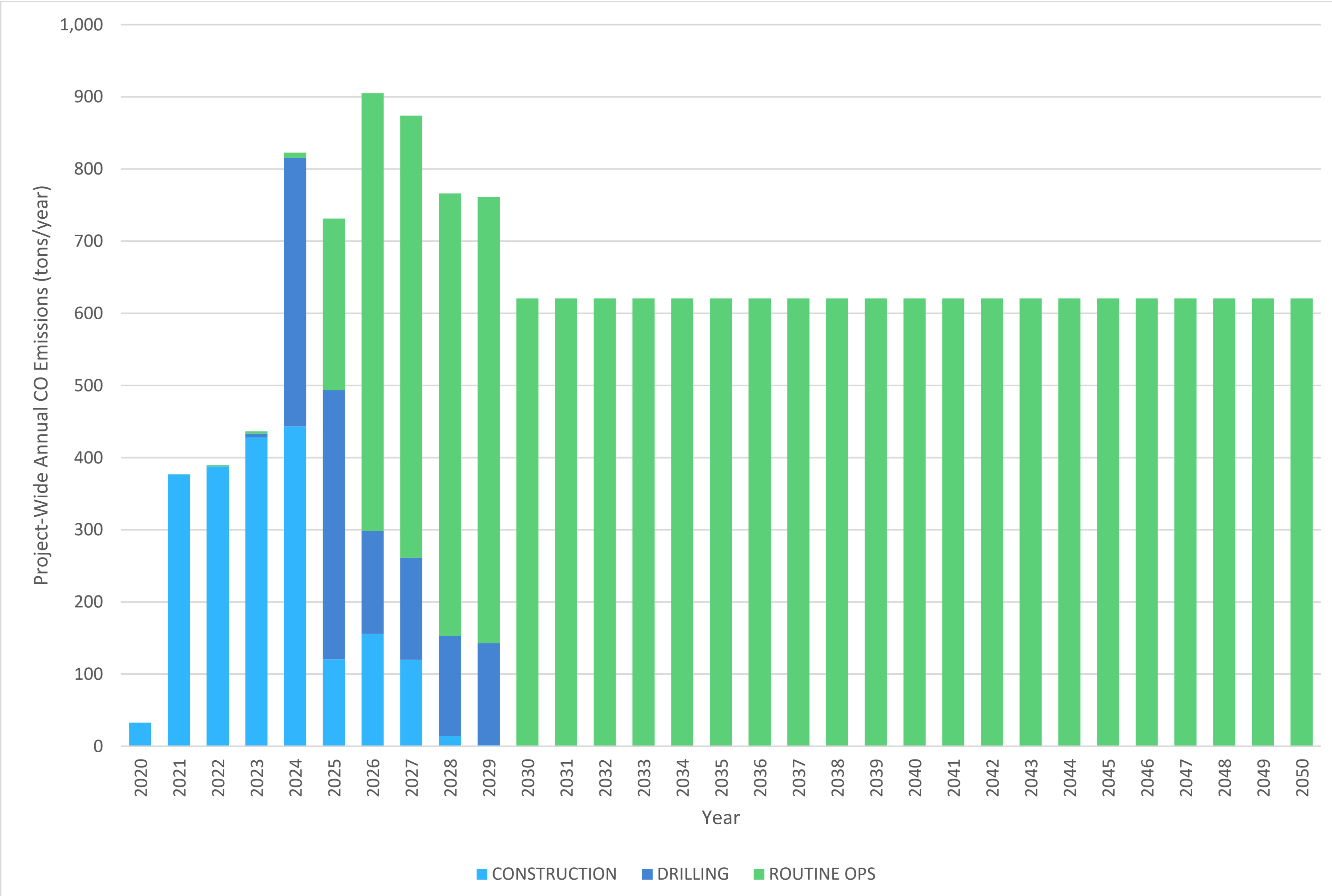


Figure B-1b Bar Chart of Annual Emissions for Each Phase of Development for CO

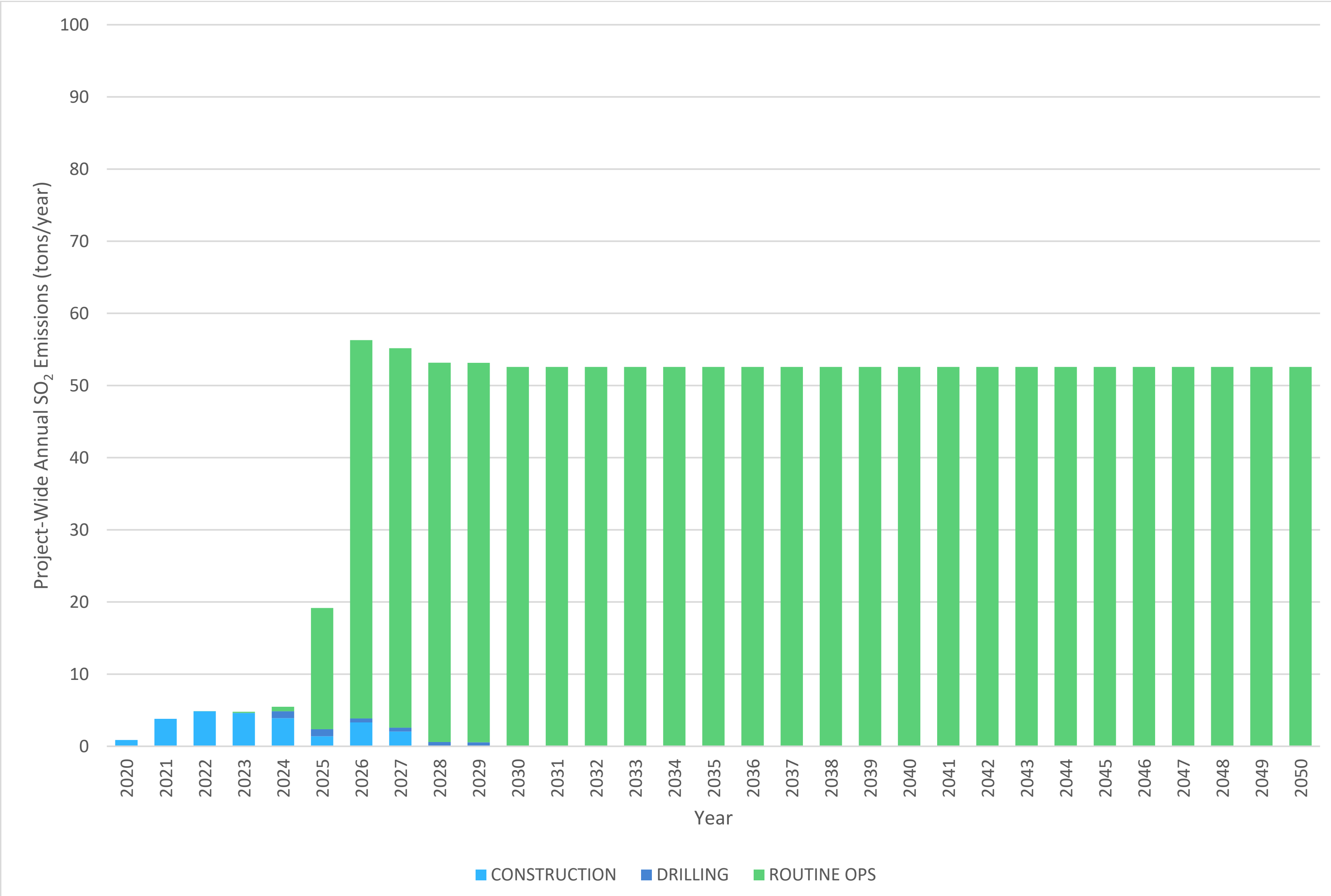


Figure B-1c Bar Chart of Annual Emissions for Each Phase of Development for SO_2

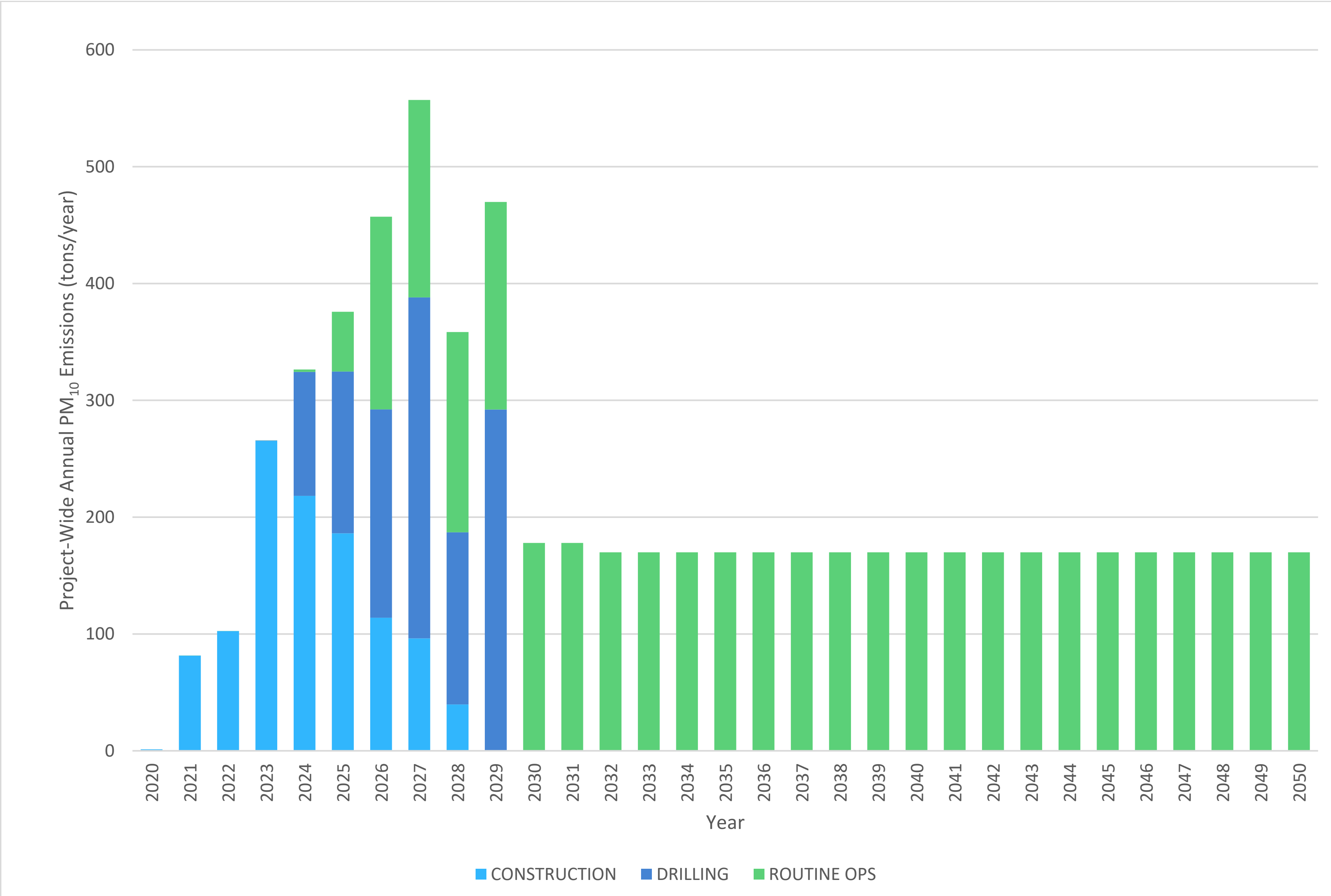


Figure B-1d Bar Chart of Annual Emissions for Each Phase of Development for PM_{10}

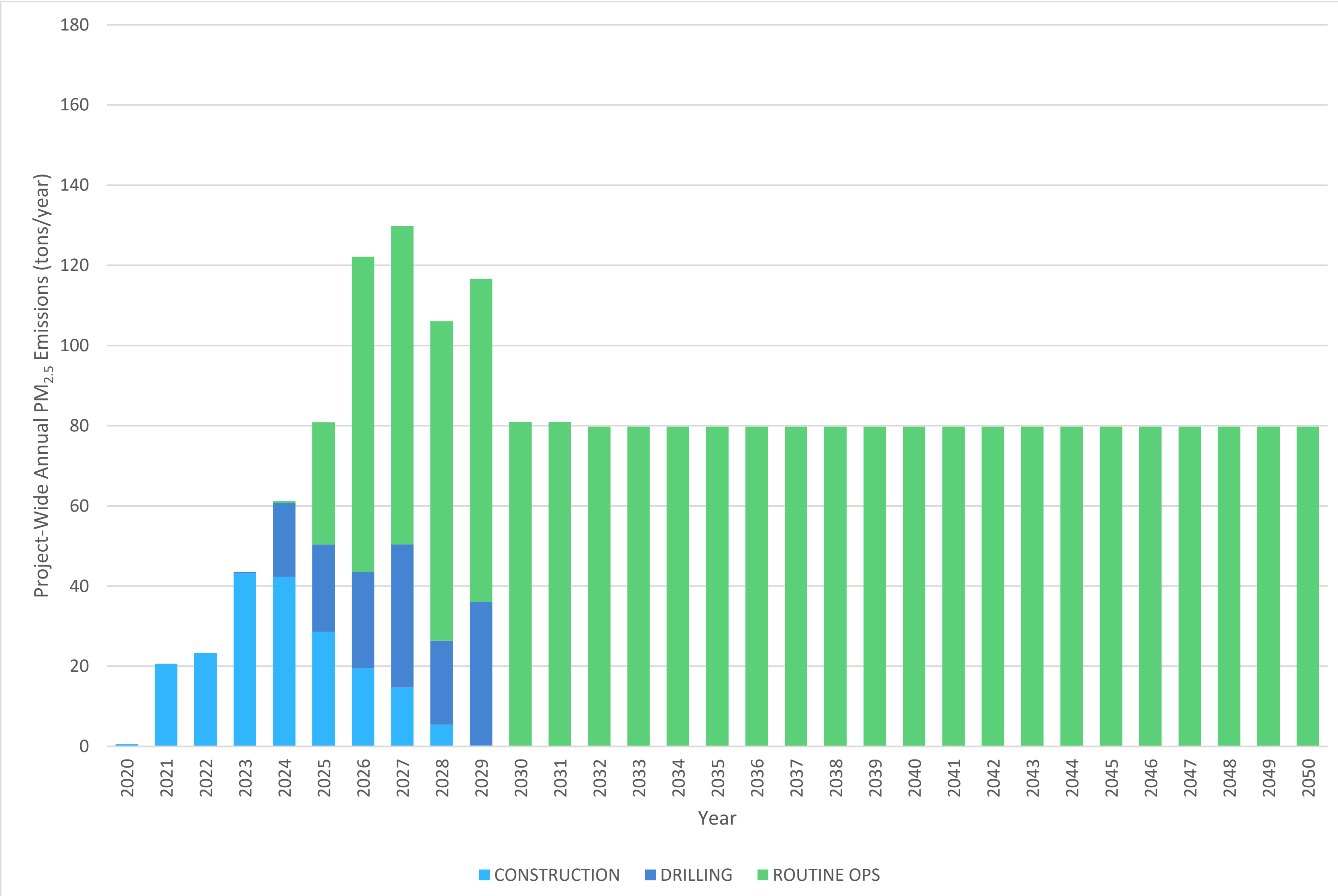


Figure B-1e Bar Chart of Annual Emissions for Each Phase of Development for $PM_{2.5}$

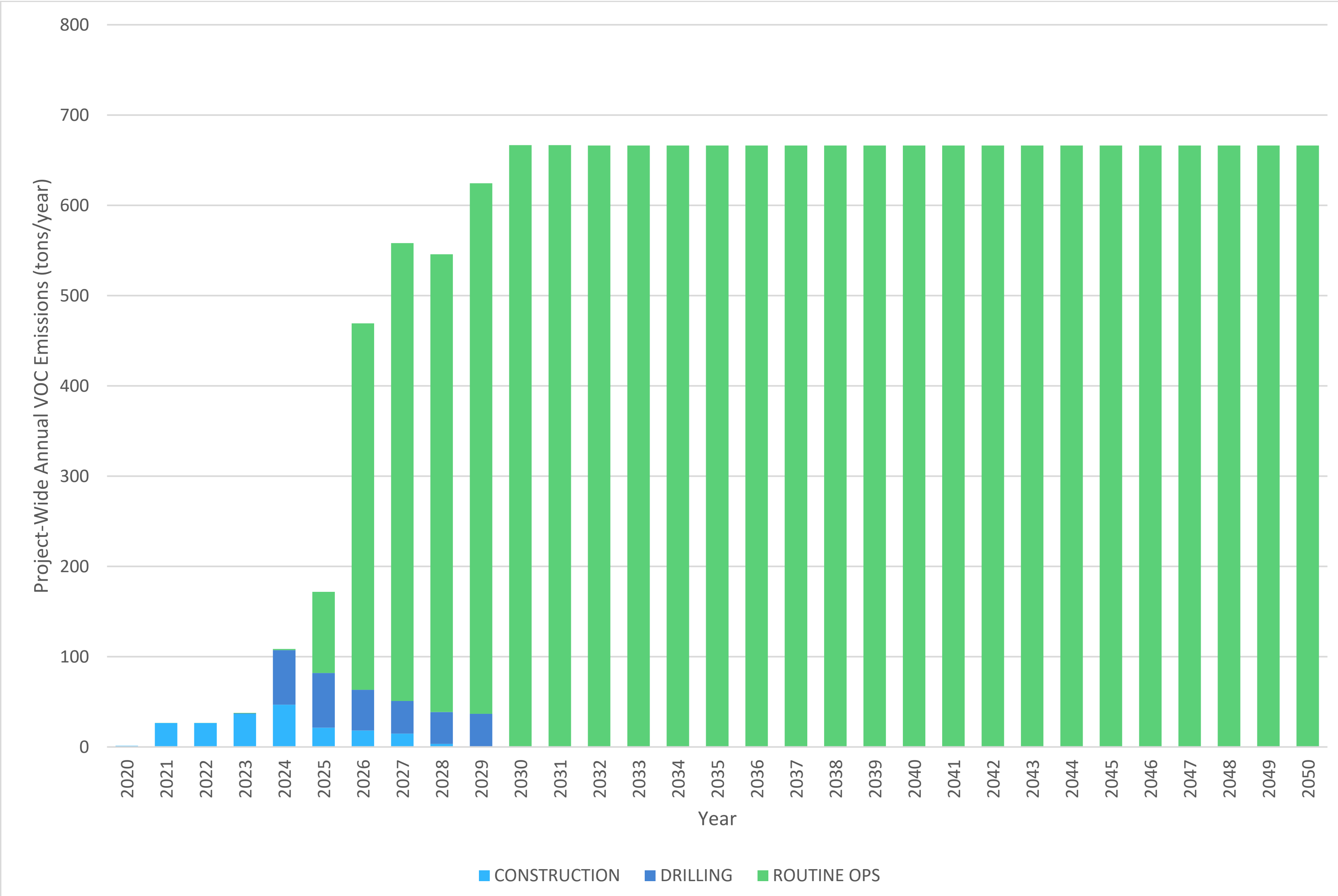


Figure B-1f Bar Chart of Annual Emissions for Each Phase of Development for VOC

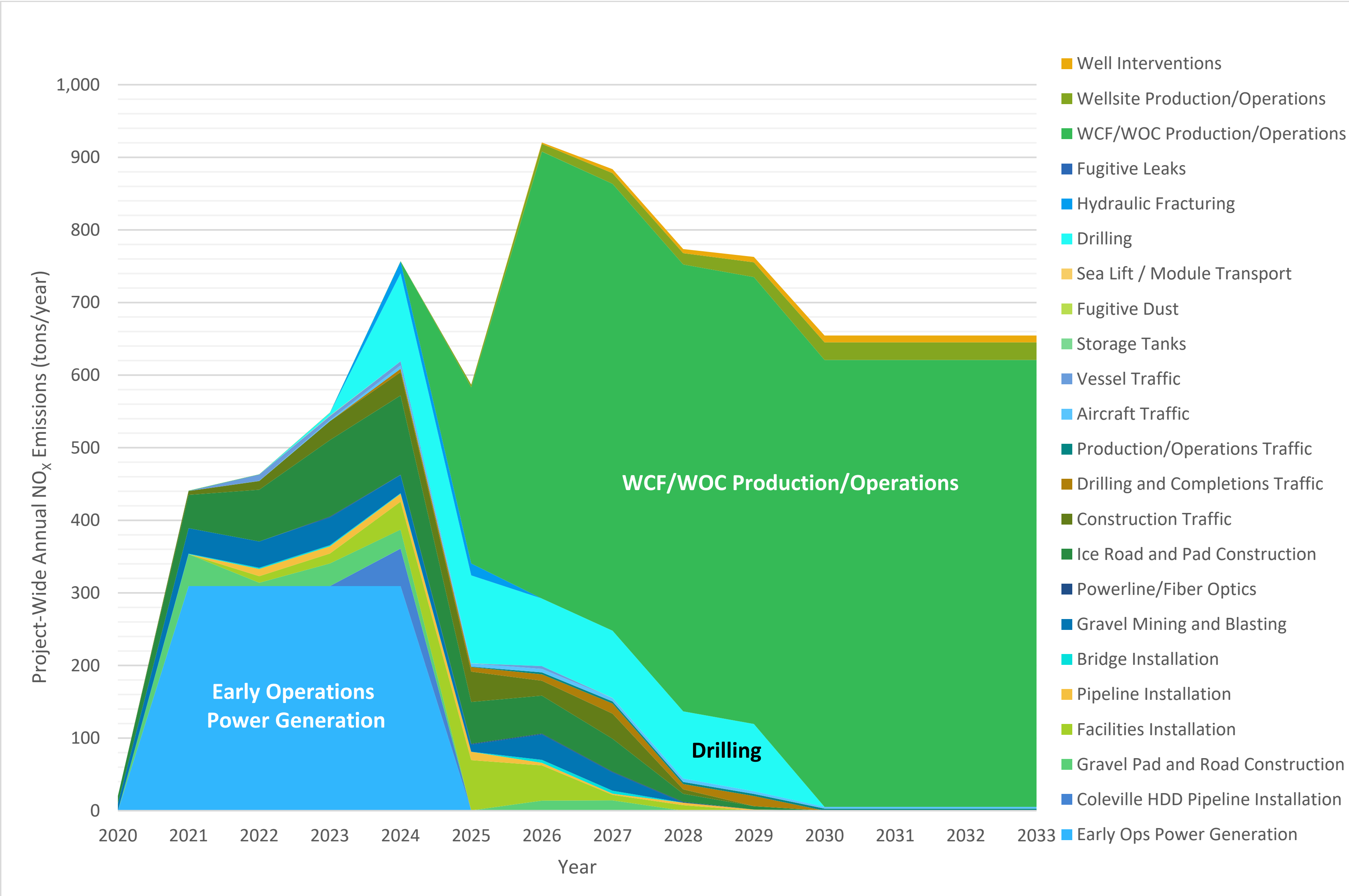


Figure B-2a Emissions by Source Type and Year for Alternative B – Option 3 for NO_x

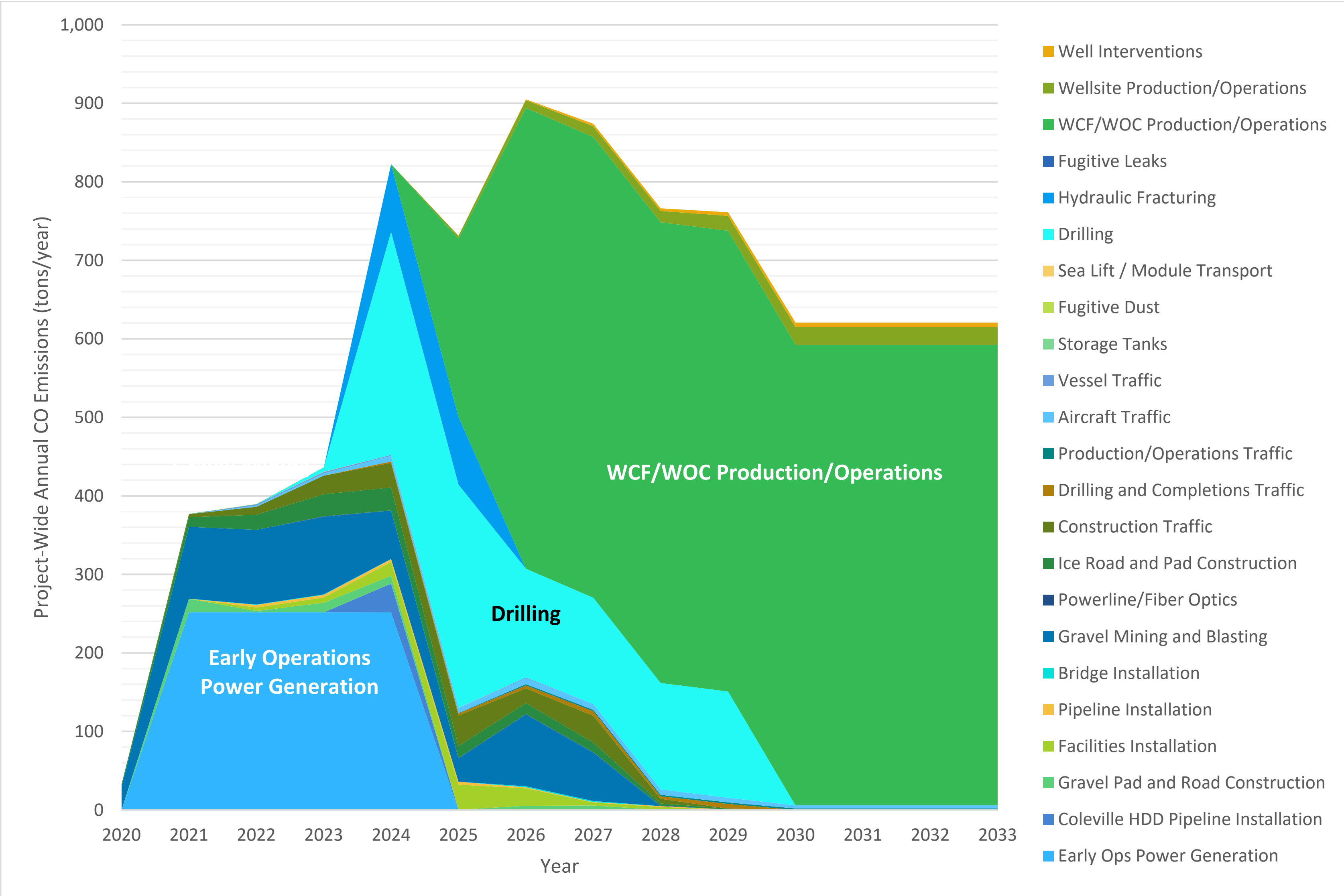


Figure B-2b Emissions by Source Type and Year for Alternative B – Option 3 for CO

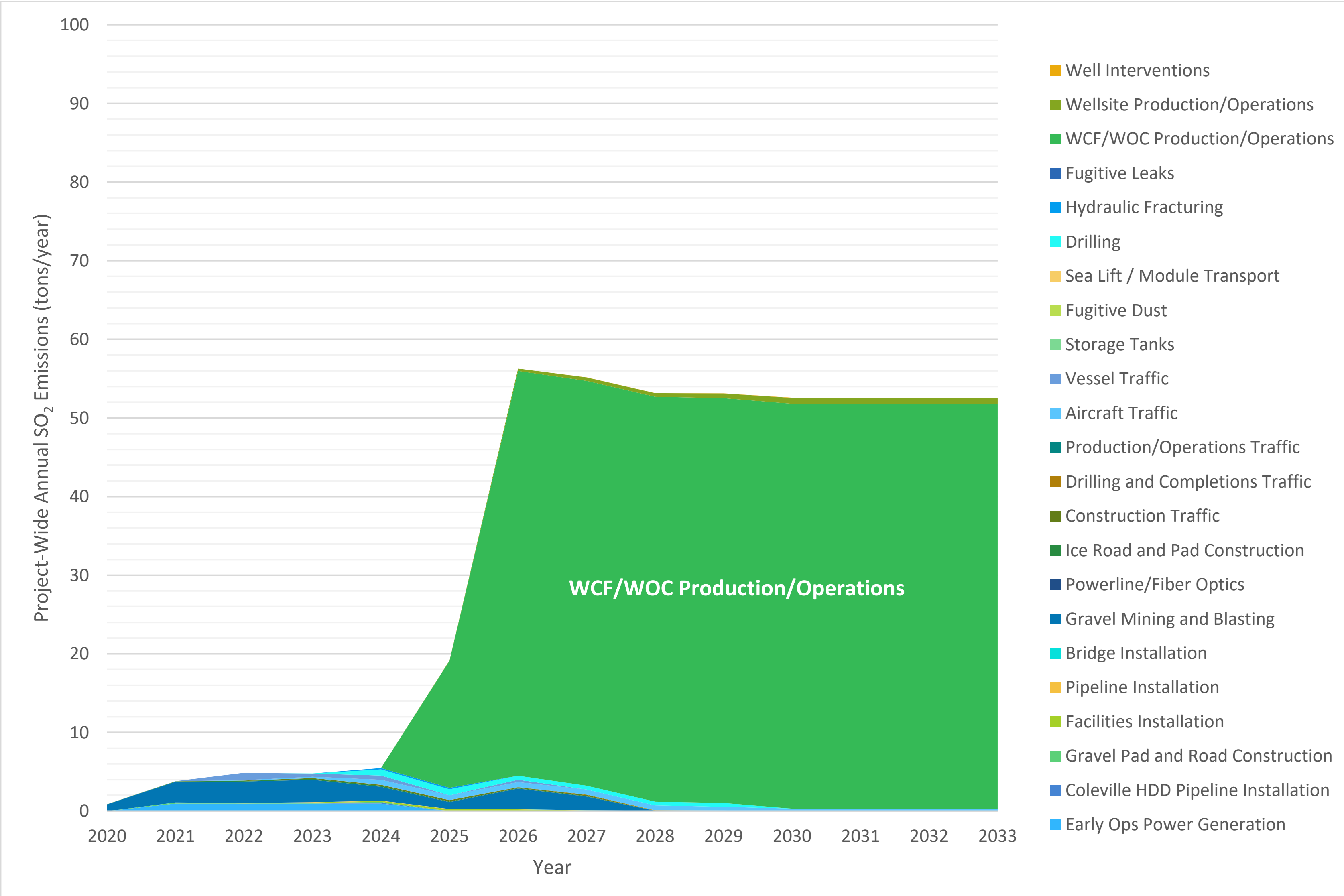


Figure B-2c Emissions by Source Type and Year for Alternative B – Option 3 for SO_2

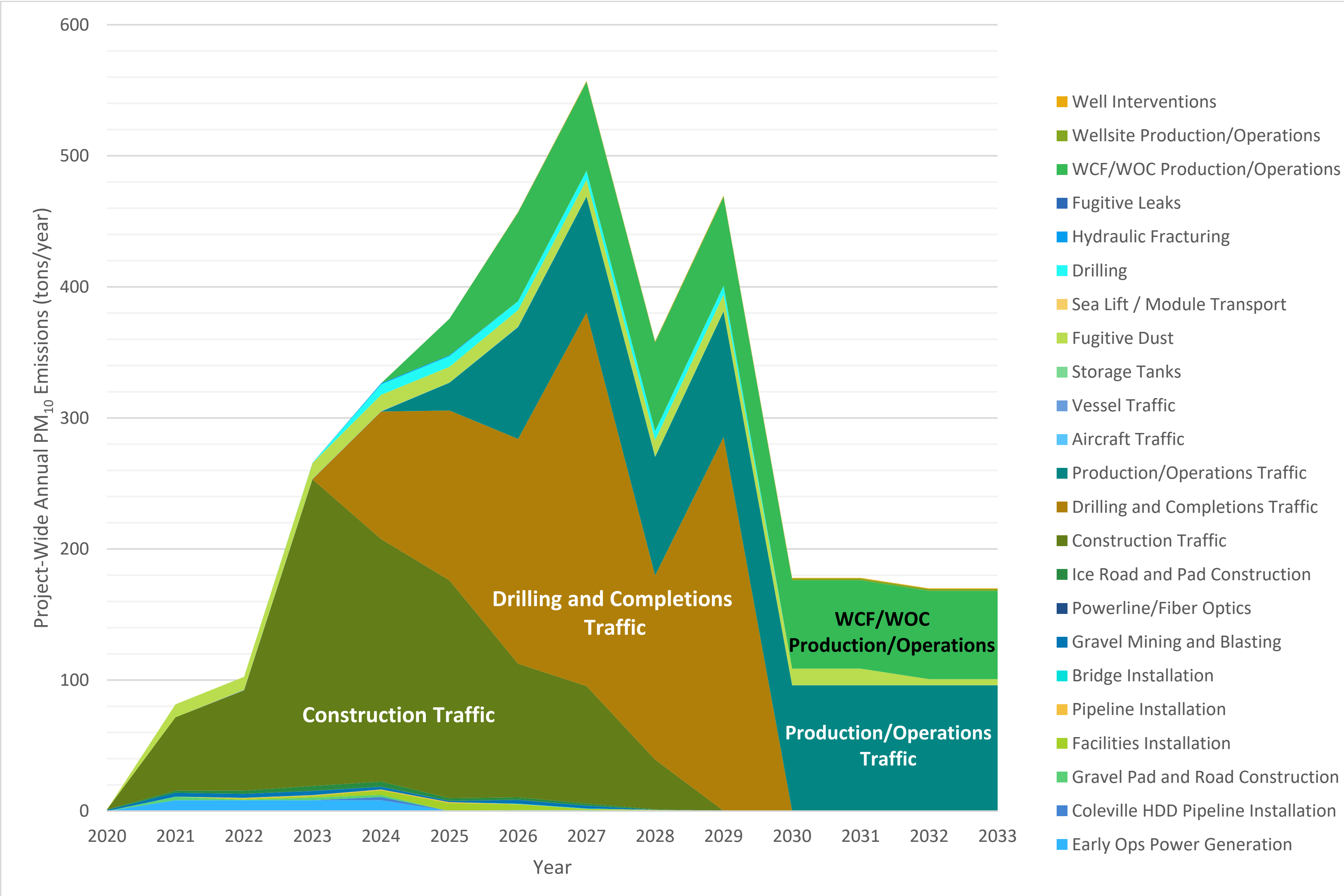


Figure B-2d Emissions by Source Type and Year for Alternative B – Option 3 for PM_{10}

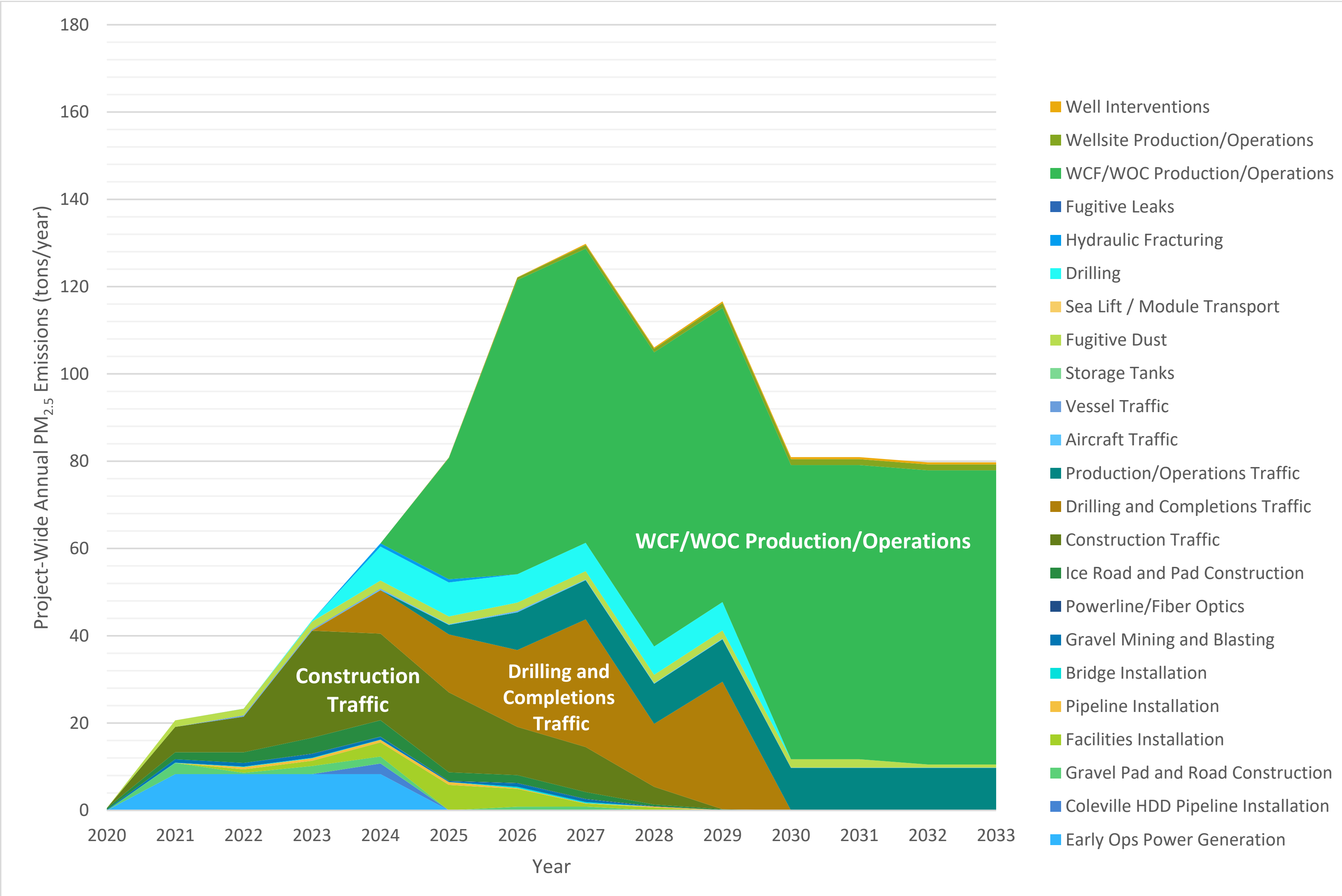


Figure B-2e Emissions by Source Type and Year for Alternative B – Option 3 for $PM_{2.5}$

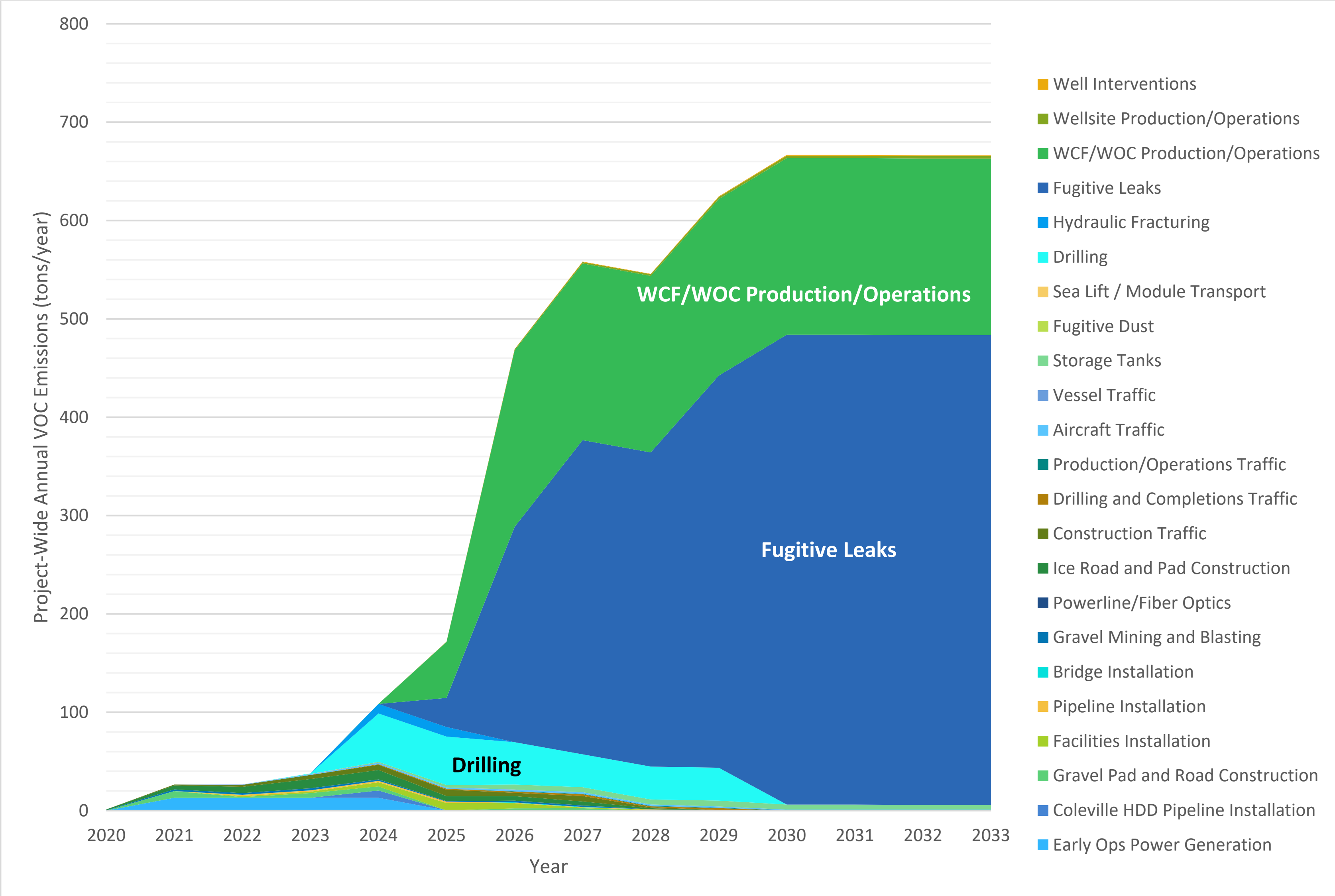


Figure B-2f Emissions by Source Type and Year for Alternative B – Option 3 for VOC

Appendix C

Project Emissions Inventory

The emissions inventory is electronically enclosed as a set of Microsoft Excel spreadsheets. These spreadsheets are organized as described in **Table C-1**.

Table C-1. Organization of Emissions Calculation Spreadsheets Electronically Enclosed

Spreadsheet(s)	Description of Contents
Willow_AltB_Emissions_Summary.xlsx Willow_Option3_Emissions_Summary.xlsx Willow_AltB_Option3_Emissions_Summary.xlsx	Overall summary of monthly emissions by pollutant for Alternative B only, Option 3 only, and for the entire development project combined for Alternative B and Option 3, respectively.
Willow_AltB_EI-Construction-BT1.xlsx Willow_AltB_EI-Construction-BT2.xlsx Willow_AltB_EI-Construction-BT3.xlsx Willow_AltB_EI-Construction-BT4.xlsx Willow_AltB_EI-Construction-BT5.xlsx	Construction-related emissions calculations for each of the five Willow drillsites (BT1 through BT5).
Willow_AltB_EI-Construction-WCF+WOC+Airstrip.xlsx	Construction-related emissions calculations for the WCF, WOC, and Willow Airstrip.
Willow_AltB_EI-General Activities.xlsx	Emissions calculations for a variety of activities occurring throughout the development, at multiple undefined locations, or outside the development. These types of activities include certain aspects of road, bridge, pipeline, and utility lines construction, vehicle traffic, drilling throughout the development, connected activities at the ACF, fugitive sources, and others.
Willow_AltB_EI-Non-Construction-BT1.xlsx Willow_AltB_EI-Non-Construction-BT2.xlsx Willow_AltB_EI-Non-Construction-BT3.xlsx Willow_AltB_EI-Non-Construction-BT4.xlsx Willow_AltB_EI-Non-Construction-BT5.xlsx	Routine operations and drilling-related emissions calculations for each of the five Willow drillsites (BT1 through BT5).
Willow_AltB_EI-Non-Construction-WCF+WOC+Airstrip.xlsx	Routine operations-related emissions calculations for the WCF, WOC, and Willow Airstrip.
Willow_EI-NSA_General Acitivities_Option3.xlsx Willow_EI-NSA+Sealift_Option3.xlsx	Emissions calculations related to construction for infrastructure improvements, sealift, and ground module transport to the Willow Development.

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Attachment D

Willow Emissions Inventory Report for Alternatives C and D and for Module Delivery Options 1 and 2

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ENCLOSURES

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1.0 INTRODUCTION AND PURPOSE

The Willow Master Development Plan (Willow MDP, or simply 'Project') is an oil and natural gas development project proposed by ConocoPhillips Alaska, Inc. (CPAI). The CPAI notified the Bureau of Land Management (BLM) that they propose to explore and develop hydrocarbon resources from oil and gas leases owned by CPAI within the Northeast Planning Area of the National Petroleum Reserve – Alaska (NPR-A). The Willow MDP Environmental Impact Statement (EIS) addresses a series of infrastructure components for oil and gas development in the NPR-A. CPAI may submit permit applications for up to five drill sites, a central processing facility, an infrastructure pad, gravel access roads, an airstrip, module delivery via sealift barges, import/export pipelines, and gravel mine sites on federal land in the NPR-A. The construction and operation of these facilities require permits from BLM. CPAI's Willow MDP Environmental Evaluation Document[1] (EED) includes additional information describing the proposed Project.

CPAI's purpose for the proposed Project is the economic production and transportation to market of oil and gas resources from Bear Tooth Unit (BTU), while protecting important surface resources and ensuring safe operations. To serve this purpose, CPAI needs permit approval to enable construction of drill sites, access and infield roads, pipelines, a processing plant, and other ancillary facilities. The Willow MDP would produce multiphase product (oil, gas, and water) that would be carried by pipeline to new processing facilities at the Willow Processing Facility (WPF). Pipelines would tie into existing pipeline infrastructure at a tie-in pad near Colville Delta 4 North (CD4N), the Alpine Central Facility (ACF), and the Kuparuk River Unit Central Processing Facility 2 (CPF2). From the tie-in point, sales-quality crude oil would be transported to the Kuparuk Sales Pipeline and to the Trans-Alaska Pipeline System (TAPS) for shipment to market.

In compliance with the National Environmental Policy Act (NEPA), the BLM evaluates a range of alternatives and analyzes and discloses the environmental effects of the alternatives. For the Willow MDP, the BLM has developed four alternatives and three options related to the Module Delivery[2]:

- Alternative A (No Action)
- Alternative B (Proponent's Project)
- Alternative C (Disconnected Infield Roads)
- Alternative D (Disconnected Access)
- Module Delivery Option 1 (Atigaru Point Module Transfer Island [MTI])
- Module Delivery Option 2 (Point Lonely MTI)
- Module Delivery Option 3 (Colville River Crossing)

Action alternatives (B, C, and D) presented in the Final EIS include variations on specific Willow MDP components such as project access. Any of the three module delivery options could be combined with any of the action alternatives to provide the modules for the Project.

This report documents emission inventories for Willow MDP Alternative C and Alternative D and for the Atigaru Point and Point Lonely module delivery options. The emission inventory for the Alternative B, including Colville River Crossing (Oliktok Dock) Option 3, is documented in AECOM (2020)[3]. The main

[1] CPAI. 2019. Environmental Evaluation Document (Revision No. 3): Willow Master Development Plan. Anchorage, AK.
[2] Project modules would be transported to the vicinity of the Project Area by sea barge in the summer and stored until winter when the modules can be transported to the Project area over ice road. The exact location and method to store the modules are not yet finalized. Three module delivery options are assessed as part of the analysis and either option could be selected for any of the analyzed action alternatives.
[3] AECOM, 2020. Willow Development Emissions Inventory Report Alternative B – Option 3. April, 2020.

difference between the Alternative B and Alternative C is that Alternative C does not include a gravel road connecting drill site BT1 and the WPF, resulting in different schedule and infrastructure requirements for Alternative C compared to Alternative B. The main difference between the Alternative B and Alternative D is that Alternative D does not include a road corridor providing access to the Project area from the GMT2 development to the east of the Project, resulting in different schedule and infrastructure requirements for Alternative C compared to Alternative B.

Emissions from each module delivery option are expected to be identical for Alternative B and Alternative C. Therefore, the Module Delivery Option 1 and 2 emission inventories presented in this report for Alternative C are also applicable to Alternative B and the Module Delivery Option 3 emission inventory presented in AECOM (2020) is applicable to Alternative C. Alternative D emissions from each module delivery option are expected to be identical to Alternatives B and C, except there would be a one year delay in emissions for Alternative D compared to Alternatives B and C.

Three module delivery options are available for delivery of large modules to the project area under each project alternative, as listed above. Under Option 1, the Atigaru Point MTI would be constructed in State of Alaska waters in Harrison Bay. Under Option 2, Point Lonely MTI would be constructed in State of Alaska waters north of Point Lonely. Under Option 3, the existing Oliktok Dock would be used and no MTI would be constructed.

Many features are identical between Alternative B and Alternatives C and D; therefore, many descriptions of Alternative C and D features are identical to the language in the CPAI/AECOM report (AECOM, 2020)[3]. Similarly, the overall emission calculation methodology is the same for Alternative B and Alternatives C and D; therefore, descriptions of Alternatives C and D emission calculation methodology is the same as AECOM, 2020.

2.0 ALTERNATIVE C PROJECT DESCRIPTION

Alternative C would have the same gravel access road between GMT2 and the Project area as Alternative B but would not include a gravel road connection from the Willow WPF to drill site BT1. Alternative C includes five drill site locations to develop the Project area oil resources, an on-site WPF, two Willow Operations Centers (WOC) containing project support facilities (one each for north drill site [BT1, BT2, and BT4] and south drill sites [BT3 and BT5]), and an airstrip with an apron located near to each WOC. Access to the Project area from GMTU and to proposed drill sites from the WPF and the WOC would be via gravel roads and would include six bridge crossings. Access to the Project area would also be provided by air using fixed wing aircraft and helicopters from the Project area airstrips near the North WOC and South WOC. Similar to Alternative B, Alternative C includes module delivery via sealift barge and staged mobilization of modules to the Project area by existing gravel roads and ice roads.

Similar to Alternative B, Alternative C includes infield pipelines to transport produced fluids from drill sites to the WPF and an oil export pipeline, the Willow Pipeline, to transport sales-quality crude oil from the WPF to a tie-in point with the Alpine Pipeline near Colville Delta 4 North (CD4N). Other support pipelines include a seawater pipeline, diesel pipeline, and freshwater pipeline. Gravel valve pads would be constructed at pipeline crossing locations over Judy Creek and Fish Creek. All pipelines would be parallel to proposed or existing gravel roads, except for approximately 4 miles of pipeline between WPF and BT1.

Similar to Alternative B, Alternative C includes development of new gravel mines in the Tiŋmiaqsiuġvik Area to support project construction. An overview and graphical depiction of Alternative C, including road routing, pad location, gravel mine sites, and module delivery options (MDOs) is provided in the Willow MDP EED[1].

2.1 Construction

Under Alternative C, the Willow Development would be constructed on a nine-year construction schedule beginning in late 2020 and completing in 2029. This nine-year period will include construction of five drill sites, the WPF, North WOC and South WOC, airstrip, gravel access roads, pipelines, communications facilities, living quarters, and other infrastructure to support long-term operations. Temporary facilities would also be constructed and operated including a gravel mine, MTI, seasonal ice roads, single-season and multi-season ice pads, and temporary camp facilities for worker housing to support construction activities

2.1.1 Gravel Sourcing

A total of approximately 5.8 million cubic yards of material will be required to fill approximately 506 surface acres for the Willow Development under Alternative C, not including module delivery options (CPAI, 2019). Additionally, approximately 0.4 million cubic yards of material will be required to fill approximately 13 surface acres for either module delivery option 1 or 2. This gravel would be sourced from two mine sites with a maximum final mine pit disturbance area of approximately 150 acres in the Tiŋmiaqsiuġvik Area over seven winter construction seasons. Blasting is required to loosen material from the gravel source, and heavy equipment is required to remove the material. After blasting, these materials will be removed in multiple lifts. The mine site excavation would take place in three separate removal activities: (1) removal of organic materials; (2) removal of inorganic overburden; and (3) removal of suitable gravel material in approximately 20-foot lifts. Initial lifts will be for the removal of overburden, which will be stockpiled adjacent to the pit on a seasonal ice pad. Subsequent lifts will supply the gravel for the project. In addition to blasting, gravel sourcing would be conducted with a variety of diesel-fired nonroad equipment, such as crushers, dozers, drills, excavators, light plants, loaders, air compressors, trimmers, water pumps, and welders, as well as mobile support equipment. When gravel extraction is complete, the site will be rehabilitated, and stockpiled overburden will be backfilled to contour the mined pit into a natural habitat.

2.1.2 Ice Road and Ice Pad Construction

Ice roads would be used primarily during construction to support gravel infrastructure and pipeline construction, for lake access, and to access the selected gravel source(s). Single-season and multi-season ice pads would be used to house construction camps, stage construction equipment or materials, and support other construction activities. Ice road construction is dependent upon ground temperature and precipitation (i.e., sufficient snow for pre-packing of routes) and typically begins in November or December. The annual ice road season for the Willow Development is expected to be 90 days long, from the end of January through the end of April each year (CPAI, 2019).

Ice roads and pads are constructed by smoothing or compacting the snow surface and/or placing water or ice on the ground surface. Then, water trucks apply water over the route or location until the ice pad or road surface is built up to the desired thickness. Ice roads are marked with stakes to facilitate driving and assist with snow removal. Ice roads and pads are maintained throughout the ice road season by monitoring for litter, contamination, and degradation and cleaning or repairing, as necessary. All stakes and contamination are cleared when the ice road or pad is closed for the season. Multi-season ice pads are constructed similarly to single-season ice pads, with compacted snow over a base layer of ice, except they also include a vapor barrier and foam insulation to prevent melting. Ice road and ice pad construction is conducted with a variety of diesel-fired nonroad equipment, such as graders, loaders, pumpers, snowblowers, light plants, and trimmers, as well as on-road mobile support equipment.

2.1.3 Gravel Road and Pad Construction and Facilities Installation

After gravel extraction, gravel is transported from the mine or storage location via off-road belly dump B70 haul trucks and placed during winter construction seasons (CPAI, 2019). Other diesel-fired nonroad equipment, including graders and compactors, are used to place the gravel during the winter, but also to work the gravel to melt remaining frozen materials and compact the gravel and create road and pad surfaces during the summer season following gravel placement.

2.1.4 Bridge and Culvert Construction

Multiple bridges would be constructed to allow for road access throughout the Willow Development. Multi-span bridges are constructed on steel pile pier groups, made up of sets of four pilings positioned approximately 40 to 70 feet apart (CPAI, 2019). Shorter crossings will be traversed by single-span bridges or culvert batteries. All span-style bridges include sheet pile abutments for erosion protection at each end of the bridge. Estimated bridge crossings range from 40 to 420 feet in length. Bridges would be constructed during winter from ice roads and pads. Bridge construction is conducted with a variety of diesel-fired nonroad equipment, including cranes, loaders, drills, small generators, hammers, compressors, light plants, manlifts, and small heaters, as well as mobile on-road support equipment.

2.1.5 Pipelines and Supporting Infrastructure Construction

Infield pipelines within the Willow Development and import/export pipelines connecting the Willow Development to the Colville River and Kuparuk River Units would be constructed. Most of the pipeline would be constructed aboveground and supported on common horizontal support members (HSMs) that would be supported by vertical support members (VSMs) placed approximately 55 feet apart across open tundra to protect permafrost (CPAI, 2019). VSMs are constructed by embedding a vertical steel pipe piling in holes drilled in the permafrost and adding a sand/water slurry surrounding the pipe pile to freeze it in place. VSMs would have a typical diameter of 12 to 24 inches and total disturbance footprint diameter of 18 to 32 inches for each pipe pile. Seasonal ice roads would be constructed to access right-of-ways for the construction of VSMs, pipelines, and other infrastructure suspended on VSMs, including fiber optic cables and power cables.

At Fish Creek bridge crossings, pipelines would be constructed on structural steel supports attached to the bridge girders, below the bridge deck. Gravel valve pads would also be constructed on each side of Fish Creek to isolate produced fluids pipelines and minimize potential spill impacts. At smaller steams, pipelines would be installed approximately perpendicular to the channel, with VSMs on each side of the crossing to avoid VSM placement in streams to the extent practicable.

VSMs are constructed using primarily nonroad engines and equipment, including drills, trenchers, loaders, and cranes, as well as on-road mobile support equipment. Similarly, pipelines, powerlines, and fiber optic cables are suspended from VSMs using a variety of diesel-fired nonroad equipment, such as compressors, derrick and telescoping cranes, side boom cranes, small generators, light plants, loaders, manlifts, drills, and small heaters, as well as on-road mobile support equipment.

All pipelines crossing the Colville River would be installed by boring beneath the river using horizontal directional drilling (HDD). The HDD process would involve drilling a borehole under the river that is large enough to accommodate the pipeline casing. This operation is supported by diesel-fired nonroad equipment, including generators, air compressors, winches, cranes, and small heaters and boilers. Throughout the process of drilling and enlarging the hole, a slurry made of naturally occurring nontoxic materials (typically bentonite clay and water), would be circulated through the drilling tools to lubricate the drill bit, remove drill cuttings, and hold the hole open. Pipelines and casing sections would be staged and welded together to form segments long enough to span the entire crossing (the pull string) on the exit side of the HDD crossing. Once the borehole is ready, the completed casing and pipelines are pulled back through the drilled hole using nonroad equipment. The Willow HDD would be completed during the winter construction season using adjacent ice pads to stage equipment and materials. Two new gravel pads would be constructed adjacent to the existing Alpine Pipeline HDD where the pipelines transition from above ground to below ground on either side of the river.

2.1.6 WPF/Drillsite Module Sealift and Delivery Options

For Alternative C, the modules comprising the processing facilities at the WPF and drill sites would be delivered to the North Slope by sealift barges during two open water seasons (ice-free periods) in 2024 and 2026 (CPAI, 2019). Barge offloading is proposed at a new MTI in State of Alaska-owned waters near Atigaru Point or Point Lonely. Sealift modules would be staged on the MTI until winter and then transported to the WPF via Self-Propelled Modular Transporters driven over the water and land on ice roads. A camp would be staged near the MTI to support these activities. Modules for the WPF and drill sites BT1 through BT3 would be delivered during the summer of 2024 sealift. Modules for the drill sites BT4 and BT5 would be delivered during the 2026 sealift.

The MTI would be built through placement of gravel fill in approximately 8 to 10 feet of water to a height of approximately 13 feet above Mean Lower Low Water (MLLW). The MTI would include a 600-foot-square (8-acre) gravel work surface formed by grading and compacting similar to other gravel pads construction. At the end of the island service life, all gravel slope protection materials and other anthropogenic materials would be removed from the island, and the island would be reshaped naturally by waves and ice.

2.1.7 Construction Camp Facilities

Per (CPAI, 2019), various camps would be utilized to house workers throughout the nine-year construction period as described below:

- Existing camps, including the Kuukpik Pad Camp, Alpine Operations Camp, Sharkstooth Camp and Kuukpik Hotel near Nuiqsut, as well as temporary camps near and on the North and South WOC and the near the MTI
- Permanent Willow Camps at the North and South WOC.
- Temporary camps to support drilling would be located at each of the drill sites or the WOC.
- Temporary construction camps near the WOC in 2021 and near the MTI in 2022 to 2023 would be powered by diesel-fired generators. Temporary construction camps on the North and South WOC would be electrically powered by a multi-purpose power plant located at the North and South WOC. That power plant would utilize liquid-fired turbines for power generation. The Willow Camp would be permanently switched over to electricity generated by the WPF once the facility comes online.

2.2 Drilling

Per CPAI (2019), similar to Alternative B, 251 wells would be constructed throughout the Willow Development at five drill sites for Alternative C. Wells will be approximately evenly split between production and injection wells. Multi-phase (oil, gas, and water) fluids will be gathered from production wells and sent for processing at the WPF. Injection wells will be used to inject gas, produced water, seawater, and miscible injectant (MI) back into the producing formation to maintain formation pressure and as part of enhanced oil recovery. Similar to Alternative B, it will take approximately 15 to 30 days to drill each well and conservatively plans to drill all wells consecutively beginning in 2024 with the BT1 Drill site. Pre-drilling activities would allow the WPF to be commissioned immediately following WPF construction by timing completion of a sufficient number of wells to provide the minimum fluid rates to commission the pipelines and facility. Pre-drilling eliminates a 1- to 2-year delay between construction and production of first oil. Assuming the use of two drill rigs continuously operating throughout the development, drilling would be complete by 2029.

Drilling is conducted with a drill rig containing electrically powered drill rig draw-works, top-drive, and pumps with heat supplied by diesel-fired air heaters and boilers. The drilling operation will be supported by small portable diesel-fired nonroad equipment, mobile equipment, and temporary storage tanks at the drill sites. The approximate 3.5-megawatt (MW) single drill rig electrical demand (approximately 7 MW for 2 drill rigs) can be satisfied by diesel-fired reciprocating engine-powered generators, certified USEPA Tier 4f, that travel with the drill rig or highline power generated at the WPF. Similar to Alternative B, drilling operations will be conducted predominantly on highline supplied electrical power throughout the life of project whenever possible. However, highline power may not be available for a period of time during construction before permanent power infrastructure is commissioned. There would be a short period of time when power for the drill rigs is supplied by diesel-fired reciprocating engines only until highline electrical power is available. After that, diesel-fired engines that travel with the drill rig will be used as back-up if highline power is temporarily unavailable. All other portable support equipment will typically be powered by diesel fuel.

After a well is drilled, it needs to be completed. To complete a production well, it sometimes is first hydraulically fractured, then it undergoes a well cleanout process known as a flowback. During the flowback, fluids and solids present in the well bore as part of the drilling and completion process are allowed to flow from the well until the fluids produced from the well are no longer contaminated with excessive solids or drilling fluids. Liquids and solids produced during the flowback are placed in portable tanks for disposal and gas is captured, flared, or vented depending on infrastructure availability. Immediately following the construction of each drill site, there will be a period of time before permanent infrastructure is in place to handle gas from flowbacks. Similar to Alternative B, if the infrastructure is not in place, any gas from flowbacks will be routed to a portable flare located at the drill site. Once permanent facilities are available (pipelines and WPF), gas from flowbacks will be routed to the WPF and processed. Consistent with Alternative B, it is assumed that all production and injection wells could be hydraulically fractured as part of the completion process. This would equate to hydraulically fracturing all 251 wells throughout the development.

Hydraulic fracturing in the Willow Development would be hydraulic fracturing of conventional resources which is intended to counter formation damage and stimulate and maximize recovery of resources. This is a very different purpose than hydraulic fracturing unconventional shale formations. Hydraulic fracturing of a well at Willow will be conducted in stages and to various depths by pumping proppant, made of water, sand, and chemical additives, at high pressure into a well drilled to create small length fractures in the formation in the immediate vicinity of the wellbore.

Hydraulic fracturing is expected to be conducted using 5 to 10 pumps powered by electric motors or engines (nonroad engines), certified USEPA Tier 4f for generator sets. When powered by engines, the engines will run at high loads for short periods of time and idling or operating at low loads the remainder of the process. Similar to Alternative B, hydraulic fracturing operations would be predominantly conducted using highline supplied electrical power throughout the life of project whenever possible; however, there may be a short period of time during construction when the hydraulic fracturing unit operates on diesel only until highline electrical power is available. A typical frac operation for the Willow Development is expected to take approximately 6 days per well. These operations may also be supported by small nonroad engines and/or portable heaters, as necessary.

2.3 Operations

2.3.1 Willow Processing Facility

The WPF would primarily consist of facilities necessary to generate power for the Willow Development, dehydrate and compress gas for fuel and reinjection, pump and inject seawater and produced water to the subsurface as part of pressure maintenance/water flood for secondary recovery, and separate and process production fluids and deliver sales-quality crude oil. Fluid separation and processing occurs through pressure drops, gravity separation, and heating followed by distillation and includes the production of sales-quality crude, produced water, and MI for enhanced oil recovery. Produced natural gas would be (1) used to fuel plant and facility equipment, (2) re-injected into a producing formation to maintain reservoir pressure and increase recovery, and/or (3) used for gas lift. Under plant startups, shutdowns, and upset conditions, natural gas may be flared. A simplified process flow diagram for major systems is presented in Enclosure D.1.

Per CPAI (2019), WPF power generation and processing equipment would include:

- Emergency shutdown equipment
- Gas turbine generators
- Compressors
- Gas strippers
- Gas treatment facilities
- Heat exchangers
- Separators
- Stabilizer unit
- Flare system
- Utility systems (i.e., heating glycol, nitrogen, etc.)
- Oil producing vessels
- Pumps
- Pigging facilities
- Metering facilities
- Electrical equipment
- Fuel supply storage tank(s) and an associated fueling station
- A tank farm, which could include methanol, sales oil or off-spec crude, crude flowback fluids, scale inhibitor, emulsion breaker, corrosion inhibitor, and minor volumes of other chemicals as required for operations
- Warm storage facilities for equipment

Per CPAI (2019), additional equipment would be required to accommodate production from GMT2:

- Electrically driven booster compressor to increase gas pressures for injection into the deeper Jurassic GMT2 reservoir.
- Electrically driven booster pump to increase injection water pressures for injection into the deeper Jurassic GMT2 reservoir.
- Additional metering equipment required for independent measurement of injection fluids departing from the WCF to GMT2, as they would cross the GMTU-BTU unit boundary.

At various times throughout the Willow Development's producing lifetime, temporary modules, maintenance buildings, pipelines, and other structures may be used at the WPF to address short-term needs. See the Willow MDP EED (CPAI, 2019) for the proposed WPF layout.

Refer to the "INPUTS" tabs in the "Willow AltC EI-Non-Construction-WPF+IP+Airstrip.xlsx" spreadsheet referenced in Enclosure D.6 for sizing and major equipment assumptions for fuel burning equipment.

2.3.2 Willow Drill sites

Each drill site has been sized and designed to accommodate all drilling and operations facilities, wellhead shelters, drill rig movement, drilling material storage, and well work equipment. Each drill site could accommodate 40 to 70 wells at a 20-foot wellhead spacing. Per CPAI (2019), additional typical drill site facilities include:

- Emergency shutdown equipment
- Fuel gas treatment equipment
- Well test and associated measurement facilities
- Electrical and instrumentation control equipment
- Pig launchers/receivers
- Chemical injection facilities (including tanks, containment, small pumps, and exterior tank fill connection)
- Production heater and associated equipment
- Spill response equipment containers
- Communications infrastructure, including a tower up to 200 feet high
- High-mast lights
- Temporary tanks to support drilling and well work operations
- Production operations storage tanks
- Production operations stand-by tank (normally empty)
- Transformer platforms (oil-insulated)
- Pipe racks and/or manifold piping/valves

All equipment described above, with the exception of the production heater and back-up power generation, is electrically powered, with power supplied from the WPF via cable run along the pipeline corridor. The production heater is powered by fuel gas, and its purpose is to heat the multiphase production fluids (oil, water, and gas) prior to shipment to the WPF for processing. Any back-up power generation installed at the drill sites would be diesel-fired reciprocating engine-powered generators, expected to meet USEPA Tier 4i emissions standards for non-generator sets or better.

Wells would be grouped into two general categories: producers and injectors. The production wells would generate the field’s multi-phase production while the injector wells would be used to inject water (i.e., treated seawater and/or produced water that has been processed at the WPF) and/or gas into the producing formation(s) to maintain reservoir pressure. See the Willow MDP EED for a typical drill site layout.

Refer to the “INPUTS” tabs in the “Willow AltC EI-Construction-BT*.xlsx” spreadsheet referenced in Enclosure D.6 for fuel burning equipment assumptions for the Willow drill sites.

2.3.3 Willow Operations Center

Unlike in Alternative B, under Alternative C, the bases of operations for the Willow Development would be at a North WOC and South WOC. The South WOC would be near to but separated from the WPF, approximately 5 miles east of BT3. Separating the South WOC from the WPF is necessary to minimize risk to personnel by placing living quarters away from potential blast hazards associated with the WPF. The South WOC would also be adjacent to an airstrip. The North WOC and associated adjacent airstrip would be just west of BT2. See the Willow MDP EED for a typical layout of these facilities.

The North WOC and South WOC would contain accommodation and utility buildings and maintenance and storage facilities to support operations. Per CPAI (2019), these include:

- Permanent Willow Operations Camp facilities, including living quarters, offices, meeting rooms, dining facilities, a central control building, lab, medical clinic, and wellness facilities
- Wastewater and water treatment plants, water tanks, and chemical storage
- Freshwater storage tanks
- At least two Class I underground injection control disposal well(s) (Class I disposal well(s))
- Emergency Response Center, including spill response shop, fire department, and ambulance bay
- Essential and black start generators
- Craft maintenance shops and tool room
- Hazardous waste accumulation and storage
- Fleet maintenance shop
- Fabrication and weld shop
- Warehouse
- Storage tents
- Diesel and jet fuel tanks and pump skids
- Drilling shop and mud plant
- Municipal solid waste incinerator
- Staging areas
- Drilling and cuttings storage
- Operations and maintenance storage,
- Laydown space
- Rolling stock parking

Per CPAI (2019), the lack of gravel road connecting the northern and southern Willow MDP drill sites would require additional facilities for Alternative C compared to Alternative B. These include three Class I disposal wells at the North WOC and in addition to the two at the South WOC. The North WOC would also include a grind and inject facility, a mud plant, and additional maintenance shops. The South WOC would not include a mud plant to avoid construction of two mud plants in the field; instead, muds for the southern drill sites would be trucked to and from Alpine.

Under normal operations, all equipment and facilities described above will be electrically powered, except for the power generation, portable equipment, and incinerator. Any back-up power generation installed at the North WOC and South WOC would be diesel-fired reciprocating engine-powered generators, expected to meet USEPA Tier 4i standards for non-generator sets or better. In addition to permanent surface structures, temporary surface structures such as camps, offices, shops, envirovacs, connexes, fuel and chemical storage areas, and warehouses may be used at the North WOC and South WOC to support projects.

Information regarding fuel burning equipment associated with Willow infrastructure can be found in "INPUTS" tabs in the "Willow AltC EI-Non-Construction-WPF+IP+Airstrip.xlsx" spreadsheet referenced in Enclosure D.6.

2.3.4 Willow Pipelines

The Willow Development would include infield lines and import/export lines. Infield lines carry a variety of products, including produced fluids, produced water, seawater, miscible injectant, and gas, between the WPF and each drill site (including GMT2).

Import/export pipelines include the Willow sales-oil pipeline, a seawater pipeline, and a diesel pipeline (CPAI, 2019). The Willow sales-oil pipeline would carry sales-quality crude oil from the WPF to a tie-in with the Alpine Pipeline near CD4N. The seawater pipeline would import seawater from existing infrastructure in Kuparuk to the Project area. The diesel pipeline would transport Ultra Low Sulfur Diesel (ULSD) from the Kuparuk Central Processing Facility 2 (CPF2) to the South WOC and WPF via ACF. An additional freshwater pipeline would also transport fresh water from the primary freshwater sources to the WOC.

Infield lines would include the following pipelines connecting the WPF to each drill site:

- Produced fluids pipeline – produced multiphase fluids from each drill site to WPF for processing.
- Injection water pipeline – seawater or produced water transported from WPF for injection to support enhanced oil recovery.
- Gas pipeline – gas transported from WPF for artificial lift, pressure support, and fuel gas.
- MI pipeline – MI transported from WPF for injection to support enhanced oil recovery.

Pipeline length and service characteristics are presented in Table 2-1. All infield pipelines would be designed to allow pipeline inspection and maintenance (e.g., pigging) between each drill site and the WPF. Permanent pigging facilities would be installed for the produced fluid and injection water pipelines. To limit the venting of volatile organic compounds (VOC) in the enclosed pigging structure, the barrel of the pig launcher/receiver is flooded with inert gas to clear the barrel of accumulated liquids and flammable gases prior to venting to atmosphere and opening the launcher/receiver.

Pipeline valves that can be closed in the event of an emergency would be installed on pipelines in hydrocarbon service at each side of the Judy Creek and Fish Creek crossings, isolating the section of pipeline between the valves to minimize potential spill impacts in the event of a leak or break. Four gravel valve pads (1.3 acres total) would be constructed to support the valve infrastructure. Valve pads would be located adjacent to gravel roads approximately 400 to 2,000 feet from the bridge crossings.

Pipelines would be supported on common HSMs that would be supported by VSMs. Most pipelines would parallel new and existing gravel roads, typically at a distance from the roadways of 500 to 1,000 feet. Fiber optic cable and power cables would be suspended from the same pipeline VSMs via messenger cable attached to the HSMs. For Alternative C, infield pipelines between WPF and BT1 would not parallel a gravel road for approximately 4 miles, unlike Alternative A for which all infield pipelines parallel gravel roads.

Table 2-1. Alternative C Pipeline Lengths[4]

Pipelines	Start / End Points	Length (miles)	Notes
BT4 Infield Lines[a]	BT4 to BT2	9.9	Pipelines on new set of VSMs.
BT2 Infield Lines[a]	BT2 to BT1	4.5	Pipelines on new set of VSMs; would also transport BT4 materials.
BT1 Infield Lines[a]	BT1 to WPF	6.0	Pipelines on new set of VSMs; would also transport BT2 and BT4 materials. Requires 10 VSMs below OHW at Judy Creek crossing.
BT3 Infield Lines[a]	BT3 to WPF	5.9	Pipelines on new set of VSMs.
BT5 Infield Lines[a]	BT5 to WPF	11.5	Pipelines on new set of VSMs. Shares VSMs with BT3 infield pipeline from BT5 Junction to WPF (4.6 miles)
GMT2 Infield Lines[a]	GMT2 to WPF	9.2	Shares new VSMs with Willow, diesel and seawater pipelines from GMT2 to WPF (9.1 miles).
Freshwater	CFWR to WPF to South WOC	5.6	Shares new VSMs with BT3 infield pipeline from CFWR junction to the WPF (3.4 miles) and treated water, fuel gas, and diesel pipelines from the WPF to the South WOC (1.7 miles).
Treated Water	South WOC to WPF to North WOC	12.9	Shares new VSMs with freshwater, fuel gas and diesel pipelines from the South WOC to the WPF (1.7 miles) and the BT1 and BT2 infield pipelines from the WPF to the BT2 pipeline junction (10.4 miles).
Fuel Gas	WPF to South WOC	1.7	Shares new VSMs with freshwater and treated water pipelines from WPF to WOC (1.7 miles).
Willow Pipeline	WPF to CD4N tie-in	32.2	Shares new VSMs with seawater and diesel pipelines from WPF to CD4N (31.9 miles).

[4] Source: CPAI (2019)

Pipelines	Start/End Points	Length (miles)	Notes
Seawater	CPF2 to WPF	63.3	Shares new VSMs with Willow and diesel pipelines from WPF to CD4N and CPF2 respectively (63.3 miles total). Includes new HDD crossing of Colville River.
Diesel	CPF2 to ACF to South WOC to WPF to North WOC	82.0	Shares VSMs with seawater pipeline from CPF2 to WOC Junction (62.2 miles); freshwater, fuel gas, and treated water pipelines from the WOC Junction to WOC to WPF (2.4 miles); and BT1 and BT2 infield and treated water pipelines from the WPF to the BT2 pipeline junction (10.4 miles). Uses existing VSMs from CD4N to CD1 (6.2 miles). Includes new HDD crossing of Colville River.

[a] Infield lines include produced fluids, injection water gas, and miscible-injectant pipelines.

Notes: WPF: Willow Processing Facility; BT: Bear Tooth; CFWR: constructed freshwater reservoir; WOC: Willow Operations Center; GMT2: Greater Mooses Tooth 2; CD4N: Colville Delta 4 North; ACF: Alpine Central Processing Facility; CD1: Colville Delta 1; CPF2: Kuparuk Central Processing Facility 2; VSMs: vertical support members; OHW: ordinary high water; HDD: horizontal directional drilling.

2.3.5 Communications

Communications infrastructure throughout the field would be provided by fiber optic cables suspended from pipeline VSMs via messenger cable attached to the HSMs (CPAI, 2019). Additionally, communication towers would be located at the WPF and at all drill sites. The communications tower associated with the South WOC would be constructed on a separate, adjacent pad.

2.3.6 Access/Transportation

Access to the Project area from Alpine, Kuparuk, and/or Deadhorse would occur via ground transportation on ice roads, fixed-wing aircraft, and helicopter (CPAI, 2019). Access from Alpine would also occur by gravel road. Anticipated ground, air, and marine traffic is detailed in the Willow MDP EED.

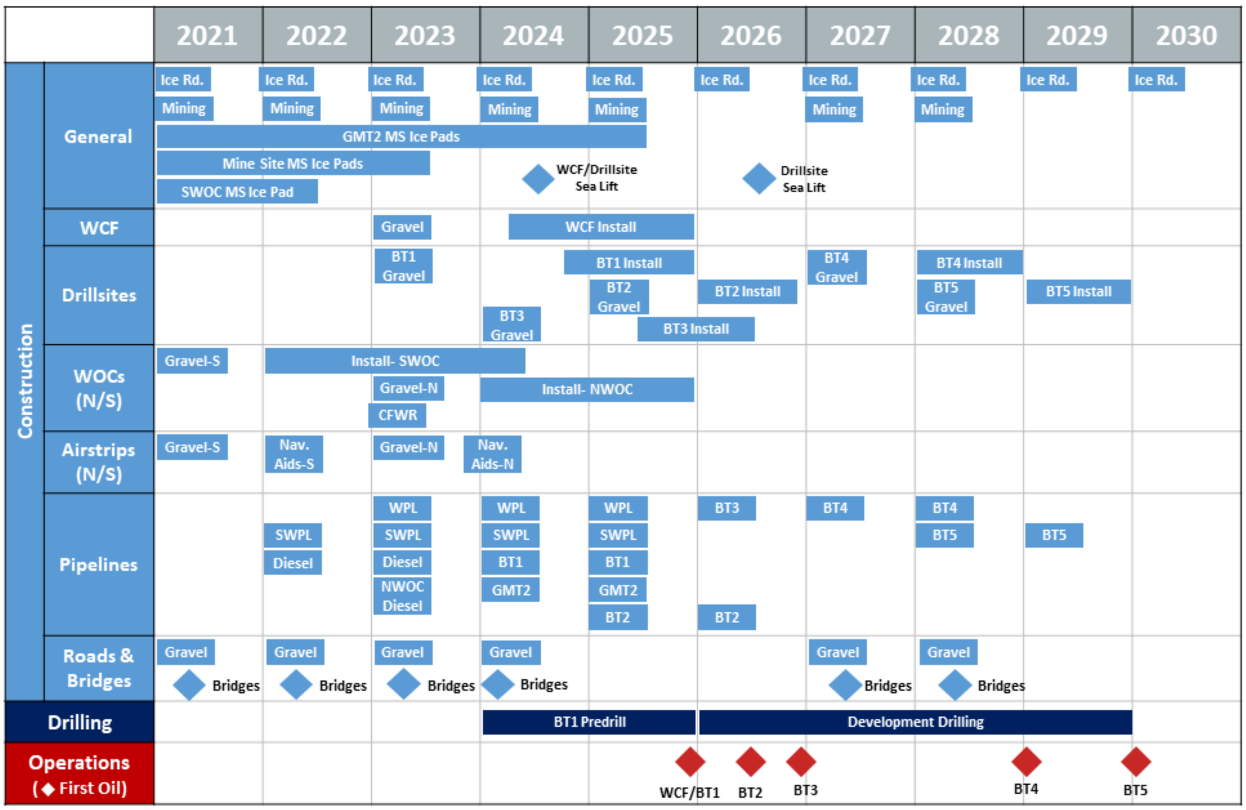
Ice roads would be used primarily during construction to support gravel infrastructure and pipeline construction, for lake access, and to access the selected gravel source(s). Unlike Alternative B, in Alternative C an annual ice road to connect the BT3 access road and BT1 would be used for the life of the project. Due to heavy equipment size and frequency of construction traffic, safety considerations dictate use of separate ice roads for pipeline construction, gravel placement, and general traffic.

Year-round access to the Project area from Deadhorse, Alpine, Kuparuk, and/or other locations would be provided by aircraft. Air access would be supported by a 6,200-foot-long gravel airstrip with aprons located near the WOC. The airstrip would be capable of regular use by Hercules C-130, DC-6, Otter, CASA, and Bombardier Q400, or similar aircraft. Helicopters would be used to support project construction, ongoing environmental studies, ice road permit compliance, and, to a lesser extent, drilling and operations. Helicopter support of future exploration, including exploration wellhead inspections and “stick picking” from winter exploration activities, is not part of the Willow MDP but is described within the context of cumulative effects within the Willow MDP EED.

Details on air, sea, and road-based traffic throughout the project lifecycle are summarized in the Willow MDP EED and on the "INPUTS-[Type]_Traffic" tabs in applicable spreadsheets referenced in Enclosure D.6.

2.4 Schedule

Construction of the Willow Development facilities in Alternative C would occur over a nine-year period, with field work beginning in 2021 and completed in 2029 (CPAI, 2019). Drilling activities would begin in 2024 with pre-drilling prior to facility start-up in order to provide enough production to commission the WPF. Drilling would continue through 2029. WPF operations would commence in 4Q 2025 with commissioning of the facility and first oil from the BT1 Drill site. Production and operational activity will continue until the end of field life in 2050. Figure 2-1 provides a general schedule for key construction, drilling, and operations milestones for the Willow MDP.



Notes: Ice Rd.: Ice Road; WCF/Drillsite Sealift includes WCF, BT1, BT2, BT3 facilities; Drillsite Sealift includes BT4, BT5 facilities; GMT2: Greater Mooses Tooth 2; S: multi-season; BT: Bear Tooth; WCF: Willow Central Processing Facility; S: South; N: North; SWOC: South Willow Operations Center; NWOC: North Willow Operations Center; CFWR.: Constructed Freshwater Reservoir; Nav. Aids: Navigational Aids; WPL: Willow Pipeline; SWPL: Seawater Pipeline. SWPL and Diesel HDD in 2024; Operations continues to end of the life of the project in 2050

Figure 2-1. Alternative C Schedule[5]

3.0 ALTERNATIVE D PROJECT DESCRIPTION

Alternative D would not be connected by an all-season gravel access road to GMTU; however, it would employ the same gravel infield roads as proposed under Alternative B. Under this alternative the WPF co-located with drill site BT3. Similar to Alternative B, Alternative D includes five drill site locations to develop the Project area oil resources, an on-site WPF, a WOC containing project support facilities, and an airstrip with an apron. Access to the Project area from GMTU would be via ice road. Project area

[5] Source: CPAI (2019)

gravel roads would connect proposed drill sites, the WPF and the WOC and would include six bridge crossings. Access to the Project area would also be provided by air using fixed wing aircraft and helicopters from the Project area airstrip. Similar to Alternative B, Alternative D includes module delivery via sealift barge and staged mobilization of modules to the Project area by existing gravel roads and ice roads.

Similar to Alternative B, Alternative D includes infield pipelines to transport produced fluids from drill sites to the WPF and an oil export pipeline, the Willow Pipeline, to transport sales-quality crude oil from the WPF to a tie-in point with the Alpine Pipeline near Colville Delta 4 North (CD4N). Other support pipelines include a seawater pipeline, diesel pipeline, and freshwater pipeline. Gravel valve pads would be constructed at pipeline crossing locations over Judy Creek and Fish Creek. All pipelines would be parallel to proposed or existing gravel roads, except for approximately 10 miles between the Willow infield roads and GMT2.

Similar to Alternative B, Alternative D includes development of a new gravel mine in the Tiŋmiaqsiuġvik Area to support project construction. An overview and graphical depiction of Alternative D, including road routing, pad location, gravel mine site, and module delivery options (MDOs) is provided in the Willow MDP EED.

3.1 Construction

Alternative D would construct the Willow Development on a ten-year construction schedule beginning in late 2020 and completing in 2030 (CPAI, 2019). This ten-year period will include construction of five drill sites, the WPF, WOC, airstrip, gravel access roads, pipelines, communications facilities, living quarters, and other infrastructure to support long-term operations. Similar to Alternative B, temporary facilities would be constructed and operated including a gravel mine, MTI, seasonal ice roads, single-season and multi-season ice pads, and temporary camp facilities for worker housing to support construction activities.

Due to the lack of ability to share facilities between Willow and Alpine, Alternative D would also require additional pad space at Alpine (CD1). This includes space for a new heavy duty fleet shop and additional warehouse and maintenance shop space at the ACF. Finally, Alternative D would require an additional gravel pad near GMT2 to store ice road construction equipment over summer to facilitate construction of the annual resupply road.

3.1.1 Gravel Sourcing

A total of approximately 5.9 million cubic yards of material will be required to fill approximately 442.6 surface acres for the Willow Development under Alternative D, not including module delivery options (CPAI, 2019). Additionally, approximately 0.4 million cubic yards of material will be required to fill approximately 13 surface acres for either module delivery option 1 or 2 (CPAI, 2019). Similar to Alternative B, gravel would be sourced from two mine sites with a maximum final mine pit disturbance area of approximately 150 acres in the Tiŋmiaqsiuġvik Area over six winter construction seasons. Blasting is required to loosen material from the gravel source, and heavy equipment is required to remove the material. After blasting, these materials will be removed in multiple lifts. The mine site excavation would take place in three separate removal activities: (1) removal of organic materials; (2) removal of inorganic overburden; and (3) removal of suitable gravel material in approximately 20-foot lifts. Initial lifts will be for the removal of overburden, which will be stockpiled adjacent to the pit on a seasonal ice pad. Subsequent lifts will supply the gravel for the project. In addition to blasting, gravel sourcing would be conducted with a variety of diesel-fired nonroad equipment, such as crushers, dozers, drills, excavators, light plants, loaders, air compressors, trimmers, water pumps, and welders, as well as mobile support equipment. When gravel extraction is complete, the site will be rehabilitated and stockpiled overburden will be backfilled to contour the mined pit into a natural habitat.

3.1.2 Ice Road and Ice Pad Construction

Ice roads would be used primarily during construction for Project area pipeline, pad, gravel road construction, gravel source access, and as the primary form of ground access from GMTU to the Project area. Single-season and multi-season ice pads would be used to house construction camps, stage construction equipment or materials, and support other construction activities. Ice road construction is dependent upon ground temperature and precipitation (i.e., sufficient snow for pre-packing of routes) and typically begins in November or December. The annual ice road season for the Willow Development is expected to be 90 days long, from the end of January through the end of April each year (CPAI, 2019).

Ice roads and pads are constructed by smoothing or compacting the snow surface and/or placing water or ice on the ground surface. Then, water trucks apply water over the route or location until the ice pad or road surface is built up to the desired thickness. Ice roads are marked with stakes to facilitate driving and assist with snow removal. Ice roads and pads are maintained throughout the ice road season by monitoring for litter, contamination, and degradation and cleaning or repairing, as necessary. All stakes and contamination are cleared when the ice road or pad is closed for the season. Multi-season ice pads are constructed similarly to single-season ice pads, with compacted snow over a base layer of ice, except they also include a vapor barrier and foam insulation to prevent melting. Ice road and ice pad construction is conducted with a variety of diesel-fired nonroad equipment, such as graders, loaders, pumpers, snowblowers, light plants, and trimmers, as well as on-road mobile support equipment.

3.1.3 Gravel Road and Pad Construction and Facilities Installation

After gravel extraction, gravel is transported from the mine or storage location via off-road belly dump B70 haul trucks and placed during winter construction seasons (CPAI, 2019). Other diesel-fired nonroad equipment, including graders and compactors, are used to place the gravel during the winter, but also to work the gravel to melt remaining frozen materials and compact the gravel and create road and pad surfaces during the summer season following gravel placement.

3.1.4 Bridge and Culvert Construction

Multiple bridges would be constructed to allow for road access throughout the Willow Development. Multi-span bridges are constructed on steel pile pier groups, made up of sets of four pilings positioned approximately 40 to 70 feet apart (CPAI, 2019). Shorter crossings will be traversed by single-span bridges or culvert batteries. All span-style bridges include sheet pile abutments for erosion protection at each end of the bridge. Estimated bridge crossings range from 40 to 420 feet in length. Bridges would be constructed during winter from ice roads and pads. Bridge construction is conducted with a variety of diesel-fired nonroad equipment, including cranes, loaders, drills, small generators, hammers, compressors, light plants, manlifts, and small heaters, as well as mobile on-road support equipment.

3.1.5 Pipelines and Supporting Infrastructure Construction

Infield pipelines within the Willow Development and import/export pipelines connecting the Willow Development to the Colville River and Kuparuk River Units would be constructed. Most of the pipeline would be constructed aboveground and supported on common horizontal support members (HSMs) that would be supported by vertical support members (VSMs) placed approximately 55 feet apart across open tundra to protect permafrost (CPAI, 2019). VSMs are constructed by embedding a vertical steel pipe piling in holes drilled in the permafrost and adding a sand/water slurry surrounding the pipe pile to freeze it in place. VSMs would have a typical diameter of 12 to 24 inches and total disturbance footprint diameter of 18 to 32 inches for each pipe pile. Seasonal ice roads would be constructed to access right-of-ways for the construction of VSMs, pipelines, and other infrastructure suspended on VSMs, including fiber optic cables and power cables.

At Fish Creek and Judy Creek bridge crossings, pipelines would be constructed on structural steel supports attached to the bridge girders, below the bridge deck. Gravel valve pads would also be constructed on each side of the Fish Creek and Judy Creek bridge crossings to isolate produced fluids pipelines and minimize potential spill impacts. At smaller steams, pipelines would be installed approximately perpendicular to the channel, with VSMs on each side of the crossing to avoid VSM placement in streams to the extent practicable.

VSMs are constructed using primarily nonroad engines and equipment, including drills, trenchers, loaders, and cranes, as well as on-road mobile support equipment. Similarly, pipelines, powerlines, and fiber optic cables are suspended from VSMs using a variety of diesel-fired nonroad equipment, such as compressors, derrick and telescoping cranes, side boom cranes, small generators, light plants, loaders, manlifts, drills, and small heaters, as well as on-road mobile support equipment.

All pipelines crossing the Colville River would be installed by boring beneath the river using horizontal directional drilling (HDD). The HDD process would involve drilling a borehole under the river that is large enough to accommodate the pipeline casing. This operation is supported by diesel-fired nonroad equipment, including generators, air compressors, winches, cranes, and small heaters and boilers. Throughout the process of drilling and enlarging the hole, a slurry made of naturally occurring nontoxic materials (typically bentonite clay and water), would be circulated through the drilling tools to lubricate the drill bit, remove drill cuttings, and hold the hole open. Pipelines and casing sections would be staged and welded together to form segments long enough to span the entire crossing (the pull string) on the exit side of the HDD crossing. Once the borehole is ready, the completed casing and pipelines are pulled back through the drilled hole using nonroad equipment. The Willow HDD would be completed during the winter construction season using adjacent ice pads to stage equipment and materials. Two new gravel pads would be constructed adjacent to the existing Alpine Pipeline HDD where the pipelines transition from above ground to below ground on either side of the river.

3.1.6 WPF/Drillsite Module Sealift and Delivery Options

For Alternative D, the modules comprising the processing facilities at the WPF and drill sites would be delivered to the North Slope by sealift barges during two open water seasons (ice-free periods) in 2025 and 2027 (CPAI, 2019). Barge offloading is proposed at a new MTI in State of Alaska-owned waters near Atigaru Point or Point Lonely. Sealift modules would be staged on the MTI until winter and then transported to the WPF via Self-Propelled Modular Transporters driven over the water and land on ice roads. A camp would be staged near the MTI to support these activities. Modules for the WPF and drill sites BT1 through BT3 would be delivered during the summer of 2025 sealift. Modules for the drill sites BT4 and BT5 would be delivered during the 2027 sealift.

The MTI would be built through placement of gravel fill in approximately 8 to 10 feet of water to a height of approximately 13 feet above Mean Lower Low Water (MLLW). The MTI would include a 600-foot-square (8-acre) gravel work surface formed by grading and compacting similar to other gravel pads construction. At the end of the island service life, all gravel slope protection materials and other anthropogenic materials would be removed from the island, and the island would be reshaped naturally by waves and ice.

3.1.7 Construction Camp Facilities

Per CPAI (2019), various camps would be utilized to house workers throughout the nine-year construction period as described below:

- Existing camps, including the Kuukpik Pad Camp, Alpine Operations Camp, Sharkstooth Camp and Kuukpik Hotel near Nuiqsut, as well as temporary camps near and on the WOC and the near the MTI
- A permanent Willow Camp at the WOC.

- Temporary camps to support drilling would be located at each of the drill sites or the WOC.
- Temporary construction camps near the WOC in 2021 and near the MTI in 2023 to 2024 would be powered by diesel-fired generators. Temporary construction camps on the North and South WOC would be electrically powered by a multi-purpose power plant located at the North and South WOC. That power plant would utilize liquid-fired turbines for power generation. The Willow Camp would be permanently switched over to electricity generated by the WPF once the facility comes online.

3.2 Drilling

Under Alternative D, 251 wells would be constructed throughout the Willow Development at five drill sites (CPAI, 2019), similar to Alternative B. Wells will be approximately evenly split between production and injection wells. Multi-phase (oil, gas, and water) fluids will be gathered from production wells and sent for processing at the WPF. Injection wells will be used to inject gas, produced water, seawater, and miscible injectant (MI) back into the producing formation to maintain formation pressure and as part of enhanced oil recovery. Similar to Alternative B, it is assumed that it will take approximately 15 to 30 days to drill each well and conservatively plans to drill all wells consecutively beginning in 2025 with the BT1 Drill site. Drill site. Pre-drilling activities would allow the WPF to be commissioned immediately following WPF construction by timing completion of a sufficient number of wells to provide the minimum fluid rates to commission the pipelines and facility. Pre-drilling eliminates a 1- to 2-year delay between construction and production of first oil. Assuming the use of two drill rigs continuously operating throughout the development, drilling would be complete by 2030.

Drilling is conducted with a drill rig containing electrically powered drill rig draw-works, top-drive, and pumps with heat supplied by diesel-fired air heaters and boilers. The drilling operation will be supported by small portable diesel-fired nonroad equipment, mobile equipment, and temporary storage tanks at the drill sites. The approximate 3.5-megawatt (MW) single drill rig electrical demand (approximately 7 MW for 2 drill rigs) can be satisfied by diesel-fired reciprocating engine-powered generators, certified USEPA Tier 4f, that travel with the drill rig or highline power generated at the WPF. Similar to Alternative B, drilling operations would be conducted predominantly on highline supplied electrical power throughout the life of project whenever possible. However, highline power may not be available for a period of time during construction before permanent power infrastructure is commissioned. Similar to Alternative B, there would be a short period of time when power for the drill rigs is supplied by diesel-fired reciprocating engines only until highline electrical power is available. After that, diesel-fired engines that travel with the drill rig will be used as back-up if highline power is temporarily unavailable. All other portable support equipment will typically be powered by diesel fuel.

After a well is drilled, it is completed. To complete a production well, it sometimes is first hydraulically fractured, then it undergoes a well cleanout process known as a flowback. During the flowback, fluids and solids present in the well bore as part of the drilling and completion process are allowed to flow from the well until the fluids produced from the well are no longer contaminated with excessive solids or drilling fluids. Liquids and solids produced during the flowback are placed in portable tanks for disposal and gas is captured, flared, or vented depending on infrastructure availability. Immediately following the construction of each drill site, it is expected that there will be a period of time before permanent infrastructure is in place to handle gas from flowbacks. If the infrastructure is not in place, gas will be routed from flowbacks to a portable flare located at the drill site. Once permanent facilities are available (pipelines and WPF), gas from flowbacks will be routed to the WPF and processed. Similar to Alternative B, it is conservatively assumed that all production and injection wells could be hydraulically fractured as part of the completion process. This would equate to hydraulically fracturing all 251 wells throughout the development.

Hydraulic fracturing in the Willow Development would be hydraulic fracturing of conventional resources which is intended to counter formation damage and stimulate and maximize recovery of resources. This is a very different purpose than hydraulic fracturing unconventional shale formations. Hydraulic fracturing of a well at Willow will be conducted in stages and to various depths by pumping proppant, made of water, sand, and chemical additives, at high pressure into a well drilled to create small length fractures in the formation in the immediate vicinity of the wellbore.

Hydraulic fracturing is expected to be conducted using 5 to 10 pumps powered by electric motors or engines (nonroad engines), certified USEPA Tier 4f for generator sets. When powered by engines the engines will run at high loads for short periods of time and idling or operating at low loads the remainder of the process. Similar to drilling, hydraulic fracturing operations would be predominantly conducted on highline supplied electrical power throughout the life of project whenever possible; however, there may be a short period of time during construction when the hydraulic fracturing unit operates on diesel only until highline electrical power is available. A typical frac operation for the Willow Development is expected to take approximately 6 days per well. These operations may also be supported by small nonroad engines and/or portable heaters, as necessary.

3.3 Operations

3.3.1 Willow Processing Facility

The WPF would primarily consist of facilities necessary to generate power for the Willow Development, dehydrate and compress gas for fuel and reinjection, pump and inject seawater and produced water to the subsurface as part of pressure maintenance/water flood for secondary recovery, and separate and process production fluids and deliver sales-quality crude oil. Fluid separation and processing occurs through pressure drops, gravity separation, and heating followed by distillation and includes the production of sales-quality crude, produced water, and MI for enhanced oil recovery. Produced natural gas would be (1) used to fuel plant and facility equipment, (2) re-injected into a producing formation to maintain reservoir pressure and increase recovery, and/or (3) used for gas lift. Under plant startups, shutdowns, and upset conditions, natural gas may be flared. A simplified process flow diagram for major systems is presented in Enclosure D.1.

Per CPAI (2019), WPF power generation and processing equipment would include:

- Emergency shutdown equipment
- Gas turbine generators
- Compressors
- Gas strippers
- Gas treatment facilities
- Heat exchangers
- Separators
- Stabilizer unit
- Flare system
- Utility systems (i.e., heating glycol, nitrogen, etc.)
- Oil producing vessels
- Pumps
- Pigging facilities
- Metering facilities
- Electrical equipment

- Fuel supply storage tank(s) and an associated fueling station
- A tank farm, which could include methanol, sales oil or off-spec crude, crude flowback fluids, scale inhibitor, emulsion breaker, corrosion inhibitor, and minor volumes of other chemicals as required for operations
- Warm storage facilities for equipment

Per CPAI (2019), additional equipment would be required to accommodate production from GMT2:

- Electrically driven booster compressor to increase gas pressures for injection into the deeper Jurassic GMT2 reservoir.
- Electrically driven booster pump to increase injection water pressures for injection into the deeper Jurassic GMT2 reservoir.
- Additional metering equipment required for independent measurement of injection fluids departing from the WCF to GMT2, as they would cross the GMTU-BTU unit boundary.

At various times throughout the Willow Development's producing lifetime, temporary modules, maintenance buildings, pipelines, and other structures may be used at the WPF to address short-term needs. See the Willow MDP EED (CPAI, 2019) for the proposed WPF layout.

Refer to the "INPUTS" tabs in the "Willow AltD EI-Non-Construction-WPF+IP+Airstrip.xlsx" spreadsheet referenced in Enclosure D.7 for sizing and major equipment assumptions for fuel burning equipment.

3.3.2 Willow Drill sites

Each drill site has been sized and designed to accommodate all drilling and operations facilities, wellhead shelters, drill rig movement, drilling material storage, and well work equipment. Each drill site could accommodate 40 to 70 wells at a 20-foot wellhead spacing.

- Emergency shutdown equipment
- Fuel gas treatment equipment
- Well test and associated measurement facilities
- Electrical and instrumentation control equipment
- Pig launchers/receivers
- Chemical injection facilities (including tanks, containment, small pumps, and exterior tank fill connection)
- Production heater and associated equipment
- Spill response equipment containers
- Communications infrastructure, including a tower up to 200 feet high
- High-mast lights
- Temporary tanks to support drilling and well work operations
- Production operations storage tanks
- Production operations stand-by tank (normally empty)
- Transformer platforms (oil-insulated)
- Pipe racks and/or manifold piping/valves

All equipment described above, with the exception of the production heater and back-up power generation, is electrically powered, with power supplied from the WPF via cable run along the pipeline corridor. The production heater is powered by fuel gas, and its purpose is to heat the multiphase production fluids (oil, water, and gas) prior to shipment to the WPF for processing. Any back-up power generation installed at the drill sites would be diesel-fired reciprocating engine-powered generators, expected to meet USEPA Tier 4i emissions standards for non-generator sets or better.

Wells would be grouped into two general categories: producers and injectors. The production wells would generate the field’s multi-phase production while the injector wells would be used to inject water (i.e., treated seawater and/or produced water that has been processed at the WPF) and/or gas into the producing formation(s) to maintain reservoir pressure. See the Willow MDP EED for a typical drill site layout.

Refer to the “INPUTS” tabs in the “Willow AltD EI-Construction-BT*.xlsx” spreadsheet referenced in Enclosure D.7 for fuel burning equipment assumptions for the Willow drill sites.

3.3.3 Willow Operations Center

The base of operations for the Willow Development would be at the WOC. The WOC would be near to but separated from the WPF. The WOC location would minimize risk to personnel by placing permanently occupied buildings away from potential blast hazards associated with the WPF. The WOC would also be adjacent to an airstrip. See the Willow MDP EED (CPAI, 2019) for a typical layout of these facilities.

The lack of gravel road access to Alpine by way of GMTU constrains Alternative D in a number of additional ways relative to Alternatives B and C. The lack of year-round ground access to Alpine substantially reduces the degree to which the Willow Development can leverage existing Alpine infrastructure. As a result, additional facilities would be required in the Plan Area for Alternative D to duplicate existing facilities at Alpine. These include a grind and inject facility; additional warehouse space; a wireline/coil maintenance shop; a light duty fleet shop; storage and equipment laydown space; and biocide, methanol, and corrosion inhibitor tanks at the WOC. Alternative D would require two Class I injection wells at the WOC in addition to the two described for all alternatives (total of 4 Class I wells) to accommodate drilling, wastewater, and grind and inject materials while providing a backup well. The addition of these facilities would require additional permanent gravel pad space at the WOC.

The WOC would contain accommodation and utility buildings and maintenance and storage facilities to support operations. Per CPAI (2019), these include:

- Permanent Willow Operations Camp facilities, including living quarters, offices, meeting rooms, dining facilities, a central control building, lab, medical clinic, and wellness facilities
- Wastewater and water treatment plants, water tanks, and chemical storage
- Freshwater storage tanks
- At least two Class I underground injection control disposal well(s) (Class I disposal well(s))
- Emergency Response Center, including spill response shop, fire department, and ambulance bay
- Essential and black start generators
- Craft maintenance shops and tool room
- Hazardous waste accumulation and storage
- Fleet maintenance shop
- Fabrication and weld shop
- Warehouse

- Storage tents
- Diesel and jet fuel tanks and pump skids
- Drilling shop and mud plant
- Municipal solid waste incinerator
- Staging areas
- Drilling and cuttings storage
- Operations and maintenance storage,
- Laydown space
- Rolling stock parking

Under normal operations, all equipment and facilities described above will be electrically powered, except for the power generation, portable equipment, and incinerator. Any back-up power generation installed at the WOC would be diesel-fired reciprocating engine-powered generators, expected to meet USEPA Tier 4i standards for non-generator sets or better. In addition to permanent surface structures, temporary surface structures such as camps, offices, shops, envirovacs, connexes, fuel and chemical storage areas, and warehouses may be used at the WOC to support projects.

Information regarding fuel burning equipment associated with Willow infrastructure can be found in "INPUTS" tabs in the "Willow AltD EI-Non-Construction-WPF+IP+Airstrip.xlsx" spreadsheet referenced in Enclosure D.7.

3.3.4 Willow Pipelines

The Willow Development would include infield lines and import/export lines. Infield lines carry a variety of products, including produced fluids, produced water, seawater, miscible injectant, and gas, between the WPF and each drill site (including GMT2).

Import/export pipelines include the Willow sales-oil pipeline, a seawater pipeline, and a diesel pipeline. The Willow sales-oil pipeline would carry sales-quality crude oil from the WPF to a tie-in with the Alpine Pipeline near CD4N. The seawater pipeline would import seawater from existing infrastructure in Kuparuk to the Project area. The diesel pipeline would transport Ultra Low Sulfur Diesel (ULSD) from the Kuparuk Central Processing Facility 2 (CPF2) to the WOC and WPF via ACF. An additional diesel pipeline and freshwater pipeline would also transport fresh water from the primary freshwater sources to the WOC.

Infield lines would include the following pipelines connecting the WPF to each drill site:

- Produced fluids pipeline – produced multiphase fluids from each drill site to WPF for processing.
- Injection water pipeline – seawater or produced water transported from WPF for injection to support enhanced oil recovery.
- Gas pipeline – gas transported from WPF for artificial lift, pressure support, and fuel gas.
- MI pipeline – MI transported from WPF for injection to support enhanced oil recovery.

Pipeline length and service characteristics are presented in Table 2-1. All infield pipelines would be designed to allow pipeline inspection and maintenance (e.g., pigging) between each drill site and the WPF. Permanent pigging facilities would be installed for the produced fluid and injection water pipelines. To limit the venting of volatile organic compounds (VOC) in the enclosed pigging structure, the barrel of the pig launcher/receiver is flooded with inert gas to clear the barrel of accumulated liquids and flammable gases prior to venting to atmosphere and opening the launcher/receiver.

Pipeline valves that can be closed in the event of an emergency would be installed on pipelines in hydrocarbon service at each side of the Judy Creek and Fish Creek crossings, isolating the section of pipeline between the valves to minimize potential spill impacts in the event of a leak or break. Four gravel valve pads (1.3 acres total) would be constructed to support the valve infrastructure. Valve pads would be located adjacent to gravel roads approximately 400 to 2,000 feet from the bridge crossings.

Pipelines would be supported on common HSMs that would be supported by VSMs. Most pipelines would parallel new and existing gravel roads, typically at a distance from the roadways of 500 to 1,000 feet. Fiber optic cable and power cables would be suspended from the same pipeline VSMs via messenger cable attached to the HSMs. Infield pipelines between Willow infield roads and GMT2 would not parallel a gravel road for approximately 10 miles.

Table 3-1. Alternative D Pipeline Lengths[6]

Pipelines	Start/End Points	Length (miles)	Notes
BT4 Infield Lines[a]	BT4 to BT2	10.2	Pipelines on new set of VSMs
BT2 Infield Lines[a]	BT2 to BT1	4.7	Pipelines on new set of VSMs; would also transport BT4 materials
BT1 Infield Lines[a]	BT1 to WPF	10.0	Pipelines on new set of VSMs; would also transport BT2 and BT4 materials.
BT5 Infield Lines[a]	BT5 to WPF	6.5	Pipelines on new set of VSMs. Shares VSMs with BT1 Infield from BT5 Junction to WPF (1.1 miles).
GMT2 Infield Lines[a]	GMT2 to WPF	15.1	Shares new VSMs with Willow, diesel and seawater pipelines from GMT2 to WPF (15.1 miles).
Freshwater	CFWR to WOC to WPF	2.2	Shares new VSMs with treated water, fuel gas, and diesel pipelines from WOC to WPF (1.5 miles).
Treated Water	WOC to WPF	1.5	Share new VSMs with freshwater, fuel gas, and diesel pipelines from WOC to WPF (1.5 miles).
Fuel Gas	WPF to WOC	1.5	Share new VSMs with freshwater, treated water, and diesel pipelines from WPF to WOC (1.5 miles).

[6] Source: CPAI (2019)

Pipelines	Start/End Points	Length (miles)	Notes
Willow Pipeline	WPF to CD4N tie-in	38.2	Shares new VSMs with seawater and diesel pipelines from WPF to CD4N (37.9 miles).
Seawater	CPF2 to WPF	69.2	Shares new VSMs with Willow and diesel pipelines from WPF to CD4N and CPF2 respectively (69.2 miles total). Includes new HDD crossing of Colville River.
Diesel	CPF2 to CD1 to WOC	77.0	Shares new VSMs with seawater pipeline from CPF2 to WPF (69.2 miles); and with the freshwater, fuel gas, and treated water pipelines from WPF to WOC (1.5 miles). Uses existing VSMs from CD4N to CD1 (6.2 miles). Includes new HDD crossing of Colville River.

[a] Infield lines include produced fluids, injection water gas, and miscible-injectant pipelines.

Notes: WPF: Willow Processing Facility; CFWR: constructed freshwater reservoir; BT: Bear Tooth; WOC: Willow Operations Center; CD4N: Colville Delta 4 North; CD1: Colville Delta 1; CPF2: Kuparuk Central Processing Facility 2; VSMs: vertical support members; HDD: horizontal directional drilling.

3.3.5 Communications

Communications infrastructure throughout the field would be provided by fiber optic cables suspended from pipeline VSMs via messenger cable attached to the HSMs (CPAI, 2019). Additionally, communication towers would be located near the WOC and at all drill sites. The communications tower associated with the WOC would be constructed on a separate, adjacent pad.

3.3.6 Access/Transportation

Access to the Project area from Alpine, Kuparuk, and/or Deadhorse would occur via ground transportation on ice roads, fixed-wing aircraft, and helicopter (CPAI, 2019). Anticipated ground, air, and marine traffic is detailed in the Willow MDP EED.

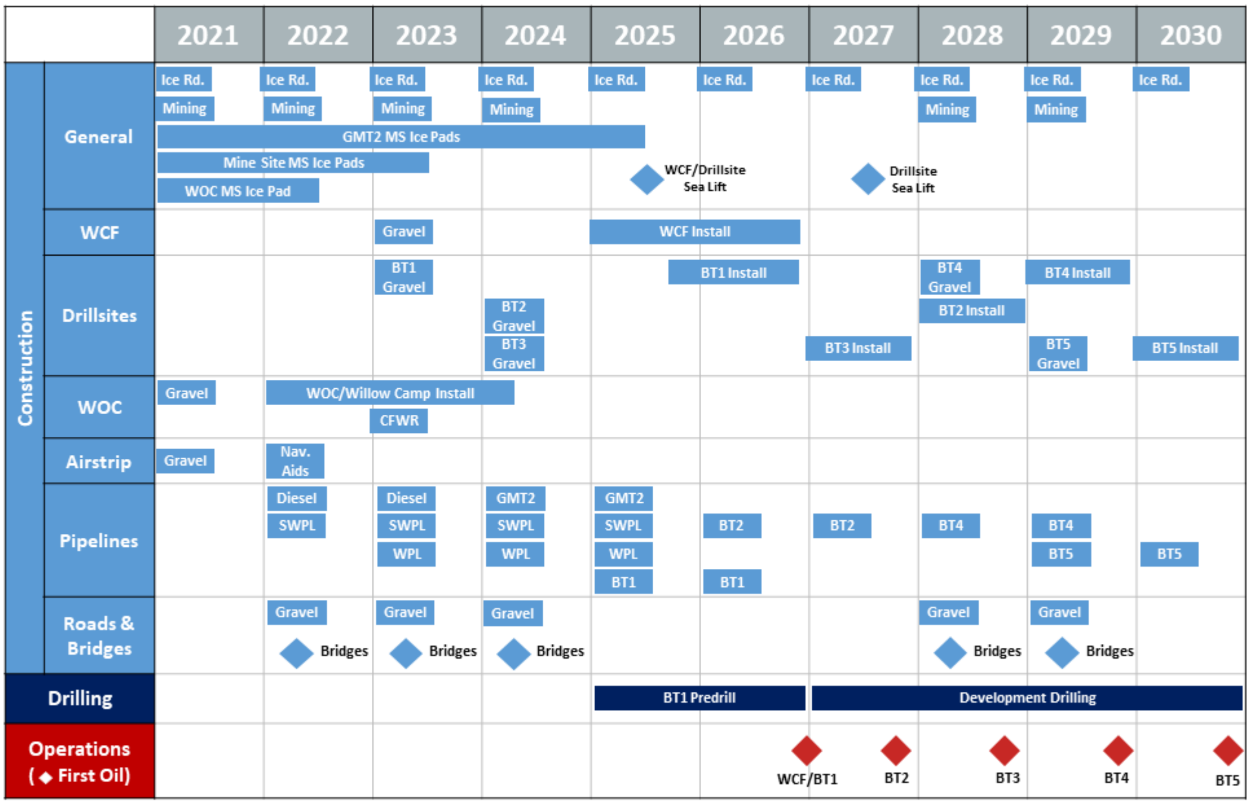
Ice roads would be used primarily during construction to support gravel infrastructure and pipeline construction, for lake access, and to access the selected gravel source(s). Unlike Alternative B, in Alternative D an annual ice road to connect the project area to Alpine would be used for the life of the project. Due to heavy equipment size and frequency of construction traffic, safety considerations dictate use of separate ice roads for pipeline construction, gravel placement, and general traffic.

Year-round access to the Project area from Deadhorse, Alpine, Kuparuk, and/or other locations would be provided by aircraft. Air access would be supported by a 6,200-foot-long gravel airstrip with aprons located near the WOC. The airstrip would be capable of regular use by Hercules C-130, DC-6, Otter, CASA, and Bombardier Q400, or similar aircraft. Helicopters would be used to support project construction, ongoing environmental studies, ice road permit compliance, and, to a lesser extent, drilling and operations. Helicopter support of future exploration, including exploration wellhead inspections and "stick picking" from winter exploration activities, is not part of the Willow MDP but is described within the context of cumulative effects within the Willow MDP EED.

Details on air, sea, and road-based traffic throughout the project lifecycle are summarized in the Willow MDP EED and on the "INPUTS-[Type]_Traffic" tabs in applicable spreadsheets referenced in Enclosure D.7.

3.4 Schedule

Construction of the Willow Development facilities in Alternative D would occur over a ten-year period, with field work beginning in 2021 and completed in 2030 (CPAI, 2019). Drilling activities would begin in 2025 with pre-drilling prior to facility start-up in order to provide enough production to commission the WPF. Drilling would continue through 2030. WPF operations would commence in 4Q 2026 with commissioning of the facility and first oil from the BT1 Drill site. Production and operational activity would continue until the end of field life in 2050. Figure 3-1 provides a general schedule for key construction, drilling, and operations milestones for the Willow MDP.



Notes: Ice Rd.: Ice Road; WCF/Drillsite Sealift includes WCF, BT1, BT2, BT3 facilities; Drillsite Sealift includes BT4, BT5 facilities; GMT2: Greater Mooses Tooth 2; MS: multi-season; BT: Bear Tooth; WCF: Willow Central Processing Facility; WOC: Willow Operations Center; CFWR: Constructed Freshwater Reservoir; WPL: Nav. Aids: Navigational Aids; Willow Pipeline; SWPL: Seawater Pipeline. SWPL and Diesel HDD in 2024; Operations continues to end of the life of the project in 2051

Figure 3-1. Alternative D Schedule[7]

4.0 EMISSIONS INVENTORY DEVELOPMENT FOR ALTERNATIVES C AND D AND MODULE DELIVERY OPTIONS 1 AND 2

[7] Source: CPAI (2019)

The emissions inventories for Willow Development Alternatives C and D as well as module delivery option 1 (Atigaru Point) and module delivery option 2 (Point Lonely) were assembled based on the project description provided in CPAI's Willow MDP EED and highlighted in the previous sections. These emission inventories includes project-specific emissions from development activities related to the following categories:

- Construction
- Drilling
- Routine operations
- Well workovers and interventions
- Module transport

For each of these categories, project-related emissions may occur from the following types of sources:

- Non-mobile combustion sources (e.g. turbines, reciprocating engines, and heaters)
- Mobile, on-road tailpipe combustion sources (e.g. vehicle traffic)
- Mobile, nonroad tailpipe combustion sources (e.g. construction equipment)
- Fugitive sources (e.g., fugitive dust, venting, or equipment leaks)
- Aircraft sources (e.g., airplane traffic)
- Marine vessel sources (e.g., ocean-going boats and barges)

For each of these types of sources, emissions were calculated for the following pollutants:

- Criteria pollutants, including nitrogen oxides (NOx), carbon monoxide (CO), sulfur dioxide (SO2), particulate matter less than 10 microns in diameter (PM_{10}), and particulate matter less than 2.5 microns in diameter ($PM_{2.5}$)
- Volatile organic compounds (VOC)
- Hazardous air pollutants (HAPs), including benzene, toluene, ethylbenzene, xylenes, n-hexane, and formaldehyde
- Greenhouse gases (GHGs), including carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O)

The choice of pollutants is discussed in the main body (Section 2) of the Air Quality Technical Support Document. Calculations for each source of emissions and each pollutant were compiled into monthly summaries of emissions according to the proposed project schedule as described in Section 2.4 (Alternative C) and Section 3.4 (Alternative D). Emission calculations are not based on explicit estimates of the annual number of wells drilled or active wells. Drilling emissions are based on the number of rigs operating in the field. Operation phase emissions from drill sites are estimated based on the conservative assumption that as soon as a drill site begins production, fugitive emissions are emitted from all wells that will be located on that drill site.

Given that the Willow Development is in the early stages of its design, the emissions inventory was developed by leveraging information from CPAI's other North Slope projects, including the GMT2 Drill site in the GMTU and the ACF in the Colville River Unit. The emissions inventory for the five proposed Willow drill sites was developed following the emissions inventory calculations for the GMT2 Draft Supplemental Environmental Impact Statement (SEIS). This approach was used: (1) to facilitate the ease of review for Federal Land Managers (FLMs) with a familiar emissions inventory format and (2) because those spreadsheets, calculations, and methodologies were reviewed and approved by FLMs through the GMT2 National Environmental Policy Act (NEPA) process.

The emissions inventory for the WPF, WOC, and module delivery and transport activities were developed based on the emissions inventories for similar facilities and activities supporting the construction and operation of the ACF. This information was supplemented by equipment sizing information, newer emissions control and equipment technologies, and other Willow-specific design information developed by CPAI.

Using these resources, most emission calculations were performed using the following key references that are generally accepted for emission factors, similar to that used for Alternative B:

- AP-42, Chapter 1 (External Combustion Sources), Chapter 2 (Solid Waste Disposal), Chapter 3 (Stationary Internal Combustion Sources), Chapter 5 (Petroleum Industry), Chapter 7 (Liquid Storage Tanks), and Chapter 13 (Miscellaneous Sources).
- 40 Code of Federal Regulations (CFR) Part 98, Subpart A, Table A-1 (Global Warming Potentials) and Subpart C, Table C-1 (Default CO2 Emission Factors) and Table C-2 (Default CH4 and N2O Emission Factors) for general stationary fuel combustion sources.
- Applicable federal requirements in 40 CFR Part 89 and Part 1039 (Control of Emissions from New and In-Use Nonroad Compression-Ignition Engines), 40 CFR 60 (Standards of Performance for New Stationary Sources), and 40 CFR 63 (National Emission Standards for Hazardous Air Pollutants for Source Categories).
- Limited representative vendor data from similar projects, such as ACF, for certain combustion sources.
- U.S. Environmental Protection Agency (USEPA) Protocol for Equipment Leak Emission Estimates (EPA-453/R-95-017).
- USEPA Motor Vehicle Emission Simulator (MOVES) 2014a model for on-road and nonroad mobile equipment emissions.
- Federal Aviation Administration (FAA) Aviation Environmental Design Tool (AEDT) model for aircraft emissions.
- USEPA TANKS emissions estimation software, Version 4.09D.
- USEPA Current Methodologies in Preparing Mobile Source Port-Related Emission Inventories, Final Report, April 2009, prepared by ICF International.

Tabular and graphical representations of key aspects of the Willow Development emissions inventory are summarized in Enclosure D.2 (Alternative C), Enclosure 3 (Alternative D), Enclosure D.4 (Module Delivery Option 1), and Enclosure D.5 (Module Delivery Option 2). Detailed emissions calculations, assumptions, and methodologies are outlined in the emissions calculation spreadsheets listed in Enclosure D.6 (Alternative C)[8], Enclosure D.7 (Alternative D)[8], Enclosure D.8 (Module Delivery Option 1), and Enclosure D.9 (Module Delivery Option 2) to reduce duplication of material.

[8] Emissions calculation spreadsheets provided separately

ENCLOSURE D.1 WILLOW PROCESSING FACILITY PROCESS FLOW DIAGRAM

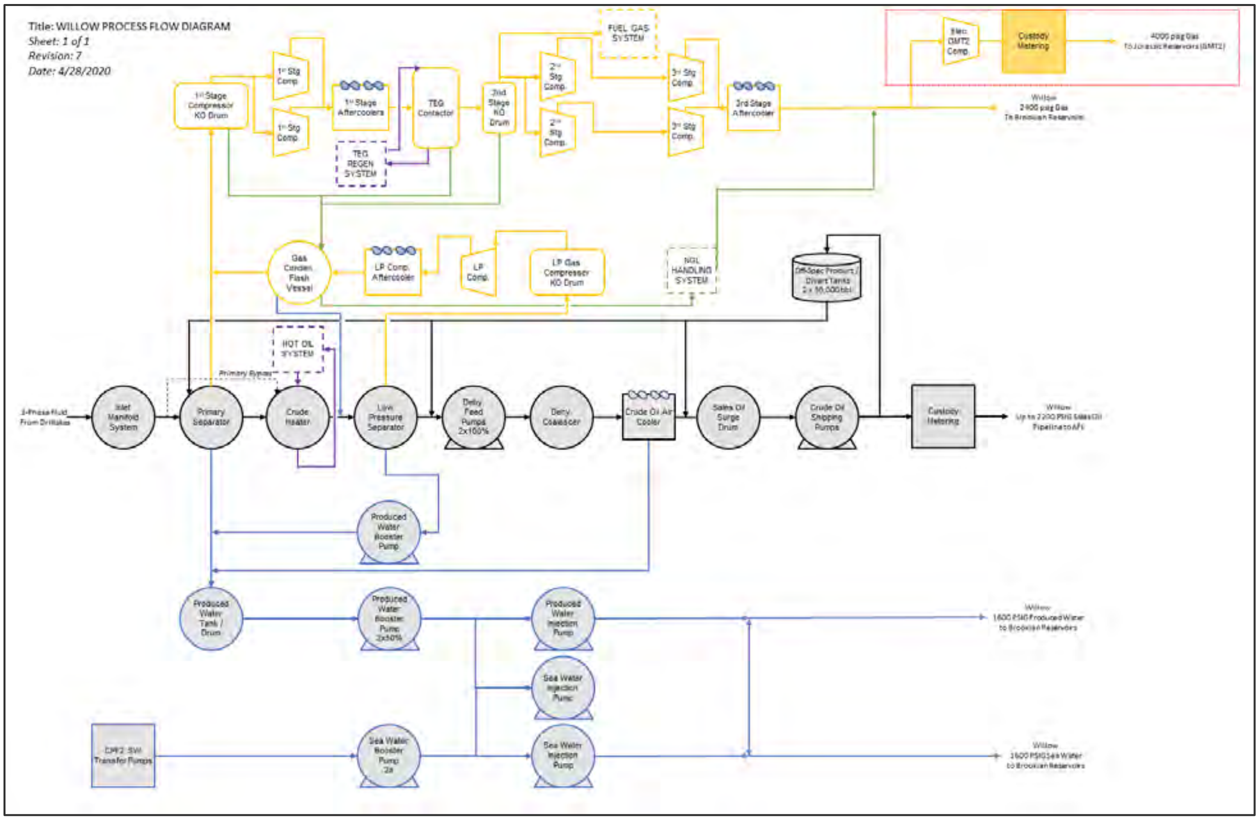


Figure D.1-1. Willow Processing Facility Process Flow Diagram

ENCLOSURE D.2 ALTERNATIVE C SUMMARY EMISSIONS TABLES

Table D.2-1. List of Assumptions for Summary Tables

Table(s) / Figure	Assumption / Note
Various	Emissions from module delivery options are not included in this attachment. 50% of all Project wells are producing wells, 50% are injection wells. Emissions related to both types of wells are summarized.
Table D.2-23	This table represents the total annual emissions for the Project Area divided by a maximum of 251 wells. We assume no difference in emissions between injection and producing wells. Emissions from new wells include all emissions related to construction and drilling, divided by the total number of wells and number of years considered to get an average annual emission rate for constructing and drilling each well. Emissions from wells >1 year represent emissions unrelated to construction and drilling and are representative of annual emissions from annual production/operations on a per well basis.
Figure D.2-1	Drilling will occur until 2030.

Table D.2-2. Alternative C Emissions Summary (tpy) for a Typical Production Year

Pollutant	Existing Wells Emissions	Future Wells Emissions	No Action	Proposed Action	Total emissions for the project area (existing and future wells)	Existing to Future Difference in Total Project Area Emissions (including Proposed Action)
NOx	0	767.0	0	767.0	767.0	767.0
CO	0	721.5	0.0	721.5	721.5	721.5
SO_2	0	56.3	0.0	56.3	56.3	56.3
PM_{10}	0	198.8	0.0	198.8	198.8	198.8
$PM_{2.5}$	0	95.8	0.0	95.8	95.8	95.8
VOC	0	683.0	0.0	683.0	683.0	683.0

Table D.2-3. Annual Criteria Pollutant Emissions (tons) for Construction Only

Project Year	Calendar Year	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$	VOC
0	2020	20.4	32.6	0.9	1.2	0.5	1.3
1	2021	434.0	372.1	4.0	65.8	25.6	27.3
2	2022	805.4	642.9	6.2	136.2	49.4	47.9
3	2023	901.3	679.7	5.9	274.5	67.6	59.9
4	2024	913.6	705.2	5.8	301.0	71.2	62.5
5	2025	496.6	375.3	3.3	261.1	49.4	35.1
6	2026	75.5	55.8	1.3	55.9	9.3	7.0
7	2027	124.5	121.5	2.8	170.8	21.1	11.5
8	2028	112.2	93.4	2.0	176.7	21.9	11.2
9	2029	23.0	10.1	0.1	48.1	6.0	2.6
10	2030	2.6	0.7	0.0	0.1	0.1	0.2
11	2031	2.6	0.7	0.0	0.1	0.1	0.2
12	2032	2.6	0.7	0.0	0.1	0.1	0.2
13	2033	2.6	0.7	0.0	0.1	0.1	0.2
14	2034	2.6	0.7	0.0	0.1	0.1	0.2
15	2035	2.6	0.7	0.0	0.1	0.1	0.2
16-30	2036-2050	2.6	0.7	0.0	0.1	0.1	0.2

Table D.2-3. Annual Criteria Pollutant Emissions (tons) for Drilling and Completion Only

Project Year	Calendar Year	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$	VOC
0	2020	0.0	0.0	0.0	0.0	0.0	0.0
1	2021	0.0	0.0	0.0	0.0	0.0	0.0
2	2022	0.0	0.0	0.0	0.0	0.0	0.0
3	2023	3.8	5.3	0.0	0.3	0.3	0.4
4	2024	146.4	377.6	1.0	118.0	19.9	60.9
5	2025	141.3	371.7	1.0	95.9	17.4	60.3
6	2026	98.2	140.5	0.5	113.0	17.4	44.6
7	2027	99.0	138.1	0.5	134.6	19.6	35.1
8	2028	98.0	137.6	0.5	118.5	18.0	35.0
9	2029	106.7	141.6	0.5	245.3	31.1	36.3
10	2030	0.0	0.0	0.0	0.0	0.0	0.0
11	2031	0.0	0.0	0.0	0.0	0.0	0.0
12	2032	0.0	0.0	0.0	0.0	0.0	0.0
13	2033	0.0	0.0	0.0	0.0	0.0	0.0
14	2034	0.0	0.0	0.0	0.0	0.0	0.0
15	2035	0.0	0.0	0.0	0.0	0.0	0.0
16-30	2036-2050	0.0	0.0	0.0	0.0	0.0	0.0

Table D.2-3. Annual Criteria Pollutant Emissions (tons) for Production and Operations Only

Project Year	Calendar Year	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$	VOC
0	2020	0.0	0.0	0.0	0.0	0.0	0.0
1	2021	0.5	0.2	0.0	0.0	0.0	0.0
2	2022	0.5	0.6	0.0	0.0	0.0	0.0
3	2023	0.8	1.0	0.1	0.0	0.0	0.2
4	2024	1.6	3.5	0.2	0.1	0.1	0.5
5	2025	135.0	139.1	12.6	23.3	15.1	73.9
6	2026	663.1	641.1	55.6	129.9	78.7	409.2
7	2027	752.5	717.7	56.1	142.5	89.9	523.3
8	2028	755.8	720.1	56.1	166.6	92.4	543.6
9	2029	763.4	719.3	56.2	205.7	96.7	623.5
10	2030	767.0	721.5	56.3	206.4	97.0	683.0
11	2031	767.0	721.5	56.3	206.4	97.0	683.0
12	2032	767.0	721.5	56.3	198.8	95.8	683.0
13	2033	767.0	721.5	56.3	198.8	95.8	683.0
14	2034	767.0	721.5	56.3	198.8	95.8	683.0
15	2035	767.0	721.5	56.3	198.8	95.8	683.0
16-30	2036-2050	767.0	721.5	56.3	198.8	95.8	683.0

Table D.2-4. Well and Pads by Formation and Drilling Technology

<table>
<tr><th>Classification</th><th>New Wells</th><th>New Well Pads</th><th>Modification of Existing Well Pads</th><th>Single Well Pads</th><th>Multi-Well Pads</th><th>Expansion of Existing Well Pads</th><th>Total Pads</th></tr>
<tr><td>Directional Oil Wells</td><td>125.5</td><td rowspan="2">5</td><td>0</td><td>0</td><td rowspan="2">5</td><td>0</td><td rowspan="2">5</td></tr>
<tr><td>Directional Injection Wells</td><td>125.5</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Total</td><td>251</td><td>5</td><td>0</td><td>0</td><td>5</td><td>0</td><td>5</td></tr>
</table>

Table D.2-5. Emissions for Construction of All Drillsite Pads

Pollutant	Emission Factor[1] Short-Term (lb/hr-acre)	Emission Factor[1] Annual (ton/yr-acre)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
NO_x	6.5E-02	2.8E-01	5.7E+00	2.5E+01
CO	2.9E-02	1.3E-01	2.6E+00	1.1E+01
SO_2	2.5E-04	1.1E-03	2.2E-02	9.7E-02
PM_{10}	8.0E-03	3.5E-02	7.1E-01	3.1E+00
$PM_{2.5}$	5.4E-03	2.4E-02	4.8E-01	2.1E+00
VOC	8.6E-03	3.8E-02	7.6E-01	3.3E+00
Benzene	2.1E-04	9.4E-04	1.9E-02	8.3E-02
Toluene	2.5E-04	1.1E-03	2.2E-02	9.7E-02
Ethylbenzene	4.9E-05	2.1E-04	4.3E-03	1.9E-02
Xylene	2.3E-04	1.0E-03	2.0E-02	8.8E-02
Formaldehyde	2.0E-03	8.8E-03	1.8E-01	7.8E-01
nHexane	2.8E-05	1.2E-04	2.5E-03	1.1E-02
CO_2e	3.6E+01	1.6E+02	3.2E+03	1.4E+04

1 Emission factors are the emission rates divided by total acres of all drillsite pads

Table D.2-6. Emissions for Construction of All Bridges

Pollutant	Emission Factor[1] Short-Term (lb/hr-acre)	Emission Factor[1] Annual (ton/yr-acre)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
NO_x	3.4E+00	1.5E+01	5.1E-01	2.2E+00
CO	1.2E+00	5.1E+00	1.7E-01	7.6E-01
SO_2	1.3E-02	5.8E-02	2.0E-03	8.8E-03
PM_{10}	2.5E-01	1.1E+00	3.7E-02	1.6E-01
$PM_{2.5}$	2.3E-01	1.0E+00	3.5E-02	1.5E-01
VOC	3.0E-01	1.3E+00	4.6E-02	2.0E-01
Benzene	8.9E-03	3.9E-02	1.3E-03	5.8E-03
Toluene	8.9E-03	3.9E-02	1.3E-03	5.9E-03
Ethylbenzene	1.6E-03	7.1E-03	2.4E-04	1.1E-03
Xylene	6.8E-03	3.0E-02	1.0E-03	4.5E-03
Formaldehyde	7.2E-02	3.2E-01	1.1E-02	4.8E-02
nHexane	7.6E-04	3.3E-03	1.2E-04	5.0E-04
CO_2e	1.7E+03	7.5E+03	2.6E+02	1.1E+03

1 Emission factors are the emission rates divided by total length in miles of bridges constructed.

Table D.2-7. Emission for Construction of Gravel Roads and Support Pads

Pollutant	Emission Factor[1] Short-Term (lb/hr-acre)	Emission Factor[1] Annual (ton/yr-acre)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
NO_x	4.7E-03	2.1E-02	1.2E+00	5.3E+00
CO	1.8E-03	7.9E-03	4.6E-01	2.0E+00
SO_2	1.8E-05	8.1E-05	4.7E-03	2.1E-02
PM_{10}	8.8E-03	3.9E-02	2.3E+00	9.9E+00
$PM_{2.5}$	1.6E-03	6.9E-03	4.0E-01	1.8E+00
VOC	7.5E-04	3.3E-03	1.9E-01	8.4E-01
Benzene	1.6E-05	7.0E-05	4.1E-03	1.8E-02
Toluene	2.3E-05	1.0E-04	6.0E-03	2.6E-02
Ethylbenzene	4.3E-06	1.9E-05	1.1E-03	4.9E-03
Xylene	2.4E-05	1.0E-04	6.1E-03	2.7E-02
Formaldehyde	1.7E-04	7.6E-04	4.4E-02	1.9E-01
nHexane	3.1E-06	1.4E-05	8.1E-04	3.5E-03
CO_2e	3.0E+00	1.3E+01	7.8E+02	3.4E+03

1 Emission factors are the emission rates divided by total acres of all gravel roads and support pads (valve and water access pads).

Table D.2-8. Emission for Construction of Ice Roads and Ice Pads

Pollutant	Emission Factor[1] Short-Term (lb/hr-acre)	Emission Factor[1] Annual (ton/yr-acre)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
NO_x	4.0E-03	1.8E-02	2.1E+01	9.1E+01
CO	1.1E-03	4.7E-03	5.6E+00	2.4E+01
SO_2	4.8E-06	2.1E-05	2.5E-02	1.1E-01
PM_{10}	1.4E-04	6.3E-04	7.4E-01	3.2E+00
$PM_{2.5}$	1.4E-04	6.1E-04	7.1E-01	3.1E+00
VOC	3.6E-04	1.6E-03	1.8E+00	8.1E+00
Benzene	7.6E-06	3.3E-05	3.9E-02	1.7E-01
Toluene	1.1E-05	4.6E-05	5.4E-02	2.4E-01
Ethylbenzene	2.1E-06	9.3E-06	1.1E-02	4.8E-02
Xylene	1.1E-05	4.8E-05	5.6E-02	2.5E-01
Formaldehyde	8.2E-05	3.6E-04	4.2E-01	1.9E+00
nHexane	1.4E-06	6.3E-06	7.4E-03	3.3E-02
CO_2e	9.1E-01	4.0E+00	4.7E+03	2.0E+04

1 Emission factors are the emission rates divided by total acres of all ice roads and ice pads constructed through the life of the project.

Table D.2-9. Emissions for Construction of Powerlines and Fiber Optics

Pollutant	Emission Factor[1] Short-Term (lb/hr-acre)	Emission Factor[1] Annual (ton/yr-acre)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
NO_x	6.4E-03	2.8E-02	2.5E-01	1.1E+00
CO	2.6E-03	1.1E-02	1.0E-01	4.5E-01
SO_2	2.8E-05	1.2E-04	1.1E-03	5.0E-03
PM_{10}	5.4E-04	2.4E-03	2.1E-02	9.4E-02
$PM_{2.5}$	5.0E-04	2.2E-03	2.0E-02	8.8E-02
VOC	6.6E-04	2.9E-03	2.7E-02	1.2E-01
Benzene	1.9E-05	8.2E-05	7.5E-04	3.3E-03
Toluene	1.9E-05	8.1E-05	7.4E-04	3.3E-03
Ethylbenzene	3.6E-06	1.6E-05	1.5E-04	6.4E-04
Xylene	1.5E-05	6.4E-05	5.8E-04	2.6E-03

Pollutant	Emission Factor[1] Short-Term (lb/hr-acre)	Emission Factor[1] Annual (ton/yr-acre)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
Formaldehyde	1.6E-04	6.8E-04	6.2E-03	2.7E-02
nHexane	1.7E-06	7.3E-06	6.7E-05	2.9E-04
CO_2e	3.5E+00	1.6E+01	1.4E+02	6.2E+02

1 Emission factors are the emission rates divided by total length in miles of powerline and fiber optics constructed.

Table D.2-10. Emissions for Construction of Pipelines

Pollutant	Emission Factor[1] Short-Term (lb/hr-acre)	Emission Factor[1] Annual (ton/yr-acre)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
NO_x	1.2E-01	5.2E-01	1.5E+01	6.7E+01
CO	7.4E-02	3.2E-01	9.5E+00	4.2E+01
SO_2	2.7E-04	1.2E-03	3.5E-02	1.6E-01
PM_{10}	6.0E-03	2.6E-02	7.7E-01	3.4E+00
$PM_{2.5}$	5.8E-03	2.6E-02	7.5E-01	3.3E+00
VOC	1.7E-02	7.3E-02	2.1E+00	9.4E+00
Benzene	1.5E-04	6.7E-04	2.0E-02	8.7E-02
Toluene	1.3E-04	5.9E-04	1.7E-02	7.6E-02
Ethylbenzene	2.1E-05	9.2E-05	2.7E-03	1.2E-02
Xylene	1.2E-04	5.1E-04	1.5E-02	6.6E-02
Formaldehyde	9.0E-04	3.9E-03	1.2E-01	5.1E-01
nHexane	1.3E-05	5.5E-05	1.6E-03	7.1E-03
CO_2e	3.2E+01	1.4E+02	4.2E+03	1.8E+04

1 Emission factors are the emission rates divided by total length in miles of pipeline constructed.

Table D.2-11. Emissions for Construction of WPF

Pollutant	Emission Factor[1] Short-Term (lb/hr-acre)	Emission Factor[1] Annual (ton/yr-acre)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
NO_x	2.3E-01	1.0E+00	5.2E+00	2.3E+01
CO	9.7E-02	4.2E-01	2.2E+00	9.7E+00
SO_2	7.6E-04	3.3E-03	1.7E-02	7.6E-02
PM_{10}	2.4E-02	1.1E-01	5.5E-01	2.4E+00
$PM_{2.5}$	1.8E-02	7.9E-02	4.1E-01	1.8E+00
VOC	2.8E-02	1.2E-01	6.3E-01	2.7E+00
Benzene	7.3E-04	3.2E-03	1.7E-02	7.3E-02
Toluene	7.8E-04	3.4E-03	1.8E-02	7.8E-02
Ethylbenzene	1.6E-04	6.8E-04	3.6E-03	1.6E-02
Xylene	6.8E-04	3.0E-03	1.5E-02	6.8E-02
Formaldehyde	6.5E-03	2.8E-02	1.5E-01	6.5E-01
nHexane	8.2E-05	3.6E-04	1.9E-03	8.2E-03
CO_2e	1.1E+02	4.7E+02	2.4E+03	1.1E+04

1 Emission factors are the emission rates divided by total acres of the WPF pad.

Table D.2-12. Emissions for Construction of North WOC and South WOC and Airstrips

Pollutant	Emission Factor[1] Short-Term (lb/hr-acre)	Emission Factor[1] Annual (ton/yr-acre)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
NO_x	7.6E-02	3.3E-01	1.0E+01	4.6E+01
CO	4.3E-02	1.9E-01	6.0E+00	2.6E+01
SO_2	2.6E-04	1.1E-03	3.6E-02	1.6E-01
PM_{10}	1.1E-02	4.8E-02	1.5E+00	6.6E+00
$PM_{2.5}$	5.7E-03	2.5E-02	7.8E-01	3.4E+00
VOC	1.1E-02	4.8E-02	1.5E+00	6.6E+00
Benzene	2.2E-04	9.8E-04	3.1E-02	1.3E-01
Toluene	3.0E-04	1.3E-03	4.1E-02	1.8E-01
Ethylbenzene	5.5E-05	2.4E-04	7.5E-03	3.3E-02
Xylene	2.9E-04	1.3E-03	4.0E-02	1.8E-01
Formaldehyde	2.2E-03	9.8E-03	3.1E-01	1.3E+00
nHexane	3.8E-05	1.6E-04	5.2E-03	2.3E-02
CO_2e	4.1E+01	1.8E+02	5.6E+03	2.4E+04

1 Emission factors are the emission rates divided by total acres of the North and South WOC and Airstrip.

Table D.2-13. Emissions for Gravel Mining and Reservoir Development

Pollutant	Emission Factor[1] Short-Term (lb/hr-acre)	Emission Factor[1] Annual (ton/yr- MCY)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
NO_x	1.6E+00	6.9E+00	1.1E+01	4.7E+01
CO	4.1E+00	1.8E+01	2.8E+01	1.2E+02
SO_2	1.2E-01	5.1E-01	8.0E-01	3.5E+00
PM_{10}	1.3E-01	5.7E-01	8.9E-01	3.9E+00
$PM_{2.5}$	3.6E-02	1.6E-01	2.5E-01	1.1E+00
VOC	7.7E-02	3.4E-01	5.2E-01	2.3E+00
Benzene	1.9E-03	8.4E-03	1.3E-02	5.7E-02
Toluene	2.3E-03	1.0E-02	1.6E-02	7.0E-02
Ethylbenzene	4.5E-04	2.0E-03	3.1E-03	1.3E-02
Xylene	2.2E-03	9.6E-03	1.5E-02	6.5E-02
Formaldehyde	1.8E-02	8.0E-02	1.2E-01	5.4E-01
nHexane	2.7E-04	1.2E-03	1.9E-03	8.2E-03
CO_2e	2.4E+02	1.1E+03	1.7E+03	7.3E+03

1 Emission factors are the emission rates divided by total gravel required in million cubic yards (MCY).

Table D.2-14. Emissions for Construction Traffic

Pollutant	Emission Factor[1] Short-Term (lb/hr-kmile)	Emission Factor[1] Annual (ton/yr-acre)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
NO_x	9.8E-05	4.3E-04	3.6E+00	1.6E+01
CO	6.3E-05	2.7E-04	2.3E+00	1.0E+01
SO_2	3.9E-07	1.7E-06	1.4E-02	6.3E-02
PM_{10}	9.6E-04	4.2E-03	3.5E+01	1.5E+02
$PM_{2.5}$	1.0E-04	4.4E-04	3.7E+00	1.6E+01
VOC	1.4E-05	6.3E-05	5.3E-01	2.3E+00
Benzene	1.1E-07	4.7E-07	3.9E-03	1.7E-02
Toluene	1.1E-07	4.7E-07	3.9E-03	1.7E-02
Ethylbenzene	4.0E-08	1.8E-07	1.5E-03	6.5E-03

Pollutant	Emission Factor[1] Short-Term (lb/hr-kmile)	Emission Factor[1] Annual (ton/yr-acre)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
Xylene	1.2E-07	5.1E-07	4.3E-03	1.9E-02
Formaldehyde	1.2E-06	5.4E-06	4.5E-02	2.0E-01
nHexane	3.4E-08	1.5E-07	1.3E-03	5.5E-03
CO_2e	4.8E-02	2.1E-01	1.8E+03	7.7E+03

1 Emission factors are the emission rates divided by total number of construction traffic miles in thousand of miles (kmile).

Table D.2-15. Emissions for Early Operations Power Generation at the North and South WOC

Pollutant	Emission Factor[1] Short-Term (lb/hr-kWe)	Emission Factor[1] Annual (ton/yr-kWe)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
NO_x	5.1E-03	2.2E-02	1.5E+02	6.5E+02
CO	4.0E-03	1.8E-02	1.2E+02	5.1E+02
SO_2	1.9E-05	8.2E-05	5.5E-01	2.4E+00
PM_{10}	2.6E-04	1.2E-03	7.7E+00	3.4E+01
$PM_{2.5}$	2.6E-04	1.2E-03	7.7E+00	3.4E+01
VOC	2.7E-04	1.2E-03	7.8E+00	3.4E+01
Benzene	1.5E-06	6.5E-06	4.3E-02	1.9E-01
Toluene	3.8E-07	1.7E-06	1.1E-02	4.9E-02
Ethylbenzene	1.4E-09	6.3E-09	4.2E-05	1.8E-04
Xylene	2.6E-07	1.1E-06	7.6E-03	3.3E-02
Formaldehyde	2.5E-06	1.1E-05	7.3E-02	3.2E-01
nHexane	4.1E-09	1.8E-08	1.2E-04	5.2E-04
CO_2e	1.7E+00	7.2E+00	4.8E+04	2.1E+05

1 Emission factors are the emission rates divided by total temporary power at the North and South WOC.

Table D.2-16. Emissions for Drilling of All Wells at Drillsite Pads

Pollutant	Emission Factor[1] Short-Term (lb/hr-well)	Emission Factor[1] Annual (ton/yr-well)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
NO_x	1.8E-01	8.0E-01	4.6E+01	2.0E+02
CO	4.8E-01	2.1E+00	1.2E+02	5.3E+02
SO_2	1.3E-03	5.8E-03	3.3E-01	1.5E+00
PM_{10}	1.2E-02	5.2E-02	3.0E+00	1.3E+01
$PM_{2.5}$	1.1E-02	5.0E-02	2.8E+00	1.2E+01
VOC	9.9E-02	4.3E-01	2.5E+01	1.1E+02
Benzene	3.9E-04	1.7E-03	9.7E-02	4.2E-01
Toluene	1.9E-04	8.3E-04	4.7E-02	2.1E-01
Ethylbenzene	1.2E-05	5.4E-05	3.1E-03	1.3E-02
Xylene	1.1E-04	5.0E-04	2.9E-02	1.3E-01
Formaldehyde	3.1E-04	1.4E-03	7.8E-02	3.4E-01
nHexane	2.4E-03	1.0E-02	5.9E-01	2.6E+00
CO_2e	1.2E+02	5.1E+02	2.9E+04	1.3E+05

1 Emission factors are the emission rates divided by total number of wells drilled at all drillsite pads.

Table D.2-17. Emissions for Drilling Traffic

Pollutant	Emission Factor[1] Short-Term (lb/hr-kmile)	Emission Factor[1] Annual (ton/yr-kmile)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
NO_x	5.9E-04	2.6E-03	1.9E+00	8.4E+00
CO	2.5E-04	1.1E-03	8.0E-01	3.5E+00
SO_2	2.2E-06	9.6E-06	7.2E-03	3.2E-02
PM_{10}	1.2E-02	5.2E-02	3.9E+01	1.7E+02
$PM_{2.5}$	1.2E-03	5.4E-03	4.0E+00	1.8E+01
VOC	7.7E-05	3.4E-04	2.5E-01	1.1E+00
Benzene	7.3E-07	3.2E-06	2.4E-03	1.0E-02
Toluene	9.0E-07	4.0E-06	3.0E-03	1.3E-02
Ethylbenzene	2.9E-07	1.3E-06	9.6E-04	4.2E-03
Xylene	1.0E-06	4.5E-06	3.4E-03	1.5E-02
Formaldehyde	8.9E-06	3.9E-05	2.9E-02	1.3E-01
nHexane	2.6E-07	1.1E-06	8.6E-04	3.7E-03
CO_2e	2.7E-01	1.2E+00	8.8E+02	3.8E+03

1 Emission factors are the emission rates divided by total number of drilling traffic miles in thousand of miles (kmile).

Table D.2-18. Emissions for Operations of All Drillsite Pads

Pollutant	Emission Factor[1] Short-Term (lb/hr-pad)	Emission Factor[1] Annual (ton/yr-pad)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
NO_x	1.5E+00	6.7E+00	7.7E+00	3.4E+01
CO	1.3E+00	5.6E+00	6.4E+00	2.8E+01
SO_2	3.5E-02	1.6E-01	1.8E-01	7.8E-01
PM_{10}	1.9E-01	8.4E-01	9.6E-01	4.2E+00
$PM_{2.5}$	1.0E-01	4.4E-01	5.0E-01	2.2E+00
VOC	2.1E+01	9.3E+01	1.1E+02	4.7E+02
Benzene	2.2E-02	9.6E-02	1.1E-01	4.8E-01
Toluene	6.0E-02	2.6E-01	3.0E-01	1.3E+00
Ethylbenzene	5.4E-01	2.3E+00	2.7E+00	1.2E+01
Xylene	1.1E+00	4.6E+00	5.3E+00	2.3E+01
Formaldehyde	6.5E-04	2.9E-03	3.3E-03	1.4E-02
nHexane	1.3E+00	5.8E+00	6.6E+00	2.9E+01
CO_2e	1.0E+03	4.5E+03	5.2E+03	2.3E+04

1 Emission factors are the emission rates divided by number of drillsite pads.

Table D.2-19. Emissions for Operations of WPF

Pollutant	Emission Factor[1] Short-Term (lb/hr-kbbl/day)	Emission Factor[1] Annual (ton/yr-kbbl/day)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
NO_x	5.7E-01	2.5E+00	1.1E+02	5.0E+02
CO	5.5E-01	2.4E+00	1.1E+02	4.8E+02
SO_2	5.4E-02	2.4E-01	1.1E+01	4.8E+01
PM_{10}	6.2E-02	2.7E-01	1.2E+01	5.4E+01
$PM_{2.5}$	6.1E-02	2.7E-01	1.2E+01	5.3E+01
VOC	2.1E-01	9.2E-01	4.2E+01	1.8E+02
Benzene	2.7E-04	1.2E-03	5.3E-02	2.3E-01
Toluene	1.2E-03	5.3E-03	2.4E-01	1.1E+00
Ethylbenzene	3.3E-04	1.5E-03	6.7E-02	2.9E-01
Xylene	6.6E-04	2.9E-03	1.3E-01	5.8E-01
Formaldehyde	2.0E-03	8.5E-03	3.9E-01	1.7E+00
nHexane	8.8E-03	3.9E-02	1.8E+00	7.7E+00
CO_2e	9.8E+02	4.3E+03	2.0E+05	8.5E+05

1 Emission factors are the emission rates divided by WPF operating capacity in thousand of barrels per day (kbbl/day).

Table D.2-20. Emissions for Operations of North and South WOC and Airstrips

Pollutant	Emission Factor[1] Short-Term (lb/hr-person)	Emission Factor[1] Annual (ton/yr-person)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
NO_x	1.3E-01	5.7E-01	5.2E+01	2.3E+02
CO	1.2E-01	5.1E-01	4.7E+01	2.1E+02
SO_2	4.4E-03	1.9E-02	1.8E+00	7.8E+00
PM_{10}	1.8E-02	7.9E-02	7.2E+00	3.2E+01
$PM_{2.5}$	1.7E-02	7.3E-02	6.6E+00	2.9E+01
VOC	1.8E-02	7.9E-02	7.2E+00	3.2E+01
Benzene	8.6E-05	3.7E-04	3.4E-02	1.5E-01
Toluene	1.1E-04	4.7E-04	4.3E-02	1.9E-01
Ethylbenzene	2.0E-05	8.6E-05	7.9E-03	3.4E-02
Xylene	5.8E-05	2.6E-04	2.3E-02	1.0E-01
Formaldehyde	1.5E-04	6.5E-04	5.9E-02	2.6E-01
nHexane	4.3E-06	1.9E-05	1.7E-03	7.6E-03
CO_2e	9.4E+01	4.1E+02	3.7E+04	1.6E+05

1 Emission factors are the emission rates divided by number of personnel housed at North and South WOC.

Table D.2-21. Emissions for Aircraft Flights

Pollutant	Emission Factor[1] Short-Term (lb/hr-flight/year)	Emission Factor[1] Annual (ton/yr-flight/year)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
NO_x	7.5E-03	3.3E-02	2.7E-01	1.2E+00
CO	2.9E-02	1.3E-01	1.0E+00	4.5E+00
SO_2	1.1E-03	4.7E-03	3.8E-02	1.7E-01
PM_{10}	4.0E-04	1.8E-03	1.4E-02	6.2E-02
$PM_{2.5}$	4.0E-04	1.8E-03	1.4E-02	6.2E-02
VOC	4.0E-03	1.8E-02	1.4E-01	6.2E-01
Benzene	7.1E-05	3.1E-04	2.5E-03	1.1E-02
Toluene	2.8E-05	1.2E-04	1.0E-03	4.4E-03
Ethylbenzene	7.6E-06	3.3E-05	2.7E-04	1.2E-03
Xylene	1.9E-05	8.3E-05	6.7E-04	2.9E-03
Formaldehyde	5.2E-04	2.3E-03	1.9E-02	8.1E-02
nHexane	6.2E-07	2.7E-06	2.2E-05	9.6E-05
CO_2e	2.9E+00	1.3E+01	1.0E+02	4.4E+02

1 Emission factors are the emission rates divided by the average number of flights per year.

Table D.2-22. Emissions for Operations Traffic

Pollutant	Emission Factor[1] Short-Term (lb/hr-kmile)	Emission Factor[1] Annual (ton/yr-kmile)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
NO_x	5.7E-05	2.5E-04	8.5E-01	3.7E+00
CO	3.9E-05	1.7E-04	5.8E-01	2.6E+00
SO_2	2.1E-07	9.3E-07	3.2E-03	1.4E-02
PM_{10}	1.7E-03	7.3E-03	2.5E+01	1.1E+02
$PM_{2.5}$	1.7E-04	7.4E-04	2.5E+00	1.1E+01
VOC	8.4E-06	3.7E-05	1.3E-01	5.5E-01
Benzene	7.3E-08	3.2E-07	1.1E-03	4.8E-03
Toluene	8.0E-08	3.5E-07	1.2E-03	5.2E-03
Ethylbenzene	2.8E-08	1.2E-07	4.2E-04	1.9E-03
Xylene	8.8E-08	3.9E-07	1.3E-03	5.8E-03

Pollutant	Emission Factor[1] Short-Term (lb/hr-kmile)	Emission Factor[1] Annual (ton/yr-kmile)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
Formaldehyde	8.5E-07	3.7E-06	1.3E-02	5.6E-02
nHexane	2.5E-08	1.1E-07	3.7E-04	1.6E-03
CO_2e	2.6E-02	1.1E-01	3.9E+02	1.7E+03

1 Emission factors are the emission rates divided by total number of operation traffic miles in thousand of miles (kmile).

Table D.2-23. Average Annual Emissions per Well (Emissions ton/year/well)

Pollutant	New Directional Oil Wells (Construction and Drilling)	Directional Oil Wells > 1 Year (Production and Operations)	New Directional Injection Wells (Construction and Drilling)	Directional Injection Wells > 1 Year (Production and Operations)
NOx	2.04	3.06	2.04	3.06
CO	1.95	2.87	1.95	2.87
SO2	0.02	0.22	0.02	0.22
PM10	1.03	0.79	1.03	0.79
PM2.5	0.20	0.38	0.20	0.38
VOC	0.24	2.72	0.24	2.72
Benzene	1.90E-03	3.47E-03	1.90E-03	3.47E-03
Toluene	1.75E-03	1.03E-02	1.75E-03	1.03E-02
Ethylbenzene	3.15E-04	4.80E-02	3.15E-04	4.80E-02
Xylenes	1.60E-03	9.48E-02	1.60E-03	9.48E-02
Formaldehyde	1.26E-02	8.21E-03	1.26E-02	8.21E-03
n-Hexane	2.99E-03	1.46E-01	2.99E-03	1.46E-01
CO2e	718	4154	718	4154

Table D.2-24. Annual Emissions for Construction, Drilling, and Completion Activities

Project Year	Calendar Year	NO_x	CO	SO2	PM_{10}	$PM_{2.5}$	VOC
0	2020	20.4	32.6	0.9	1.2	0.5	1.3
1	2021	434.0	372.1	4.0	65.8	25.6	27.3
2	2022	805.4	642.9	6.2	136.2	49.4	47.9
3	2023	905.1	685.1	5.9	274.8	67.8	60.3
4	2024	1060.0	1082.9	6.7	418.9	91.2	123.4
5	2025	637.9	747.0	4.3	357.0	66.8	95.4
6	2026	173.7	196.3	1.8	168.9	26.6	51.6
7	2027	223.5	259.6	3.3	305.5	40.7	46.7
8	2028	210.2	231.0	2.5	295.2	39.8	46.2
9	2029	129.8	151.7	0.6	293.4	37.1	38.9
10	2030	2.6	0.7	0.0	0.1	0.1	0.2
11	2031	2.6	0.7	0.0	0.1	0.1	0.2
12	2032	2.6	0.7	0.0	0.1	0.1	0.2
13	2033	2.6	0.7	0.0	0.1	0.1	0.2
14	2034	2.6	0.7	0.0	0.1	0.1	0.2
15	2035	2.6	0.7	0.0	0.1	0.1	0.2
16-30	2036-2050	2.6	0.7	0.0	0.1	0.1	0.2

Figure D.2-1. Bar Chart of Annual Emissions for Each Phase of Development for NOx

Figure D.2-2. Bar Chart of Annual Emission for Each Phase of Development CO

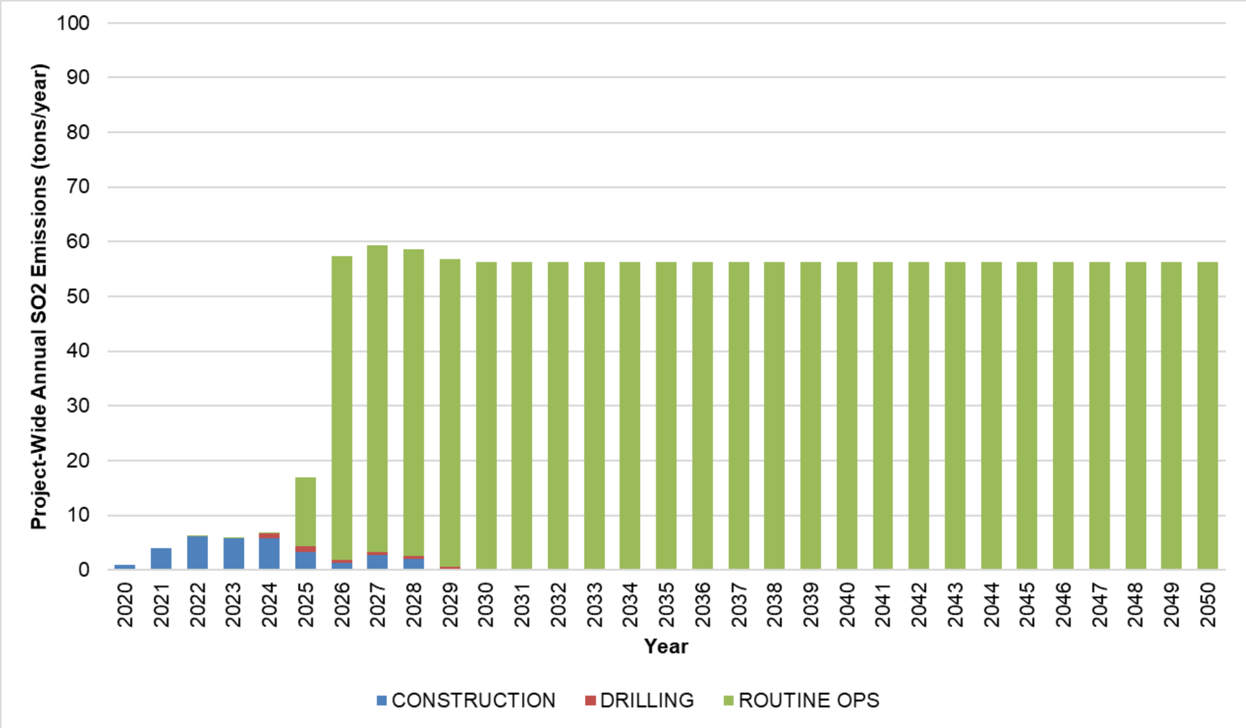


Figure D.2-3. Bar Chart of Annual Emissions for Each Phase of Development SO_2

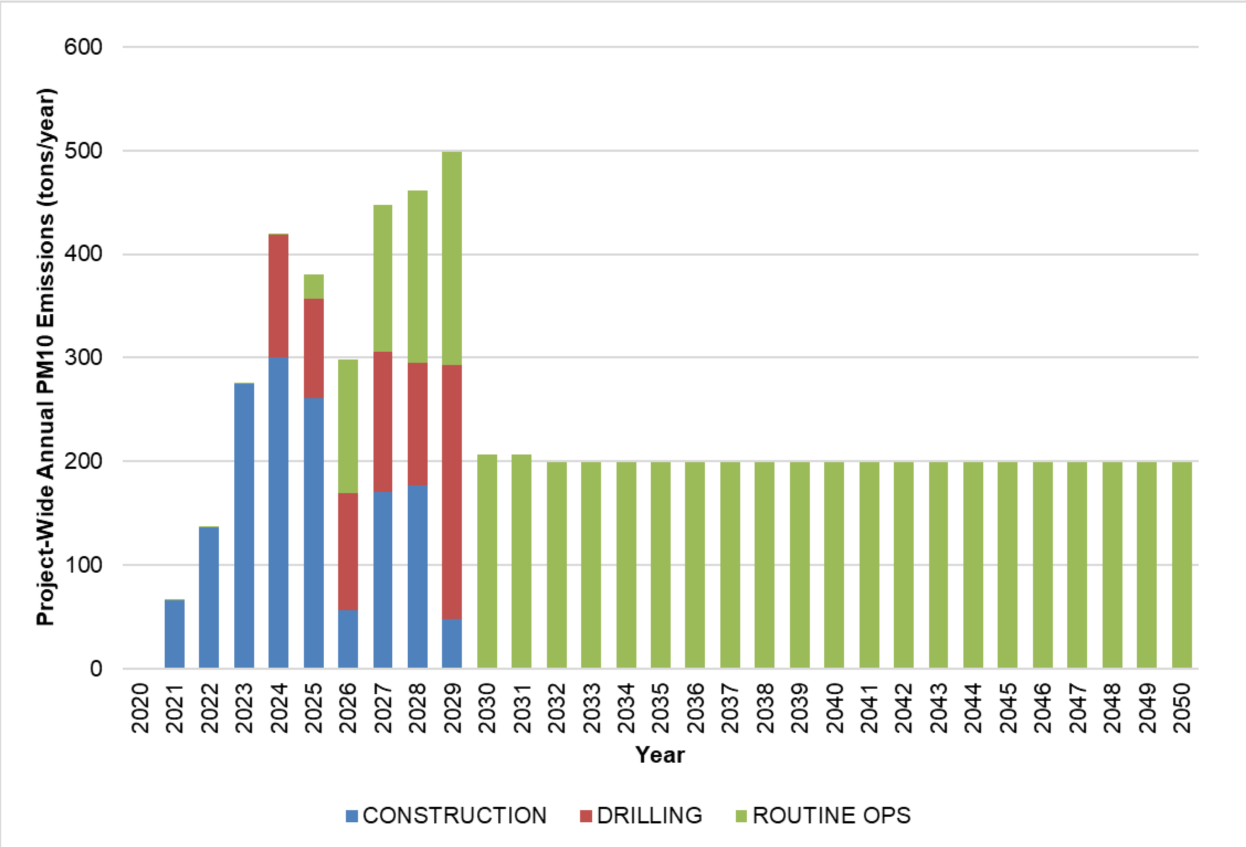


Figure D.2-4. Bar Chart of Annual Emissions for Each Phase of Development for PM_{10}

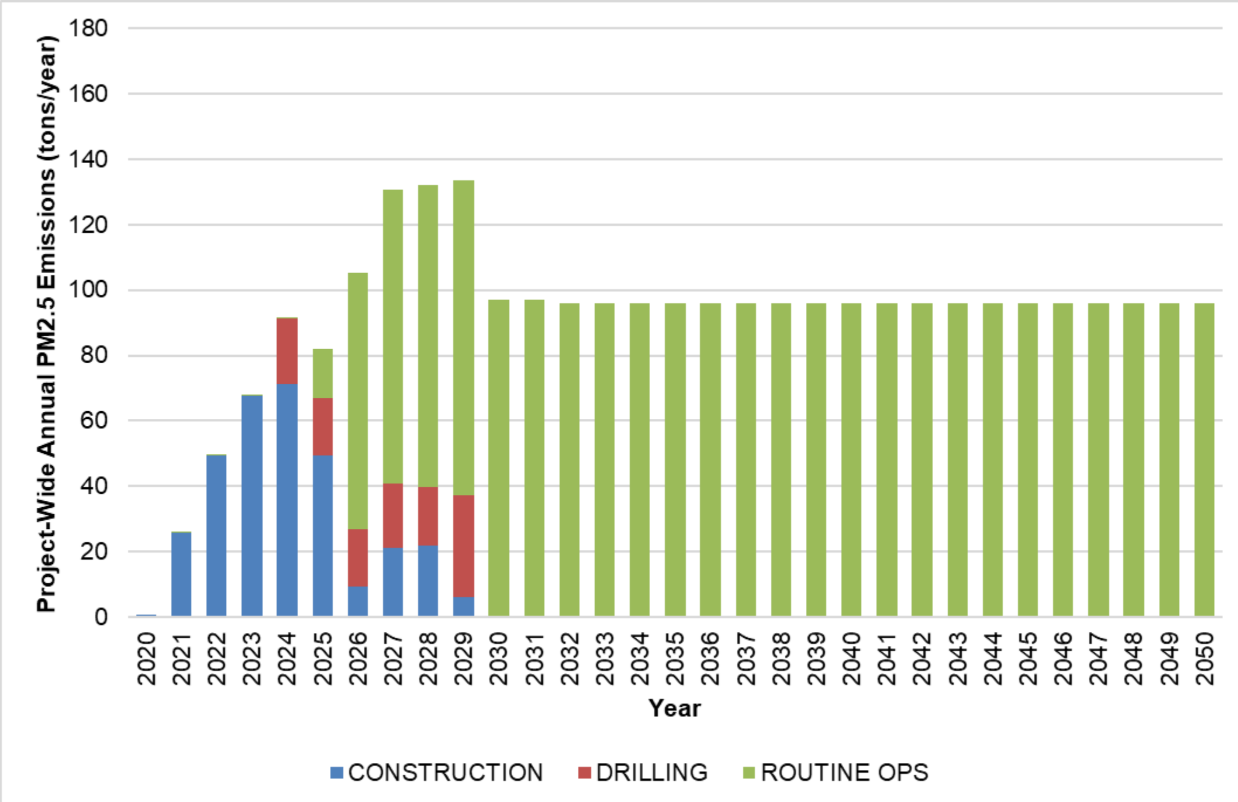


Figure D.2-5. Bar Chart of Annual Emissions for Each Phase of Development for $PM_{2.5}$

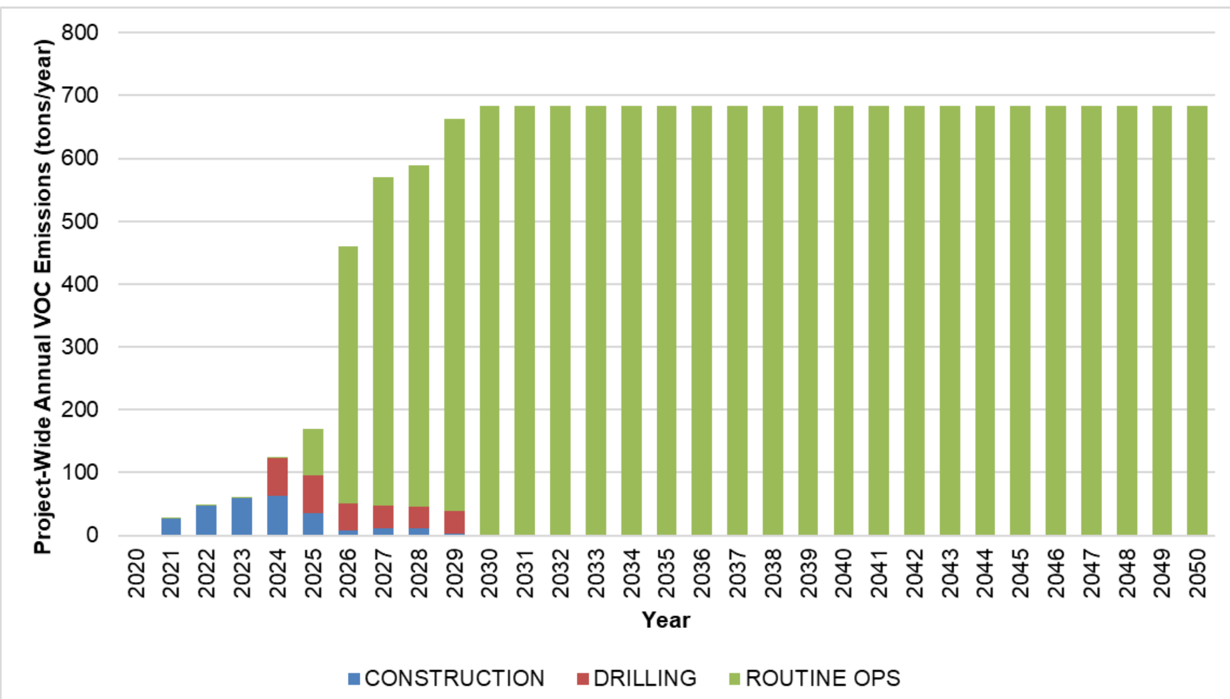


Figure D.2-6. Bar Chart of Annual Emissions for Each Phase of Development for VOC

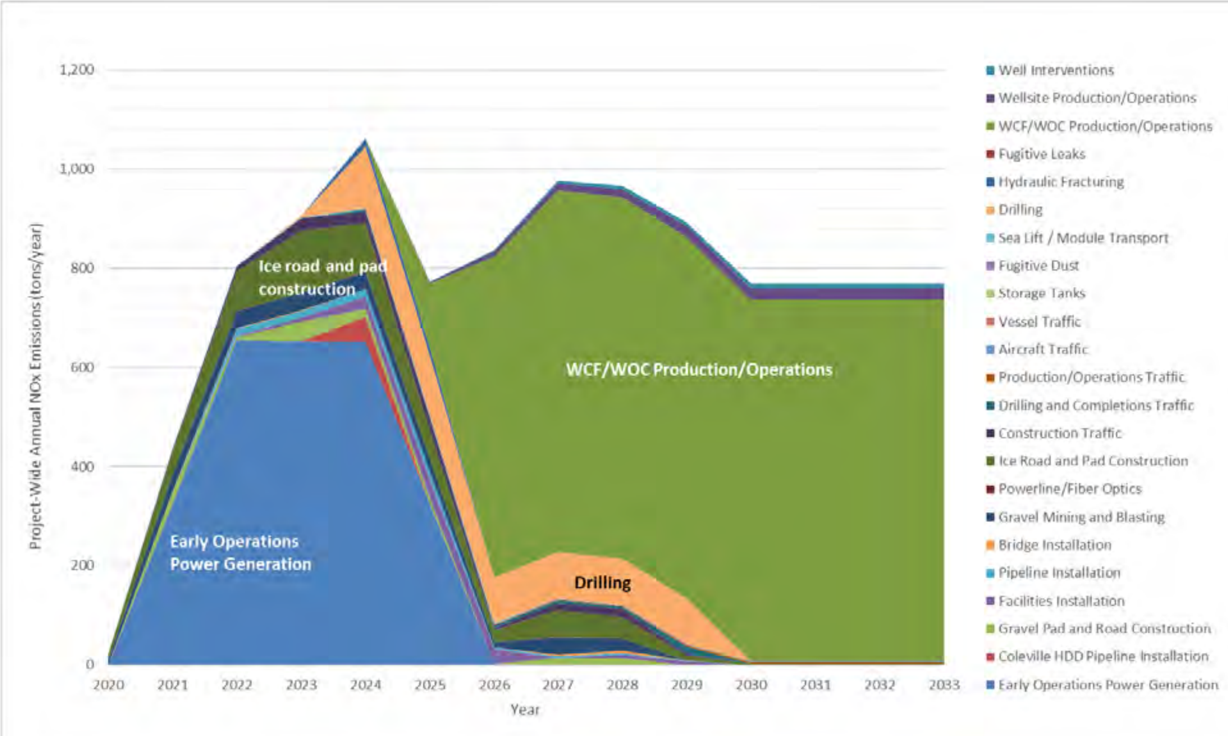


Figure D.2-7. Emissions by Source Type and Year for Alternative C for NOx

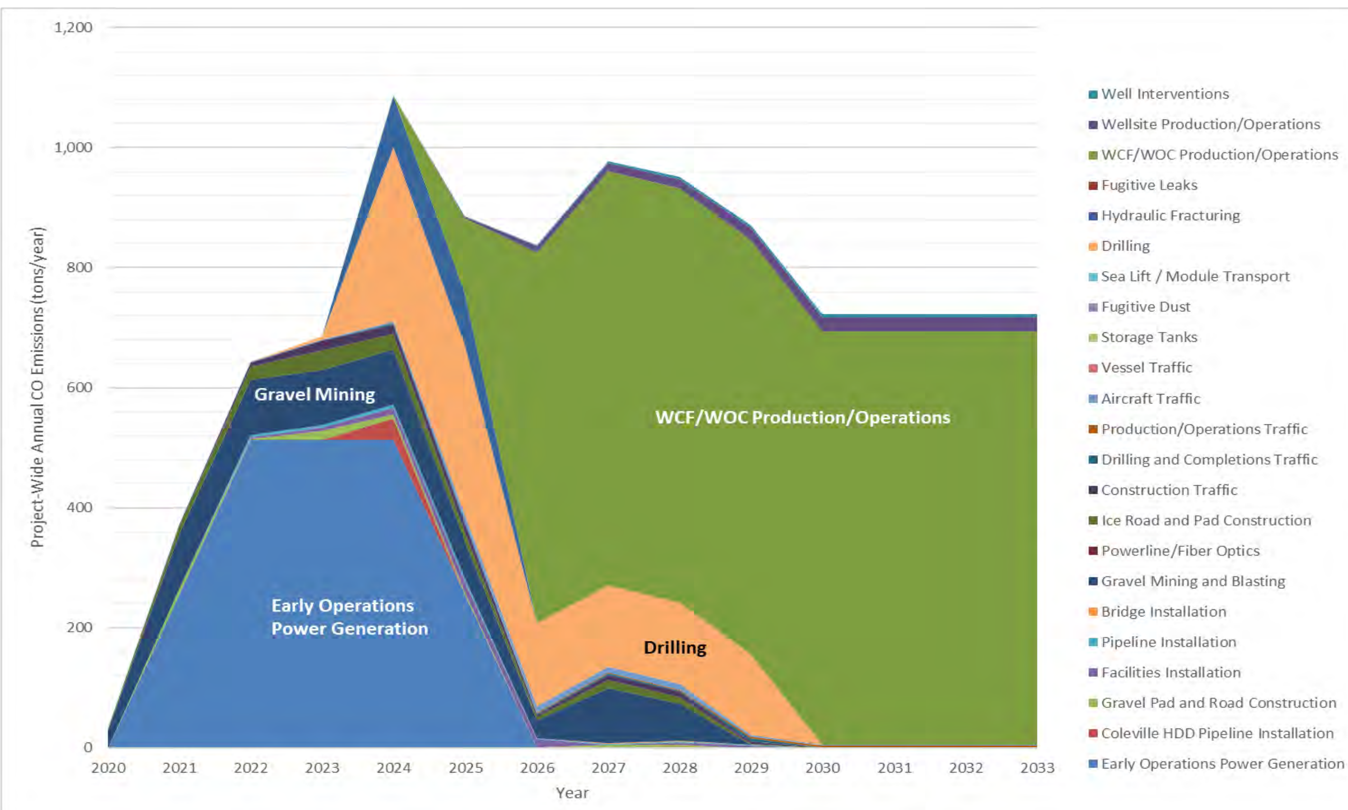


Figure D.2-8. Emissions by Source Type and Year for Alternative C for CO

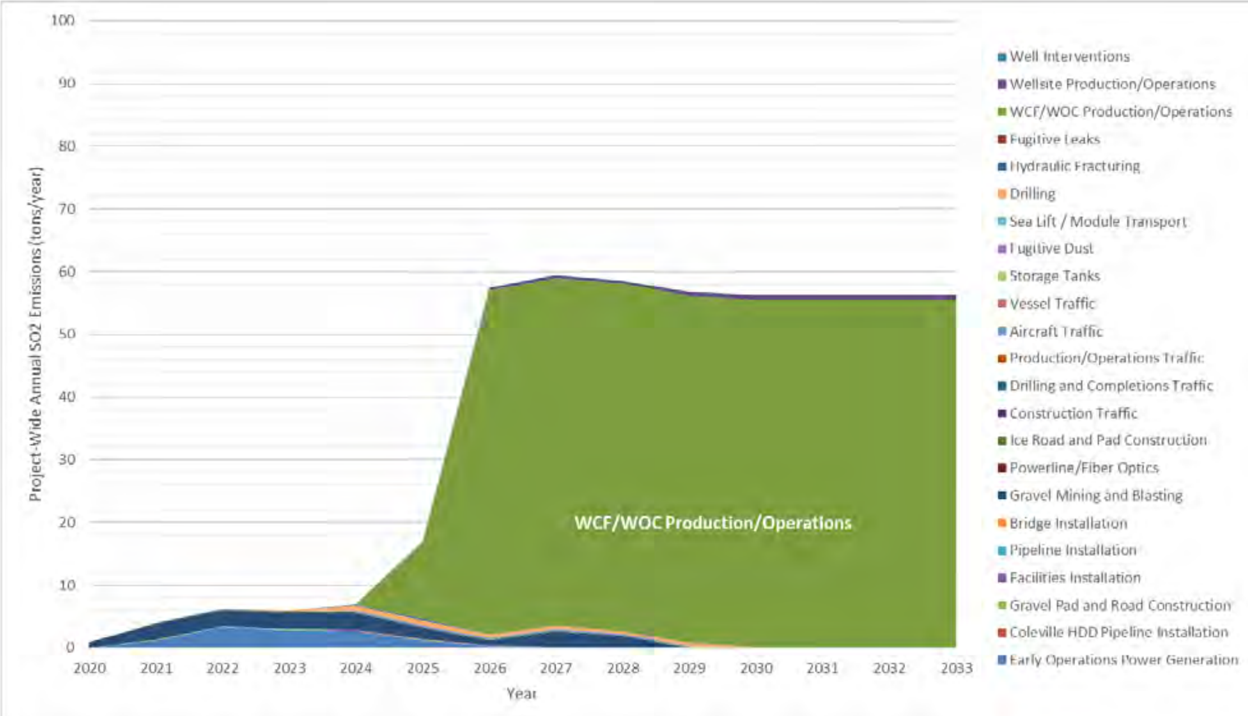


Figure D.2-9. Emissions by Source Type and Year for Alternative C for SO_2

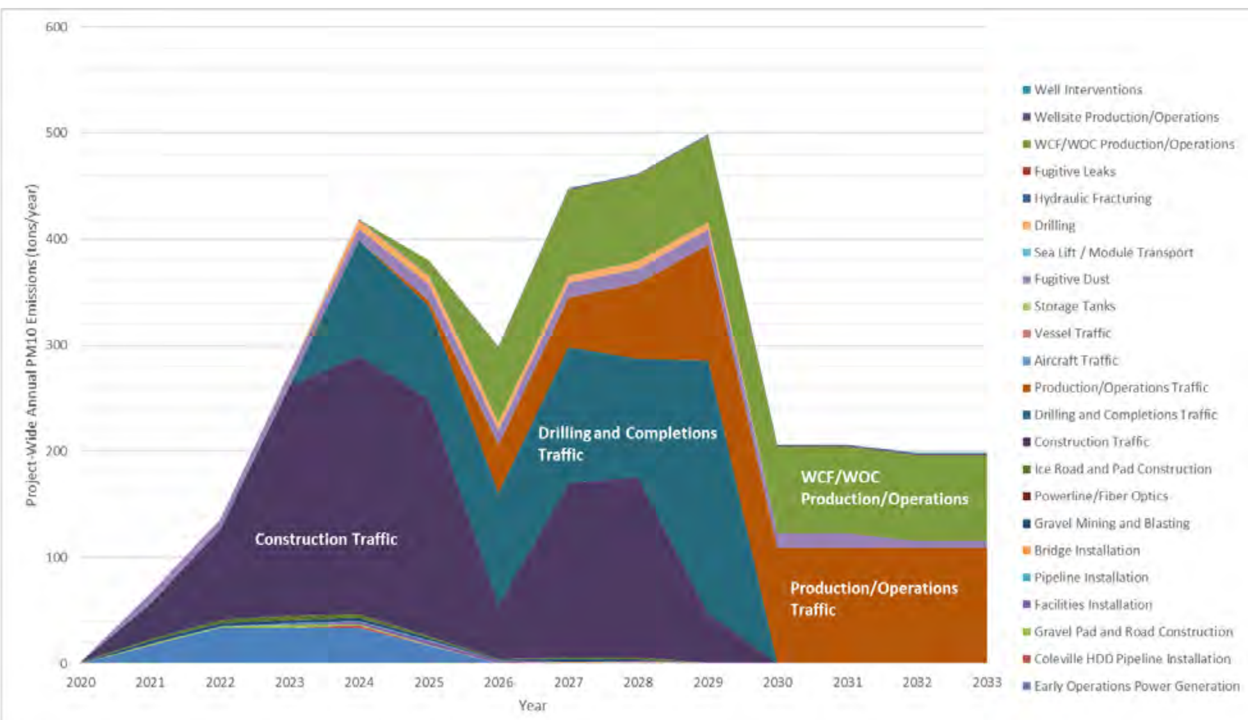


Figure D.2-10. Emissions by Source Type and Year for Alternative C for PM_{10}

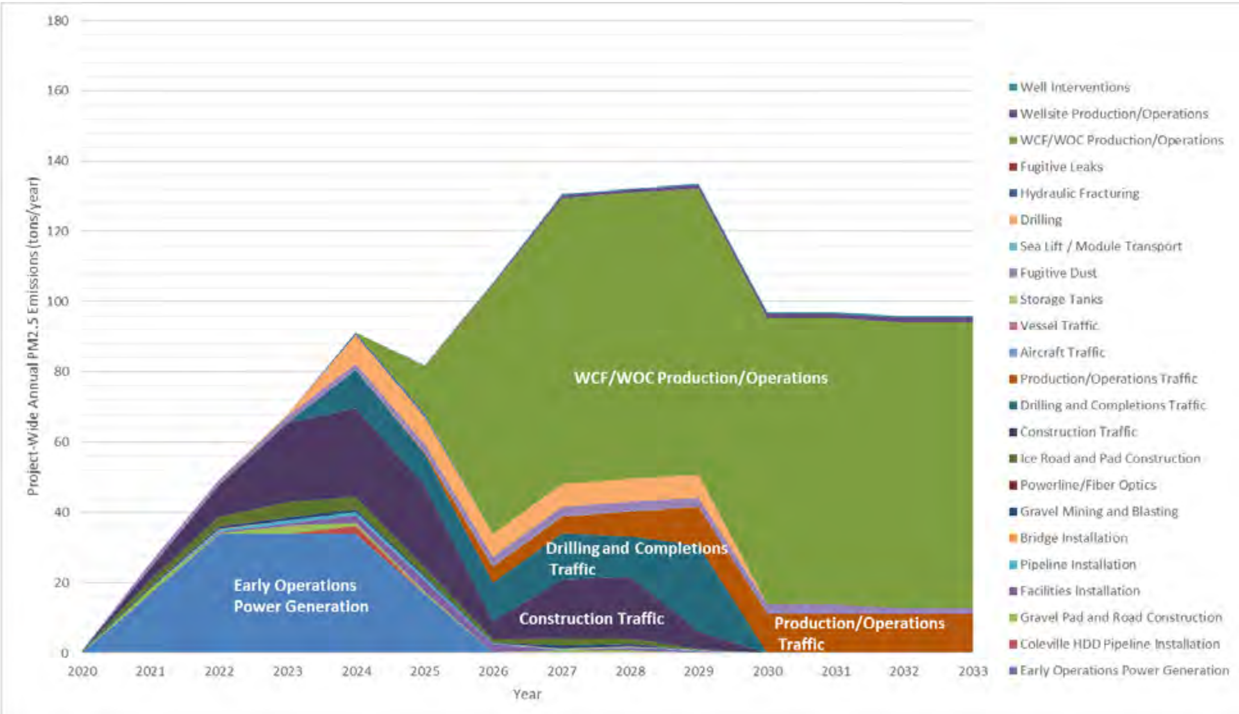


Figure D.2-11. Emissions by Source Type and Year for Alternative C for $PM_{2.5}$

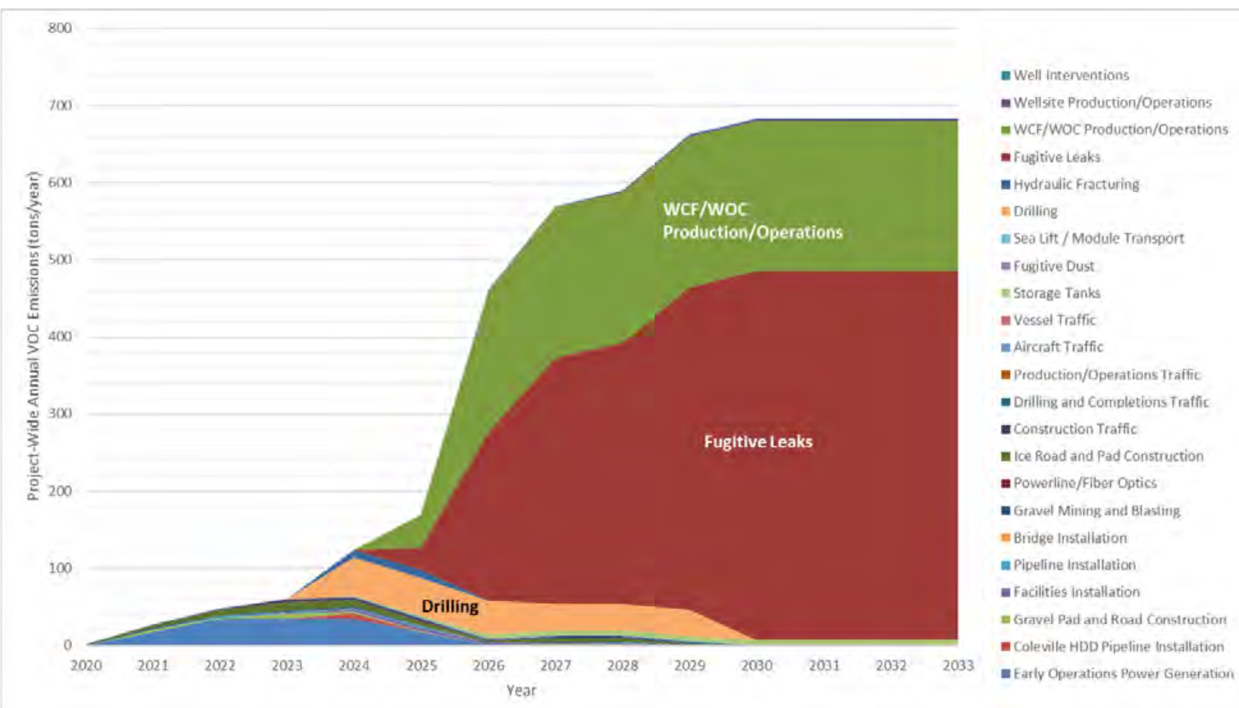


Figure D.2-12. Emissions by Source Type and Year for Alternative C for VOC

ENCLOSURE D.3 ALTERNATIVE D SUMMARY EMISSIONS TABLES

Table D.3-1. List of Assumptions for Summary Tables

Table(s) / Figure	Assumption / Note
Various	Emissions from module delivery options are not included in this attachment. 50% of all Project wells are producing wells, 50% are injection wells. Emissions related to both types of wells are summarized.
Table D.3-23	This table represents the total annual emissions for the Project Area divided by a maximum of 251 wells. We assume no difference in emissions between injection and producing wells. Emissions from new wells include all emissions related to construction and drilling, divided by the total number of wells and number of years considered to get an average annual emission rate for constructing and drilling each well. Emissions from wells >1 year represent emissions unrelated to construction and drilling and are representative of annual emissions from annual production/operations on a per well basis.
Figure D.3-1	Drilling will occur until 2031.

Table D.3-2. Alternative D Emissions Summary (tpy) for a Typical Production Year

Pollutant	Existing Wells Emissions	Future Wells Emissions	No Action	Proposed Action	Total emissions for the project area (existing and future wells)	Existing to Future Difference in Total Project Area Emissions (including Alternative D)
NOx	0	653.6	0.0	653.6	653.6	653.6
CO	0	619.7	0.0	619.7	619.7	619.7
SO_2	0	52.5	0.0	52.5	52.5	52.5
PM_{10}	0	234.6	0.0	234.6	234.6	234.6
$PM_{2.5}$	0	86.2	0.0	86.2	86.2	86.2
VOC	0	665.0	0.0	665.0	665.0	665.0

Table D.3-3a. Annual Criteria Pollutant Emissions (tons) for Construction Only

Project Year	Calendar Year	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$	VOC
0	2020	22.6	33.3	0.9	1.3	0.6	1.5
1	2021	456.2	379.0	4.0	65.9	26.4	29.7
2	2022	510.8	397.9	4.1	152.0	37.1	34.4
3	2023	595.1	429.8	5.3	255.0	51.1	44.4
4	2024	597.5	422.9	3.9	280.7	54.1	47.2
5	2025	92.5	36.5	0.5	124.8	16.8	10.0
6	2026	61.3	26.5	0.2	95.5	13.0	6.7
7	2027	76.0	55.6	1.3	125.7	16.0	7.2
8	2028	136.5	129.9	2.9	152.9	20.0	12.9
9	2029	116.1	95.8	2.0	183.9	22.7	11.7
10	2030	27.7	11.1	0.1	77.1	9.0	3.0
11	2031	9.0	2.5	0.0	0.3	0.3	0.8
12	2032	9.0	2.5	0.0	0.3	0.3	0.8
13	2033	7.8	2.2	0.0	0.3	0.3	0.7
14	2034	7.8	2.2	0.0	0.3	0.3	0.7
15	2035	7.8	2.2	0.0	0.3	0.3	0.7
16-31	2036-2051	7.8	2.2	0.0	0.3	0.3	0.7

Table D.3-3b. Annual Criteria Pollutant Emissions (tons) for Drilling and Completion Only

Project Year	Calendar Year	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$	VOC
0	2020	0.0	0.0	0.0	0.0	0.0	0.0
1	2021	0.0	0.0	0.0	0.0	0.0	0.0
2	2022	0.0	0.0	0.0	0.0	0.0	0.0
3	2023	3.8	5.3	0.0	0.3	0.3	0.4
4	2024	0.0	0.0	0.0	0.0	0.0	0.0
5	2025	142.5	372.3	1.0	131.7	21.0	60.5
6	2026	142.5	372.3	1.0	131.7	21.0	60.5
7	2027	98.2	140.6	0.5	129.7	19.0	44.6
8	2028	97.1	137.1	0.5	99.9	16.0	34.9
9	2029	97.7	137.5	0.5	129.7	19.0	35.0
10	2030	98.4	137.9	0.5	146.3	20.7	35.1
11	2031	0.0	0.0	0.0	0.0	0.0	0.0
12	2032	0.0	0.0	0.0	0.0	0.0	0.0
13	2033	0.0	0.0	0.0	0.0	0.0	0.0
14	2034	0.0	0.0	0.0	0.0	0.0	0.0
15	2035	0.0	0.0	0.0	0.0	0.0	0.0
16-31	2036-2051	0.0	0.0	0.0	0.0	0.0	0.0

Table D.3-3c. Annual Criteria Pollutant Emissions (tons) for Production and Operations Only

Project Year	Calendar Year	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$	VOC
0	2020	0.0	0.0	0.0	0.0	0.0	0.0
1	2021	0.5	0.2	0.0	0.0	0.0	0.0
2	2022	0.5	0.3	0.0	0.0	0.0	0.0
3	2023	2.1	4.2	0.2	0.1	0.1	0.8
4	2024	2.5	4.5	0.3	2.9	0.5	0.8
5	2025	119.6	112.5	4.7	17.1	14.7	17.9
6	2026	250.1	238.1	16.9	45.1	29.9	64.9
7	2027	633.8	607.3	52.5	136.2	75.6	331.3
8	2028	637.2	609.4	52.6	136.9	75.9	431.8
9	2029	642.0	613.4	52.6	140.2	76.4	526.2
10	2030	648.5	618.3	52.7	146.3	77.4	606.5
11	2031	653.6	619.7	52.5	240.7	87.2	665.4
12	2032	653.6	619.7	52.5	234.6	86.2	665.0
13	2033	653.6	619.7	52.5	234.6	86.2	665.0
14	2034	653.6	619.7	52.5	234.6	86.2	665.0
15	2035	653.6	619.7	52.5	234.6	86.2	665.0
16-31	2036-2051	653.6	619.7	52.5	234.6	86.2	665.0

Table D.3-4.Well and Pads by Formation and Drilling Technology

Classification	New Wells	New Well Pads	Modification of Existing Well Pads	Single Well Pads	Multi-Well Pads	Expansion of Existing Well Pads	Total Pads
Directional Oil Wells	125.5	5	0	0	5	0	5
Directional Injection Wells	125.5		0	0		0	
Total	251	5	0	0	5	0	5

Table D.3-5. Emissions for Construction of All Drillsite Pads

Pollutant	Emission Factor[1] Short-Term (lb/hr-acre)	Emission Factor[1] Annual (ton/yr-acre)	Short-Term (lb/hr)	Annual (ton/yr)
NO_x	6.5E-02	2.8E-01	5.7E+00	2.5E+01
CO	2.9E-02	1.3E-01	2.6E+00	1.1E+01
SO_2	2.5E-04	1.1E-03	2.2E-02	9.7E-02
PM_{10}	8.0E-03	3.5E-02	7.1E-01	3.1E+00
$PM_{2.5}$	5.4E-03	2.4E-02	4.8E-01	2.1E+00
VOC	8.6E-03	3.8E-02	7.6E-01	3.3E+00
Benzene	2.1E-04	9.4E-04	1.9E-02	8.3E-02
Toluene	2.5E-04	1.1E-03	2.2E-02	9.7E-02
Ethylbenzene	4.9E-05	2.1E-04	4.3E-03	1.9E-02
Xylene	2.3E-04	1.0E-03	2.0E-02	8.8E-02
Formaldehyde	2.0E-03	8.8E-03	1.8E-01	7.8E-01
nHexane	2.8E-05	1.2E-04	2.5E-03	1.1E-02
CO_2e	3.6E+01	1.6E+02	3.2E+03	1.4E+04

1 Emission factors are the emission rates divided by total acres of all drillsite pads

Table D.3-6. Emissions for Construction of All Bridges

Pollutant	Emission Factor[1] Short-Term (lb/hr-mile)	Emission Factor[1] Annual (ton/yr-mile)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
NO_x	2.4E+00	1.1E+01	5.1E-01	2.2E+00
CO	8.4E-01	3.7E+00	1.7E-01	7.6E-01
SO_2	9.7E-03	4.2E-02	2.0E-03	8.8E-03
PM_{10}	1.8E-01	7.9E-01	3.7E-02	1.6E-01
$PM_{2.5}$	1.7E-01	7.4E-01	3.5E-02	1.5E-01
VOC	2.2E-01	9.6E-01	4.6E-02	2.0E-01
Benzene	6.4E-03	2.8E-02	1.3E-03	5.8E-03
Toluene	6.5E-03	2.8E-02	1.3E-03	5.9E-03
Ethylbenzene	1.2E-03	5.2E-03	2.4E-04	1.1E-03
Xylene	4.9E-03	2.2E-02	1.0E-03	4.5E-03
Formaldehyde	5.2E-02	2.3E-01	1.1E-02	4.8E-02
nHexane	5.5E-04	2.4E-03	1.2E-04	5.0E-04
CO_2e	1.2E+03	5.4E+03	2.6E+02	1.1E+03

1 Emission factors are the emission rates divided by total length in miles of bridges constructed.

Table D.3-7. Emission for Construction of Gravel Roads and Support Pads

Pollutant	Emission Factor[1] Short-Term (lb/hr-acre)	Emission Factor[1] Annual (ton/yr-acre)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
NO_x	4.7E-03	2.1E-02	9.7E-01	4.3E+00
CO	1.8E-03	7.9E-03	3.7E-01	1.6E+00
SO_2	1.8E-05	8.1E-05	3.8E-03	1.7E-02
PM_{10}	7.2E-03	3.1E-02	1.5E+00	6.5E+00
$PM_{2.5}$	1.3E-03	5.8E-03	2.7E-01	1.2E+00
VOC	7.5E-04	3.3E-03	1.6E-01	6.8E-01
Benzene	1.6E-05	7.0E-05	3.3E-03	1.4E-02
Toluene	2.3E-05	1.0E-04	4.8E-03	2.1E-02
Ethylbenzene	4.3E-06	1.9E-05	9.0E-04	3.9E-03
Xylene	2.4E-05	1.0E-04	4.9E-03	2.2E-02
Formaldehyde	1.7E-04	7.6E-04	3.6E-02	1.6E-01
nHexane	3.1E-06	1.4E-05	6.5E-04	2.9E-03
CO_2e	3.0E+00	1.3E+01	6.3E+02	2.8E+03

1 Emission factors are the emission rates divided by total acres of all gravel roads and support pads (valve and water access pads).

Table D.3-8. Emission for Construction of Ice Roads and Ice Pads

Pollutant	Emission Factor[1] Short-Term (lb/hr-acre)	Emission Factor[1] Annual (ton/yr-acre)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
NO_x	3.7E-03	1.6E-02	2.4E+01	1.0E+02
CO	9.9E-04	4.3E-03	6.4E+00	2.8E+01
SO_2	4.4E-06	1.9E-05	2.8E-02	1.2E-01
PM_{10}	1.3E-04	5.7E-04	8.5E-01	3.7E+00
$PM_{2.5}$	1.3E-04	5.6E-04	8.2E-01	3.6E+00
VOC	3.3E-04	1.4E-03	2.1E+00	9.3E+00
Benzene	7.0E-06	3.1E-05	4.5E-02	2.0E-01
Toluene	9.6E-06	4.2E-05	6.2E-02	2.7E-01
Ethylbenzene	1.9E-06	8.5E-06	1.3E-02	5.5E-02
Xylene	1.0E-05	4.4E-05	6.5E-02	2.8E-01
Formaldehyde	7.5E-05	3.3E-04	4.9E-01	2.1E+00
nHexane	1.3E-06	5.8E-06	8.5E-03	3.7E-02
CO_2e	8.3E-01	3.6E+00	5.4E+03	2.4E+04

1 Emission factors are the emission rates divided by total acres of all ice roads and ice pads constructed through the life of the project.

Table D.3-9. Emissions for Construction of Powerlines and Fiber Optics

Pollutant	Emission Factor[1] Short-Term (lb/hr-mile)	Emission Factor[1] Annual (ton/yr-mile)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
NO_x	6.4E-03	2.8E-02	2.5E-01	1.1E+00
CO	2.6E-03	1.1E-02	1.0E-01	4.5E-01
SO_2	2.8E-05	1.2E-04	1.1E-03	5.0E-03
PM_{10}	5.4E-04	2.4E-03	2.1E-02	9.4E-02
$PM_{2.5}$	5.0E-04	2.2E-03	2.0E-02	8.8E-02
VOC	6.6E-04	2.9E-03	2.7E-02	1.2E-01
Benzene	1.9E-05	8.2E-05	7.5E-04	3.3E-03
Toluene	1.9E-05	8.1E-05	7.4E-04	3.3E-03
Ethylbenzene	3.6E-06	1.6E-05	1.5E-04	6.4E-04
Xylene	1.5E-05	6.4E-05	5.8E-04	2.6E-03
Formaldehyde	1.6E-04	6.8E-04	6.2E-03	2.7E-02
nHexane	1.7E-06	7.3E-06	6.7E-05	2.9E-04
CO_2e	3.5E+00	1.6E+01	1.4E+02	6.2E+02

1 Emission factors are the emission rates divided by total length in miles of powerline and fiber optics constructed.

Table D.3-10. Emissions for Construction of Pipelines

Pollutant	Emission Factor[1] Short-Term (lb/hr-mile)	Emission Factor[1] Annual (ton/yr-mile)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
NO_x	1.2E-01	5.2E-01	1.6E+01	7.0E+01
CO	7.3E-02	3.2E-01	9.7E+00	4.2E+01
SO_2	2.8E-04	1.2E-03	3.7E-02	1.6E-01
PM_{10}	6.0E-03	2.6E-02	8.0E-01	3.5E+00
$PM_{2.5}$	5.9E-03	2.6E-02	7.8E-01	3.4E+00
VOC	1.7E-02	7.3E-02	2.2E+00	9.7E+00
Benzene	1.6E-04	7.1E-04	2.1E-02	9.4E-02
Toluene	1.5E-04	6.4E-04	1.9E-02	8.5E-02
Ethylbenzene	2.3E-05	1.0E-04	3.1E-03	1.4E-02
Xylene	1.3E-04	5.6E-04	1.7E-02	7.5E-02

Pollutant	Emission Factor[1] Short-Term (lb/hr-mile)	Emission Factor[1] Annual (ton/yr-mile)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
Formaldehyde	9.9E-04	4.3E-03	1.3E-01	5.8E-01
nHexane	1.4E-05	6.1E-05	1.9E-03	8.2E-03
CO_2e	3.3E+01	1.4E+02	4.4E+03	1.9E+04

1 Emission factors are the emission rates divided by total length in miles of pipeline constructed.

Table D.3-11. Emissions for Construction of WPF

Pollutant	Emission Factor[1] Short-Term (lb/hr-acre)	Emission Factor[1] Annual (ton/yr-acre)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
NO_x	1.9E-01	8.5E-01	9.2E+00	4.1E+01
CO	7.9E-02	3.5E-01	3.8E+00	1.7E+01
SO_2	6.3E-04	2.8E-03	3.0E-02	1.3E-01
PM_{10}	1.8E-02	7.8E-02	8.5E-01	3.7E+00
$PM_{2.5}$	1.4E-02	6.0E-02	6.5E-01	2.9E+00
VOC	2.6E-02	1.1E-01	1.2E+00	5.5E+00
Benzene	6.4E-04	2.8E-03	3.0E-02	1.3E-01
Toluene	7.8E-04	3.4E-03	3.7E-02	1.6E-01
Ethylbenzene	1.5E-04	6.6E-04	7.1E-03	3.1E-02
Xylene	7.3E-04	3.2E-03	3.5E-02	1.5E-01
Formaldehyde	6.1E-03	2.7E-02	2.9E-01	1.3E+00
nHexane	9.3E-05	4.1E-04	4.4E-03	1.9E-02
CO_2e	9.8E+01	4.3E+02	4.7E+03	2.1E+04

1 Emission factors are the emission rates divided by total acres of the WPF.

Table D.3-12. Emissions for Construction of WOC and Airstrip

Pollutant	Emission Factor[1] Short-Term (lb/hr-acre)	Emission Factor[1] Annual (ton/yr-acre)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
NO_x	8.4E-02	3.7E-01	9.0E+00	3.9E+01
CO	4.3E-02	1.9E-01	4.5E+00	2.0E+01
SO_2	2.9E-04	1.3E-03	3.1E-02	1.3E-01
PM_{10}	1.2E-02	5.1E-02	1.2E+00	5.4E+00
$PM_{2.5}$	6.3E-03	2.7E-02	6.7E-01	2.9E+00
VOC	1.2E-02	5.3E-02	1.3E+00	5.7E+00
Benzene	2.6E-04	1.2E-03	2.8E-02	1.2E-01
Toluene	3.5E-04	1.5E-03	3.7E-02	1.6E-01
Ethylbenzene	6.5E-05	2.8E-04	6.9E-03	3.0E-02
Xylene	3.4E-04	1.5E-03	3.6E-02	1.6E-01
Formaldehyde	2.6E-03	1.2E-02	2.8E-01	1.2E+00
nHexane	4.4E-05	1.9E-04	4.7E-03	2.1E-02
CO_2e	4.5E+01	2.0E+02	4.8E+03	2.1E+04

1 Emission factors are the emission rates divided by total acres of the WOC and Airstrip.

Table D.3-13. Emissions for Gravel Mining and Reservoir Development

Pollutant	Emission Factor[1] Short-Term (lb/hr-MCY)	Emission Factor[1] Annual (ton/yr-MCY)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
NO_x	1.4E+00	6.2E+00	9.8E+00	4.3E+01
CO	3.5E+00	1.5E+01	2.4E+01	1.0E+02
SO_2	9.8E-02	4.3E-01	6.8E-01	3.0E+00
PM_{10}	1.1E-01	5.0E-01	7.9E-01	3.5E+00
$PM_{2.5}$	3.5E-02	1.5E-01	2.4E-01	1.1E+00
VOC	7.6E-02	3.3E-01	5.3E-01	2.3E+00
Benzene	1.9E-03	8.4E-03	1.3E-02	5.8E-02
Toluene	2.3E-03	1.0E-02	1.6E-02	7.0E-02
Ethylbenzene	4.5E-04	2.0E-03	3.1E-03	1.3E-02
Xylene	2.2E-03	9.5E-03	1.5E-02	6.6E-02
Formaldehyde	1.8E-02	7.9E-02	1.3E-01	5.5E-01
nHexane	2.7E-04	1.2E-03	1.9E-03	8.2E-03
CO_2e	2.4E+02	1.0E+03	1.7E+03	7.2E+03

1 Emission factors are the emission rates divided by total gravel required in million cubic yards (MCY).

Table D.3-14. Emissions for Construction Traffic

Pollutant	Emission Factor[1] Short-Term (lb/hr-kmile)	Emission Factor[1] Annual (ton/yr-kmile)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
NO_x	1.0E-04	4.4E-04	3.9E+00	1.7E+01
CO	6.6E-05	2.9E-04	2.6E+00	1.1E+01
SO_2	3.9E-07	1.7E-06	1.5E-02	6.8E-02
PM_{10}	9.7E-04	4.3E-03	3.8E+01	1.7E+02
$PM_{2.5}$	1.0E-04	4.4E-04	4.0E+00	1.7E+01
VOC	1.5E-05	6.5E-05	5.8E-01	2.6E+00
Benzene	1.1E-07	4.8E-07	4.3E-03	1.9E-02
Toluene	1.1E-07	4.7E-07	4.3E-03	1.9E-02
Ethylbenzene	4.2E-08	1.8E-07	1.6E-03	7.1E-03
Xylene	1.2E-07	5.1E-07	4.6E-03	2.0E-02
Formaldehyde	1.3E-06	5.5E-06	4.9E-02	2.2E-01
nHexane	3.5E-08	1.5E-07	1.4E-03	6.0E-03
CO_2e	4.8E-02	2.1E-01	1.9E+03	8.2E+03

1 Emission factors are the emission rates divided by total number of construction traffic miles in thousand of miles (kmile).

Table D.3-15. Emissions for Early Operations Power Generation at the WOC

Pollutant	Emission Factor[1] Short-Term (lb/hr-kWe)	Emission Factor[1] Annual (ton/yr-kWe)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
NO_x	5.1E-03	2.2E-02	7.4E+01	3.2E+02
CO	4.0E-03	1.8E-02	5.8E+01	2.6E+02
SO_2	1.9E-05	8.2E-05	2.7E-01	1.2E+00
PM_{10}	2.6E-04	1.2E-03	3.8E+00	1.7E+01
$PM_{2.5}$	2.6E-04	1.2E-03	3.8E+00	1.7E+01
VOC	2.7E-04	1.2E-03	3.9E+00	1.7E+01
Benzene	1.5E-06	6.4E-06	2.1E-02	9.3E-02
Toluene	3.8E-07	1.7E-06	5.6E-03	2.4E-02
Ethylbenzene	1.4E-09	6.3E-09	2.1E-05	9.2E-05

Pollutant	Emission Factor[1] Short-Term (lb/hr-kWe)	Emission Factor[1] Annual (ton/yr-kWe)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
Xylene	2.6E-07	1.1E-06	3.8E-03	1.7E-02
Formaldehyde	2.5E-06	1.1E-05	3.7E-02	1.6E-01
nHexane	4.1E-09	1.8E-08	5.9E-05	2.6E-04
CO_2e	1.7E+00	7.2E+00	2.4E+04	1.1E+05

1 Emission factors are the emission rates divided by total temporary power at the WOC.

Table D.3-16. Emissions for Drilling of All Wells at Drillsite Pads

Pollutant	Emission Factor[1] Short-Term (lb/hr-well)	Emission Factor[1] Annual (ton/yr-well)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
NO_x	1.8E-01	8.0E-01	4.6E+01	2.0E+02
CO	4.8E-01	2.1E+00	1.2E+02	5.3E+02
SO_2	1.3E-03	5.8E-03	3.3E-01	1.5E+00
PM_{10}	1.2E-02	5.2E-02	3.0E+00	1.3E+01
$PM_{2.5}$	1.1E-02	5.0E-02	2.8E+00	1.2E+01
VOC	9.9E-02	4.3E-01	2.5E+01	1.1E+02
Benzene	3.9E-04	1.7E-03	9.7E-02	4.2E-01
Toluene	1.9E-04	8.3E-04	4.7E-02	2.1E-01
Ethylbenzene	1.2E-05	5.4E-05	3.1E-03	1.3E-02
Xylene	1.1E-04	5.0E-04	2.9E-02	1.3E-01
Formaldehyde	3.1E-04	1.4E-03	7.8E-02	3.4E-01
nHexane	2.4E-03	1.0E-02	5.9E-01	2.6E+00
CO_2e	1.2E+02	5.1E+02	2.9E+04	1.3E+05

1 Emission factors are the emission rates divided by total number of wells drilled at all drillsite pads.

Table D.3-17. Emissions for Drilling Traffic

Pollutant	Emission Factor[1] Short-Term (lb/hr-kmile)	Emission Factor[1] Annual (ton/yr-kmile)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
NO_x	5.5E-04	2.4E-03	1.7E+00	7.6E+00
CO	2.3E-04	1.0E-03	7.3E-01	3.2E+00
SO_2	2.1E-06	9.4E-06	6.8E-03	3.0E-02
PM_{10}	1.3E-02	5.8E-02	4.2E+01	1.8E+02
$PM_{2.5}$	1.4E-03	5.9E-03	4.3E+00	1.9E+01
VOC	7.2E-05	3.2E-04	2.3E-01	9.9E-01
Benzene	6.8E-07	3.0E-06	2.1E-03	9.4E-03
Toluene	8.5E-07	3.7E-06	2.7E-03	1.2E-02
Ethylbenzene	2.7E-07	1.2E-06	8.6E-04	3.8E-03
Xylene	9.6E-07	4.2E-06	3.0E-03	1.3E-02
Formaldehyde	8.3E-06	3.6E-05	2.6E-02	1.1E-01
nHexane	2.5E-07	1.1E-06	7.9E-04	3.4E-03
CO_2e	2.6E-01	1.1E+00	8.2E+02	3.6E+03

1 Emission factors are the emission rates divided by total number of drilling traffic miles in thousand of miles (kmile).

Table D.3-18. Emissions for Operations of All Drillsite Pads

Pollutant	Emission Factor[1] Short-Term (lb/hr-pad)	Emission Factor[1] Annual (ton/yr-pad)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
NO_x	1.3E+00	5.8E+00	6.7E+00	2.9E+01
CO	1.1E+00	4.8E+00	5.5E+00	2.4E+01
SO_2	2.9E-02	1.3E-01	1.4E-01	6.3E-01
PM_{10}	1.5E-01	6.6E-01	7.5E-01	3.3E+00
$PM_{2.5}$	8.5E-02	3.7E-01	4.3E-01	1.9E+00
VOC	2.1E+01	9.3E+01	1.1E+02	4.6E+02
Benzene	2.1E-02	9.4E-02	1.1E-01	4.7E-01
Toluene	6.0E-02	2.6E-01	3.0E-01	1.3E+00
Ethylbenzene	5.3E-01	2.3E+00	2.7E+00	1.2E+01
Xylene	1.1E+00	4.6E+00	5.3E+00	2.3E+01
Formaldehyde	5.7E-04	2.5E-03	2.8E-03	1.2E-02
nHexane	1.3E+00	5.7E+00	6.5E+00	2.9E+01
CO_2e	8.9E+02	3.9E+03	4.5E+03	2.0E+04

1 Emission factors are the emission rates divided by number of drillsite pads.

Table D.3-19. Emissions for Operations of WPF

Pollutant	Emission Factor[1] Short-Term (lb/hr-kbbl/day)	Emission Factor[1] Annual (ton/yr-kbbl/day)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
NO_x	5.7E-01	2.5E+00	1.1E+02	5.0E+02
CO	5.5E-01	2.4E+00	1.1E+02	4.8E+02
SO_2	5.4E-02	2.4E-01	1.1E+01	4.8E+01
PM_{10}	6.3E-02	2.8E-01	1.3E+01	5.5E+01
$PM_{2.5}$	6.1E-02	2.7E-01	1.2E+01	5.4E+01
VOC	2.1E-01	9.2E-01	4.2E+01	1.8E+02
Benzene	2.7E-04	1.2E-03	5.3E-02	2.3E-01
Toluene	1.2E-03	5.3E-03	2.4E-01	1.1E+00
Ethylbenzene	3.3E-04	1.5E-03	6.7E-02	2.9E-01
Xylene	6.6E-04	2.9E-03	1.3E-01	5.8E-01
Formaldehyde	2.0E-03	8.5E-03	3.9E-01	1.7E+00
nHexane	8.8E-03	3.9E-02	1.8E+00	7.7E+00
CO_2e	9.8E+02	4.3E+03	2.0E+05	8.5E+05

1 Emission factors are the emission rates divided by WPF operating capacity in thousand of barrels per day (kbbl/day).

Table D.3-20. Emissions for Operations of WOC and Airstrip

Pollutant	Emission Factor[1] Short-Term (lb/hr-person)	Emission Factor[1] Annual (ton/yr-person)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
NO_x	1.3E-01	5.7E-01	2.6E+01	1.1E+02
CO	1.2E-01	5.1E-01	2.3E+01	1.0E+02
SO_2	4.4E-03	1.9E-02	8.9E-01	3.9E+00
PM_{10}	1.9E-02	8.4E-02	3.9E+00	1.7E+01
$PM_{2.5}$	1.7E-02	7.2E-02	3.3E+00	1.4E+01
VOC	1.8E-02	7.7E-02	3.5E+00	1.5E+01

Pollutant	Emission Factor[1] Short-Term (lb/hr-person)	Emission Factor[1] Annual (ton/yr-person)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
Benzene	8.6E-05	3.7E-04	1.7E-02	7.5E-02
Toluene	1.1E-04	4.7E-04	2.2E-02	9.5E-02
Ethylbenzene	2.0E-05	8.6E-05	3.9E-03	1.7E-02
Xylene	5.8E-05	2.6E-04	1.2E-02	5.1E-02
Formaldehyde	1.5E-04	6.5E-04	3.0E-02	1.3E-01
nHexane	4.3E-06	1.9E-05	8.7E-04	3.8E-03
CO_2e	9.4E+01	4.1E+02	1.9E+04	8.2E+04

1 Emission factors are the emission rates divided by number of personnel housed at North and South WOC.

Table D.3-21. Emissions for Aircraft Flights

Pollutant	Emission Factor[1] Short-Term (lb/hr-flight/year)	Emission Factor[1] Annual (ton/yr-flight/year)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
NO_x	3.2E-03	1.4E-02	9.9E-01	4.3E+00
CO	5.6E-03	2.4E-02	1.7E+00	7.6E+00
SO_2	4.2E-04	1.9E-03	1.3E-01	5.8E-01
PM_{10}	1.1E-04	4.9E-04	3.5E-02	1.5E-01
$PM_{2.5}$	1.1E-04	4.9E-04	3.5E-02	1.5E-01
VOC	1.2E-03	5.1E-03	3.7E-01	1.6E+00
Benzene	1.9E-05	8.5E-05	6.1E-03	2.7E-02
Toluene	7.6E-06	3.3E-05	2.4E-03	1.0E-02
Ethylbenzene	2.1E-06	9.0E-06	6.4E-04	2.8E-03
Xylene	5.2E-06	2.3E-05	1.6E-03	7.1E-03
Formaldehyde	1.4E-04	6.3E-04	4.5E-02	2.0E-01
nHexane	1.1E-07	4.9E-07	3.5E-05	1.5E-04
CO_2e	1.1E+00	4.9E+00	3.5E+02	1.5E+03

1 Emission factors are the emission rates divided by the average number of flights per year.

Table D.3-22. Emissions for Operations Traffic

Pollutant	Emission Factor[1] Short-Term (lb/hr-kmile)	Emission Factor[1] Annual (ton/yr-kmile)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
NO_x	6.9E-05	3.0E-04	1.4E+00	6.3E+00
CO	4.9E-05	2.1E-04	1.0E+00	4.5E+00
SO_2	2.4E-07	1.0E-06	5.0E-03	2.2E-02
PM_{10}	1.7E-03	7.6E-03	3.6E+01	1.6E+02
$PM_{2.5}$	1.8E-04	7.7E-04	3.7E+00	1.6E+01
VOC	1.1E-05	4.7E-05	2.3E-01	9.9E-01
Benzene	9.2E-08	4.0E-07	1.9E-03	8.5E-03
Toluene	9.6E-08	4.2E-07	2.0E-03	8.9E-03
Ethylbenzene	3.5E-08	1.5E-07	7.4E-04	3.3E-03
Xylene	1.1E-07	4.6E-07	2.2E-03	9.8E-03
Formaldehyde	1.1E-06	4.7E-06	2.3E-02	9.9E-02
nHexane	3.0E-08	1.3E-07	6.3E-04	2.7E-03
CO_2e	2.9E-02	1.3E-01	6.1E+02	2.7E+03

1 Emission factors are the emission rates divided by total number of operation traffic miles in thousand of miles (kmile).

Table D.3-23. Average Annual Emissions per Well (Emissions ton/year/well)

Pollutant	New Directional Oil Wells (Construction and Drilling)	Directional Oil Wells > 1 Year (Production and Operations)	New Directional Injection Wells (Construction and Drilling)	Directional Injection Wells > 1 Year (Production and Operations)
NOx	1.35	2.60	1.35	2.60
CO	1.33	2.47	1.33	2.47
SO2	0.01	0.21	0.01	0.21
PM10	0.91	0.93	0.91	0.93
PM2.5	0.15	0.34	0.15	0.34
VOC	0.19	2.65	0.19	2.65
Benzene	1.65E-03	3.18E-03	1.65E-03	3.18E-03
Toluene	1.65E-03	9.91E-03	1.65E-03	9.91E-03
Ethylbenzene	3.06E-04	4.78E-02	3.06E-04	4.78E-02
Xylenes	1.53E-03	9.44E-02	1.53E-03	9.44E-02
Formaldehyde	1.20E-02	8.11E-03	1.20E-02	8.11E-03
n-Hexane	2.70E-03	1.45E-01	2.70E-03	1.45E-01
CO2e	488	3821	488	3821

Table D.3-24. Annual Emissions for Construction, Drilling, and Completion Activities

Project Year	Calendar Year	NO_x	CO	SO2	PM_{10}	$PM_{2.5}$	VOC
0	2020	22.6	33.3	0.9	1.3	0.6	1.5
1	2021	456.2	379.0	4.0	65.9	26.4	29.7
2	2022	510.8	397.9	4.1	152.0	37.1	34.4
3	2023	598.9	435.1	5.3	255.3	51.4	44.9
4	2024	597.5	422.9	3.9	280.7	54.1	47.2
5	2025	235.0	408.8	1.5	256.5	37.8	70.5
6	2026	203.8	398.8	1.2	227.2	34.0	67.2
7	2027	174.2	196.2	1.8	255.4	35.0	51.7
8	2028	233.6	267.0	3.4	252.7	36.0	47.8
9	2029	213.8	233.3	2.5	313.7	41.8	46.6
10	2030	126.1	148.9	0.6	223.3	29.8	38.1
11	2031	9.0	2.5	0.0	0.3	0.3	0.8
12	2032	9.0	2.5	0.0	0.3	0.3	0.8
13	2033	7.8	2.2	0.0	0.3	0.3	0.7
14	2034	7.8	2.2	0.0	0.3	0.3	0.7
15	2035	7.8	2.2	0.0	0.3	0.3	0.7
16-31	2036-2051	7.8	2.2	0.0	0.3	0.3	0.7

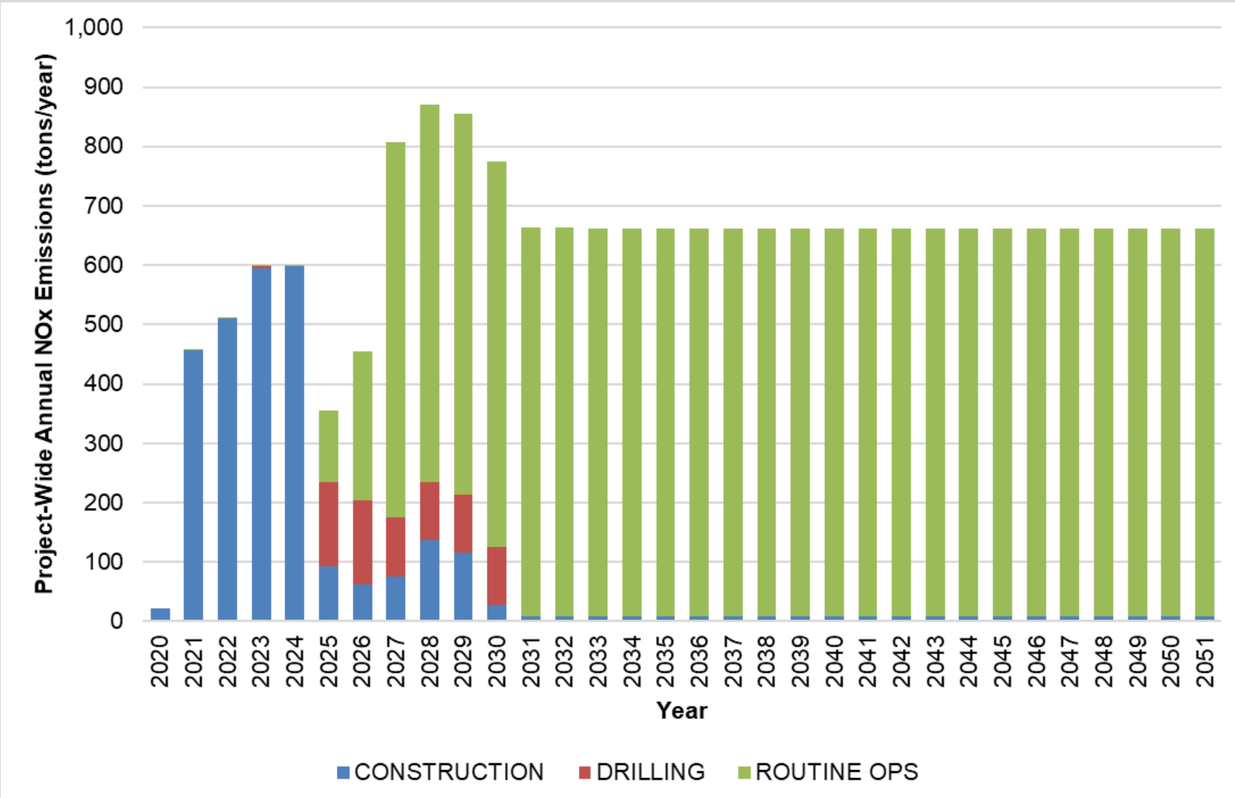


Figure D.3-1. Bar Chart of Annual Emissions for Each Phase of Development for NOx

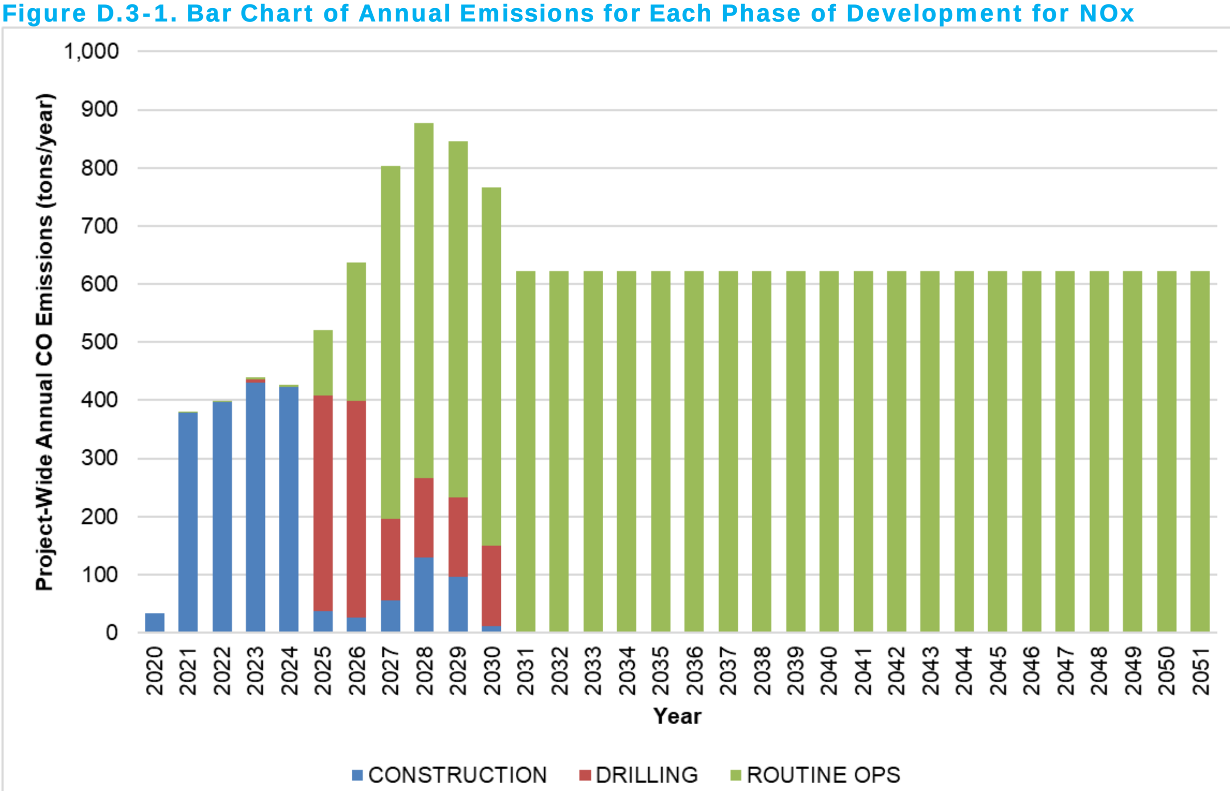


Figure D.3-2. Bar Chart of Annual Emission for Each Phase of Development CO

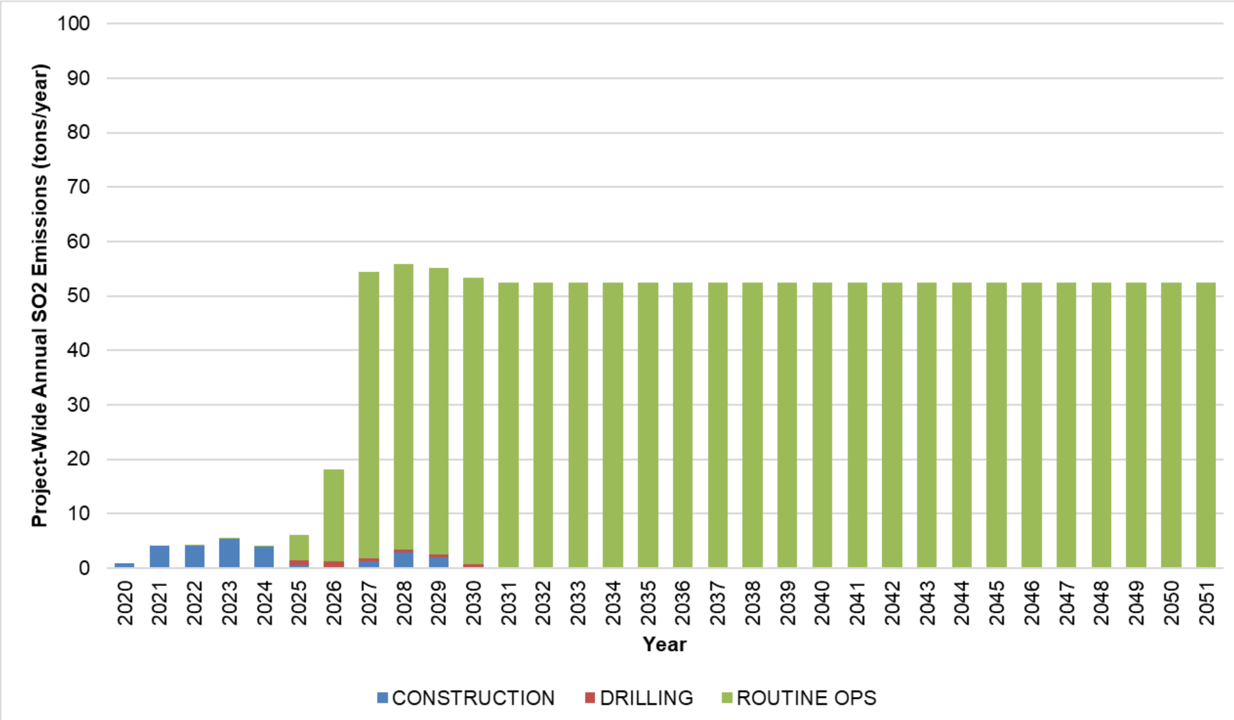


Figure D.3-3. Bar Chart of Annual Emissions for Each Phase of Development SO_2

Figure D.3-4. Bar Chart of Annual Emissions for Each Phase of Development for PM_{10}

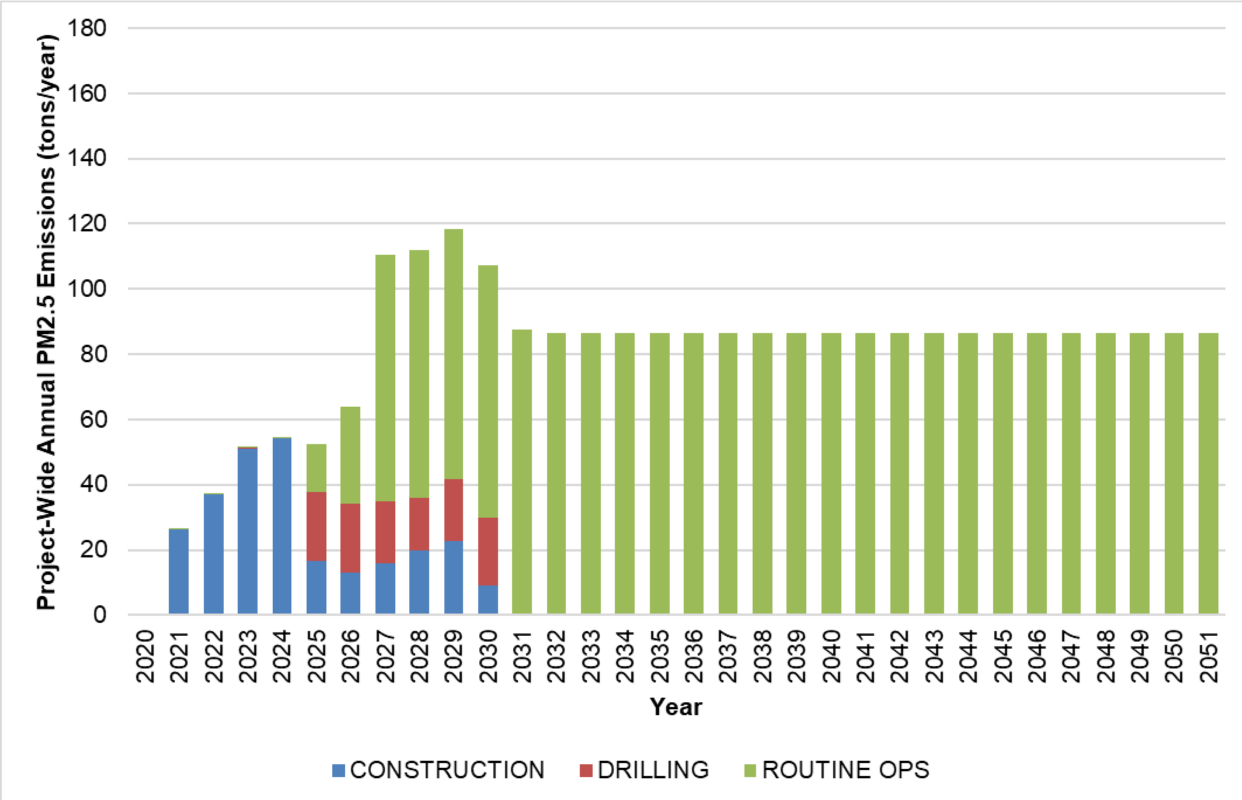


Figure D.3-5. Bar Chart of Annual Emissions for Each Phase of Development for $PM_{2.5}$

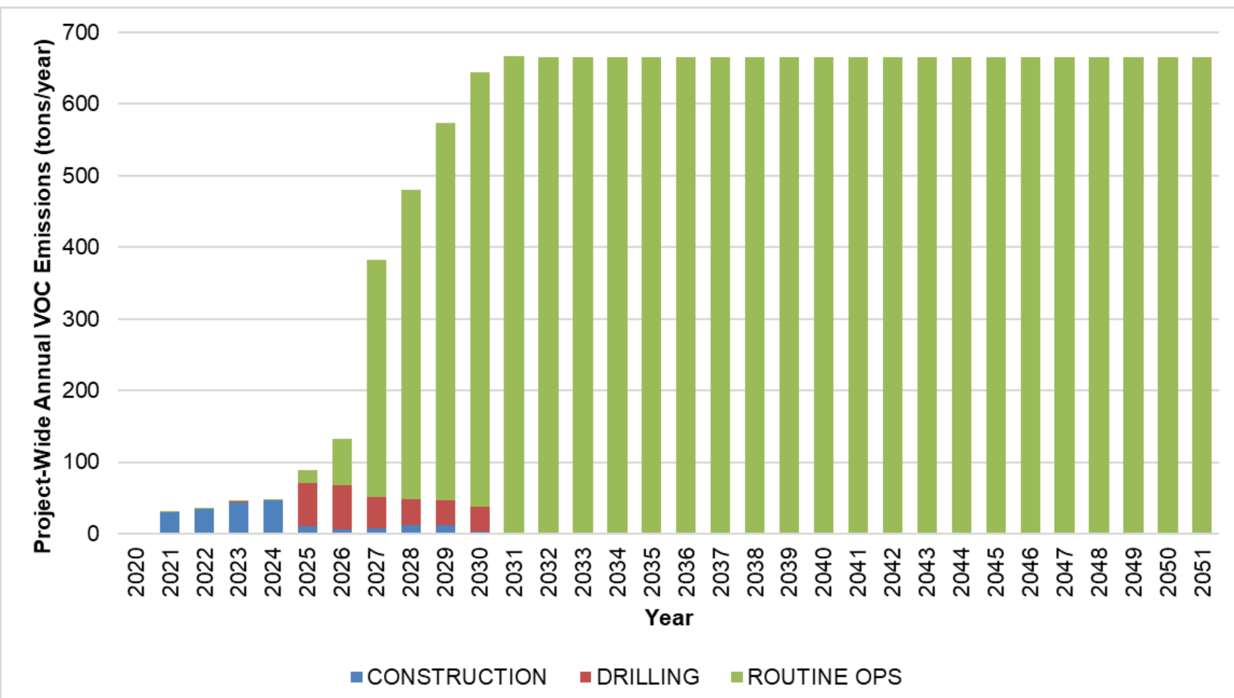


Figure D.3-6. Bar Chart of Annual Emissions for Each Phase of Development for VOC

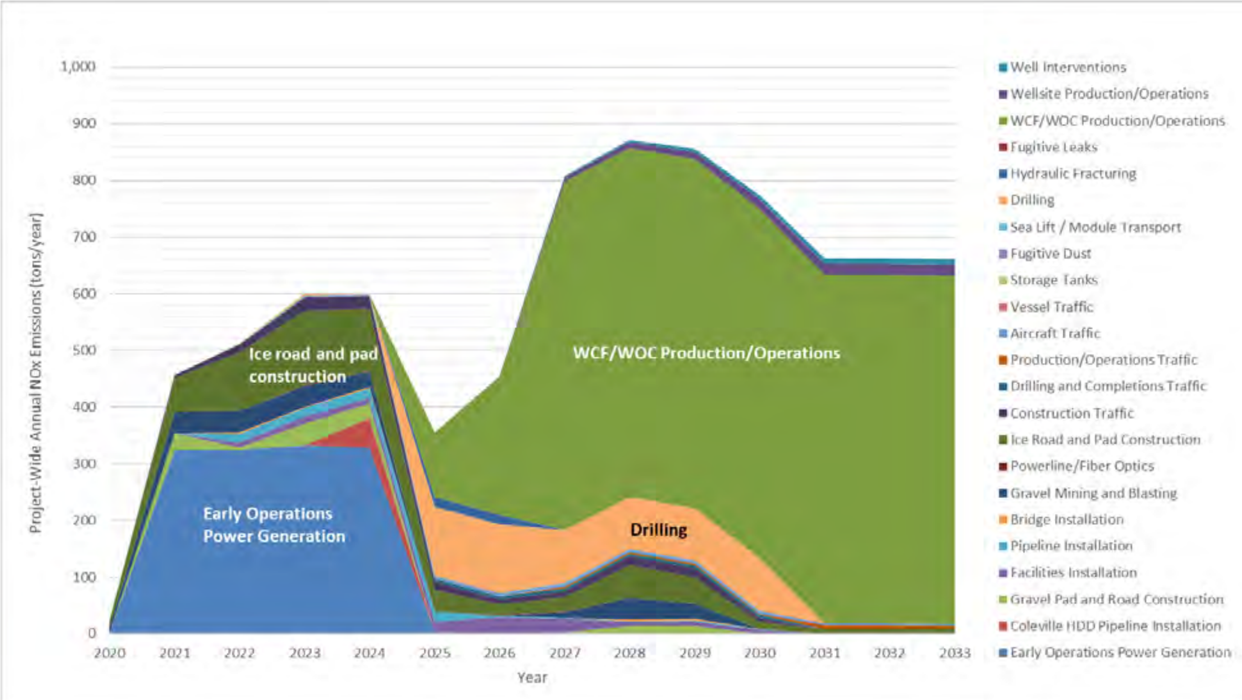


Figure D.3-7. Emissions by Source Type and Year for Alternative D for NOx

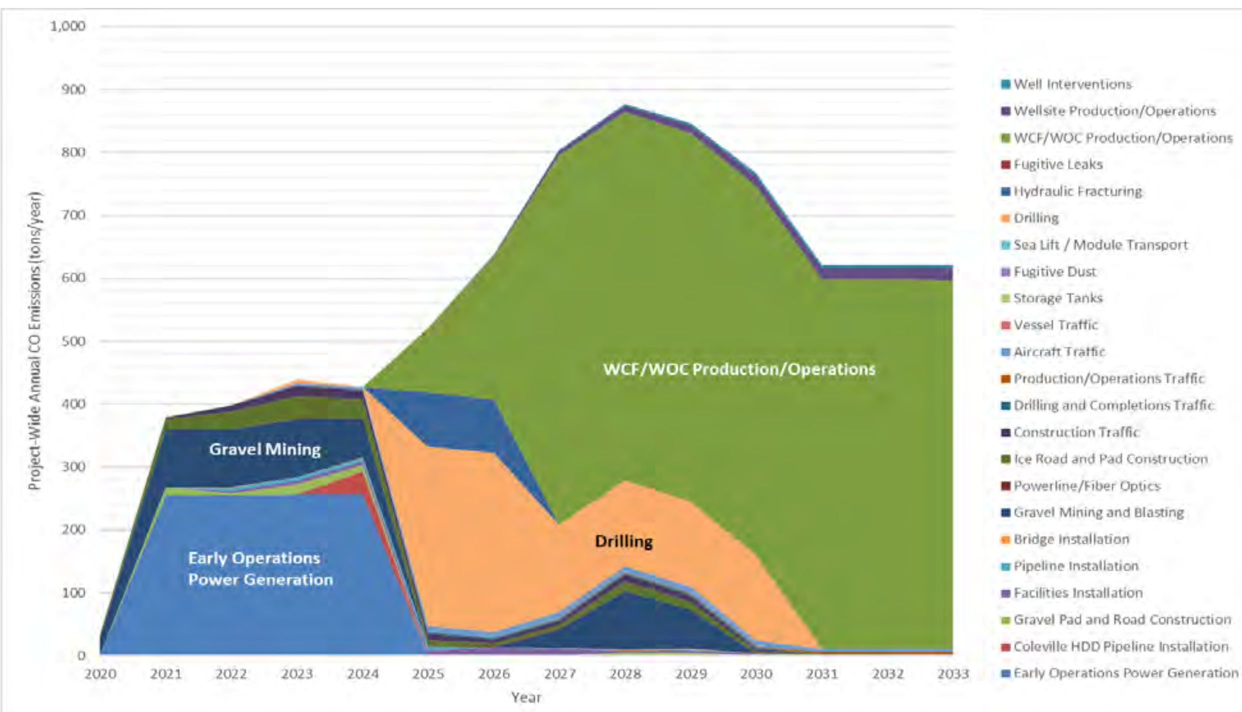


Figure D.3-8. Emissions by Source Type and Year for Alternative D for CO

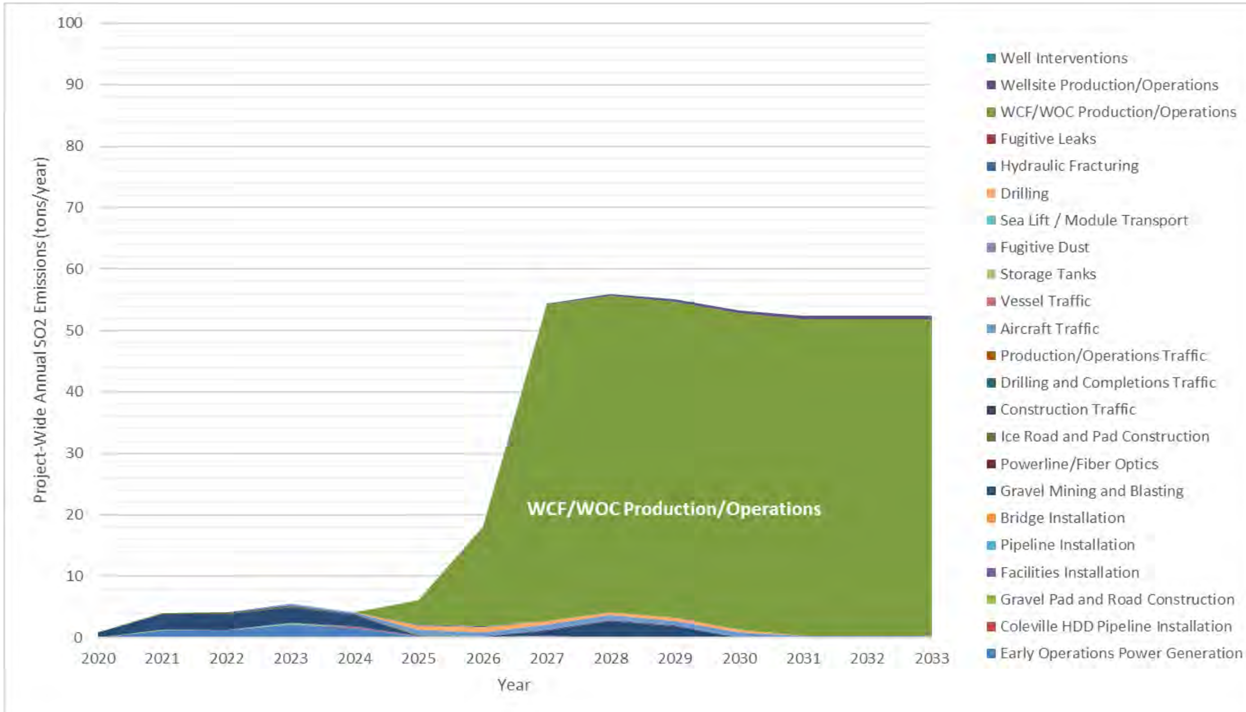


Figure D.3-9. Emissions by Source Type and Year for Alternative D for SO_2

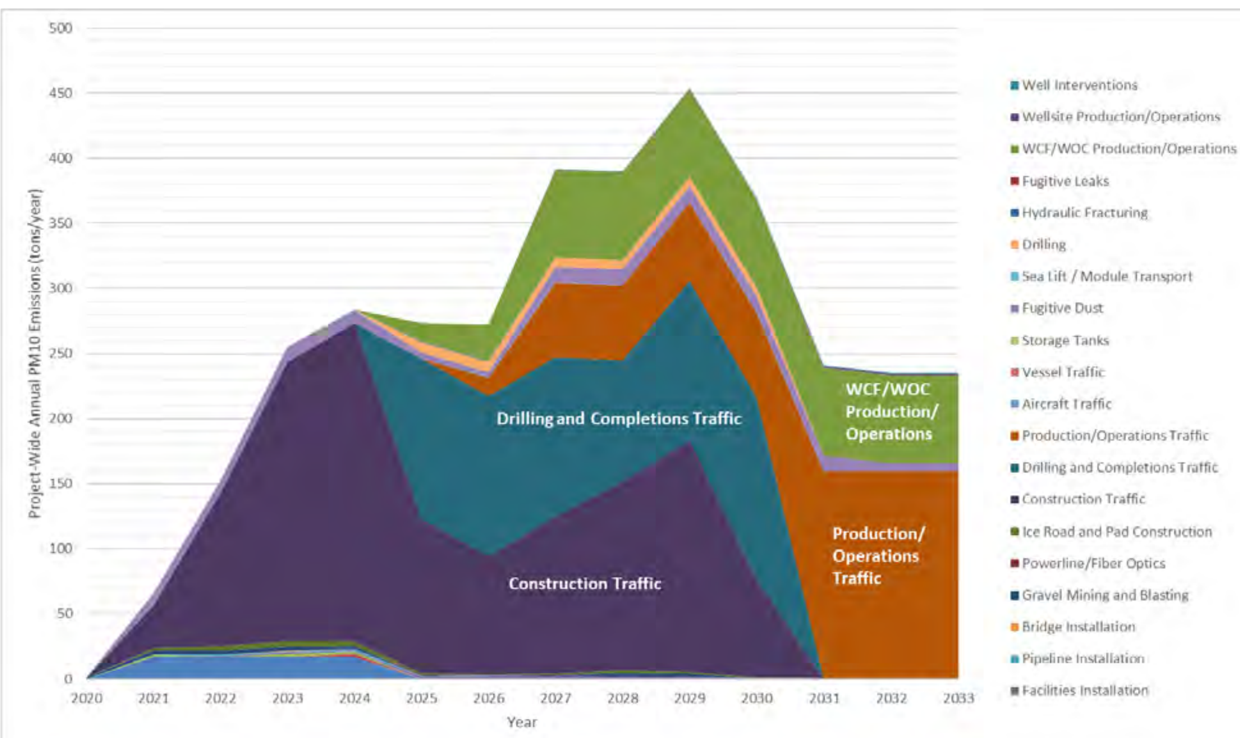


Figure D.3-10. Emissions by Source Type and Year for Alternative D for PM_{10}

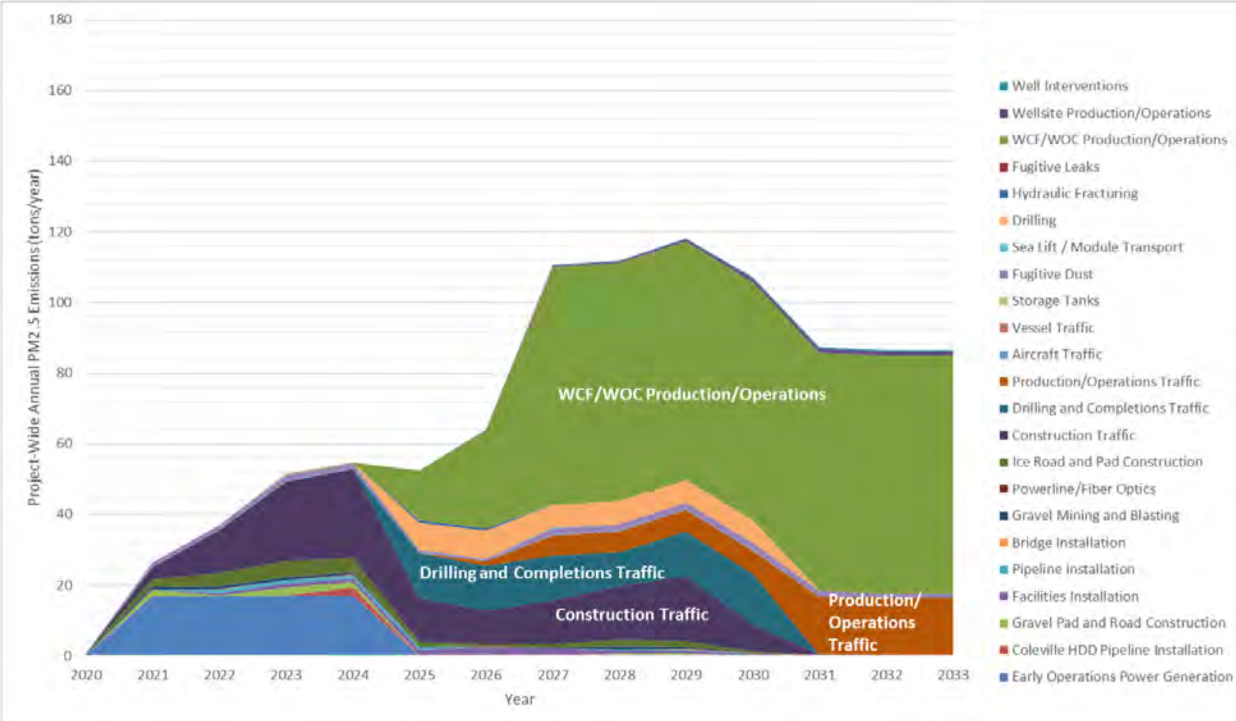


Figure D.3-11. Emissions by Source Type and Year for Alternative D for $PM_{2.5}$

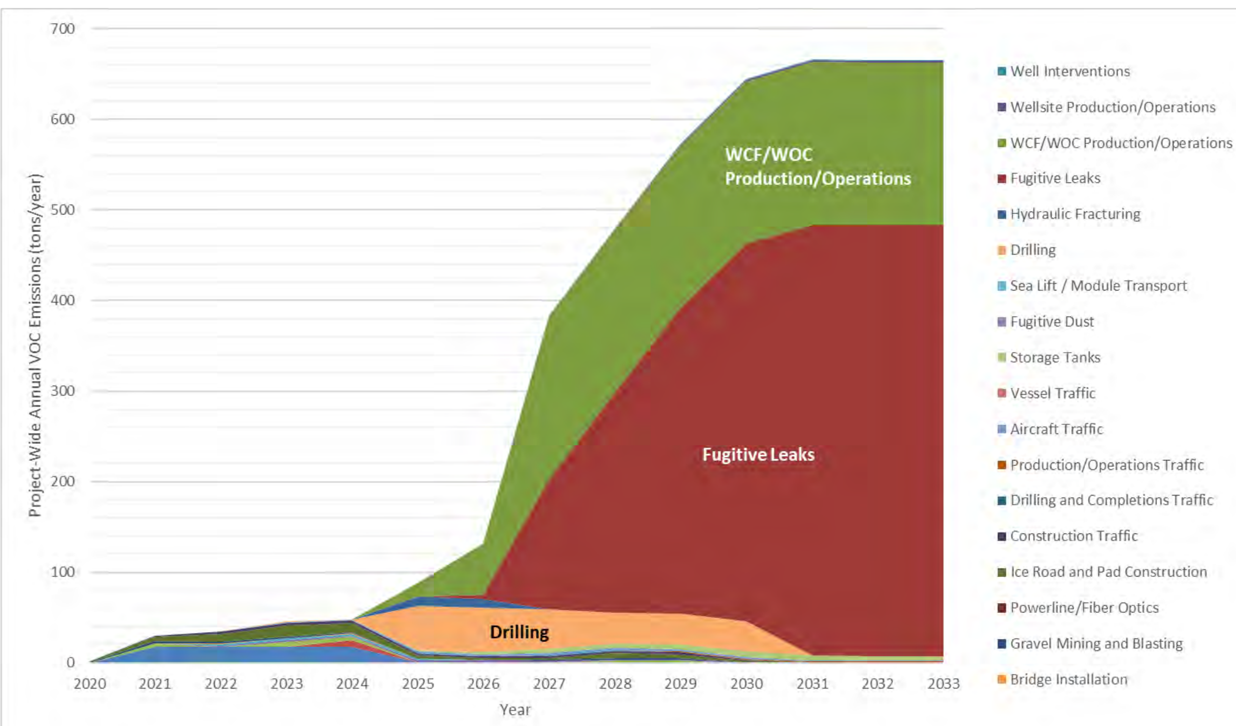


Figure D.3-12. Emissions by Source Type and Year for Alternative D for VOC

ENCLOSURE D.4 MODULE DELIVERY OPTION 1 SUMMARY EMISSIONS TABLES

Please note all emissions are delayed by one year for Alternative D.

Table D.4-1. Annual Criteria Pollutant Emissions (tons)

Project Year	Calendar Year	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$	VOC
0	2020	0.0	0.0	0.0	0.0	0.0	0.0
1	2021	1.9	1.6	0.0	0.2	0.1	0.3
2	2022	25.2	24.0	0.4	1.7	1.0	2.8
3	2023	71.5	52.8	1.9	4.4	2.9	7.3
4	2024	74.3	77.4	0.6	5.4	3.6	12.0
5	2025	139.1	171.3	0.4	10.4	6.7	24.5
6	2026	62.7	70.4	0.2	4.6	3.0	10.6
7	2027	118.3	156.1	0.3	8.7	5.7	21.5
8	2028	0.0	0.0	0.0	0.2	0.0	0.0
9	2029	0.0	0.0	0.0	0.2	0.0	0.0
10	2030	0.0	0.0	0.0	0.2	0.0	0.0
11	2031	0.0	0.0	0.0	0.0	0.0	0.0
12	2032	0.0	0.0	0.0	0.0	0.0	0.0
13	2033	0.0	0.0	0.0	0.0	0.0	0.0
14	2034	0.0	0.0	0.0	0.0	0.0	0.0
15	2035	0.0	0.0	0.0	0.0	0.0	0.0
16-30	2036-2050	0.0	0.0	0.0	0.0	0.0	0.0

Table D.4-2. Emissions for Module Delivery

Pollutant	Emission Factor[1] Short-Term (lb/hr-kton)	Emission Factor[1] Annual (ton/yr-kton)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
NO_x	1.6E-01	7.2E-01	7.1E+00	3.1E+01
CO	4.3E-02	1.9E-01	1.8E+00	8.0E+00
SO_2	1.5E-02	6.4E-02	6.2E-01	2.7E+00
PM_{10}	6.5E-03	2.9E-02	2.8E-01	1.2E+00
$PM_{2.5}$	6.3E-03	2.7E-02	2.7E-01	1.2E+00
VOC	7.1E-03	3.1E-02	3.1E-01	1.3E+00
Benzene	9.9E-05	4.3E-04	4.3E-03	1.9E-02
Toluene	1.6E-05	6.8E-05	6.7E-04	2.9E-03
Ethylbenzene	9.7E-06	4.3E-05	4.2E-04	1.8E-03
Xylene	2.3E-05	1.0E-04	1.0E-03	4.4E-03
Formaldehyde	7.3E-04	3.2E-03	3.1E-02	1.4E-01
nHexane	2.7E-05	1.2E-04	1.2E-03	5.0E-03
CO_2e	8.7E+00	3.8E+01	3.7E+02	1.6E+03

1 Emission factors are the emission rates divided by the total weight of modules transferred via MDO in thousands of tons (kton).

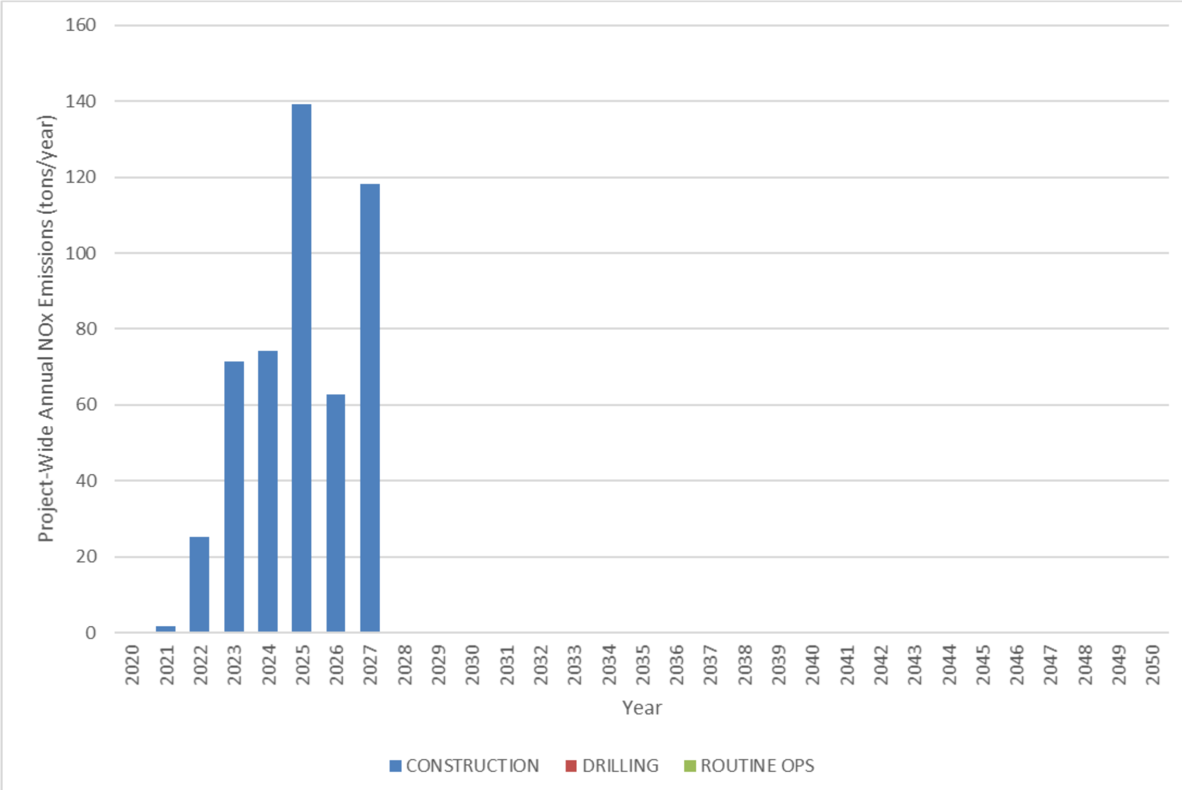


Figure D.4-1. Bar Chart of Annual Emissions for Each Phase of Development for NOx

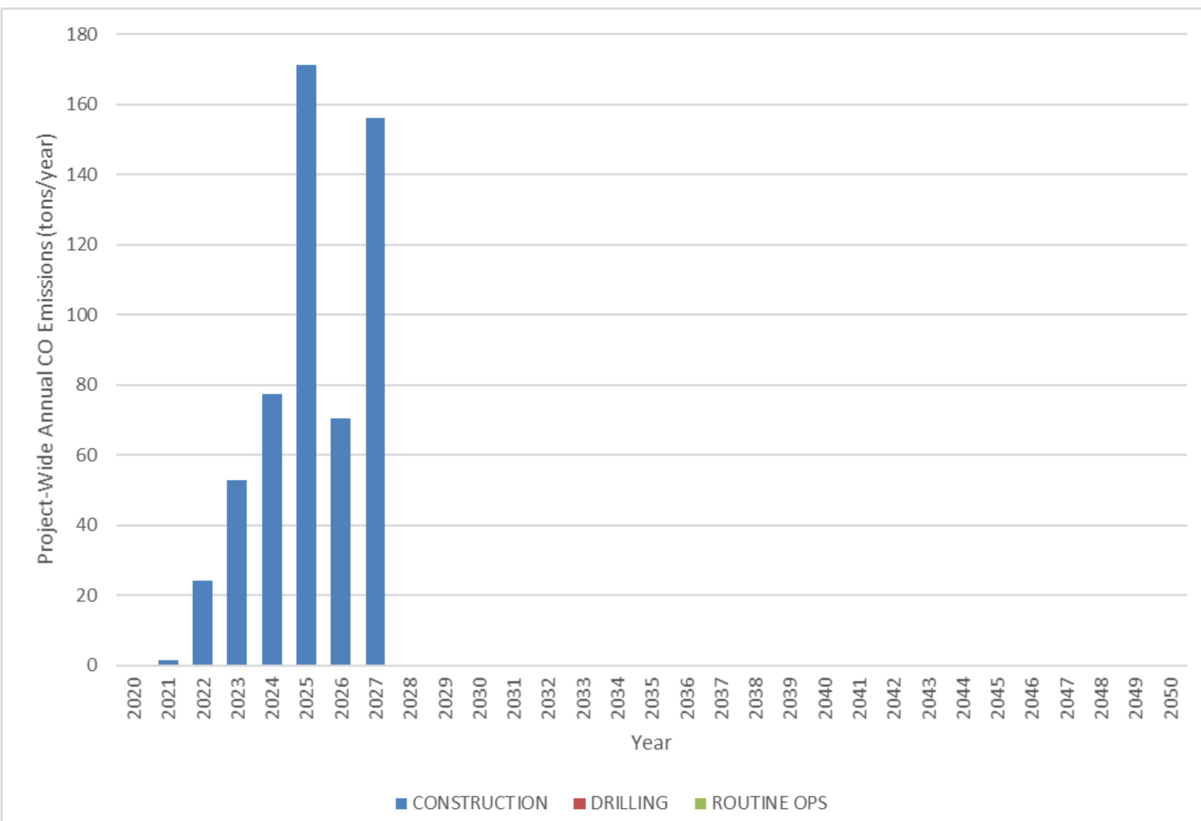


Figure D.4-2. Bar Chart of Annual Emissions for Each Phase of Development for CO

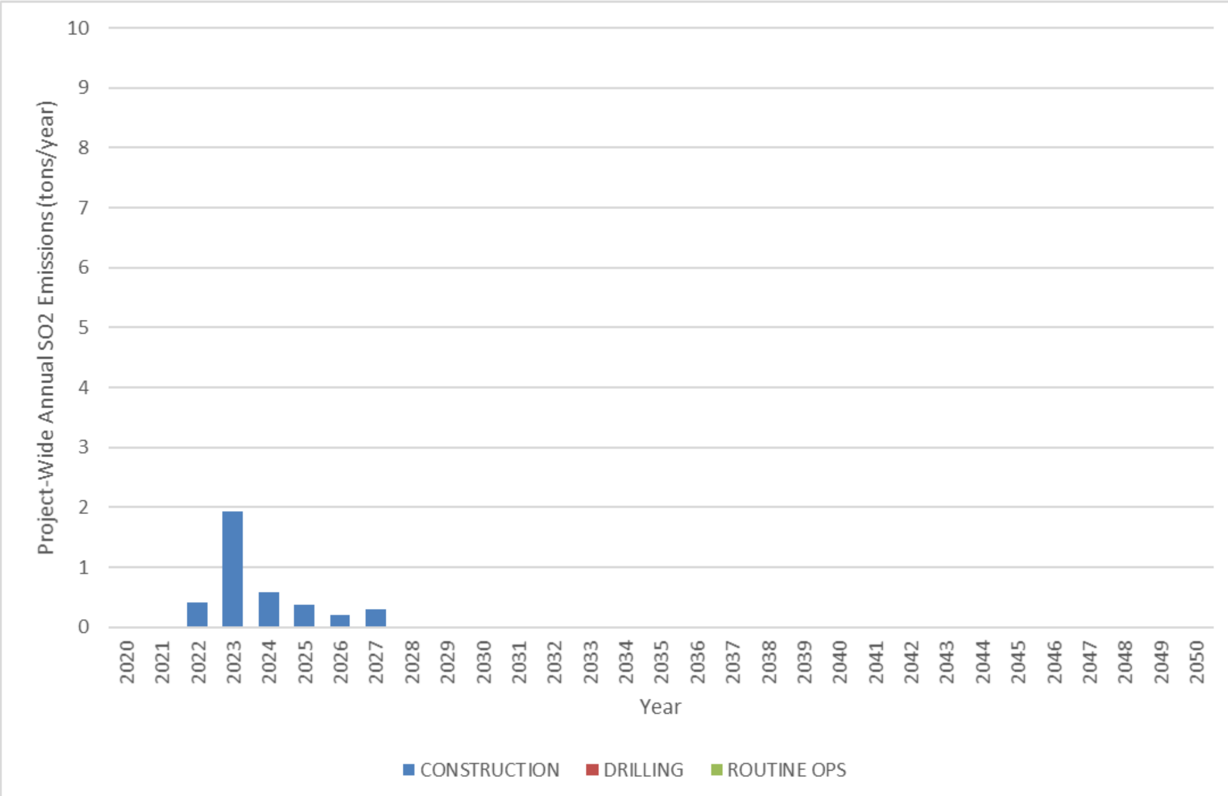


Figure D.4-3. Bar Chart of Annual Emissions for Each Phase of Development for SO_2

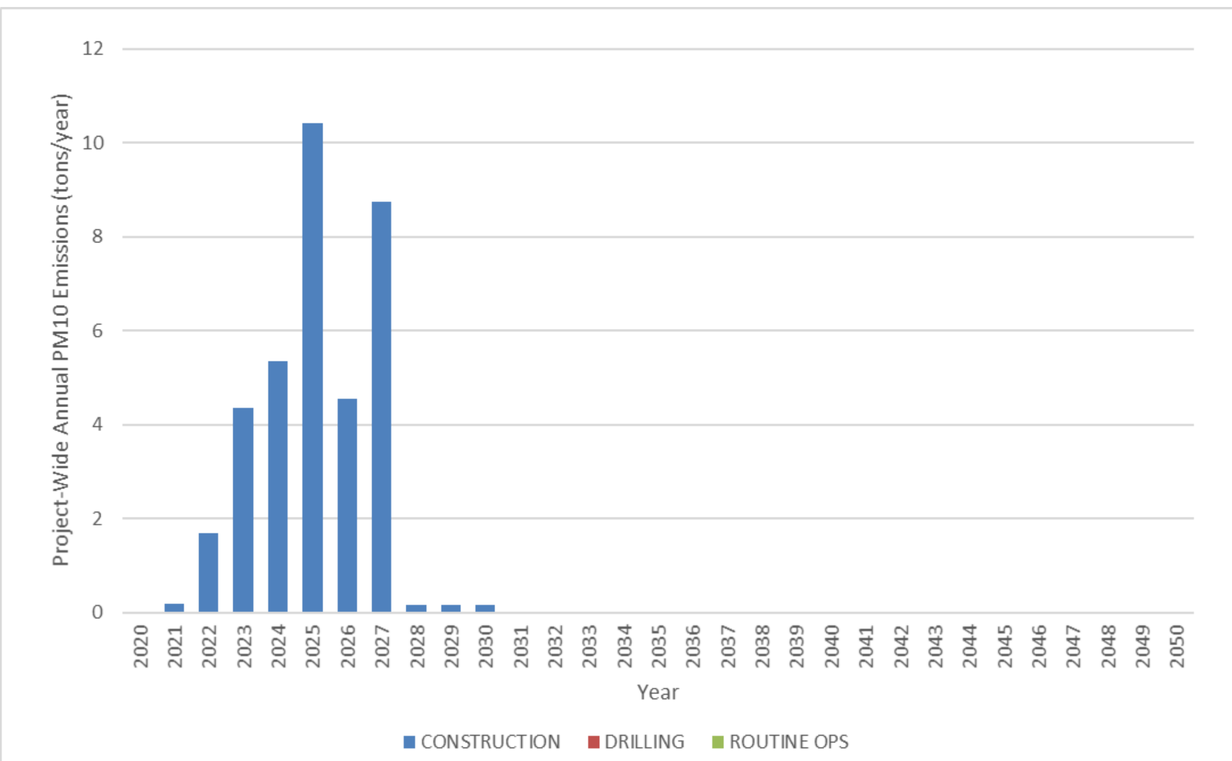


Figure D.4-4. Bar Chart of Annual Emissions for Each Phase of Development for PM_{10}

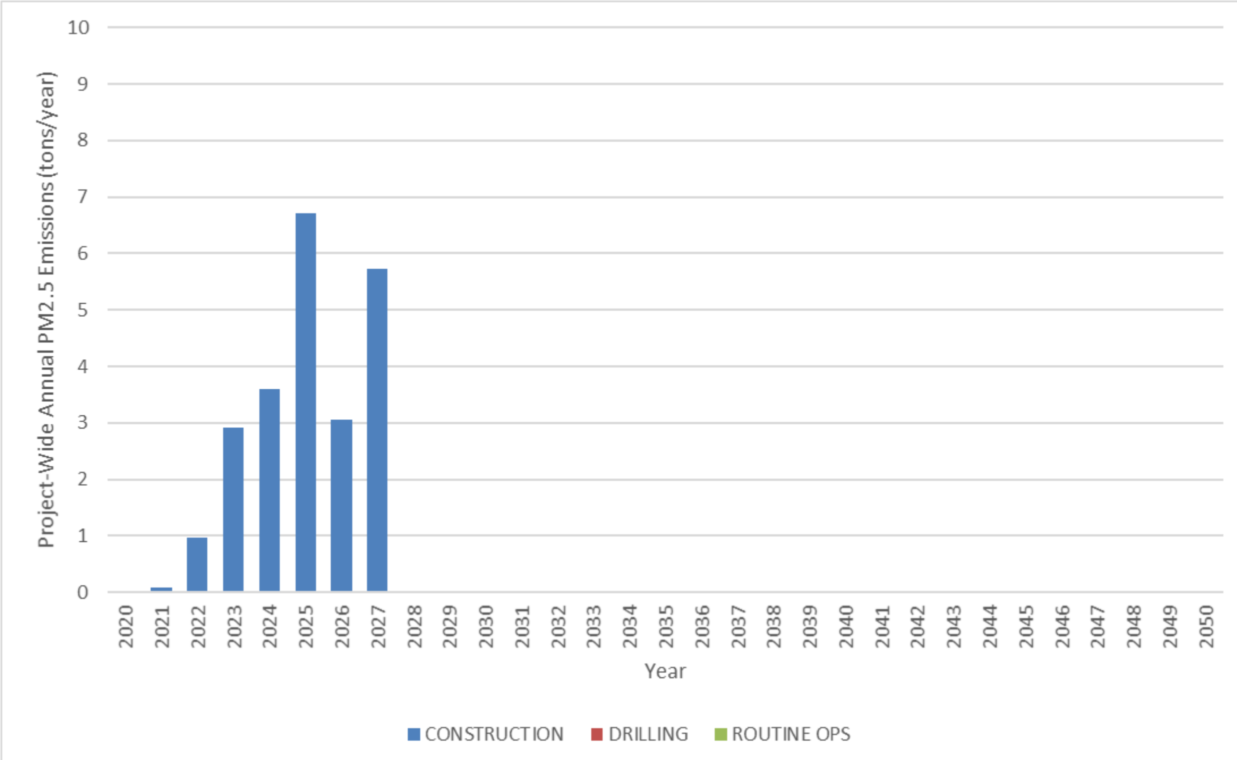


Figure D.4-5. Bar Chart of Annual Emissions for Each Phase of Development for $PM_{2.5}$

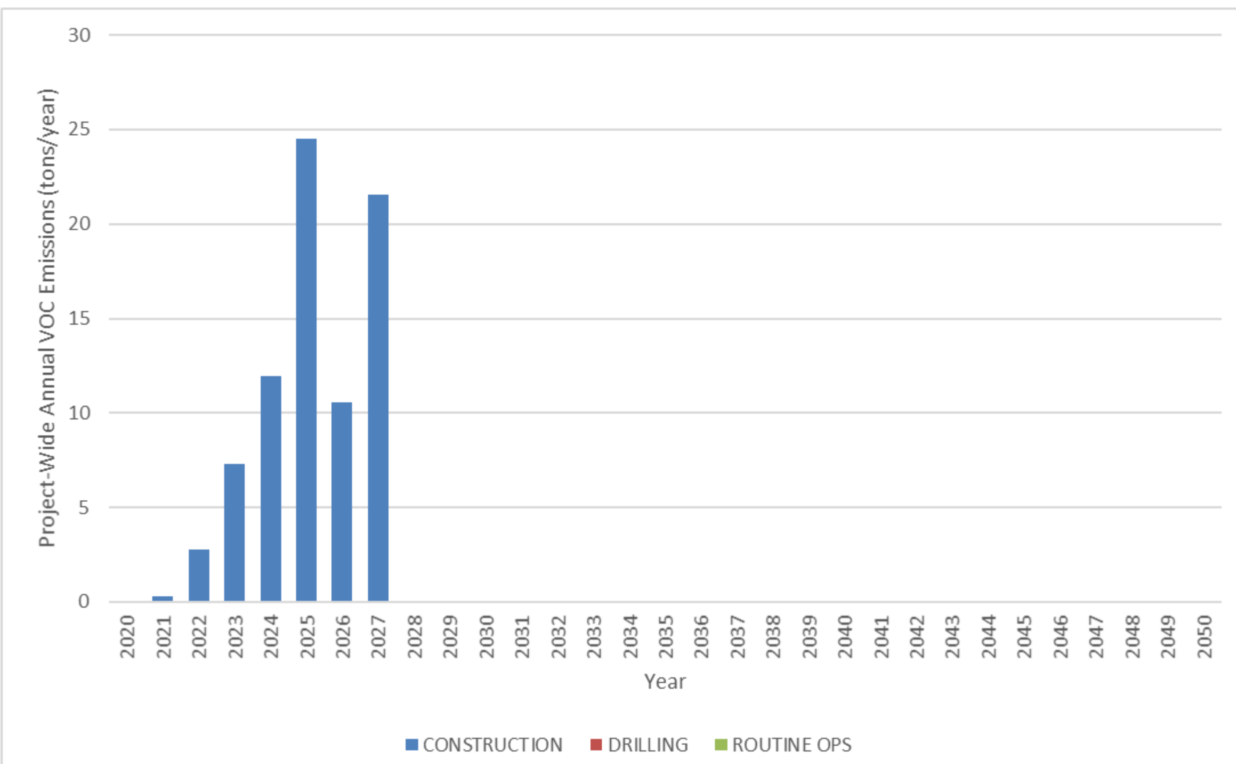


Figure D.4-6. Bar Chart of Annual Emissions for Each Phase of Development for VOC

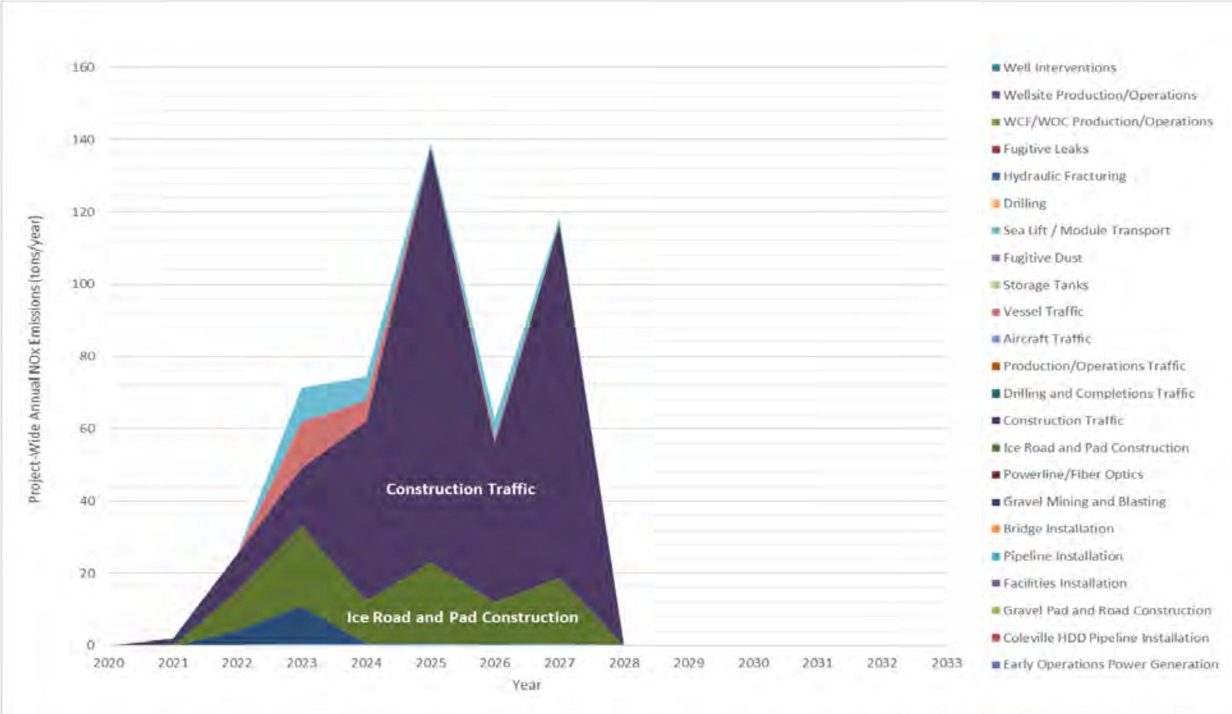


Figure D.4-7. Emissions by Source Type and Year for Module Delivery Option 1 for NOx

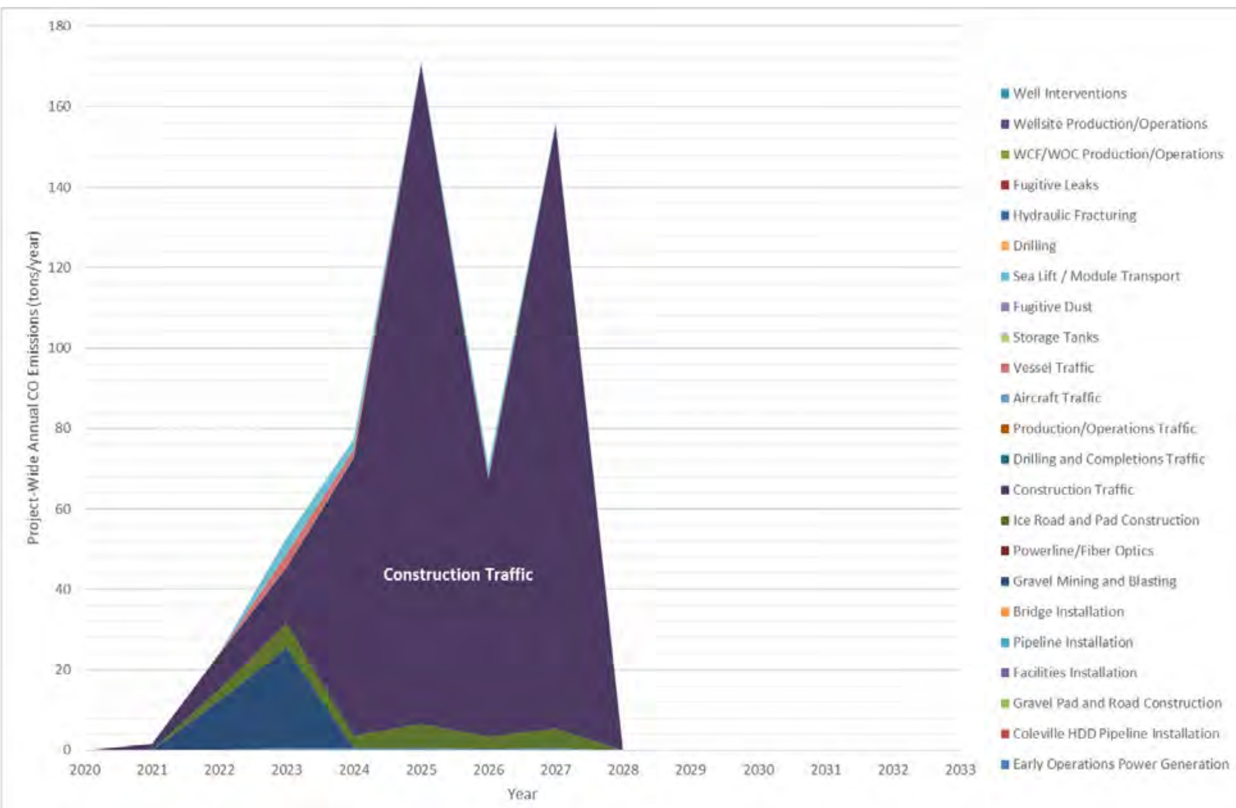


Figure D.4-8. Emissions by Source Type and Year for Module Delivery Option 1 for CO

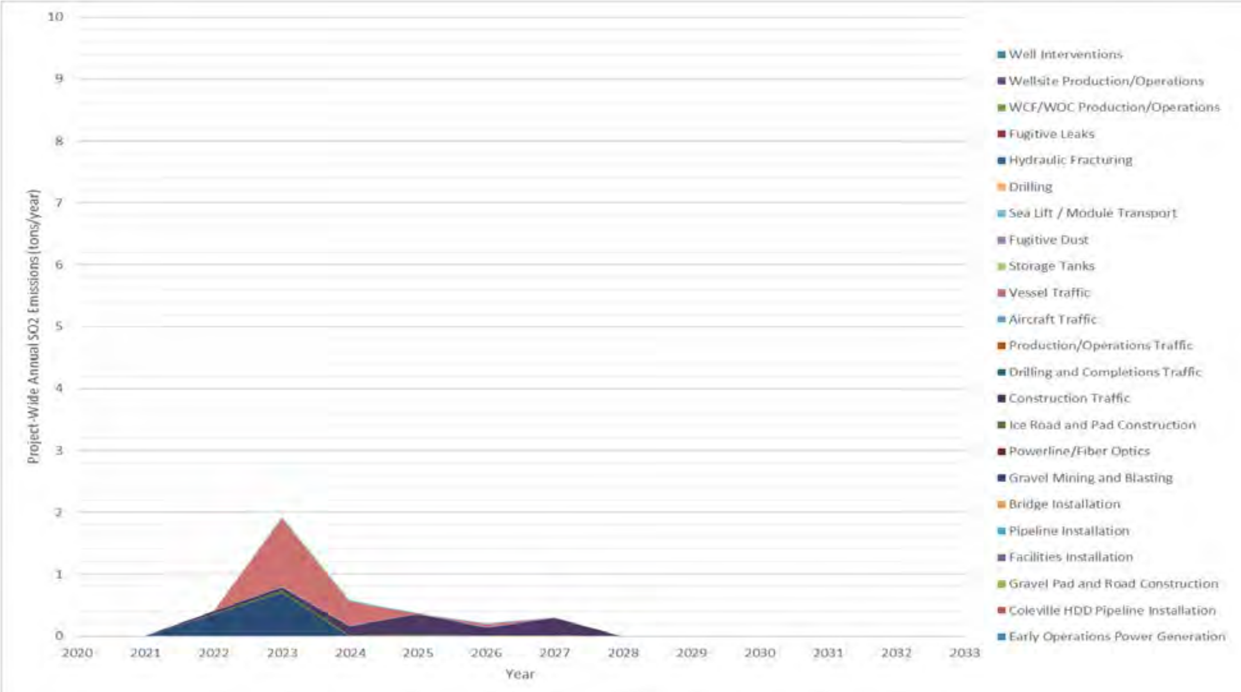


Figure D.4-9. Emissions by Source Type and Year for Module Delivery Option 1 for SO_2

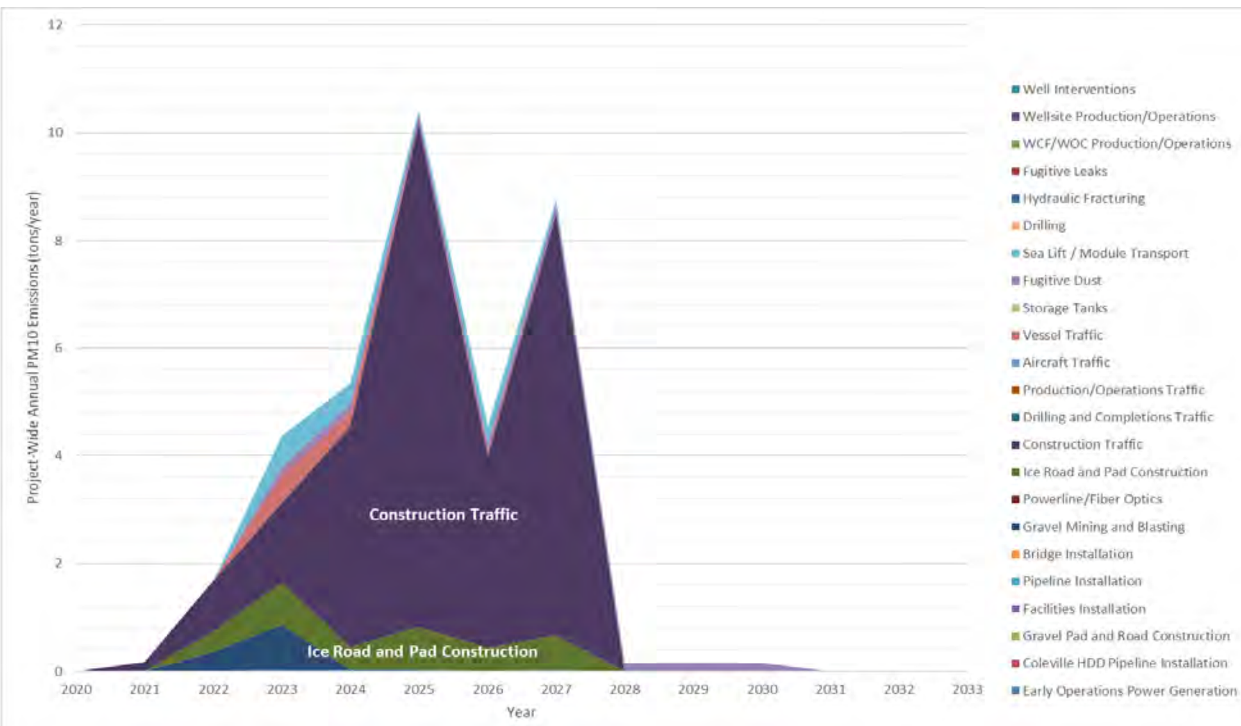


Figure D.4-10. Emissions by Source Type and Year for Module Delivery Option 1 for PM_{10}

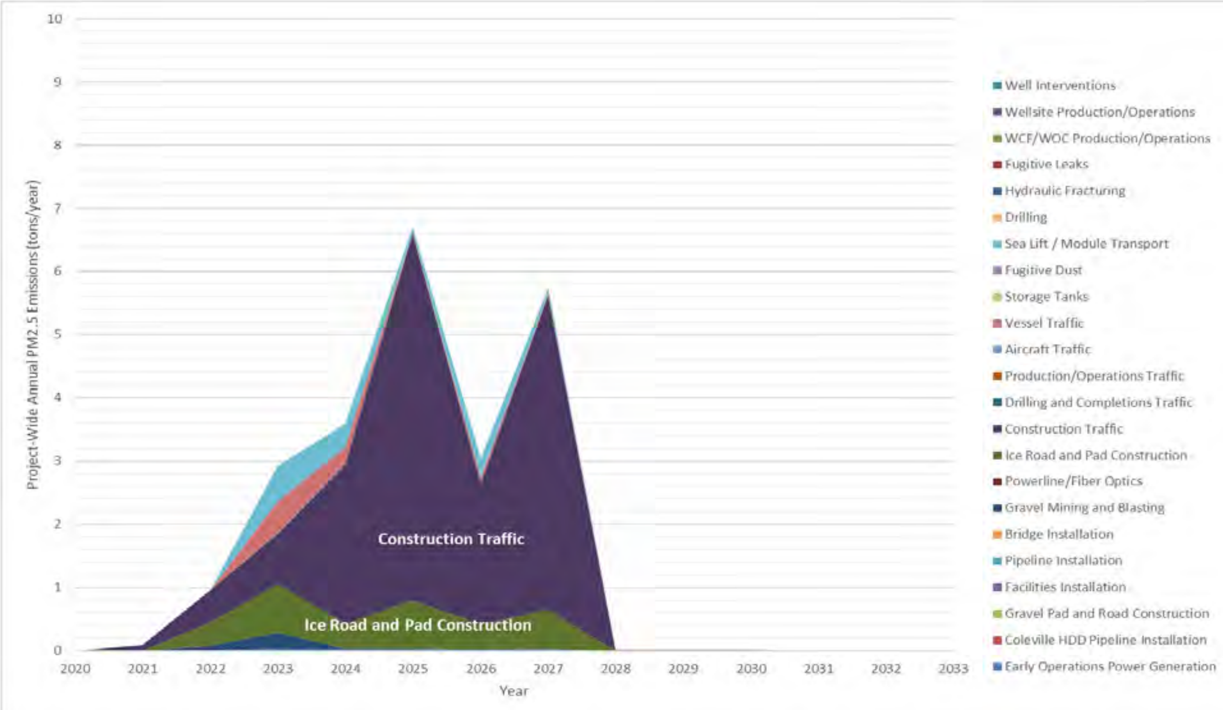


Figure D.4-11. Emissions by Source Type and Year for Module Delivery Option 1 for $PM_{2.5}$

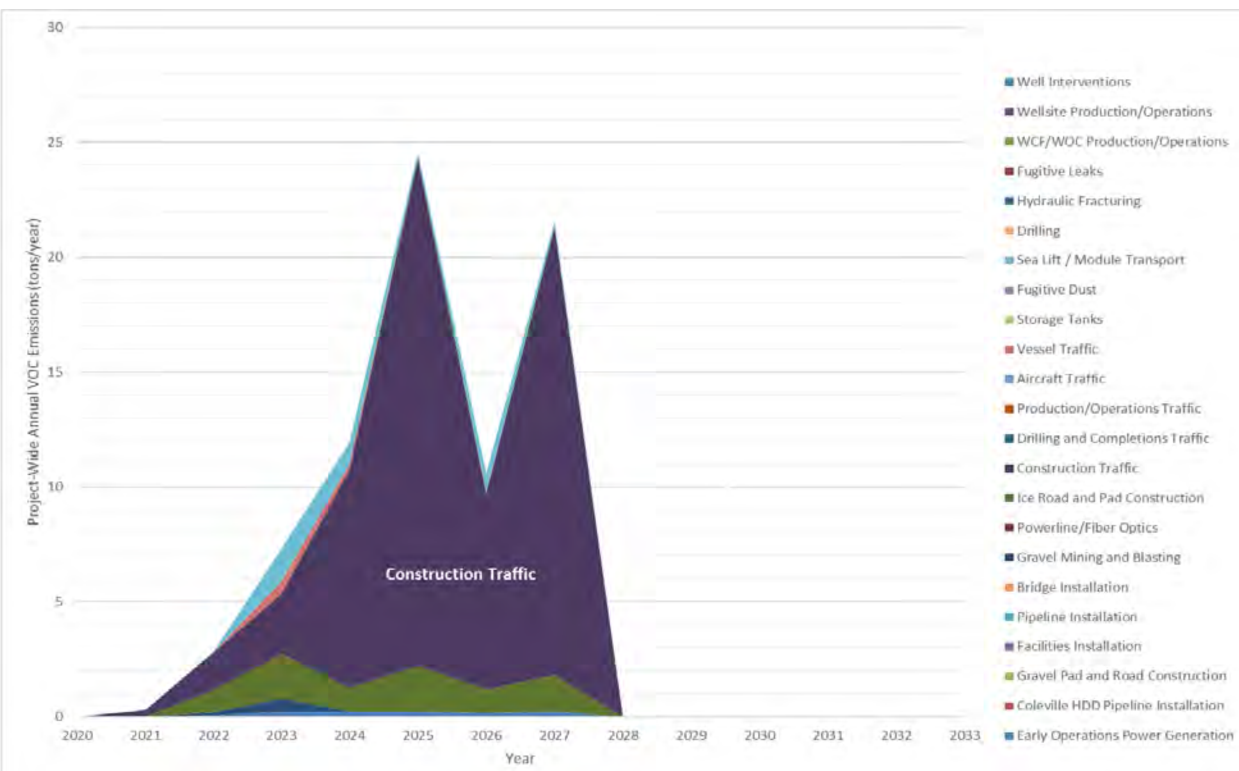


Figure D.4-12. Emissions by Source Type and Year for Module Delivery Option 1 for VOC

ENCLOSURE D.5 MODULE DELIVERY OPTION 2 SUMMARY EMISSIONS TABLES

Please note all emissions are delayed by one year for Alternative D.

Table D.5-1. Annual Criteria Pollutant Emissions (tons)

Project Year	Calendar Year	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$	VOC
0	2020	0.0	0.0	0.0	0.0	0.0	0.0
1	2021	3.1	3.0	0.0	0.3	0.2	0.5
2	2022	52.9	45.7	0.5	3.9	2.1	6.4
3	2023	151.7	106.6	2.2	10.3	6.6	18.1
4	2024	145.3	164.4	0.8	11.5	7.0	24.1
5	2025	307.8	381.0	0.9	24.9	14.7	53.5
6	2026	127.6	150.8	0.4	10.0	6.1	21.8
7	2027	270.8	348.0	0.8	21.5	13.0	47.9
8	2028	0.0	0.0	0.0	0.2	0.0	0.0
9	2029	0.0	0.0	0.0	0.2	0.0	0.0
10	2030	0.0	0.0	0.0	0.2	0.0	0.0
11	2031	0.0	0.0	0.0	0.0	0.0	0.0
12	2032	0.0	0.0	0.0	0.0	0.0	0.0
13	2033	0.0	0.0	0.0	0.0	0.0	0.0
14	2034	0.0	0.0	0.0	0.0	0.0	0.0
15	2035	0.0	0.0	0.0	0.0	0.0	0.0
16-30	2036-2050	0.0	0.0	0.0	0.0	0.0	0.0

Table D.5-2. Emissions for Module Delivery

Pollutant	Emission Factor[1] Short-Term (lb/hr-kton)	Emission Factor[1] Annual (ton/yr-kton)	Emission Rates Short-Term (lb/hr)	Emission Rates Annual (ton/yr)
NO_x	1.6E-01	7.2E-01	7.1E+00	3.1E+01
CO	4.3E-02	1.9E-01	1.8E+00	8.0E+00
SO_2	1.5E-02	6.4E-02	6.2E-01	2.7E+00
PM_{10}	6.5E-03	2.9E-02	2.8E-01	1.2E+00
$PM_{2.5}$	6.3E-03	2.7E-02	2.7E-01	1.2E+00
VOC	7.1E-03	3.1E-02	3.1E-01	1.3E+00
Benzene	9.9E-05	4.3E-04	4.3E-03	1.9E-02
Toluene	1.6E-05	6.8E-05	6.7E-04	2.9E-03
Ethylbenzene	9.7E-06	4.3E-05	4.2E-04	1.8E-03
Xylene	2.3E-05	1.0E-04	1.0E-03	4.4E-03
Formaldehyde	7.3E-04	3.2E-03	3.1E-02	1.4E-01
nHexane	2.7E-05	1.2E-04	1.2E-03	5.0E-03
CO_2e	8.7E+00	3.8E+01	3.7E+02	1.6E+03

1 Emission factors are the emission rates divided by the total weight of modules transferred via MDO in thousands of tons (kton).

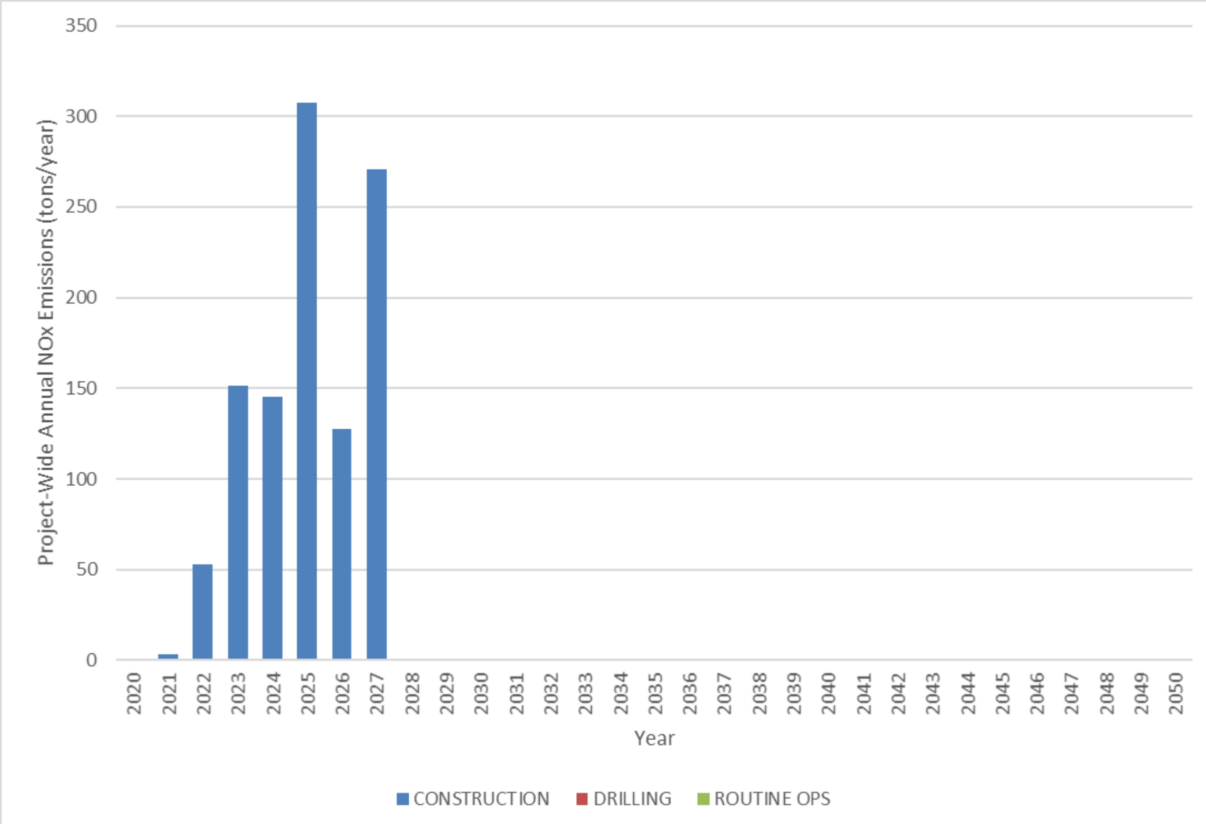


Figure D.5-1. Bar Chart of Annual Emissions for Each Phase of Development for NOx

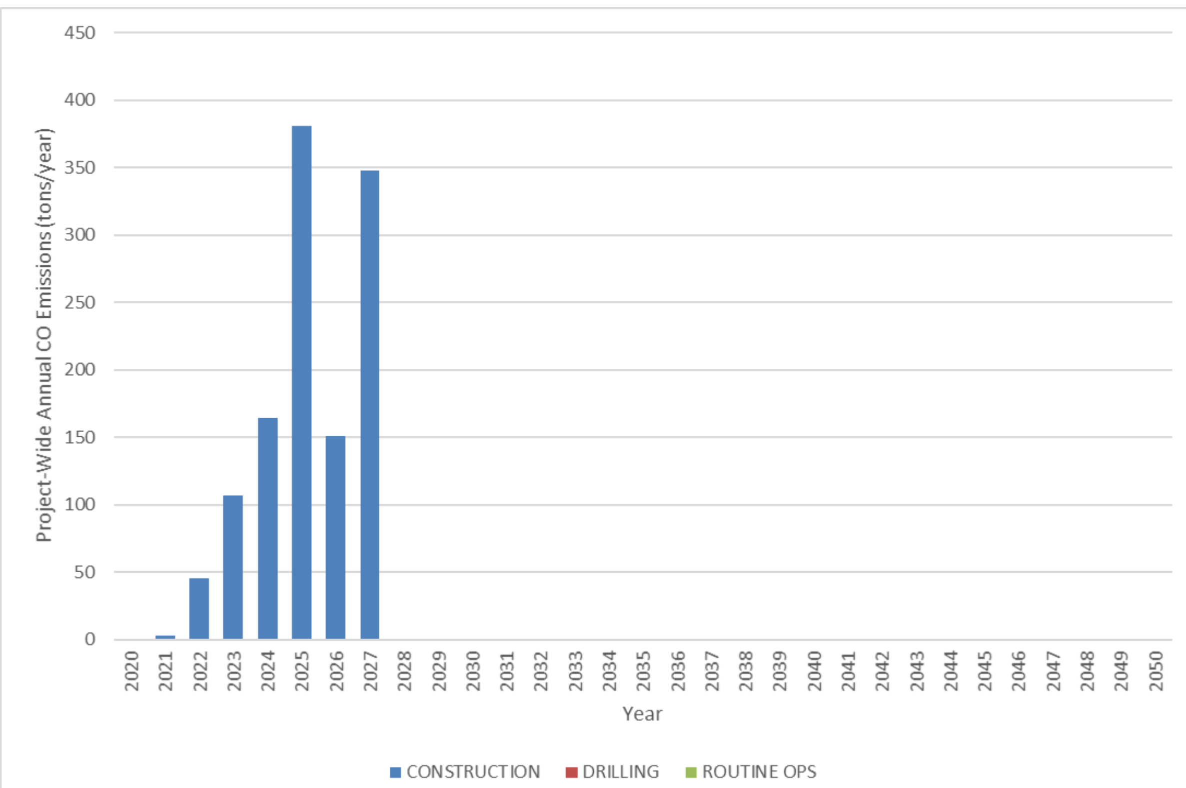


Figure D.5-2. Bar Chart of Annual Emissions for Each Phase of Development for CO

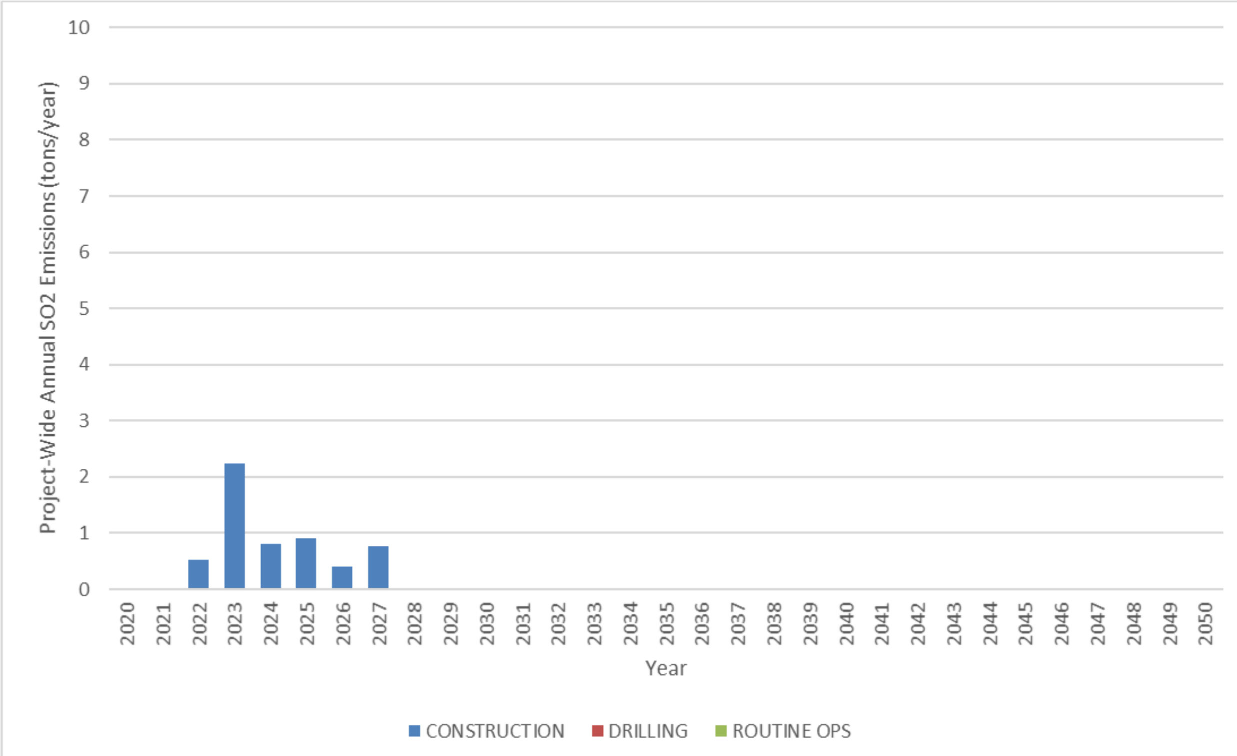


Figure D.5-3. Bar Chart of Annual Emissions for Each Phase of Development for SO_2

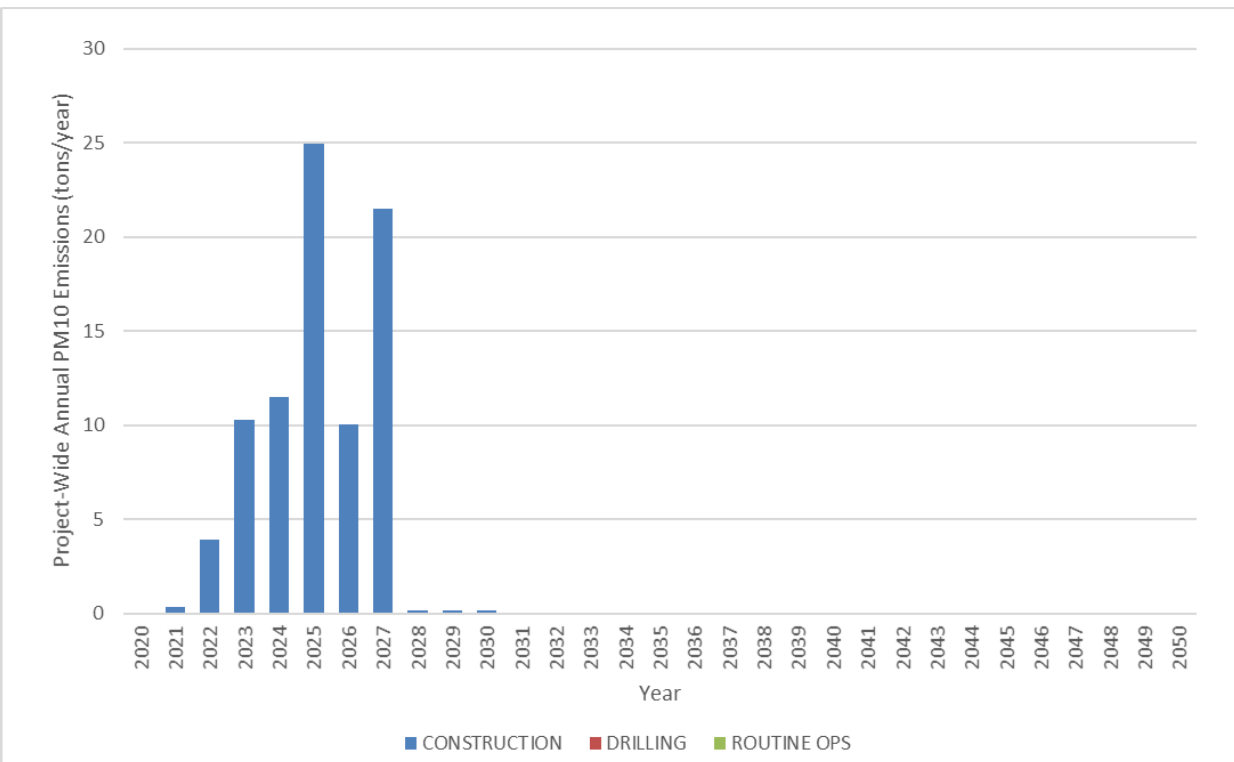


Figure D.5-4. Bar Chart of Annual Emissions for Each Phase of Development for PM_{10}

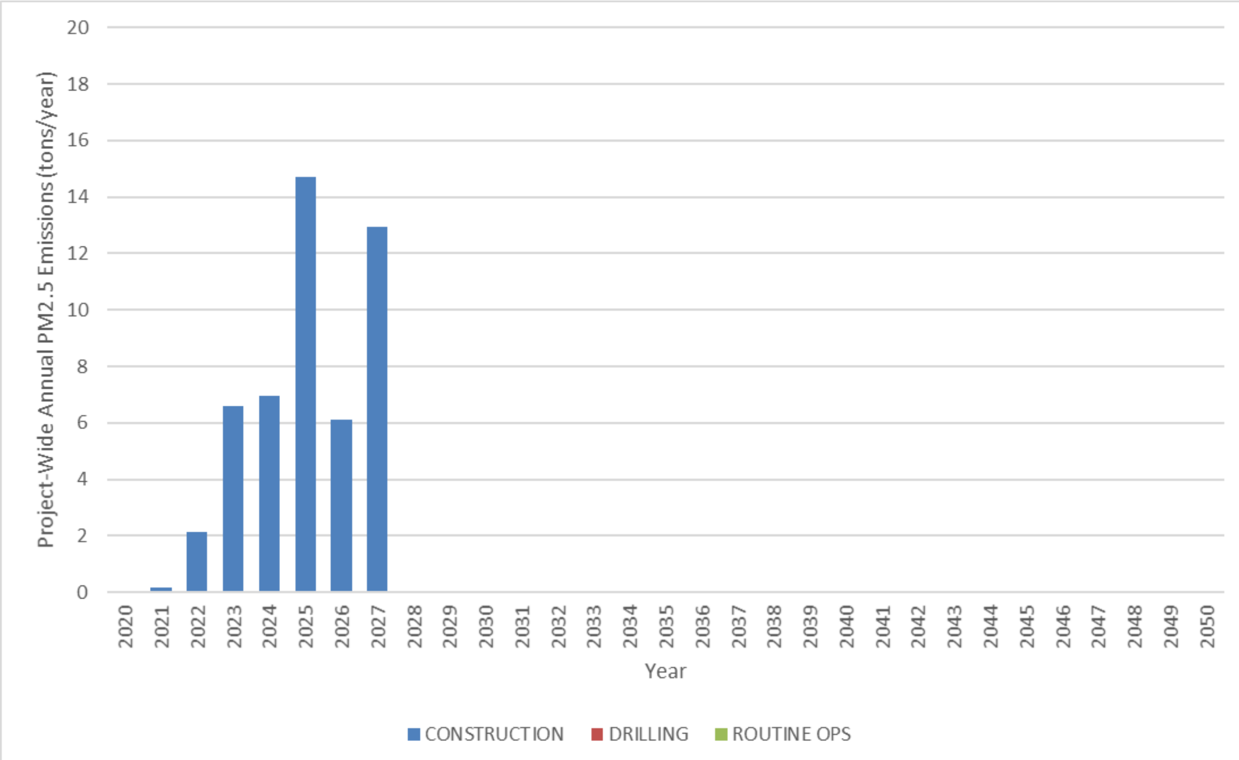


Figure D.5-5. Bar Chart of Annual Emissions for Each Phase of Development for $PM_{2.5}$

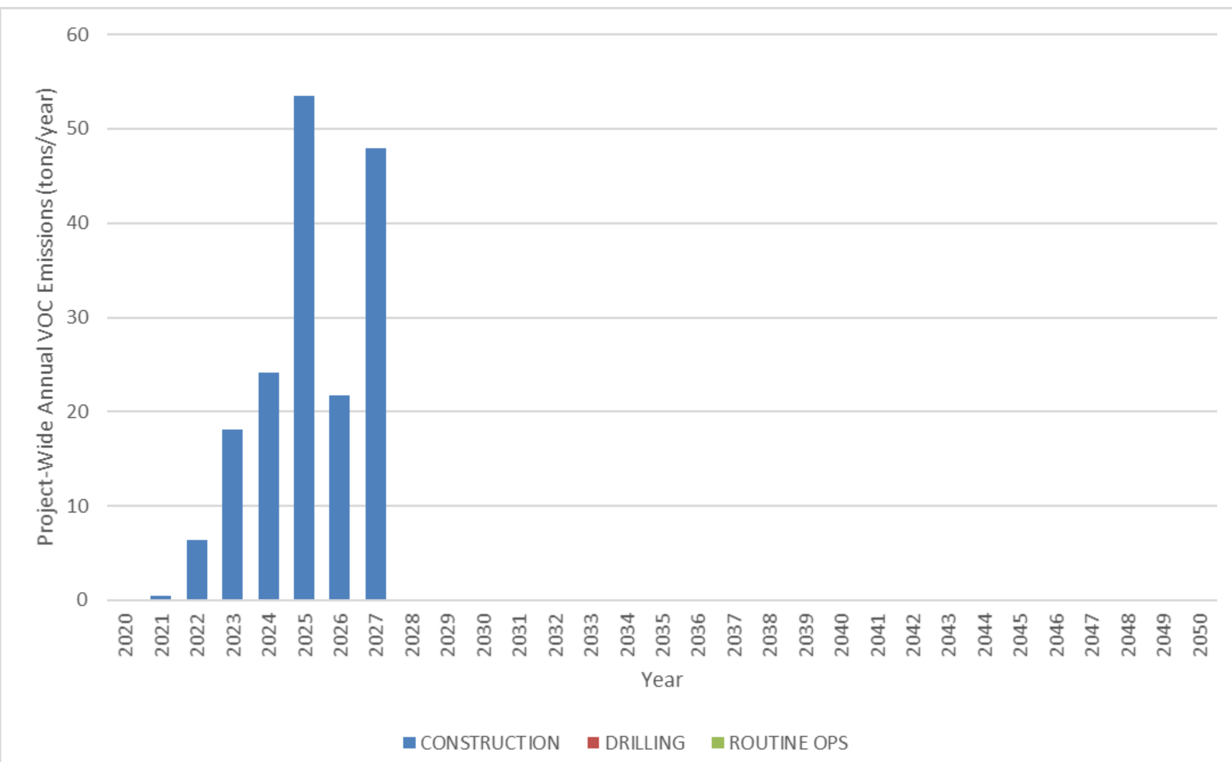


Figure D.5-6. Bar Chart of Annual Emissions for Each Phase of Development for VOC

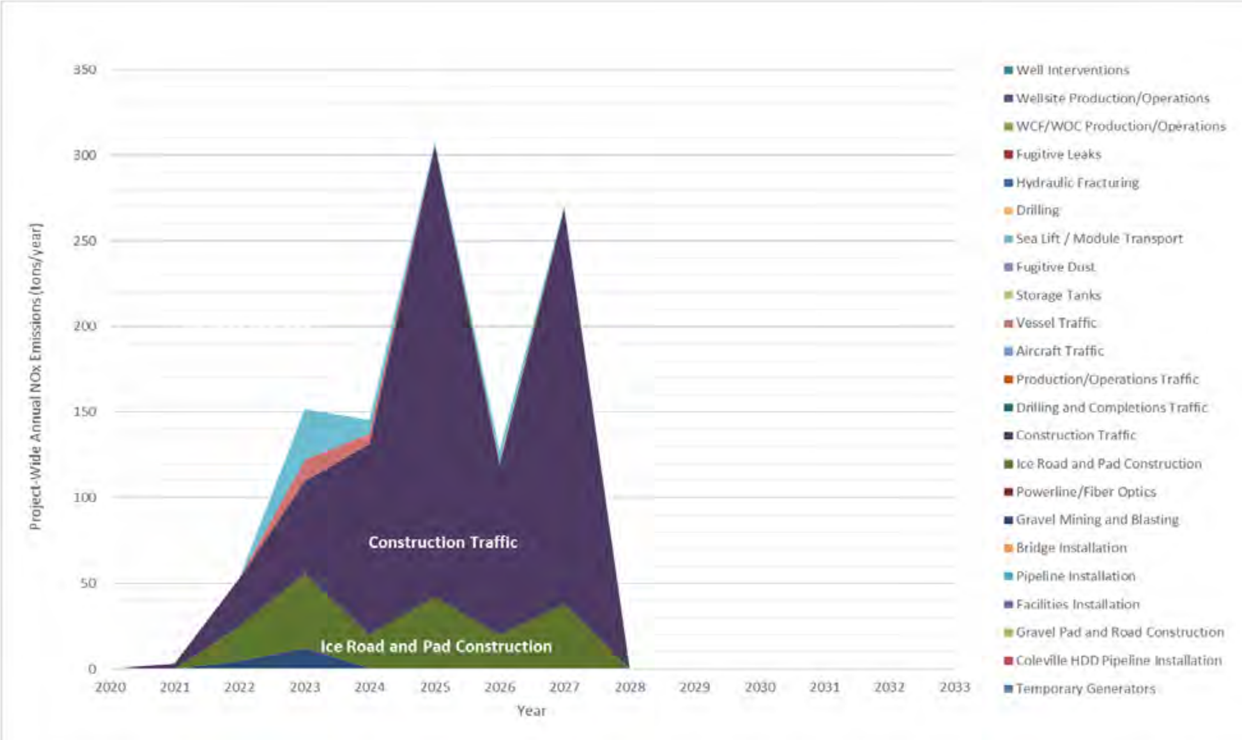


Figure D.5-7. Emissions by Source Type and Year for Module Delivery Option 2 for NOx

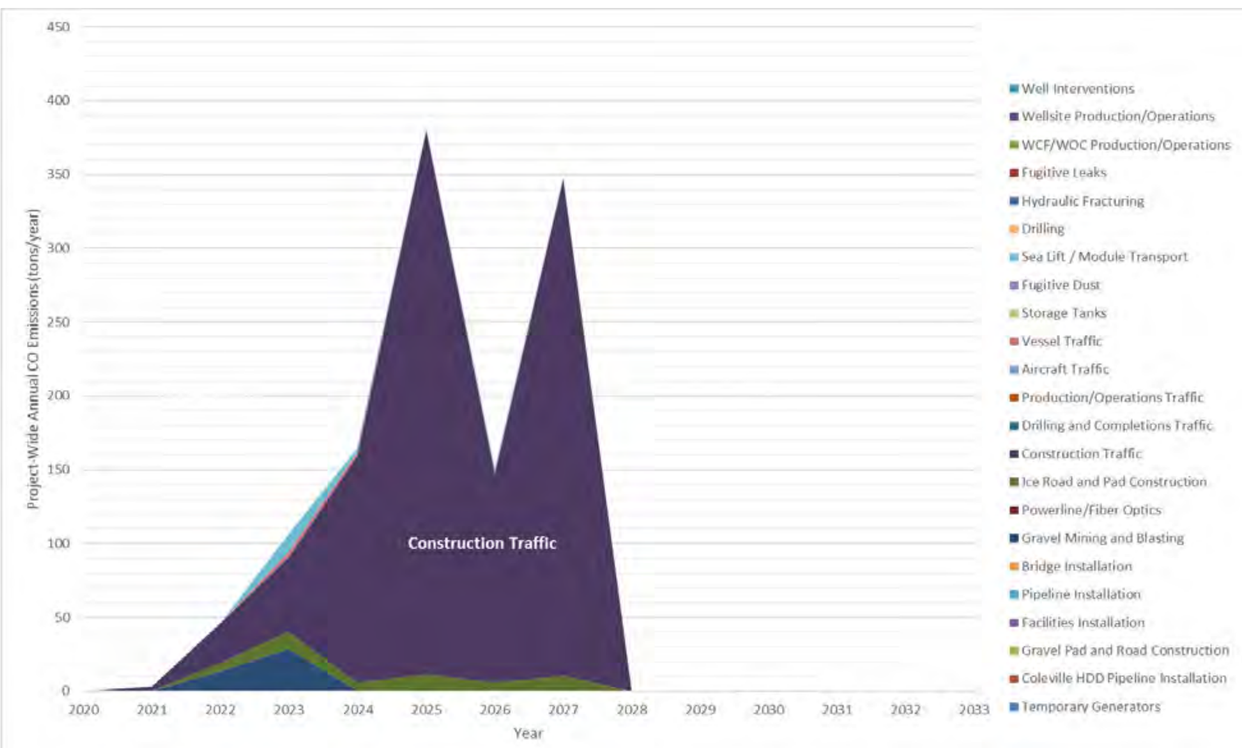


Figure D.5-8. Emissions by Source Type and Year for Module Delivery Option 2 for CO

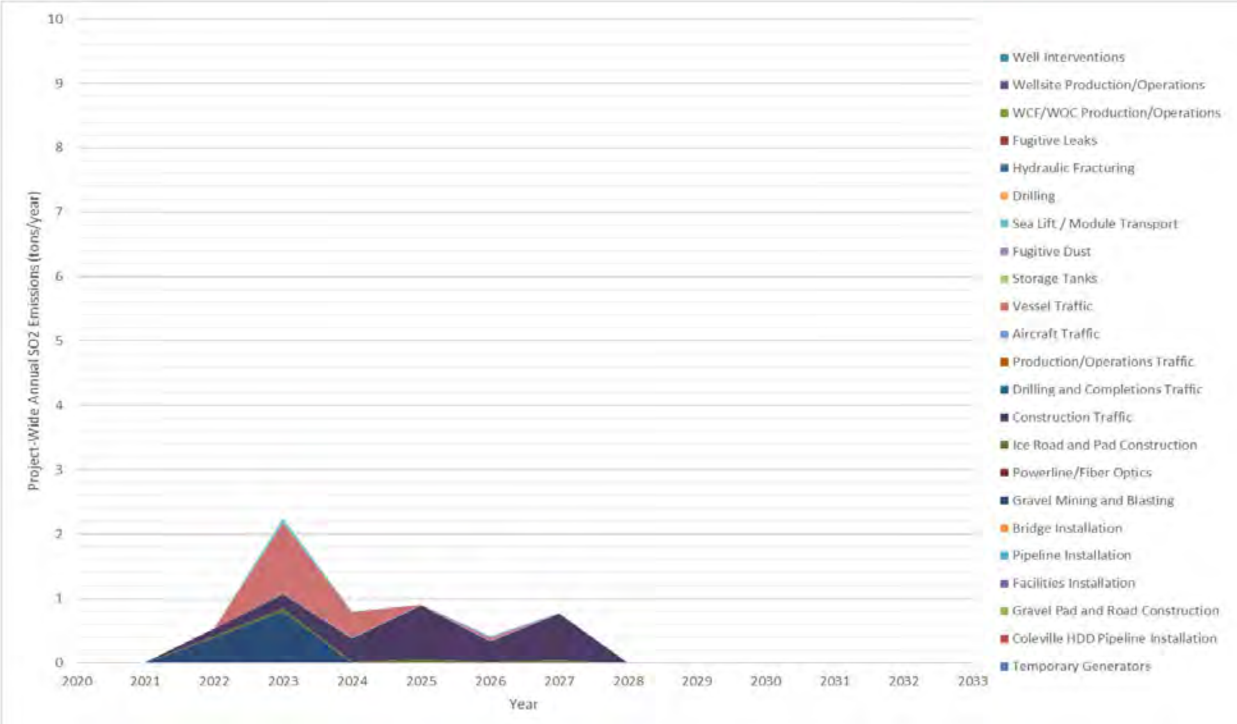


Figure D.5-9. Emissions by Source Type and Year for Module Delivery Option 2 for SO_2

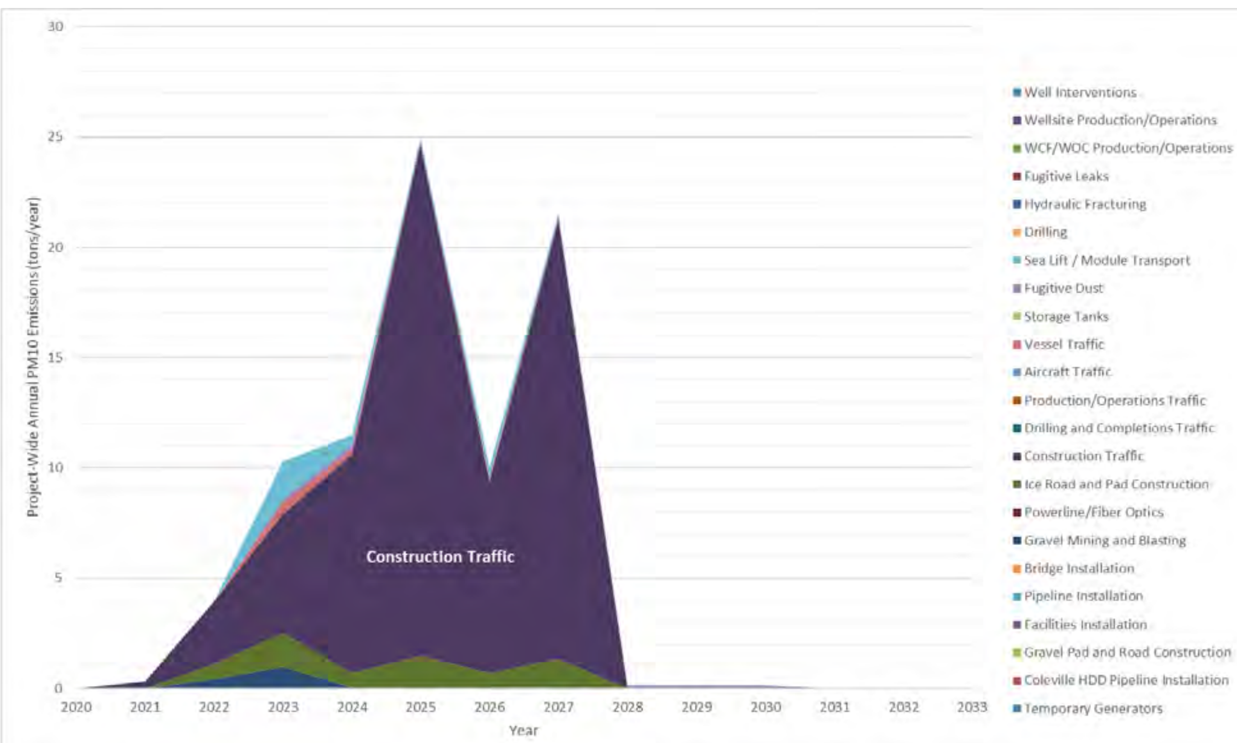


Figure D.5-10. Emissions by Source Type and Year for Module Delivery Option 2 for PM_{10}

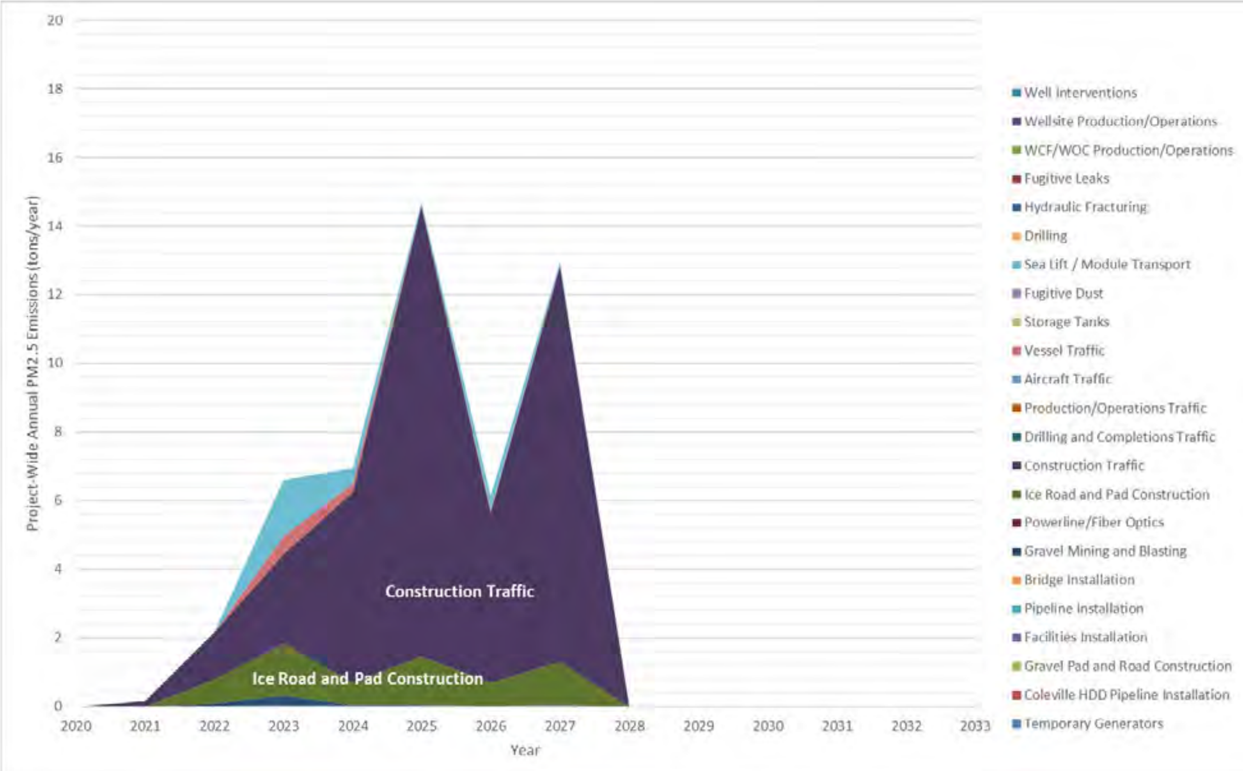


Figure D.5-11. Emissions by Source Type and Year for Module Delivery Option 2 for $PM_{2.5}$

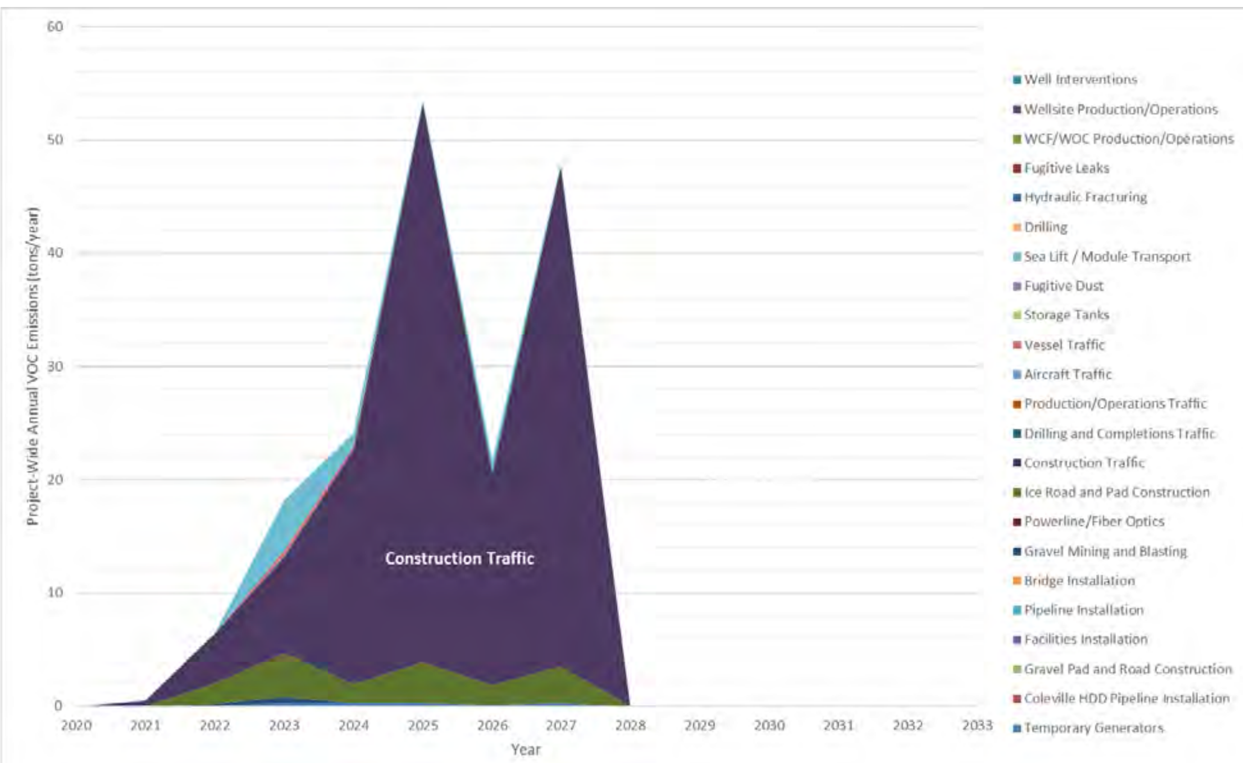


Figure D.5-12. Emissions by Source Type and Year for Module Delivery Option 2 for VOC

ENCLOSURE D.6 ALTERNATIVE C PROJECT EMISSIONS INVENTORY

The emissions inventory for Alternative C is provided separately as a set of Microsoft Excel spreadsheets. These spreadsheets are organized as described in Table D.6-1. The Module Delivery Option emission inventories are listed in Attachments D.8 and D.9 and are separate from the Alternative C emission inventory.

Table D.6-1. Organization of Emissions Calculation Spreadsheets Electronically Enclosed for Alternative C

Spreadsheet(s)	Description of Contents
AltC Emissions Summary_Project.xlsx	Overall summary of monthly emissions for the entire development project by pollutant.
Willow AltC EI-Construction-BT1.xlsx Willow AltC EI-Construction-BT2.xlsx Willow AltC EI-Construction-BT3.xlsx Willow AltC EI-Construction-BT4.xlsx Willow AltC EI-Construction-BT5.xlsx	Construction-related emissions calculations for each of the five Willow drillsites (BT1 through BT5).
Willow AltC EI-Construction-WPF+IP+Airstrip.xlsx	Construction-related emissions calculations for the WPF, WOC, and Willow Airstrip.
Willow AltC EI-General Activities_wT4.xlsx	Emissions calculations for a variety of activities occurring throughout the development, at multiple undefined locations, or outside the development. These types of activities include certain aspects of road, bridge, pipeline, and utility lines construction, vehicle traffic, drilling throughout the development, connected activities at the ACF, fugitive sources, and others.
Willow AltC EI-Non-Construction-BT1_wT4.xlsx Willow AltC EI-Non-Construction-BT2.xlsx Willow AltC EI-Non-Construction-BT3.xlsx Willow AltC EI-Non-Construction-BT4.xlsx Willow AltC EI-Non-Construction-BT5.xlsx	Routine operations and drilling-related emissions calculations for each of the five Willow drillsites (BT1 through BT5).
Willow AltC EI-Non-Construction-WPF+IP+Airstrip.xlsx	Routine operations-related emissions calculations for the WPF, WOC, and Willow Airstrip.

ENCLOSURE D.7 ALTERNATIVE D PROJECT EMISSIONS INVENTORY

The emissions inventory for Alternative D is provided separately as a set of Microsoft Excel spreadsheets. These spreadsheets are organized as described in Table D.7-1. The Module Delivery Option emission inventories are listed in Attachments D.8 and D.9 and are separate from the Alternative D emission inventory.

Table D.7-1. Organization of Emissions Calculation Spreadsheets Electronically Enclosed for Alternative D

Spreadsheet(s)	Description of Contents
AltD Emissions Summary_Project.xlsx	Overall summary of monthly emissions for the entire development project by pollutant.
Willow AltD EI-Construction-BT1.xlsx Willow AltD EI-Construction-BT2.xlsx Willow AltD EI-Construction-BT3.xlsx Willow AltD EI-Construction-BT4.xlsx Willow AltD EI-Construction-BT5.xlsx	Construction-related emissions calculations for each of the five Willow drillsites (BT1 through BT5).
Willow AltD EI-Construction-WPF+IP+Airstrip.xlsx	Construction-related emissions calculations for the WPF, WOC, and Willow Airstrip.
Willow AltD EI-General Activities_wT4.xlsx	Emissions calculations for a variety of activities occurring throughout the development, at multiple undefined locations, or outside the development. These types of activities include certain aspects of road, bridge, pipeline, and utility lines construction, vehicle traffic, drilling throughout the development, fugitive sources, and others.
Willow AltD EI-Non-Construction-BT1_wT4.xlsx Willow AltD EI-Non-Construction-BT2.xlsx Willow AltD EI-Non-Construction-BT3.xlsx Willow AltD EI-Non-Construction-BT4.xlsx Willow AltD EI-Non-Construction-BT5.xlsx	Routine operations and drilling-related emissions calculations for each of the five Willow drillsites (BT1 through BT5).
Willow AltD EI-Non-Construction-WPF+IP+Airstrip.xlsx	Routine operations-related emissions calculations for the WPF, WOC, and Willow Airstrip.

ENCLOSURE D.8 MODULE DELIVERY OPTION 1 PROJECT EMISSIONS INVENTORY

The emissions inventory for Module Delivery Option 1 is provided separately as a set of Microsoft Excel spreadsheets. These spreadsheets are organized as described in Table D.8-1.

Table D.8-1. Organization of Emissions Calculation Spreadsheets Electronically Enclosed for Module Delivery Option 1

Spreadsheet(s)	Description of Contents
Willow_Option1_Emissions_Summary.xlsx	Overall summary of monthly emissions for the entire development project by pollutant.
Willow_EI-NSA+SeaLift_Option1.xlsx Willow_EI-NSA_General Activities_Option1.xlsx	Emissions calculations related to construction of a gravel island, sealift, and ground module transport to the Willow Development.

ENCLOSURE D.9 MODULE DELIVERY OPTION 2 PROJECT EMISSIONS INVENTORY

The emissions inventory for Module Delivery Option 2 is provided separately as a set of Microsoft Excel spreadsheets. These spreadsheets are organized as described in Table D.9-1.

Table D.9-1. Organization of Emissions Calculation Spreadsheets Electronically Enclosed for Module Delivery Option 2

Spreadsheet(s)	Description of Contents
Willow_Option2_Emissions_Summary.xlsx	Overall summary of monthly emissions for the entire development project by pollutant.
Willow_EI-NSA+SeaLift_Option2.xlsx Willow_EI-NSA_General Activities_Option2.xlsx	Emissions calculations related to construction of a gravel island, sealift, and ground module transport to the Willow Development.

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Attachment E

Near-field Modeling Receptor Figures

CONTENTS

FIGURES

E.1 Alternative B

E.1.1 Construction

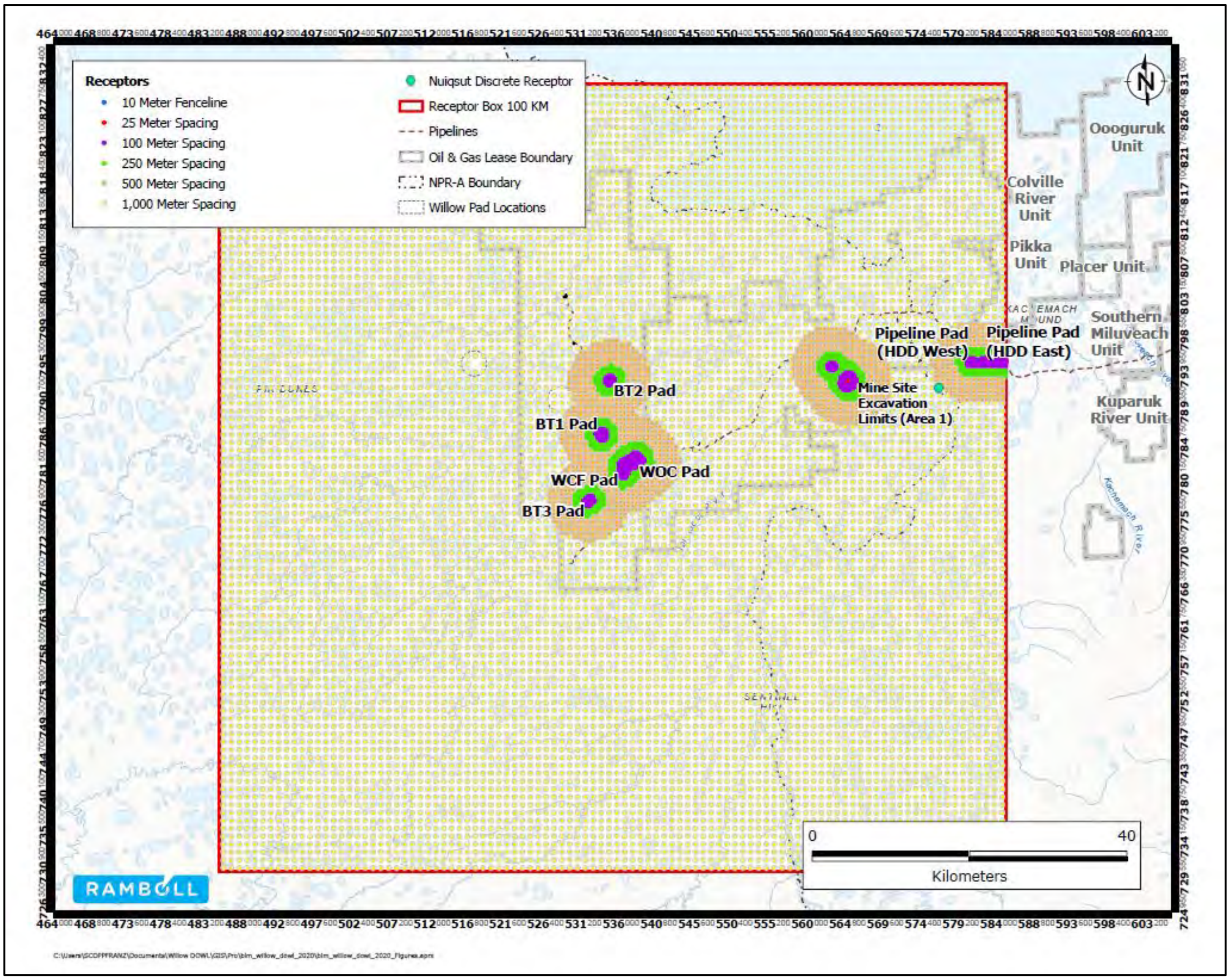

Figure E.1-1. Overview of Construction Receptor Locations – Alternative B (Proponent's Project)

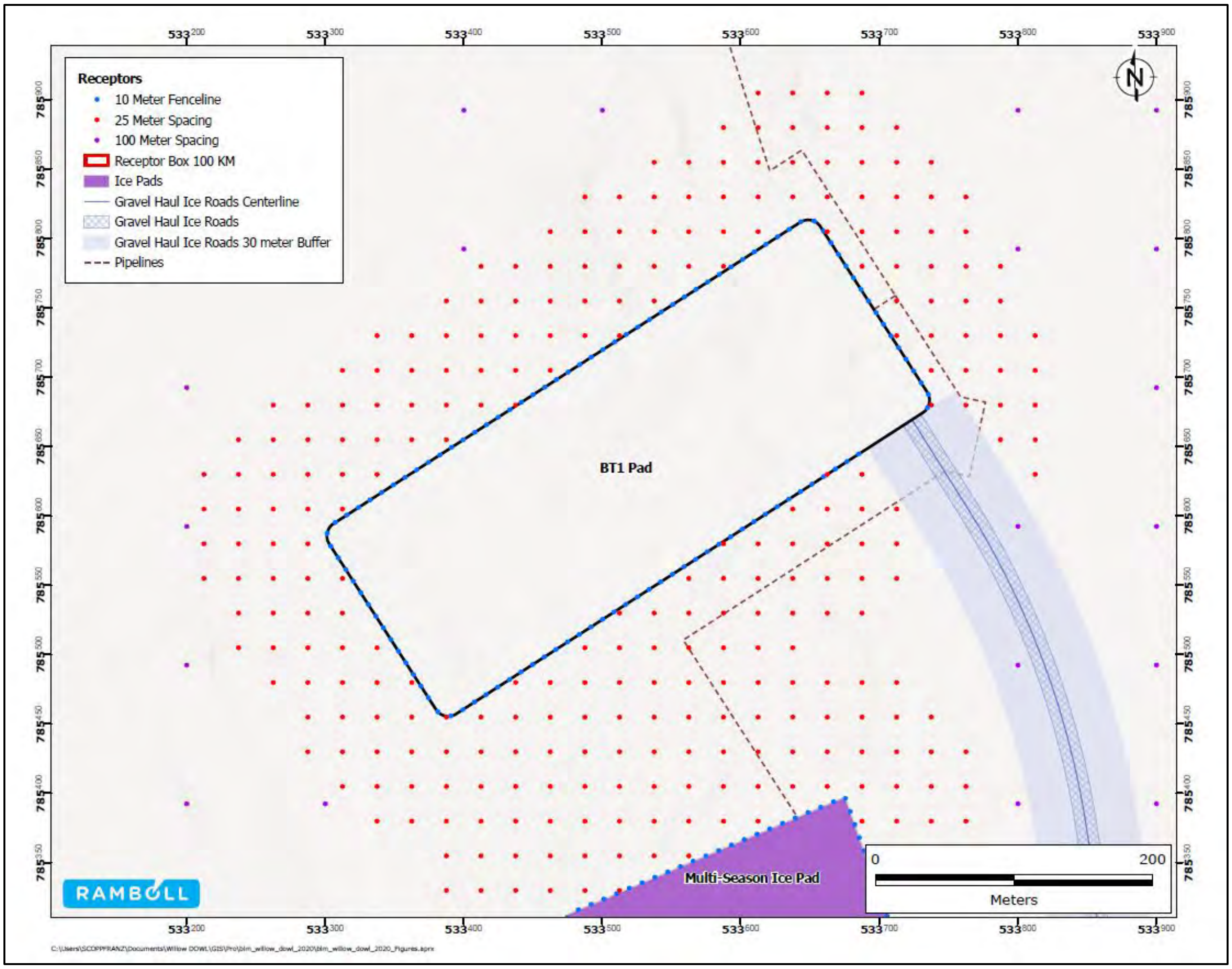

Figure E.1-2. BT1 Construction Receptor Locations – Alternative B (Proponent's Project)

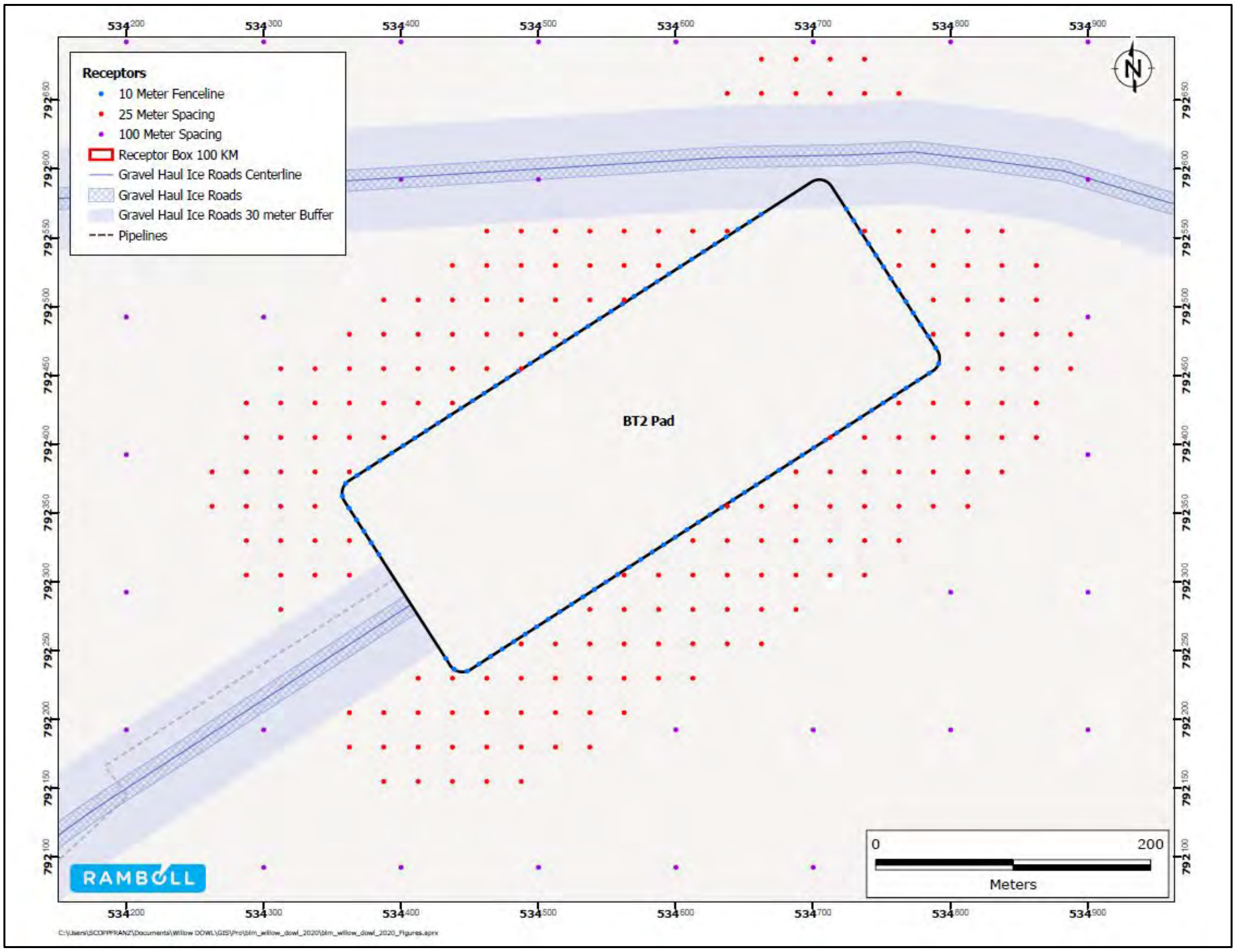

Figure E.1-3. BT2 Construction Receptor Locations – Alternative B (Proponent's Project)

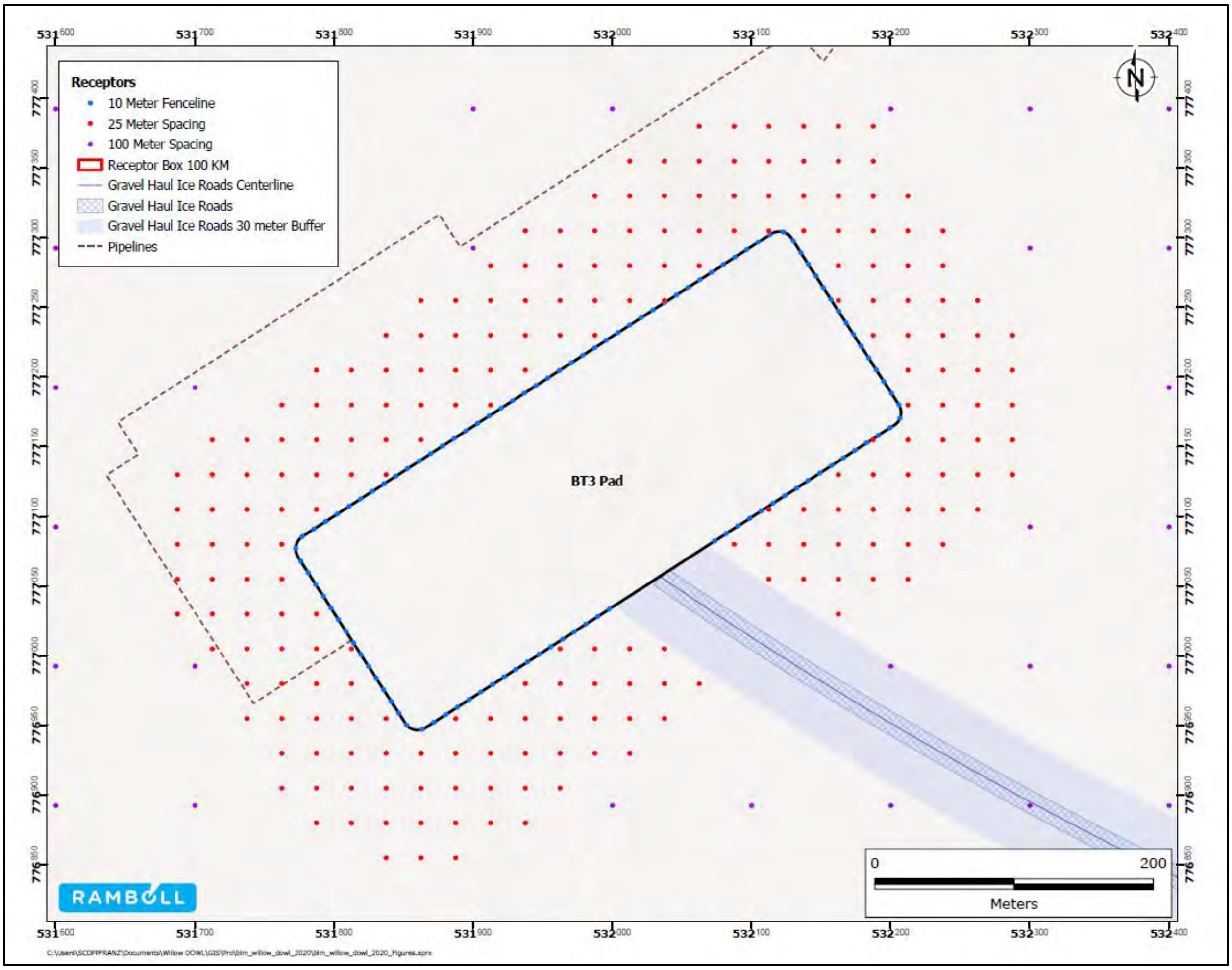

Figure E.1-4. BT3 Construction Receptor Locations – Alternative B (Proponent's Project)

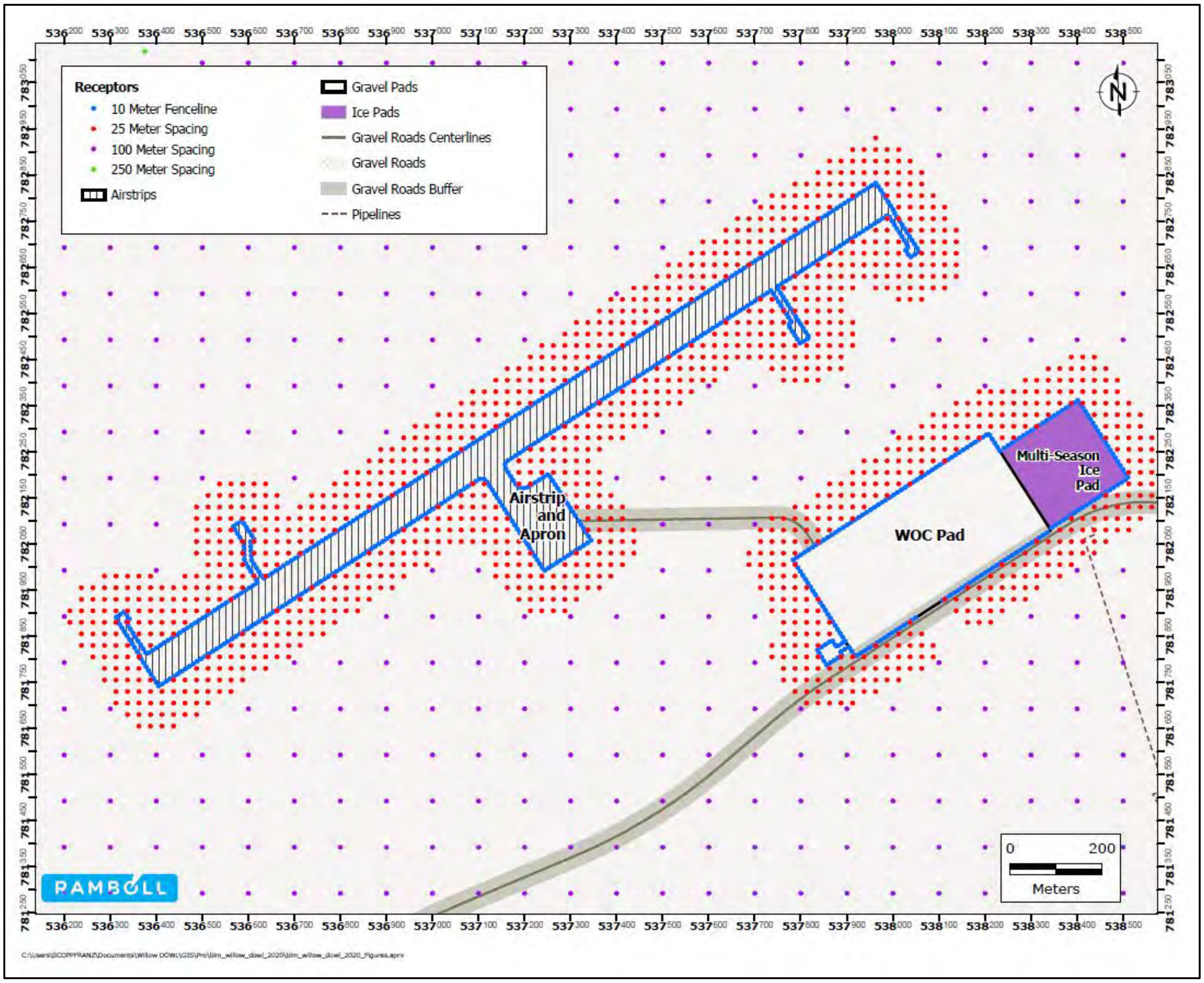

Figure E.1-5. Airstrip and WOC Pad Construction Receptor Locations – Alternative B (Proponent's Project)

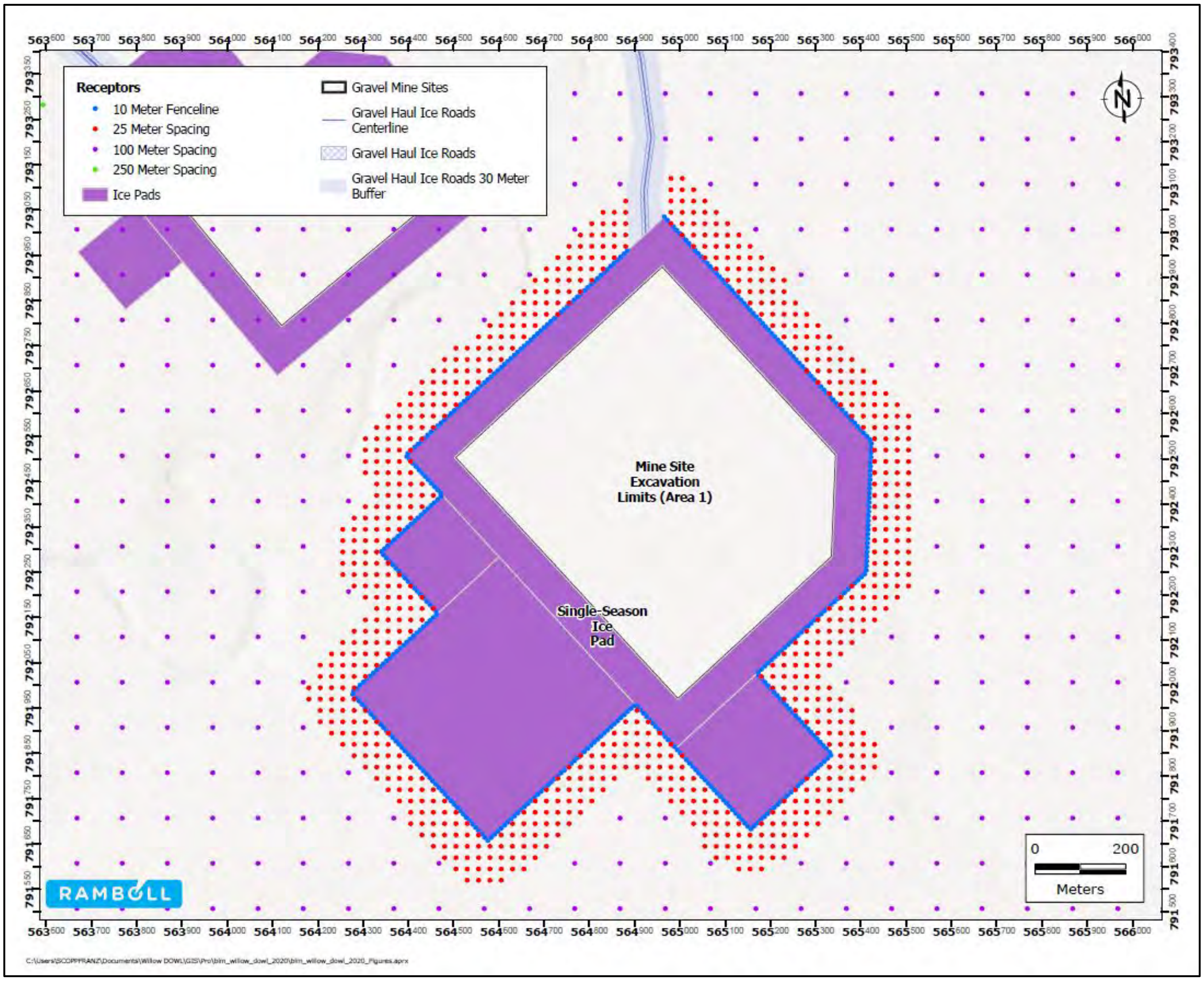

Figure E.1-6. Gravel Mine Site Construction Receptor Locations – Alternative B (Proponent's Project)

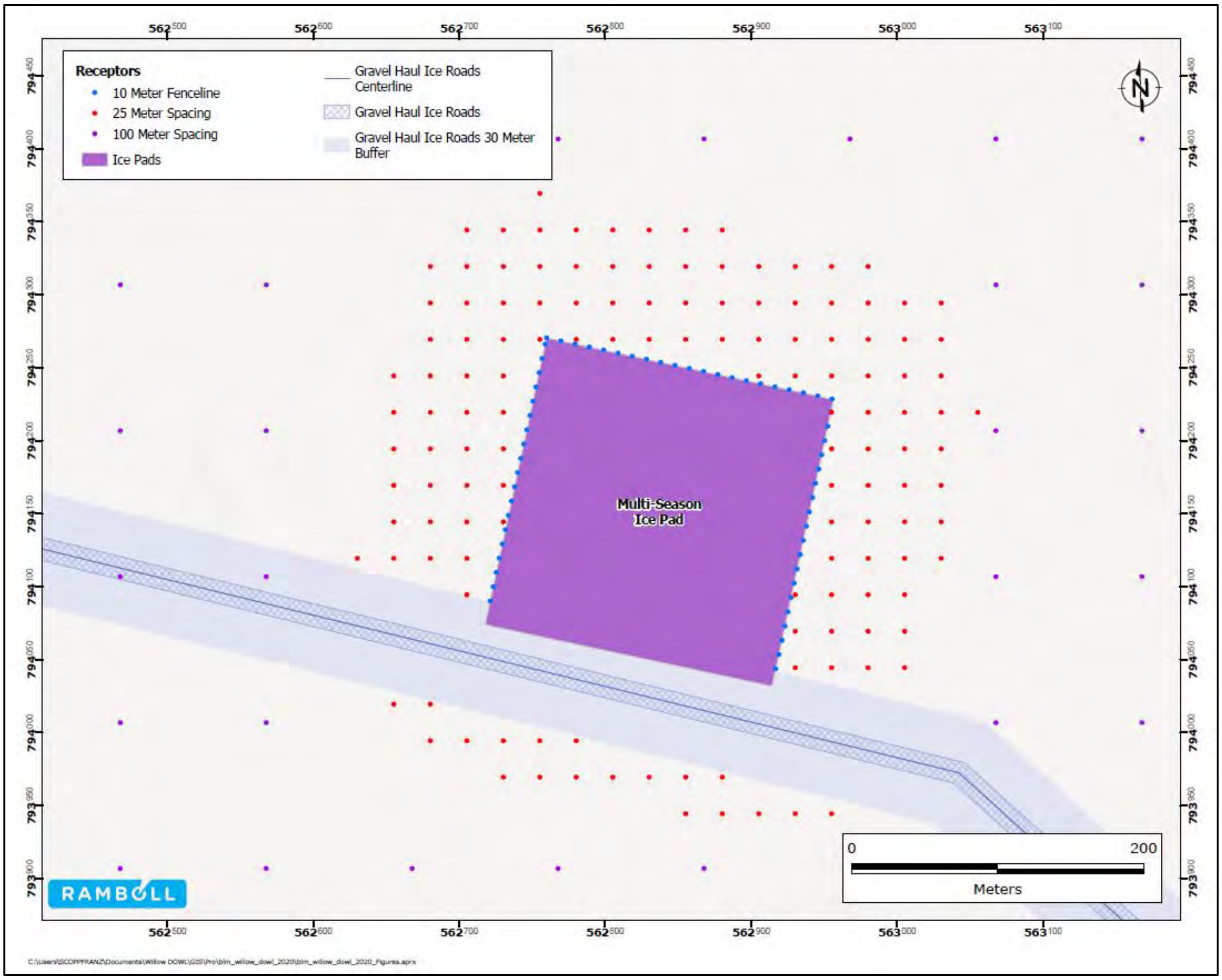

Figure E.1-7. Mine Camp Construction Receptor Locations – Alternative B (Proponent's Project)

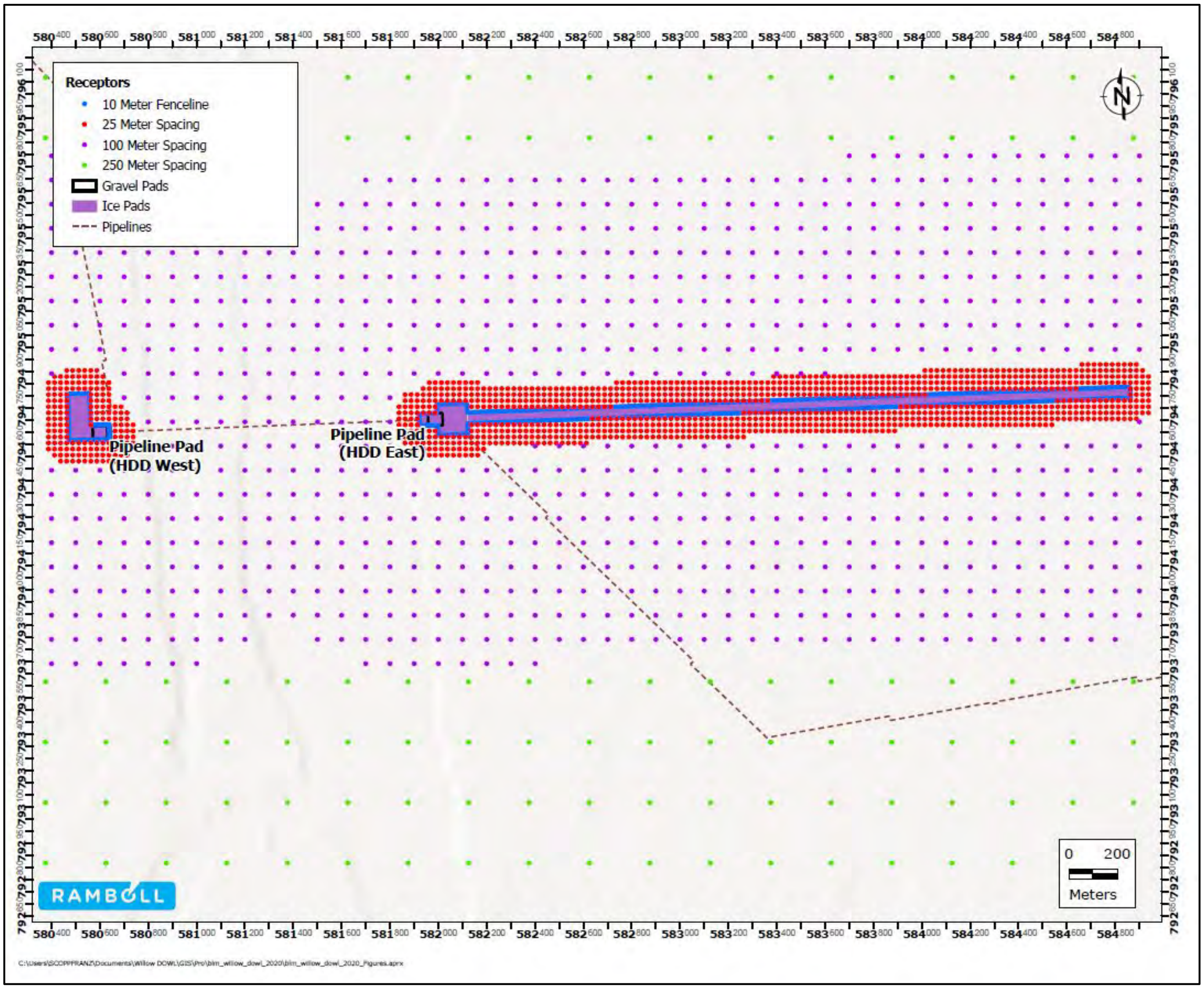

Figure E.1-8. HDD Construction Receptor Locations – Alternative B (Proponent's Project)

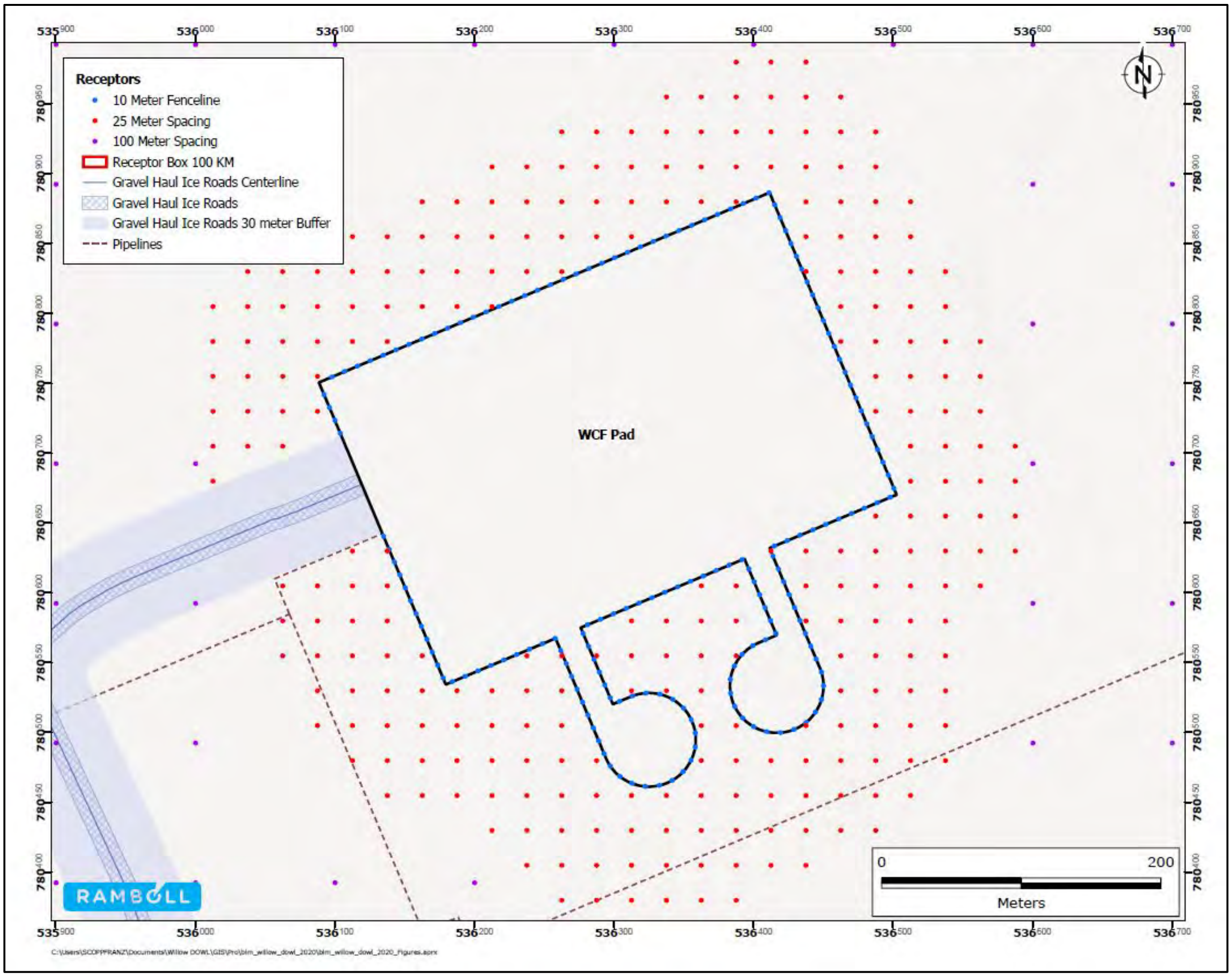

Figure E.1-9. WCF Construction Receptor Locations – Alternative B (Proponent's Project)

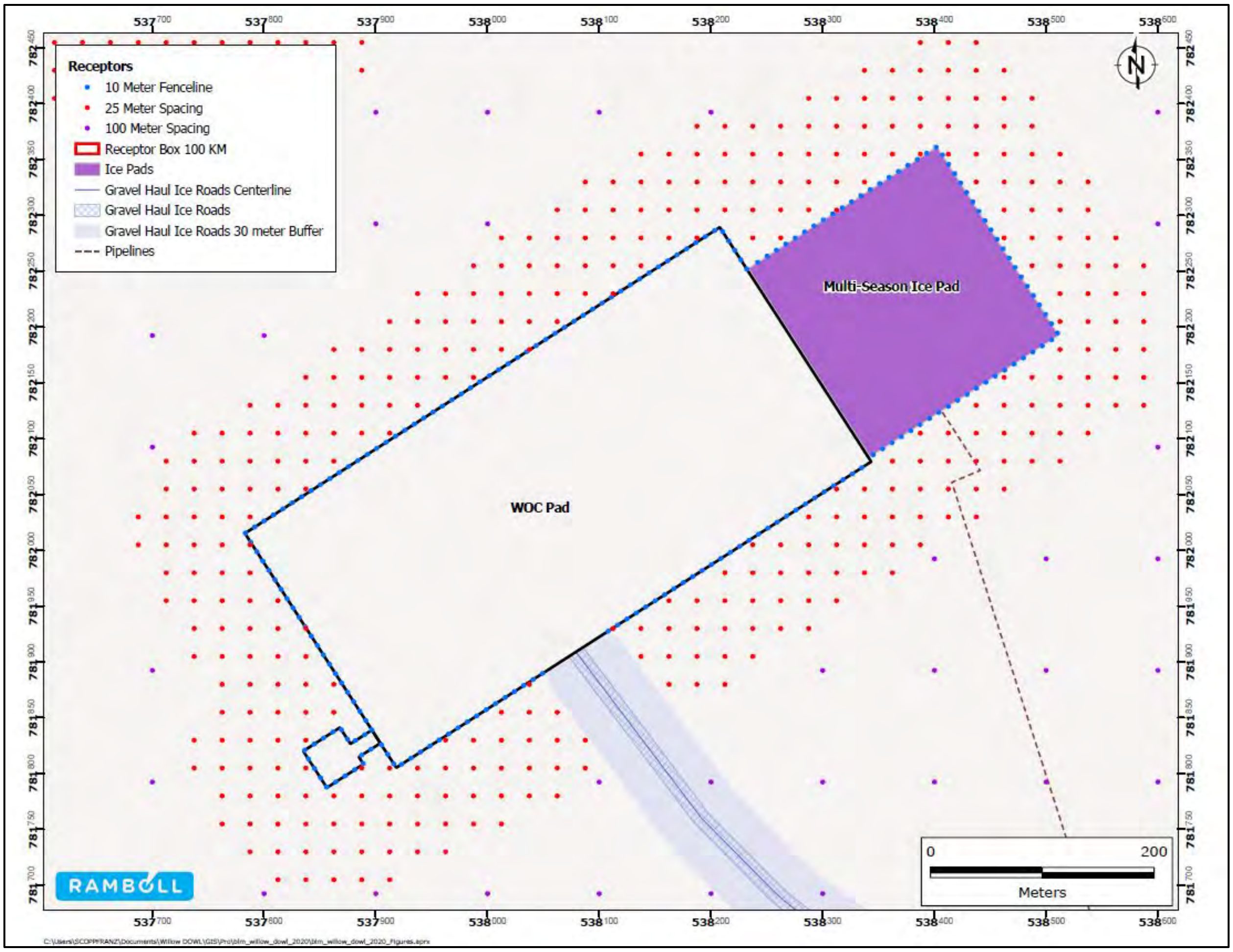

Figure E.1-10. WOC Construction Receptor Locations – Alternative B (Proponent's Project)

E.1.2 BT1 Pre-Drilling

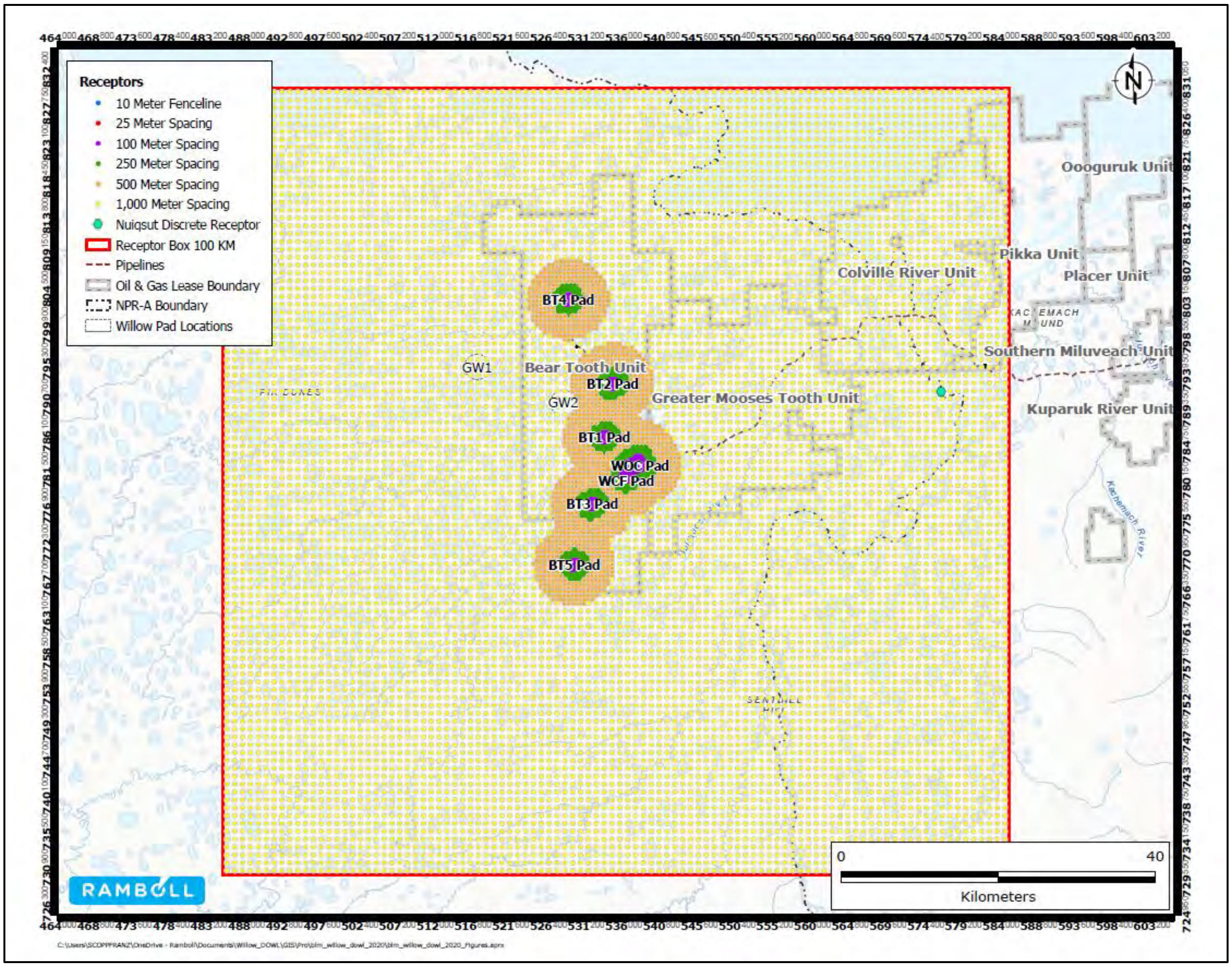

Figure E.1-11. Overview of Drilling Receptor Locations – Alternative B (Proponent's Project)

Figure E.1-12. BT1 Drilling Receptor Locations – Alternative B (Proponent's Project)

E.1.3 BT1 and BT2 Pre-Drill

Figure E.1-13. BT1 Drilling Receptor Locations – Alternative B (Proponent's Project)

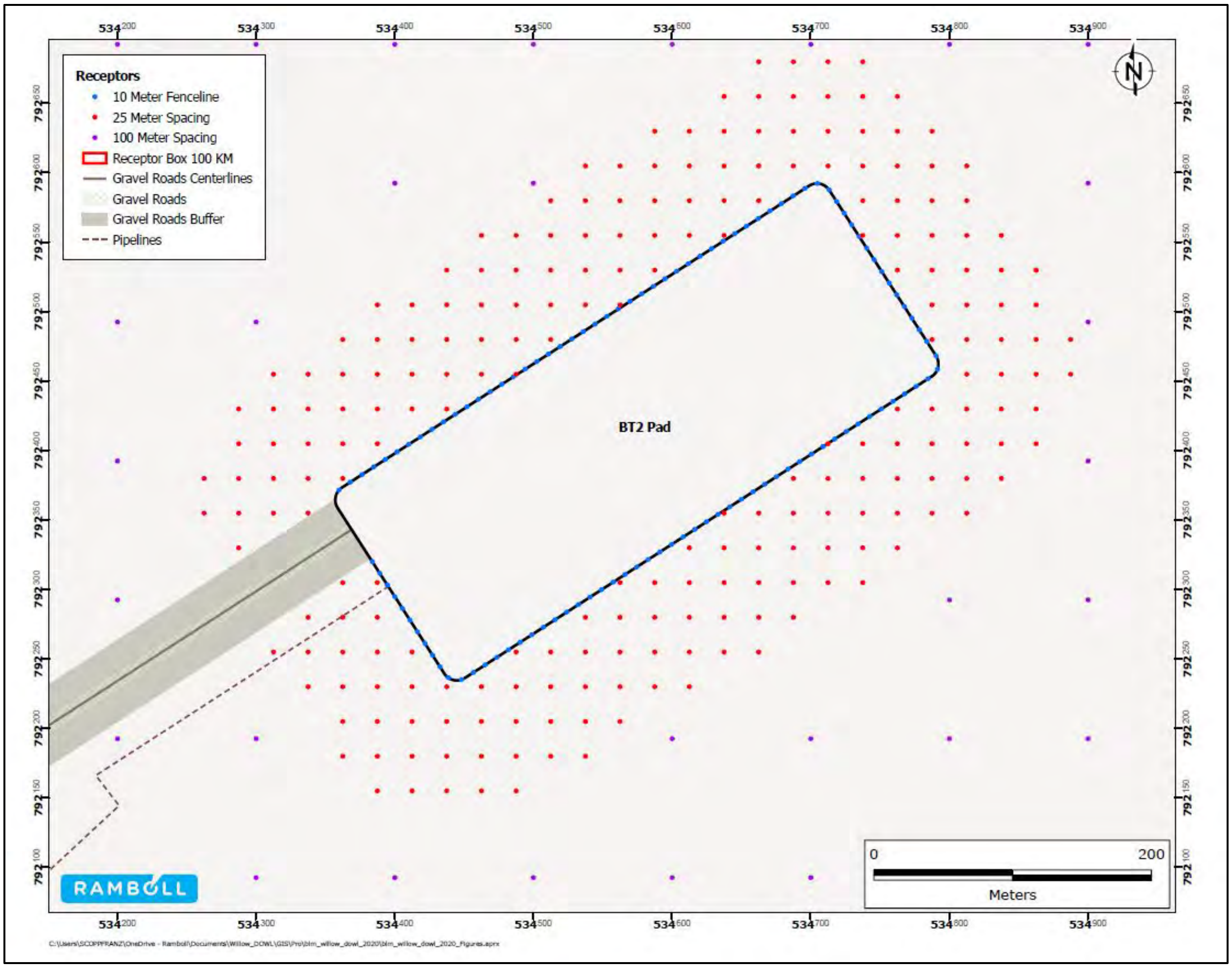

Figure E.1-14. BT2 Drilling Receptor Locations – Alternative B (Proponent's Project)

E.1.4 Development Drilling

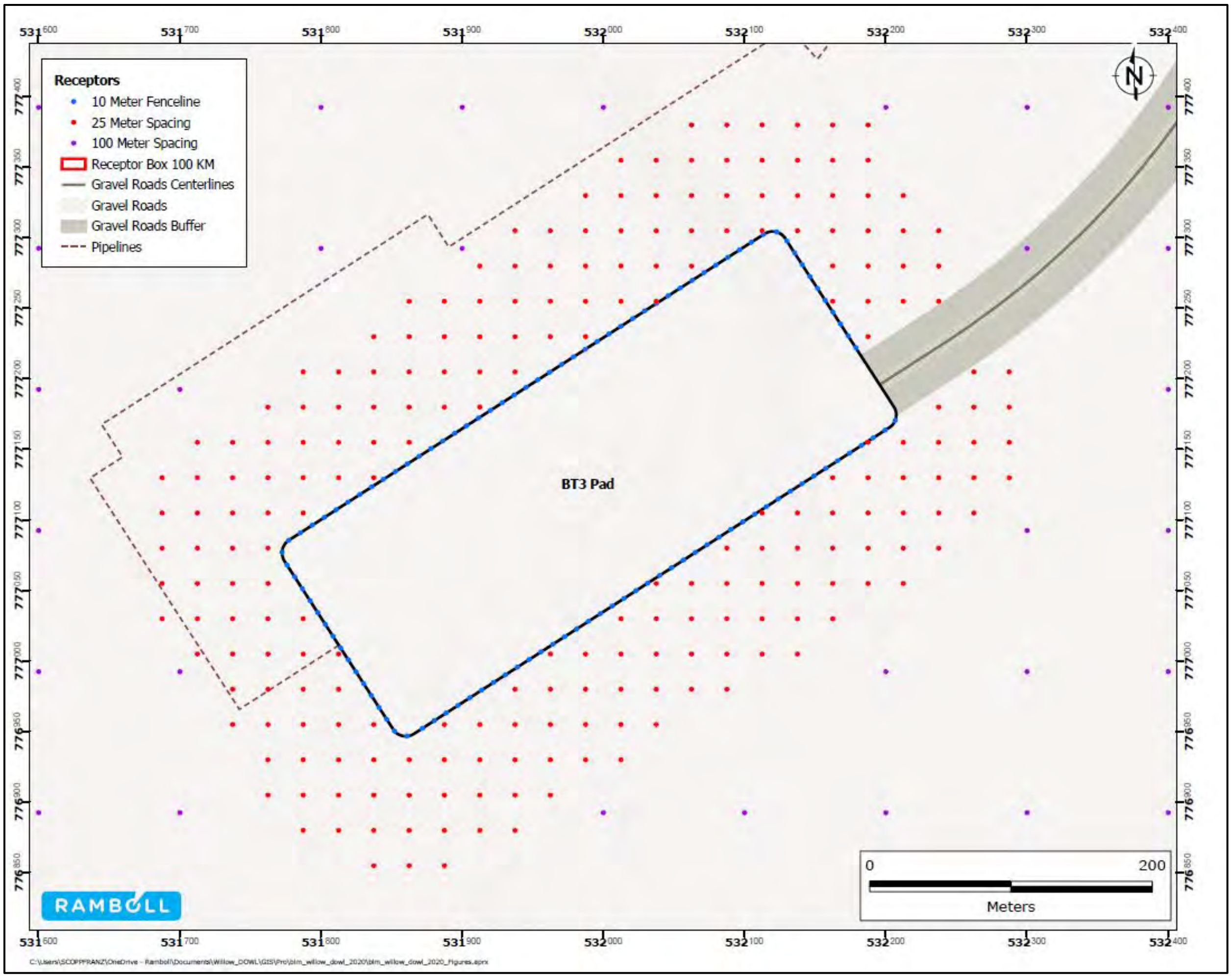

Figure E.1-15. BT3 Developmental Drilling Receptor Locations – Alternative B (Proponent's Project)

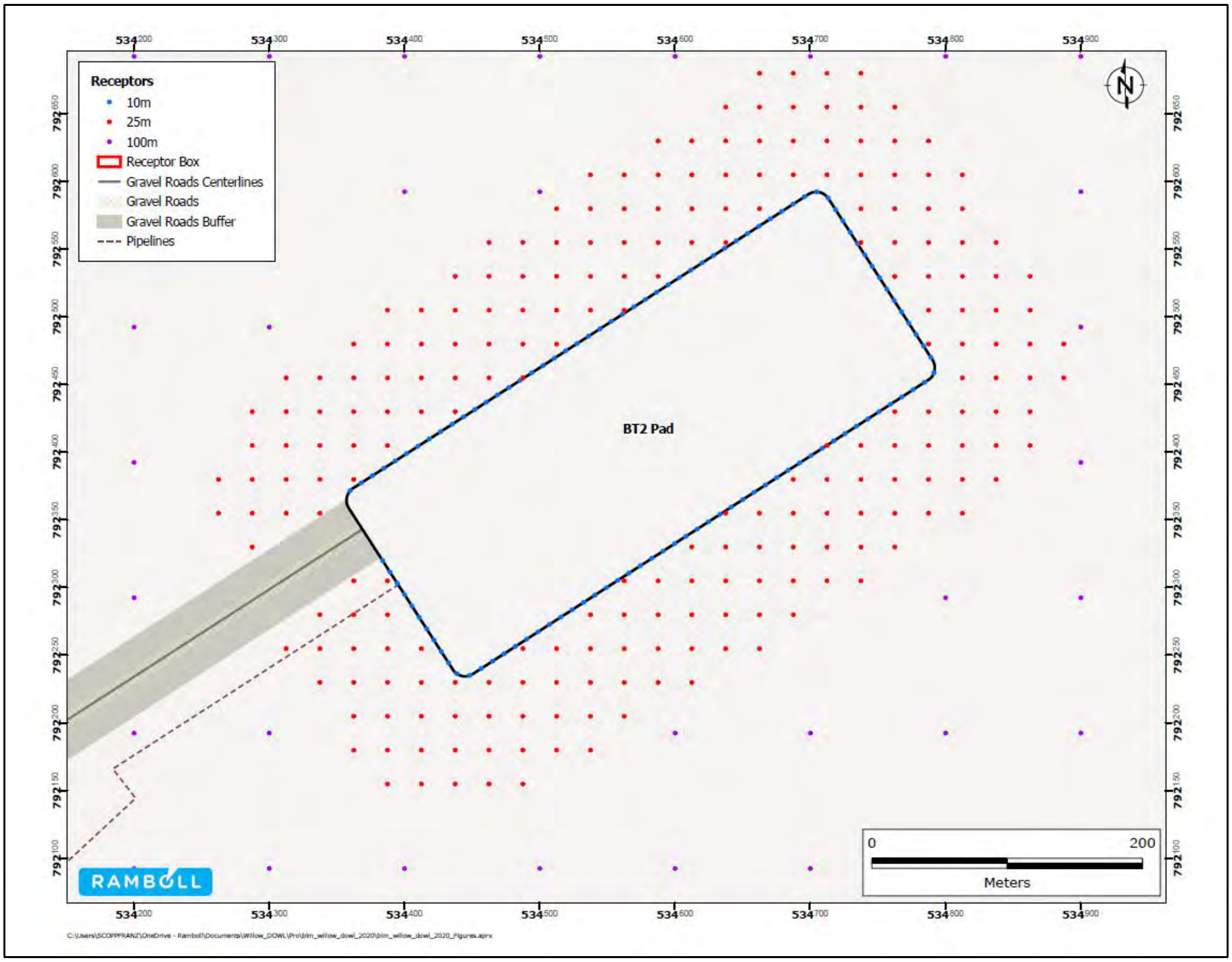

Figure E.1-16. BT2 Developmental Drilling Receptor Locations – Alternative B (Proponent's Project)

E.1.5 Routine Operations

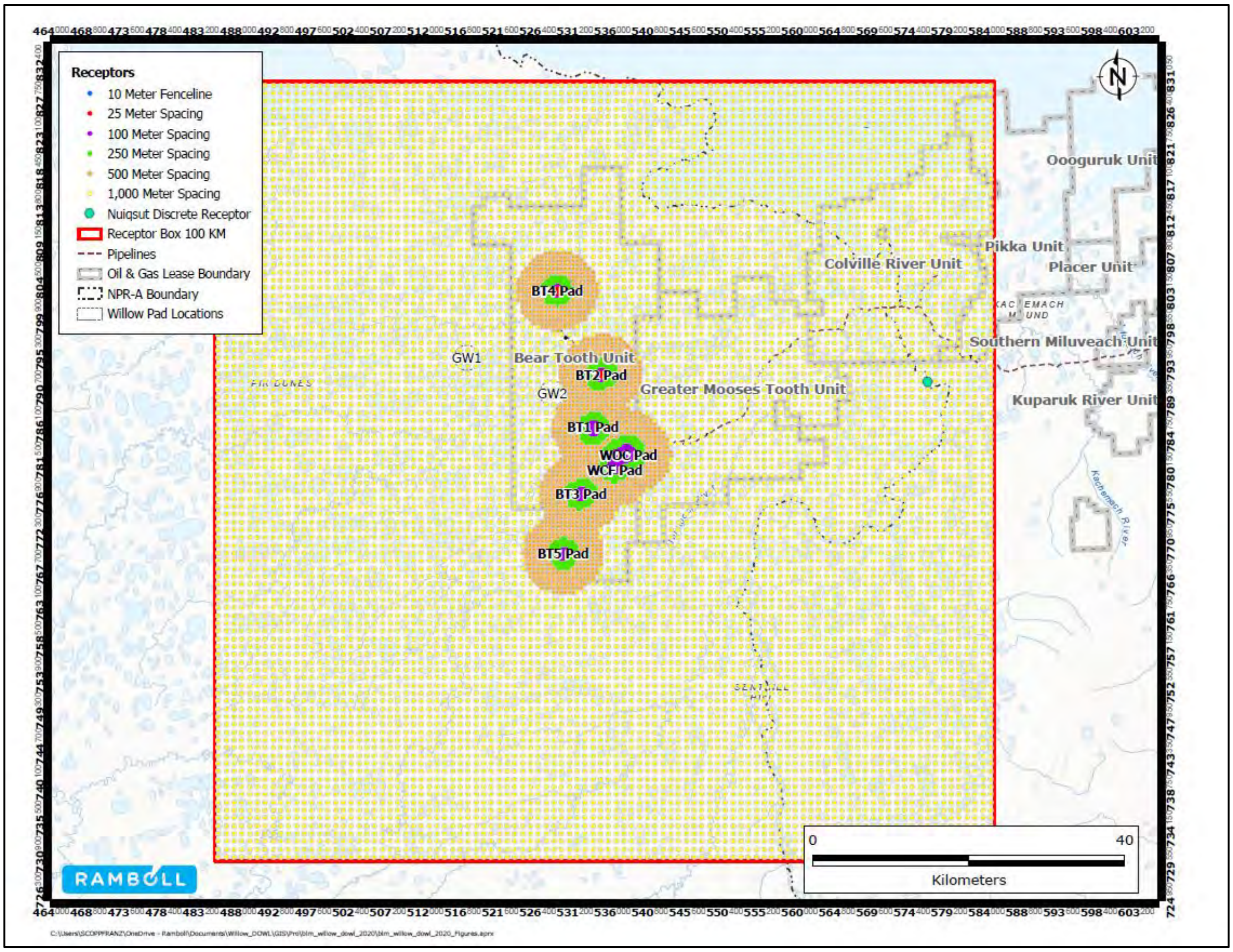

Figure E.1-17. Overview of Operations Receptor Locations – Alternative B (Proponent's Project)

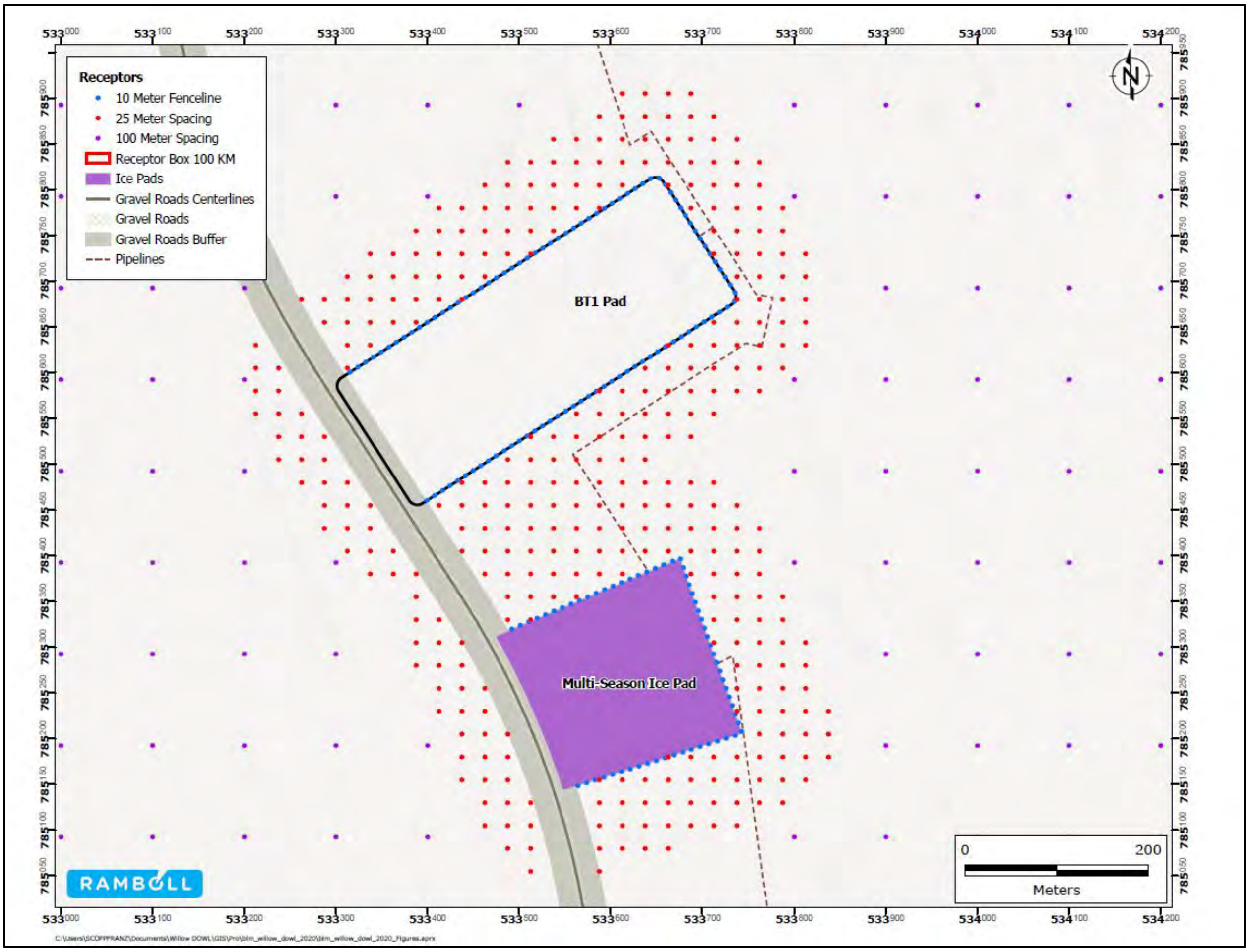

Figure E.1-18. BT1 Operations Receptor Locations – Alternative B (Proponent's Project)

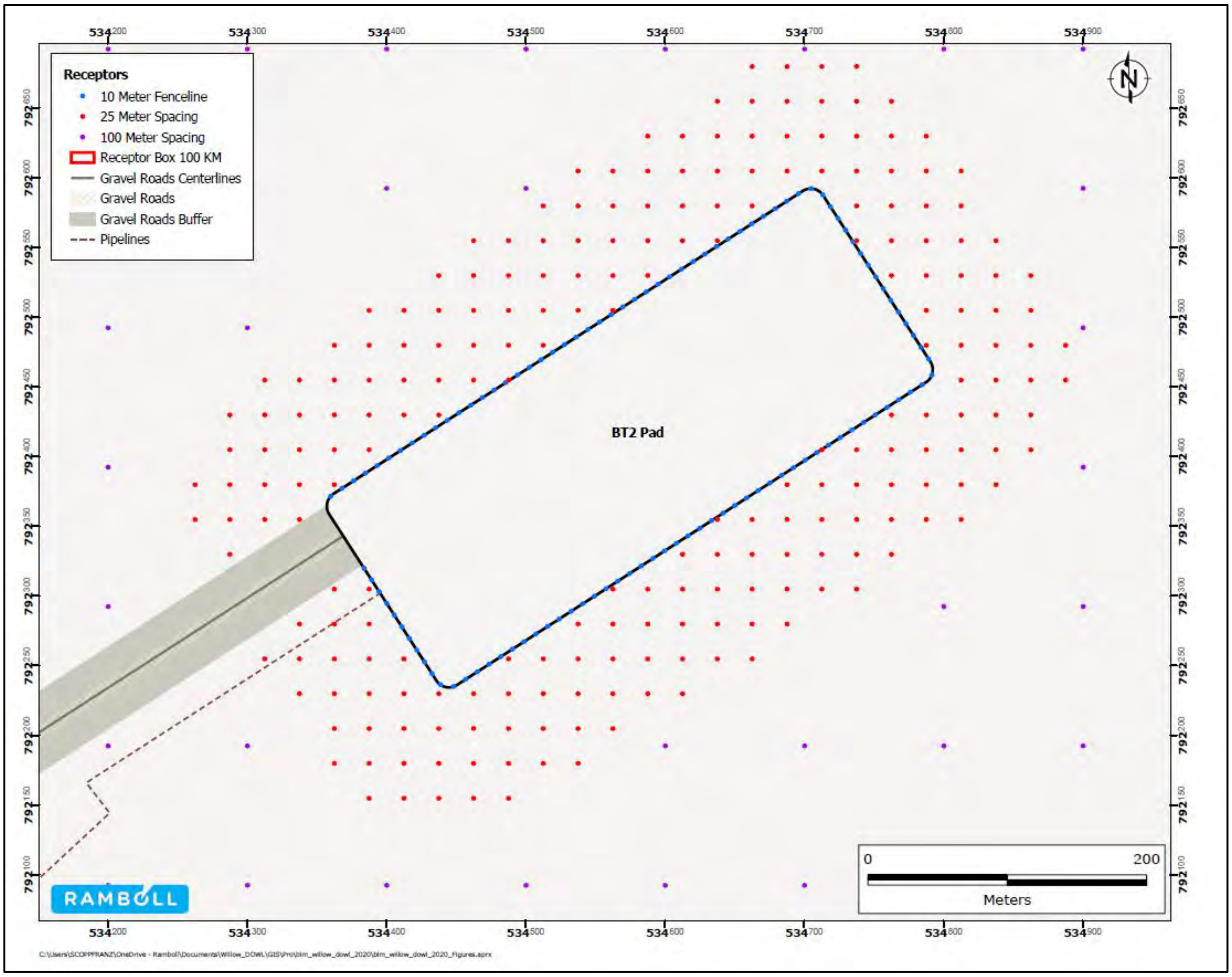

Figure E.1-19. BT2 Operations Receptor Locations – Alternative B (Proponent's Project)

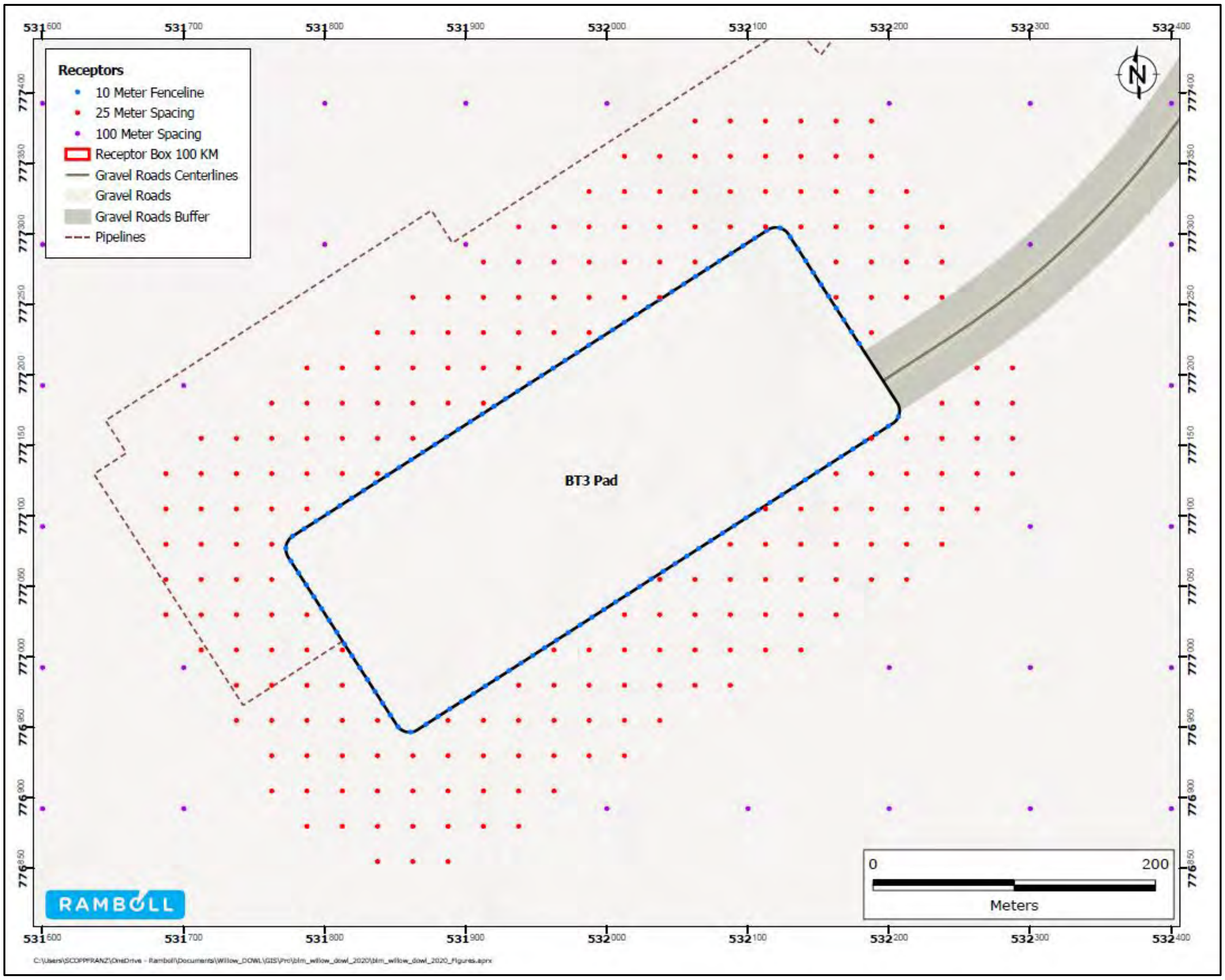

Figure E.1-20. BT3 Operations Receptor Locations – Alternative B (Proponent's Project)

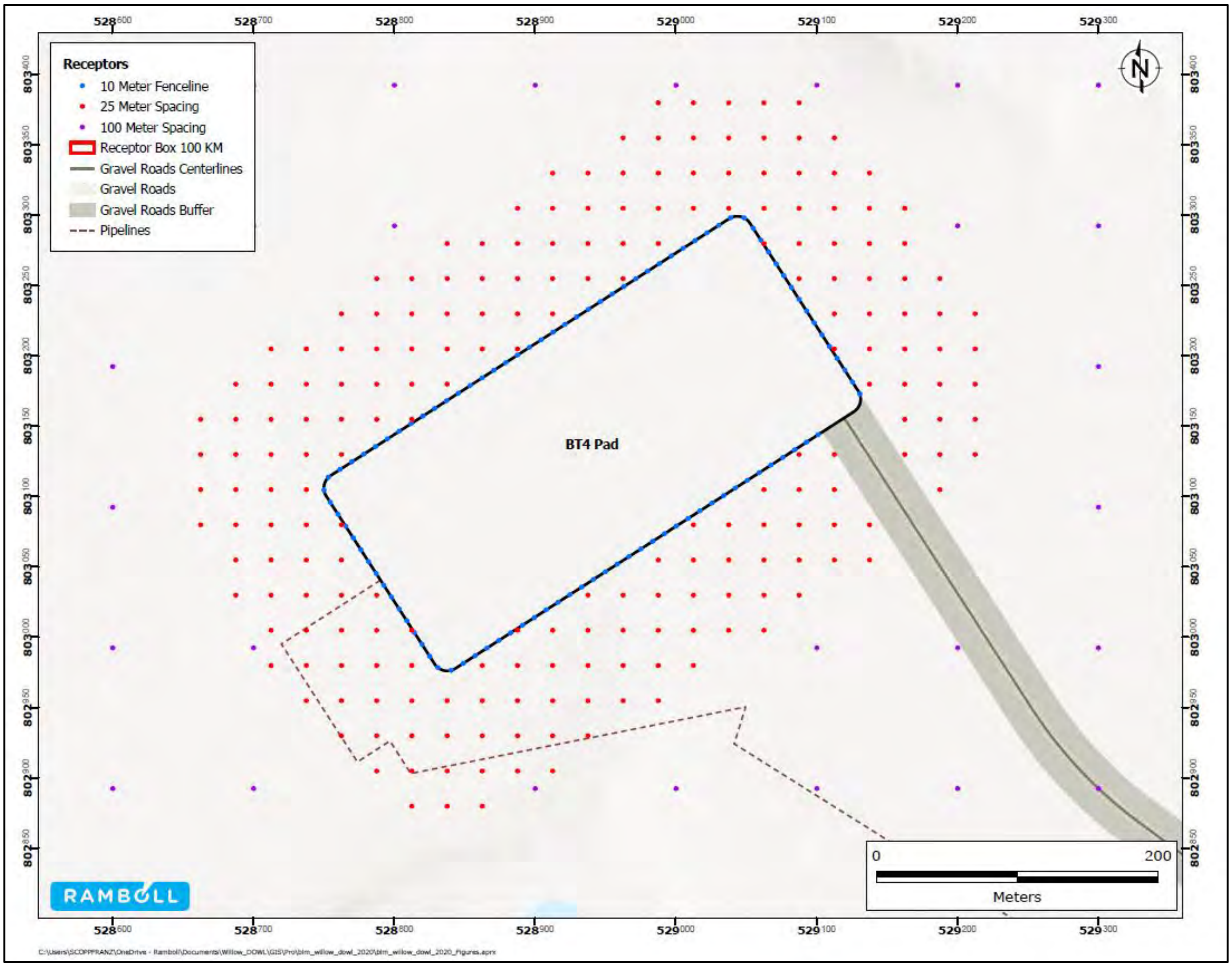

Figure E.1-21. BT4 Operations Receptor Locations – Alternative B (Proponent's Project)

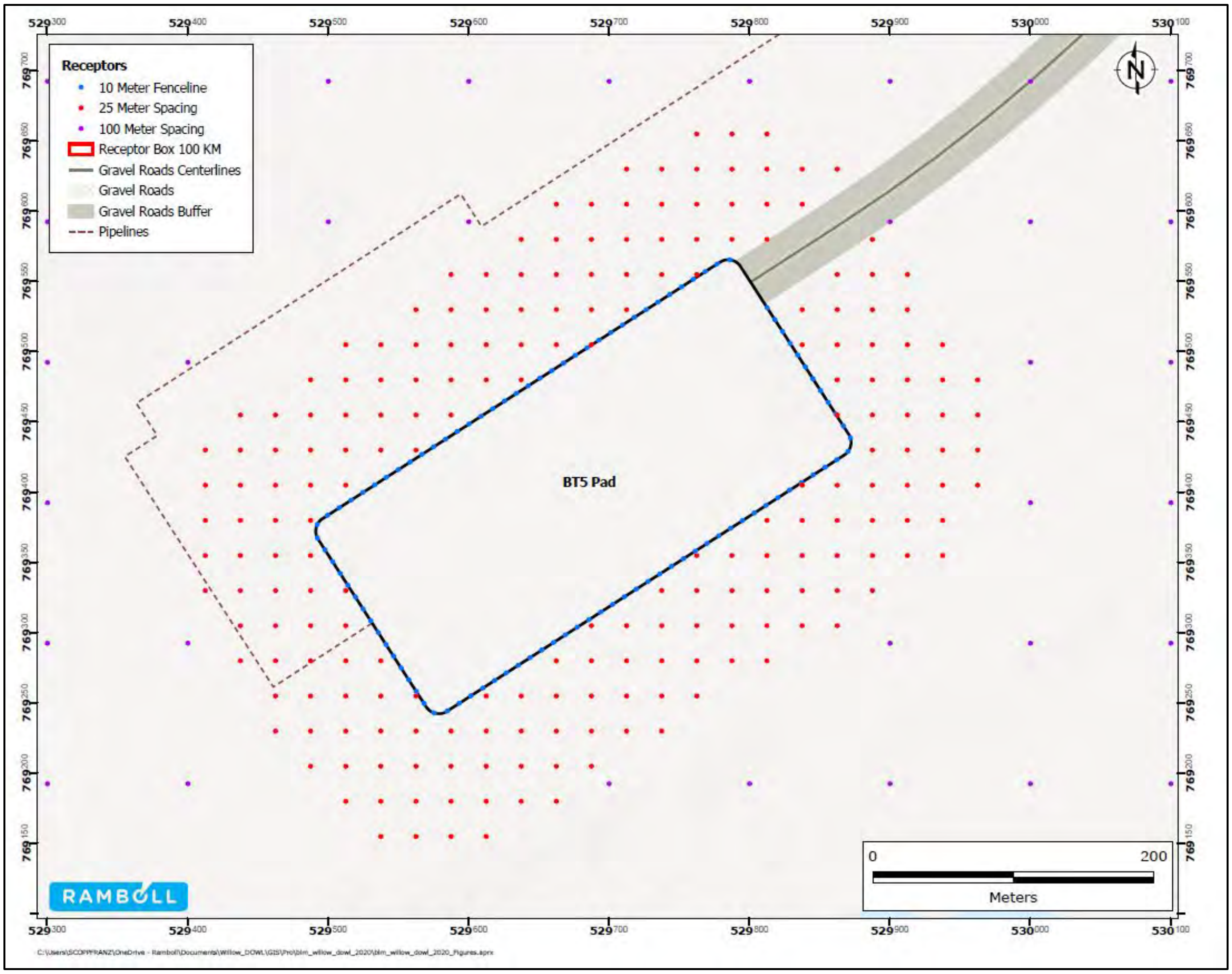

Figure E.1-22. BT5 Operations Receptor Locations – Alternative B (Proponent's Project)

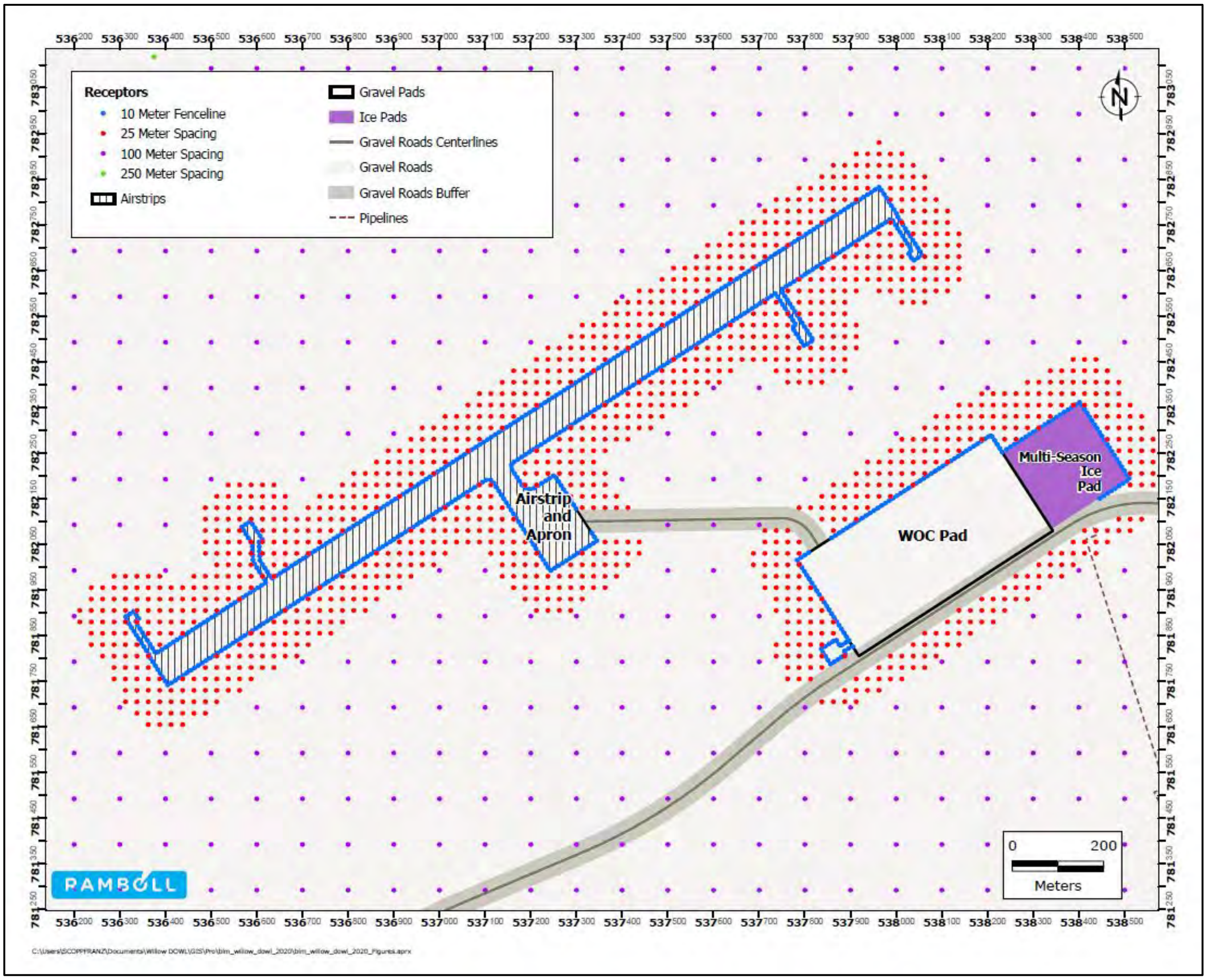

Figure E.1-23. Airstrip and WOC Pad Operations Receptor Locations – Alternative B (Proponent's Project)

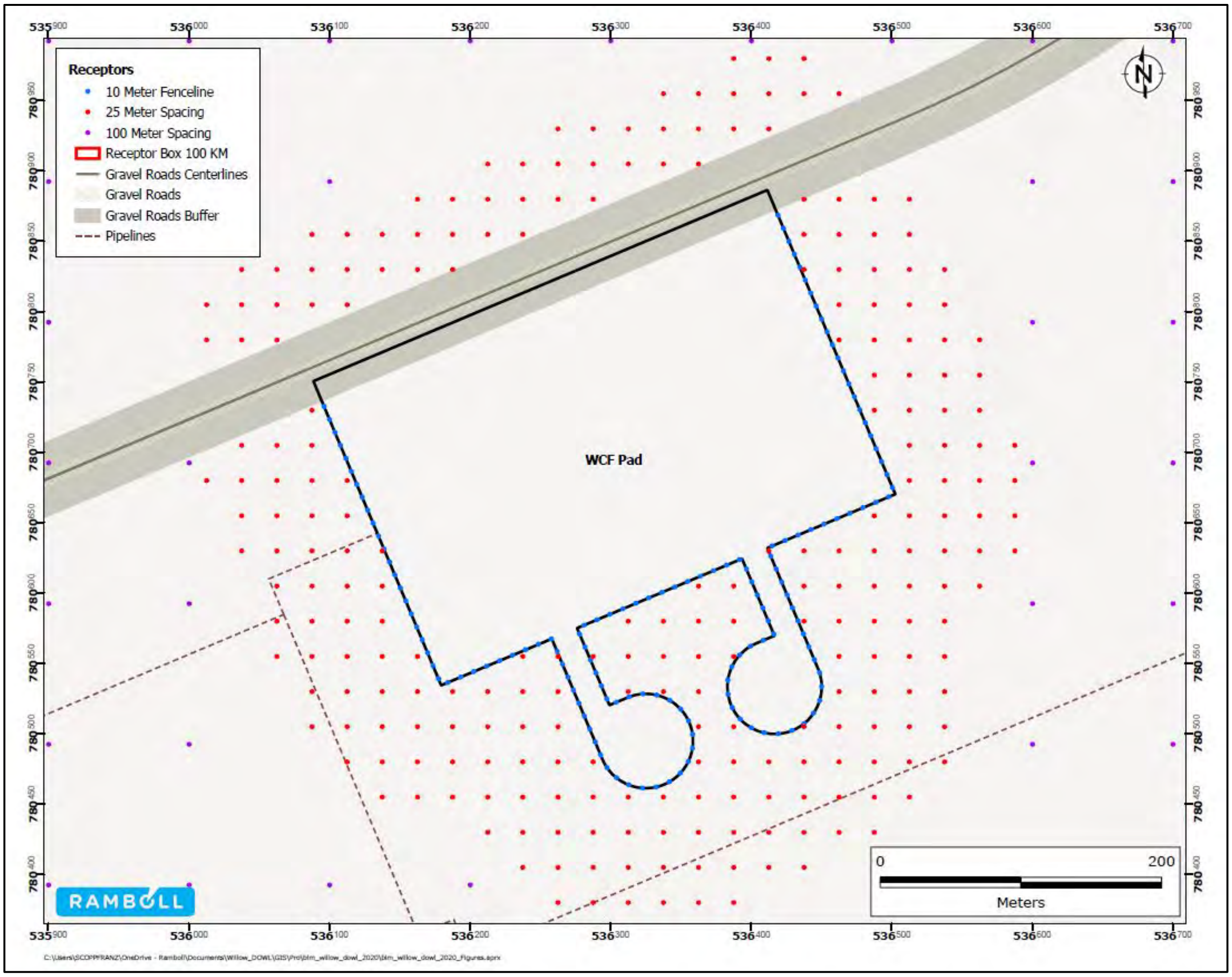

Figure E.1-24. WCF Operations Receptor Locations – Alternative B (Proponent's Project)

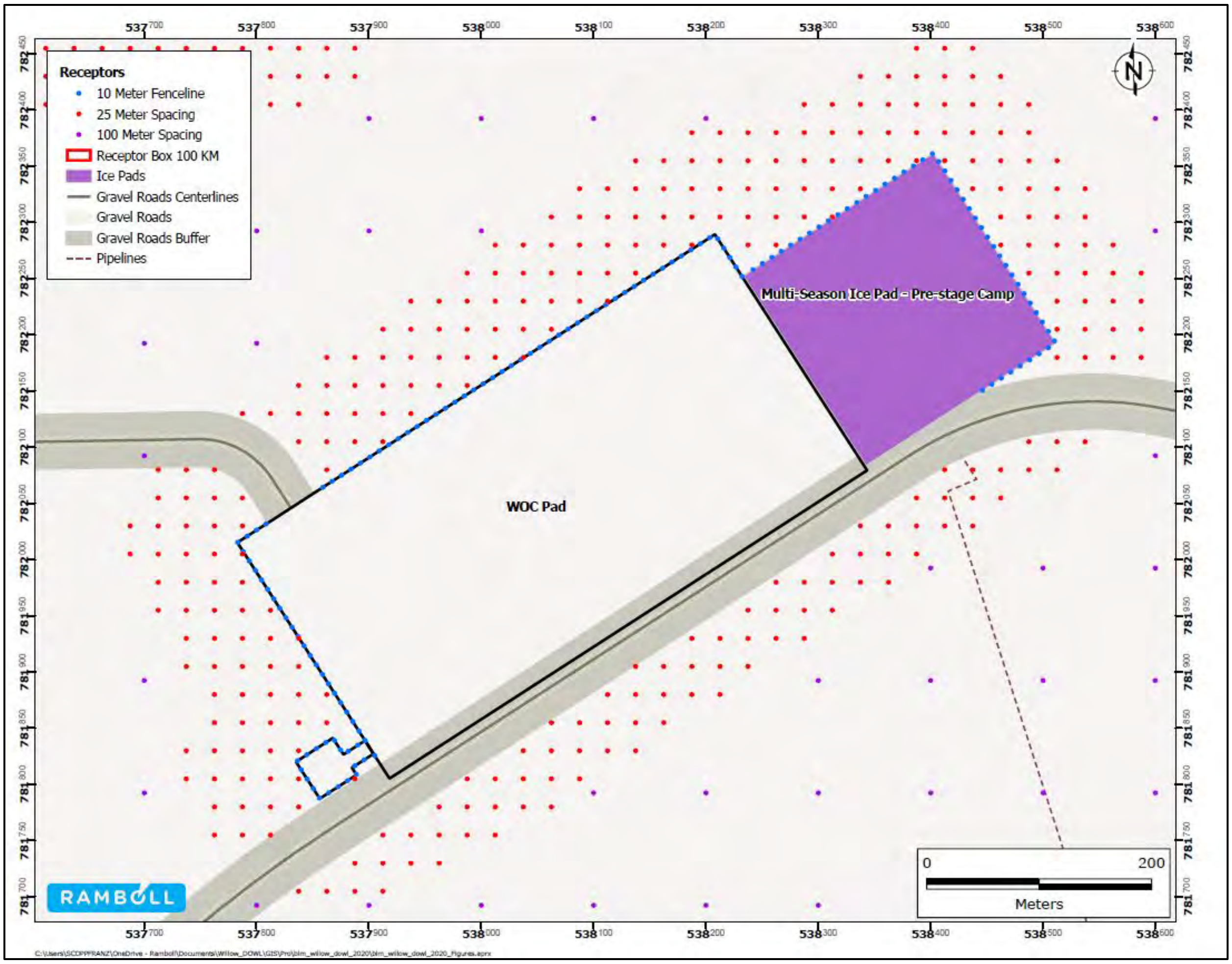

Figure E.1-25. WOC Operations Receptor Locations – Alternative B (Proponent's Project)

E.2 Alternative C

E.2.1 Construction

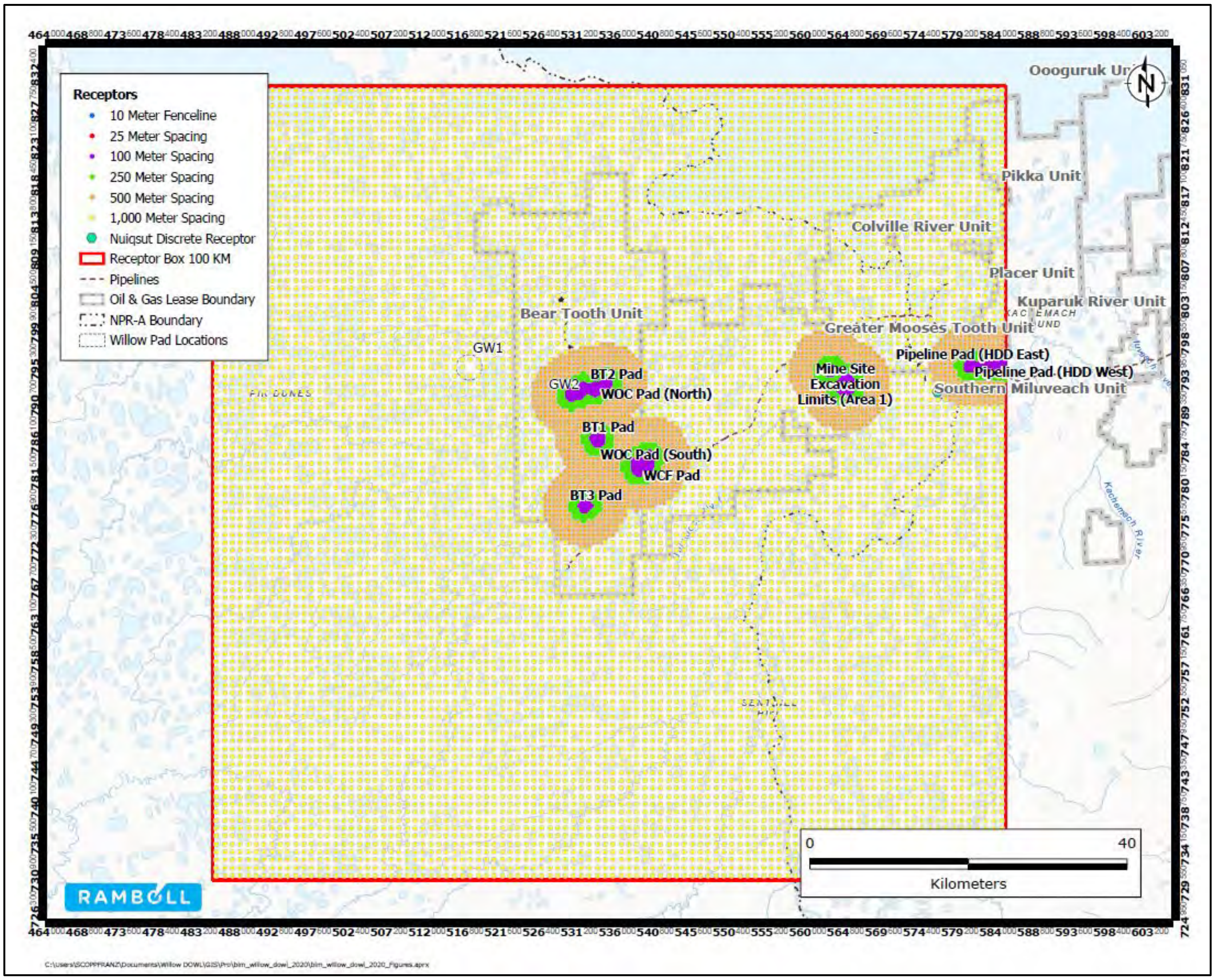

Figure E.2-1. Overview of Construction Receptor Locations – Alternative C (Disconnected Infield Roads)

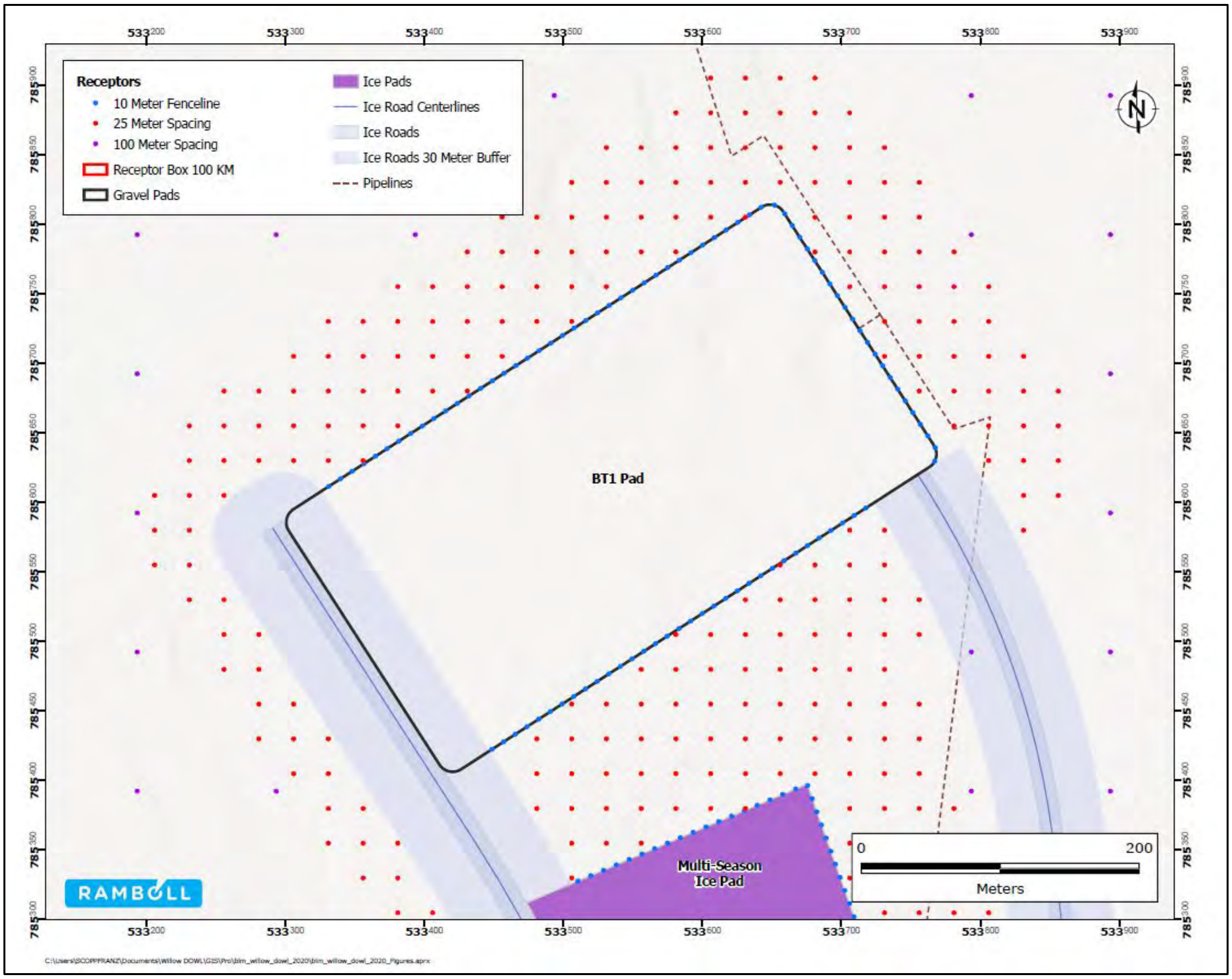

Figure E.2-2. BT1 Construction Receptor Locations – Alternative C (Disconnected Infield Roads)

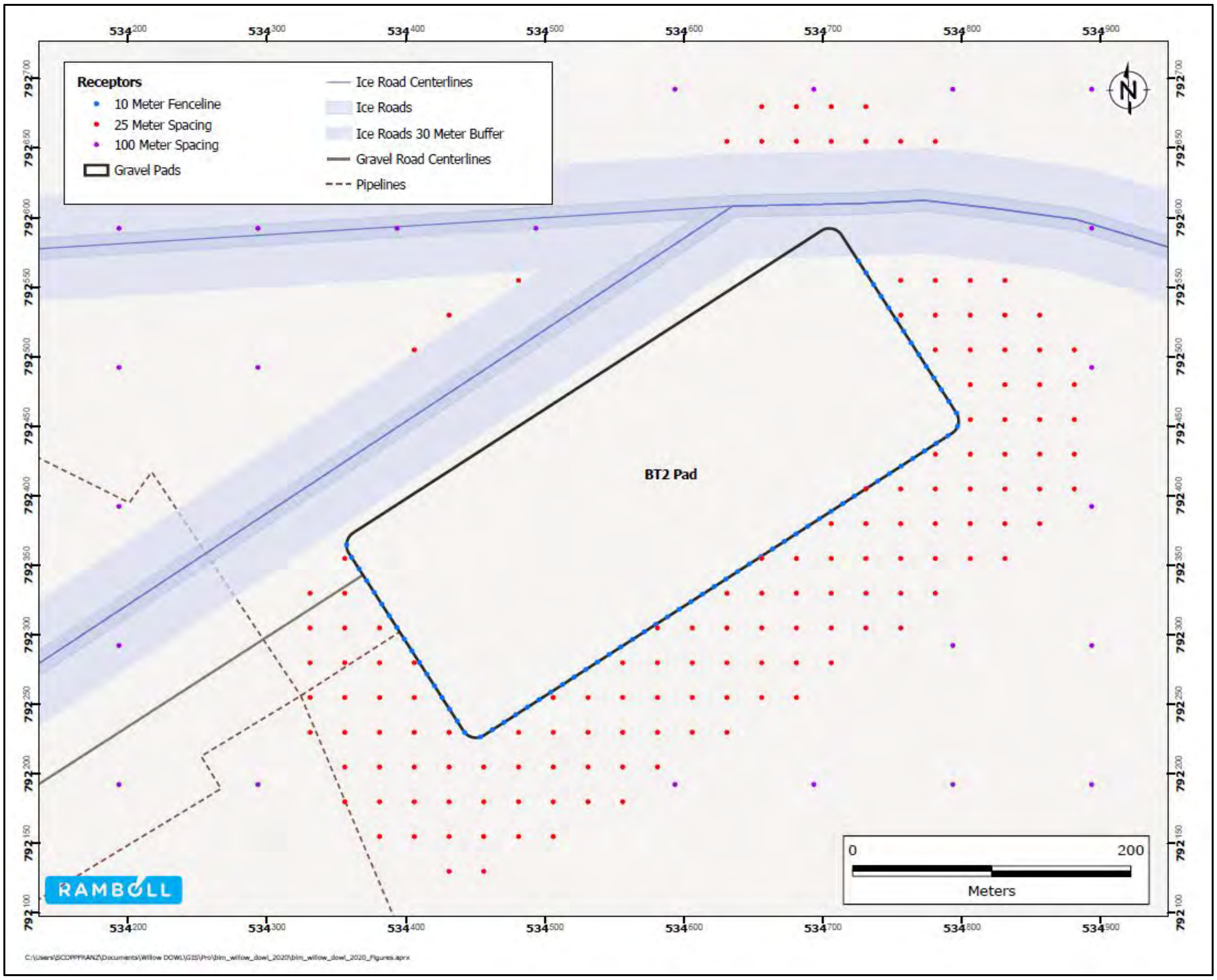

Figure E.2-3. BT2 Construction Receptor Locations – Alternative C (Disconnected Infield Roads)

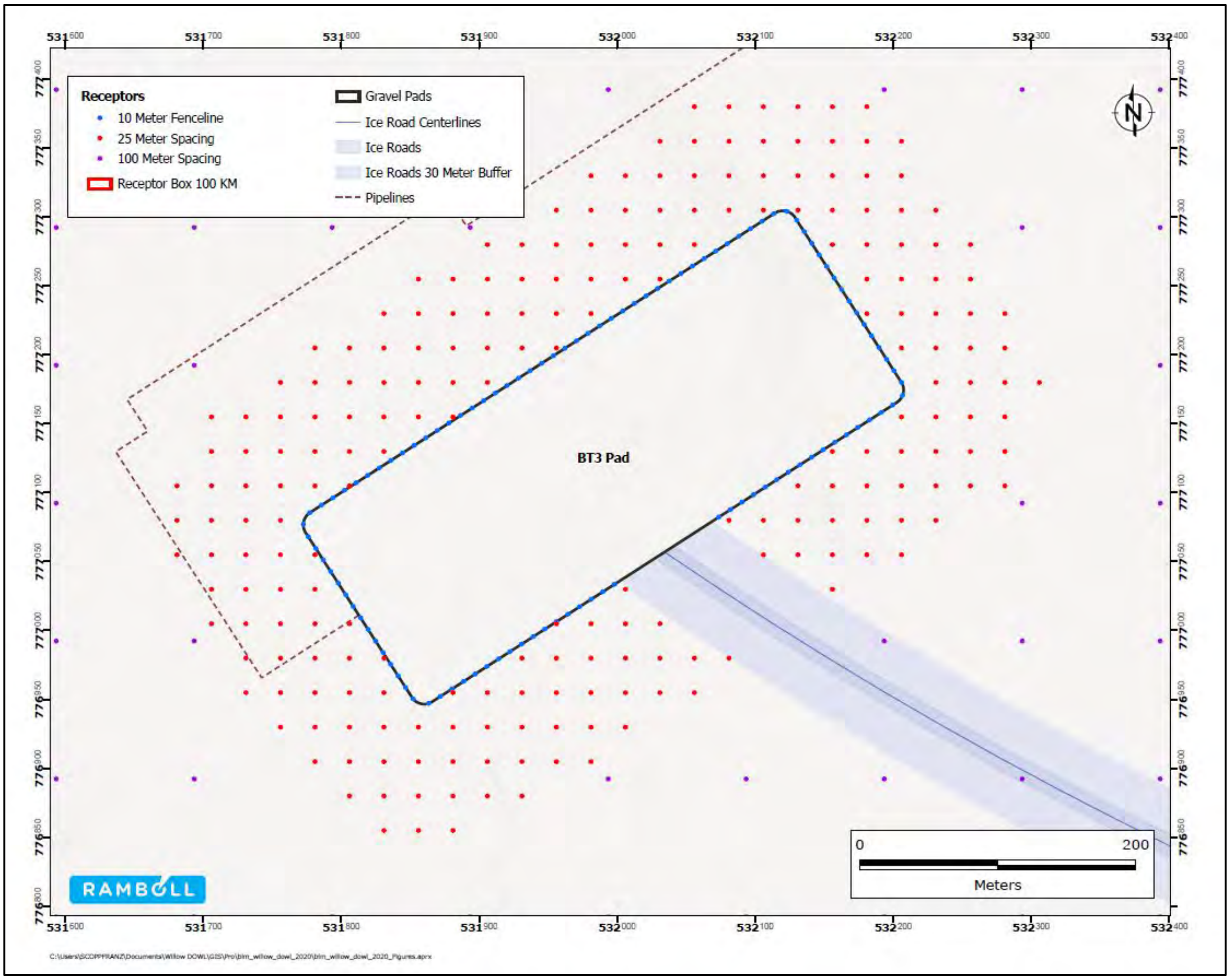

Figure E.2-4. BT3 Construction Receptor Locations – Alternative C (Disconnected Infield Roads)

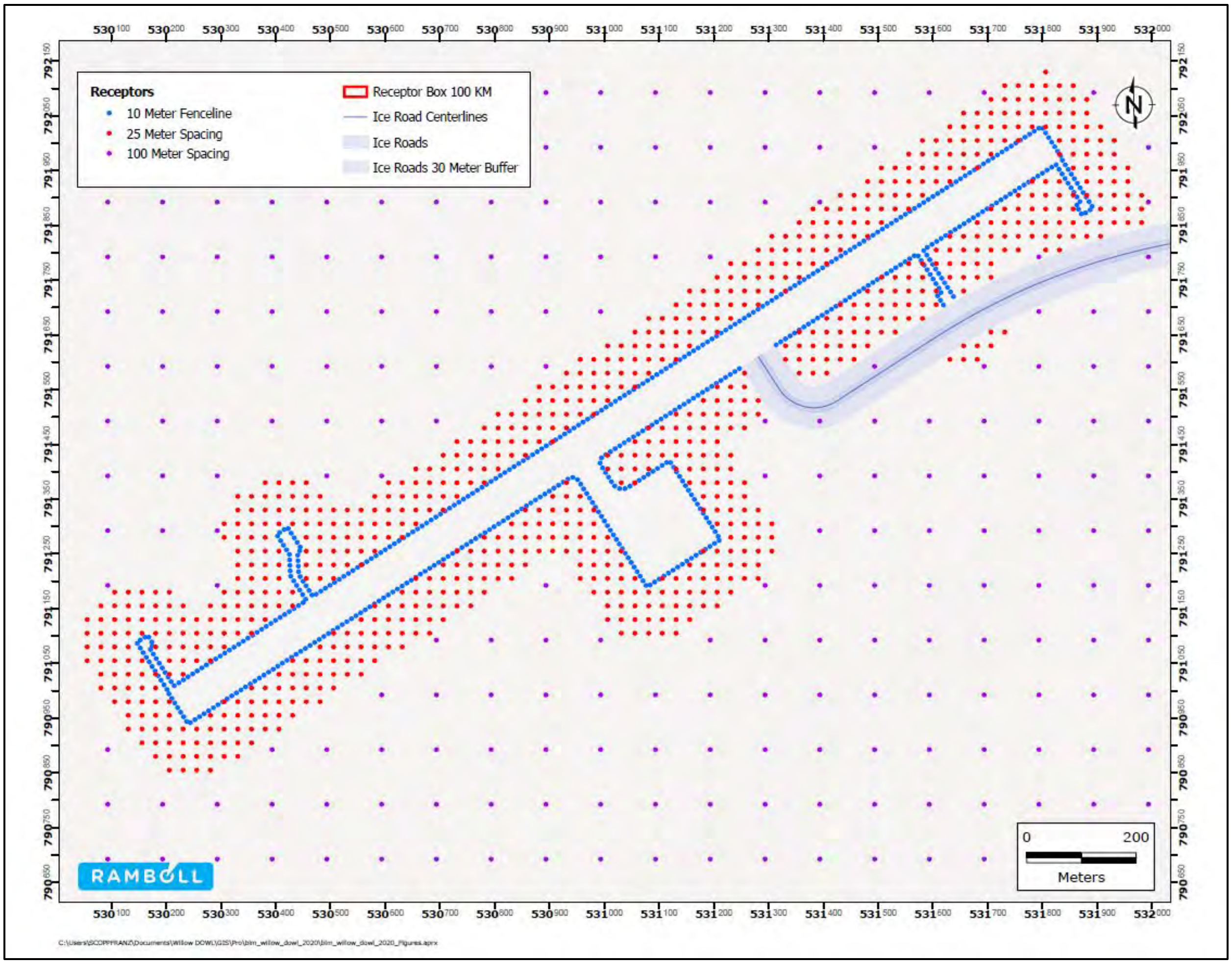

Figure E.2-5. North Airstrip and WOC Pad Construction Receptor Locations – Alternative C (Disconnected Infield Roads)

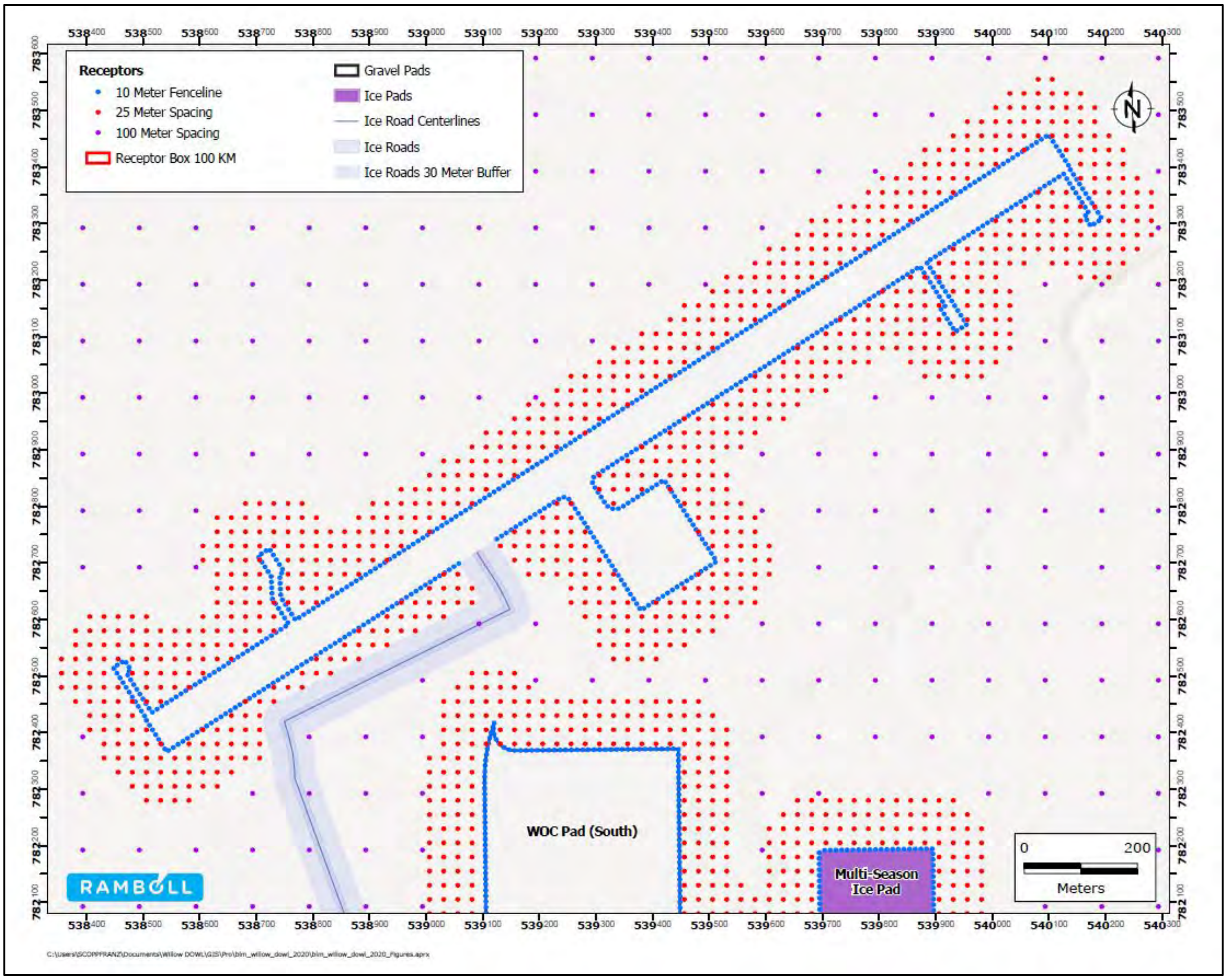

Figure E.2-6. South Airstrip and WOC Pad Construction Receptor Locations – Alternative C (Disconnected Infield Roads)

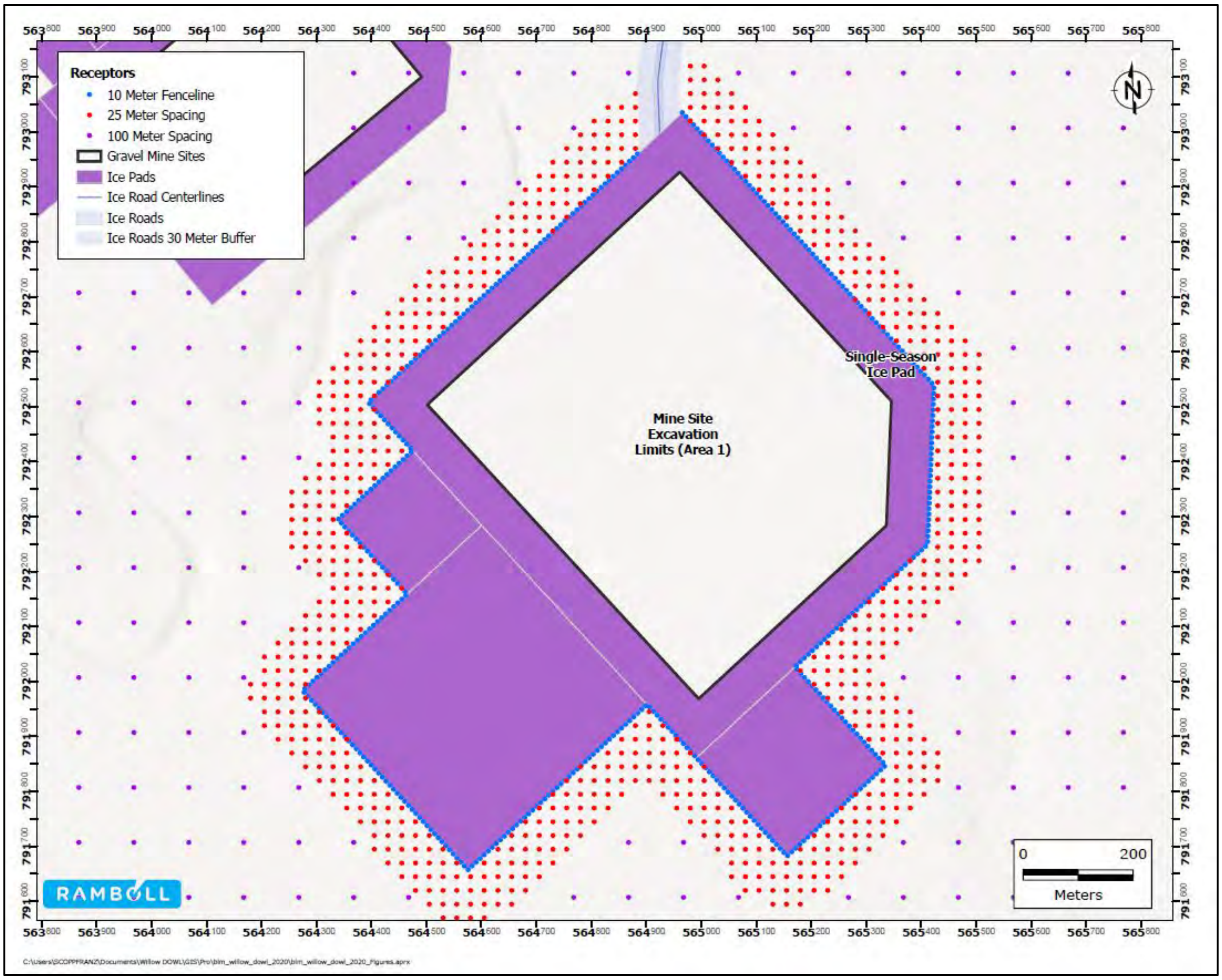

Figure E.2-7. Gravel Mine Site Construction Receptor Locations – Alternative C (Disconnected Infield Roads)

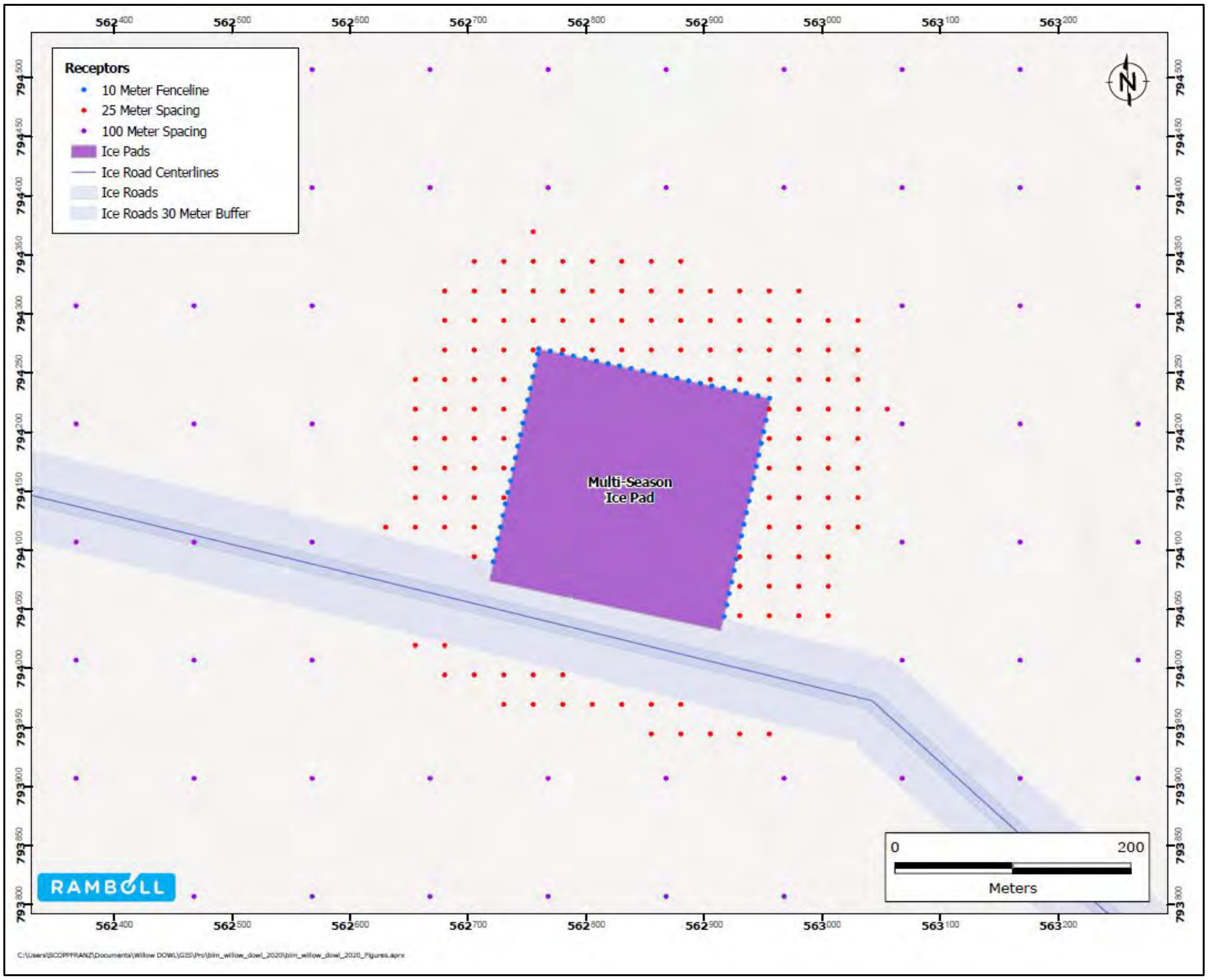

Figure E.2-8. Mine Camp Construction Receptor Locations – Alternative C (Disconnected Infield Roads)

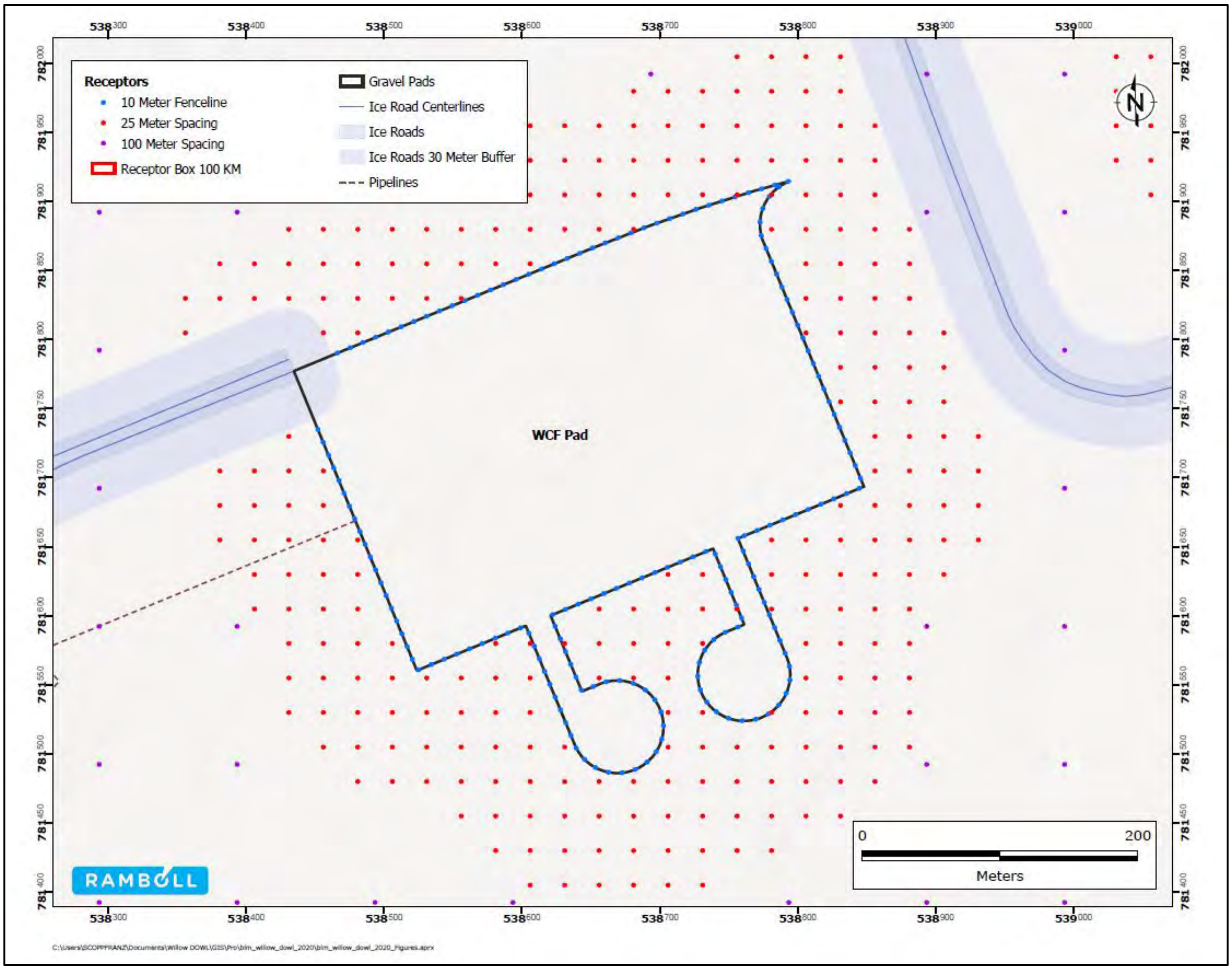

Figure E.2-9. WCF Construction Receptor Locations – Alternative C (Disconnected Infield Roads)

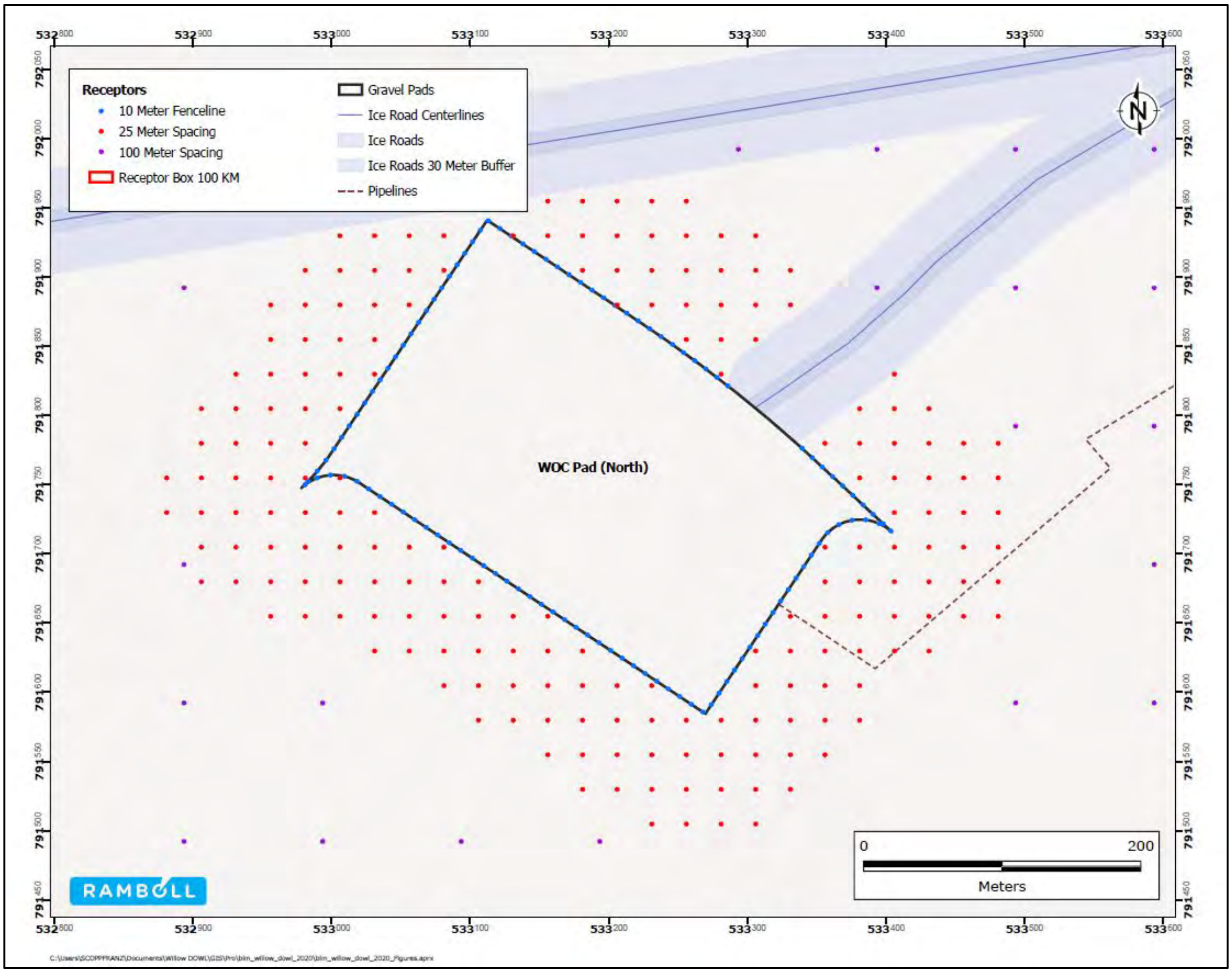

Figure E.2-10. WOC North Construction Receptor Locations – Alternative C (Disconnected Infield Roads)

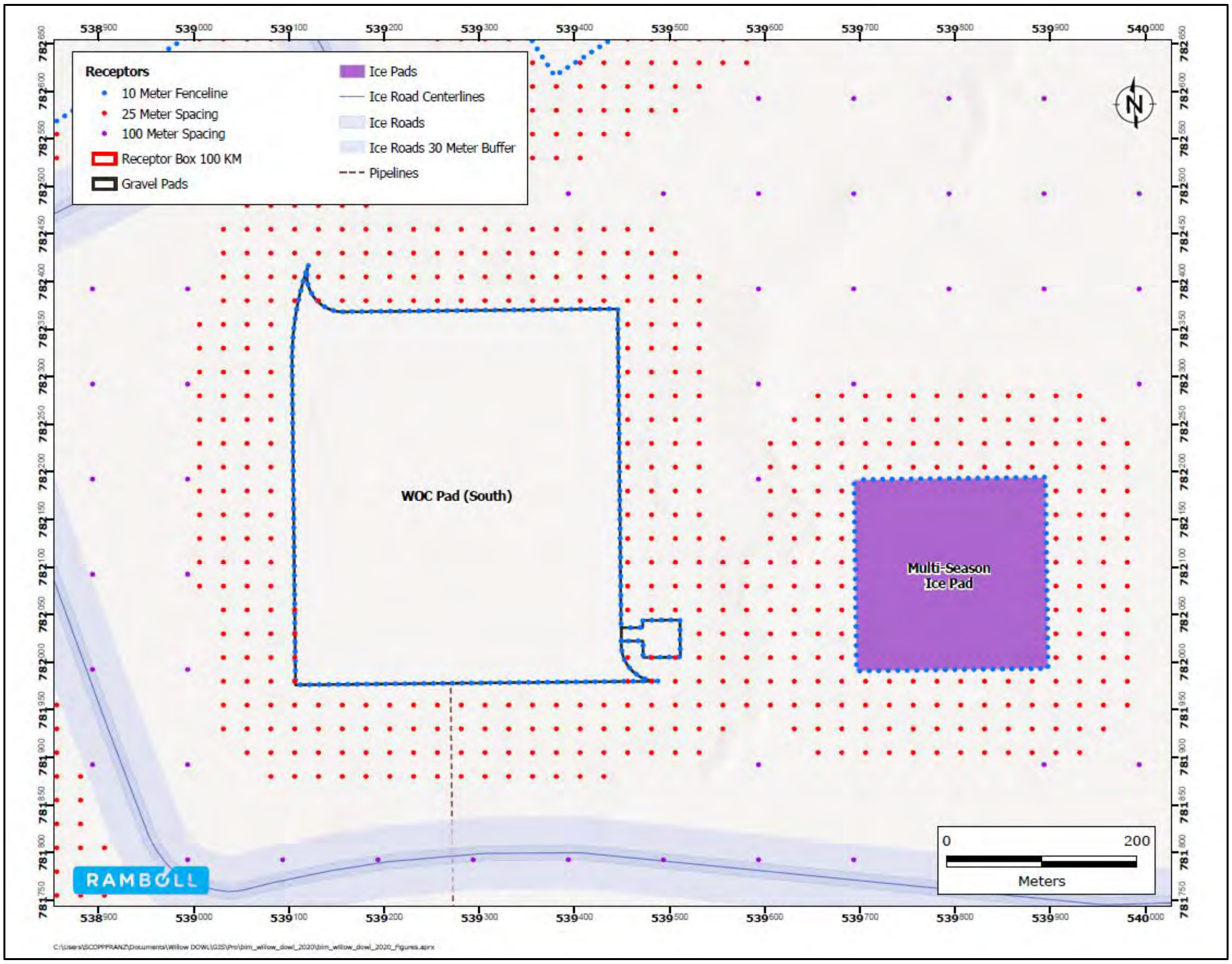

Figure E.2-11. WOC South Construction Receptor Locations – Alternative C (Disconnected Infield Roads)

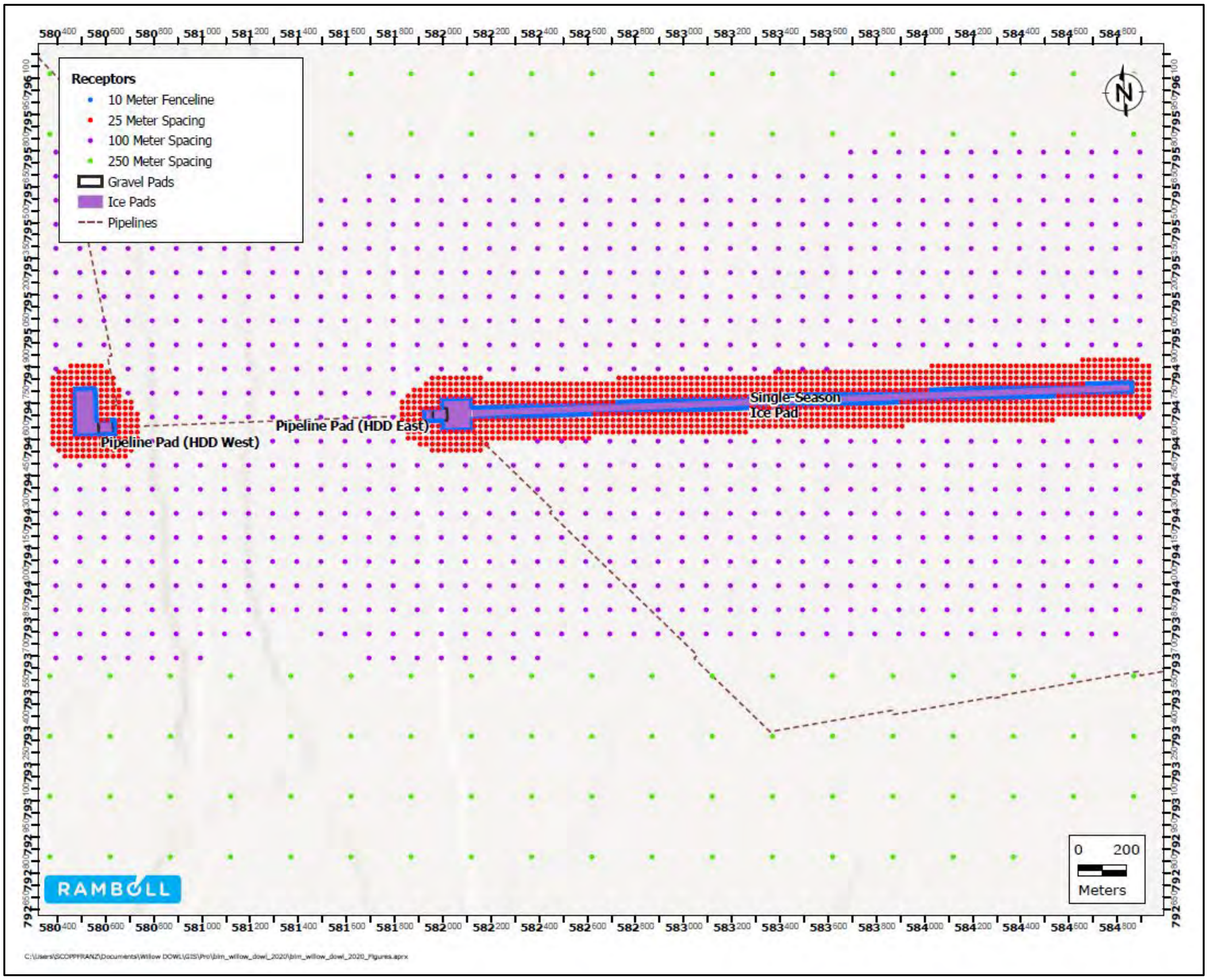

Figure E.2-12. HDD Construction Receptor Locations – Alternative C (Disconnected Infield Roads)

E.2.2 BT1 Pre-Drill

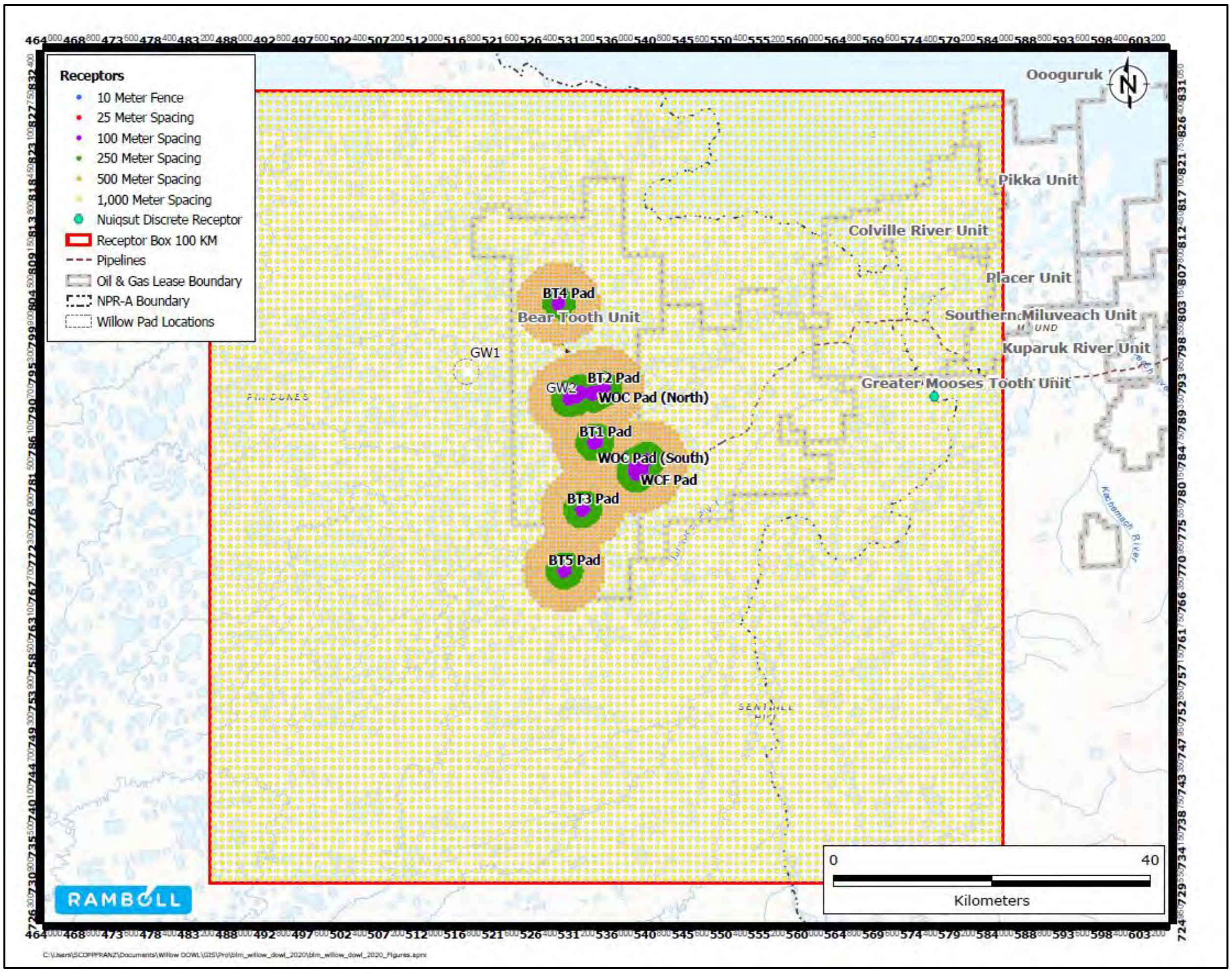

Figure E.2-13. Overview of Drilling Receptor Locations – Alternative C (Disconnected Infield Roads)

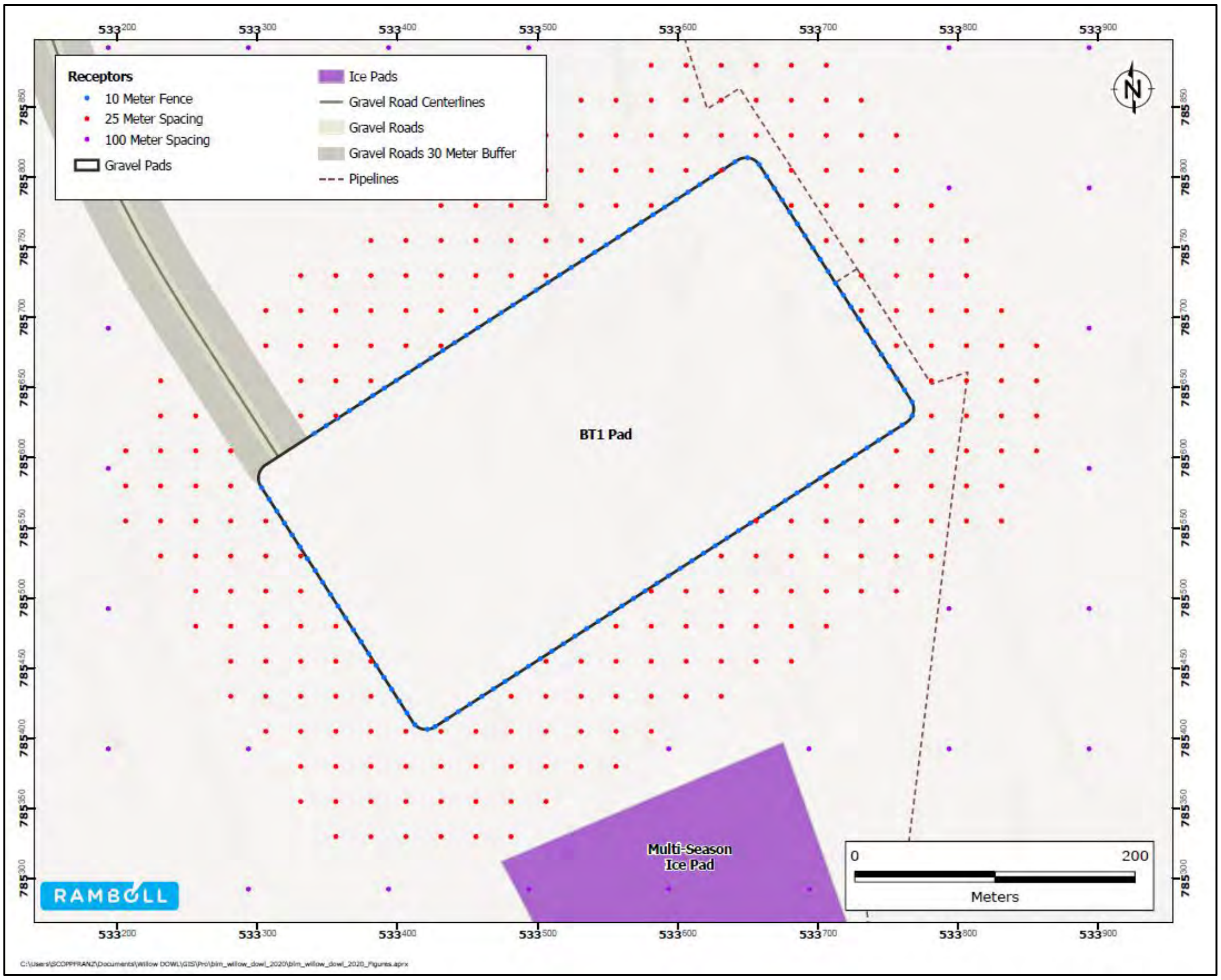

Figure E.2-14. BT1 Drilling Receptor Locations – Alternative C (Disconnected Infield Roads)

E.2.3 BT1 and BT2 Pre-Drill

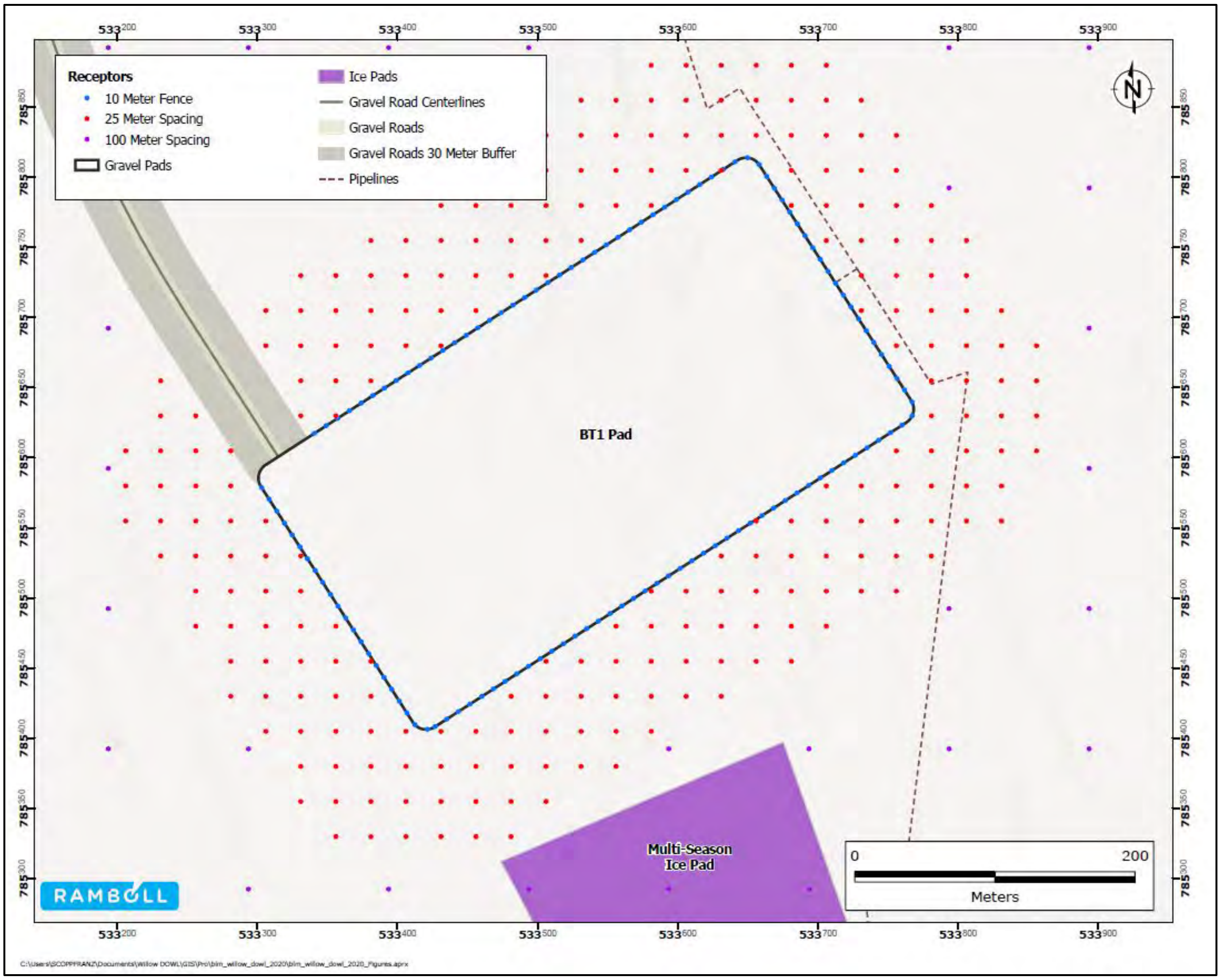

Figure E.2-15. BT1 Drilling Receptor Locations – Alternative C (Disconnected Infield Roads)

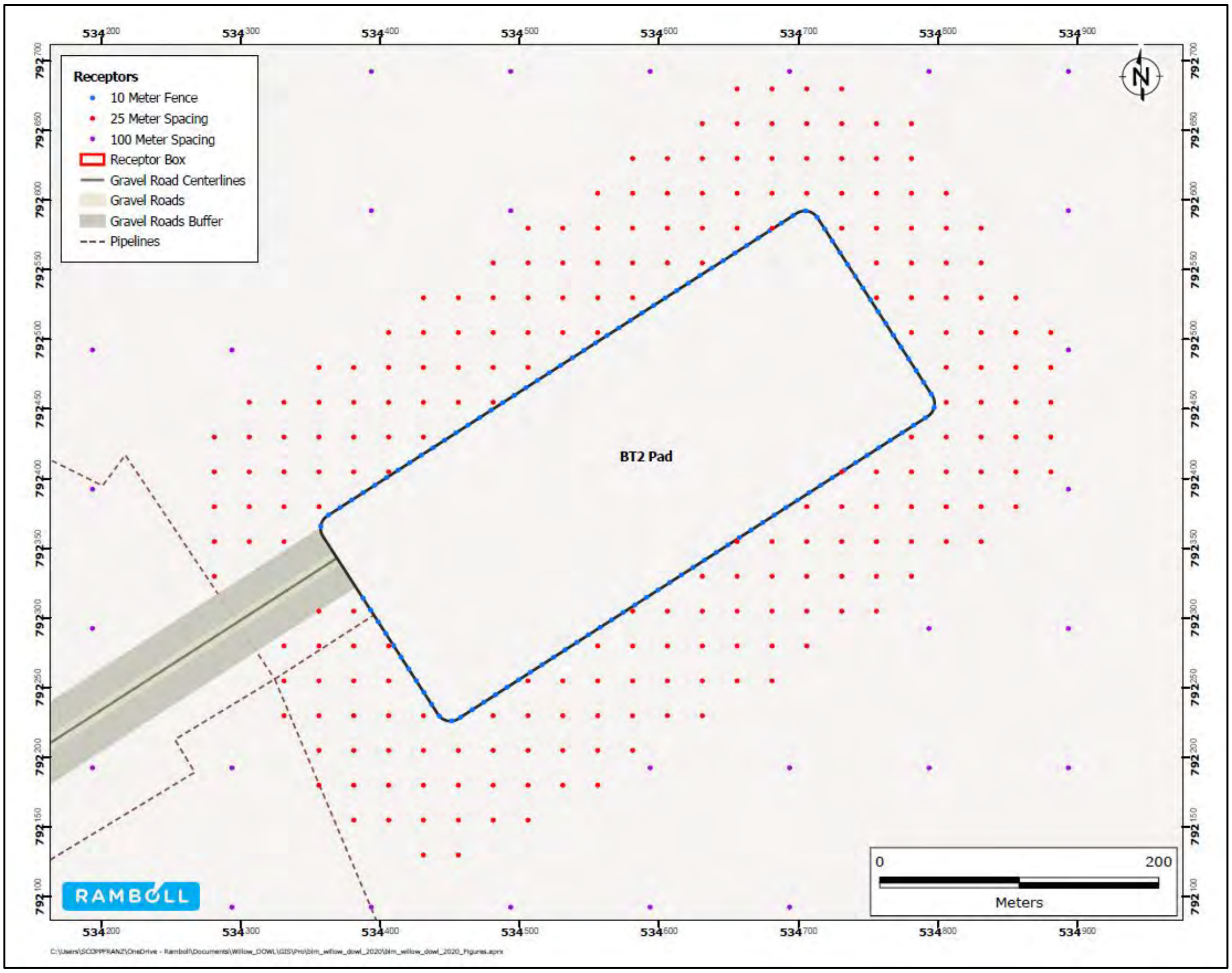

Figure E.2-16. BT2 Drilling Receptor Locations – Alternative C (Disconnected Infield Roads)

E.2.4 Development Drilling

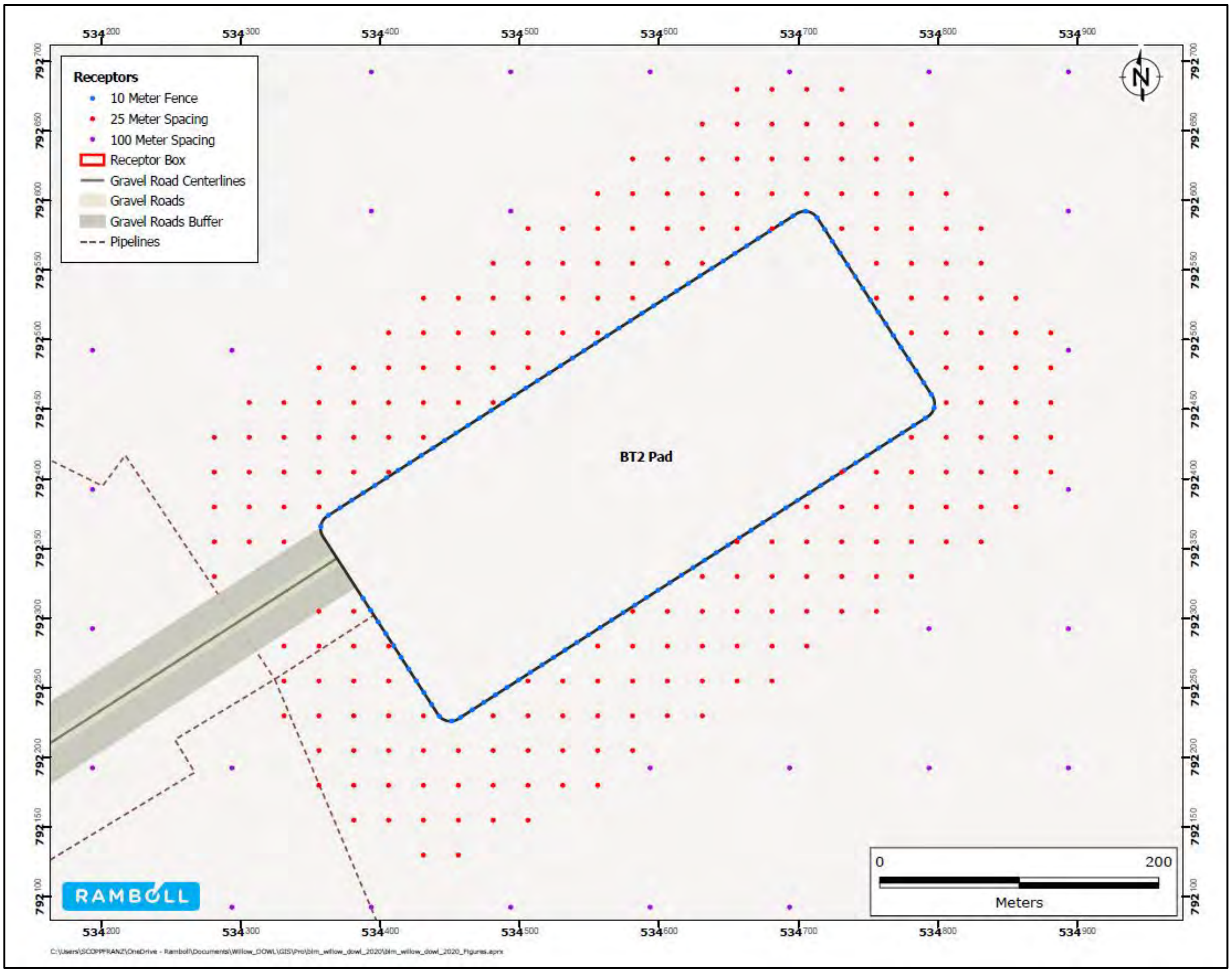

Figure E.2-17. BT2 Developmental Drilling Receptor Locations– Alternative C (Disconnected Infield Roads)

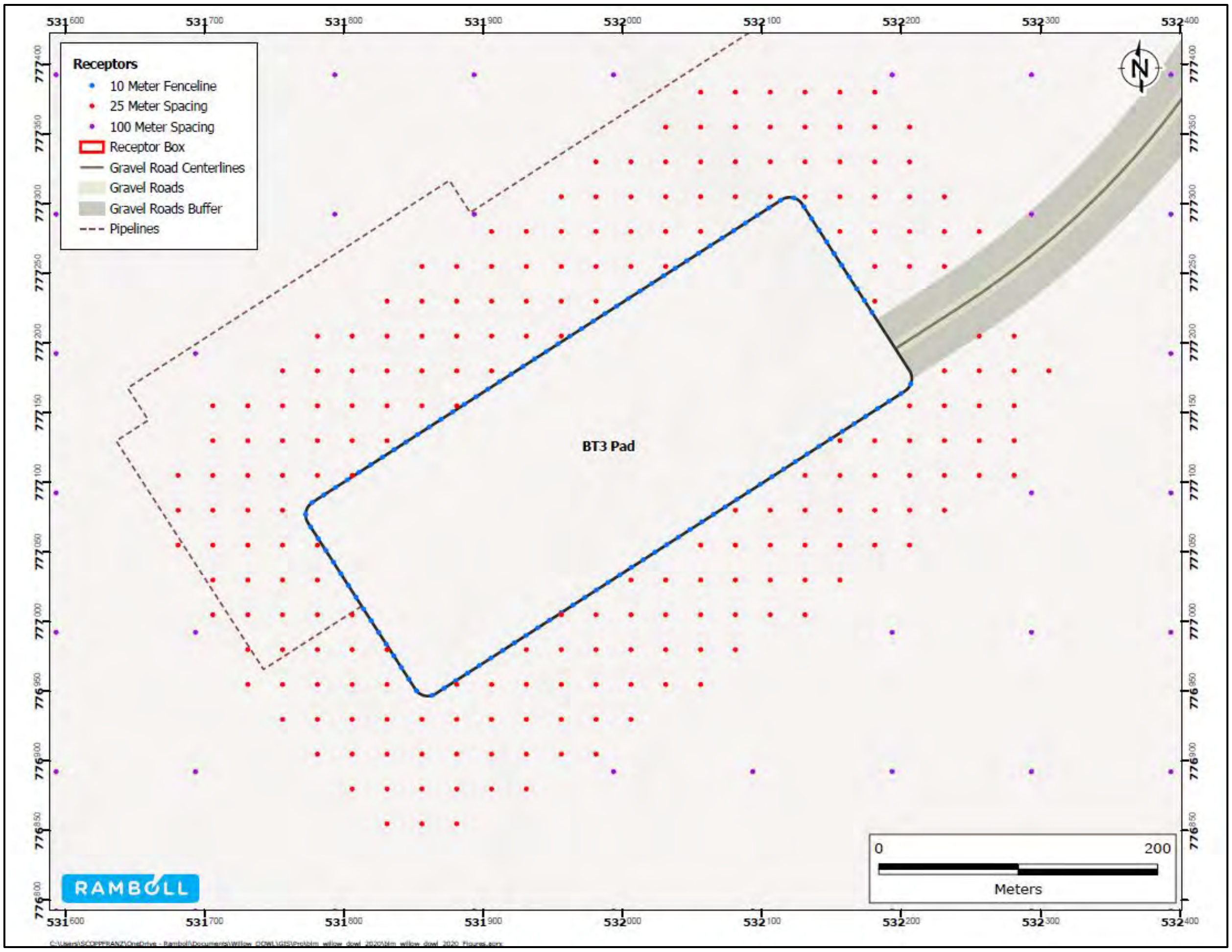

Figure E.2-18. BT3 Developmental Drilling Receptor Locations– Alternative C (Disconnected Infield Roads)

E.2.5 Routine Operations

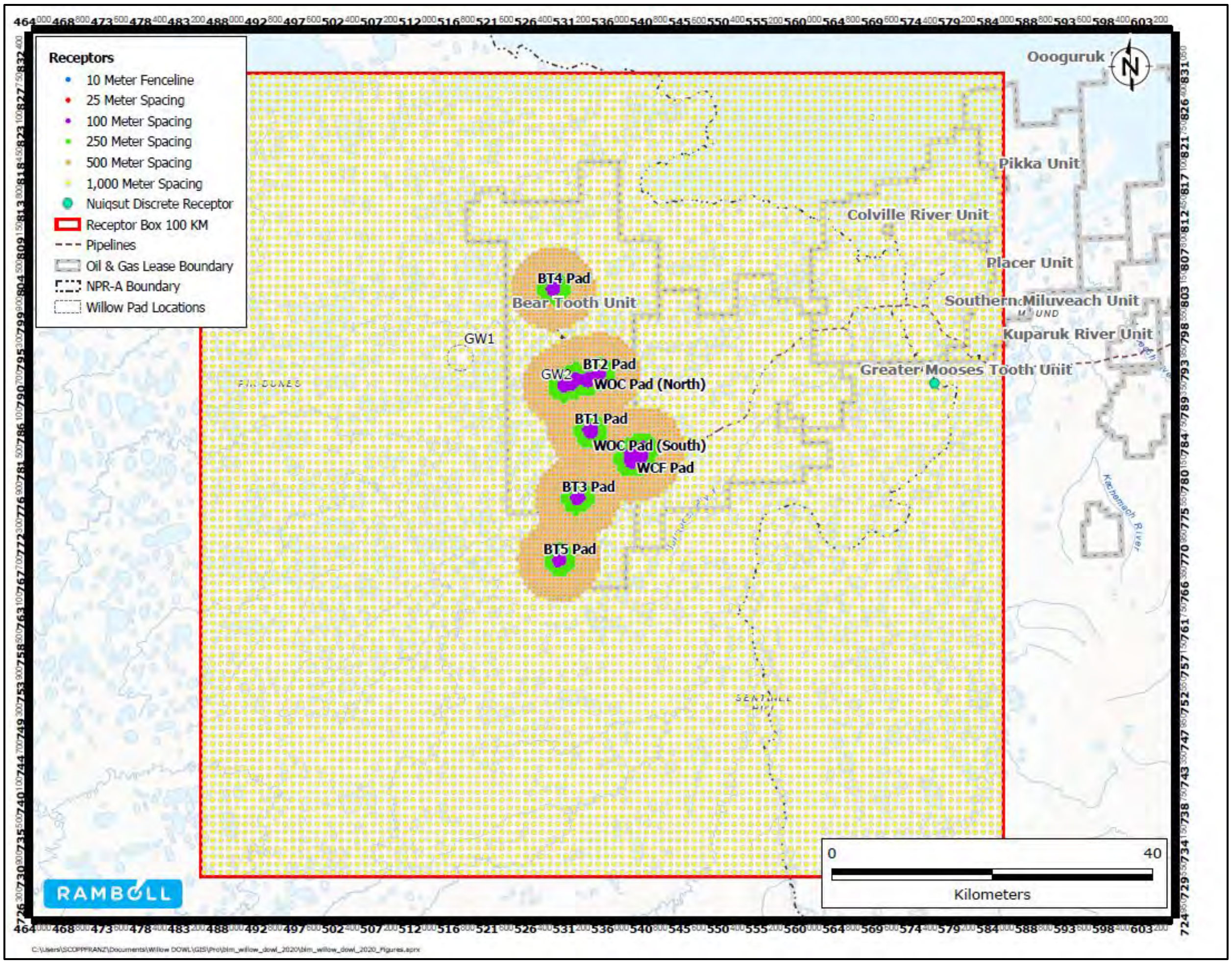

Figure E.2-19. Overview Operations Receptor Locations – Alternative C (Disconnected Infield Roads)

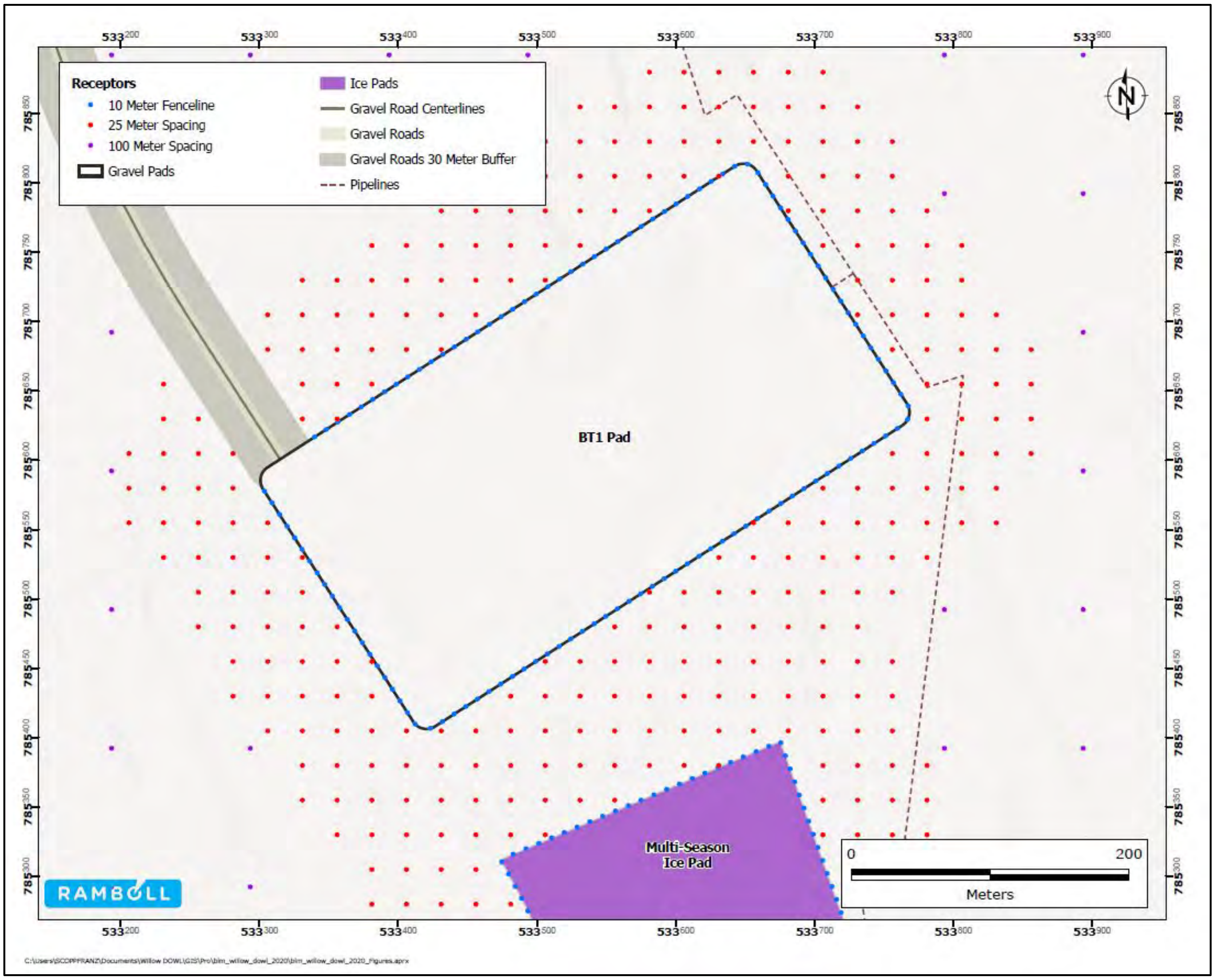

Figure E.2-20. BT1 Operations Receptor Locations – Alternative C (Disconnected Infield Roads)

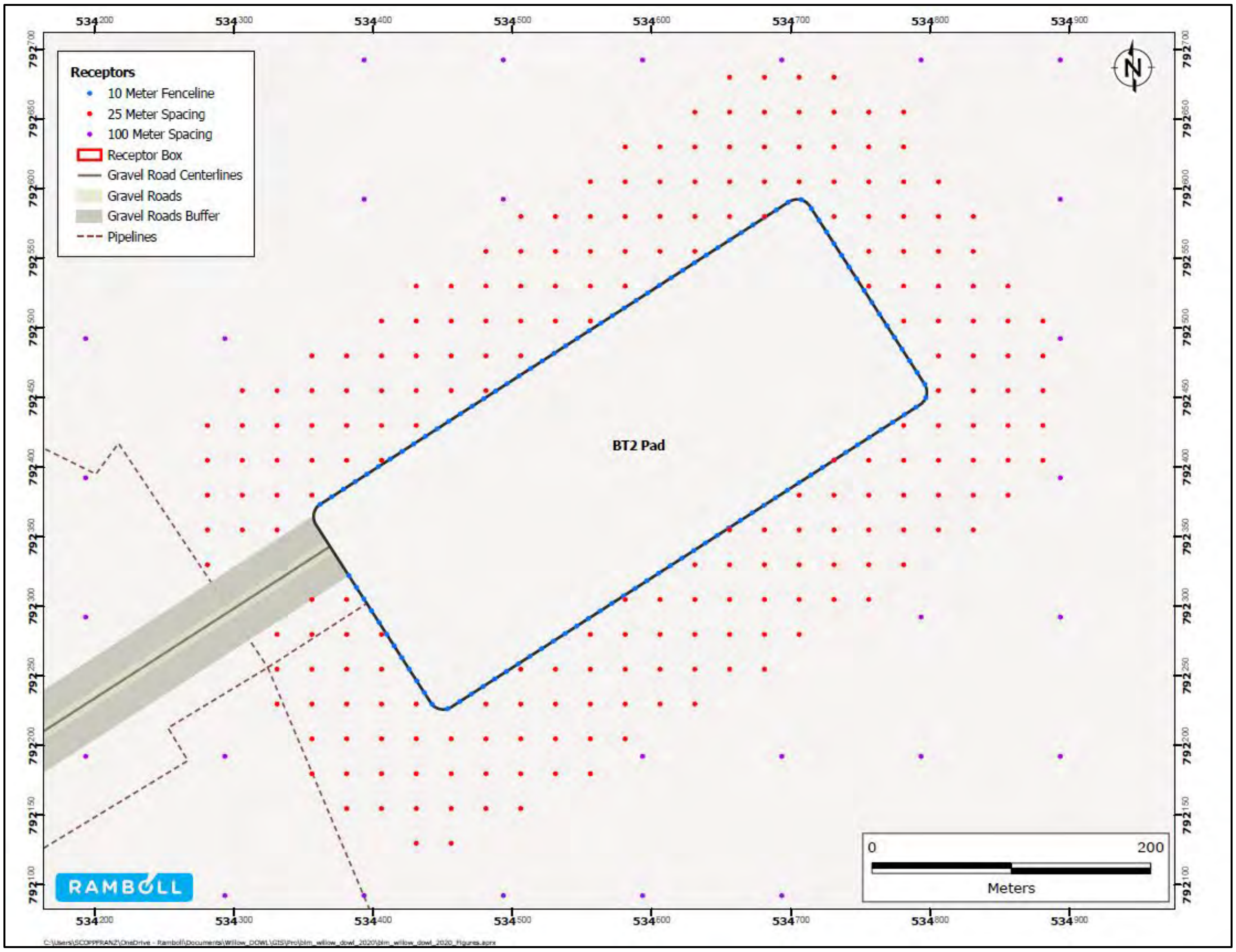

Figure E.2-21. BT2 Operations Receptor Locations – Alternative C (Disconnected Infield Roads)

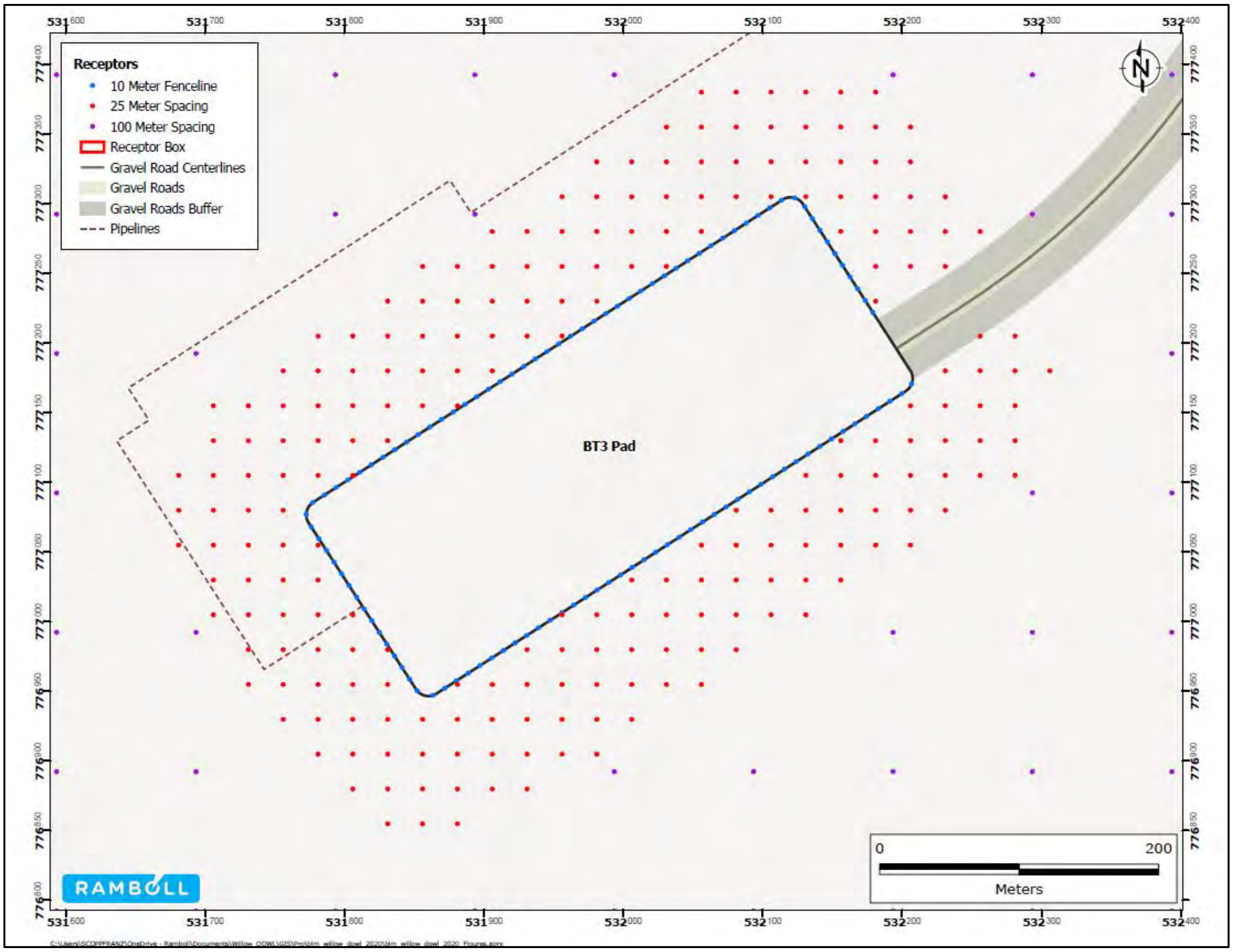

Figure E.2-22. BT3 Operations Receptor Locations – Alternative C (Disconnected Infield Roads)

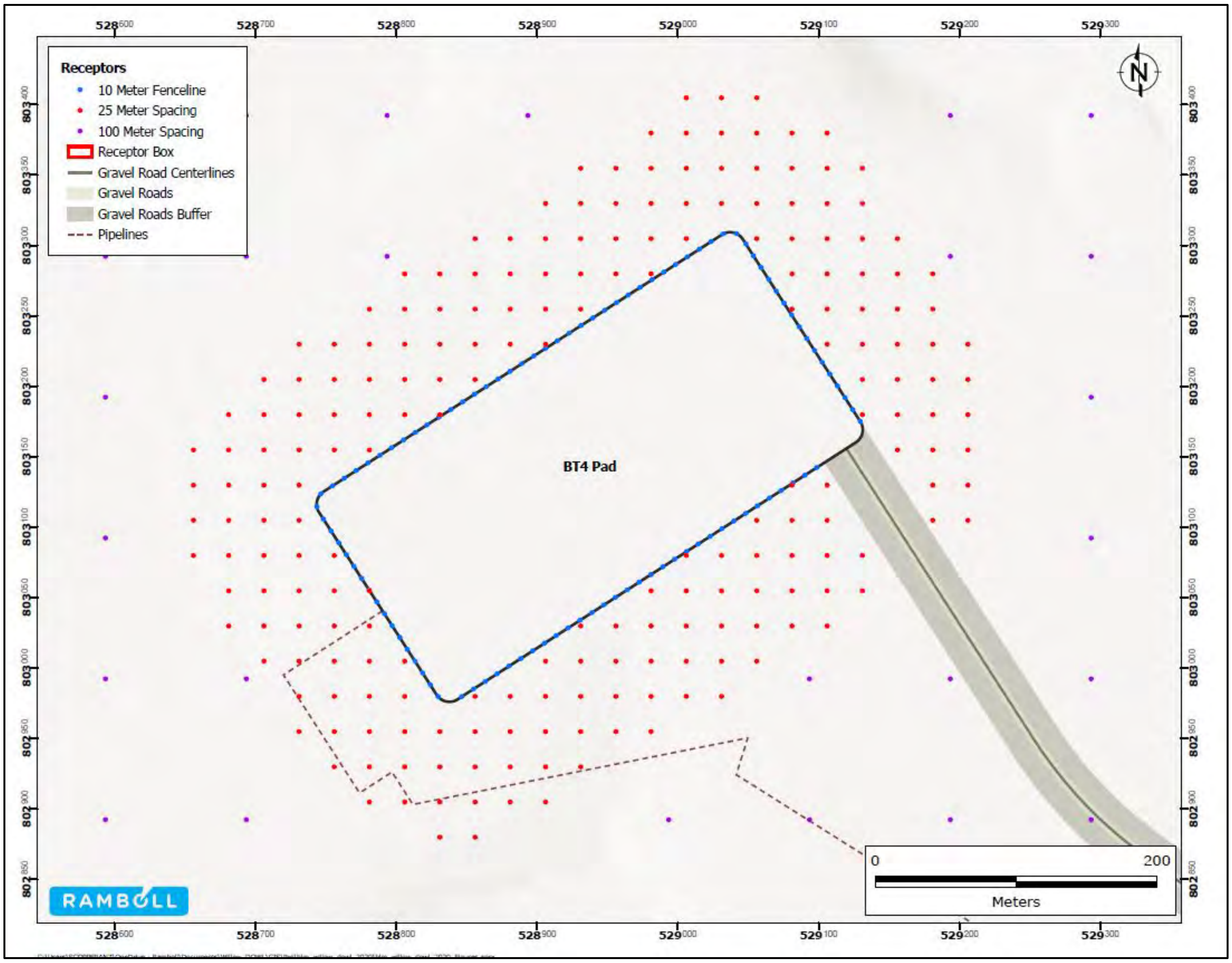

Figure E.2-23. BT4 Operations Receptor Locations – Alternative C (Disconnected Infield Roads)

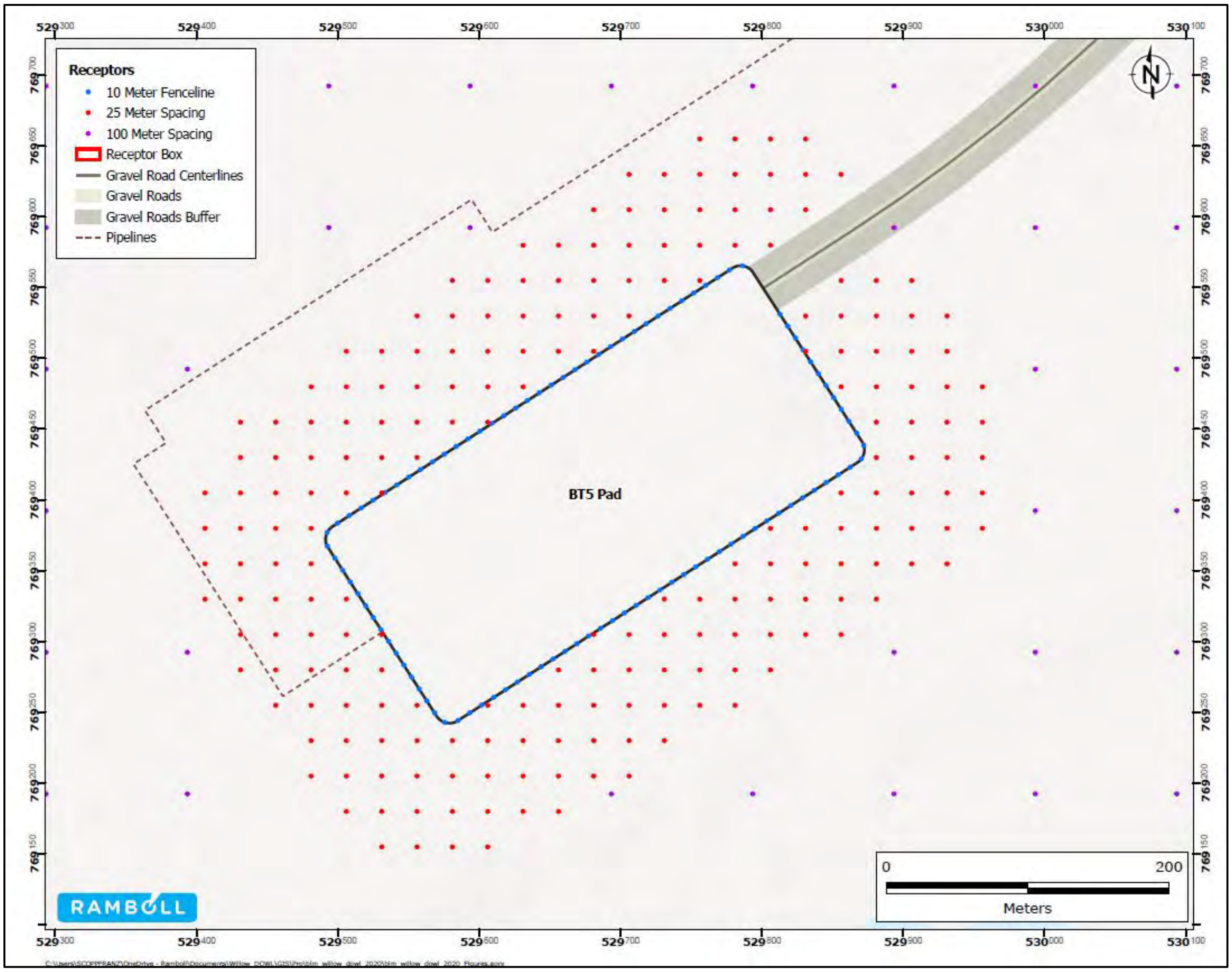

Figure E.2-24. BT5 Operations Receptor Locations – Alternative C (Disconnected Infield Roads)

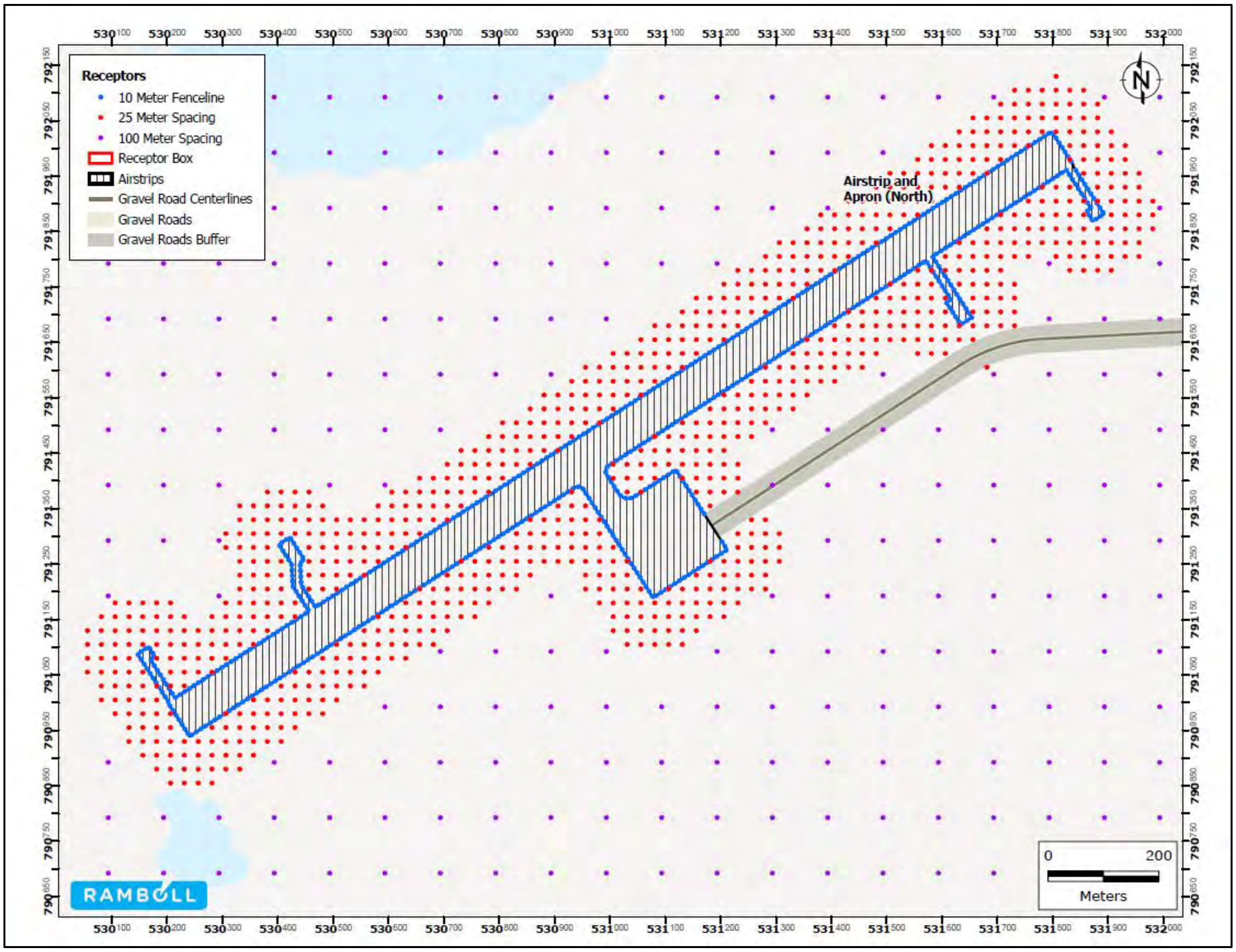

Figure E.2-25. North Airstrip Receptor Locations – Alternative C (Disconnected Infield Roads)

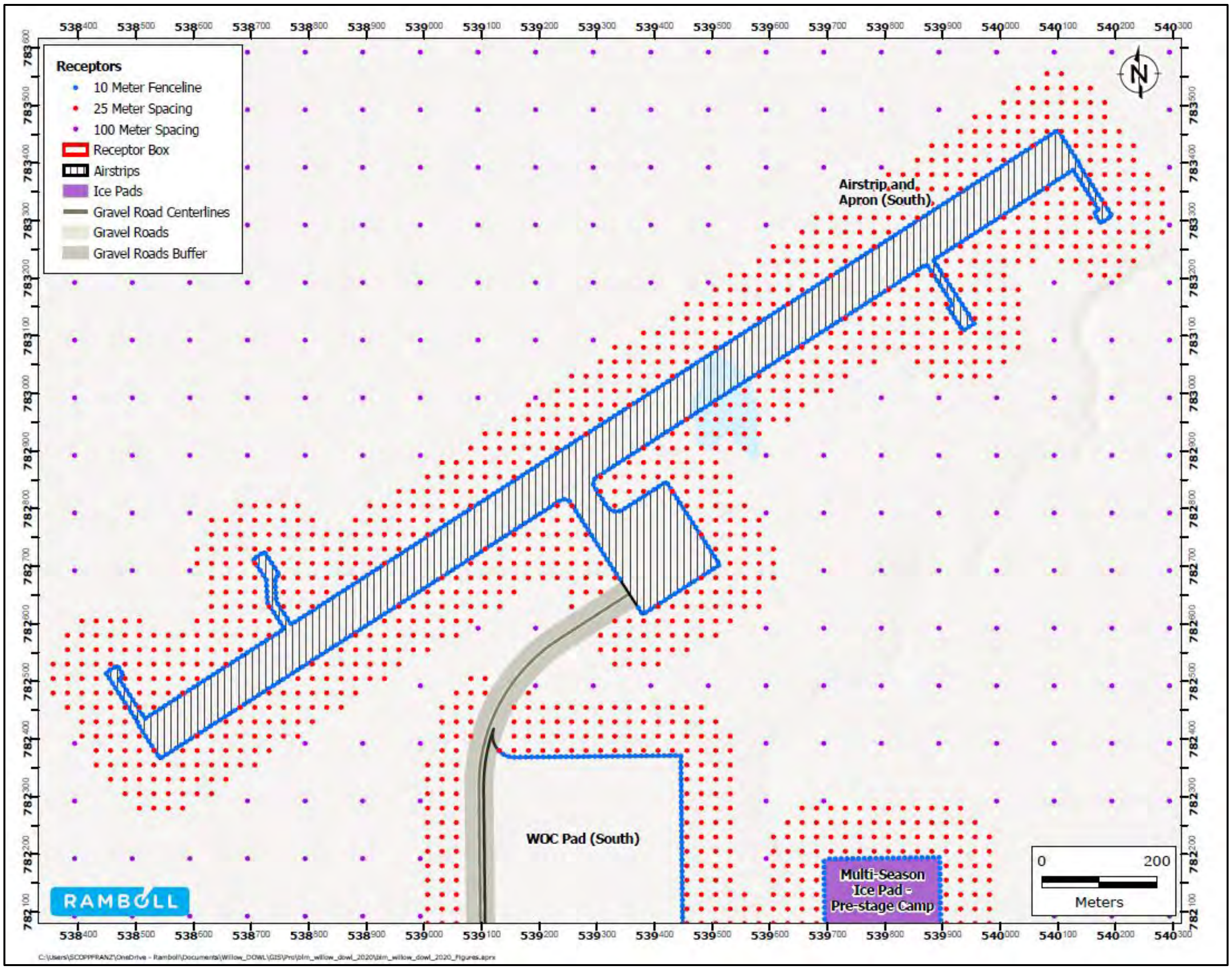

Figure E.2-26. South Airstrip Receptor Locations – Alternative C (Disconnected Infield Roads)

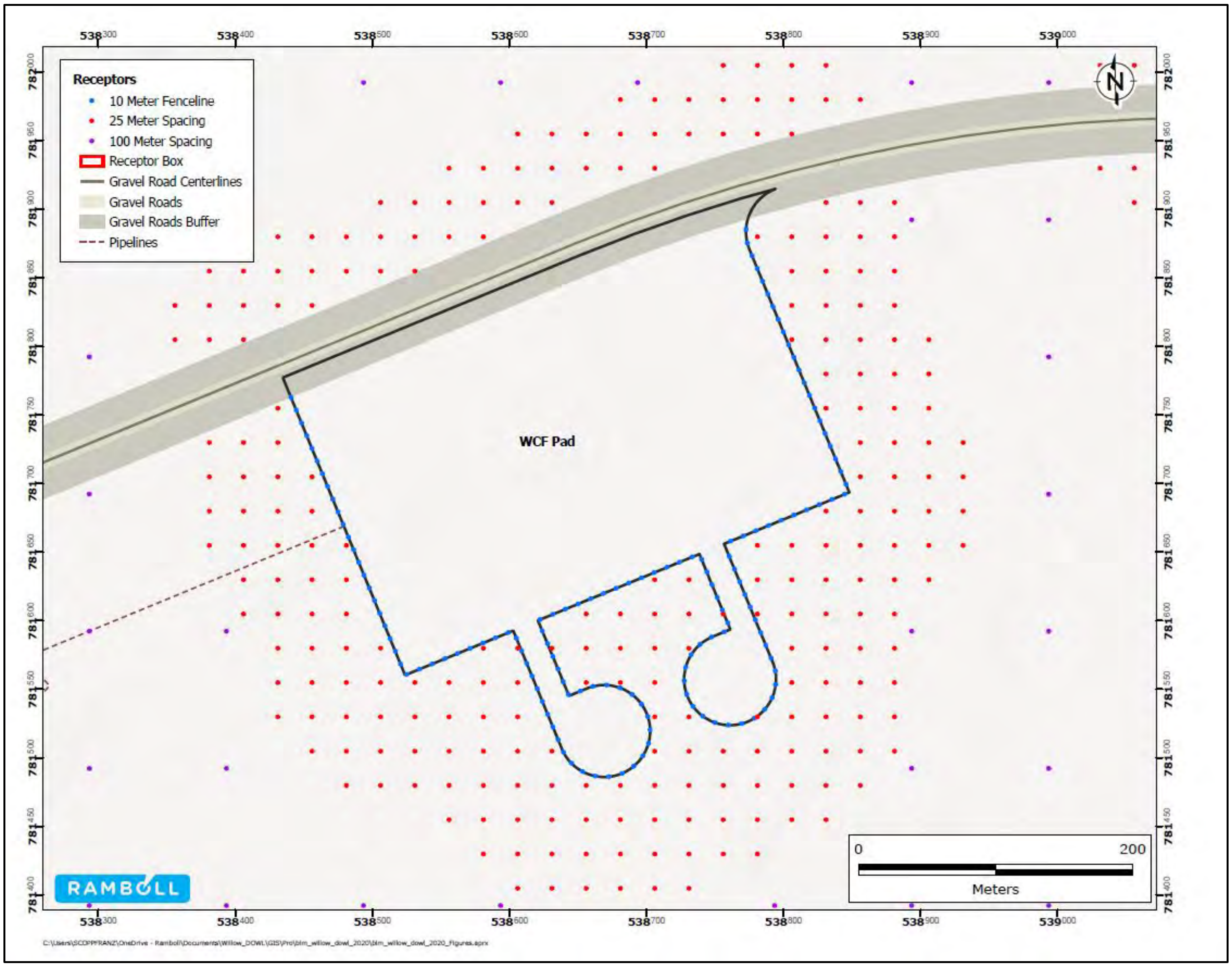

Figure E.2-27. WCF Operations Receptor Locations – Alternative C (Disconnected Infield Roads)

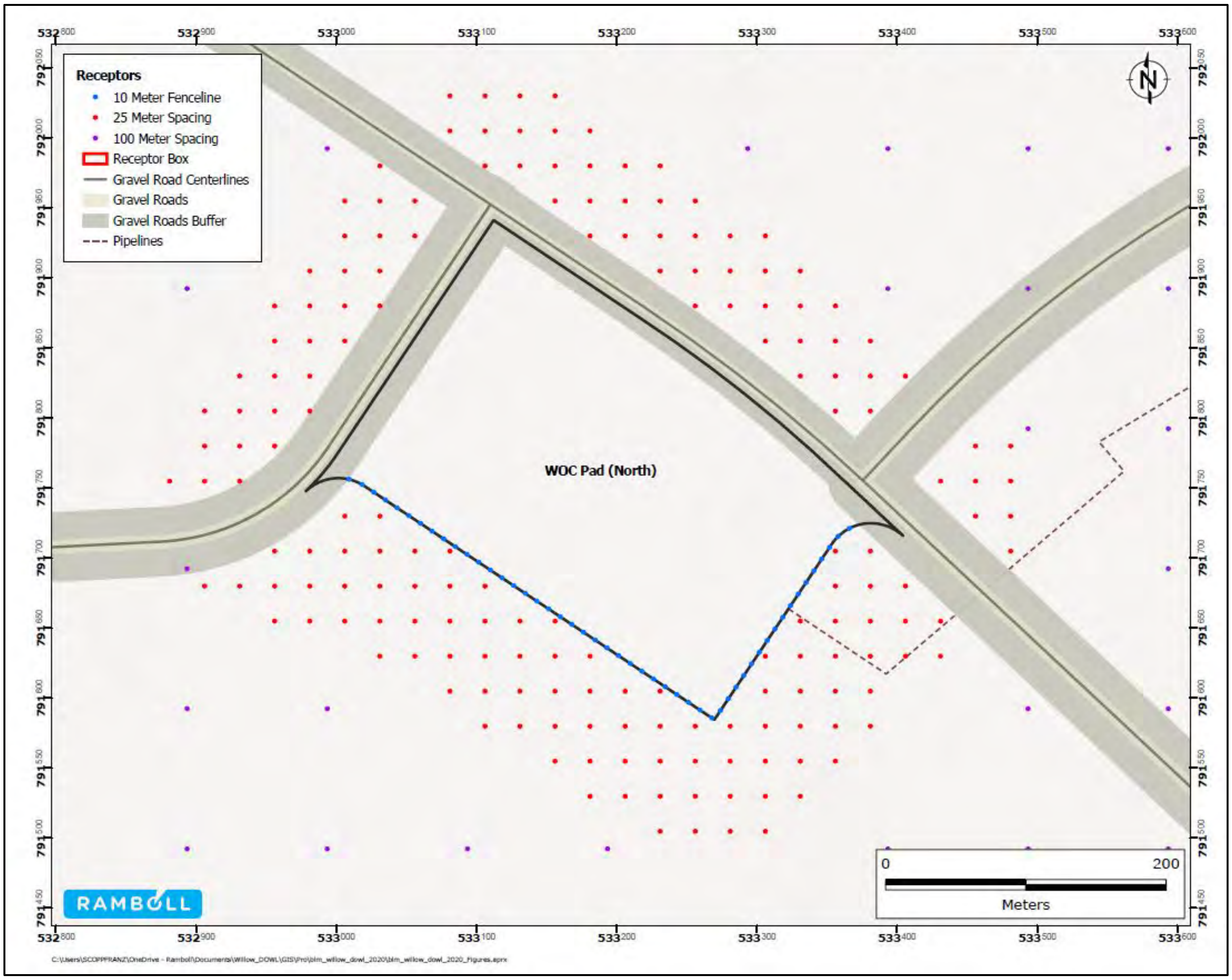

Figure E.2-28. WOC North Operations Receptor Locations – Alternative C (Disconnected Infield Roads)

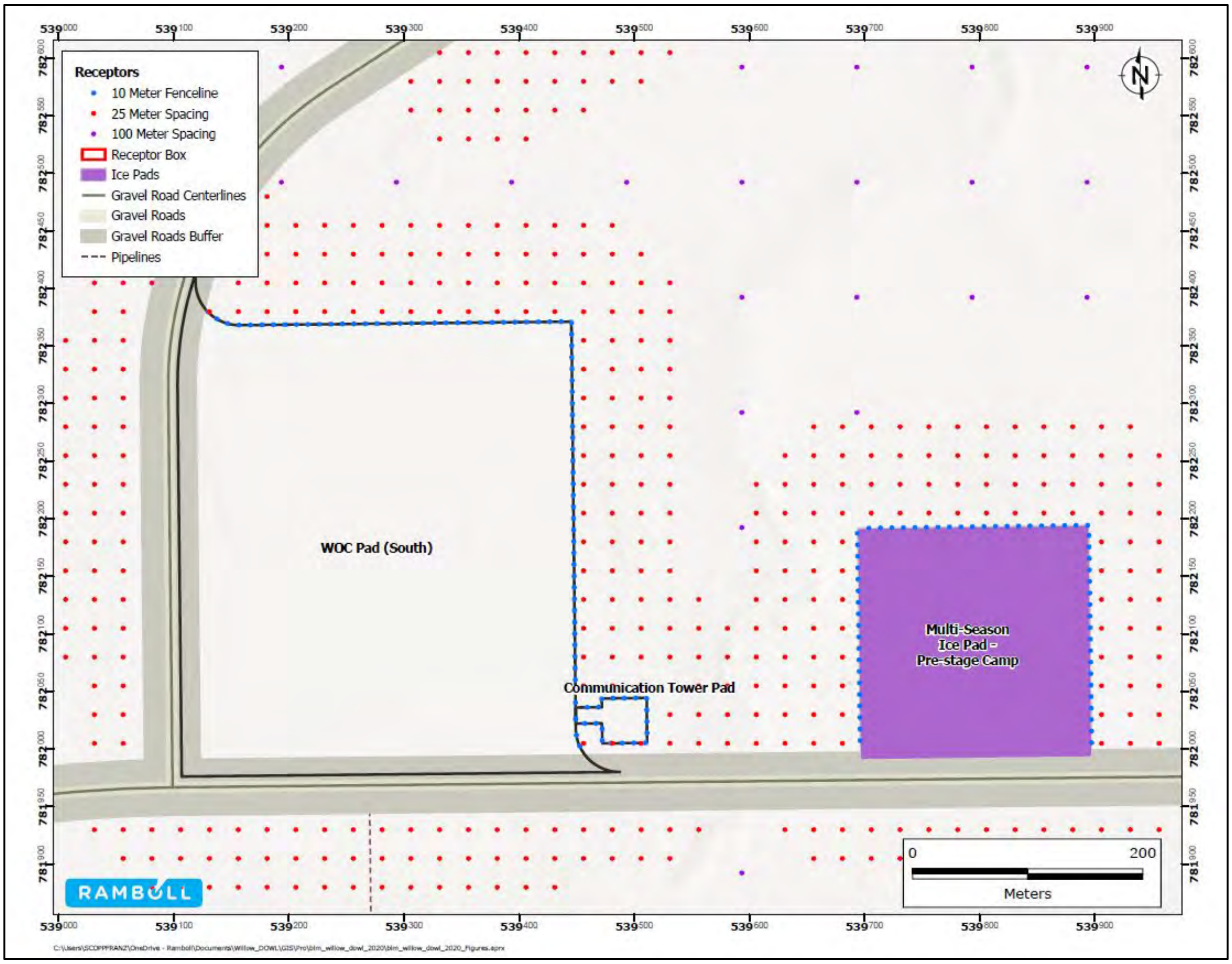

Figure E.2-29. WOC South Operations Receptor Locations – Alternative C (Disconnected Infield Roads)

E.3 Alternative D

E.3.1 Construction

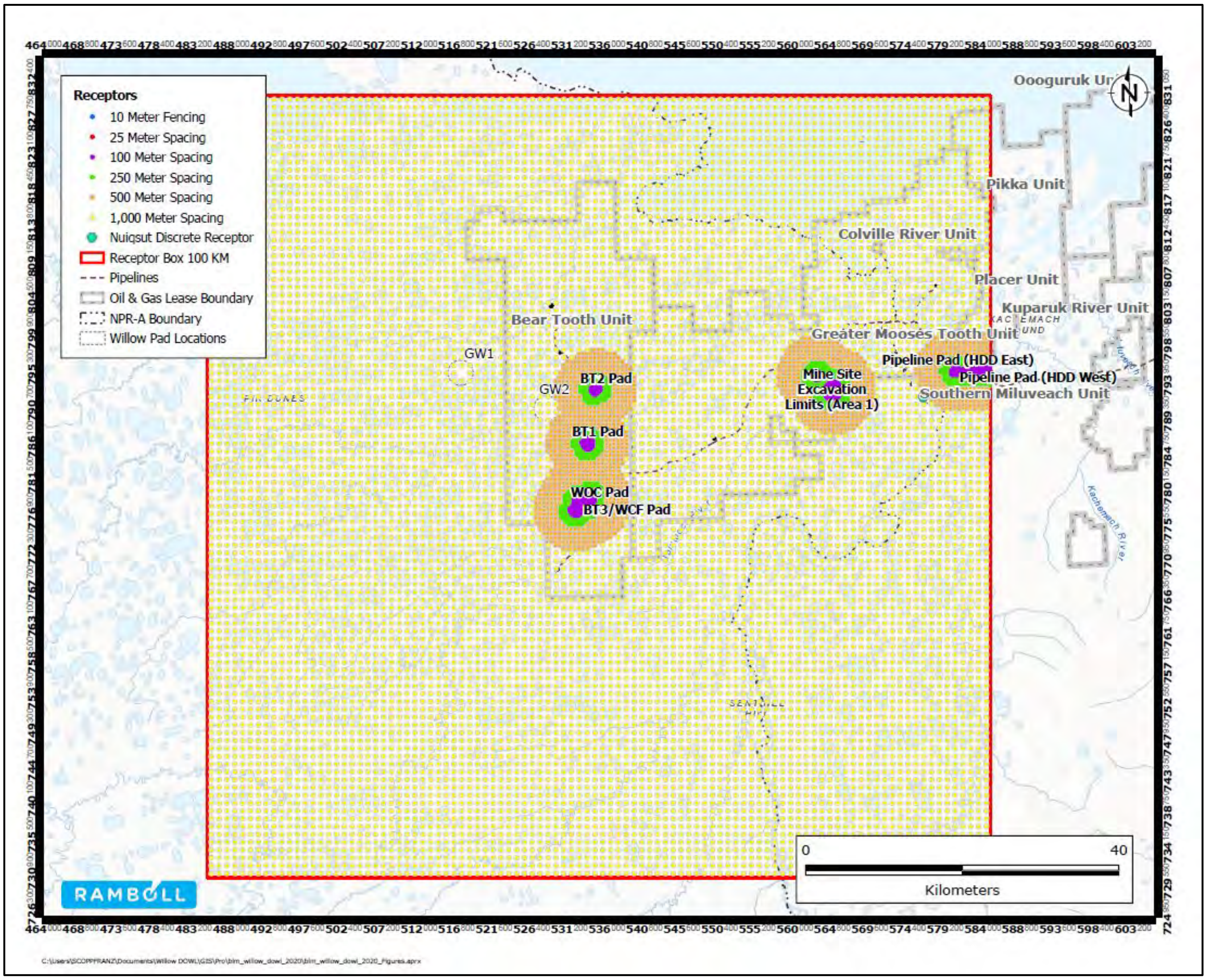

Figure E.3-1. Overview of Construction Receptor Locations – Alternative D (Disconnected Access)

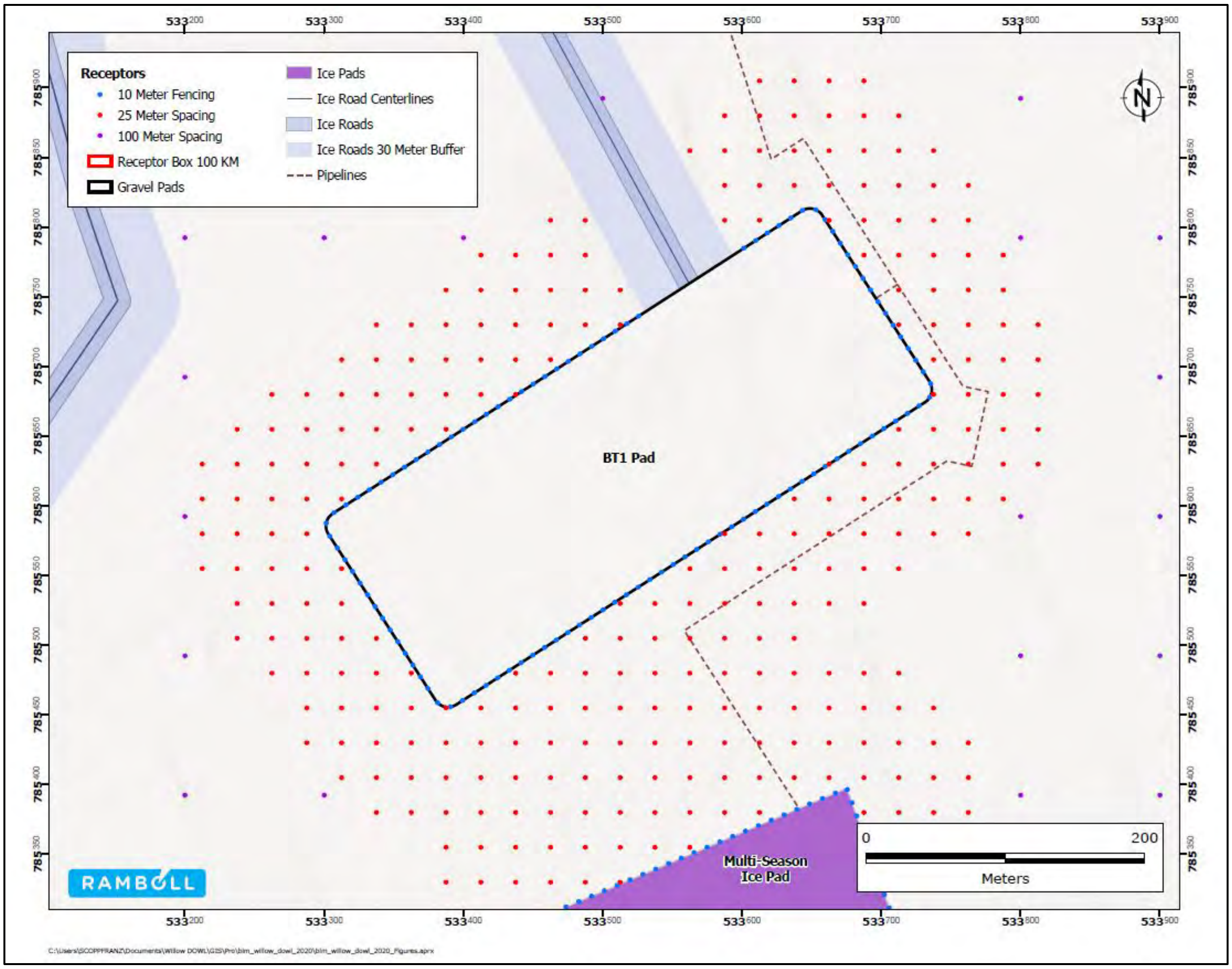

Figure E.3-2. BT1 Construction Receptor Locations – Alternative D (Disconnected Access)

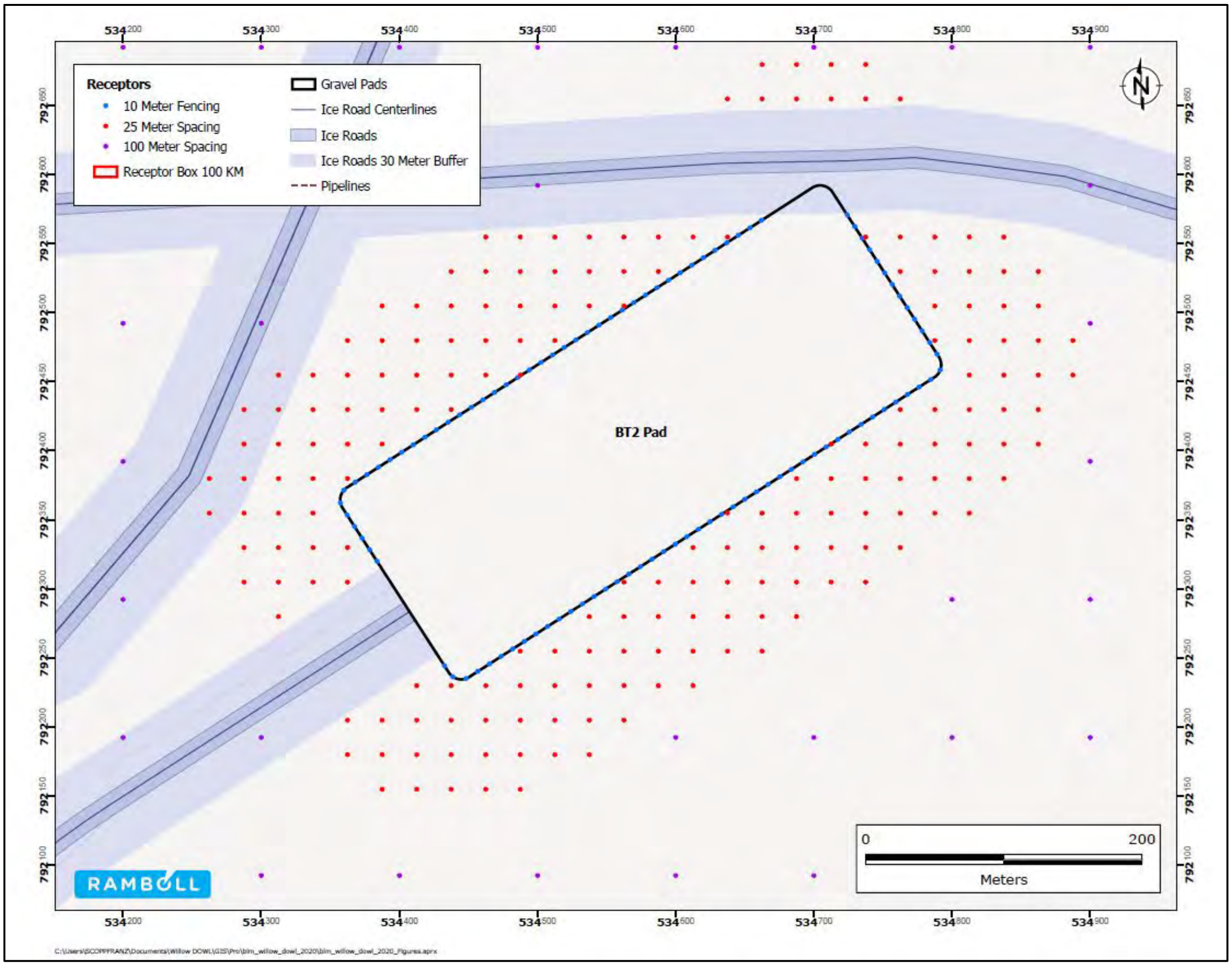

Figure E.3-3. BT2 Construction Receptor Locations – Alternative D (Disconnected Access)

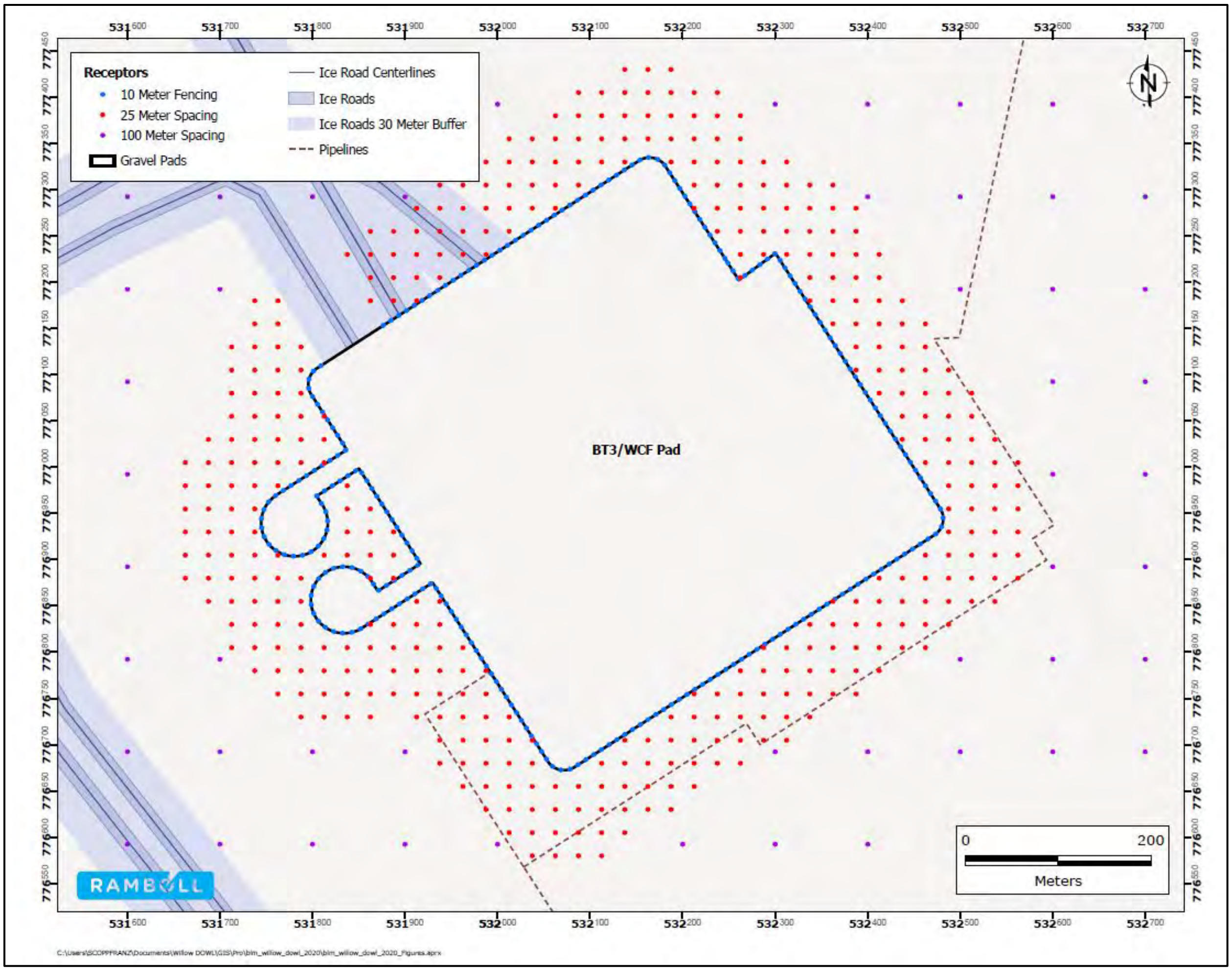

Figure E.3-4. BT3 Construction Receptor Locations – Alternative D (Disconnected Access)

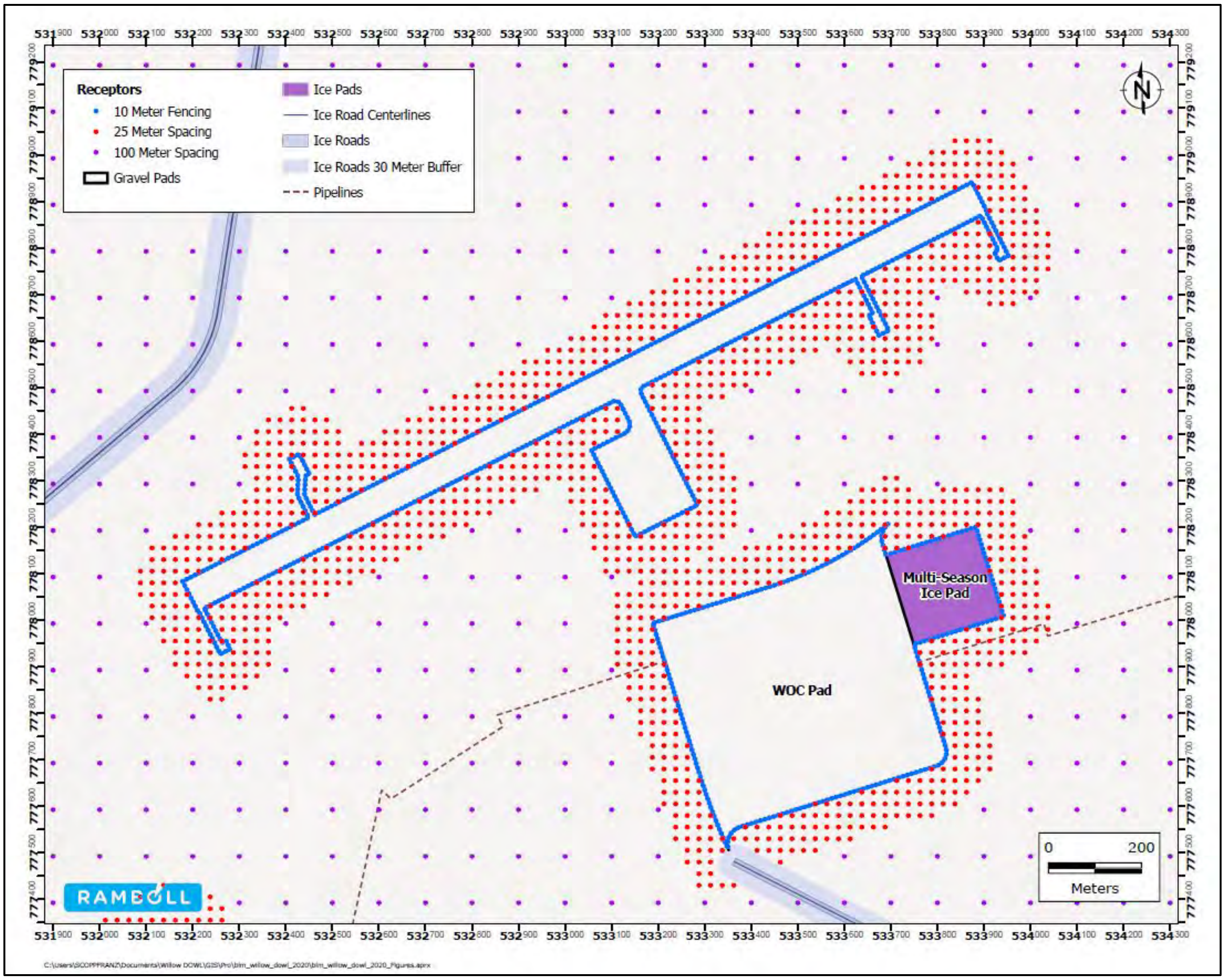

Figure E.3-5. Airstrip Construction Receptor Locations – Alternative D (Disconnected Access)

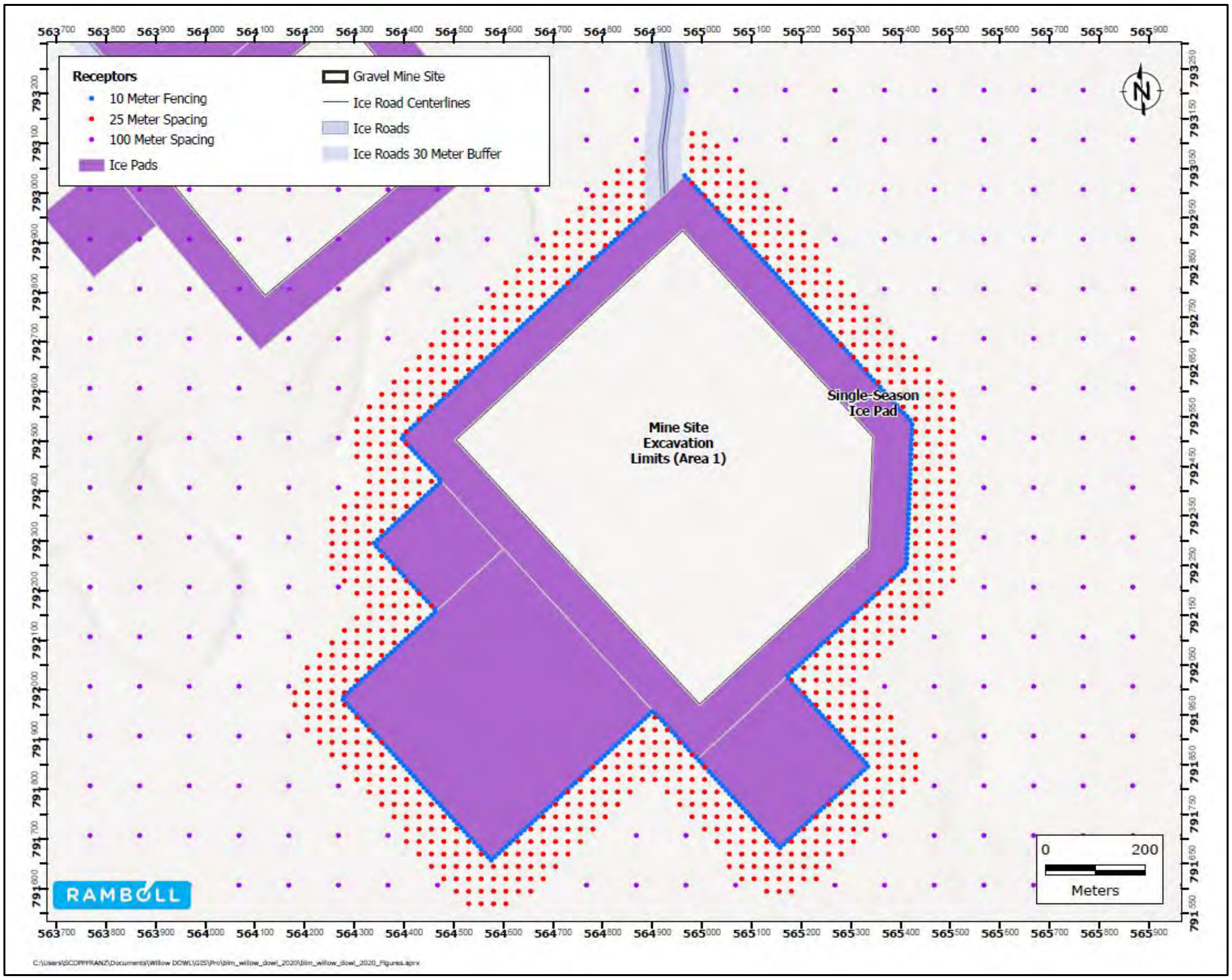

Figure E.3-6. Gravel Mine Site Construction Receptor Locations – Alternative D (Disconnected Access)

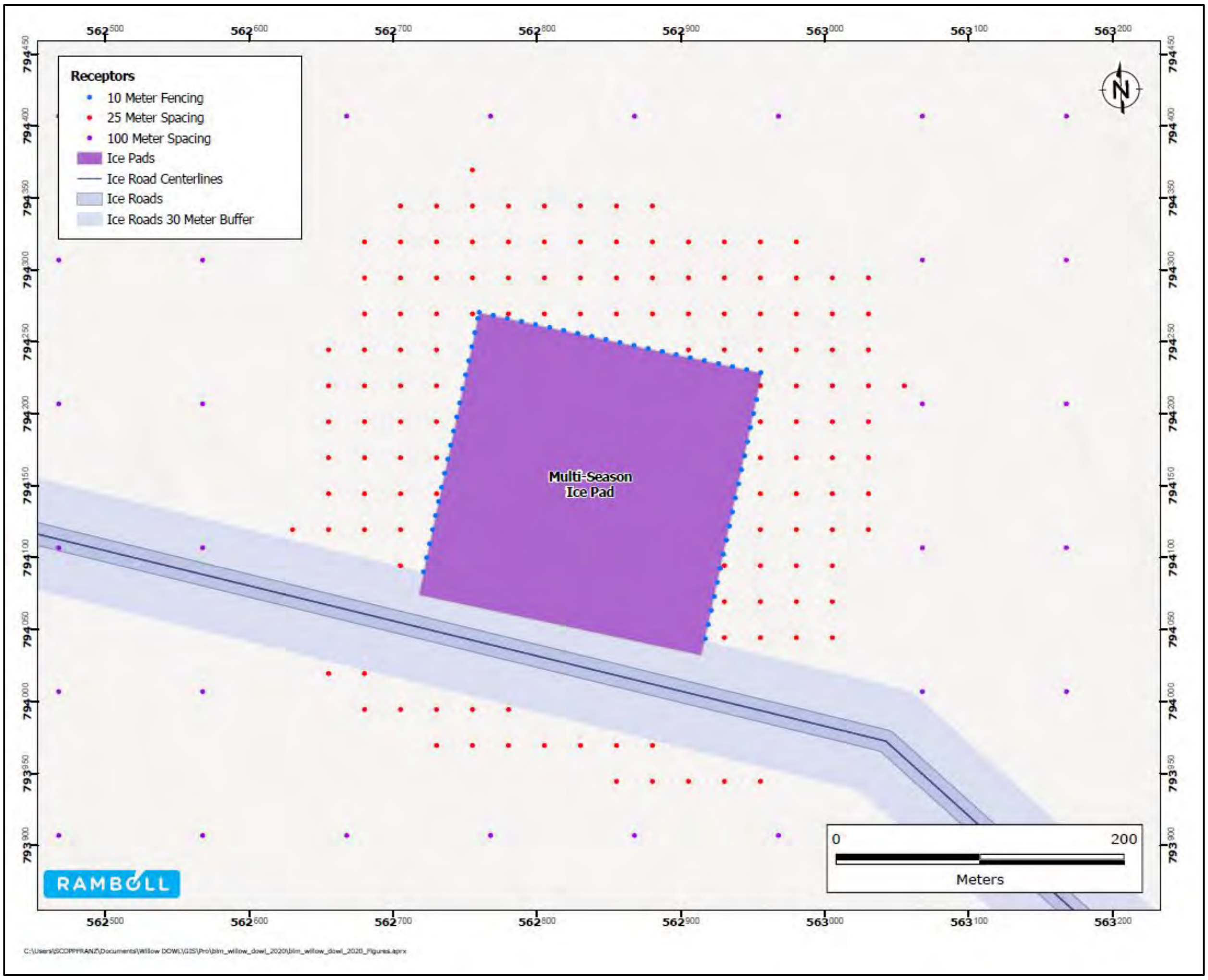

Figure E.3-7. Mine Camp Construction Receptor Locations – Alternative D (Disconnected Access)

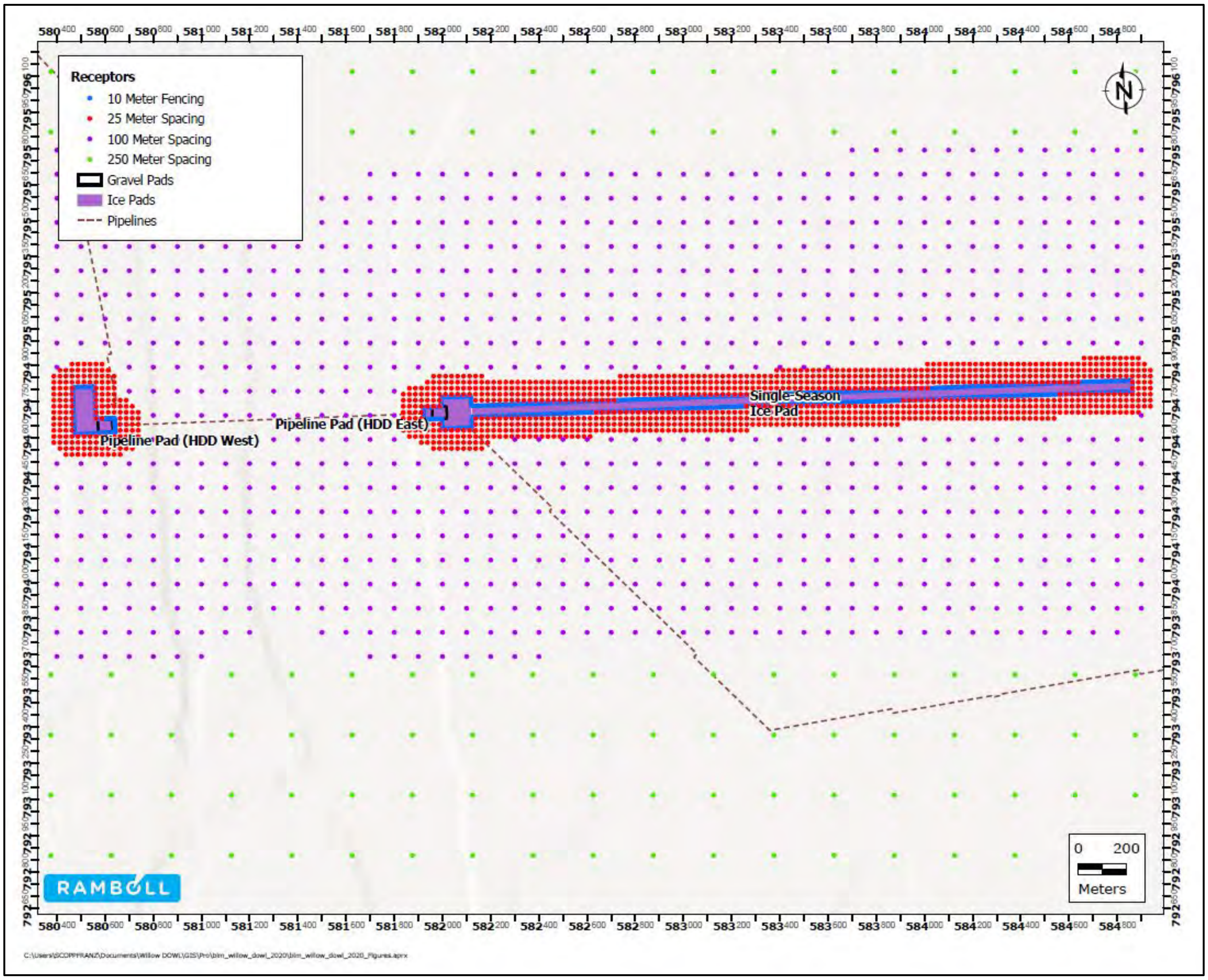

Figure E.3-8. HDD Construction Receptor Locations – Alternative D (Disconnected Access)

E.3.2 Development Drilling

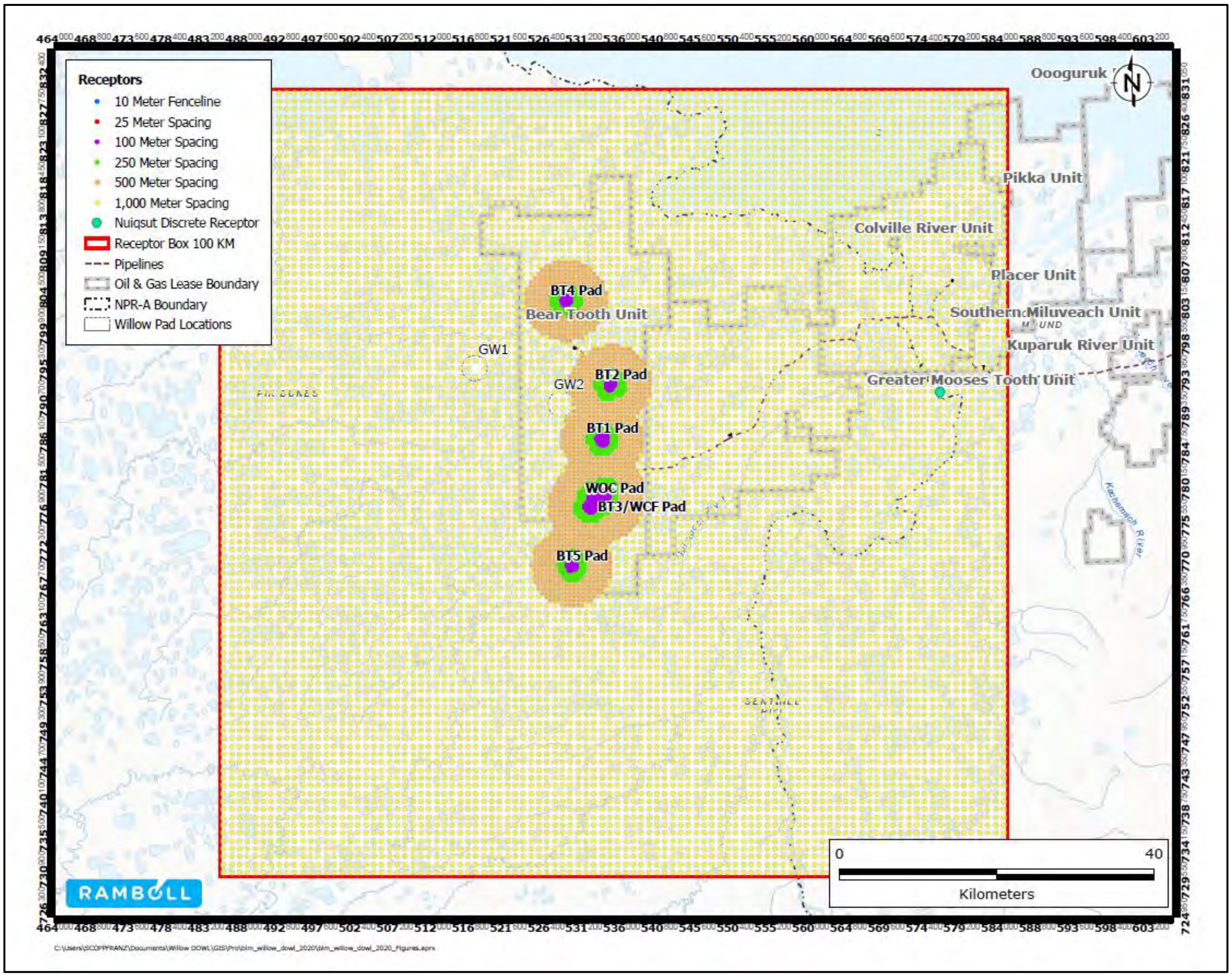

Figure E.3-9. Overview of Drilling Receptor Locations – Alternative D (Disconnected Access)

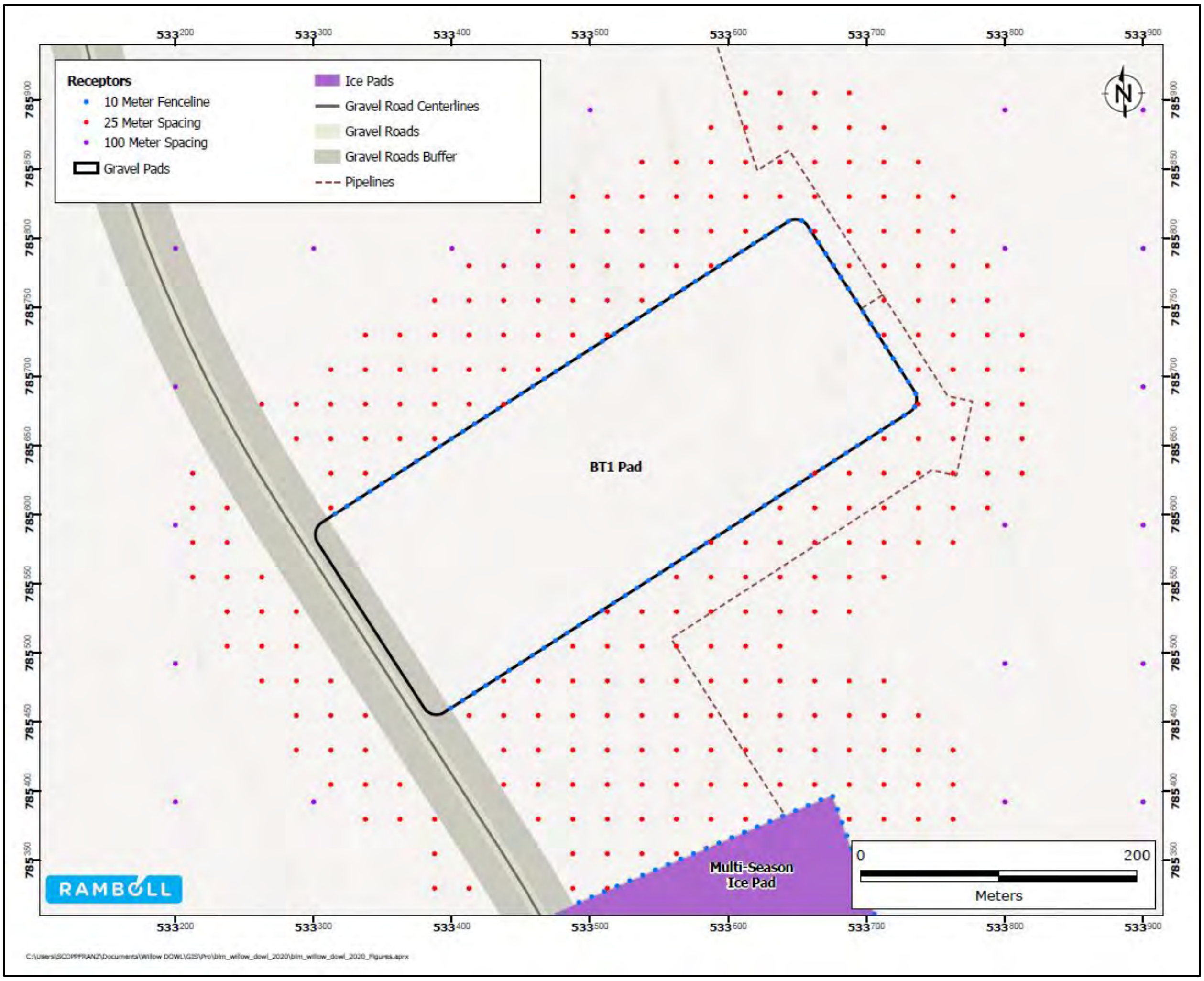

Figure E.3-10. BT1 Drilling Receptor Locations – Alternative D (Disconnected Access)

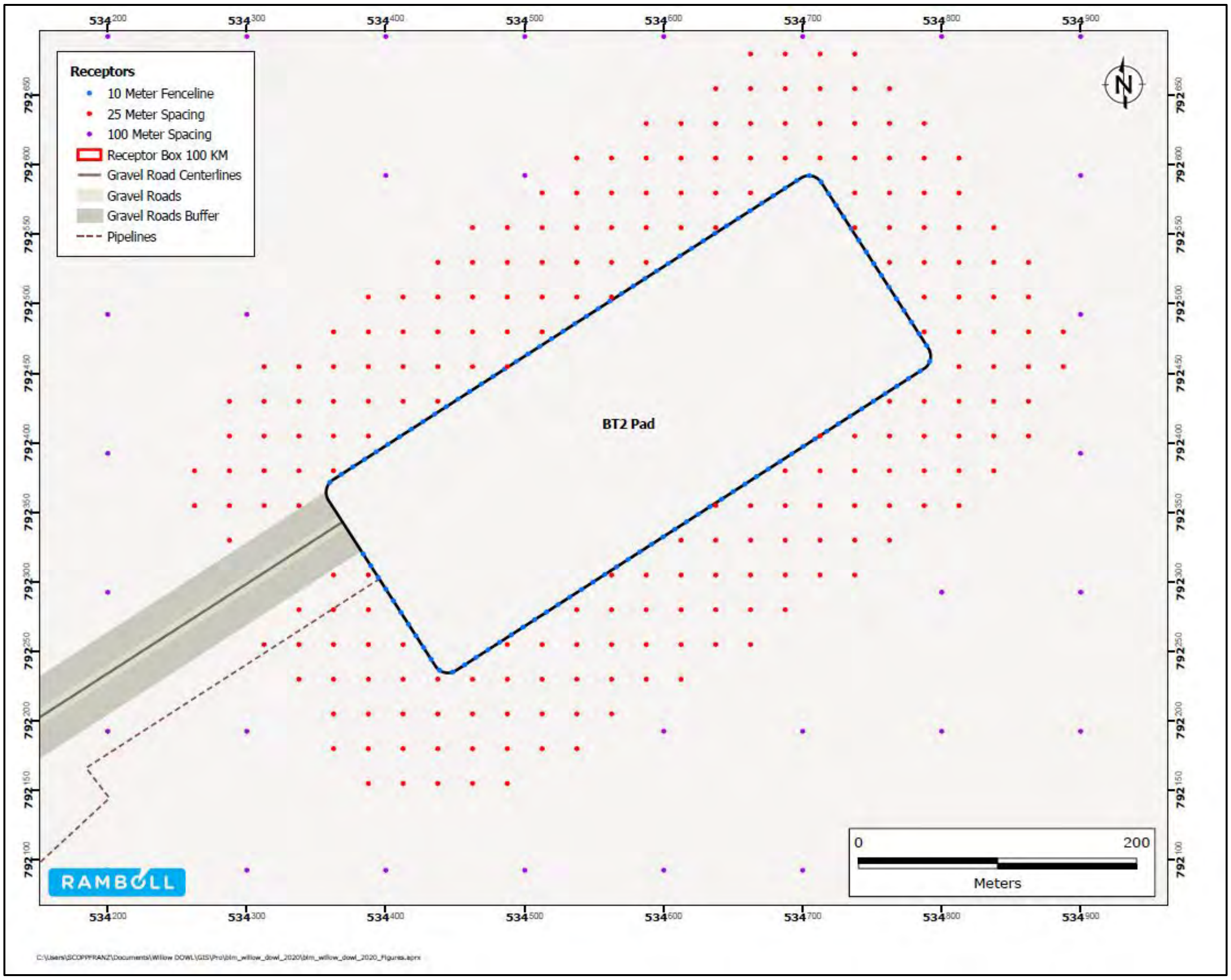

Figure E.3-11. BT2 Drilling Receptor Locations – Alternative D (Disconnected Access)

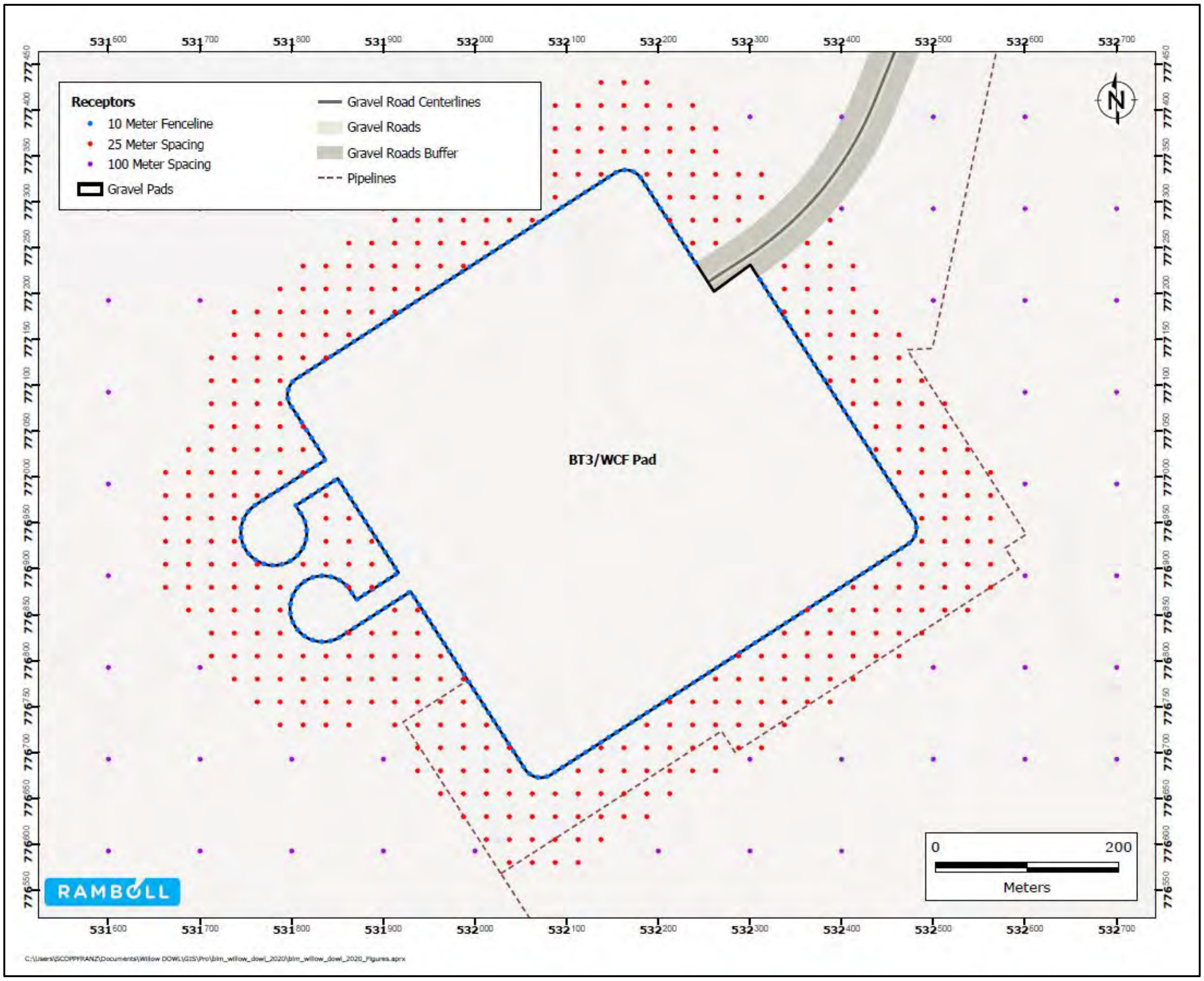

Figure E.3-12. BT3 Drilling Receptor Locations – Alternative D (Disconnected Access)

E.3.3 Routine Operations

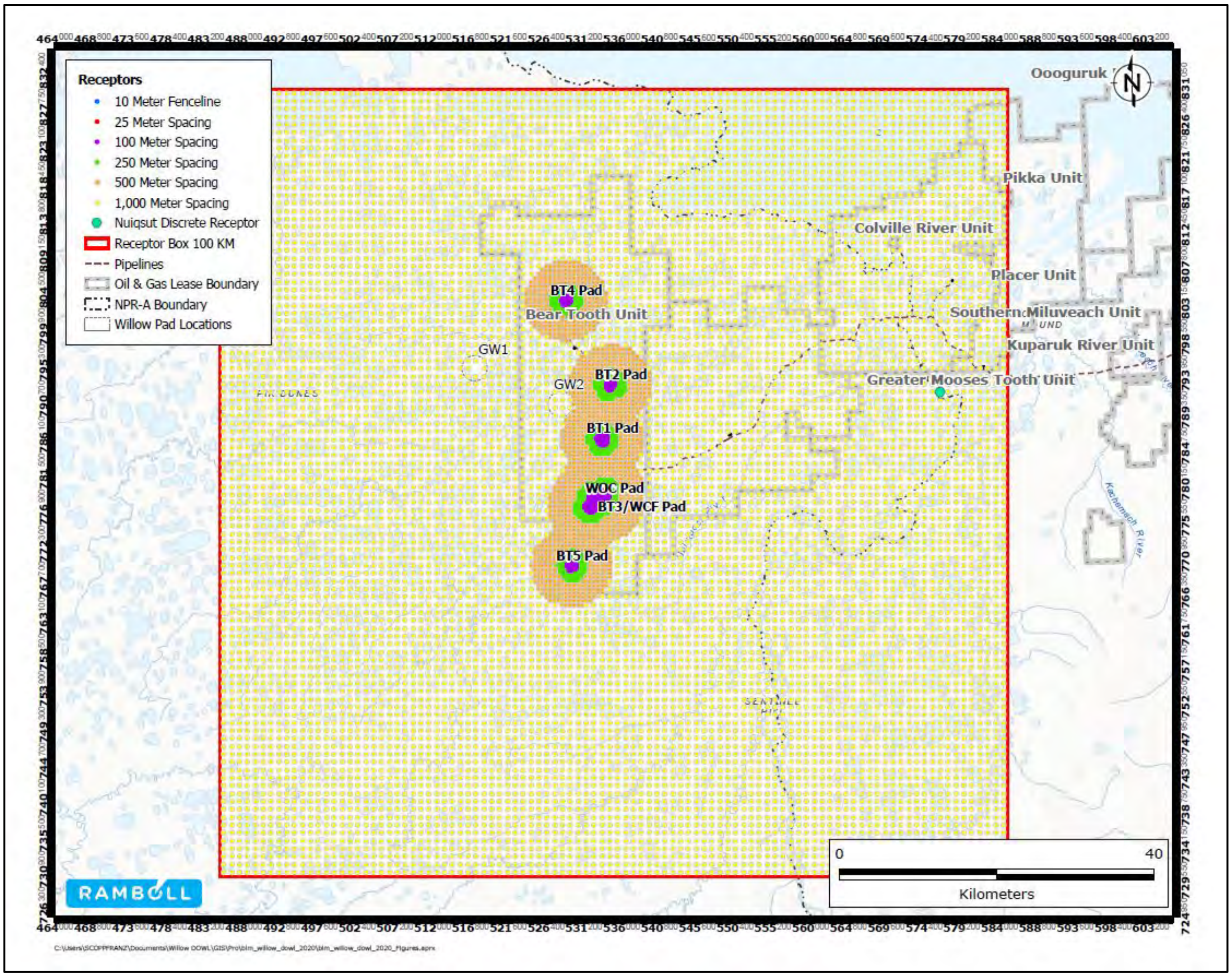

Figure E.3-13. Overview of Operations Receptor Locations – Alternative D (Disconnected Access)

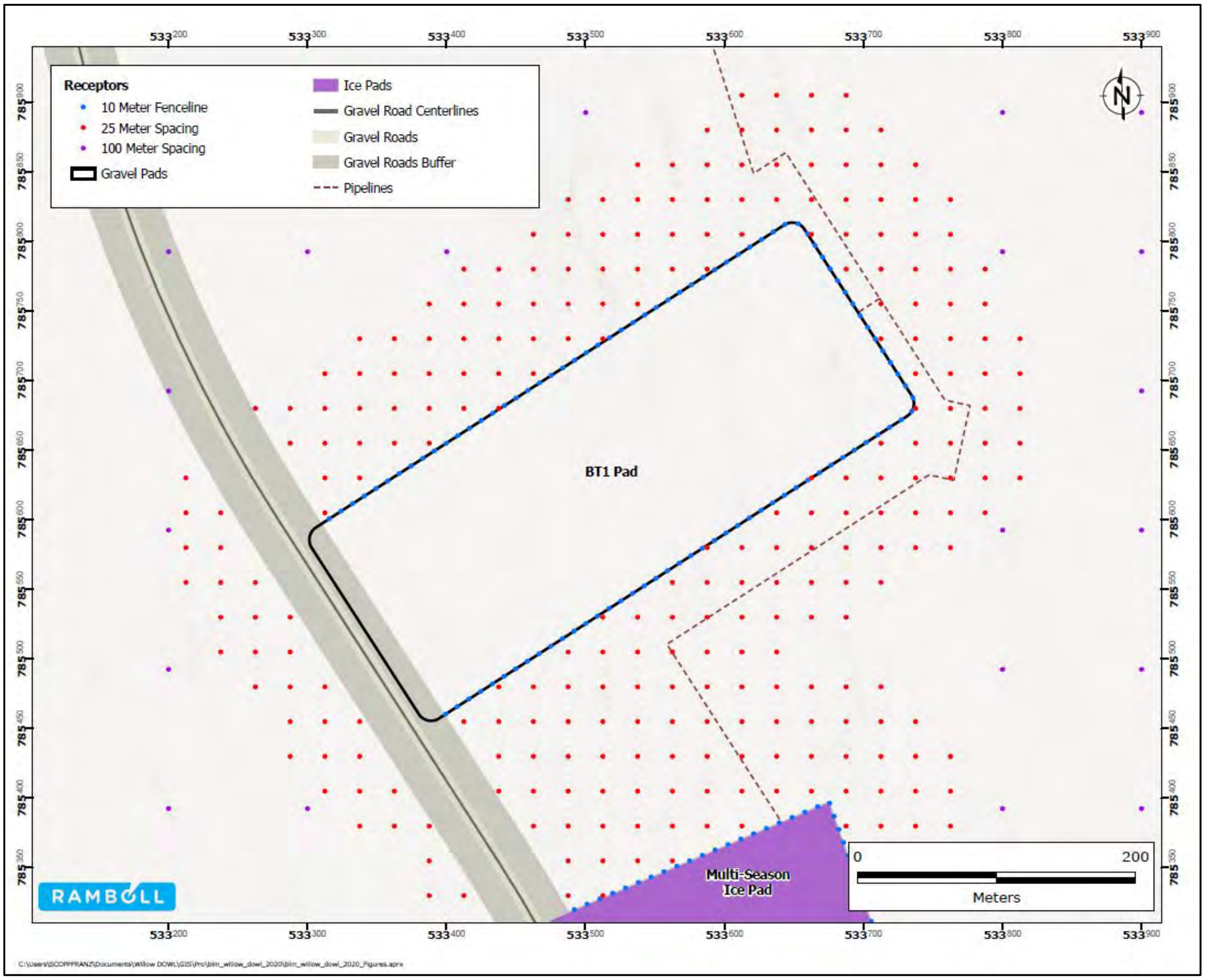

Figure E.3-14. BT1 Operations Receptor Locations – Alternative D (Disconnected Access)

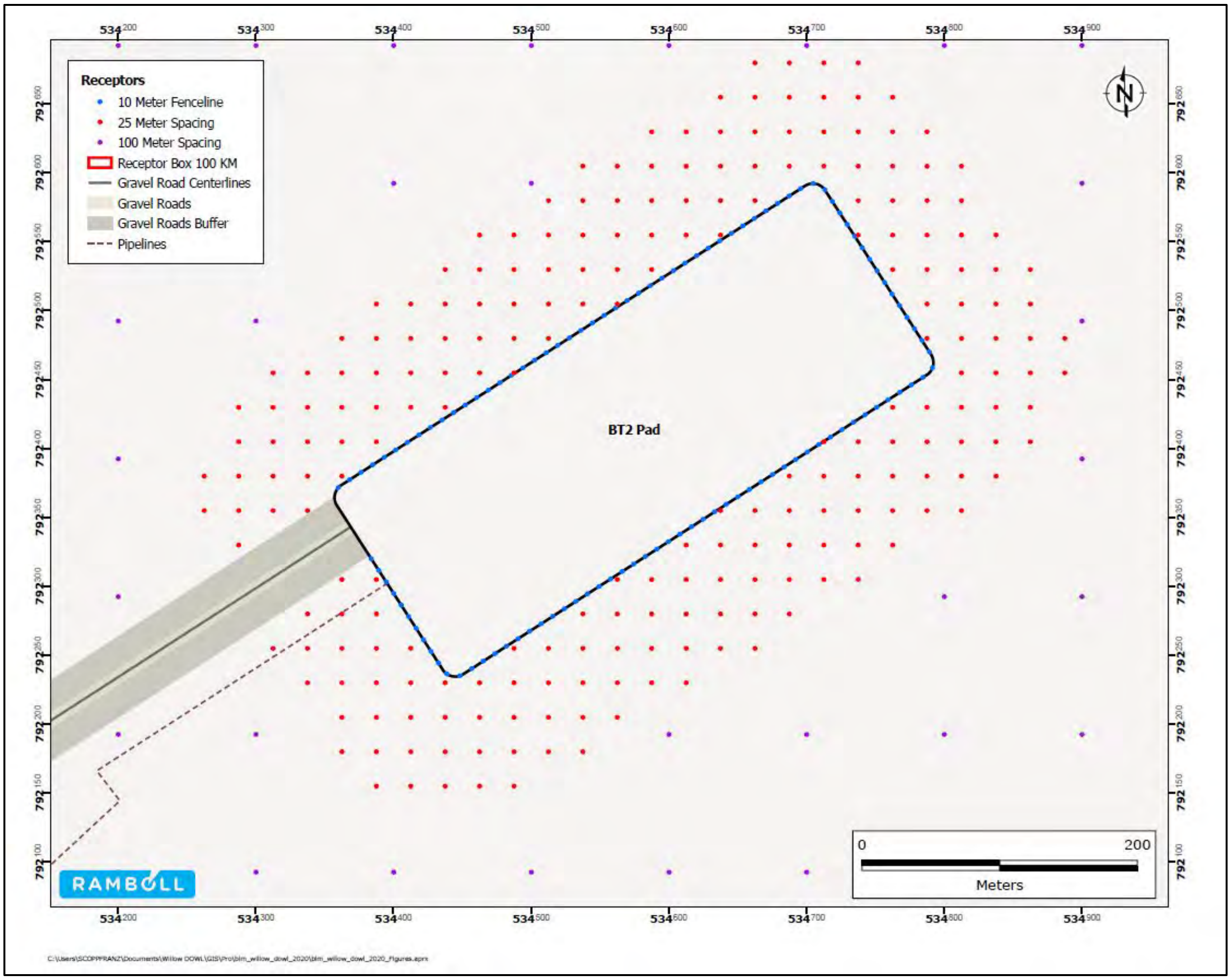

Figure E.3-15. BT2 Operations Receptor Locations – Alternative D (Disconnected Access)

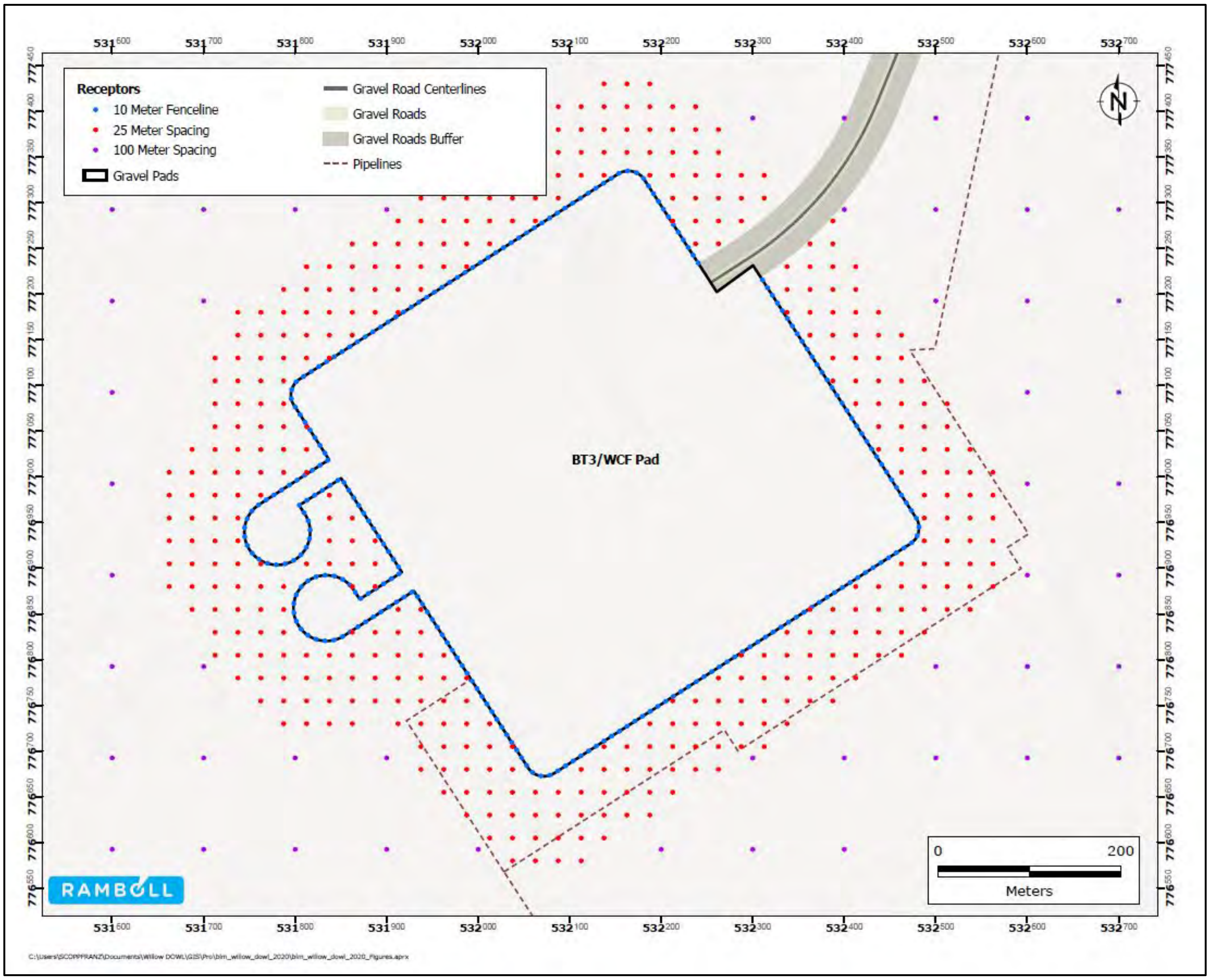

Figure E.3-16. BT3 Operations Receptor Locations – Alternative D (Disconnected Access)

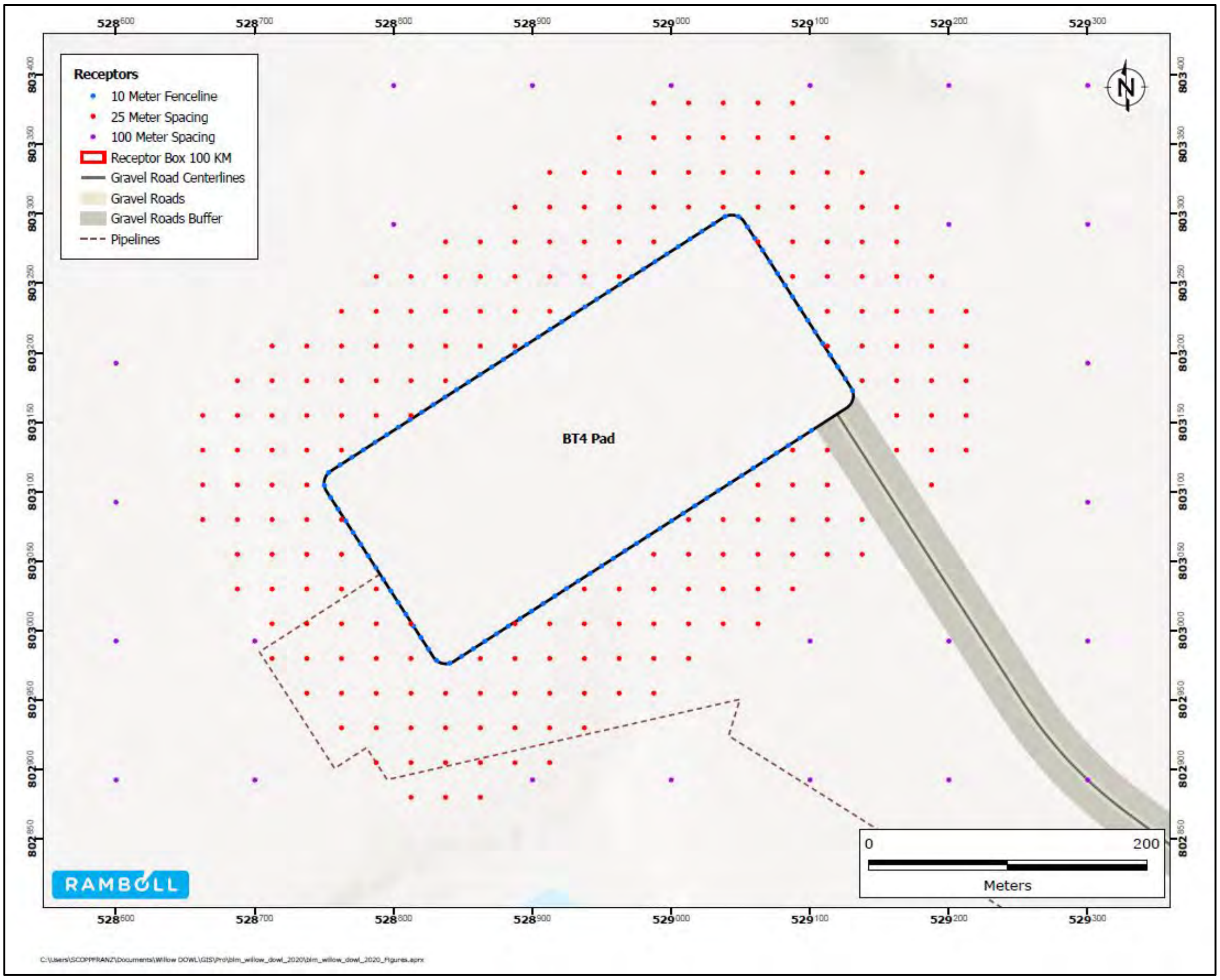

Figure E.3-17. BT4 Operations Receptor Locations – Alternative D (Disconnected Access)

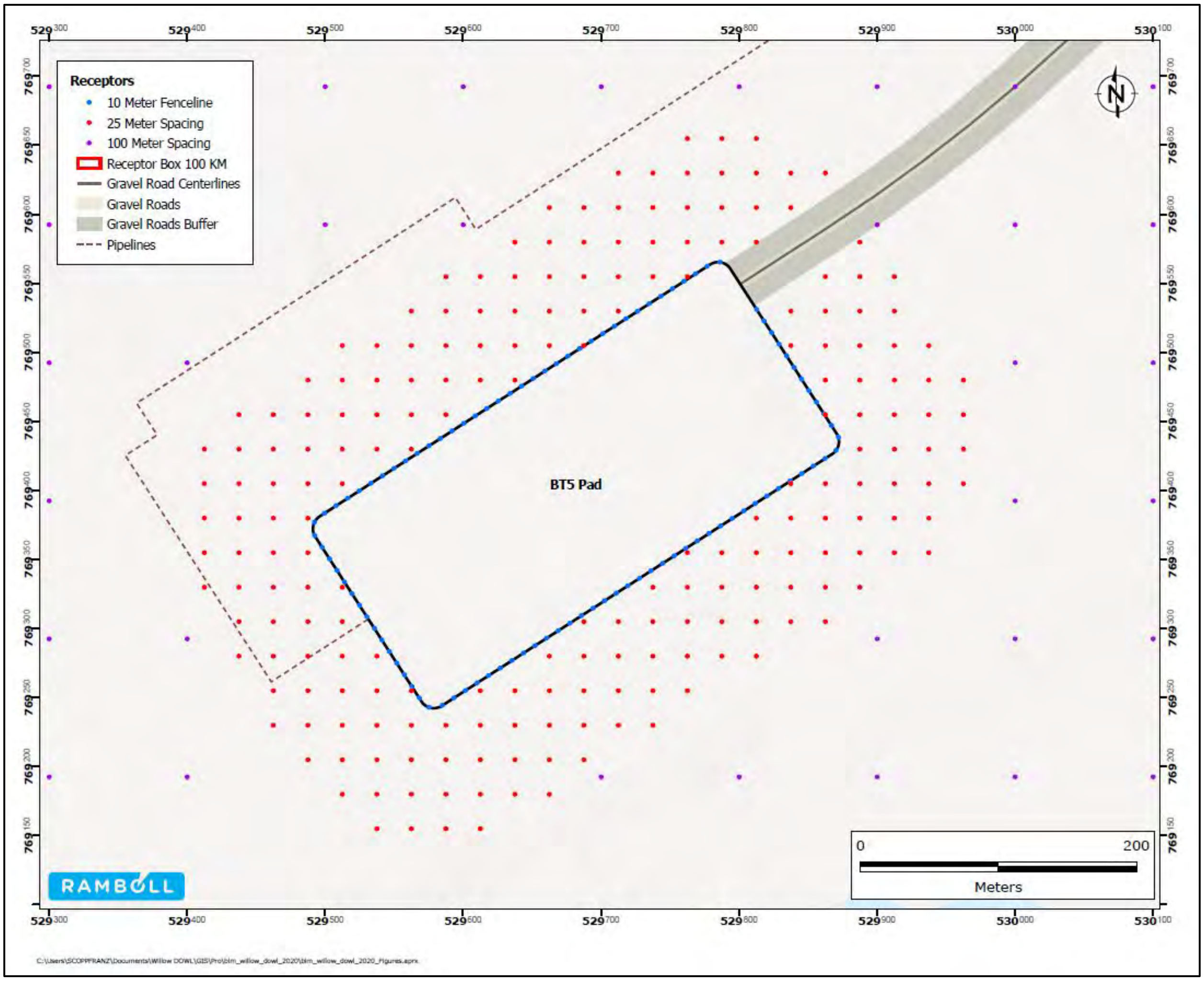

Figure E.3-18. BT5 Operations Receptor Locations – Alternative D (Disconnected Access)

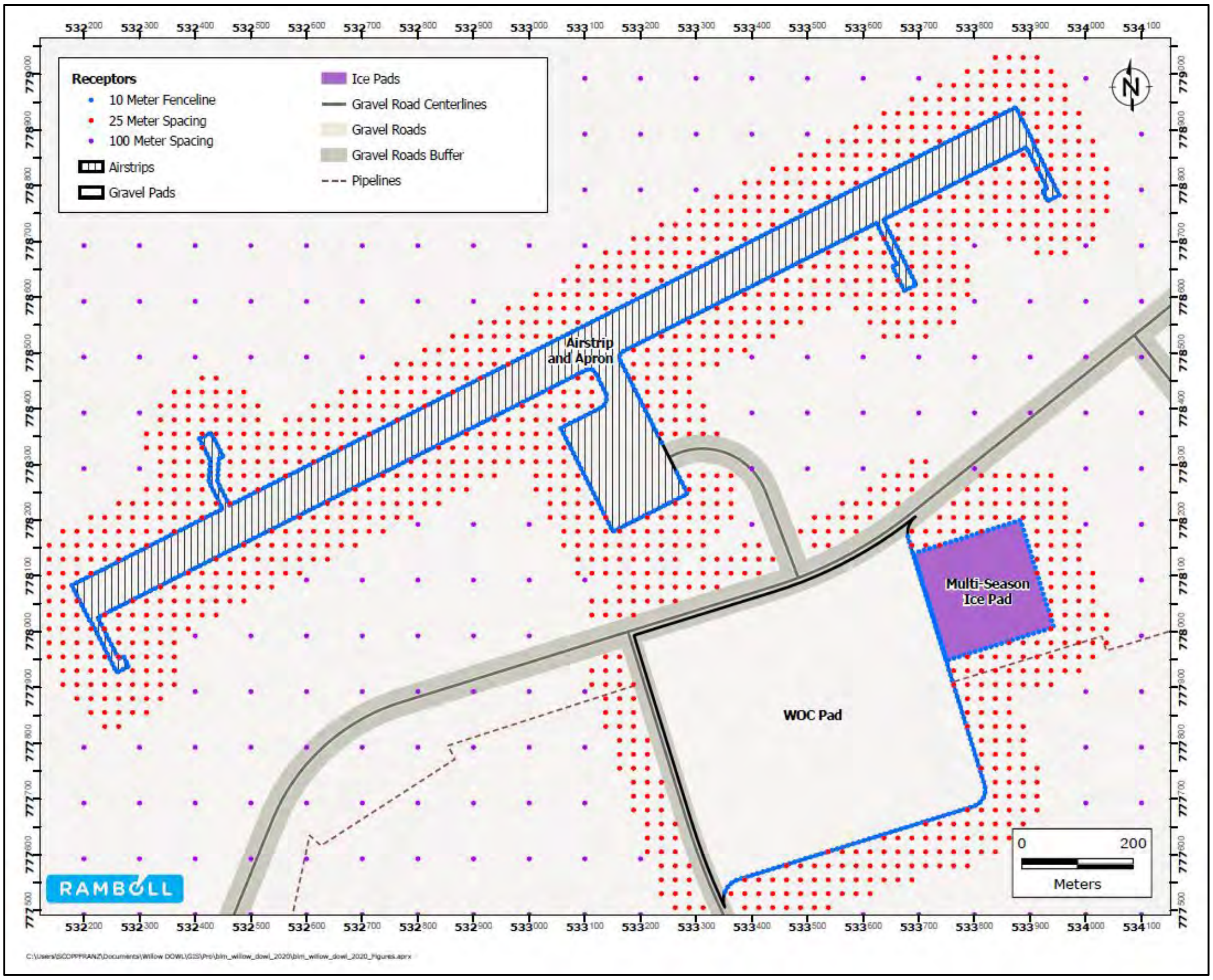

Figure E.3-19. Airstrip Operations Receptor Locations – Alternative D (Disconnected Access)

Attachment F

Module Delivery

CONTENTS

FIGURES

Tables

F.1 Module Delivery at Point Lonely

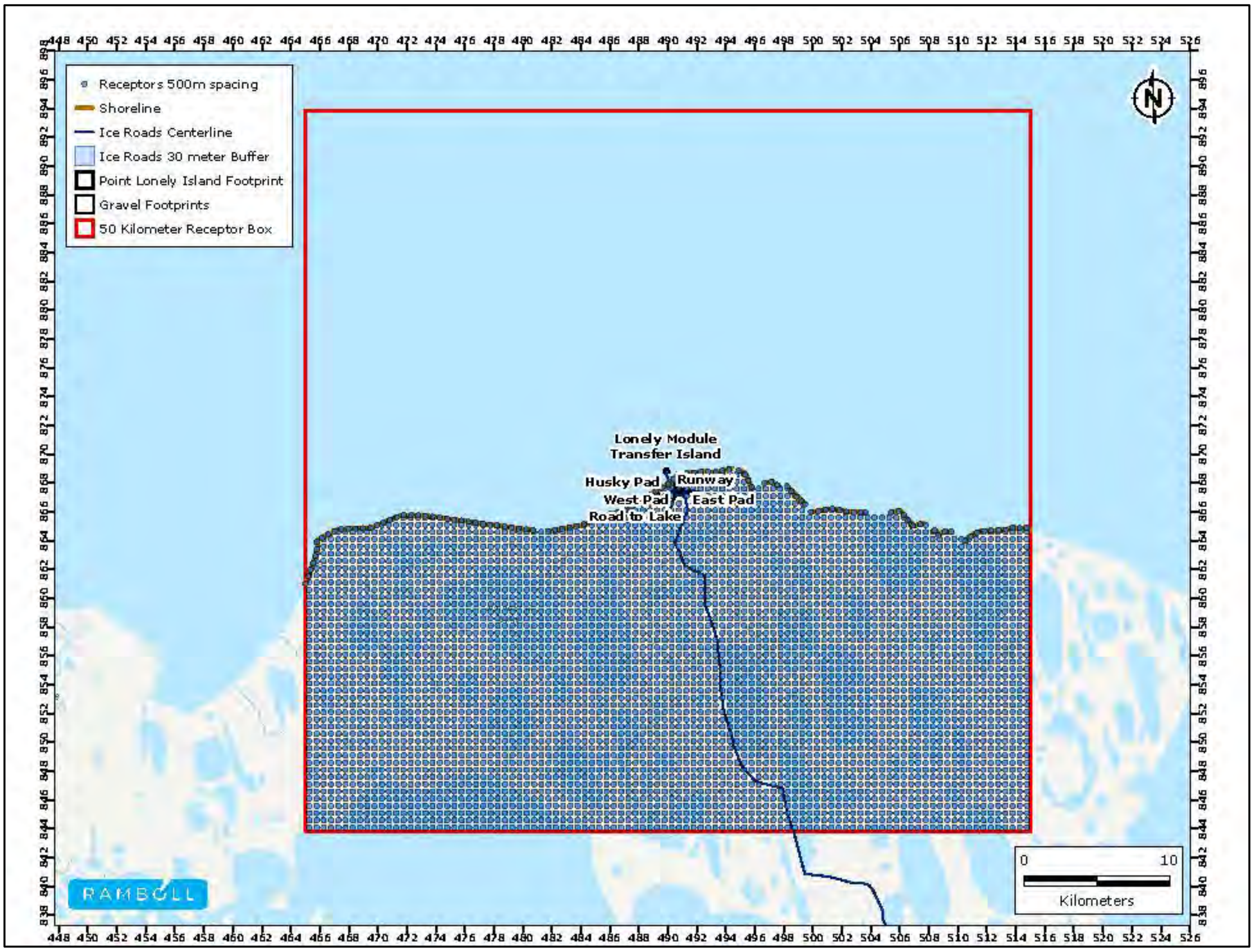

Figure F.1-1. Module Delivery Option 2 Receptor Locations

Figure F.1-2. Module Delivery Option 2 Source Locations

Table F.1-1. Module Delivery Option 2 Emissions Source Descriptions and In-Stack NO_2/NO_X Ratios

Source ID	Source Type	Source Description	NO_2/NO_X Ratio
MTICAMPGEN	POINT	Camp Generators - Construction Camp Generators	0.1
MTIGRVLHT	POINT	Gravel Island Construction - Gravel Island Construction Heaters	0.05
MTIVTTBC	VOLUME	Vessel Traffic - Tugs & Barges	0.2
MTITAIL1	VOLUME	Mobile Equipment Tailpipe - Operations Mobile Equipment Tailpipe	0.15
MTITAIL2	VOLUME	Mobile Equipment Tailpipe - Operations Mobile Equipment Tailpipe	0.15
MTITAIL3	VOLUME	Mobile Equipment Tailpipe - Operations Mobile Equipment Tailpipe	0.15
MTITAIL4	VOLUME	Mobile Equipment Tailpipe - Operations Mobile Equipment Tailpipe	0.15
MTITAIL5	VOLUME	Mobile Equipment Tailpipe - Operations Mobile Equipment Tailpipe	0.15
MTITAIL6	VOLUME	Mobile Equipment Tailpipe - Operations Mobile Equipment Tailpipe	0.15
MTITAIL7	VOLUME	Mobile Equipment Tailpipe - Operations Mobile Equipment Tailpipe	0.15
MTIFUGD	VOLUME	Wind Erosion Fugitive Dust - Wind Erosion	-
MTIVTSV	VOLUME	Vessel Traffic - Support Vessels	0.2
MTIGRVLNR1	VOLUME	Gravel Island Construction - Construction Mobile Equipment Tailpipe	0.2
MTIGRVLNR2	VOLUME	Gravel Island Construction - Construction Mobile Equipment Tailpipe	0.2
MTIGRVLNR3	VOLUME	Gravel Island Construction - Construction Mobile Equipment Tailpipe	0.2
MTIGRVLNR4	VOLUME	Gravel Island Construction - Construction Mobile Equipment Tailpipe	0.2

Table F.1-2. Module Delivery Option 2 Emissions Stack Parameters

Source ID	Source Type	Release Height (m)	Elevation (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)
MTICAMPGEN	POINT	6.10	1.52	0.46	15.10	795.00	-	-
MTIGRVLHT	POINT	12.20	1.25	0.94	5.70	529.00	-	-
MTIVTTBC	VOLUME	3.66	1.52	-	-	-	8.51	10.00
MTITAIL1	VOLUME	3.66	1.52	-	-	-	12.72	3.38
MTITAIL2	VOLUME	3.66	1.52	-	-	-	12.72	3.38
MTITAIL3	VOLUME	3.66	1.52	-	-	-	12.72	3.38
MTITAIL4	VOLUME	3.66	1.52	-	-	-	12.72	3.38
MTITAIL5	VOLUME	3.66	1.52	-	-	-	12.72	3.38
MTITAIL6	VOLUME	3.66	1.52	-	-	-	12.72	3.38
MTITAIL7	VOLUME	3.66	1.52	-	-	-	12.72	3.38
MTIFUGD	VOLUME	3.66	1.52	-	-	-	41.86	3.38
MTIVTSV	VOLUME	3.66	1.52	-	-	-	8.51	10.00
MTIGRVLNR1	VOLUME	3.66	1.52	-	-	-	18.60	3.38
MTIGRVLNR2	VOLUME	3.66	1.52	-	-	-	18.60	3.38
MTIGRVLNR3	VOLUME	3.66	1.52	-	-	-	18.60	3.38
MTIGRVLNR4	VOLUME	3.66	1.52	-	-	-	18.60	3.38

Table F.1-3. Module Delivery Option 2 Emissions Rates (g/s)

Source ID	CO 1-hr and 8-hr	NOx 1-hr	NOx Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr, 3-hr, and 24-hr	SO_2 Annual[1]	Annual Hours
MTICAMPGEN	4.09E-01	4.67E-01	5.34E-02	2.34E-02	2.34E-02	2.67E-03	7.79E-04	8.89E-05	500
MTIGRVLHT	1.64E-02	6.57E-02	2.16E-02	7.82E-03	7.00E-03	2.30E-03	7.00E-04	2.30E-04	1440
MTIVTTBC	3.89E-01	1.91E-01	7.63E-01	4.83E-02	4.68E-02	4.68E-02	5.06E-04	5.06E-04	8760
MTITAIL1	9.11E-04	7.67E-04	7.67E-04	1.03E-04	3.84E-05	3.84E-05	3.41E-06	3.41E-06	VARIES
MTITAIL2	9.11E-04	7.67E-04	7.67E-04	1.03E-04	3.84E-05	3.84E-05	3.41E-06	3.41E-06	VARIES
MTITAIL3	9.11E-04	7.67E-04	7.67E-04	1.03E-04	3.84E-05	3.84E-05	3.41E-06	3.41E-06	VARIES
MTITAIL4	9.11E-04	7.67E-04	7.67E-04	1.03E-04	3.84E-05	3.84E-05	3.41E-06	3.41E-06	VARIES
MTITAIL5	9.11E-04	7.67E-04	7.67E-04	1.03E-04	3.84E-05	3.84E-05	3.41E-06	3.41E-06	VARIES
MTITAIL6	9.11E-04	7.67E-04	7.67E-04	1.03E-04	3.84E-05	3.84E-05	3.41E-06	3.41E-06	VARIES
MTITAIL7	9.11E-04	7.67E-04	7.67E-04	1.03E-04	3.84E-05	3.84E-05	3.41E-06	3.41E-06	VARIES
MTIFUGD	0.00E+00	0.00E+00	0.00E+00	1.46E-02	2.19E-03	2.19E-03	0.00E+00	0.00E+00	4380
MTIVTSV	3.61E-02	7.07E-02	7.07E-02	4.47E-03	4.34E-03	4.34E-03	4.69E-05	4.69E-05	VARIES
MTIGRVLNR1	1.53E-01	3.54E-01	1.10E-01	2.06E-02	2.00E-02	6.21E-03	8.13E-04	2.53E-04	VARIES
MTIGRVLNR2	1.53E-01	3.54E-01	1.10E-01	2.06E-02	2.00E-02	6.21E-03	8.13E-04	2.53E-04	VARIES
MTIGRVLNR3	1.53E-01	3.54E-01	1.10E-01	2.06E-02	2.00E-02	6.21E-03	8.13E-04	2.53E-04	VARIES
MTIGRVLNR4	1.53E-01	3.54E-01	1.10E-01	2.06E-02	2.00E-02	6.21E-03	8.13E-04	2.53E-04	VARIES

[1] - Annual emission rate calculations are based on the daily operating hours specified in the emissions inventory. If actual daily operating hour timeframes were not specified, 8760 hours were assumed.

F.2 Module Delivery at Oliktok Dock (Ocean Point Crossing Option)

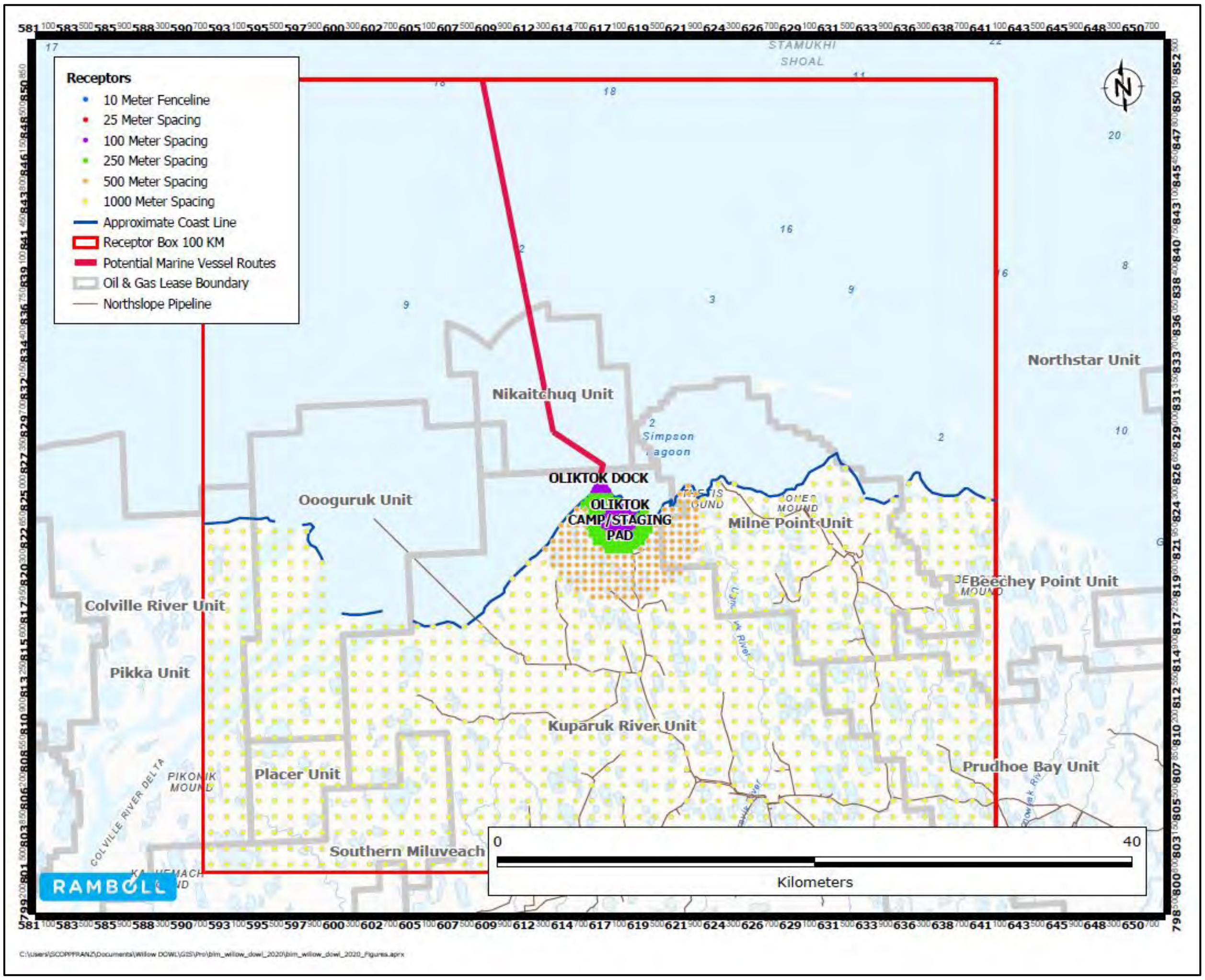

Figure F.2-1. Overview of Module Delivery at Oliktok Dock Receptor Locations

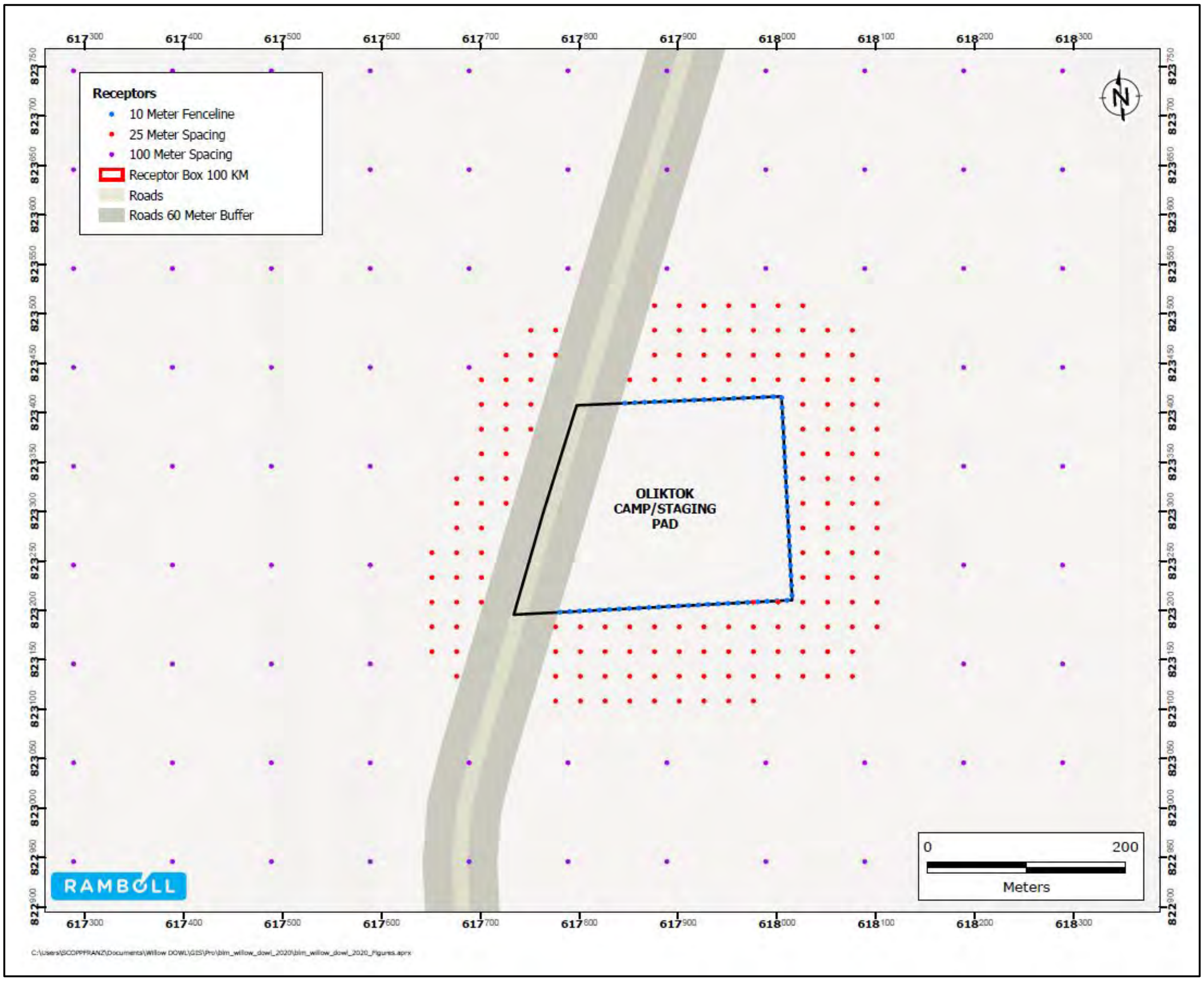

Figure F.2-2. Module Delivery at Oliktok Camp (gravel staging pad) Receptor Locations

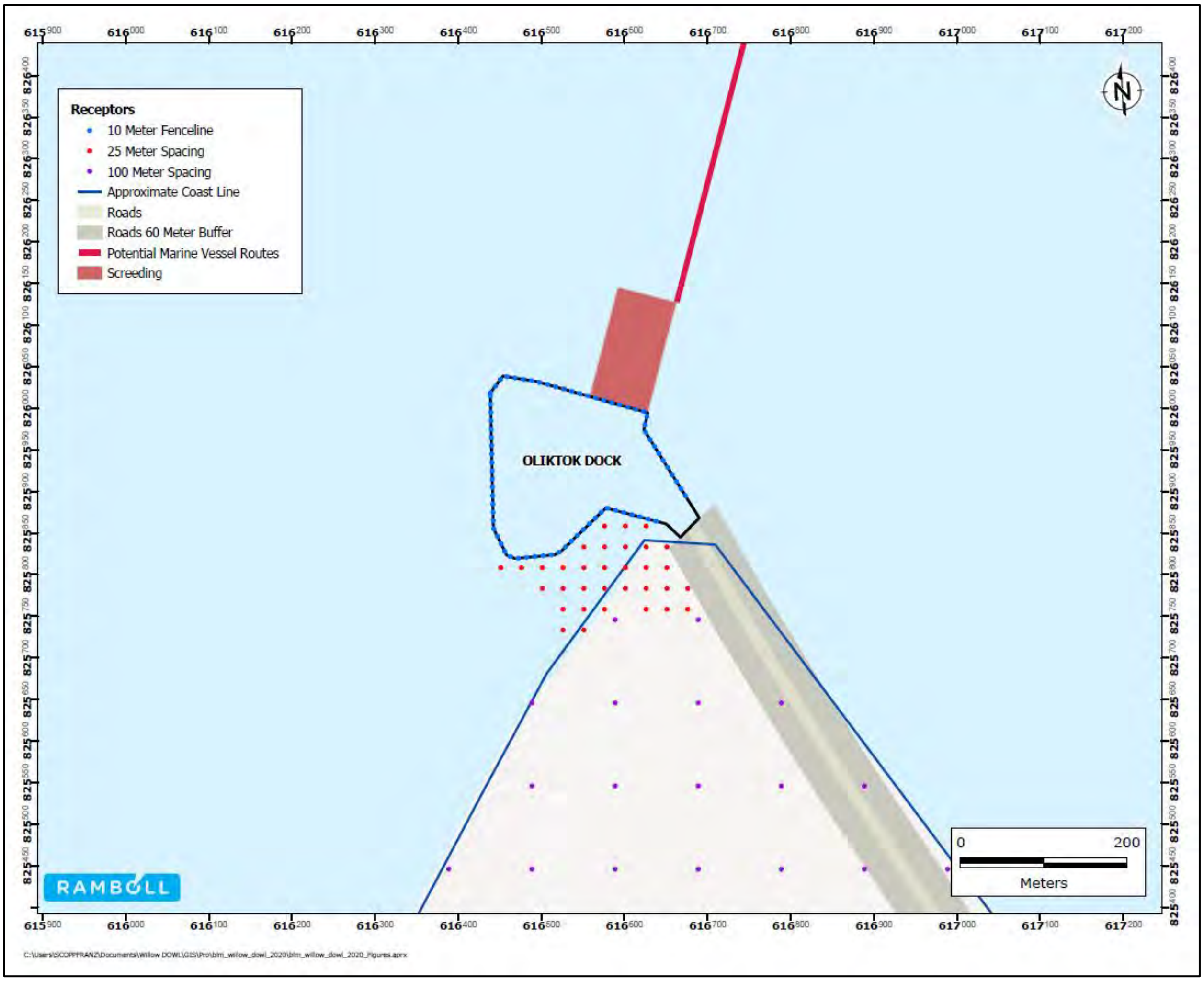

Figure F.2-3. Module Delivery at Oliktok Dock Receptor Locations

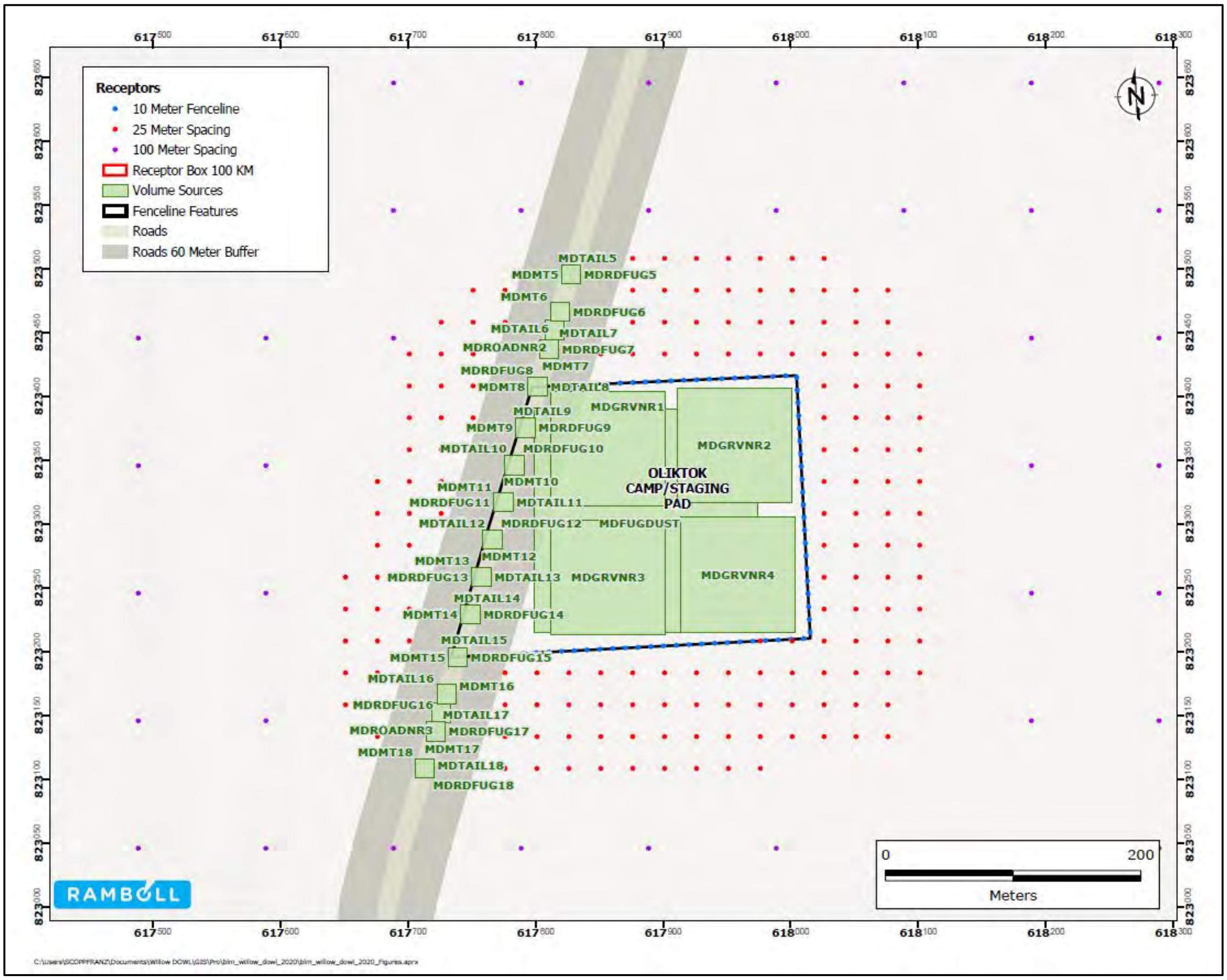

Figure F.2-4. Module Delivery at Oliktok Camp (gravel staging pad) Receptor and Source Locations

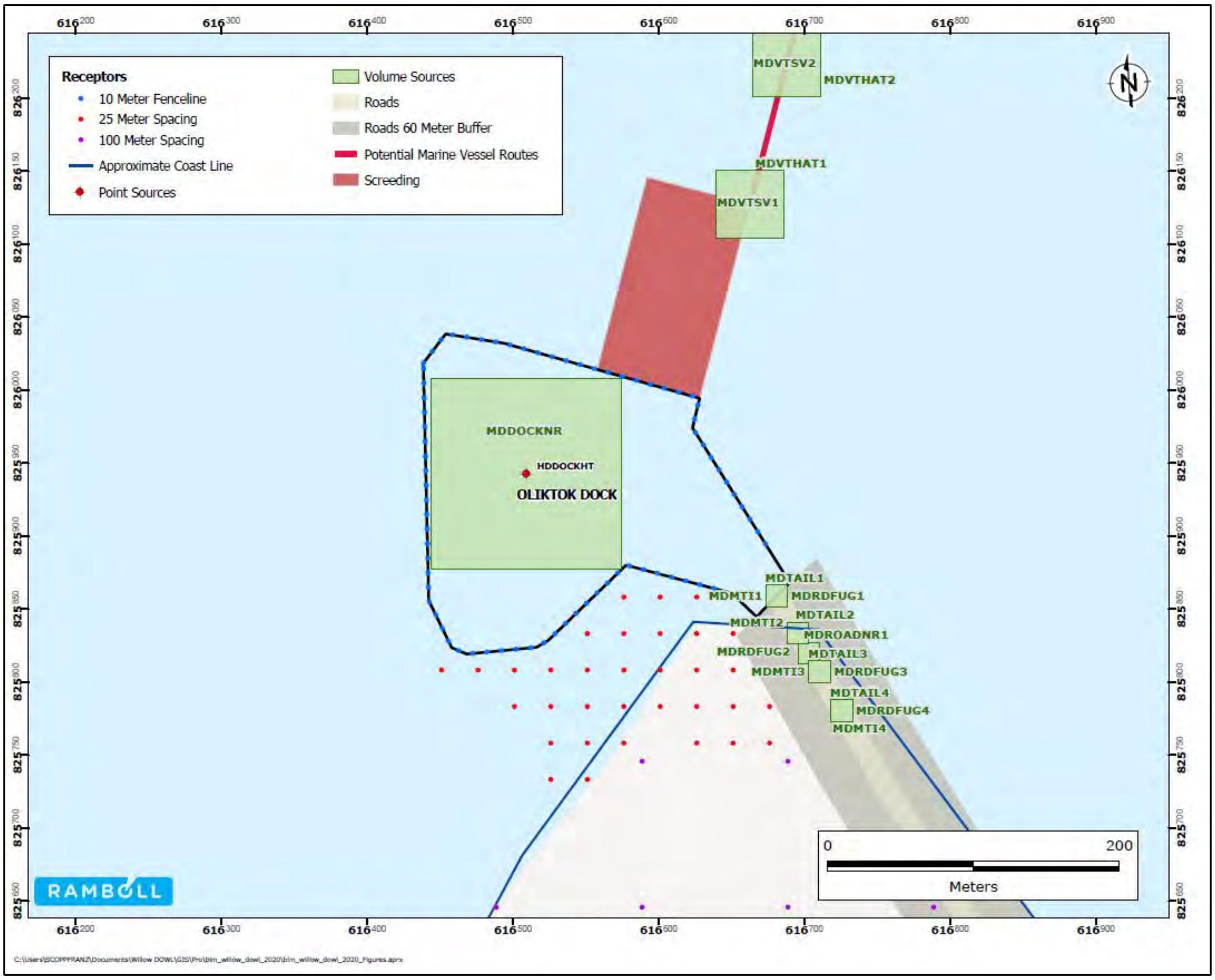

Figure F.2-5. Module Delivery at Oliktok Dock Receptor and Source Locations

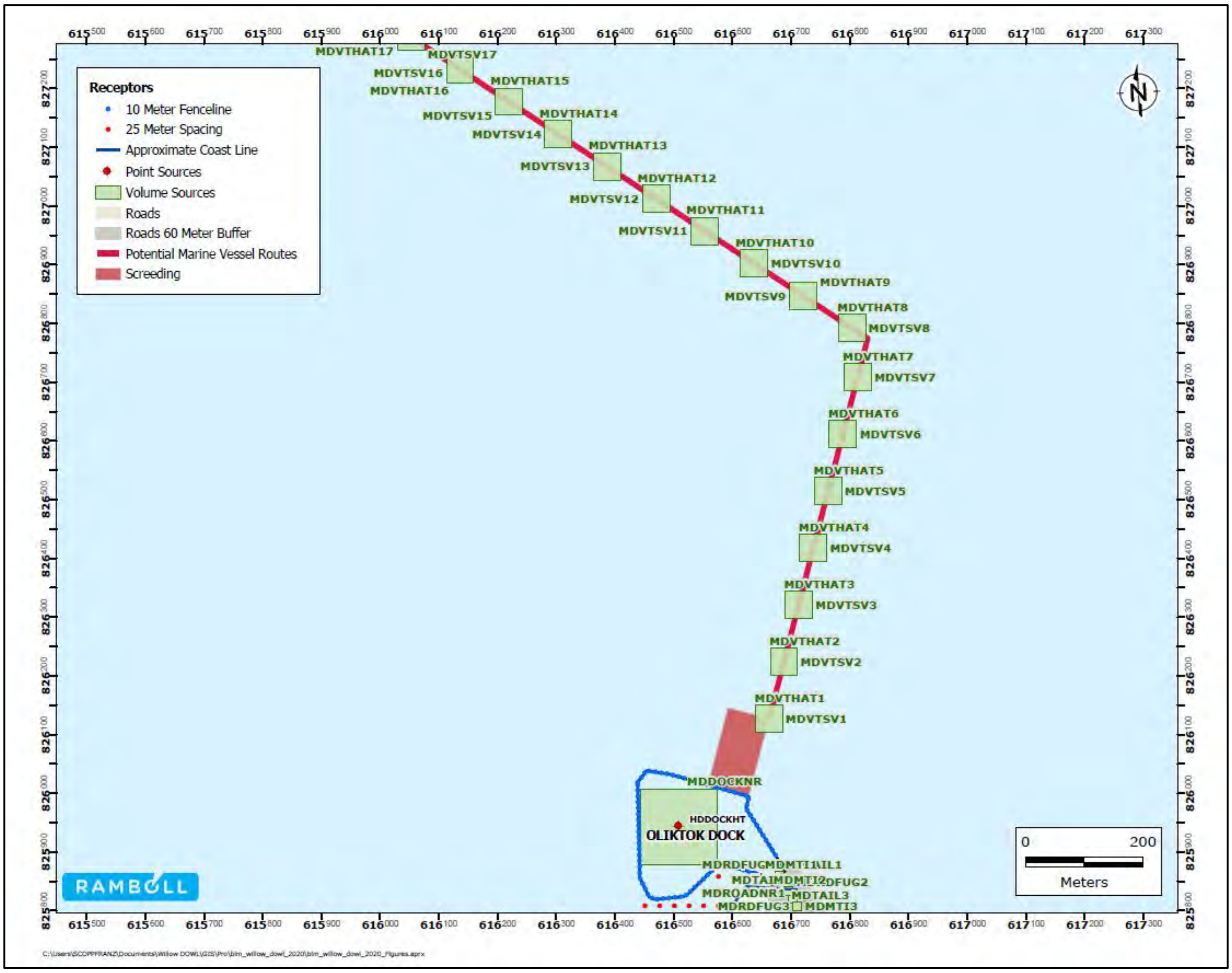

Figure F.2-6. Module Delivery of the Vessel Route Source Locations-1

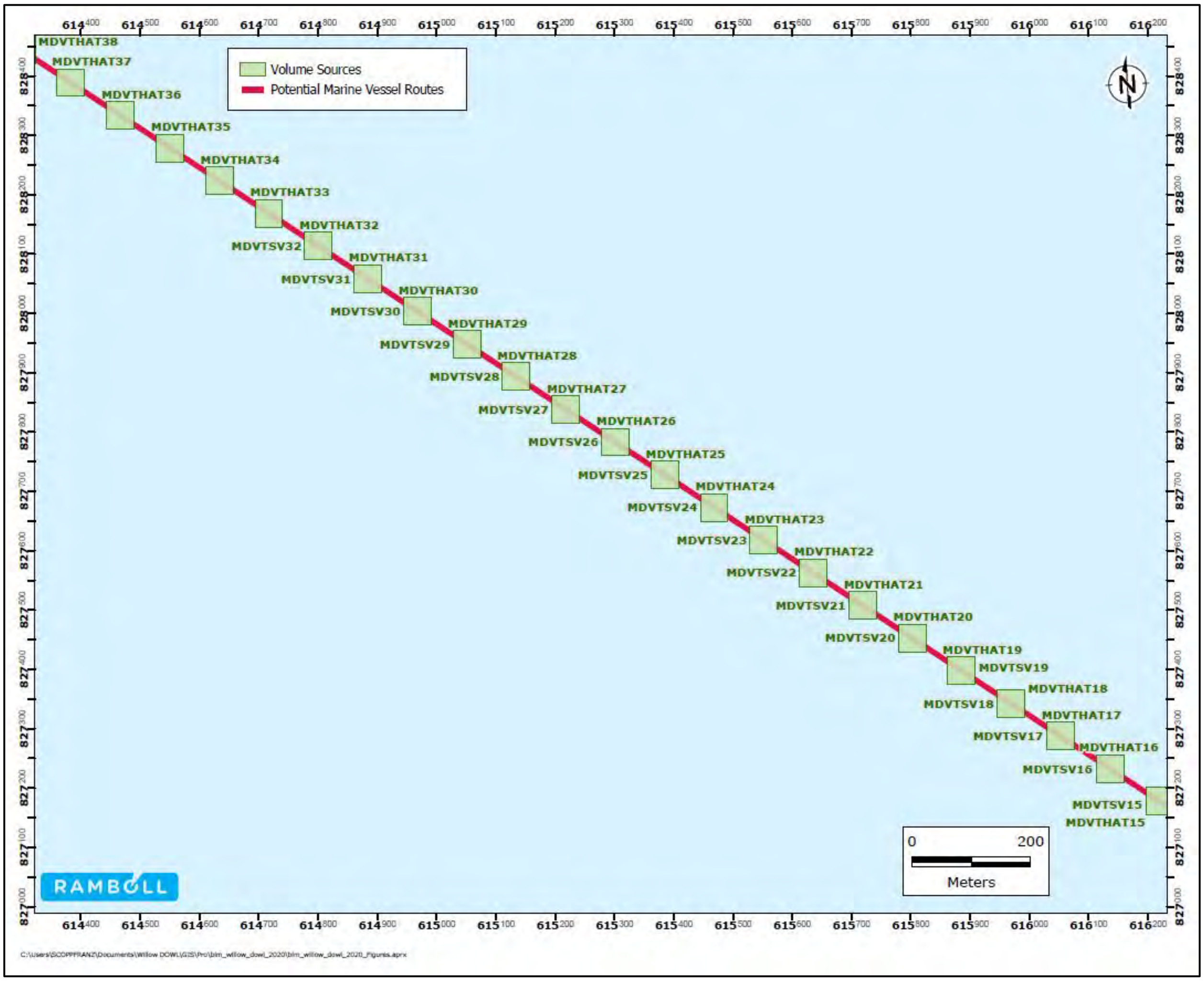

Figure F.2-7. Module Delivery of the Vessel Route Source Locations-2

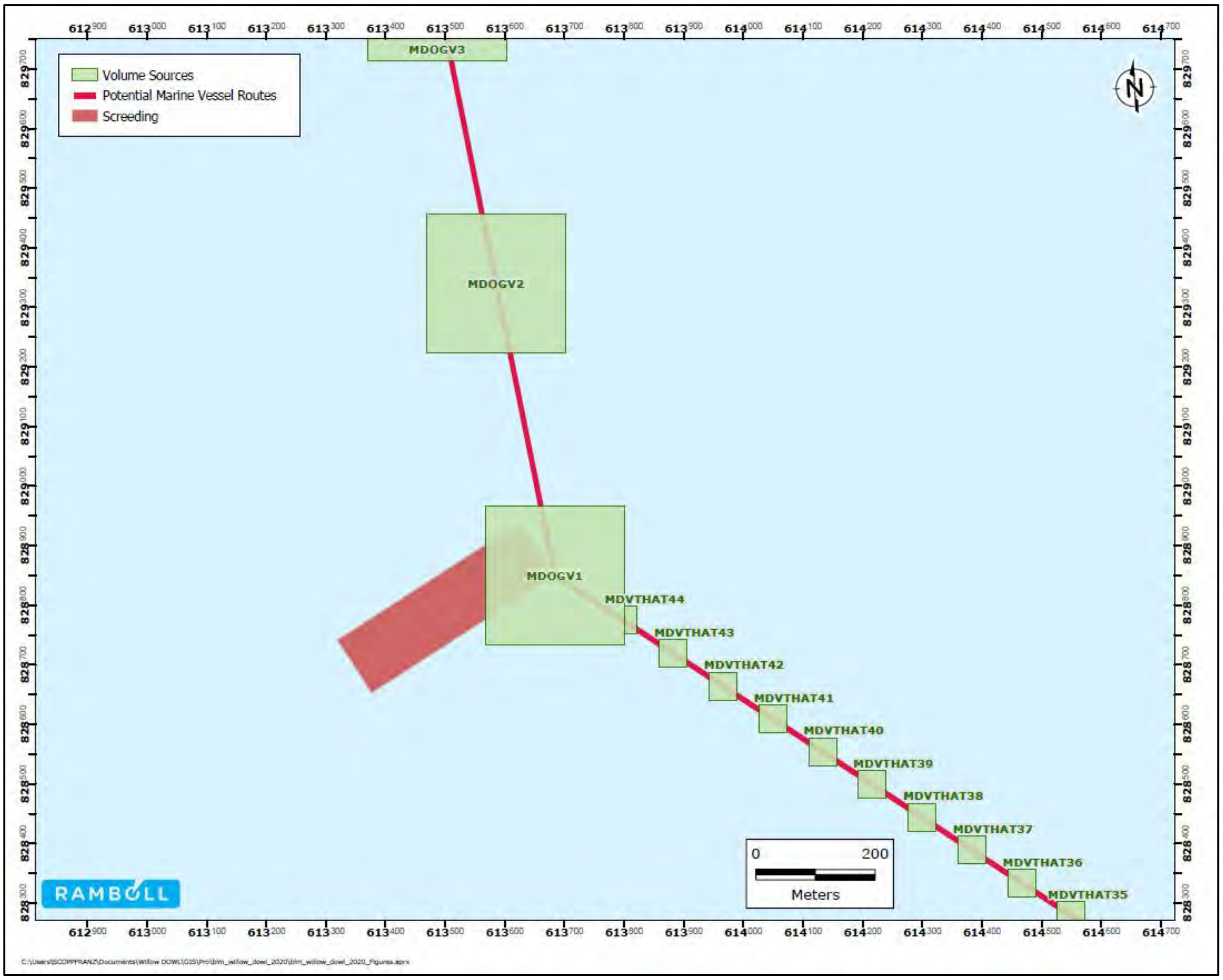

Figure F.2-8. Module Delivery of the Vessel Route Source Locations-3

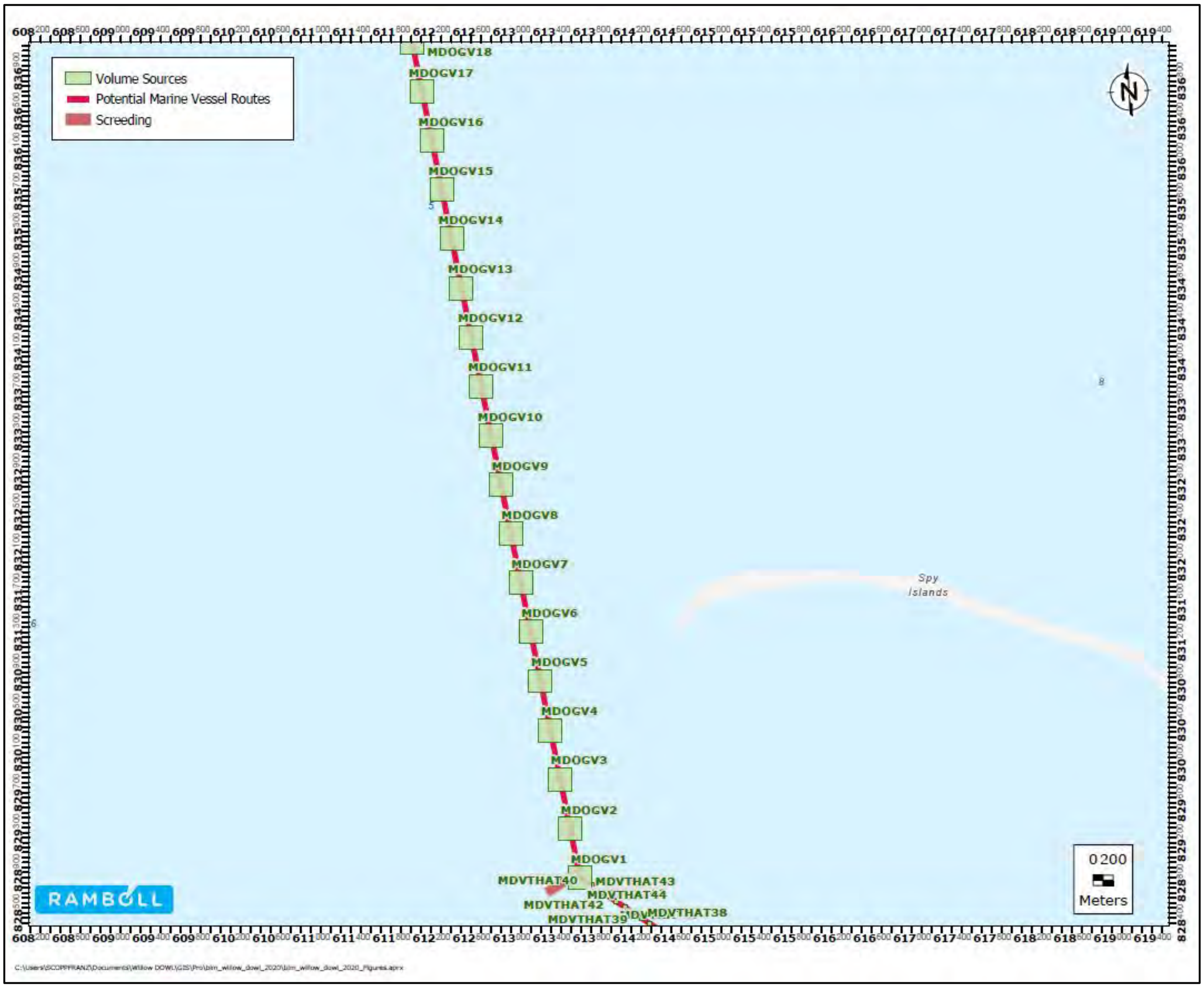

Figure F.2-9. Module Delivery of the Vessel Route Source Locations-4

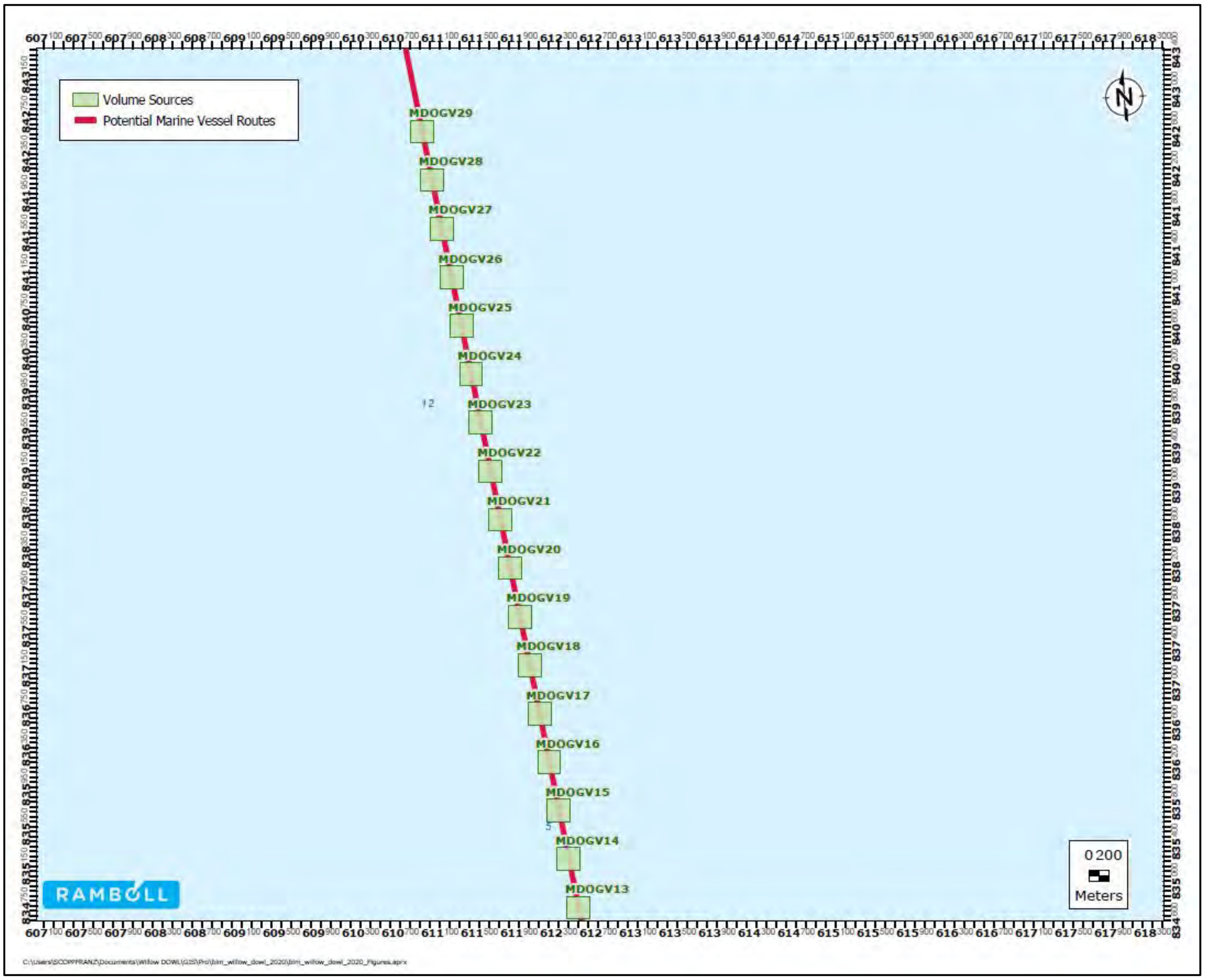

Figure F.2-10. Module Delivery of the Vessel Route Source Locations-5

Table F.2-1. Module Delivery Option 3 Emissions Source Descriptions and In-Stack NO2/NOX Ratios

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
MDDOCKHT	POINT	Dock Construction - Heater	0.05	Diesel fueled heaters and boiler
MDDOCKNR	VOLUME	Dock Construction Non-road Equipment	0.2	Diesel tailpipe from non-road equipment
MDTAIL1	VOLUME	Mobile Equipment Tailpipe - Operations Mobile	0.15	Diesel tailpipe from on-road vehicles
MDTAIL2	VOLUME	Mobile Equipment Tailpipe - Operations Mobile	0.15	Diesel tailpipe from on-road vehicles
MDTAIL3	VOLUME	Mobile Equipment Tailpipe - Operations Mobile	0.15	Diesel tailpipe from on-road vehicles
MDTAIL4	VOLUME	Mobile Equipment Tailpipe - Operations Mobile	0.15	Diesel tailpipe from on-road vehicles
MDTAIL5	VOLUME	Mobile Equipment Tailpipe - Operations Mobile	0.15	Diesel tailpipe from on-road vehicles
MDTAIL6	VOLUME	Mobile Equipment Tailpipe - Operations Mobile	0.15	Diesel tailpipe from on-road vehicles
MDTAIL7	VOLUME	Mobile Equipment Tailpipe - Operations Mobile	0.15	Diesel tailpipe from on-road vehicles
MDTAIL8	VOLUME	Mobile Equipment Tailpipe - Operations Mobile	0.15	Diesel tailpipe from on-road vehicles
MDTAIL9	VOLUME	Mobile Equipment Tailpipe - Operations Mobile	0.15	Diesel tailpipe from on-road vehicles
MDTAIL10	VOLUME	Mobile Equipment Tailpipe - Operations Mobile	0.15	Diesel tailpipe from on-road vehicles
MDTAIL11	VOLUME	Mobile Equipment Tailpipe - Operations Mobile	0.15	Diesel tailpipe from on-road vehicles
MDTAIL12	VOLUME	Mobile Equipment Tailpipe - Operations Mobile	0.15	Diesel tailpipe from on-road vehicles
MDTAIL13	VOLUME	Mobile Equipment Tailpipe - Operations Mobile	0.15	Diesel tailpipe from on-road vehicles
MDTAIL14	VOLUME	Mobile Equipment Tailpipe - Operations Mobile	0.15	Diesel tailpipe from on-road vehicles
MDTAIL15	VOLUME	Mobile Equipment Tailpipe - Operations Mobile	0.15	Diesel tailpipe from on-road vehicles
MDTAIL16	VOLUME	Mobile Equipment Tailpipe - Operations Mobile	0.15	Diesel tailpipe from on-road vehicles
MDTAIL17	VOLUME	Mobile Equipment Tailpipe - Operations Mobile	0.15	Diesel tailpipe from on-road vehicles
MDTAIL18	VOLUME	Mobile Equipment Tailpipe - Operations Mobile	0.15	Diesel tailpipe from on-road vehicles
MDRDFUG1	VOLUME	Fugitive Road Dust - Construction and Operations	-	-
MDRDFUG2	VOLUME	Fugitive Road Dust - Construction and Operations	-	-
MDRDFUG3	VOLUME	Fugitive Road Dust - Construction and Operations	-	-
MDRDFUG4	VOLUME	Fugitive Road Dust - Construction and Operations	-	-
MDRDFUG5	VOLUME	Fugitive Road Dust - Construction and Operations	-	-
MDRDFUG6	VOLUME	Fugitive Road Dust - Construction and Operations	-	-
MDRDFUG7	VOLUME	Fugitive Road Dust - Construction and Operations	-	-
MDRDFUG8	VOLUME	Fugitive Road Dust - Construction and Operations	-	-
MDRDFUG9	VOLUME	Fugitive Road Dust - Construction and Operations	-	-
MDRDFUG10	VOLUME	Fugitive Road Dust - Construction and Operations	-	-
MDRDFUG11	VOLUME	Fugitive Road Dust - Construction and Operations	-	-

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
MDRDFUG12	VOLUME	Fugitive Road Dust - Construction and Operations	-	-
MDRDFUG13	VOLUME	Fugitive Road Dust - Construction and Operations	-	-
MDRDFUG14	VOLUME	Fugitive Road Dust - Construction and Operations	-	-
MDRDFUG15	VOLUME	Fugitive Road Dust - Construction and Operations	-	-
MDRDFUG16	VOLUME	Fugitive Road Dust - Construction and Operations	-	-
MDRDFUG17	VOLUME	Fugitive Road Dust - Construction and Operations	-	-
MDRDFUG18	VOLUME	Fugitive Road Dust - Construction and Operations	-	-
MDMT1	VOLUME	Mobile Equipment Tailpipe - Module Transport	0.15	Diesel tailpipe from on-road vehicles
MDMT2	VOLUME	Mobile Equipment Tailpipe - Module Transport	0.15	Diesel tailpipe from on-road vehicles
MDMT3	VOLUME	Mobile Equipment Tailpipe - Module Transport	0.15	Diesel tailpipe from on-road vehicles
MDMT4	VOLUME	Mobile Equipment Tailpipe - Module Transport	0.15	Diesel tailpipe from on-road vehicles
MDMT5	VOLUME	Mobile Equipment Tailpipe - Module Transport	0.15	Diesel tailpipe from on-road vehicles
MDMT6	VOLUME	Mobile Equipment Tailpipe - Module Transport	0.15	Diesel tailpipe from on-road vehicles
MDMT7	VOLUME	Mobile Equipment Tailpipe - Module Transport	0.15	Diesel tailpipe from on-road vehicles
MDMT8	VOLUME	Mobile Equipment Tailpipe - Module Transport	0.15	Diesel tailpipe from on-road vehicles
MDMT9	VOLUME	Mobile Equipment Tailpipe - Module Transport	0.15	Diesel tailpipe from on-road vehicles
MDMT10	VOLUME	Mobile Equipment Tailpipe - Module Transport	0.15	Diesel tailpipe from on-road vehicles
MDMT11	VOLUME	Mobile Equipment Tailpipe - Module Transport	0.15	Diesel tailpipe from on-road vehicles
MDMT12	VOLUME	Mobile Equipment Tailpipe - Module Transport	0.15	Diesel tailpipe from on-road vehicles
MDMT13	VOLUME	Mobile Equipment Tailpipe - Module Transport	0.15	Diesel tailpipe from on-road vehicles
MDMT14	VOLUME	Mobile Equipment Tailpipe - Module Transport	0.15	Diesel tailpipe from on-road vehicles
MDMT15	VOLUME	Mobile Equipment Tailpipe - Module Transport	0.15	Diesel tailpipe from on-road vehicles
MDMT16	VOLUME	Mobile Equipment Tailpipe - Module Transport	0.15	Diesel tailpipe from on-road vehicles
MDMT17	VOLUME	Mobile Equipment Tailpipe - Module Transport	0.15	Diesel tailpipe from on-road vehicles
MDMT18	VOLUME	Mobile Equipment Tailpipe - Module Transport	0.15	Diesel tailpipe from on-road vehicles
MDGRVNR1	VOLUME	Gravel Staging Pad Construction Non-road Equipment	0.2	Diesel tailpipe from non-road equipment
MDGRVNR2	VOLUME	Gravel Staging Pad Construction Non-road Equipment	0.2	Diesel tailpipe from non-road equipment
MDGRVNR3	VOLUME	Gravel Staging Pad Construction Non-road Equipment	0.2	Diesel tailpipe from non-road equipment
MDGRVNR4	VOLUME	Gravel Staging Pad Construction Non-road Equipment	0.2	Diesel tailpipe from non-road equipment

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
MDROADNR 1	VOLUME	Gravel Road Construction Non-road Equipment	0.2	Diesel tailpipe from non-road equipment
MDROADNR 2	VOLUME	Gravel Road Construction Non-road Equipment	0.2	Diesel tailpipe from non-road equipment
MDROADNR 3	VOLUME	Gravel Road Construction Non-road Equipment	0.2	Diesel tailpipe from non-road equipment
MDFUGDUST	VOLUME	Gravel Staging Pad Fugitive Dust - Wind Erosion	-	-
MDVTHAT1	VOLUME	Vessel Traffic - Harbor Assist Tugs	0.2	Diesel tailpipe from vessels
MDVTHAT2	VOLUME	Vessel Traffic - Harbor Assist Tugs	0.2	Diesel tailpipe from vessels
MDVTHAT3	VOLUME	Vessel Traffic - Harbor Assist Tugs	0.2	Diesel tailpipe from vessels
MDVTHAT4	VOLUME	Vessel Traffic - Harbor Assist Tugs	0.2	Diesel tailpipe from vessels
MDVTHAT5	VOLUME	Vessel Traffic - Harbor Assist Tugs	0.2	Diesel tailpipe from vessels
MDVTHAT6	VOLUME	Vessel Traffic - Harbor Assist Tugs	0.2	Diesel tailpipe from vessels
MDVTHAT7	VOLUME	Vessel Traffic - Harbor Assist Tugs	0.2	Diesel tailpipe from vessels
MDVTHAT8	VOLUME	Vessel Traffic - Harbor Assist Tugs	0.2	Diesel tailpipe from vessels
MDVTHAT9	VOLUME	Vessel Traffic - Harbor Assist Tugs	0.2	Diesel tailpipe from vessels
MDVTHAT10	VOLUME	Vessel Traffic - Harbor Assist Tugs	0.2	Diesel tailpipe from vessels
MDVTHAT11	VOLUME	Vessel Traffic - Harbor Assist Tugs	0.2	Diesel tailpipe from vessels
MDVTHAT12	VOLUME	Vessel Traffic - Harbor Assist Tugs	0.2	Diesel tailpipe from vessels
MDVTHAT13	VOLUME	Vessel Traffic - Harbor Assist Tugs	0.2	Diesel tailpipe from vessels
MDVTHAT14	VOLUME	Vessel Traffic - Harbor Assist Tugs	0.2	Diesel tailpipe from vessels
MDVTHAT15	VOLUME	Vessel Traffic - Harbor Assist Tugs	0.2	Diesel tailpipe from vessels
MDVTHAT16	VOLUME	Vessel Traffic - Harbor Assist Tugs	0.2	Diesel tailpipe from vessels
MDVTHAT17	VOLUME	Vessel Traffic - Harbor Assist Tugs	0.2	Diesel tailpipe from vessels
MDVTHAT18	VOLUME	Vessel Traffic - Harbor Assist Tugs	0.2	Diesel tailpipe from vessels
MDVTHAT19	VOLUME	Vessel Traffic - Harbor Assist Tugs	0.2	Diesel tailpipe from vessels
MDVTHAT20	VOLUME	Vessel Traffic - Harbor Assist Tugs	0.2	Diesel tailpipe from vessels
MDVTHAT21	VOLUME	Vessel Traffic - Harbor Assist Tugs	0.2	Diesel tailpipe from vessels
MDVTHAT22	VOLUME	Vessel Traffic - Harbor Assist Tugs	0.2	Diesel tailpipe from vessels
MDVTHAT23	VOLUME	Vessel Traffic - Harbor Assist Tugs	0.2	Diesel tailpipe from vessels
MDVTHAT24	VOLUME	Vessel Traffic - Harbor Assist Tugs	0.2	Diesel tailpipe from vessels
MDVTHAT25	VOLUME	Vessel Traffic - Harbor Assist Tugs	0.2	Diesel tailpipe from vessels
MDVTHAT26	VOLUME	Vessel Traffic - Harbor Assist Tugs	0.2	Diesel tailpipe from vessels
MDVTHAT27	VOLUME	Vessel Traffic - Harbor Assist Tugs	0.2	Diesel tailpipe from vessels
MDVTHAT28	VOLUME	Vessel Traffic - Harbor Assist Tugs	0.2	Diesel tailpipe from vessels
MDVTHAT29	VOLUME	Vessel Traffic - Harbor Assist Tugs	0.2	Diesel tailpipe from vessels
MDVTHAT30	VOLUME	Vessel Traffic - Harbor Assist Tugs	0.2	Diesel tailpipe from vessels
MDVTHAT31	VOLUME	Vessel Traffic - Harbor Assist Tugs	0.2	Diesel tailpipe from vessels
MDVTHAT32	VOLUME	Vessel Traffic - Harbor Assist Tugs	0.2	Diesel tailpipe from vessels
MDVTHAT33	VOLUME	Vessel Traffic - Harbor Assist Tugs	0.2	Diesel tailpipe from vessels
MDVTHAT34	VOLUME	Vessel Traffic - Harbor Assist Tugs	0.2	Diesel tailpipe from vessels
MDVTHAT35	VOLUME	Vessel Traffic - Harbor Assist Tugs	0.2	Diesel tailpipe from vessels
MDVTHAT36	VOLUME	Vessel Traffic - Harbor Assist Tugs	0.2	Diesel tailpipe from vessels
MDVTHAT37	VOLUME	Vessel Traffic - Harbor Assist Tugs	0.2	Diesel tailpipe from vessels
MDVTHAT38	VOLUME	Vessel Traffic - Harbor Assist Tugs	0.2	Diesel tailpipe from vessels
MDVTHAT39	VOLUME	Vessel Traffic - Harbor Assist Tugs	0.2	Diesel tailpipe from vessels
MDVTHAT40	VOLUME	Vessel Traffic - Harbor Assist Tugs	0.2	Diesel tailpipe from vessels
MDVTHAT41	VOLUME	Vessel Traffic - Harbor Assist Tugs	0.2	Diesel tailpipe from vessels
MDVTHAT42	VOLUME	Vessel Traffic - Harbor Assist Tugs	0.2	Diesel tailpipe from vessels
MDVTHAT43	VOLUME	Vessel Traffic - Harbor Assist Tugs	0.2	Diesel tailpipe from vessels

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
MDVTHAT44	VOLUME	Vessel Traffic - Harbor Assist Tugs	0.2	Diesel tailpipe from vessels
MDVTHAT45	VOLUME	Vessel Traffic - Harbor Assist Tugs	0.2	Diesel tailpipe from vessels
MDVTSV1	VOLUME	Vessel Traffic - Support Vessels	0.2	Diesel tailpipe from vessels
MDVTSV2	VOLUME	Vessel Traffic - Support Vessels	0.2	Diesel tailpipe from vessels
MDVTSV3	VOLUME	Vessel Traffic - Support Vessels	0.2	Diesel tailpipe from vessels
MDVTSV4	VOLUME	Vessel Traffic - Support Vessels	0.2	Diesel tailpipe from vessels
MDVTSV5	VOLUME	Vessel Traffic - Support Vessels	0.2	Diesel tailpipe from vessels
MDVTSV6	VOLUME	Vessel Traffic - Support Vessels	0.2	Diesel tailpipe from vessels
MDVTSV7	VOLUME	Vessel Traffic - Support Vessels	0.2	Diesel tailpipe from vessels
MDVTSV8	VOLUME	Vessel Traffic - Support Vessels	0.2	Diesel tailpipe from vessels
MDVTSV9	VOLUME	Vessel Traffic - Support Vessels	0.2	Diesel tailpipe from vessels
MDVTSV10	VOLUME	Vessel Traffic - Support Vessels	0.2	Diesel tailpipe from vessels
MDVTSV11	VOLUME	Vessel Traffic - Support Vessels	0.2	Diesel tailpipe from vessels
MDVTSV12	VOLUME	Vessel Traffic - Support Vessels	0.2	Diesel tailpipe from vessels
MDVTSV13	VOLUME	Vessel Traffic - Support Vessels	0.2	Diesel tailpipe from vessels
MDVTSV14	VOLUME	Vessel Traffic - Support Vessels	0.2	Diesel tailpipe from vessels
MDVTSV15	VOLUME	Vessel Traffic - Support Vessels	0.2	Diesel tailpipe from vessels
MDVTSV16	VOLUME	Vessel Traffic - Support Vessels	0.2	Diesel tailpipe from vessels
MDVTSV17	VOLUME	Vessel Traffic - Support Vessels	0.2	Diesel tailpipe from vessels
MDVTSV18	VOLUME	Vessel Traffic - Support Vessels	0.2	Diesel tailpipe from vessels
MDVTSV19	VOLUME	Vessel Traffic - Support Vessels	0.2	Diesel tailpipe from vessels
MDVTSV20	VOLUME	Vessel Traffic - Support Vessels	0.2	Diesel tailpipe from vessels
MDVTSV21	VOLUME	Vessel Traffic - Support Vessels	0.2	Diesel tailpipe from vessels
MDVTSV22	VOLUME	Vessel Traffic - Support Vessels	0.2	Diesel tailpipe from vessels
MDVTSV23	VOLUME	Vessel Traffic - Support Vessels	0.2	Diesel tailpipe from vessels
MDVTSV24	VOLUME	Vessel Traffic - Support Vessels	0.2	Diesel tailpipe from vessels
MDVTSV25	VOLUME	Vessel Traffic - Support Vessels	0.2	Diesel tailpipe from vessels
MDVTSV26	VOLUME	Vessel Traffic - Support Vessels	0.2	Diesel tailpipe from vessels
MDVTSV27	VOLUME	Vessel Traffic - Support Vessels	0.2	Diesel tailpipe from vessels
MDVTSV28	VOLUME	Vessel Traffic - Support Vessels	0.2	Diesel tailpipe from vessels
MDVTSV29	VOLUME	Vessel Traffic - Support Vessels	0.2	Diesel tailpipe from vessels
MDVTSV30	VOLUME	Vessel Traffic - Support Vessels	0.2	Diesel tailpipe from vessels
MDVTSV31	VOLUME	Vessel Traffic - Support Vessels	0.2	Diesel tailpipe from vessels
MDVTSV32	VOLUME	Vessel Traffic - Support Vessels	0.2	Diesel tailpipe from vessels
MDOGV1	VOLUME	Vessel Traffic - Ocean-going Vessels	0.2	Diesel tailpipe from vessels
MDOGV2	VOLUME	Vessel Traffic - Ocean-going Vessels	0.2	Diesel tailpipe from vessels
MDOGV3	VOLUME	Vessel Traffic - Ocean-going Vessels	0.2	Diesel tailpipe from vessels
MDOGV4	VOLUME	Vessel Traffic - Ocean-going Vessels	0.2	Diesel tailpipe from vessels
MDOGV5	VOLUME	Vessel Traffic - Ocean-going Vessels	0.2	Diesel tailpipe from vessels
MDOGV6	VOLUME	Vessel Traffic - Ocean-going Vessels	0.2	Diesel tailpipe from vessels
MDOGV7	VOLUME	Vessel Traffic - Ocean-going Vessels	0.2	Diesel tailpipe from vessels
MDOGV8	VOLUME	Vessel Traffic - Ocean-going Vessels	0.2	Diesel tailpipe from vessels
MDOGV9	VOLUME	Vessel Traffic - Ocean-going Vessels	0.2	Diesel tailpipe from vessels
MDOGV10	VOLUME	Vessel Traffic - Ocean-going Vessels	0.2	Diesel tailpipe from vessels
MDOGV11	VOLUME	Vessel Traffic - Ocean-going Vessels	0.2	Diesel tailpipe from vessels
MDOGV12	VOLUME	Vessel Traffic - Ocean-going Vessels	0.2	Diesel tailpipe from vessels
MDOGV13	VOLUME	Vessel Traffic - Ocean-going Vessels	0.2	Diesel tailpipe from vessels
MDOGV14	VOLUME	Vessel Traffic - Ocean-going Vessels	0.2	Diesel tailpipe from vessels
MDOGV15	VOLUME	Vessel Traffic - Ocean-going Vessels	0.2	Diesel tailpipe from vessels
MDOGV16	VOLUME	Vessel Traffic - Ocean-going Vessels	0.2	Diesel tailpipe from vessels

Source ID	Source Type	Source Description	NOx to NO2 Ratio	Notes
MDOGV17	VOLUME	Vessel Traffic - Ocean-going Vessels	0.2	Diesel tailpipe from vessels
MDOGV18	VOLUME	Vessel Traffic - Ocean-going Vessels	0.2	Diesel tailpipe from vessels
MDOGV19	VOLUME	Vessel Traffic - Ocean-going Vessels	0.2	Diesel tailpipe from vessels
MDOGV20	VOLUME	Vessel Traffic - Ocean-going Vessels	0.2	Diesel tailpipe from vessels
MDOGV21	VOLUME	Vessel Traffic - Ocean-going Vessels	0.2	Diesel tailpipe from vessels
MDOGV22	VOLUME	Vessel Traffic - Ocean-going Vessels	0.2	Diesel tailpipe from vessels
MDOGV23	VOLUME	Vessel Traffic - Ocean-going Vessels	0.2	Diesel tailpipe from vessels
MDOGV24	VOLUME	Vessel Traffic - Ocean-going Vessels	0.2	Diesel tailpipe from vessels
MDOGV25	VOLUME	Vessel Traffic - Ocean-going Vessels	0.2	Diesel tailpipe from vessels
MDOGV26	VOLUME	Vessel Traffic - Ocean-going Vessels	0.2	Diesel tailpipe from vessels
MDOGV27	VOLUME	Vessel Traffic - Ocean-going Vessels	0.2	Diesel tailpipe from vessels
MDOGV28	VOLUME	Vessel Traffic - Ocean-going Vessels	0.2	Diesel tailpipe from vessels
MDOGV29	VOLUME	Vessel Traffic - Ocean-going Vessels	0.2	Diesel tailpipe from vessels

Table F.2-2. Module Delivery Option 3 Emissions Stack Parameters

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
MDDOCKHT	POINT	0	12.2	0.94	5.7	529	-	-	-	-	-
MDDOCKNR	VOLUME	0	3.66	-	-	-	30.23256	3.38	-	-	-
MDTAIL1	VOLUME	1.52	3.66	-	-	-	6.976744	3.38	-	-	-
MDTAIL2	VOLUME	1.52	3.66	-	-	-	6.976744	3.38	-	-	-
MDTAIL3	VOLUME	1.52	3.66	-	-	-	6.976744	3.38	-	-	-
MDTAIL4	VOLUME	1.52	3.66	-	-	-	6.976744	3.38	-	-	-
MDTAIL5	VOLUME	1.52	3.66	-	-	-	6.976744	3.38	-	-	-
MDTAIL6	VOLUME	1.52	3.66	-	-	-	6.976744	3.38	-	-	-
MDTAIL7	VOLUME	1.52	3.66	-	-	-	6.976744	3.38	-	-	-
MDTAIL8	VOLUME	1.52	3.66	-	-	-	6.976744	3.38	-	-	-
MDTAIL9	VOLUME	1.52	3.66	-	-	-	6.976744	3.38	-	-	-
MDTAIL10	VOLUME	1.52	3.66	-	-	-	6.976744	3.38	-	-	-
MDTAIL11	VOLUME	1.52	3.66	-	-	-	6.976744	3.38	-	-	-
MDTAIL12	VOLUME	1.52	3.66	-	-	-	6.976744	3.38	-	-	-
MDTAIL13	VOLUME	1.52	3.66	-	-	-	6.976744	3.38	-	-	-
MDTAIL14	VOLUME	1.52	3.66	-	-	-	6.976744	3.38	-	-	-
MDTAIL15	VOLUME	1.52	3.66	-	-	-	6.976744	3.38	-	-	-
MDTAIL16	VOLUME	1.52	3.66	-	-	-	6.976744	3.38	-	-	-
MDTAIL17	VOLUME	1.52	3.66	-	-	-	6.976744	3.38	-	-	-
MDTAIL18	VOLUME	1.52	3.66	-	-	-	6.976744	3.38	-	-	-
MDRDFUG1	VOLUME	1.52	3.66	-	-	-	6.976744	3.38	-	-	-
MDRDFUG2	VOLUME	1.52	3.66	-	-	-	6.976744	3.38	-	-	-
MDRDFUG3	VOLUME	1.52	3.66	-	-	-	6.976744	3.38	-	-	-
MDRDFUG4	VOLUME	1.52	3.66	-	-	-	6.976744	3.38	-	-	-
MDRDFUG5	VOLUME	1.52	3.66	-	-	-	6.976744	3.38	-	-	-
MDRDFUG6	VOLUME	1.52	3.66	-	-	-	6.976744	3.38	-	-	-
MDRDFUG7	VOLUME	1.52	3.66	-	-	-	6.976744	3.38	-	-	-
MDRDFUG8	VOLUME	1.52	3.66	-	-	-	6.976744	3.38	-	-	-
MDRDFUG9	VOLUME	1.52	3.66	-	-	-	6.976744	3.38	-	-	-
MDRDFUG10	VOLUME	1.52	3.66	-	-	-	6.976744	3.38	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
MDRDFUG11	VOLUME	1.52	3.66	-	-	-	6.976744	3.38	-	-	-
MDRDFUG12	VOLUME	1.52	3.66	-	-	-	6.976744	3.38	-	-	-
MDRDFUG13	VOLUME	1.52	3.66	-	-	-	6.976744	3.38	-	-	-
MDRDFUG14	VOLUME	1.52	3.66	-	-	-	6.976744	3.38	-	-	-
MDRDFUG15	VOLUME	1.52	3.66	-	-	-	6.976744	3.38	-	-	-
MDRDFUG16	VOLUME	1.52	3.66	-	-	-	6.976744	3.38	-	-	-
MDRDFUG17	VOLUME	1.52	3.66	-	-	-	6.976744	3.38	-	-	-
MDRDFUG18	VOLUME	1.52	3.66	-	-	-	6.976744	3.38	-	-	-
MDMT1	VOLUME	1.52	3.66	-	-	-	6.976744	3.38	-	-	-
MDMT2	VOLUME	1.52	3.66	-	-	-	6.976744	3.38	-	-	-
MDMT3	VOLUME	1.52	3.66	-	-	-	6.976744	3.38	-	-	-
MDMT4	VOLUME	1.52	3.66	-	-	-	6.976744	3.38	-	-	-
MDMT5	VOLUME	1.52	3.66	-	-	-	6.976744	3.38	-	-	-
MDMT6	VOLUME	1.52	3.66	-	-	-	6.976744	3.38	-	-	-
MDMT7	VOLUME	1.52	3.66	-	-	-	6.976744	3.38	-	-	-
MDMT8	VOLUME	1.52	3.66	-	-	-	6.976744	3.38	-	-	-
MDMT9	VOLUME	1.52	3.66	-	-	-	6.976744	3.38	-	-	-
MDMT10	VOLUME	1.52	3.66	-	-	-	6.976744	3.38	-	-	-
MDMT11	VOLUME	1.52	3.66	-	-	-	6.976744	3.38	-	-	-
MDMT12	VOLUME	1.52	3.66	-	-	-	6.976744	3.38	-	-	-
MDMT13	VOLUME	1.52	3.66	-	-	-	6.976744	3.38	-	-	-
MDMT14	VOLUME	1.52	3.66	-	-	-	6.976744	3.38	-	-	-
MDMT15	VOLUME	1.52	3.66	-	-	-	6.976744	3.38	-	-	-
MDMT16	VOLUME	1.52	3.66	-	-	-	6.976744	3.38	-	-	-
MDMT17	VOLUME	1.52	3.66	-	-	-	6.976744	3.38	-	-	-
MDMT18	VOLUME	1.52	3.66	-	-	-	6.976744	3.38	-	-	-
MDGRVNR1	VOLUME	1.52	3.66	-	-	-	20.93023	3.38	-	-	-
MDGRVNR2	VOLUME	1.52	3.66	-	-	-	20.93023	3.38	-	-	-
MDGRVNR3	VOLUME	1.52	3.66	-	-	-	20.93023	3.38	-	-	-
MDGRVNR4	VOLUME	1.52	3.66	-	-	-	20.93023	3.38	-	-	-
MDROADNR1	VOLUME	1.52	3.66	-	-	-	3.488372	3.38	-	-	-
MDROADNR2	VOLUME	1.52	3.66	-	-	-	3.488372	3.38	-	-	-
MDROADNR3	VOLUME	1.52	3.66	-	-	-	3.488372	3.38	-	-	-
MDFUGDUST	VOLUME	1.52	3.66	-	-	-	40.69767	3.38	-	-	-
MDVTHAT1	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTHAT2	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTHAT3	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTHAT4	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTHAT5	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTHAT6	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTHAT7	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTHAT8	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTHAT9	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTHAT10	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTHAT11	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTHAT12	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTHAT13	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTHAT14	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTHAT15	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTHAT16	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
MDVTHAT17	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTHAT18	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTHAT19	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTHAT20	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTHAT21	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTHAT22	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTHAT23	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTHAT24	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTHAT25	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTHAT26	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTHAT27	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTHAT28	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTHAT29	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTHAT30	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTHAT31	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTHAT32	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTHAT33	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTHAT34	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTHAT35	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTHAT36	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTHAT37	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTHAT38	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTHAT39	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTHAT40	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTHAT41	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTHAT42	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTHAT43	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTHAT44	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTHAT45	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTSV1	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTSV2	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTSV3	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTSV4	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTSV5	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTSV6	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTSV7	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTSV8	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTSV9	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTSV10	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTSV11	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTSV12	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTSV13	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTSV14	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTSV15	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTSV16	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTSV17	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTSV18	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTSV19	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTSV20	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTSV21	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-

Source ID	Source Type	Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Release Temperature (K)	Sigma Y (m)	Sigma Z (m)	Initial X (m)	Initial Y (m)	Initial Z (m)
MDVTSV22	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTSV23	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTSV24	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTSV25	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTSV26	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTSV27	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTSV28	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTSV29	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTSV30	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTSV31	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDVTSV32	VOLUME	0	15.2	-	-	-	46.51163	3.534884	-	-	-
MDOGV1	VOLUME	0	49.1	-	-	-	232.5581	11.4186	-	-	-
MDOGV2	VOLUME	0	49.1	-	-	-	232.5581	11.4186	-	-	-
MDOGV3	VOLUME	0	49.1	-	-	-	232.5581	11.4186	-	-	-
MDOGV4	VOLUME	0	49.1	-	-	-	232.5581	11.4186	-	-	-
MDOGV5	VOLUME	0	49.1	-	-	-	232.5581	11.4186	-	-	-
MDOGV6	VOLUME	0	49.1	-	-	-	232.5581	11.4186	-	-	-
MDOGV7	VOLUME	0	49.1	-	-	-	232.5581	11.4186	-	-	-
MDOGV8	VOLUME	0	49.1	-	-	-	232.5581	11.4186	-	-	-
MDOGV9	VOLUME	0	49.1	-	-	-	232.5581	11.4186	-	-	-
MDOGV10	VOLUME	0	49.1	-	-	-	232.5581	11.4186	-	-	-
MDOGV11	VOLUME	0	49.1	-	-	-	232.5581	11.4186	-	-	-
MDOGV12	VOLUME	0	49.1	-	-	-	232.5581	11.4186	-	-	-
MDOGV13	VOLUME	0	49.1	-	-	-	232.5581	11.4186	-	-	-
MDOGV14	VOLUME	0	49.1	-	-	-	232.5581	11.4186	-	-	-
MDOGV15	VOLUME	0	49.1	-	-	-	232.5581	11.4186	-	-	-
MDOGV16	VOLUME	0	49.1	-	-	-	232.5581	11.4186	-	-	-
MDOGV17	VOLUME	0	49.1	-	-	-	232.5581	11.4186	-	-	-
MDOGV18	VOLUME	0	49.1	-	-	-	232.5581	11.4186	-	-	-
MDOGV19	VOLUME	0	49.1	-	-	-	232.5581	11.4186	-	-	-
MDOGV20	VOLUME	0	49.1	-	-	-	232.5581	11.4186	-	-	-
MDOGV21	VOLUME	0	49.1	-	-	-	232.5581	11.4186	-	-	-
MDOGV22	VOLUME	0	49.1	-	-	-	232.5581	11.4186	-	-	-
MDOGV23	VOLUME	0	49.1	-	-	-	232.5581	11.4186	-	-	-
MDOGV24	VOLUME	0	49.1	-	-	-	232.5581	11.4186	-	-	-
MDOGV25	VOLUME	0	49.1	-	-	-	232.5581	11.4186	-	-	-
MDOGV26	VOLUME	0	49.1	-	-	-	232.5581	11.4186	-	-	-
MDOGV27	VOLUME	0	49.1	-	-	-	232.5581	11.4186	-	-	-
MDOGV28	VOLUME	0	49.1	-	-	-	232.5581	11.4186	-	-	-
MDOGV29	VOLUME	0	49.1	-	-	-	232.5581	11.4186	-	-	-

Table F.2-3. Module Delivery Option 3 Emissions Rates (g/s)

Source ID	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	Annual Hours
MDDOCKHT	5.48E-03	2.19E-02	7.20E-03	2.61E-03	2.33E-03	7.67E-04	2.33E-04	2.33E-04	7.67E-05	720
MDDOCKNR	1.10E-01	2.89E-01	7.12E-02	1.58E-02	1.53E-02	3.78E-03	7.28E-04	7.28E-04	1.79E-04	540
MDTAIL1	9.94E-04	1.44E-03	1.44E-03	1.17E-04	7.58E-05	7.58E-05	4.79E-06	4.79E-06	4.79E-06	3650
MDTAIL2	9.94E-04	1.44E-03	1.44E-03	1.17E-04	7.58E-05	7.58E-05	4.79E-06	4.79E-06	4.79E-06	3650

Source ID	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	Annual Hours
MDTAIL3	9.94E-04	1.44E-03	1.44E-03	1.17E-04	7.58E-05	7.58E-05	4.79E-06	4.79E-06	4.79E-06	3650
MDTAIL4	9.94E-04	1.44E-03	1.44E-03	1.17E-04	7.58E-05	7.58E-05	4.79E-06	4.79E-06	4.79E-06	3650
MDTAIL5	9.94E-04	1.44E-03	1.44E-03	1.17E-04	7.58E-05	7.58E-05	4.79E-06	4.79E-06	4.79E-06	3650
MDTAIL6	9.94E-04	1.44E-03	1.44E-03	1.17E-04	7.58E-05	7.58E-05	4.79E-06	4.79E-06	4.79E-06	3650
MDTAIL7	9.94E-04	1.44E-03	1.44E-03	1.17E-04	7.58E-05	7.58E-05	4.79E-06	4.79E-06	4.79E-06	3650
MDTAIL8	9.94E-04	1.44E-03	1.44E-03	1.17E-04	7.58E-05	7.58E-05	4.79E-06	4.79E-06	4.79E-06	3650
MDTAIL9	9.94E-04	1.44E-03	1.44E-03	1.17E-04	7.58E-05	7.58E-05	4.79E-06	4.79E-06	4.79E-06	3650
MDTAIL10	9.94E-04	1.44E-03	1.44E-03	1.17E-04	7.58E-05	7.58E-05	4.79E-06	4.79E-06	4.79E-06	3650
MDTAIL11	9.94E-04	1.44E-03	1.44E-03	1.17E-04	7.58E-05	7.58E-05	4.79E-06	4.79E-06	4.79E-06	3650
MDTAIL12	9.94E-04	1.44E-03	1.44E-03	1.17E-04	7.58E-05	7.58E-05	4.79E-06	4.79E-06	4.79E-06	3650
MDTAIL13	9.94E-04	1.44E-03	1.44E-03	1.17E-04	7.58E-05	7.58E-05	4.79E-06	4.79E-06	4.79E-06	3650
MDTAIL14	9.94E-04	1.44E-03	1.44E-03	1.17E-04	7.58E-05	7.58E-05	4.79E-06	4.79E-06	4.79E-06	3650
MDTAIL15	9.94E-04	1.44E-03	1.44E-03	1.17E-04	7.58E-05	7.58E-05	4.79E-06	4.79E-06	4.79E-06	3650
MDTAIL16	9.94E-04	1.44E-03	1.44E-03	1.17E-04	7.58E-05	7.58E-05	4.79E-06	4.79E-06	4.79E-06	3650
MDTAIL17	9.94E-04	1.44E-03	1.44E-03	1.17E-04	7.58E-05	7.58E-05	4.79E-06	4.79E-06	4.79E-06	3650
MDTAIL18	9.94E-04	1.44E-03	1.44E-03	1.17E-04	7.58E-05	7.58E-05	4.79E-06	4.79E-06	4.79E-06	3650
MDRDFUG1	0.00E+00	0.00E+00	0.00E+00	4.08E-03	3.83E-04	3.83E-04	0.00E+00	0.00E+00	0.00E+00	2190
MDRDFUG2	0.00E+00	0.00E+00	0.00E+00	4.08E-03	3.83E-04	3.83E-04	0.00E+00	0.00E+00	0.00E+00	2190
MDRDFUG3	0.00E+00	0.00E+00	0.00E+00	4.08E-03	3.83E-04	3.83E-04	0.00E+00	0.00E+00	0.00E+00	2190
MDRDFUG4	0.00E+00	0.00E+00	0.00E+00	4.08E-03	3.83E-04	3.83E-04	0.00E+00	0.00E+00	0.00E+00	2190
MDRDFUG5	0.00E+00	0.00E+00	0.00E+00	4.08E-03	3.83E-04	3.83E-04	0.00E+00	0.00E+00	0.00E+00	2190
MDRDFUG6	0.00E+00	0.00E+00	0.00E+00	4.08E-03	3.83E-04	3.83E-04	0.00E+00	0.00E+00	0.00E+00	2190
MDRDFUG7	0.00E+00	0.00E+00	0.00E+00	4.08E-03	3.83E-04	3.83E-04	0.00E+00	0.00E+00	0.00E+00	2190
MDRDFUG8	0.00E+00	0.00E+00	0.00E+00	4.08E-03	3.83E-04	3.83E-04	0.00E+00	0.00E+00	0.00E+00	2190
MDRDFUG9	0.00E+00	0.00E+00	0.00E+00	4.08E-03	3.83E-04	3.83E-04	0.00E+00	0.00E+00	0.00E+00	2190
MDRDFUG10	0.00E+00	0.00E+00	0.00E+00	4.08E-03	3.83E-04	3.83E-04	0.00E+00	0.00E+00	0.00E+00	2190
MDRDFUG11	0.00E+00	0.00E+00	0.00E+00	4.08E-03	3.83E-04	3.83E-04	0.00E+00	0.00E+00	0.00E+00	2190
MDRDFUG12	0.00E+00	0.00E+00	0.00E+00	4.08E-03	3.83E-04	3.83E-04	0.00E+00	0.00E+00	0.00E+00	2190
MDRDFUG13	0.00E+00	0.00E+00	0.00E+00	4.08E-03	3.83E-04	3.83E-04	0.00E+00	0.00E+00	0.00E+00	2190
MDRDFUG14	0.00E+00	0.00E+00	0.00E+00	4.08E-03	3.83E-04	3.83E-04	0.00E+00	0.00E+00	0.00E+00	2190
MDRDFUG15	0.00E+00	0.00E+00	0.00E+00	4.08E-03	3.83E-04	3.83E-04	0.00E+00	0.00E+00	0.00E+00	2190
MDRDFUG16	0.00E+00	0.00E+00	0.00E+00	4.08E-03	3.83E-04	3.83E-04	0.00E+00	0.00E+00	0.00E+00	2190
MDRDFUG17	0.00E+00	0.00E+00	0.00E+00	4.08E-03	3.83E-04	3.83E-04	0.00E+00	0.00E+00	0.00E+00	2190
MDRDFUG18	0.00E+00	0.00E+00	0.00E+00	4.08E-03	3.83E-04	3.83E-04	0.00E+00	0.00E+00	0.00E+00	2190
MDMT1	1.82E-03	4.72E-03	4.63E-07	2.46E-04	2.39E-04	2.34E-08	1.42E-05	1.42E-05	1.39E-09	14.4
MDMT2	1.82E-03	4.72E-03	4.63E-07	2.46E-04	2.39E-04	2.34E-08	1.42E-05	1.42E-05	1.39E-09	14.4
MDMT3	1.82E-03	4.72E-03	4.63E-07	2.46E-04	2.39E-04	2.34E-08	1.42E-05	1.42E-05	1.39E-09	14.4
MDMT4	1.82E-03	4.72E-03	4.63E-07	2.46E-04	2.39E-04	2.34E-08	1.42E-05	1.42E-05	1.39E-09	14.4
MDMT5	1.82E-03	4.72E-03	4.63E-07	2.46E-04	2.39E-04	2.34E-08	1.42E-05	1.42E-05	1.39E-09	14.4
MDMT6	1.82E-03	4.72E-03	4.63E-07	2.46E-04	2.39E-04	2.34E-08	1.42E-05	1.42E-05	1.39E-09	14.4
MDMT7	1.82E-03	4.72E-03	4.63E-07	2.46E-04	2.39E-04	2.34E-08	1.42E-05	1.42E-05	1.39E-09	14.4
MDMT8	1.82E-03	4.72E-03	4.63E-07	2.46E-04	2.39E-04	2.34E-08	1.42E-05	1.42E-05	1.39E-09	14.4
MDMT9	1.82E-03	4.72E-03	4.63E-07	2.46E-04	2.39E-04	2.34E-08	1.42E-05	1.42E-05	1.39E-09	14.4
MDMT10	1.82E-03	4.72E-03	4.63E-07	2.46E-04	2.39E-04	2.34E-08	1.42E-05	1.42E-05	1.39E-09	14.4
MDMT11	1.82E-03	4.72E-03	4.63E-07	2.46E-04	2.39E-04	2.34E-08	1.42E-05	1.42E-05	1.39E-09	14.4
MDMT12	2.86E-03	7.41E-03	2.34E-05	3.87E-04	3.75E-04	1.18E-06	2.23E-05	2.23E-05	7.02E-08	677.52
MDMT13	2.86E-03	7.41E-03	2.34E-05	3.87E-04	3.75E-04	1.18E-06	2.23E-05	2.23E-05	7.02E-08	677.52
MDMT14	2.86E-03	7.41E-03	2.34E-05	3.87E-04	3.75E-04	1.18E-06	2.23E-05	2.23E-05	7.02E-08	677.52
MDMT15	2.86E-03	7.41E-03	2.34E-05	3.87E-04	3.75E-04	1.18E-06	2.23E-05	2.23E-05	7.02E-08	677.52
MDMT16	2.86E-03	7.41E-03	2.34E-05	3.87E-04	3.75E-04	1.18E-06	2.23E-05	2.23E-05	7.02E-08	677.52
MDMT17	2.86E-03	7.41E-03	2.34E-05	3.87E-04	3.75E-04	1.18E-06	2.23E-05	2.23E-05	7.02E-08	677.52
MDMT18	2.86E-03	7.41E-03	2.34E-05	3.87E-04	3.75E-04	1.18E-06	2.23E-05	2.23E-05	7.02E-08	677.52

Source ID	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	Annual Hours
MDGRVNR1	5.17E-02	1.17E-01	3.83E-02	6.94E-03	6.74E-03	2.21E-03	2.48E-04	2.48E-04	8.16E-05	720
MDGRVNR2	5.17E-02	1.17E-01	3.83E-02	6.94E-03	6.74E-03	2.21E-03	2.48E-04	2.48E-04	8.16E-05	720
MDGRVNR3	5.17E-02	1.17E-01	3.83E-02	6.94E-03	6.74E-03	2.21E-03	2.48E-04	2.48E-04	8.16E-05	720
MDGRVNR4	5.17E-02	1.17E-01	3.83E-02	6.94E-03	6.74E-03	2.21E-03	2.48E-04	2.48E-04	8.16E-05	720
MDROADNR1	4.74E-04	1.07E-03	3.51E-04	6.37E-05	6.18E-05	2.03E-05	2.27E-06	2.27E-06	1.07E-03	720
MDROADNR2	4.74E-04	1.07E-03	3.51E-04	6.37E-05	6.18E-05	2.03E-05	2.03E-05	2.03E-05	1.07E-03	720
MDROADNR3	5.58E-04	1.26E-03	4.13E-04	7.49E-05	7.27E-05	2.39E-05	2.39E-05	2.39E-05	1.26E-03	720
MDFUGDUST	0.00E+00	0.00E+00	0.00E+00	2.88E-02	4.32E-03	4.32E-03	0.00E+00	0.00E+00	0.00E+00	2920
MDVTHAT1	1.24E-04	2.44E-04	2.44E-04	1.54E-05	1.50E-05	1.50E-05	1.62E-07	1.62E-07	1.62E-07	730
MDVTHAT2	1.24E-04	2.44E-04	2.44E-04	1.54E-05	1.50E-05	1.50E-05	1.62E-07	1.62E-07	1.62E-07	730
MDVTHAT3	1.24E-04	2.44E-04	2.44E-04	1.54E-05	1.50E-05	1.50E-05	1.62E-07	1.62E-07	1.62E-07	730
MDVTHAT4	1.24E-04	2.44E-04	2.44E-04	1.54E-05	1.50E-05	1.50E-05	1.62E-07	1.62E-07	1.62E-07	730
MDVTHAT5	1.24E-04	2.44E-04	2.44E-04	1.54E-05	1.50E-05	1.50E-05	1.62E-07	1.62E-07	1.62E-07	730
MDVTHAT6	1.24E-04	2.44E-04	2.44E-04	1.54E-05	1.50E-05	1.50E-05	1.62E-07	1.62E-07	1.62E-07	730
MDVTHAT7	1.24E-04	2.44E-04	2.44E-04	1.54E-05	1.50E-05	1.50E-05	1.62E-07	1.62E-07	1.62E-07	730
MDVTHAT8	1.24E-04	2.44E-04	2.44E-04	1.54E-05	1.50E-05	1.50E-05	1.62E-07	1.62E-07	1.62E-07	730
MDVTHAT9	1.24E-04	2.44E-04	2.44E-04	1.54E-05	1.50E-05	1.50E-05	1.62E-07	1.62E-07	1.62E-07	730
MDVTHAT10	1.24E-04	2.44E-04	2.44E-04	1.54E-05	1.50E-05	1.50E-05	1.62E-07	1.62E-07	1.62E-07	730
MDVTHAT11	1.24E-04	2.44E-04	2.44E-04	1.54E-05	1.50E-05	1.50E-05	1.62E-07	1.62E-07	1.62E-07	730
MDVTHAT12	1.24E-04	2.44E-04	2.44E-04	1.54E-05	1.50E-05	1.50E-05	1.62E-07	1.62E-07	1.62E-07	730
MDVTHAT13	1.24E-04	2.44E-04	2.44E-04	1.54E-05	1.50E-05	1.50E-05	1.62E-07	1.62E-07	1.62E-07	730
MDVTHAT14	1.24E-04	2.44E-04	2.44E-04	1.54E-05	1.50E-05	1.50E-05	1.62E-07	1.62E-07	1.62E-07	730
MDVTHAT15	1.24E-04	2.44E-04	2.44E-04	1.54E-05	1.50E-05	1.50E-05	1.62E-07	1.62E-07	1.62E-07	730
MDVTHAT16	1.24E-04	2.44E-04	2.44E-04	1.54E-05	1.50E-05	1.50E-05	1.62E-07	1.62E-07	1.62E-07	730
MDVTHAT17	1.24E-04	2.44E-04	2.44E-04	1.54E-05	1.50E-05	1.50E-05	1.62E-07	1.62E-07	1.62E-07	730
MDVTHAT18	1.24E-04	2.44E-04	2.44E-04	1.54E-05	1.50E-05	1.50E-05	1.62E-07	1.62E-07	1.62E-07	730
MDVTHAT19	1.24E-04	2.44E-04	2.44E-04	1.54E-05	1.50E-05	1.50E-05	1.62E-07	1.62E-07	1.62E-07	730
MDVTHAT20	1.24E-04	2.44E-04	2.44E-04	1.54E-05	1.50E-05	1.50E-05	1.62E-07	1.62E-07	1.62E-07	730
MDVTHAT21	1.24E-04	2.44E-04	2.44E-04	1.54E-05	1.50E-05	1.50E-05	1.62E-07	1.62E-07	1.62E-07	730
MDVTHAT22	1.24E-04	2.44E-04	2.44E-04	1.54E-05	1.50E-05	1.50E-05	1.62E-07	1.62E-07	1.62E-07	730
MDVTHAT23	1.24E-04	2.44E-04	2.44E-04	1.54E-05	1.50E-05	1.50E-05	1.62E-07	1.62E-07	1.62E-07	730
MDVTHAT24	1.24E-04	2.44E-04	2.44E-04	1.54E-05	1.50E-05	1.50E-05	1.62E-07	1.62E-07	1.62E-07	730
MDVTHAT25	1.24E-04	2.44E-04	2.44E-04	1.54E-05	1.50E-05	1.50E-05	1.62E-07	1.62E-07	1.62E-07	730
MDVTHAT26	1.24E-04	2.44E-04	2.44E-04	1.54E-05	1.50E-05	1.50E-05	1.62E-07	1.62E-07	1.62E-07	730
MDVTHAT27	1.24E-04	2.44E-04	2.44E-04	1.54E-05	1.50E-05	1.50E-05	1.62E-07	1.62E-07	1.62E-07	730
MDVTHAT28	1.24E-04	2.44E-04	2.44E-04	1.54E-05	1.50E-05	1.50E-05	1.62E-07	1.62E-07	1.62E-07	730
MDVTHAT29	1.24E-04	2.44E-04	2.44E-04	1.54E-05	1.50E-05	1.50E-05	1.62E-07	1.62E-07	1.62E-07	730
MDVTHAT30	1.24E-04	2.44E-04	2.44E-04	1.54E-05	1.50E-05	1.50E-05	1.62E-07	1.62E-07	1.62E-07	730
MDVTHAT31	1.24E-04	2.44E-04	2.44E-04	1.54E-05	1.50E-05	1.50E-05	1.62E-07	1.62E-07	1.62E-07	730
MDVTHAT32	1.24E-04	2.44E-04	2.44E-04	1.54E-05	1.50E-05	1.50E-05	1.62E-07	1.62E-07	1.62E-07	730
MDVTHAT33	1.24E-04	2.44E-04	2.44E-04	1.54E-05	1.50E-05	1.50E-05	1.62E-07	1.62E-07	1.62E-07	730
MDVTHAT34	1.24E-04	2.44E-04	2.44E-04	1.54E-05	1.50E-05	1.50E-05	1.62E-07	1.62E-07	1.62E-07	730
MDVTHAT35	1.24E-04	2.44E-04	2.44E-04	1.54E-05	1.50E-05	1.50E-05	1.62E-07	1.62E-07	1.62E-07	730
MDVTHAT36	1.24E-04	2.44E-04	2.44E-04	1.54E-05	1.50E-05	1.50E-05	1.62E-07	1.62E-07	1.62E-07	730
MDVTHAT37	1.24E-04	2.44E-04	2.44E-04	1.54E-05	1.50E-05	1.50E-05	1.62E-07	1.62E-07	1.62E-07	730
MDVTHAT38	1.24E-04	2.44E-04	2.44E-04	1.54E-05	1.50E-05	1.50E-05	1.62E-07	1.62E-07	1.62E-07	730
MDVTHAT39	1.24E-04	2.44E-04	2.44E-04	1.54E-05	1.50E-05	1.50E-05	1.62E-07	1.62E-07	1.62E-07	730
MDVTHAT40	1.24E-04	2.44E-04	2.44E-04	1.54E-05	1.50E-05	1.50E-05	1.62E-07	1.62E-07	1.62E-07	730
MDVTHAT41	1.24E-04	2.44E-04	2.44E-04	1.54E-05	1.50E-05	1.50E-05	1.62E-07	1.62E-07	1.62E-07	730
MDVTHAT42	1.24E-04	2.44E-04	2.44E-04	1.54E-05	1.50E-05	1.50E-05	1.62E-07	1.62E-07	1.62E-07	730
MDVTHAT43	1.24E-04	2.44E-04	2.44E-04	1.54E-05	1.50E-05	1.50E-05	1.62E-07	1.62E-07	1.62E-07	730
MDVTHAT44	1.24E-04	2.44E-04	2.44E-04	1.54E-05	1.50E-05	1.50E-05	1.62E-07	1.62E-07	1.62E-07	730

Source ID	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	Annual Hours
MDVTHAT45	1.24E-04	2.44E-04	2.44E-04	1.54E-05	1.50E-05	1.50E-05	1.62E-07	1.62E-07	1.62E-07	730
MDVTSV1	1.75E-04	3.43E-04	3.43E-04	2.17E-05	2.10E-05	2.10E-05	2.27E-07	2.27E-07	2.27E-07	730
MDVTSV2	1.75E-04	3.43E-04	3.43E-04	2.17E-05	2.10E-05	2.10E-05	2.27E-07	2.27E-07	2.27E-07	730
MDVTSV3	1.75E-04	3.43E-04	3.43E-04	2.17E-05	2.10E-05	2.10E-05	2.27E-07	2.27E-07	2.27E-07	730
MDVTSV4	1.75E-04	3.43E-04	3.43E-04	2.17E-05	2.10E-05	2.10E-05	2.27E-07	2.27E-07	2.27E-07	730
MDVTSV5	1.75E-04	3.43E-04	3.43E-04	2.17E-05	2.10E-05	2.10E-05	2.27E-07	2.27E-07	2.27E-07	730
MDVTSV6	1.75E-04	3.43E-04	3.43E-04	2.17E-05	2.10E-05	2.10E-05	2.27E-07	2.27E-07	2.27E-07	730
MDVTSV7	1.75E-04	3.43E-04	3.43E-04	2.17E-05	2.10E-05	2.10E-05	2.27E-07	2.27E-07	2.27E-07	730
MDVTSV8	1.75E-04	3.43E-04	3.43E-04	2.17E-05	2.10E-05	2.10E-05	2.27E-07	2.27E-07	2.27E-07	730
MDVTSV9	1.75E-04	3.43E-04	3.43E-04	2.17E-05	2.10E-05	2.10E-05	2.27E-07	2.27E-07	2.27E-07	730
MDVTSV10	1.75E-04	3.43E-04	3.43E-04	2.17E-05	2.10E-05	2.10E-05	2.27E-07	2.27E-07	2.27E-07	730
MDVTSV11	1.75E-04	3.43E-04	3.43E-04	2.17E-05	2.10E-05	2.10E-05	2.27E-07	2.27E-07	2.27E-07	730
MDVTSV12	1.75E-04	3.43E-04	3.43E-04	2.17E-05	2.10E-05	2.10E-05	2.27E-07	2.27E-07	2.27E-07	730
MDVTSV13	1.75E-04	3.43E-04	3.43E-04	2.17E-05	2.10E-05	2.10E-05	2.27E-07	2.27E-07	2.27E-07	730
MDVTSV14	1.75E-04	3.43E-04	3.43E-04	2.17E-05	2.10E-05	2.10E-05	2.27E-07	2.27E-07	2.27E-07	730
MDVTSV15	1.75E-04	3.43E-04	3.43E-04	2.17E-05	2.10E-05	2.10E-05	2.27E-07	2.27E-07	2.27E-07	730
MDVTSV16	1.75E-04	3.43E-04	3.43E-04	2.17E-05	2.10E-05	2.10E-05	2.27E-07	2.27E-07	2.27E-07	730
MDVTSV17	1.75E-04	3.43E-04	3.43E-04	2.17E-05	2.10E-05	2.10E-05	2.27E-07	2.27E-07	2.27E-07	730
MDVTSV18	1.75E-04	3.43E-04	3.43E-04	2.17E-05	2.10E-05	2.10E-05	2.27E-07	2.27E-07	2.27E-07	730
MDVTSV19	1.75E-04	3.43E-04	3.43E-04	2.17E-05	2.10E-05	2.10E-05	2.27E-07	2.27E-07	2.27E-07	730
MDVTSV20	1.75E-04	3.43E-04	3.43E-04	2.17E-05	2.10E-05	2.10E-05	2.27E-07	2.27E-07	2.27E-07	730
MDVTSV21	1.75E-04	3.43E-04	3.43E-04	2.17E-05	2.10E-05	2.10E-05	2.27E-07	2.27E-07	2.27E-07	730
MDVTSV22	1.75E-04	3.43E-04	3.43E-04	2.17E-05	2.10E-05	2.10E-05	2.27E-07	2.27E-07	2.27E-07	730
MDVTSV23	1.75E-04	3.43E-04	3.43E-04	2.17E-05	2.10E-05	2.10E-05	2.27E-07	2.27E-07	2.27E-07	730
MDVTSV24	1.75E-04	3.43E-04	3.43E-04	2.17E-05	2.10E-05	2.10E-05	2.27E-07	2.27E-07	2.27E-07	730
MDVTSV25	1.75E-04	3.43E-04	3.43E-04	2.17E-05	2.10E-05	2.10E-05	2.27E-07	2.27E-07	2.27E-07	730
MDVTSV26	1.75E-04	3.43E-04	3.43E-04	2.17E-05	2.10E-05	2.10E-05	2.27E-07	2.27E-07	2.27E-07	730
MDVTSV27	1.75E-04	3.43E-04	3.43E-04	2.17E-05	2.10E-05	2.10E-05	2.27E-07	2.27E-07	2.27E-07	730
MDVTSV28	1.75E-04	3.43E-04	3.43E-04	2.17E-05	2.10E-05	2.10E-05	2.27E-07	2.27E-07	2.27E-07	730
MDVTSV29	1.75E-04	3.43E-04	3.43E-04	2.17E-05	2.10E-05	2.10E-05	2.27E-07	2.27E-07	2.27E-07	730
MDVTSV30	1.75E-04	3.43E-04	3.43E-04	2.17E-05	2.10E-05	2.10E-05	2.27E-07	2.27E-07	2.27E-07	730
MDVTSV31	1.75E-04	3.43E-04	3.43E-04	2.17E-05	2.10E-05	2.10E-05	2.27E-07	2.27E-07	2.27E-07	730
MDVTSV32	1.75E-04	3.43E-04	3.43E-04	2.17E-05	2.10E-05	2.10E-05	2.27E-07	2.27E-07	2.27E-07	730
MDOGV1	2.02E-03	2.42E-02	2.42E-02	5.68E-04	5.31E-04	5.31E-04	3.63E-03	3.63E-03	3.63E-03	730
MDOGV2	2.02E-03	2.42E-02	2.42E-02	5.68E-04	5.31E-04	5.31E-04	3.63E-03	3.63E-03	3.63E-03	730
MDOGV3	2.02E-03	2.42E-02	2.42E-02	5.68E-04	5.31E-04	5.31E-04	3.63E-03	3.63E-03	3.63E-03	730
MDOGV4	2.02E-03	2.42E-02	2.42E-02	5.68E-04	5.31E-04	5.31E-04	3.63E-03	3.63E-03	3.63E-03	730
MDOGV5	2.02E-03	2.42E-02	2.42E-02	5.68E-04	5.31E-04	5.31E-04	3.63E-03	3.63E-03	3.63E-03	730
MDOGV6	2.02E-03	2.42E-02	2.42E-02	5.68E-04	5.31E-04	5.31E-04	3.63E-03	3.63E-03	3.63E-03	730
MDOGV7	2.02E-03	2.42E-02	2.42E-02	5.68E-04	5.31E-04	5.31E-04	3.63E-03	3.63E-03	3.63E-03	730
MDOGV8	2.02E-03	2.42E-02	2.42E-02	5.68E-04	5.31E-04	5.31E-04	3.63E-03	3.63E-03	3.63E-03	730
MDOGV9	2.02E-03	2.42E-02	2.42E-02	5.68E-04	5.31E-04	5.31E-04	3.63E-03	3.63E-03	3.63E-03	730
MDOGV10	2.02E-03	2.42E-02	2.42E-02	5.68E-04	5.31E-04	5.31E-04	3.63E-03	3.63E-03	3.63E-03	730
MDOGV11	2.02E-03	2.42E-02	2.42E-02	5.68E-04	5.31E-04	5.31E-04	3.63E-03	3.63E-03	3.63E-03	730
MDOGV12	2.02E-03	2.42E-02	2.42E-02	5.68E-04	5.31E-04	5.31E-04	3.63E-03	3.63E-03	3.63E-03	730
MDOGV13	2.02E-03	2.42E-02	2.42E-02	5.68E-04	5.31E-04	5.31E-04	3.63E-03	3.63E-03	3.63E-03	730
MDOGV14	2.02E-03	2.42E-02	2.42E-02	5.68E-04	5.31E-04	5.31E-04	3.63E-03	3.63E-03	3.63E-03	730
MDOGV15	2.02E-03	2.42E-02	2.42E-02	5.68E-04	5.31E-04	5.31E-04	3.63E-03	3.63E-03	3.63E-03	730
MDOGV16	2.02E-03	2.42E-02	2.42E-02	5.68E-04	5.31E-04	5.31E-04	3.63E-03	3.63E-03	3.63E-03	730
MDOGV17	2.02E-03	2.42E-02	2.42E-02	5.68E-04	5.31E-04	5.31E-04	3.63E-03	3.63E-03	3.63E-03	730
MDOGV18	2.02E-03	2.42E-02	2.42E-02	5.68E-04	5.31E-04	5.31E-04	3.63E-03	3.63E-03	3.63E-03	730
MDOGV19	2.02E-03	2.42E-02	2.42E-02	5.68E-04	5.31E-04	5.31E-04	3.63E-03	3.63E-03	3.63E-03	730

Source ID	CO 1-hr and 8-hr	NO_X 1-hr	NO_X Annual[1]	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	$PM_{2.5}$ Annual[1]	SO_2 1-hr	SO_2 24-hr	SO_2 Annual[1]	Annual Hours
MDOGV20	2.02E-03	2.42E-02	2.42E-02	5.68E-04	5.31E-04	5.31E-04	3.63E-03	3.63E-03	3.63E-03	730
MDOGV21	2.02E-03	2.42E-02	2.42E-02	5.68E-04	5.31E-04	5.31E-04	3.63E-03	3.63E-03	3.63E-03	730
MDOGV22	2.02E-03	2.42E-02	2.42E-02	5.68E-04	5.31E-04	5.31E-04	3.63E-03	3.63E-03	3.63E-03	730
MDOGV23	2.02E-03	2.42E-02	2.42E-02	5.68E-04	5.31E-04	5.31E-04	3.63E-03	3.63E-03	3.63E-03	730
MDOGV24	2.02E-03	2.42E-02	2.42E-02	5.68E-04	5.31E-04	5.31E-04	3.63E-03	3.63E-03	3.63E-03	730
MDOGV25	2.02E-03	2.42E-02	2.42E-02	5.68E-04	5.31E-04	5.31E-04	3.63E-03	3.63E-03	3.63E-03	730
MDOGV26	2.02E-03	2.42E-02	2.42E-02	5.68E-04	5.31E-04	5.31E-04	3.63E-03	3.63E-03	3.63E-03	730
MDOGV27	2.02E-03	2.42E-02	2.42E-02	5.68E-04	5.31E-04	5.31E-04	3.63E-03	3.63E-03	3.63E-03	730
MDOGV28	2.02E-03	2.42E-02	2.42E-02	5.68E-04	5.31E-04	5.31E-04	3.63E-03	3.63E-03	3.63E-03	730
MDOGV29	2.02E-03	2.42E-02	2.42E-02	5.68E-04	5.31E-04	5.31E-04	3.63E-03	3.63E-03	3.63E-03	730

[1] Annual emission rate calculations are based on the number of actual daily operating hours provided in the EI. If actual daily operating hour timeframes were not known, 8760 hours were assumed.

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Appendix E.4
Soils, Permafrost, and Gravel Resources Technical Appendix

There is no technical appendix for this resource

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Appendix E.5
Contaminated Sites Technical Appendix

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List of Tables

List of Acronyms

Project	Willow Master Development Plan Project

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1.0 CONTAMINATED SITES TECHNICAL INFORMATION

1.1 Assessment Criteria and Methodology

The potential for the Willow Master Development Plan Project (Project) to encounter contamination from existing sites was evaluated using records of existing contaminated sites and spills within 0.5 mile of the Project to identify the locations, characteristics, and quantities of existing contamination. The locations of existing contamination were evaluated against the Project activities to assess the likelihood of encountering contamination. The likelihood of encountering contamination during Project construction was assessed using a rating system of very low to high. Ratings are a function of spill status (cleanup complete or active) and distance of the site from the Project footprint. Table E.5.1 presents the assessment criteria for contaminated sites.

Table E.5.1. Contaminated Sites Assessment Criteria

Location	Active	Cleanup Complete or Cleanup Complete with Institutional Controls
Within 100 feet of Project activity	Moderate	Low
Between 100 and 500 feet of Project activity	Low	Very low
Greater than 500 feet from Project activity	Very low	Very low

1.2 Contaminated Site Details

Table E.5.2 provides a summary of contaminated sites within 0.5 mile of the Project (Figure 3.5.1).

Table E.5.2. Contaminated Sites within 0.5 mile of the Project

Hazard ID	Site Name	Event Year	Status	Distance to Project Activity (miles)	Likelihood of Encountering
2654	Oliktok DEW Diesel Tanks SS009a	2004	Cleanup complete	0.2	Very low
2923	Lonely AFS Dewline - Diesel Tank SS10	1995	Cleanup complete	0.0	Low
2924	Lonely AFS Dewline - Beach Diesel SS003	1995	Cleanup complete	0.2	Very low
2925	Lonely AFS Dewline - Hangar Pad SS13	1995	Cleanup complete	0.0	Very low
2926	Lonely AFS Dewline - Landfill LF007	1995	Cleanup complete	0.0	Low
2927	Lonely AFS Dewline - Diesel Spills SS05	1995	Cleanup complete	0.0	Moderate
2928	Lonely AFS Dewline - POL Storage SS04	1995	Cleanup complete	0.0	Low
2932	Lonely AFS Dewline - Garage SS09	1995	Cleanup complete	0.0	Very low
2933	Lonely AFS Dewline - Landfill LF011/SS006	1995	Cleanup complete	0.1	Very low
2934	Lonely AFS Dewline - Sewage Disposal SS01	1995	Cleanup complete	0.2	None[a]
2935	Lonely AFS Dewline - Drum Storage SS02	1995	Cleanup complete	0.1	None[b]
2936	Lonely AFS Dewline - Module Train SS012	1995	Cleanup complete	0.0	Low
4223	Lonely AFS Dewline - AOC 1, 2, & 3	2005	Cleanup complete	0.0	Very low

Source: ADEC 2019

Note: AFS (Air Force site); AOC (area of concern); DEW (Distant Early Warning); POL (petroleum, oil, and lubricant).

[a] Site 2934 was noted by the Alaska Department of Environmental Conservation as having eroded into the Beaufort Sea in August 2008.

[b] Site 2935 was noted by the Alaska Department of Environmental Conservation as having eroded into the Beaufort Sea in April 2015.

2.0 REFERENCES

ADEC. 2019. Contaminated Sites Program Databases. Accessed February 20, 2019. https://dec.alaska.gov/Applications/SPAR/PublicMVC/CSP/Search.

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Appendix E.6
Noise Technical Appendix

There is no technical appendix for this resource

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Appendix E.7
Visual Resources Technical Appendix

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Appendix E.7A
Visual Resources Technical Appendix

Appendix E.7B
Visual Contrast Ratings Worksheets

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Appendix E.7A
Visual Resources Technical Appendix

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List of Tables

List of Acronyms

BLM	Bureau of Land Management
NPR-A	National Petroleum Reserve in Alaska
Project	Willow Master Development Plan Project
VCRW	Visual contrast rating worksheets
VRI	Visual Resource Inventory
VRM	Visual Resources Management

Glossary Terms

Background zone: Areas visible within 5 to 15 miles from viewer locations.

Distance zones: The level of visibility and distances from important viewer locations, including travel routes, human use areas, and observation points. Distance zones consist of foreground-middleground (0 miles to 5 miles), background (5 to 15 miles), and seldom-seen (not visible or beyond 15 miles). The Willow Master Development Plan Project's (Project's) estimated nighttime lighting conditions are determined by the heights of drill rigs and communications towers. The Project would be visible out to 30 miles, based on the direct line-of-sight limits due to the curvature of the earth and regional atmospheric conditions.

Foreground-middleground distance zone: Areas visible within less than 5 miles from key observation points.

Scenic quality: The relative worth of a landscape from a visual perception point of view expressed as a quantitative measure of qualitative criteria associated with landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications (BLM 2012a).

Seldom seen areas: Areas within the foreground-middleground and background zones that are not visible, or areas that are visible but are beyond the background zone (more than 15 miles from key observation points).

Sensitivity level: The measure of public concern for scenic quality (as determined through the Visual Resource Inventory process).

Viewshed: The total landscape seen from a point, or from all or a logical part of a travel route, use area, or waterbody.

Visual resources: Visible physical features on a landscape, including land, water, vegetation, animals, structures, and other features.

Visual Resource Inventory: The process of determining the visual value of BLM-managed lands through the assessment of the scenic quality rating, sensitivity level, and distance zones of visual resources within those lands.

Visual Resource Inventory classes: Four visual resource inventory classes into which all BLM-managed lands are placed based on scenic quality, sensitivity levels, and distance zones, as determined through the Visual Resource Inventory process.

Visual Resources Management classes: Categories assigned to public lands based on scenic quality, sensitivity level, and distance zones with consideration for multiple-use management objectives. There are four classes; each class has an objective that prescribes the amount of change allowed in the characteristic landscape. Visual resource management classes are assigned through BLM Resource Management Plans (in this case, the IAP for the NPR-A).

Visual Resources Management: The system used by BLM to manage visual resources (including in the NPR-A). It includes inventory and planning actions to identify visual values and to establish objectives for managing those values.

1.0 VISUAL RESOURCES

1.1 Visual Resources Management in the National Petroleum Reserve in Alaska

The following descriptions, worksheets, and tables support the analysis in the Willow Master Development Plan Environmental Impact Statement Section 3.7, *Visual Resources*, and tier to previous Bureau of Land Management (BLM) studies. Section 3.7 discusses existing conditions in Section 3.7.1, *Affected Environment*, and discloses impacts to scenery and people, and conformance with **BLM Visual Resources Management** (VRM) objectives (BLM 2012a) in Section 3.7.2, *Environmental Consequences*. The BLM **Visual Resource Inventory** (VRI) (BLM 2012a) provides the visual baseline conditions using the indicators of scenic quality, sensitivity, and distance zones. The BLM scenic quality rating is the basis for determining impacts to scenery in the analysis area. The BLM sensitivity levels and distance zones are the basis for determining impacts to people (human environment) in the analysis area.

The referenced figures and tables in this appendix contain quantitative and qualitative information for:

1. **Scenic quality** is the relative worth of a landscape from a visual perception point of view expressed as a quantitative measure of qualitative criteria associated with landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications.
2. **Sensitivity level** is the measure of public concern for scenic quality (as determined through the VRI process).
3. **Distance zones** are the level of visibility and distances from important viewer locations, including travel routes, human use areas, and observation points. Distance zones consist of the foreground-middleground (0 miles to 5 miles), background (5 to 15 miles), and seldom-seen (not visible or beyond 15 miles) zones. The Willow Master Development Plan Project’s (Project’s) estimated nighttime lighting conditions are determined by the heights of drill rigs and communications towers which would be visible out to 30 miles, based on the direct line-of-sight limits due to the curvature of the earth and regional atmospheric conditions.
4. **VRI classes** are four visual resource inventory classes which all BLM-administered lands are placed into based on scenic quality, sensitivity levels, and distance zones, as determined through the VRI process.
5. **VRM classes** are categories assigned to public lands based on scenic quality, sensitivity level, and distance zones with consideration for multiple-use management objectives. There are four classes. Each class has an objective that prescribes the amount of change allowed in the characteristic landscape. VRM classes are assigned through BLM Resource Management Plans, which for the National Petroleum Reserve in Alaska (NPR-A) is the Integrated Activity Plan (BLM 2012b, 2020).

The BLM’s VRM class objectives are defined in Table E.7.1.

Visual contrast rating worksheets (VCRW), located in Appendix E.7B, *Visual Contrast Rating Worksheets*, document:

1. The forms, lines, colors, and textures of landforms/water, vegetation, and structures in the characteristic landscape.
2. The forms, lines, colors, and textures of landforms/water, vegetation, and structures of the project.
3. The visual contrasts in the categories are strong, moderate, weak, and none; conformance with VRM objectives; and recommended mitigations, if any.

Table E.7.1. Bureau of Land Management Visual Resources Management Class Objectives

Class	Management Objective
I	The objective of this class is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.
II	The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen but should not attract the attention of the casual observer. Any changes must repeat the basic (design) elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.
III	The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.
IV	The objective of Class IV is to provide for management activities that require major modifications to the existing character of the landscape. The level of change to the landscape can be high. The management activities may dominate the view and may be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repetition of the basic visual elements of form, line, color, and texture.

Source: BLM 1986

The Project's VCRWs are included in Appendix E.7B and include:

- VCRW-1: Contrast Ratings and Conformance for Foreground-Middleground Viewing Situations in VRM Class IV Areas
- VCRW-2: Contrast Ratings and Conformance for Background and Seldom-Seen Viewing Situations in VRM Class IV Areas
- VCRW-3: Contrast Ratings and Conformance in VRM Class II Areas
- VCRW-4: Contrast Ratings and Conformance for Foreground-Middleground Viewing Situations in VRM Class III Areas (Option 3)
- VCRW-5: Contrast Ratings for Foreground-Middleground Viewing Situations (Non-BLM lands)
- VCRW-6: Contrast Ratings for Background and Seldom-Seen Viewing Situations (Non-BLM lands)

1.2 The Willow Project and Visual Resources Analysis Area

The analysis area for visual resources is the area within line-of-sight from ground-eye-level to the tallest components of the Project (drill rig and communications tower lighting). For this Project, that area (also known as the **viewshed**) is 30 miles, with the exception of the diesel and seawater pipelines from near Nuiqsut to Kuparuk, which would be colocated with existing pipeline infrastructure and has a viewshed of 15 miles (Figure 3.7.1).The Project viewshed includes all areas from which the proposed facilities would be visible based on topographical obstruction and viewer distance from the Project (0- to 5-miles **foreground-middleground zone** and the 5- to 15-miles **background zone**.

1.2.1 State Lands

State lands that occur within the analysis area are not subject to known visual management standards. The BLM visual contrast rating process has been applied to non-BLM lands to provide a qualitative analysis of the potential degree of contrast of Project facilities when viewed from 0- to 5-miles foreground-middleground zone and the 5- to 15-miles background zone.

1.3 Bureau of Land Management Scenic Quality in the Project Viewshed

The BLM scenic quality classes are the basis for determining impacts to scenery in the analysis area. Due to the natural character of existing conditions in the viewshed, the Project would be strongly contrasting with scenery due to the broad, panoramic landscape where few human-made or built features occur. The Project's impacts to scenery are determined by comparing the view characteristics of the action alternatives with views of the characteristic landscape. The relative scenic quality (Class A, B, or C) is assigned to a landscape by applying the VRI scenic quality evaluation factors with scenic quality A having the highest rating and scenic quality C having the lowest. The Project would result in substantial changes in the visual landscape for public land users and viewers in the foreground-middleground and background distance zones and the level of change and scenic quality would reduce the inventoried scenery class designations in the viewshed based on the introduction of Project components that are not common in the landscape. Table E.7.2 shows the acreages and percentages of scenic quality classes where viewers would have visibility toward the Project. The scenic quality classes are shown in Figure 3.7.2, and the Project's viewshed is shown in Figure 3.7.1.

Table E.7.2. Scenic Quality Classes in the Analysis Area and Viewshed

Area	Class A Acres (%)	Class B Acres (%)	Class C Acres (%)	No Data Acres (%)	Unclassified, Not in NPR-A Acres (%)	Total Acres (%)
In analysis area	180,538.9 (3.0%)	28,979.4 (0.5%)	2,399,945.0 (39.9%)	1,777.6 (0.0%)	3,411,329.1 (56.7%)	**6,020,792.4 (100%)**
In Project viewshed	161,764.8 (3.3%)	20,508.4 (0.4%)	1,720,473.0 (35.4 %)	1,481.2 (0.0%)	2,954,376.6 (60.8%)	**4,857,122.8 (100%)**

Note: NPR-A (National Petroleum Reserve in Alaska). Areas outside of NPR-A are not managed by the Bureau of Land Management and thus do not have scenic quality classifications.

1.4 Bureau of Land Management Sensitivity Levels and Distance Zones in the Project Viewshed

The BLM sensitivity level and distance zones are the basis for determining impacts to people/viewers in the analysis area. Higher user concern for scenery would be more susceptible to visual impacts than lower concern and near distance zones would be more susceptible to visual impacts than far distance zones. Visual contrasts for viewers are determined by comparison of the view characteristics of the Project with views of the characteristic landscape. The Project would result in strong visual contrasts and viewer impacts that are strong in comparison with existing conditions, including visually dominant forms, lines, colors, and textures of landforms, water, vegetation, and structures. The Project would result in strong contrasts to scenic quality for viewers in the foreground-middleground, and background distance zones, and the level of contrast likely would reduce the inventoried sensitivity level designations in the analysis area. Table E.7.3 shows the acreages and percentages of BLM sensitivity classes where viewers would have visibility toward the Project. Table E.7.4 summarizes BLM distance zones where viewers would have visibility toward the Project. The Project's viewshed is shown in Figure 3.7.1, BLM sensitivity levels are shown in Figure 3.7.3, and the distance zones are shown in Figure 3.7.4.

Table E.7.3. Sensitivity Classes in the Analysis Area and Viewshed

Area	High Acres (%)	Medium Acres (%)	Low Acres (%)	No Data Acres (%)	Unclassified, Not in NPR-A Acres (%)	Total Acres (%)
In analysis area	2,611,241.0 (43.4%)	0.0 (0.0%)	0.0 (0.0%)	0.9 (0.0%)	3,409,551.4 (56.6%)	**6,020,792.4 (100%)**
In Project viewshed	1,904,227.5 (42.4%)	0.0 (0.0%)	0.0 (0.0%)	0.0 (0.0%)	2,952,894.9 (60.8%)	**4,857,122.4 (100%)**

Note: NPR-A (National Petroleum Reserve in Alaska). Areas outside of NPR-A are not managed by the Bureau of Land Management and thus do not have sensitivity classifications.

Table E.7.4. Distance Zones in the Analysis Area and Viewshed

Area	Foreground-Middleground Acres (%)	Background Acres (%)	Seldom Seen Acres (%)	Unclassified, Not in NPR-A Acres (%)	Total Acres (%)
In analysis area	2,169,481.5 (36.0%)	441,759.4 (7.3%)	0.0 (0.0%)	3,409,551.4 (56.6%)	**6,020,792.4 (100%)**
In Project viewshed	1,560,104.2 (32.1%)	344,123.3 (7.1%)	0.0 (0.0%)	2,952,894.9 (60.8%)	**4,857,122.4 (100%)**

Note: NPR-A (National Petroleum Reserve in Alaska). Areas outside of NPR-A are not managed by the Bureau of Land Management and thus do not have distance zone classifications.

1.4.1 State Lands

Similar to BLM lands, Project facilities and lighting would affect scenery and people by impacting the undisturbed characteristic landscape (including night skies). State lands in the area of Project activity for the action alternatives would be in areas of existing activity (e.g., Oliktok Dock, Alpine Annual Resupply ice road), while state lands along the Module Delivery Option 3 ice road route from Kuparuk DS2P to the

Colville River ice bridge would follow a route without permanent infrastructure, though there are other temporary winter activities that occur in the area (e.g., North Slope Borough's Community Winter Access Trail).

Along the Option 3 ice road route, visual contrast from Project facilities and activity (including light sources during operations) would cause the greatest visual impacts in foreground-middleground views due to the broad, panoramic landscape and lack of intervening land features. Overall contrasts would diminish based on viewer location and proximity to existing oil and gas infrastructure in the Kuparuk area. In viewing areas distant from the developed Kuparuk area, moderate to weak construction-related contrasts in the background and **seldom seen areas** (5-15 and greater miles) would occur.

1.5 Bureau of Land Management Visual Resource Inventory Classes in the Project Viewshed

The BLM VRI classes indicate the overall value of landscape on BLM lands. Views to the action alternatives from more valued landscapes have greater potential for impacts than do views from less valued landscapes. Table E.7.5 shows the acreages and percentages of existing BLM VRI classes in the analysis area and the Project's viewshed. Construction, operations, and reclamation activities would result in overall landscape values that strongly contrast with existing conditions. The Project would result in strong contrasts to the landscape for viewers in the foreground, middleground, and background distance zones, and the level of impact would likely reduce the inventoried BLM VRI class designations in the analysis area. The VRI classes are shown in Figure 3.7.5, and the Project's viewshed is shown in Figure 3.7.1.

Table E.7.5. Visual Resource Inventory Classes in the Analysis Area and Viewshed

Area	Class I Acres (%)	Class II Acres (%)	Class III Acres (%)	Class IV Acres (%)	Unclassified, Not in NPR-A Acres (%)	Total Acres (%)
In analysis area	0.0 (0.0%)	209,518.3 (3.5%)	1,959,963.2 (32.6%)	441,759.4 (7.3%)	3,409,551.5 (56.6%)	**6,020,792.4 (100%)**
In Project viewshed	0.0 (0.0%)	182,273.1 (4.1%)	1,377,831.0 (30.7%)	344,123.3 (7.7%)	2,952,894.9 (60.8%)	**4,857,122.3 (100%)**

Note: NPR-A (National Petroleum Reserve in Alaska). Areas outside of NPR-A are not managed by the Bureau of Land Management and thus do not have Visual Resource Inventory classifications.

1.6 Bureau of Land Management Visual Resources Management Classes Within the Analysis Area

Conformance with VRM management classes is based on the characteristics of project facilities that are physically located within the VRM classified lands. The VRM classes were assigned to these lands by the NPR-A IAP/EIS Record of Decision (ROD) (BLM 2013) and have been updated in the 2020 BLM NPR-A IAP Final EIS (BLM 2020) where four new alternative VRM boundaries are presented (Alternatives B, C, D, and E; Alternative A is the same as BLM 2013). The development of VRM Class objectives for each alternative (BLM 2013, 2020) takes into consideration VRI information as well as overall BLM land management objectives for each resource managed within the NPR-A.

This following provides a summary of each VRM alternative as it occurs with the analysis area.

Alternative A are the current VRM Class objectives approved in the February 2013 NPR-A IAP ROD (BLM 2013). Within the analysis area there are 820,466.6 acres of VRM Class II (13.6 % of analysis area), 120,236.0 acres of VRM Class III (2.0 % of analysis area) and 1,577,071.0 acres of VRM Class IV (26.2 % of analysis area). There are no VRM Class I or III objectives identified within the analysis area (Figure 3.7.6).

VRM Class objectives for Alternative B (BLM 2020) allocates 1,724,506.1 acres of VRM Class II within the analysis area (28.6% of the analysis area) and 790,784.5 acres of VRM Class III (13.1% of the analysis area). There are no VRM Class I or III objectives allocated for lands within the analysis area (Figure 3.7.7).

VRM Class objectives for Alternative C (BLM 2020) allocates 1,270,989.6 acres of VRM Class II within the analysis area (21.1% of the analysis area) and 1,244,301.0 acres of VRM Class III (20.7% of the analysis area). There are no VRM Class I or III objectives allocated for lands within the analysis area (Figure 3.7.8).

VRM Class objectives for Alternative D (BLM 2020) allocates 1,044,746.0 acres of VRM Class II within the analysis area (17.4% of the analysis area) and 1,470,544.6 acres of VRM Class III (24.4% of the analysis area). There are no VRM Class I or III objectives identified within the analysis area (Figure 3.7.9).

VRM Class objectives for Alternative E (BLM 2020) identifies 1,179,885.4 acres of VRM Class II within the analysis area (19.6% of the analysis area) and 1,335,405.2 acres of VRM Class III (22.2% of the analysis area). There are no VRM Class I or III objectives identified within the analysis area (Figure 3.7.10).

The acreage of the respective VRM classes within the analysis area and the Project viewshed for each VRM Class (BLM 2013) and VRM class alternatives (BLM 2020) are shown in Tables E.7.6 through E.7.10. The acres of each VRM class that is within the Project viewshed provides a summary of the amount of those areas from which a viewer could see the Project facilities.

Table E.7.6. Visual Resources Management Classes in the Analysis Area and Viewshed for 2013 IAP Objectives

Area	Class I Acres (%)	Class II Acres (%)	Class III Acres (%)	Class IV Acres (%)	No Data Acres (%)	Unclassified, Not in NPR-A Acres (%)	Total Acres (%)
In analysis area	0.0 (0.0%)	820,466.6 (13.6%)	120,236.0 (2.0%)	1,577,071.0 (26.2%)	93,467.3 (1.6%)	3,503,018.8 (58.2%)	**6,020,792.4 (100%)**
In Project viewshed	0.0 (0.0%)	721,594.3 (16.1%)	88,630.6 (2.0%)	1,004,872.0 (22.4%)	89,130.5 (1.85)	3,042,025.3 (62.6%)	**4,857,122.8 (100%)**

Note: IAP (Integrated Activity Plan); NPR-A (National Petroleum Reserve in Alaska). Areas outside of NPR-A are not managed by the Bureau of Land Management and thus do not have Visual Resources Management classifications.

Table E.7.7. Visual Resources Management Classes in the Analysis Area and Viewshed for 2020 IAP Objectives under Alternative B

Area	Class I Acres (%)	Class II Acres (%)	Class III Acres (%)	Class IV Acres (%)	Unclassified, Not in NPR-A Acres (%)	Total Acres (%)
In analysis area	0.0 (0.0%)	1,724,506.1 (28.6%)	0.0 (0.0%)	790,784.5 (13.1%)	3,505,501.8 (58.2%)	**6,020,792.4 (100%)**
In Project viewshed	0.0 (0.0%)	1,313,662.7 (29.2%)	0.0 (0.0%)	499,161.0 (11.1%)	3,044,298.7 (62.7%)	**4,857,122.4 (100%)**

Note: IAP (Integrated Activity Plan); NPR-A (National Petroleum Reserve in Alaska). Areas outside of NPR-A are not managed by the Bureau of Land Management and thus do not have Visual Resources Management classifications.

Table E.7.8. Visual Resources Management Classes in the Analysis Area and Viewshed for 2020 IAP Objectives under Alternative C

Area	Class I Acres (%)	Class II Acres (%)	Class III Acres (%)	Class IV Acres (%)	Unclassified, Not in NPR-A Acres (%)	Total Acres (%)
In analysis area	0.0 (0.0%)	1,270,989.6 (21.1%)	0.0 (0.0%)	1,244,301.0 (20.7%)	3,505,501.8 (58.2%)	**6,020,792.4 (100%)**
In Project viewshed	0.0 (0.0%)	976,671.3 (21.7%)	0.0 (0.0%)	836,152.4 (18.6%)	3,044,298.7 (62.7%)	**4,857,122.4 (100%)**

Note: IAP (Integrated Activity Plan); NPR-A (National Petroleum Reserve in Alaska). Areas outside of NPR-A are not managed by the Bureau of Land Management and thus do not have Visual Resources Management classifications.

Table E.7.9. Visual Resources Management Classes in the Analysis Area and Viewshed for 2020 IAP Objectives under Alternative D

Area	Class I Acres (%)	Class II Acres (%)	Class III Acres (%)	Class IV Acres (%)	Unclassified, Not in NPR-A Acres (%)	Total Acres (%)
In analysis area	0.0 (0.0%)	1,044,746.0 (17.4%)	0.0 (0.0%)	1,470,544.6 (24.4%)	3,505,501.8 (58.2%)	**6,020,792.4 (100%)**
In Project viewshed	0.0 (0.0%)	801,994.4 (17.8%)	0.0 (0.0%)	1,010,829.3 (22.5%)	3,044,298.7 (62.7%)	**4,857,122.4 (100%)**

Note: IAP (Integrated Activity Plan); NPR-A (National Petroleum Reserve in Alaska). Areas outside of NPR-A are not managed by the Bureau of Land Management and thus do not have Visual Resources Management classifications.

Table E.7.10. Visual Resources Management Classes in the Analysis Area and Viewshed for 2020 IAP Objectives under Alternative E

Area	Class I Acres (%)	Class II Acres (%)	Class III Acres (%)	Class IV Acres (%)	Unclassified, Not in NPR-A Acres (%)	Total Acres (%)
In analysis area	0.0 (0.0%)	1,179,885.4 (19.6%)	0.0 (0.0%)	1,335,405.2 (22.2%)	3,505,501.8 (58.2%)	**6,020,792.4 (100%)**
In Project viewshed	0.0 (0.0%)	907,606.9 (20.2%)	0.0 (0.0%)	905,216.8 (20.1%)	3,044,298.7 (62.7%)	**4,857,122.4 (100%)**

Note: IAP (Integrated Activity Plan); NPR-A (National Petroleum Reserve in Alaska). Areas outside of NPR-A are not managed by the Bureau of Land Management and thus do not have Visual Resources Management classifications.

Conformance with the VRM objectives is determined by comparison of the forms, lines, colors, and textures of view characteristics of the Project with forms, lines, colors, and textures of views of the existing characteristic landscape where they are physically located. Within the analysis area, the Project would not conform with VRM Class II objectives but would conform with VRM Class III and IV objectives as allocated for each VRM Class Alternative described above.

2.0 REFERENCES

BLM. 1986. *BLM Manual H-8410-1: Visual Resource Inventory*. Washington, D.C.

-----. 2012a. *National Petroleum Reserve-Alaska Final Integrated Activity Plan/Environmental Impact Statement*. Anchorage, AK.

-----. 2012b. *National Petroleum Reserve-Alaska Final Integrated Activity Plan/Environmental Impact Statement*. Anchorage, AK.

-----. 2013. *National Petroleum Reserve-Alaska Integrated Activity Plan/Environmental Impact Statement Record of Decision*. Anchorage, AK.

-----. 2020. *National Petroleum Reserve in Alaska Final Integrated Activity Plan and Environmental Impact Statement*. Anchorage, AK.

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Willow Master Development Plan

Appendix E.7B
Visual Contrast Rating Worksheets

August 2020

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Form 8400-4
(June 2018)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
VISUAL CONTRAST RATING WORKSHEET

Date: 03/08/2019
District Office: Arctic
Field Office:
Land Use Planning Area:

SECTION A. PROJECT INFORMATION

1. Project Name Willow	4. KOP Location (T.R.S) Varies	5. Location Sketch See 2020 FEIS - Appendix A: Figure 3.7.6 Visual Resource Management Classes
2. Key Observation Point (KOP) Name Foreground-MiddlegroundViews		
3. VRM Class at Project Location Class IV	(Lat. Long) Varies	

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Planar horizontal land, lakes and ponds.	Planar horizontal surface of grasses in summer turning to snow cover for 9-10 months..	None
LINE	Strongly horizontal land, lakes, and ponds..	Horizontal surface of grasses in summer turning to snow cover for 9-10 months.	None
COLOR	Very light to medium tan earth. Water reflecting colors of sky in summer turning to snow cover for 9-10 mo	Light to medium green turning to tan to brown grasses in summer and uniform snow cover for 9-10 months	None
TEX-TURE	Smooth land, lakes, and ponds	Smooth grasses and snow cover	None

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat, planar pads and roads	Geometric patterns of present and absent grasses.	Strongly planar vertical and horizontal drill and valve structures. Cylindrical tanks. Geometric roads, pads, vehicles.
LINE	Horizontal pads and curvilinear roads	Horizontal and angular lines at edges of geometric shapes.	Strongly vertical and horizontal lines. Vertical and horizontal lines at edges of geometric shapes
COLOR	Tans and greys	Greens, tans, and greys.	Light to dark orange structures and multicolored equipment. White, blue, and red facility, vehicle lighting, sky glow.
TEX-TURE	Smooth.	Smooth to coarse at a distance.	Moderate to coarse.

SECTION D. CONTRAST RATING __SHORT TERM ✓ LONG TERM

1. DEGREE OF CONTRAST

	FEATURES											
	LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
ELEMENTS	STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE
FORM		✓				✓			✓			
LINE		✓				✓			✓			
COLOR		✓				✓			✓			
TEXTURE			✓				✓			✓		

2. Does project design meet visual resource management objectives? ✓ Yes ___No (Explain on reverses side)

3. Additional mitigating measures recommended ✓ Yes ___No (Explain on reverses side)

Evaluator's Names	Date
Chris Bockey	12/31/2019

(Continued on Page 2)

SECTION D. (Continued)

Comments from item 2.

Strong construction-related contrasts in the foreground and middleground seen areas (0-5 miles) would occur for the 10-11-year time period specified (Chapter 2.4.6.10.2) for drilling and from the presence of drill rigs and construction equipment. Strong contrasts would be caused by the structural forms, lines, and colors and colors of lighting for facilities, equipment, and vehicles. These contrasts would conform with Visual Resource Management Class IV management objectives (see following table). These noticeable forms and lines are required for function and the highly contrasting colors are needed for safety in the region's extreme weather conditions. Thus, they would cause strong contrasts in the characteristic landscape and mitigations of color would not be feasible.
Dark Sky BMP Re: down-shielded lighting – This BMP would limit direct (line-of-sight) visibility of the standard Osha-mandated lighting at facilities. However, down-shielding in snow cover conditions is known to increase reflectiveness toward the sky and the resultant sky glow and light dome would cause problematic navigation issues for humans and fauna.
Strong contrasts would be reduced to moderate and then weak during the operations, maintenance, and reclamation phases of the project. These phases would be portrayed by pads, roads, pipelines, and vehicles, and, eventually, less-noticeable forms, lines, and colors in the landscape.

BLM Visual Resource Management Class Objectives
Class I Objective The objective of this class is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.
Class II Objective The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic (design) elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.

Class III Objective The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention, but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.
Class IV Objective The objective Class IV is to provide for management activities that require major modifications to the existing character of the landscape. The level of change to the landscape can be high. The management activities may dominate the view and may be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repetition of the basic visual elements of form, line, color, and texture.
Source: BLM 1986, 2008b.

Additional Mitigating Measures (See item 3)

Form 8400-4
(June 2018)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
VISUAL CONTRAST RATING WORKSHEET

Date: 03/08/2019
District Office: Arctic
Field Office:
Land Use Planning Area:

SECTION A. PROJECT INFORMATION

1. Project Name Willow	4. KOP Location (T.R.S) Varies	5. Location Sketch See 2020 FEIS - Appendix A: Figure 3.7.6 Visual Resource Management Classes
2. Key Observation Point (KOP) Name Background-Seldom Seen Views		
3. VRM Class at Project Location Class IV	(Lat. Long) Varies	

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Planar horizontal land, lakes and ponds.	Planar horizontal surface of grasses in summer turning to snow cover for 9-10 months..	None
LINE	Strongly horizontal land, lakes, and ponds..	Horizontal surface of grasses in summer turning to snow cover for 9-10 months.	None
COLOR	Very light to medium tan earth. Water reflecting colors of sky in summer turning to snow cover for 9-10 mo	Light to medium green turning to tan to brown grasses in summer and uniform snow cover for 9-10 months	None
TEX-TURE	Smooth land, lakes, and ponds	Smooth grasses and snow cover	None

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat, planar pads and roads	Geometric patterns of present and absent grasses.	Strongly planar vertical and horizontal drill and valve structures. Cylindrical tanks. Geometric roads, pads, vehicles.
LINE	Horizontal pads and curvilinear roads	Horizontal and angular lines at edges of geometric shapes.	Strongly vertical and horizontal lines. Vertical and horizontal lines at edges of geometric shapes
COLOR	Tans and greys	Greens, tans, and greys.	Light to dark orange structures and multicolored equipment. White, blue, and red facility, vehicle lighting, sky glow.
TEX-TURE	Smooth.	Smooth to coarse at a distance.	Moderate to coarse.

SECTION D. CONTRAST RATING __SHORT TERM ✓ LONG TERM

1. DEGREE OF CONTRAST

ELEMENTS	LAND/WATER BODY (1) STRONG	MODERATE	WEAK	NONE	VEGETATION (2) STRONG	MODERATE	WEAK	NONE	STRUCTURES (3) STRONG	MODERATE	WEAK	NONE
FORM			✓				✓			✓		
LINE			✓				✓			✓		
COLOR			✓				✓			✓		
TEXTURE			✓				✓				✓	

2. Does project design meet visual resource management objectives? ✓ Yes ___No (Explain on reverses side)

3. Additional mitigating measures recommended ✓ Yes ___No (Explain on reverses side)

Evaluator's Names: Chris Bockey
Date: 12/31/2019

(Continued on Page 2)

SECTION D. (Continued)

Comments from item 2.

Moderate to weak construction-related contrasts in the background and seldom seen areas (5-15 and greater miles) would occur for the 10-11-year time period specified (Chapter 2.4.6.10.2) for drilling and from the presence of drill rigs and construction equipment. Moderate contrasts would be caused by the structural forms, lines, and colors and colors of lighting for facilities and vehicles. These contrasts would conform with Visual Resource Management Class III and IV management objectives (see following table). These noticeable forms and lines are required for function and the highly contrasting colors are needed for safety in the region's extreme weather conditions. Thus, they would cause strong contrasts in the characteristic landscape and mitigations of color would not be feasible.

Dark Sky BMP Re: down-shielded lighting – This BMP would limit direct (line-of-sight) visibility of the standard Osha-mandated lighting at facilities. However, down-shielding in snow cover conditions is known to increase reflectiveness toward the sky and the resultant sky glow and light dome would cause problematic navigation issues with humans and fauna.

Moderate contrasts would be reduced to weak during the operations, maintenance, and reclamation phases of the project. These phases would be portrayed by pads, roads, pipelines, and vehicles, and, eventually, less-noticeable forms, lines, and colors in the landscape.

BLM Visual Resource Management Class Objectives

Class I Objective The objective of this class is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.

Class II Objective The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic (design) elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.

Class III Objective The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention, but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.

Class IV Objective The objective Class IV is to provide for management activities that require major modifications to the existing character of the landscape. The level of change to the landscape can be high. The management activities may dominate the view and may be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repetition of the basic visual elements of form, line, color, and texture.

Source: BLM 1986, 2008b.

Additional Mitigating Measures (See item 3)

Form 8400-4
(June 2018)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
VISUAL CONTRAST RATING WORKSHEET

Date: 03/08/2019
District Office: Arctic
Field Office:
Land Use Planning Area:

SECTION A. PROJECT INFORMATION

1. Project Name Willow	4. KOP Location (T.R.S) Varies	5. Location Sketch See 2020 FEIS - Appendix A: Figure 3.7.6 Visual Resource Management Classes
2. Key Observation Point (KOP) Name Foreground-MiddlegroundViews		
3. VRM Class at Project Location Class II	(Lat. Long) Varies	

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Planar horizontal land, lakes and ponds.	Planar horizontal surface of grasses in summer turning to snow cover for 9-10 months..	None
LINE	Strongly horizontal land, lakes, and ponds..	Horizontal surface of grasses in summer turning to snow cover for 9-10 months.	None
COLOR	Very light to medium tan earth. Water reflecting colors of sky in summer turning to snow cover for 9-10 mo	Light to medium green turning to tan to brown grasses in summer and uniform snow cover for 9-10 months	None
TEX-TURE	Smooth land, lakes, and ponds	Smooth grasses and snow cover	None

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat, planar pads and roads	Geometric patterns of present and absent grasses.	Strongly planar vertical and horizontal drill and valve structures. Cylindrical tanks. Geometric roads, pads, vehicles.
LINE	Horizontal pads and curvilinear roads	Horizontal and angular lines at edges of geometric shapes.	Strongly vertical and horizontal lines. Vertical and horizontal lines at edges of geometric shapes
COLOR	Tans and greys	Greens, tans, and greys.	Light to dark orange structures and multicolored equipment. White, blue, and red facility, vehicle lighting, sky glow.
TEX-TURE	Smooth.	Smooth to coarse at a distance.	Moderate to coarse.

SECTION D. CONTRAST RATING __SHORT TERM ✓ LONG TERM

1\. DEGREE OF CONTRAST

	FEATURES											
	LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
ELEMENTS	STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE
FORM		✓				✓			✓			
LINE		✓				✓			✓			
COLOR		✓				✓			✓			
TEXTURE			✓				✓			✓		

2\. Does project design meet visual resource management objectives? ___Yes ✓ No
(Explain on reverses side)

3\. Additional mitigating measures recommended
✓ Yes ___No (Explain on reverses side)

Evaluator's Names: Chris Bockey
Date: 12/31/2019

(Continued on Page 2)

Comments from item 2.

Strong construction-related contrasts in the foreground and middleground seen areas (0-5 miles) would occur for the 10-11-year time period specified (Chapter 2.4.6.10.2) for drilling and from the presence of drill rigs and construction equipment. Strong contrasts would be caused by the structural forms, lines, and colors and colors of lighting for facilities, equipment, and vehicles. These contrasts would not conform with Visual Resource Management Class II management objectives (see following table). These noticeable forms and lines are required for function and the highly contrasting colors are needed for safety in the region's extreme weather conditions. Thus, they would cause strong contrasts in the characteristic landscape and mitigations of color would not be feasible.

Dark Sky BMP Re: down-shielded lighting – This BMP would limit direct (line-of-sight) visibility of the standard Osha-mandated lighting at facilities. However, down-shielding in snow cover conditions is known to increase reflectiveness toward the sky and the resultant sky glow and light dome would cause problematic navigation issues for humans and fauna.

Strong contrasts would be reduced to moderate and then weak during the operations, maintenance, and reclamation phases of the project. These phases would be portrayed by pads, roads, pipelines, and vehicles, and, eventually, less-noticeable forms, lines, and colors in the landscape.

BLM Visual Resource Management Class Objectives

Class I Objective The objective of this class is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.

Class II Objective The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic (design) elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.

Class III Objective The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention, but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.

Class IV Objective The objective Class IV is to provide for management activities that require major modifications to the existing character of the landscape. The level of change to the landscape can be high. The management activities may dominate the view and may be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repetition of the basic visual elements of form, line, color, and texture.

Source: BLM 1986, 2008b.

Additional Mitigating Measures (See item 3)

Form 8400-4
(June 2018)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
VISUAL CONTRAST RATING WORKSHEET

Date: 12/31/2019

District Office: Arctic

Field Office:

Land Use Planning Area:

SECTION A. PROJECT INFORMATION

1. Project Name Willow EIS - Option 3	4. KOP Location (T.R.S) Varies	5. Location Sketch See 2020 FEIS - Appendix A: Figure 3.7.6 Visual Resource Management Classes
2. Key Observation Point (KOP) Name Foreground-Middleground Views		
3. VRM Class at Project Location Class III	(Lat. Long) Varies	

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Planar horizontal land, lakes and ponds.	Planar horizontal surface of grasses in summer turning to snow cover for 9-10 months..	Strongly planar vertical and horizontal drill and valve structures. Cylindrical tanks. Geometric roads, pads, vehicles.
LINE	Strongly horizontal land, lakes, and ponds.	Horizontal surface of grasses in summer turning to snow cover for 9-10 months.	Strongly vertical and horizontal lines. Vertical and horizontal lines at edges of geometric shapes
COLOR	Very light to medium tan earth. Water reflecting colors of sky in summer turning to snow cover for 9-10 mo	Light to medium green turning to tan to brown grasses in summer and uniform snow cover for 9-10 months	Light to dark orange structures and multicolored equipment. White, blue, and red facility, vehicle lighting, sky glow.
TEX-TURE	Smooth land, lakes, and ponds	Smooth grasses and snow cover	Moderate to coarse.

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat, planar road	Indistinguishable	Geometric structures for construction camp at DS2P, vehicles.
LINE	Curvilinear road	Indistinguishable	Vertical and horizontal lines at edges of geometric shapes associated with construction camp.
COLOR	Tans and greys	Indistinguishable	Light to dark structures and multicolored equipment of construction camp, vehicle lighting, sky glow.
TEX-TURE	Smooth.	Indistinguishable	Moderate to coarse.

SECTION D. CONTRAST RATING ✓ SHORT TERM __LONG TERM

1. DEGREE OF CONTRAST	FEATURES: LAND/WATER BODY (1) STRONG	MODERATE	WEAK	NONE	VEGETATION (2) STRONG	MODERATE	WEAK	NONE	STRUCTURES (3) STRONG	MODERATE	WEAK	NONE
ELEMENTS: FORM				✓				✓			✓	
LINE			✓					✓			✓	
COLOR			✓					✓			✓	
TEXTURE				✓				✓			✓	

2. Does project design meet visual resource management objectives? ___Yes ___No (Explain on reverses side)

3. Additional mitigating measures recommended ___Yes ___No (Explain on reverses side)

Evaluator's Names: Chris Bockey

Date: 12/31/2019

(Continued on Page 2)

SECTION D. (Continued)

Comments from item 2.

Weak construction-related contrasts in the foreground and middleground seen areas (0-5 miles) would occur for the time period specified for delivery of drillsite modules. Due to the existing infrastructure in the foreground and middleground area associated with Oliktok and Kuparuk, generally weak contrast would be caused by the introduction of temporary structural forms, lines, and colors and colors of lighting for construction camp facilities, equipment,vehicles and ice road. Degree of contrast is identified below.

Degree of Contrast Criteria
None - The element contrast is not visible or perceived.
Weak - The element contrast can be seen but does not attract attention.
Moderate - The element contrast begins to attract attention and begins to dominate the characteristic landscape.
Strong - The element contrast demands attention, will not be overlooked, and is dominant in the landscape.

BLM 1986, 2008b.

Additional Mitigating Measures (See item 3)

Form 8400-4
(June 2018)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
VISUAL CONTRAST RATING WORKSHEET

Date: 01/09/2020
District Office: N/A
Field Office: N/A
Land Use Planning Area: N/A

SECTION A. PROJECT INFORMATION

1. Project Name Willow	4. KOP Location (T.R.S) Varies	5. Location Sketch See 2020 FEIS - Appendix A: Figure 3.7.1 Visual Resource Analysis Area
2. Key Observation Point (KOP) Name Foreground-MiddlegroundViews		
3. VRM Class at Project Location Non-BLM Managed Lands	(Lat. Long) Varies	

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Planar horizontal land, lakes and ponds.	Planar horizontal surface of grasses in summer turning to snow cover for 9-10 months..	None
LINE	Strongly horizontal land, lakes, and ponds..	Horizontal surface of grasses in summer turning to snow cover for 9-10 months.	None
COLOR	Very light to medium tan earth. Water reflecting colors of sky in summer turning to snow cover for 9-10 mo	Light to medium green turning to tan to brown grasses in summer and uniform snow cover for 9-10 months	None
TEX-TURE	Smooth land, lakes, and ponds	Smooth grasses and snow cover	None

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat, planar pads and roads	Geometric patterns of present and absent grasses.	Strongly planar vertical and horizontal drill and valve structures. Cylindrical tanks. Geometric roads, pads, vehicles.
LINE	Horizontal pads and curvilinear roads	Horizontal and angular lines at edges of geometric shapes.	Strongly vertical and horizontal lines. Vertical and horizontal lines at edges of geometric shapes
COLOR	Tans and greys	Greens, tans, and greys.	Light to dark orange structures and multicolored equipment. White, blue, and red facility, vehicle lighting, sky glow.
TEX-TURE	Smooth.	Smooth to coarse at a distance.	Moderate to coarse.

SECTION D. CONTRAST RATING __SHORT TERM ✓ LONG TERM

1. DEGREE OF CONTRAST

ELEMENTS	FEATURES: LAND/WATER BODY (1) STRONG	LAND/WATER BODY (1) MODERATE	LAND/WATER BODY (1) WEAK	LAND/WATER BODY (1) NONE	VEGETATION (2) STRONG	VEGETATION (2) MODERATE	VEGETATION (2) WEAK	VEGETATION (2) NONE	STRUCTURES (3) STRONG	STRUCTURES (3) MODERATE	STRUCTURES (3) WEAK	STRUCTURES (3) NONE
FORM		✓				✓			✓			
LINE		✓				✓			✓			
COLOR		✓				✓			✓			
TEXTURE			✓				✓			✓		

2. Does project design meet visual resource management objectives? ___Yes ___No (Explain on reverses side)

3. Additional mitigating measures recommended ✓ Yes ___No (Explain on reverses side)

Evaluator's Names: Merlyn Paulson/ Chris Bockey
Date: 01/09/2020

(Continued on Page 2)

SECTION D. (Continued)

Comments from item 2.

Strong construction-related contrasts in the foreground and middleground seen areas (0-5 miles) would occur for the 10-11-year time period specified (Chapter 2.4.6.10.2) for drilling and from the presence of drill rigs and construction equipment. Strong contrasts would be caused by the structural forms, lines, and colors and colors of lighting for facilities, equipment, and vehicles.These noticeable forms and lines are required for function and the highly contrasting colors are needed for safety in the region's extreme weather conditions. Thus, they would cause strong contrasts in the characteristic landscape and mitigations of color would not be feasible.

Dark Sky BMP Re: down-shielded lighting – This BMP would limit direct (line-of-sight) visibility of the standard Osha-mandated lighting at facilities. However, down-shielding in snow cover conditions is known to increase reflectiveness toward the sky and the resultant sky glow and light dome would cause problematic navigation issues for humans and fauna.

Strong contrasts would be reduced to moderate and then weak during the operations, maintenance, and reclamation phases of the project. These phases would be portrayed by pads, roads, pipelines, and vehicles, and, eventually, less-noticeable forms, lines, and colors in the landscape.

Additional Mitigating Measures (See item 3)

Form 8400-4
(June 2018)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
VISUAL CONTRAST RATING WORKSHEET

Date: 03/08/2019
District Office: Arctic
Field Office:
Land Use Planning Area:

SECTION A. PROJECT INFORMATION

1. Project Name Willow	4. KOP Location (T.R.S) Varies	5. Location Sketch See 2020 FEIS - Appendix A: Figure 3.7.1 Visual Resource Analysis Area
2. Key Observation Point (KOP) Name Background-Seldom Seen Views		
3. VRM Class at Project Location Non-BLM Managed Lands	(Lat. Long) Varies	

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Planar horizontal land, lakes and ponds.	Planar horizontal surface of grasses in summer turning to snow cover for 9-10 months..	Strongly planar vertical and horizontal drill and valve structures. Cylindrical tanks. Geometric roads, pads, vehicles.
LINE	Strongly horizontal land, lakes, and ponds..	Horizontal surface of grasses in summer turning to snow cover for 9-10 months.	Strongly vertical and horizontal lines. Vertical and horizontal lines at edges of geometric shapes
COLOR	Very light to medium tan earth. Water reflecting colors of sky in summer turning to snow cover for 9-10 mo	Light to medium green turning to tan to brown grasses in summer and uniform snow cover for 9-10 months	Light to dark orange structures and multicolored equipment. White, blue, and red facility, vehicle lighting, sky glow.
TEX-TURE	Smooth land, lakes, and ponds	Smooth grasses and snow cover	Moderate to coarse.

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat, planar pads and roads	Geometric patterns of present and absent grasses.	Strongly planar vertical and horizontal drill and valve structures. Cylindrical tanks. Geometric roads, pads, vehicles.
LINE	Horizontal pads and curvilinear roads	Horizontal and angular lines at edges of geometric shapes.	Strongly vertical and horizontal lines. Vertical and horizontal lines at edges of geometric shapes
COLOR	Tans and greys	Greens, tans, and greys.	Light to dark orange structures and multicolored equipment. White, blue, and red facility, vehicle lighting, sky glow.
TEX-TURE	Smooth.	Smooth to coarse at a distance.	Moderate to coarse.

SECTION D. CONTRAST RATING __SHORT TERM ✓ LONG TERM

1. DEGREE OF CONTRAST

ELEMENTS	LAND/WATER BODY (1) STRONG	MODERATE	WEAK	NONE	VEGETATION (2) STRONG	MODERATE	WEAK	NONE	STRUCTURES (3) STRONG	MODERATE	WEAK	NONE
FORM			✓				✓			✓		
LINE			✓				✓			✓		
COLOR			✓				✓			✓		
TEXTURE			✓				✓				✓	

2. Does project design meet visual resource management objectives? ___Yes ___No (Explain on reverses side)

3. Additional mitigating measures recommended ✓ Yes ___No (Explain on reverses side)

Evaluator's Names: Merlyn Paulson/ Chris Bockey
Date: 01/09/2020

(Continued on Page 2)

SECTION D. (Continued)

Comments from item 2.

Overall contrast would diminish based on viewer location and proximity to existing drilling infrastructure in the area of Kuparuk.

In viewing areas distant from the area of Kuparuk, moderate to weak construction-related contrasts in the background and seldom seen areas (5-15 and greater miles) would occur for the 10-11-year time period specified (Chapter 2.4.6.10.2) for drilling and from the presence of drill rigs and construction equipment. Moderate contrasts would be caused by the structural forms, lines, and colors and colors of lighting for facilities and vehicles.

These noticeable forms and lines are required for function and the highly contrasting colors are needed for safety in the region's extreme weather conditions. Thus, they would cause moderate contrasts in the characteristic landscape and mitigations of color would not be feasible.

Dark Sky BMP Re: down-shielded lighting – This BMP would limit direct (line-of-sight) visibility of the standard Osha-mandated lighting at facilities. However, down-shielding in snow cover conditions is known to increase reflectiveness toward the sky and the resultant sky glow and light dome would cause problematic navigation issues with humans and fauna.

Moderate contrasts would be reduced to weak during the operations, maintenance, and reclamation phases of the project. These phases would be portrayed by pads, roads, pipelines, and vehicles, and, eventually, less-noticeable forms, lines, and colors in the landscape.

Additional Mitigating Measures (See item 3)