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Note: * = figure located in map roll.

CURRENT CONDITIONS REPORT OVERVIEW

This report provides background information necessary to plan and implement a RCRA Facility Investigation at Eastman Kodak Company's Kodak Park Facility, located in Monroe County, New York. The objective of the report is to summarize the regional location, pertinent boundary features, general physiography, hydrogeology, and historical use of the facility.

The information presented in this report represents a summary and compilation of the results of numerous environmental investigations at Kodak Park. It is organized into three parts:

- Part I - Facility Background and History. This part discusses the geographic location, pertinent boundary features, topographic features, and the general manufacturing operations which occur in each section of Kodak Park. A discussion of the historical development of Kodak Park, the approximate dates and locations of past product and waste spills, and a summary of past and current permits and enforcement actions is also provided in this part.

- Part II - Nature and Extent of Contamination. This part discusses the identification, location, and constituent summary of past and present solid waste management units (SWMUs), a summary of the meteorologic, geologic and hydrogeologic conditions at Kodak Park, available monitoring data and quantitative information on locations and levels of contamination at the facility, and a discussion of potential impacts to the environment.

- Part III - Implementation of Interim Measures. This part discusses the objective, design, construction and operation of groundwater remedial measures at Kodak Park.

PART I

1.0

PART I

FACILITY BACKGROUND AND HISTORY

SECTION 1.0

FACILITY BACKGROUND

1.1 GENERAL GEOGRAPHIC LOCATION OF KODAK PARK

Kodak Park is located in Monroe County in northwestern New York State (Figure I-1.1). Portions of Kodak Park are in the northwestern section of the City of Rochester and the southeastern section of the Town of Greece. Kodak Park is located approximately five miles south of Lake Ontario.

Kodak Park is subdivided into several sections according to geographic location and chronological development. The developed portions occupy approximately 1600 acres and include six main park sections: KPE, KPW, KPX, KPM, KPS, and KPT. These areas extend continuously westward from the Genesee River to N.Y. State Route 390. The locations and boundaries of the various Park sections are shown in Figures I-1.1 and I-1.2a-g.

1.1.1 KPE LOCATION

KPE, the eastern-most section of Kodak Park, is located within the City of Rochester, Monroe County, New York. The area is irregular in shape with the majority being bordered by the Genesee River to the east and KPW to the west, Merrill Street to the north and West Ridge Road (N.Y. State Route 104) to the south (Figure I-1.2a,b). There are approximately 80 buildings within the 240 acres which comprise KPE.

1.1.2 KPW LOCATION

KPW is located within the City of Rochester, Monroe County, New York. It is bordered by KPE to the east, West Ridge Road to the north, KPX (and the Conrail and Chessie System railroad easement) to the west and Rand Street to the south (Figure I-1.2c). There are 46 buildings within the approximate 80 acres which comprise KPW. Off-site Study Area No. 1 is generally included with KPW environmental investigations and incorporates the Rand Street and Steko Avenue neighborhood south of Parking Lot 50.

1.1.3 KPX LOCATION

KPX is located in the City of Rochester, Monroe County, New York. The area is centrally located in Kodak Park between the Conrail and Chessie System railroad easement and KPW to the east, Mt. Read Boulevard and KPM to the west, West Ridge Road to the north, and Wheatland Street and Ramona Park to the south (Figure I-1.2d). There are approximately 20 buildings within the 110 acres which comprise KPX.

1.1.4 KPM LOCATION

KPM is primarily located within the Town of Greece, Monroe County, New York. KPM is bordered by West Ridge Road and Malden Street to the north, Latona Road to the west, Ridgeway Avenue, the Old Erie Canal bed and KPS to the south, and Mount Read Boulevard and KPX to the east (Figure I-1.2e). There are approximately 40 buildings in the approximately 340 acres which comprise KPM.

1.1.5 KPS LOCATION

KPS is primarily located in the town of Greece and is bordered to the north by Ridgeway Avenue and KPM, to the east by Mount Read Boulevard, to the south by Lexington Avenue and to the west by Lee Road and KPT (Figure I-1.2f). The south and east margins of KPS are located within the City of Rochester. There are approximately 20 buildings within the 540 acres which comprise KPS.

1.1.6 KPT LOCATION

KPT is located in the town of Greece and is bordered to the north by Ridgeway Avenue, on the east by Lee Road, to the south by the New York State Barge Canal, and to the west by Long Pond Road (Figure I-1.2g). KPT is comprised of two parcels separated by N.Y. State Route 390. The approximate 35-acre east parcel includes one building. The west parcel encompasses approximately 305 acres and includes two buildings.

1.2 TOPOGRAPHY AND SURFACE DRAINAGE

Kodak Park lies within the low-lying physiographic province referred to as the Erie-Ontario Lowlands. The topography is relatively flat and slopes gently downward to the north and east. Ground surface elevations at Kodak Park range from 208 feet (Kodak Park Datum) at the eastern boundary of KPE (excluding the Genesee Gorge) to 340 feet in KPS. Refer to Figures (I-1.1) for topographic maps and locations of topographic features.

The most prominent topographic feature within Kodak Park is the Genesee River Gorge, located along the eastern boundary of Kodak Park (Figures I-1.1). The gorge is approximately 150 feet deep from top to bottom with an average wall slope of approximately 87 percent. The elevation of the base of the gorge at river level is approximately 40 feet. Additional information regarding the Genesee River gorge, including a topographic map, is available in "Report on Geologic Conditions Along the Slope of the Genesee River Gorge Near Kodak Park" (H&A, 1992g).

A west-southwest trending, north sloping ridge approximately 35-feet high is located along the southern fence line of KPM (Figure I-1.1). This feature likely resulted from erosion along the shoreline of glacial Lake Dawson (see Part II, Section 3). The Old Erie Canal bed lies along the top of this slope and separates KPM (Weiland Road Landfill) and KPS. Another topographic feature of Kodak Park is a shallow basin which has formed along the northern fence line of KPM at the headwaters of Paddy Hill Creek (Figure I-1.1) which drains to the north.

A small escarpment feature located in southeastern KPT and southwestern KPS (Figure I-1.1) is an outcrop of the resistant Lockport Dolomite. This feature is thought to be an extension of the Niagara Escarpment prominent in Orleans and Niagara Counties.

A small floodplain area of the Genesee River lies adjacent to a portion of the eastern border of KPE, at the Kings Landing Wastewater Purification Plant (KLWPP). Regulated wetland areas are found in KPT.

1.2.1 KPE TOPOGRAPHY

KPE is constructed along the former shoreline of glacial Lake Iroquois, the topographic expression of which is now the location of West Ridge Road. Lake Iroquois was a relatively long-duration glacial lake phase and a predecessor to present day Lake Ontario.

The topography in KPE is characterized by a gentle slope to the northeast from a topographic high occupied by West Ridge Road toward the Genesee River Gorge. Fill material placed in association with construction and development of KPE has subdued the natural slope. The total relief within KPE (excluding the Genesee River Gorge) is approximately 15 feet. The slope of the Genesee River Gorge is approximately 150 feet from top to bottom, and averages approximately 87 percent (H&A, 1992g).

1.2.2 KPW TOPOGRAPHY

The topography in KPW is generally flat lying and characterized by a gentle slope to the north and south from a topographic high occupied by service roads within KPW. Fill material placed in association with construction and development of KPW has subdued the natural slope. The total relief within KPW is approximately 5 feet.

1.2.3 KPX TOPOGRAPHY

The most prominent topographic feature in KPX is a 20 foot high escarpment located in southern KPX. This escarpment, which is an extension of the escarpment present in southern KPM, is most likely the result of erosion along the shoreline of glacial Lake Dawson, a relatively short duration lake phase and a predecessor to the present day Lake Ontario.

The topography of KPX is characterized by a gentle slope to the northeast from a topographic high at the escarpment. The total relief within KPX north of the escarpment is approximately 15 feet. Prior to development, the site was substantially lower in the northeast area and was subsequently brought to existing grade by extensive fill operations.

1.2.4 KPM TOPOGRAPHY

KPM is constructed along the former shoreline of glacial Lake Dawson, a relatively short-duration glacial lake phase. Erosion along the shoreline of glacial Lake Dawson resulted in a west-southwest trending, north sloping ridge approximately 35 feet high along the southern fence line of KPM. The Old Erie Canal bed lies along this slope.

North of this ridge, the topography of KPM is characterized by a gentle slope to the north from a topographic high at the ridge. The total relief within KPM (north of the ridge) is approximately 50 feet. A shallow basin is located along the northern fence line of KPM along the headwaters of Paddy Hill Creek. The creek drains to the north. This feature may have been a bay to glacial Lake Iroquois (subsequent to Lake Dawson), formed by wave action eroding the basil till in the area.

1.2.5 KPS TOPOGRAPHY

The KPS topography generally slopes down to the north and east from a topographic high at Lexington Avenue near Lee Road. The total relief within KPS is approximately 40 feet..

1.2.6 KPT TOPOGRAPHY

The KPT topography generally slopes down to the northwest from a topographic high near the eastern border at N.Y. State Route 390, just north of Lexington Avenue. The total relief within KPS is approximately 30 feet.

1.3 GENERAL OPERATIONS AND FACILITIES

Kodak Park has served as Eastman Kodak Company's primary photographic manufacturing facility since the late 1800's. The present facility (developed and undeveloped areas) occupies over 2000 acres with nearly 200 major manufacturing buildings.

The principal operations include the manufacture of film and paper base; preparation and coating of photographic emulsions; production of vitamins and food additives; manufacture of electrophotographic toner; cutting, packaging and distribution of finished products; and the production of synthetic organic chemicals dyes and couplers. These operations are supported by a wide range of facilities including warehouses, machine shops; medical facilities; vehicle and ground maintenance centers; a railroad and bus line; fully-equipped fire, emergency response and security crews (IT, 1991); and electricity and steam generation facilities.

Underground utility and pipeline locations are shown on the "300 series" of maps maintained by Eastman Kodak Company. These maps are generally at a scale of 1 inch equal 10 feet and show sewers, water and gas lines, electrical conduits and other underground utilities. Index maps for each park section are included in Appendix I.

1.3.1 KPE GENERAL SITE DESCRIPTION

The development of KPE was initiated when the film manufacturing facilities of Eastman Kodak Company were relocated from downtown Rochester to four newly constructed buildings in northern Rochester in 1891. Development continued to the present state with approximately 80 closely-spaced buildings (Figure I-1.2a,b).

The most heavily developed area of KPE lies in a triangular shaped wedge located south of Eastman Avenue. Most industrial processes associated with the manufacture of photographic materials are housed within this area. Photochemicals are manufactured in the northern portions of the interior of KPE in Buildings 60, 48 and 18. Film base is also manufactured in the northern portion of the interior of KPE in Buildings 53 and 54, and in the central KPE area in Buildings 19, 20 and 21. A cogeneration power plant is housed in Building 31. Additional functions which take place in the KPE interior include industrial refrigeration, film and paper coating, storage, laboratory work, finishing, cutting, packaging and research.

Areas surrounding this "industrialized wedge" consist primarily of parking lots. The fringe areas of KPE are unique because, unlike other park sections, several public roads traverse the area separating individual parking lots.

The area to the north of Eastman Avenue includes a large parking area (Parking Lot 42), a small group of buildings which house research and development activities (Building 81, 82, 83) and industrial refrigeration (Building 87).

Several parking areas lie east of Lake Avenue. East of these areas, along the Genesee River, is the King's Landing Wastewater Purification Plant (KLWPP), which serves as the treatment facility for Kodak Park industrial waste water. Located at the southern and western boundary area of KPE near Building 65 and Parking Lot 15, at the location of a railroad underpass at West Ridge Road, is the KPRR area (see Part III, Section 1.2). The remaining southern and western boundaries of KPE are occupied by parking areas.

Land use within KPE consists primarily of buildings, roads, parking lots and landscaped areas. Other land usage includes railroads, pipeline routes and vehicular storage areas. A series of chemical transfer pipelines cross KPE. Chemicals used in the manufacture of film are stored and exchanged between KPW and film manufacturing areas within KPE via this system of solvent transfer lines. Several chemical transfer stations are also located in southern KPE. A network of underground water, gas, electric and sewer lines underlie most developed sections of KPE (Appendix I).

Industrial process water used in manufacturing in KPE is obtained from Lake Ontario via a remote location pumping and treatment facility owned and operated by Kodak. One of two underground storage locations for water pumped from this facility is located in KPE under Building 56. Potable water is obtained from the Monroe County Water Authority.

Storm and industrial wastewater from KPE is conveyed to the King's Landing Wastewater Purification Plant (KLWPP) via the Kodak Park industrial sewer. Two 48-inch main trunks of the industrial sewer system traverse central KPE. A 24-inch diameter sanitary sewer is present directly above the industrial sewer. A system of sewer laterals extends into KPE to collect storm water and building sump discharge, as well as wastewater from the various manufacturing areas. The wastewater from the industrial sewer is conveyed eastward through KPE to KLWPP located on the Genesee River, where it is treated prior to discharge to the river. Sanitary wastewater is conveyed to the Van Lare publicly-owned treatment works (POTW).

1.3.2 KPW GENERAL SITE DESCRIPTION

The development of Kodak Park expanded westward into KPW in the early 1900's. Though KPW occupies the smallest area of any of the park sections, with over 40 buildings it is the second largest production area in Kodak Park (Figure I-1.2c). The primary operations in KPW relate to the manufacture, storage, transfer and distillation of chemicals.

Chemical manufacturing is concentrated in southwestern KPW, including Buildings 148, 130, 131, 137, 117, and in north-central KPW in Buildings 108, 109 and 119. Distilling operations take place in southern KPW in Buildings 120 and 142. Solvent storage and transfer operations are located in south-central KPW in Buildings 115 and 136. Other operations at KPW include silver recovery in Buildings 110 and 101; refuse incineration in Building 145; plastics manufacturing in Buildings 155 and 135; tape manufacturing in Building 140; and film finishing in Building 105.

An elongated parking area (Parking Lot 50) extends east-west along the southern boundary of KPW. The Kodak Park railroad tracks lie north of, and run parallel to, Parking Lot 50.

Land use within KPW consists primarily of buildings, roads, parking lots and landscaped areas. Other land usage includes railroads, pipeline routes and vehicular storage areas. The area to the north of KPW is densely occupied by commercial establishments. The area to the south of KPW consists primarily of residential development. This residential area has historically been included in off-site Study Area No. 1.

A series of chemical transfer pipelines cross KPW and several chemical transfer stations are located throughout KPW. A network of underground water, gas, electric and sewer lines underlie most developed sections of KPW (Appendix I).

Industrial process water used in manufacturing in KPW is obtained from Lake Ontario via a remote location pumping and treatment facility owned and operated by Kodak. Potable water is obtained from the Monroe County Water Authority.

Wastewater from KPW is conveyed to the King's Landing Wastewater Purification Plant (KLWPP) via a system of industrial sewers. The main trunk of the industrial sewer system traverses southern KPW, beneath the main Kodak Park service road. In KPW, the main trunk of the industrial sewer is 48-inches in diameter and is installed in a trench excavated approximately 10 feet into the bedrock. A 24-inch diameter sanitary sewer is present directly above the industrial sewer. A system of sewer laterals extends into KPW to collect stormwater and building sump discharge, as well as wastewater from the various chemical manufacturing areas. The wastewater from the industrial sewer is conveyed eastward through KPE to KLWPP located on the Genesee River, where it is treated prior to discharge to the river. The sanitary sewer discharges to the Van Lare publicly-owned treatment works (POTW).

1.3.3 KPX GENERAL SITE DESCRIPTION

The earliest development in KPX began in 1920 following substantial development in KPE and KPW. The KPX area is one of two Kodak Park sections in which the primary activities are material storage and distribution. Several major warehouse and distribution centers are located in KPX including Buildings 205, 211, 214, 204 and 201 (Figure I-1.2d). Copier fuser manufacturing is housed in Building 203 and Building 206 contains a wood fabrication center. KPX is also the location of a silver recovery processing unit and scrap metal salvage area, and was the site of a large gelatin manufacturing facility. A railroad yard and coal storage area are located along the eastern portion of KPX. The coal stockpile is maintained for use in the Kodak Park power plants, located in KPM and KPE.

The Kodak Park chemical waste incinerator is located in Building 218 in northeastern KPX. The operations at Building 218 involve the handling, storage, and disposal of hazardous and non-hazardous waste materials (solids and liquids).

Land use within KPX consists primarily of buildings, roads, parking lots and landscaped areas. Other land usage includes railroads and vehicular storage areas. An athletic field is also located in the northeastern area of KPX.

A network of underground water, gas, electric and sewer lines underlie most developed sections of KPX (Appendix I). Industrial process water used in manufacturing is obtained from Lake Ontario via a remote location pumping and treatment facility owned and operated by Kodak. Potable water is obtained from the Monroe County Water Authority. Wastewater from the industrial processes is conveyed eastward to the Kodak Park King's Landing Wastewater Purification Plant (KLWPP) located on the Genesee River. Storm water is routed to the Merrill Street storm sewer outfall located on the Genesee River Gorge. Sanitary sewage is discharged to the Van Lare publicly-owned treatment works (POTW).

1.3.4 KPM GENERAL SITE DESCRIPTION

As the development of Kodak Park continued its westward expansion, operations in KPM began in the mid-1900's. KPM is the second largest park section and one of the primary production areas of Kodak Park (Figure I-1.2e).

The most heavily developed area of KPM lies south of the Koda-Vista residential area and east of the KPS-KPM Road. The Copy Products Division, which manufactures electrophotographic toners, has operating facilities in KPM. Toner manufacturing is housed in Building 349 in west-central KPM. A synthetic chemical production area is concentrated in eastern KPM, in Building 301, 302, 303, and 304. Additional processes include chemical recovery in Building 351 and 352; coating operation in Buildings 313, 329 and 350; film slitting and packaging in Building 326; industrial refrigeration in Building 332; and a cogeneration power plant in

Building 321. Also, several buildings around the perimeter of KPM house office space and storage.

The Weiland Road Landfill (WRL) is located in the southwestern corner of KPM. The landfill is operated by Eastman Kodak as a solid waste disposal facility under an existing 6 NYCRR Part 360 permit. The landfill occupies approximately 52 acres of land with approximately 28 acres used for active landfilling of non-hazardous solid waste. The remaining 24 acres were formerly used for waste disposal and are presently covered by athletic fields and parking areas.

The primary land uses within KPM include buildings, roads, parking lots and landscaped areas. The northwestern quadrant of KPM consists primarily of undeveloped forested area. The Old Erie Canal bed lies along the southern boundary of KPM and separates KPM from KPS.

A series of chemical transfer pipelines cross central KPM and several chemical transfer stations are located in central KPM. A network of underground water, gas, electric and sewer lines underlie most developed areas of KPM (Appendix I).

Industrial process water used in manufacturing in KPM is obtained from Lake Ontario via a remote location pumping and treatment facility owned and operated by Kodak. Potable water is obtained from the Monroe County Water Authority. One of two underground water storage reservoirs in service at Kodak Park is located in KPM under Parking Lot 70. The reservoir supplements water for utility needs and provides water for a separate fire control system.

Industrial wastewater from KPM is conveyed to the King's Landing Wastewater Purification Plant (KLWPP) via a system of industrial sewers. The main trunk of the industrial sewer system is located in central KPM. Storm water is conveyed to KLWPP via the industrial sewer. Sanitary waste water is conveyed to the Van Lare publicly-owned treatment works (POTW).

1.3.5 KPS GENERAL SITE DESCRIPTION

The earliest development in KPS began in 1964 following substantial development in KPE, KPW, KPX and KPM. The KPS area is one of two Kodak Park sections in which the primary activities are material storage and distribution (Figure I-1.2f). Several major warehouses and the primary Kodak Park distribution center are located in KPS including Buildings 502, 503, 506, 507, 508, 515, and 605. Additional activities in KPS include film finishing operations, graphics arts equipment assembly, and packaging material fabrication in Building 642; fermentation products research and development at Building 610; imaging equipment remanufacturing and optics manufacturing at Building 601; fabrication shops at Building 604; machine shops at Building 514; and industrial refrigeration/compressed air production at Building 511. A coal stockpile maintained for use at Kodak Park power plants in KPE and KPM is also located in KPS.

Land use within KPS consists primarily of buildings, undeveloped grassland and woodlands, and landscaped areas. Other land usage includes railroads and vehicular storage areas. The grassland and woodland areas are primarily located in the eastern portion of KPS. Several chemical transfer stations are located in KPS.

A network of underground water, gas, electric and sewer lines underlie most developed sections of KPS (Appendix I). Water used in the manufacturing processes is obtained from Lake Ontario via a remote location pumping and treatment facility owned and operated by Kodak. Potable water is obtained from the Monroe County Water Authority. Sanitary sewage is discharged to the Van Lare publicly-owned treatment works (POTW). Storm water is conveyed to storm sewer systems located along Mt. Read Blvd. and Latona Road. Due to the absence of substantial industrial processes, an industrial sewer system is not present in KPS. All process discharges from buildings is conveyed to the sanitary sewage system.

1.3.6 KPT GENERAL SITE DESCRIPTION

KPT is the least developed of all Kodak Park sections and includes three buildings on 340 acres. The area is partitioned by N.Y. State Route 390 (Figure I-1.2g). The first industrial development of the east 35-acre parcel occurred in 1966 with construction of Building 701. Primary Building 701 operations are chemical repackaging. Several chemical transfer stations are located at Building 701. The west 305-acre KPT parcel is primarily undeveloped, but is currently being improved for light manufacturing and other commercial activities as the Canal Ponds Business Park. The area includes one Kodak building related to clinical products manufacturing and one building occupied by IBM Corporation, used for data processing. Due to the absence of substantial industrial process wastewater, an industrial sewer is not present in KPT. All building wastewater discharges are conveyed to the public sanitary sewer system.

Sanitary
sewer =
swale

1.4 SURROUNDING LAND USE

The majority of Kodak Park lies within the borders of the City of Rochester. The city has classified most of these areas of Kodak Park as "M2" or manufacturing/industrial and "T-P" (Transitional Parking). The zoning map from the City of Rochester for areas including Kodak Park is shown in Figure I-1.3.

The portions of Kodak Park which lie in the Town of Greece have a zoning classification of general industrial ("IG"). This zoning allows development for various industrial uses such as manufacturing, data processing, wholesale distribution, warehousing, energy generation, storage yards and other permitted special uses. The zoning area map for the Town of Greece is shown in Figure I-1.4.

The predominant land use of Kodak Park is commercial/industrial.

2.0

SECTION 2.0

KODAK PARK SITE HISTORY

A comprehensive history of the development and manufacturing operations at Kodak Park has been prepared in the "Kodak Park Site Operations History Report" (Radian, 1990). The information in this report is BUSINESS CONFIDENTIAL, due to its proprietary nature. The report has been submitted to the New York State Department of Environmental Conservation. Included in this report are:

1) a history of the development of Kodak Park,
2) identification of chemical release occurrences,
3) interpretative maps illustrating significant natural and man-made surface features and land use,
4) maps depicting chemical management areas, and
5) building-specific summaries of structures, occupancy and use, associated structures, and relevant environmental occurrences.

Additional historical information on Kodak Park solid and hazardous waste generation, and past product and waste spills is presented in Part E, Corrective Action Requirements, 6NYCRR Part 373 Permit Application for Eastman Kodak Company, Kodak Park Facility.

2.1 PERMITS AND ENFORCEMENT ACTIONS

A listing of Kodak Park Environmental Permits can be found in Table A-1 of Part A 6NYCRR Part 373 Permit Application for Eastman Kodak Company, Kodak Park Facility. A listing of the current Orders-On-Consent for environmental investigations or corrective actions is presented in Table I-2.1.

PART II

1.0

PART II

NATURE AND EXTENT OF CONTAMINATION

SECTION 1.0

POSSIBLE CONTAMINANT SOURCES

Information on the location of all Kodak Park solid waste management units (SWMUs), and the solid and hazardous waste managed in the units is presented in Part E, Corrective Action Requirements, 6NYCRR Part 373 Permit Application for Eastman Kodak Company, Kodak Park Facility. For the purposes of the Kodak Park Corrective Action Program, an expanded definition of SWMU has been developed to allow consideration of the many individual regulatory programs aimed at the investigation and remediation of subsurface contamination into one program. In addition to the definition proposed under the RCRA draft Subpart S regulations, the term SWMU will also include the units subject to the federal Underground Storage Tank (UST) corrective action requirements of 40 CFR Part 280, inactive hazardous waste disposal sites subject to remediation under 6 NYCRR Part 375, and other areas where significant releases have occurred.

Many of the SWMUs that will require further investigation under the Kodak Park Corrective Action Program have been organized into logical groupings. These groupings, called Investigation Areas, are identified in the above referenced Part E permit application. The criteria used to organize these SWMUs into Investigation Areas are listed below:

- Physical location (e.g., proximity to other units, size of the area)

- Investigation/remediation information (e.g., information that is known or suspected for a given unit, remediation options that may be applicable)
- Constituents present within the units
- Regulatory program governing the units (e.g., Part 360 permit).

Table II-1.1 provides a descriptive listing of the Investigation Areas by Park Section.

These Investigation Areas are referred to later in this document (Part III).

2.0

SECTION 2.0

CLIMATE AND METEOROLOGY

The climate in the Rochester, New York area is humid continental with warm, humid summers and cold, dry winters. Surface air temperature is generally moderated by Lake Ontario, resulting in cooler temperatures in the spring and warmer temperatures in the fall than is typical for this latitude. The mean annual air temperature is approximately 48 degrees Fahrenheit. The highest average monthly temperature generally occurs in July (72°F) and the lowest in January (24°F) (NOAA, 1990).

The mean annual precipitation in Rochester, New York is approximately 33 inches. The annual precipitation amounts during the period 1912 through 1992 ranged from 22.5 inches in 1964, to 44 inches in 1945 (Figure II-2.1), based on precipitation records for the Rochester area compiled by the U.S. Weather Bureau, Rochester-Monroe County Airport Station. A frequency analysis of the yearly precipitation data is presented in Figure II-2.2. The analysis was performed using Weibul's formula (Equation 1) on the total annual precipitation for the period of record:

$$f_i = \frac{(N+1)}{m_i} \qquad (1)$$

Where:

f_i = recurrence interval
N = number of observations (annual precipitation amounts)
m_i = ordinal (ranked) value of the ith annual precipitation amount

Annual total precipitation amounts of 25 inches or more occur with a frequency of greater than once every 10 years. The annual precipitation amounts corresponding to the 25 year and 100 year recurrence drought are approximately 22 and 21 inches, respectively.

A plot of monthly precipitation for the period 1982 through 1992 illustrates the monthly variation in precipitation in Kodak Park (Figure II-2.3). Monthly precipitation varies seasonally, and ranged from a low of less than 1 inch/month, to a high of approximately 7 inches/month during the period 1982 through 1992.

3.0

SECTION 3.0

KODAK PARK GEOLOGIC SETTING

This section summarizes the geologic setting of Kodak Park and surrounding areas. Subsurface conditions are described based primarily on information from previous hydrogeologic investigations conducted at Kodak Park and data from test borings and bedrock mapping of boring machine mined tunnels conducted in Monroe County (including the Kodak Park area) by H&A of New York for Monroe County Pure Waters Combined Sewer Overflow Abatement Program (CSOAP). Table II-3.1 provides a comprehensive list of the major geologic and hydrogeologic studies conducted at Kodak Park. Figure I-1.1 provides the general location of park sections and Figure II-3.1 depicts the location of CSOAP Tunnels in and near Kodak Park.

A discussion of the regional geology of the Kodak Park area is presented in Sections 3.1 and 3.3. A discussion and summary of geologic conditions is provided for each Park Section in Sections 3.2 and 3.3. A complete discussion on regional geology may be found in "Regional Geology and Hydrogeology of the Greater Rochester Area" (H&A, 1990b). Additional Park-Section-specific geologic information is presented in "Kodak Park Hydrogeologic Site Review" (Eckenfelder, 1990b-e) and "Kodak Park Hydrogeologic Summary Report" (H&A, 1992e).

3.1 KODAK PARK STRATIGRAPHY

The geologic materials in the Kodak Park area consist of a relatively thin mantle of unconsolidated (overburden) deposits overlying a thick sequence of sedimentary rocks of Paleozoic (upper Ordovician to upper Silurian) age. The unconsolidated deposits consist primarily of sediments derived or modified by glacial activity, but also include introduced fill materials and debris. The bedrock formations are represented by limestone, shale and sandstone sequences overlying crystalline metamorphic basement rocks. Figure II-3.2 illustrates the general stratigraphic relationship of the bedrock formations.

This section provides a description of the unconsolidated deposits and bedrock formations in the Kodak Park area. The lithology, stratigraphy, and areal extent of these units is provided in the context of Kodak Park as a whole. Additional details on the distribution and occurrence of geologic materials in the major sections of Kodak Park are provided in Part II, Section 3.2.

3.1.1 OVERBURDEN STRATIGRAPHY

Most of the unconsolidated (overburden) materials in the vicinity of Rochester were derived either directly or indirectly from a continental glacier that occupied most of New York State between approximately 27,000 and 10,000 years before present. During its southward advance, the glacier eroded pre-existing soil and scoured the bedrock surface. Eroded rock and sediment, including clay, silt, sand, gravel, cobbles, and boulders were continually incorporated into and transported by the glacier. At the time of its furthest southern advance, the glacier was approximately two miles thick in the vicinity of Rochester.

A variety of Pleistocene Epoch glacial processes have resulted in highly variable overburden thicknesses and types across the region. Thinner overburden deposits (15 to 30 feet) generally overlie the more resistant bedrock units. The thickest overburden deposits (greater than 100 feet) generally occur east of Kodak Park, in the pre-glacial Genesee River valley, presently occupied by Irondequoit Creek.

A nearly continuous layer of overburden deposits blanket the bedrock across Kodak Park. The spatial distribution of overburden deposits is illustrated on Figure II-3.3, an overburden isopach map of Kodak Park. The thickness of overburden deposits ranges from approximately 3 to 90 feet.

Unconsolidated deposits in Kodak Park consist primarily of fill materials and natural lacustrine and till deposits. In nearly all developed sections of Kodak Park, fill material is the uppermost unconsolidated material encountered. The fill is highly variable, ranging from silt to cobble-sized fragments of soils, cinders and debris.

The native soils in Kodak Park are primarily derived from glacial processes and materials. Unsorted materials derived directly from the glacier, typically referred to as till, were deposited throughout the Erie-Ontario Lowland. Basal till, characterized by very high density and a heterogenous grain size distribution, was deposited at the base of the advancing glacier. Sediment derived from the melting glacier and from erosion of the land surface to the south was transported and deposited in ephemeral glacial lakes to form lacustrine deposits. The lacustrine deposits generally are better sorted than till, and consist primarily of fine sand and clay.

Subsurface profiles depicting the distribution and thickness of unconsolidated deposits and bedrock formations across Kodak Park (based on data collected through 1991) is presented in Figures II-3.4a-f. A consistent sequence of unconsolidated deposits is present across Kodak Park. Fill material generally overlies lacustrine deposits which are underlain by glacial till. In addition, explorations in portions of Kodak Park have encountered what has been described as re-worked till, which has been interpreted as a glacial till deposit eroded and re-deposited by lake shoreline mechanisms.

More detailed descriptions of the types of overburden deposits that have been encountered at Kodak Park are provided below.

- Fill

  In the Kodak Park area, fill material generally consists of granular materials such as sand, gravels, cinders, slag, glass, brick, metal, ashes, wood, and crushed stone. In many areas of Kodak Park where deeper excavations have occurred, the bedrock is directly overlain by fill (e.g. Building 119 area).

- Alluvial Deposits

  Superimposed on the glacial deposits is alluvium deposited by streams formed after complete glacial withdrawal. A variety of materials have been deposited, including fine grained, organic rich flood plain materials to coarse, gravelly channel deposits. However, alluvial deposits are generally well sorted and stratified. Alluvial deposits have been encountered beneath Kodak Park in

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localized areas, such as southern KPM and KPX, that were occupied by streams prior to land development.

- Beach Ridge Deposits

  Depending on the duration of the lake stages, prominent shoreline features such as beach ridges formed. Two of these features occur in the Kodak Park area, one along West Ridge Road associated with glacial Lake Iroquois and a second along Ridgeway Avenue, associated with glacial Lake Dawson. These beach ridge deposits consist of interbedded sands and gravels up to 25 feet thick.

- Lacustrine Deposits

  During retreat of the ice front, meltwater flowing off the glacier was occasionally impounded between the ice front to the north and higher ground to the south forming pro-glacial lakes. Material deposited in the lacustrine environment is generally well sorted, sometimes varved, ranging in size from clay to sand.

  Lacustrine deposits of silt, clay and fine sand overlie till in many areas of Kodak Park. These deposits usually consist of brown or gray silty clay, with interbedded silt and fine sand. Explorations at Kodak Park have also encountered a coarser lacustrine deposit, formed when stabilized lake levels allowed wave action to winnow fine-grained material from glacial till to a depth of a few feet. These re-worked till deposits are common in Kodak Park, where numerous test borings have encountered red/brown and brown sand lacustrine deposits overlying deposits of unaltered glacial till.

- Outwash Deposits

Sediments deposited by melting glacial water, termed outwash, are frequently deposited over the till. These granular deposits of sand and gravel are generally stratified, well sorted and typically lack silt and clay. They are generally absent in the Kodak Park area except in KPX where outwash deposits were encountered along the south fence line (Blasland & Bouck, 1993a).

- Glacial Till

Most of the bedrock in Kodak Park is immediately overlain by glacial lodgement and/or ablation till which was transported and deposited directly by glacial ice. These deposits are generally dense, unstratified, and poorly sorted.

The composition of the till usually reflects the lithologic/mineralogic components of the source materials. Glacial till in the Kodak Park area frequently consists of red-brown coarse to fine sandy silt, having derived its material from the red-brown Grimsby Sandstone and Queenston Shale. Ablation till is generally characterized by more variable composition than lodgement till, because it is generally transported further (Dreimanis, 1976). Lodgement till is generally dense and relatively fine grained with varying percentages of coarse material.

In general, the till forms a continuous layer over the underlying bedrock but varies in thickness, filling hollows in bedrock lows and forming a thin veneer over bedrock highs. Glacial till is generally present throughout Kodak Park. In portions of KPM and eastern KPX, however, lacustrine deposits directly overlie the bedrock.

3.1.2 BEDROCK STRATIGRAPHY

Regional bedrock units consist of approximately 2500 feet of Paleozoic sedimentary rock units overlying Precambrian crystalline rock. The surface of the Precambrian basement is approximately 2000 feet below sea level at the southern shore of Lake Ontario and slopes southward to more than 6000 feet below sea level in northern Allegheny County, New York. The sedimentary rock units were formed when Paleozoic sediments, derived primarily from erosion of the Taconic highlands to the east and submarine deposition during transgressive and regressive sea cycles across the area, were deposited over the Precambrian basement. Younger sediments which subsequently covered the Paleozoic sediments were eroded as uplift and tilting of the basement took place.

The early Paleozoic strata in the Kodak Park area include the following formations, in increasing order of age: Lockport Dolostone, Rochester Shale, Irondequoit Limestone, Williamson Shale, Lower Sodus Shale, Reynales Limestone, Maplewood Shale, Thorold Sandstone, Grimsby Sandstone, and Queenston Shale. Figure II-3.5 presents a generalized geologic profile of the Kodak Park area. An erosional unconformity separates the Queenston and Grimsby Formations in the Rochester area.

A brief discussion of the stratigraphy, petrology and structural geology of the rock units beneath Kodak Park is given below, based on H&A (1990b). A more detailed description can be found in the "Regional Geology and Hydrogeology of the Greater Rochester Area" (H&A, 1990b). A geologic subcrop map of the formations under Kodak Park is presented in Figure II-3.6.

- Lockport Dolostone

The Lockport Dolostone crops out in the southeastern corner of KPT and subcrops along the KPS south fence line (Figure II-3.6). The Middle Silurian Lockport Dolostone is generally gray brown medium grained, medium to thick bedded, with stylolitic carbonaceous partings (Zenger, 1965). The partings are frequently slickensided producing an enterolithic bedding structure.

Pits and vugs occur throughout the Lockport. The pits and vugs usually contain crystal linings of dolomite, calcite and quartz over very thin crusts of aragonite. Trace amounts of gypsum nodules have been encountered in the upper Lockport Dolostone.

In boreholes, joints are encountered infrequently within the Lockport, except at shallow depths. The contact between the Lockport and the Rochester is gradational. Occasionally, there is a very thin, severely weathered clay parting, but usually the boundary is marked only by an increasing amount of dark, dolomitic mudstone between increasingly thinner dolomite beds, in the base of the Lockport.

In the Rochester area, the Lockport Dolostone is approximately 180 feet thick and consists of three members, the Decew, Penfield and Oak Orchard (Zenger, 1965).

The Lockport Dolostone observed in core outcrop and in CSOAP tunnels generally consists of light to medium gray, fine to medium-grained, thin to medium bedded, siliceous dolomite.

- Rochester Shale

The Rochester Shale subcrops beneath most of KPS and KPT and in the extreme southern portion of KPM (Figure II-3.6). It is the upper formation comprising the Clinton Group and is present throughout western New York.

The Rochester is traditionally called a shale, but in general is not fissile and is harder and thicker-bedded than a shale. The upper 8 to 12 feet of the formation consists of thin to very thin, closely to moderately closely spaced dolomite beds and is called the Gates Dolomite Member. From approximately 15 to 25 feet below the top of the Rochester to the base of the formation, light gray, very thin, moderately closely spaced limestone beds are present. These beds increase in thickness and frequency with depth. The basal few feet of the Rochester are usually darker gray and highly fossiliferous. Some of the very thin limestone beds contain fine quartz silt and are quite dense. These beds usually grade into the overlying and underlying mudstone without any evidence of partings at the boundaries.

The Rochester Shale in core, outcrop, and tunnel exposures generally consists of light to dark gray, fine-grained, fossiliferous, dolomitic mudstone with interbeds of limestone and dolomite. The Rochester Formation is about 95 to 100 feet thick.

Pits, small vugs, gypsum nodules, and calcitic fossils are present in the formation. Pits and vugs occur in trace amounts in the upper Rochester and their frequency decreases downwards. No particular zones of these features are discernible in the cores and they do not always occur at partings. Gypsum nodules vary in size, reaching 0.2 feet wide in the cores and up to 5-inches in tunnels. They occur in trace amounts throughout the formation, very often at partings. Secondary gypsum seams, in undulating partings generally parallel to the bedding, are found throughout the Rochester Shale except near the top of bedrock where the seams may be severely weathered and the gypsum dissolved out. Weathered surfaces of the Rochester appear light gray-brown from generally a medium gray color. Spalling occurs on weathered surfaces which can be described as exfoliation of elongate pieces of rock parallel to the bedding of the mudstone.

Joints are not frequent, may occur at any angle, are usually smooth, contain a trace to no gypsum, and may be healed by secondary calcite or gypsum seams. Although infrequent, partings throughout the Rochester have been noted weathering to clay. In addition, clay beds of up to 0.2 feet in thickness have been observed. Vertical cracks are frequent in the thin limestone beds.

Slickensided surfaces are observed in mudstones either along joint or bedding plane surfaces. Microscopic alignment of fossils and accessory minerals into parallel beds has also been noted.

- Irondequoit Limestone

The Irondequoit Limestone subcrops in the extreme southern portion of KPM (Figure II-3.6). The contact between the Irondequoit Limestone and underlying Williamson Shale is gradational, particularly to the east where the lower Irondequoit becomes extremely argillaceous. There is generally a distinct break in lithology between the Irondequoit Limestone and the overlying Rochester Shale.

In western New York, the Irondequoit Limestone consists of a light gray, coarsely crystalline, crinoidal, pyritic limestone with stylolitic structures (Gillette, 1947). In the upper portion of the Irondequoit, lenticular, fossiliferous, blue-gray argillaceous limestone masses similar in appearance to reef structures extend into the overlying Rochester Shale.

The lower Irondequoit in the Genesee gorge is argillaceous with thin, dark gray shales separating more massive limestones. Pyrite is abundant. The upper portion of the formation retains the characteristic coarsely crystalline appearance and "reef" structures.

The Irondequoit Limestone observed in core, outcrop and in the CSOAP tunnels generally consists of light to medium gray, fine to medium-grained, thin to medium bedded, fossiliferous limestone interbedded with dark gray, thin to very thin, dolomitic shale. The thickness of the Irondequoit varies considerably due to an erosional unconformity at its base. In the Rochester area the thickness of the unit is approximately 18 feet (Gillette, 1947).

The limestone bedding is wavy (individual beds thicken and thin markedly) and the shale beds are thickest in the lower quarter of the formation. Occasionally, trace pits, vugs, and gypsum nodules are present in the Irondequoit, and often secondary gypsum seams occur in closely to moderately closely spaced partings or between shale and limestone beds. The shale beds are frequently jointed and occasionally contain shears. In some areas the shales are severely weathered to clay. The Irondequoit often shows considerable limonite staining on weathered outcrop surfaces.

Sedimentary structures noted in the Irondequoit include the parallel alignment of fossils and elongate minerals forming bedding features and lenticular reefs which generally occur in upper beds.

- Williamson Shale

The Williamson Shale subcrops in the extreme southern portion of KPM (Figure II-3.6). It unconformably overlies progressively older formations from east to west. In the Genesee gorge, the Williamson Shale is six feet thick, and consists of dark green to black, calcareous, fissile, graptolitic shale. The upper portion is dark green and contains a few thin beds of limestone.

The Williamson Shale in core, outcrop and in the CSOAP tunnels generally consists of dark greenish gray Shale with few fossils. The typical thickness of the unit in boreholes is 5 to 6 feet. Several light gray, very thin limestone beds occur in the upper one-third and lower few inches of the formation. In addition, one to several black or dark gray, very thin shale zones containing the distinctive fossil graptolite, Monograptus clintonensis, are present in the lower few inches of the formation. The bottom-most limestone bed occurring below the lowest graptolite bed in the formation is considered the contact between the Williamson shale and the underlying Lower Sodus Shale where present. In outcrop the Williamson generally weathers to a gray-green shale or clay.

Low angle joints are frequent in the Williamson. High angle joints have also been noted. The only notable sedimentary structure observed in Rochester area outcrops is fissile bedding.

- Lower Sodus Shale

The Lower Sodus Shale subcrops in Southern KPM (Figure II-3.6). In western and central New York it has been divided into an upper and lower unit based upon microfauna assemblages that differ between the two shales and a possible erosional unconformity noted along Salmon Creek in the Town of Sodus, Wayne County. Both shale units have similar lithology and may be included within the same formation. The Upper Sodus does not appear to be represented in the Genesee gorge near Rochester. The Lower Sodus is 18 feet thick in the Genesee gorge and does not appear to be present west of Monroe County.

The Lower Sodus Shale in the Genesee gorge is predominantly a green to gray-green, calcareous, slightly silty, fossiliferous shale with thin limestone layers. Dark gray, less calcareous, silty shale layers are interbedded with the green dominating the basal 5 feet of the formation. The upper 3 feet of the Lower Sodus contain 3 layers of calcareous material derived from fossil brachiopods (Coelospira) called the "pearly layers" (Gillette, 1947). To the east of Rochester, the lithology of the Lower Sodus is similar with dark gray shales at its base, green shales above and the "pearly layers" at the very top. The Lower Sodus thickens to the east and thin, limonitic sandstones and siltstones are present in the lower 10 feet.

The Lower Sodus is described from core and outcrop sections as a dark greenish gray to grayish brown shale with few fossils. The average thickness of the Lower Sodus Shale in boreholes is 13 to 14 feet.

The upper quarter of the formation is dark greenish gray which is immediately underlain by a zone of varying brownish-gray colors with a more prominent brownish zone occurring persistently in the lower half of the formation. Several light gray, thin to very thin, closely to moderately closely spaced shell limestone beds occur in the upper part of the formation. These beds are composed almost exclusively of the brachiopod Homocoelia. None of these beds were noted near the base of the formation. The lowermost few feet of the Lower Sodus is invariably dark greenish gray. Outcrops of the Lower Sodus weather to a brown-gray color.

Low angle joints occur frequently, but high angle joints also occur. The upper boundary of the Lower Sodus Shale is sometimes marked by a thin to very thin, severely weathered zone immediately below the overlying Williamson Shale.

- Reynales Limestone

The Reynales Limestone subcrops beneath the extreme southern portion of KPM (Figure II-3.6). It is perhaps the most geologically complex formation in Monroe County. Many of the limestone beds in the Reynales are fossiliferous (most notable are the large, thick shells of the brachiopod Pentamerus) and a few are dolomitic. Some of the thinner beds contain very thin zones of fine-grained quartz silt which are observed to occur anywhere within the formation and usually in minor amounts. In addition, thin siliceous zones and lenses (comprised of chalcedony or chert) sometimes occur in limestone beds throughout the Reynales. The Reynales also contains a very persistent bed of red, medium-grained, oolitic, fossiliferous, hematitic limestone called the Furnaceville Hematite Member (about 2 to 4 feet above the base of the Reynales). The Furnaceville is generally a fossiliferous ore with hematite-replaced brachiopods, bryozoans, crinoids, and ostracods. Oolites are also found with the replaced fossils. Thin shale breaks and layers of non-hematitic limestone also occur (Gillette, 1947). The Furnaceville serves as a distinctive "marker bed" for structural interpretation. It varies from a few inches to over a foot in thickness (14 inches thick in Genesee Gorge), but is occasionally absent.

The Reynales Limestone observed in core, outcrop and CSOAP tunnels generally consists of light to medium gray, fine to medium-grained, crystalline, thin-bedded, fossiliferous Limestone, with trace stylolites, and interbeds of dark gray, very thin, dolomitic shale. Average thickness of the Reynales Limestone in boreholes is 19 feet.

Very close, to moderately close, partings occur between beds of differing lithologies or as stylolitic seams in the limestone beds. Frequently, secondary gypsum seams occur along these partings. The shale beds of the formation are often jointed and occasionally sheared. In one borehole, a limestone bed was cut by a high angle, brecciated fault which was subsequently sealed by a secondary gypsum deposit. In addition, several shale beds are severely altered to clay, particularly below the Furnaceville Member within the bottom two to four feet of the formation.

The upper surface of the Reynales is an erosional surface that is undulating and wavy.

- Maplewood Shale

The Maplewood Shale subcrops in the extreme southern portions of KPE, KPM and KPX (Figure II-3.6). It is described from the section exposed in the Genesee gorge as a smooth, slightly calcareous, green platy shale with an abundance of phosphatic nodules at its base. The lower three feet is more calcareous, and contains the only fossils found. The Maplewood Shale is approximately 21 feet thick in the Genesee gorge.

The Maplewood Shale observed in core, outcrop and in the CSOAP tunnels generally consists of light greenish gray, argillaceous, shale. The average thickness of the Maplewood in borings is 18 to 19 feet. Virtually no variation in lithology is noticeable, except at the base of the unit where there are a few inches of darker gray, harder shale, often containing small, black, rounded phosphate nodules. The Maplewood is extremely fissile and weathers readily to a gray-green clay. Joints are abundant and occasional shears have been noted. Slickensides are usually well developed in the shears.

- Thorold Sandstone

The Thorold Sandstone subcrops in the southern portions of KPE, KPW and KPX and in the central portion of KPM (Figure II-3.6). In core, outcrop, and in the CSOAP tunnels, the Thorold generally consists of light gray to greenish gray, fine to medium-grained, nonfossiliferous sandstone, averaging 3.5 feet thick.

In the Genesee gorge, the Thorold Sandstone is more stratified with green silty shales between thicker sandstone layers and is approximately 5 feet thick. Cross-bedding and oscillation ripple marks are common, indicative of a shallow water depositional environment. Sedimentary structures observed in the outcrops also include contorted bedding caused by bioturbation.

Rarely, there is a thin to very thin zone of mottled, reddish-brown coloration in the lower third of the unit. Grain size appears nearly constant throughout and the grains are well cemented.

The Thorold Sandstone appears as a single bed with no partings evident. Joints are uncommon and the rock is usually only slightly weathered. The lower boundary of the Thorold is somewhat transitional. Color only serves to distinguish it from the underlying Grimsby Sandstone. There is usually no parting observed at this contact in rock core. In outcrop, there is usually a rough bedding plane joint marking the contact.

- Grimsby Sandstone

The Grimsby Sandstone is the primary subcropping unit in KPE, KPW and KPX and the northern portion of KPM (Figure II-3.6). It is generally a very fine-grained iron-stained sandstone with varying amounts of siltstone and shale. The Grimsby Sandstone is predominantly red with green and gray mottles and beds. Individual sandstone lenses cannot be traced between outcrops. Crossbedding, ripple marks, intraformational conglomerates and load casts are sedimentary features characteristic of the deltaic origin of the Grimsby. Bioturbation is observed, especially in the upper third of the formation, which is probably due to the activities of marine worms disturbing the original bedding leaving the rock with a unique texture. Quartz grains are generally sub-round and are cemented with silica and to a lesser extent calcite. In outcrop, the Grimsby is generally a very fine-grained sandstone.

The Grimsby Sandstone observed in core, outcrop, thin sections and in the CSOAP tunnels generally consists of reddish brown, fine to medium-grained, thin to thick-bedded sandstone. It exhibits considerable color variation and light gray mottling. The lower half of the Grimsby Sandstone is markedly coarser-grained than the upper half, and generally friable. The average thickness of the Grimsby Sandstone in core borings in the Kodak Park area is 48 feet.

Deltaic deposits such as the Grimsby typically show considerable variation in thickness. Extreme lateral variation in thickness of the Grimsby is observed in the Genesee gorge and between outcrops in the gorge and core borings in the Kodak Park area. In addition the thickness and location of shale beds within the Grimsby vary laterally, as evidences by different stratigraphic relationships of sandstone and shale beds between the outcrop in the Genesee River gorge and rock core obtained in Kodak Park. One shale bed was shown to vary in thickness by over 2 feet within 300 lateral feet (H&A, 1992e).

The Grimsby Sandstone is unconformable with the underlying Queenston Shale. The Grimsby-Queenston contact is an erosional surface which is undulating and irregular (Figure II-3.7). CSOAP tunnel mapping by H&A has documented up to 5 feet of vertical variation within 10 lateral ft. in the Dewey-Eastman tunnel leg (H&A, 1992b).

Joints of varying angles are found at partings and are reddish brown, argillaceous and closely to widely spaced. Joints exhibiting varying degrees of weathering are also observed within the sandier beds. Occasionally, secondary gypsum seams are seen in partings parallel to bedding.

- Queenston Formation

The Queenston Formation is the oldest formation subcropping in western New York. It comprises the bedrock in the northern portion of Monroe County. The Queenston Formation subcrops beneath the northern portion of KPE (Figure II-3.6).

The Queenston Formation in the Lake Ontario plain has an approximate thickness ranging from 500 to 1000 feet (Fisher, 1977). It generally consists of thin-bedded red shales, sandy shales, siltstones and fine-grained sandstones often with high shale content, that range in thickness from a few inches to a few feet thick. Greenish gray to light gray mottling and thin to very thin color-banding are observed. Some such color bands are limestone beds. The lithology of this unit varies considerably laterally and vertically. This variation is more noticeable in the Queenston than in any other formation outcropping locally. Beds rapidly pinch out or grade into different facies. Grain size varies from fine-grained sand to silt and clay-sized particles. The relatively coarser-grained sandstone beds may reach 2 to 3 feet in thickness and occur throughout the formation.

The Queenston Shale observed in core, outcrop sections, and in the CSOAP tunnels generally consists of interbedded red-brown, fine-grained, thin to thick-bedded, non-fossiliferous sandstone and red-brown shale and mudstone with variable silt and sand content.

Closely to very closely spaced, non-parallel, low angle joints with weakly striated surfaces (referred to as trace slickensides in core boring reports) occur in some of the finer-grained beds. In addition, low angle joints (and occasional shears) occur at bedding plane partings. Partings are not prominent but where present they are reddish brown, argillaceous, and closely to widely spaced. Gypsum seams are sometimes observed in the more coarsely-grained sandstone beds.

Sedimentary structures observed in rock outcrops of the greater Rochester area include ripple marks on red sandstone beds and sandy shales with super-imposed rough ridges (worm burrows), mud cracks and rain drop marks (Smith, 1938).

3.2 KODAK PARK SECTION STRATIGRAPHY

3.2.1 KPE STRATIGRAPHY

The following is a description of the overburden and bedrock stratigraphic units encountered in KPE. Geologic cross-sections of KPE are included as Figures II-3.4b,c,d and II-3.8.

3.2.1.1 KPE Overburden Stratigraphy

Bedrock in KPE is overlain by a relatively thin layer of unconsolidated materials consisting of (in decreasing depth) fill, lacustrine deposits, and glacial till. In addition, alluvium deposits were noted near the intersection of West Ridge Road and Hanford Landing Road (referred to in Part III, Section 1, as the KPRR area) and may also occur in former stream beds present within the southeast corner of KPE and north of Building 48 (Radian, 1990). An overburden isopach map illustrates the variation in the thickness of overburden deposits in KPE (Figure II-3.3). The thickness of unconsolidated deposits ranges from 2 to 31 feet with an average thickness of 18 feet.

Fill materials in KPE are typically described as variably colored but generally brown to gray, medium dense to loose, gravelly sand and trace silt with cobbles and construction debris. The deposits are locally encountered throughout KPE, and tend to thin to the south. The fill in KPE is generally less than 10 feet thick where encountered with a maximum recorded thickness of approximately 21 feet near Building 16.

An alluvium deposit was mapped during the School 41 investigation (H&A, 1989c) as a stream channel trending northwest-southeast. The deposit was described as medium to fine gravely sand. Based on the proximity of this deposit to the KPE site, it is possible that these deposits may also occur beneath KPE, however they have not been encountered in soil borings in KPE.

The lacustrine deposits in KPE generally reflect a near-shore lake environment, varying from sandy beach-like deposits to predominantly clayey deposits. The lacustrine deposits are generally described as brown to gray sand and clay (sometimes varved) with varying amounts of silt and gravel. Trace natural organic materials have also been encountered. Lacustrine deposits occur beneath most portions of KPE, and where present, overlie either the glacial till or the bedrock. The lacustrine deposits are generally less than 10 feet thick where encountered, with a maximum recorded thickness of 22 feet near the northern fence line (well SL42N).

The glacial till in KPE is typically described as dense to very dense, red-brown sandy silt to sandy gravel with varying amounts of gravel, silt, and clay. Bedrock fragments, cobbles, and boulders are also typically encountered. The bedrock beneath KPE is overlain throughout the majority of the site by glacial till. Glacial till, where present, is generally less than 10 feet in thickness, with a maximum observed thickness of 12 feet near Building 16 (well GB16N). The maximum thickness of reworked glacial till, approximately 16 feet, was observed near Parking Lot 14 (well SL14SW).

3.2.1.2 KPE Bedrock Stratigraphy

Four bedrock units subcrop beneath KPE (Figure II-3.6). These units are (from south to north): the Maplewood Shale, which subcrops south of West Ridge Road beneath the extreme southern portions of KPE; the Thorold Sandstone, which subcrops in the southern areas of KPE, just north of the Maplewood subcrop area; the Grimsby

Sandstone, which is the primary subcropping unit in KPE; and the Queenston formation, which subcrops beneath the northern portion of KPE.

The Maplewood Shale has been encountered in borings at an average thickness of 20 feet. The Thorold Sandstone immediately and conformably overlies the Grimsby Sandstone and is less than 3 feet thick where penetrated in KPE. The maximum recorded thickness of 3 feet occurs near the KPRR area (boring G1ES).

The top of the Grimsby Sandstone was encountered at depths in KPE ranging from 2 to 30 feet. The unit varies in thickness across KPE with a maximum of 51 feet near the KPRR area (boring GQL15S). The thickness of the Grimsby generally decreases to the north until the Grimsby-Queenston contact subcrops in northern KPE (Figure II-3.6).

The top of the Queenston Shale was encountered at depths ranging from 11 feet to 50 feet. In KPE the Queenston Shale dips to the southeast at an approximate rate of 53 feet per mile. The complete thickness of the Queenston Shale has not been penetrated by borings in KPE. The maximum depth of exploration is 71 feet below grade, or approximately 37 feet below the top of the unit.

3.2.2 KPW STRATIGRAPHY

The following is a description of the overburden and bedrock stratigraphic units encountered in KPW. Geologic cross-sections of KPW are included as Figures II-3.4b,c,e.

3.2.2.1 KPW Overburden Stratigraphy

Bedrock in KPW is overlain by a relatively thin layer of unconsolidated deposits consisting of (in descending order) fill, lacustrine deposits, and glacial till. An overburden isopach map illustrates the variation in the thickness of unconsolidated deposits in KPW. The overburden ranges in thickness from 6 to 24 feet with an average thickness of 15 feet (Figure II-3.3).

Fill materials in KPW typically consist of brown, black or gray sand, gravel, silt, and/or clay with varying amounts of cinders, asphalt and construction debris. Fill is the first overburden unit encountered at most locations in KPW. The fill is generally less than 15 feet thick within KPW and thins appreciably toward the Rand Street neighborhood. The maximum recorded thickness of approximately 22 feet occurs near Building 114 (boring B114SW2) and is due to the excavation associated with the industrial sewer. The average thickness of fill is approximately 8 feet.

Lacustrine deposits in KPW typically consist of brown, black, or tan sand, some clayey silt, and trace gravel, with occasional organic matter. These deposits are sometimes laminated. In KPW, the lacustrine deposits generally occur in two roughly linear, east-west bands in the central and northern areas. The linear bands are interpreted to have been formed along the shoreline of glacial Lake Dawson. The lacustrine deposits overlie glacial till and are generally less than 8 feet thick where encountered in KPW. The maximum recorded thickness of lacustrine deposits (12 feet) occurs near Building 143 (boring B143SW) in the northwestern portion of KPW. The average thickness of lacustrine deposits in KPW is approximately 5 feet.

The glacial till in KPW is typically described as reddish-brown, brown, or gray clayey silt, some gravel, little to some sand. In general, the glacial till immediately overlies the bedrock and is less than seven feet thick. The maximum recorded thickness of 19 feet occurs off site at boring location SWS located on Rand Street. The average thickness in KPW is 4 feet.

Many of the soil borings in which soil sampling extended to the top of rock encountered an unconsolidated residual soil horizon lying directly above, and apparently grading into the consolidated bedrock. The residual soil represents bedrock that has undergone in-place disintegration and decomposition. It is typically described as light to dark red-brown, occasionally light greenish-gray gravel (sandstone fragments) and sand, with some to little clayey silt. The residual soil, where it is present, varies in thickness from 0.1 feet to a maximum of 5.3 feet near Building 117 (boring B117NE), and is typically on the order of 1.5 feet thick.

3.2.2.2 KPW Bedrock Stratigraphy

Three bedrock units subcrop beneath KPW (Figure II-3.6). These units are (from south to north): the Maplewood Shale, which subcrops just south of KPW; the Thorold Sandstone, which subcrops in southern KPW, just north of the Maplewood Shale; and the Grimsby Sandstone, which is the primary subcropping unit in KPW. In addition, the Queenston Formation, encountered in deeper exploration in KPW, is located below the Grimsby Sandstone throughout the region.

The Maplewood Shale adjacent to KPW averages 20 feet in thickness. The top of the Maplewood Shale generally weathers to clay.

The Thorold Sandstone conformably overlies the Grimsby Sandstone and is generally less than two feet thick where penetrated in KPW (see Figure II-3.4e). The maximum recorded thickness, approximately 6 feet, occurs near Building D20 (boring BD20W3). Often there is no parting at the lower contact, and only a color difference distinguishes it from the underlying Grimsby. The top of rock surface of the Thorold Sandstone is generally competent and resistant to weathering.

The Grimsby Sandstone varies in thickness across KPW from approximately 40 feet in the northern portion of KPW to over 50 feet south of KPW, due to the regional dip and erosion of its upper surface. The average "in-place" thickness in the KPW area is about 48 feet.

Within Study Area No. 1, the Queenston Shale has been penetrated by 47 wells or borings of which 41 are located within KPW. The top of the Queenston was encountered at depths ranging from 55 to 68 feet below ground surface. The complete thickness of the Queenston Shale has not been penetrated by borings in KPW. The maximum depth of exploration is 120 feet below grade, or approximately 60 feet below the top of the Queenston Shale.

3.2.3 KPX STRATIGRAPHY

The following is a description of the overburden and bedrock stratigraphic units encountered in KPX. Geologic cross-sections of KPX are included in Figures II-3.4b,c, II-3.9a,b, and II-3.10a,b,c.

3.2.3.1 KPX Overburden Stratigraphy

Bedrock in KPX is overlain by a relatively thin layer of unconsolidated deposits consisting of (in decreasing depth) fill, lacustrine deposits and glacial till. In addition, outwash deposits have been encountered along the KPX south fence line. The thickness of unconsolidated deposits in KPX ranges from 12 to 25 feet and averages 20 feet (Figure II-3.3). The thickness of unconsolidated deposits generally decreases from the southwest to the northeast.

Fill materials in KPX typically consist of gray to brown sand, silt and/or gravel with minor components of debris. The deposits are the upper-most material encountered and are located above the lacustrine deposits at most locations in KPX. The thickness of fill in KPX is generally less than 5 feet, with a maximum thickness of 11 feet observed along the southern KPX fence line (well GB216W).

Outwash deposits have been encountered along the KPX south fence line near Building 216 (borings GB216W and SB216E). These coarse sand and gravel deposits may be the result of stream erosion and subsequent deposition in post-glacial channels. The outwash deposits at these locations ranges from 3 to 6 feet in thickness.

Lacustrine deposits in KPX are typically described as fine sand and silt with trace gravel. Relatively coarse-grained lacustrine deposits, consisting primarily of sand and gravel, are also observed immediately above the top of till and top of rock at some locations. These coarser grain deposits may represent deposition in an area of relatively high near-shore wave energy, and are similar to the reworked glacial till deposits described in other areas of Kodak Park. Lacustrine deposits, where encountered in

KPX, are generally less than 15 feet thick, reaching a maximum of 18 feet in eastern KPX (well SB218W3).

The glacial till encountered in KPX consists of dense to very dense red-brown sand and silt with varying amounts of clay and gravel. Typically, the till directly overlies bedrock and is generally less than 5 feet thick. Glacial till is generally absent in the vicinity of Building 206 and along the KPX southeastern boundary. In these areas, lacustrine deposits directly overlie the bedrock. In general, till deposits thin to approximately one foot in northern KPX.

3.2.3.1 KPX Bedrock Stratigraphy

KPX is underlain by three parallel subcropping bedrock units (Figure II-3.6). These units are (from south to north): the Maplewood Shale, which subcrops along the southern fence line; the Thorold Sandstone which subcrops under the escarpment in southern KPX; and the Grimsby Sandstone which is the primary subcropping unit in KPX. In addition, the Queenston Formation, which is located below the Grimsby Sandstone throughout the region, has been encountered in deeper subsurface explorations conducted in northeastern KPX.

The Maplewood Shale was encountered in the base of two overburden boreholes located along the south fence line (SB216E and SB203S). It is also visible in outcrop along the southern fence line of KPX.

The Thorold Sandstone, which is restricted to the southern portion of KPX along the escarpment, immediately and conformably overlies the Grimsby Sandstone. The Thorold was encountered in one test boring in KPX (GB207E) at a thickness of 1.5 feet.

The top of the Grimsby Sandstone was encountered at depths (below ground surface) ranging from 16 feet to 25 feet. The Grimsby averages approximately 50 feet thick in KPX.

The Grimsby Sandstone immediately and unconformably overlies the Queenston Shale. Deeper bedrock explorations in northeast KPX have extended a maximum of 15 feet into the Queenston formation. The depth of the Grimsby-Queenston contact in the northeast KPX area ranges from 56 feet to 61 feet.

3.2.4 KPM STRATIGRAPHY

The following is a description of the overburden and bedrock stratigraphic units encountered in KPM. Geologic cross-sections of KPM are included as Figures II-3.4b,c,f and II-3.11.

3.2.4.1 KPM Overburden Stratigraphy

Bedrock in KPM is overlain by unconsolidated materials consisting of (in decreasing depth) fill, alluvium, lacustrine deposits, re-worked glacial till, and glacial till. An overburden isopach map depicts the variable thickness of overburden deposits in KPM, which range from 3 to 92 feet (Figure II-3.3). The average thickness of unconsolidated deposits in KPM is 25 feet.

Fill materials in KPM (excluding the Weiland Road Landfill [WRL]) commonly consist of variably colored fine sand with some silt and/or gravel, occasionally with minor component of wood, brick material, cinders, slag, or glass. The thickness of fill in and around KPM varies from not present along the central portion of the north KPM fence line to approximately 24 feet along the eastern fence line of KPM (wells SB308N and SB308N2). Sixteen feet of fill were observed at the B329SE2 cluster, corresponding to the location of a former sand and gravel quarry site.

In the WRL area, fill commonly consists of rubble containing steel, concrete, cinders, flyash and other unidentified materials. The maximum thickness of fill (in excess of 60 feet) exists in the western portion of the active landfill, in the vicinity of wells WRC1 and M-1.

Alluvium encountered in KPM consists of loose, light gray to dark brown, gravely, medium to fine sand with trace natural organic material. An alluvial deposit, 2 feet in thickness, was encountered along the south side of KPM (H&A, 1992c). This deposit may have been associated with a stream which flowed through the central portion of the WRL prior to landfilling.

The lacustrine materials encountered in KPM are generally described as red-brown fine sand with some silt and trace gravel. However, brown, dark-brown, gray-brown, tan, and red-gray colors also were observed. An approximately 15-foot thick deposit of clay was observed in a local depression in the till surface in southeastern KPM (B312NW cluster), suggesting deposition in a low-energy lake environment. Along a section of the north KPM fence line where the overburden thins to approximately 3 feet, the lacustrine deposits consist almost exclusively of fine to medium sand, possibly representing beach deposits. Lacustrine deposits are present north of the ridge, and range in thickness from not present to approximately 40 feet in the WRL area, but are generally less than 8 feet thick where encountered.

In some areas sands and gravels overlie the bedrock or glacial till to a depth of a few feet. This material is referred to as re-worked glacial till and is caused by wave action from the glacial lake which re-worked the glacial till, winnowing out the fine grained material.

The glacial till encountered in KPM consists of red-brown or gray-brown, fine sand and silt, with gravel, cobbles and boulders also encountered. Glacial till generally directly overlies bedrock. The thickness of till in and around KPM varies between not present and approximately 55.5 feet near the southwest corner of the landfill (boring WRSW). The greatest till thickness is generally encountered along Weiland Road, south of Building 326. Isolated mounds of till are evident in the Vista Drive area northwest of KPM and in the Building 301-304 area, where till thicknesses up to approximately 22 and 17 feet, respectively, were encountered. An east-west oriented belt of till up to 20 feet thick extends from the KPM east fence line (near Building 308) westward to Building 322. The till apparently is absent in north-central KPM and in the southeastern-most KPM (east of Building 307).

3.2.4.2 KPM Bedrock Stratigraphy

KPM is underlain by eight subcropping bedrock units (Figure II-3.6). Of these, the six youngest units subcrop along the escarpment in southern KPM and consist of, from top (youngest) to bottom (oldest) the Rochester Shale, Irondequoit Limestone, Williamson Shale, Lower Sodus Shale, Reynales Limestone, and Maplewood Shale. Where shale is the subcropping unit, the bedrock surface is typically highly weathered. The more resistant Thorold Sandstone subcrops north of the ridge and the Grimsby

Sandstone, the oldest subcropping unit in KPM, subcrops under the entire northern portion of KPM. In addition, the Queenston Formation, which is located below the Grimsby throughout the region, has been encountered in deeper subsurface investigations conducted in KPM (Figure II-3.11).

The Thorold Sandstone marks the base of the bedrock slope and subcrops throughout much of southeastern KPM. When present, it measures approximately 3 feet in thickness.

The Grimsby Sandstone has been encountered in KPM at depths ranging from 3 feet below grade at the north fence line, to over 90 feet below grade in Weiland Road Landfill. The Grimsby Sandstone averages approximately 50 feet thick in KPM.

The Queenston Shale underlies the Grimsby Sandstone throughout KPM. It has been encountered in KPM at depths ranging from 35 to 154 feet below grade. The contact between the Grimsby and Queenston is an unconformable erosion surface which is undulating and irregular. Core samples obtained during installation of KPM monitoring wells indicate sporadic, moderate fracture density near the Grimsby-Queenston contact.

3.2.5 KPS STRATIGRAPHY

The following is a description of the overburden and bedrock stratigraphic units encountered in KPS. A geologic cross-section of KPS is included as Figure II-3.4d.

3.2.5.1 KPS Overburden Stratigraphy

Bedrock in KPS is overlain by a relatively thin layer of unconsolidated deposits consisting primarily of fill and glacial till. Lacustrine deposits have also been encountered in the Building 605 area. The thickness of these deposits varies from not present to 16 feet, with an average of 10 feet (Figure II-3.3). Overburden thickness generally increases to the east.

Fill materials in KPS are typically described as variably colored sand, silt and/or clay with occasional fragments of crushed stone, cinders and/or slag. The deposits are generally less than three feet thick where encountered in KPS and tend to thin to the south.

Lacustrine deposits consisting of sand and/or silt with trace clay have been encountered in the Building 605 area. These deposits, where encountered, are approximately 7 feet thick and located directly above the bedrock.

Typical glacial till encountered in KPS consists of light brown to gray or light green, very dense to medium dense fine sandy silt, with trace amounts of gravel, boulders, rock fragments and/or clay. The bedrock beneath KPS is overlain throughout the majority of the site by glacial till. The till is generally less than 8 feet thick where penetrated in KPS, with a maximum thickness of 10 feet near the KPS Coal Pile (well RCPE5).

3.2.5.2 KPS Bedrock Stratigraphy

Overburden in KPS is underlain by the upper portion of the Rochester Shale, which is severely to completely weathered (Figure II-3.6). Boring data indicate that this weathered bedrock has a typical thickness of approximately six feet. Competent bedrock is typically encountered at depths of from 1.2 to 1.6 feet. In core the Rochester Shale below this highly weathered zone is described as light to dark gray, fine grained dolomitic mudstone. Intersecting vertical joints and high angle, smooth, planar joints and argillaceous (clay) partings are also typically present.

The Lockport Dolomite is the upper rock unit in areas south of KPS. The top of rock transition from Lockport Dolomite to Rochester Shale generally occurs parallel to Lexington Avenue.

3.2.6 KPT STRATIGRAPHY

The following is a description of the overburden and bedrock stratigraphic units encountered in KPT.

3.2.6.1 KPT Overburden Stratigraphy

Bedrock in KPT is overlain by a relatively thin layer of unconsolidated deposits (Figure II-3.3) consisting primarily of glacial till, with minor amounts of lacustrine and fill deposits. The thickness of these deposits varies from 7 feet to approximately 19 feet.

Typical glacial till encountered in KPT consists of light brown to gray or light green, very dense to medium dense fine sandy silt, with trace amounts of gravel, boulders, rock fragments and/or clay. The bedrock beneath KPT is overlain throughout the majority of the site by glacial till.

Lacustrine deposits consisting of brown or gray silty clay, with interbedded silt and fine sand overlie the till in some portions of KPT, and are generally less than 3 feet thick where encountered.

Fill deposits are generally less than one foot thick where encountered in KPT.

3.2.6.2 KPT Bedrock Stratigraphy

KPT is underlain by two subcropping/outcropping bedrock units (Figure II-3.4; II-3.6). The Rochester Shale subcrops beneath most of KPT and the Lockport Dolostone crops out in the extreme southeastern corner of KPT.

The relief on the top of bedrock surface is variable, the result of glacial erosion and weathering. A prominent bedrock high is present in the southeastern corner of KPT. The bedrock surface gently slopes away from the high to the north and northwest. No data are available to define the bedrock surface topography in northern KPT.

3.3 KODAK PARK GEOLOGIC STRUCTURE

Structural features of geologic materials, such as the inclination of bedding, faults, folds and fractures, can have a large affect on the mechanisms of groundwater flow and the direction and rate of migration of dissolved and dense non-aqueous phase liquid (DNAPL) contaminants. The structure of geologic materials, primarily bedrock formations, in the Kodak Park area is discussed in general detail in Section 3.3.1. Additional details for each of the major sections of Kodak Park are discussed in Section 3.3.2.

3.3.1 REGIONAL GEOLOGIC STRUCTURE

Bedrock formations in the Kodak Park area are generally flat-lying, strike approximately N75°E, and dip gently to the south at approximately 50-80 feet per mile (1-2 degrees). This condition is reflected in the subcrop pattern of the bedrock units, where the formational contacts are predominantly parallel and east-west trending (Figure II-3.6). The Rochester Shale subcrops to the south in the KPS and KPT area, while the Grimsby Sandstone predominates as the subcropping unit beneath the remainder of the Park.

The bedrock beneath Kodak Park has an irregular erosional surface that generally dips to the north and east. A contour map depicting the surface elevation of the bedrock beneath Kodak Park is presented on Figure II-3.12. A bedrock escarpment is present in southern KPM (along the southern side of Weiland Road Landfill) and southern KPX.

The Rochester Shale forms the top of the escarpment, while the Maplewood Shale and Thorold Sandstone are exposed at the base (Figures II-3.4f and II-3.11b,c).

A bedrock escarpment with approximately 15 feet of relief occurs along the northern KPM fence line. The north-facing, east-west trending slope likely resulted from shoreline erosion of the Grimsby Sandstone by glacial Lake Iroquois. Low but prominent "mounds" of bedrock are found in western KPM. Just south of these "mounds" the bedrock is noticeably lower in elevation. This may be an indication of folding or faulting in this area (H&A, 1992e).

The central portions of KPW and KPX are dominated by broad relatively flat lying bedrock "plateaus" (Figure II-3.12). These areas are underlain by the Grimsby Sandstone which is comprised of relatively flat-lying beds that are somewhat resistant to erosion.

A north-facing bedrock slope occurs along Eastman Avenue beneath KPE which may reflect an offset in the bedrock along a known faulted zone (Figure II-3.8). Erosion action in this area by the Lake Iroquois shoreline may have enhanced the escarpment.

The regional bedrock structure in the Kodak Park area consists of a broad monocline which dips gently (one to two degrees) south-southeast. The only major, large scale structural feature in the region is the Clarendon-Linden fault system which extends north-south from Lake Ontario (approximately 20 miles west of Kodak Park) to Allegheny County (H&A, 1990b).

During the CSOAP investigations, stratigraphic correlation of rock core, using the Furnaceville Hematite as a datum, identified zones of bedrock dip anomalous to the overall regional dip of approximately 50 feet per mile to the southeast. These areas were interpreted as zones of structural deformation associated with faults in the Rochester area. Two such zones were interpreted as extending across Kodak Park (Figure II-3.1).

A regional bedrock joint set, consisting of nearly vertical orthogonal fractures, is considered to be the result of northwest trending compressive stresses during the late Paleozoic Appalachian deformation (Wallach and Prucka, 1979). These compressive stresses have led to joint sets that tend to trend southeast. Numerous other joint sets have been identified in the Rochester area. In general, north/south and northwest/southeast orientations dominate the Dewey-Eastman and Tiger-Carlisle legs of the CSOAP tunnel, which are located in the vicinity of KPE, KPW, and KPX (Figure II-3.13a,b,c; H&A, 1990b).

Dames & Moore (1976), through the use of seismic data, identified a fault in northeastern KPE, trending northwest-southeast under Buildings 50, 52, 53, 57, and 62. The buried fault scarp (Figure II-3.14) shows an apparent relief of 6 to 14 feet and apparently correlates with faults observed in CSOAP tunnels to the north and east.

Lateral irregularities in the Thorold-Grimsby contact occur in southern KPW and KPM. The structural anomalies may be indicative of the effects of faulting in the bedrock. The apparent structural anomaly in the Thorold-Grimsby contact in the vicinity of Building M32 in KPM (north of Weiland Road Landfill), may be associated with faults identified in the Parking Lot 73 area. Slickensided shears have also been detected in core borings in this area (BM32N and L73S2) (H&A, 1992c).

Geosphere Midwest (1991) performed a seismic study in KPM consisting of approximately 4,200 feet of survey along four east-west lines. The seismic study was performed to provide information on an observed displacement of the Grimsby/Queenston contact at the B329SE2 location. The results of this investigation indicated the possible presence of several faulted/fractured zones with possible vertical offset along each of the profile lines.

The structural geology of the KPX, KPS or KPT area has not been evaluated to date. Aerial photographs, however, have indicated the presence of a northwest-southeast trending joint set in KPT (H&A, 1988a), which is consistent with regional joint patterns.

3.3.2 KODAK PARK SECTION GEOLOGIC STRUCTURE

3.3.2.1 KPE Geologic Structure

The elevation of the bedrock surface in KPE is variable, the result of glacial erosion and weathering (Figure II-3.14). A prominent ten to twenty foot vertical relief linear escarpment in the bedrock surface trends west-northwest from the vicinity of the intersection of Hanford Landing Road and Lake Avenue to the northeast corner of Building 53, extending on under Eastman Avenue and Parking Lot 42. A second sharp linear escarpment trends westward from the southwestern corner Building 53 towards Dewey Avenue. The bedrock surface escarpment which extends from Handford Landing Road west-northwest to Parking Lot 42 coincides very closely with the trend of a fault zone which was intersected in the Dewey-Eastman leg of the CSOAP tunnel north of the northwestern corner of Building 53. This fault was represented by a zone of very highly fractured rock exposed for one hundred fifty feet along the tunnel bore. Fractured and weathered bedrock was encountered along the escarpment at the northeast corner of Building 55 in a test boring (H&A, 1989b) and at the east end of Building 53 in an excavation for a building foundation. The fault structure extends vertically through the Grimsby Sandstone into the Queenston Shale. The fault structure and bedrock escarpment appear to occur at the northern side of what has been described in previous investigations as a zone of structural deformation (H&A, 1990b).

3.3.2.2 KPW Geologic Structure

The bedrock surface in KPW is variable, the result of glacial erosion and weathering. The top of rock surface dips gently to the north-northeast (Figure II-3.12). Geologic structures, such as faults, are not expressed in bedrock surface in KPW. However, a depression in the top of rock surface is present at the eastern end of Parking lot 50. The depression may be associated with structural deformations observed in CSOAP tunnels in the vicinity (H&A, 1989c).

Several faults were observed during mining of the CSOAP tunnel, which is located along the western, northern and eastern perimeter of KPW (Figure II-3.1). Directly west of KPW, a fault was encountered in the Tiger-Carlisle portion of the CSOAP tunnel, west of Building 129 (immediately west of the western KPW border). An additional fault was noted during mining of the Dewey-Eastman portion of the CSOAP tunnel, north of the intersection of Dewey Avenue and Rand Street (southeastern corner of KPW). Other direct evidence of faulting was detected in the Building 120 area during a subsurface exploration program associated with the Kodak Storage Tank Improvement Program (STIP).

Structural deformation in the southern KPW area is also evidenced by an offset of the Thorold/Grimsby contact in the vicinity of well cluster locations L50SW2 and L50S2 (H&A, 1989c). Due to the conformable nature of the contact, the deviation from the normal strike is most likely indicative of structural deformation.

3.3.2.3 KPX Geologic Structure

The topography of the bedrock surface in KPX has a relief of 10 feet, and generally decreases north to south. A broad, low relief trough is present in northeastern KPX, with elevations decreasing from west to east (Figure II-3.15).

Data pertaining to bedrock structure are available from deep bedrock tunnels constructed during the Tiger-Carlisle leg of the CSOAP tunnel (Figure II-3.1). In northeastern KPX, the CSOAP tunnel was constructed entirely in the Queenston Shale. The information described on the CSOAP tunnel logs indicates a competent rock formation, except for two locations where extensive faulting was evident. These areas of faulting occur east of Building 208 and northeast of Building 206. The fault zones were described as highly weathered, wet normal faults with strikes of N75°W, dip of 50-80°NE, and vertical displacement from 0.5 to 0.7 feet.

3.3.2.4 KPM Geologic Structure

The topography of the bedrock surface in KPM is variable, the result of glacial erosion and weathering (Figure II-3.12). A prominent, east-west trending linear escarpment is visible in the bedrock surface across the entire area of southern KPM.

This escarpment exhibits approximately 70 feet of relief. The elevation of the top of rock surface in KPM ranges from approximately 200 feet (KPD) north of the north fence line to approximately 290 feet in the southeast corner of KPM along Ridgeway Avenue. The bedrock surface slopes steeply toward the north in the immediate vicinity of the ridge, with a gradual decrease in slope northward.

Four seismic reflection and refraction transects performed in KPM provided additional site-specific structural data for the underlying bedrock (Geosphere Midwest, 1991). Based on these east-west oriented transects, totaling approximately 4,200 feet of survey, twenty faults were interpreted. On the seismic profiles, the interpreted faults appear to dip between approximately 55° and 80°, with seven faults dipping to the east and 13 to the west. A strong seismic reflector, interpreted as the Grimsby-Queenston contact, apparently is offset by as much as twenty feet along interpreted faults. Note that the faults are interpreted based on the seismic reflections in the Queenston Shale and older formations. These faults likely extend into the Grimsby Sandstone, but the seismic data is not adequate in the younger strata to discern the faults.

3.3.2.5 KPS Geologic Structure

The bedrock surface in KPS consists of several small localized bedrock highs and depressions, with a general north-northeastern sloping surface (Figure II-3.12).

Aerial photography of the KPS coal pile (TRC, 1983a) indicates a fracture trace just northwest of the pile (Building 511 area) with a trend of N20°W. This trend corresponds with general fracture trends across Kodak Park.

3.3.2.6 KPT Geologic Structure

No data are currently available on geologic structures in KPT.

4.0

SECTION 4.0

KODAK PARK SURFACE WATER

All stream flow in Monroe County discharges into Lake Ontario. An area of approximately 295,000 square miles drains to the lake, which is 7,540 square miles, 190 miles long and 50 miles wide with a maximum depth of 778 feet (Grossman and Yarger, 1953). This large supply of water moderates the local climate and ensures a long-term supply of fresh water for the region.

The Genesee River is the largest river in the Rochester area. Other streams in the region include the New York State Barge Canal, Paddy Hill Creek, Round Pond Creek, Irondequoit Creek, Black Creek and Oatka Creek. During periods of dry weather, flow within these streams consists almost entirely of groundwater discharge except in areas where water treatment or industry discharge contribute to flow. Lakes Honeoye, Canadice, and Hemlock act as natural reservoirs to aid in maintaining the Genesee's flow even during prolonged dry periods.

The major streams which border Kodak Park include the Genesee River and the New York State Barge Canal (Figure I-1.1). The Genesee drains a 2,479 square mile area over a 157 mile long channel from northern Pennsylvania to Lake Ontario. Flow in the Rochester area is controlled by a dam in Mt. Morris, New York, various substations of Rochester Gas and Electric, and the New York State Barge Canal which crosses the Genesee 11.4 miles south of Lake Ontario. Mean annual discharge from 1905-1983 was 2,794 cubic feet per second (cfs) at the U.S. Geological Survey gaging station at Driving Park Bridge in Rochester.

The New York State Barge Canal extends from Lake Erie, through western New York (including Monroe County) to the Hudson River. Within central Monroe County the Barge Canal flows through a blasted bedrock channel and borders Kodak Park along the southwestern border of KPT (Figure I-1.1). Water levels within the Barge Canal are controlled by the New York State Department of Transportation. During the winter, when the canal is not used for transportation, the water level is lowered by as much as 20 feet.

The development of Kodak Park has essentially obliterated the former natural surface water regime. Nearly all surface runoff from KPE, KPW, portions of KPX, and KPM is captured by combined storm and industrial sewers and transmitted to the King's Landing Wastewater Purification Plant on the Genesee River.

In KPX, nearly all surface water runoff is captured by storm sewers and transmitted to the Merrill Street storm sewer outfall (Genesee River). An exception to this is surface water from southeastern KPX where runoff flows into the industrial sewer via drains present in a railroad cut located in that area. Surface water runoff from eastern KPS generally flows into a storm water detention area located east of Building 605, where it is then diverted to a combination storm/sanitary sewer system located along Mt. Read Blvd. This system discharges to the Van Lare publicly-owned treatment works (POTW). Surface water from western KPS is captured by a storm water sewer system located on Latona Road which discharges to Paddy Hill Creek.

The remaining "natural" streams which receive water from Kodak Park include Paddy Hill Creek, whose present headwaters lie west of KPM (Figure I-1.1) and a tributary to Round Pond Creek which flows from a wetland area in northern KPT (Figure I-1.1). Both Paddy Hill Creek and Round Pond Creek flow northward and discharge directly to Lake Ontario.

5.0

SECTION 5.0

KODAK PARK GROUNDWATER

This section discusses the occurrence and flow of groundwater in unconsolidated and bedrock formations beneath the Kodak Park area. An introduction to groundwater occurrence and usage in the Kodak Park area is provided in Section 5.1. A framework for understanding the flow of groundwater (a conceptual groundwater flow model) in Kodak Park is presented in Section 5.2. The hydraulic properties of each of the major flow zones, and a discussion of the direction and rate of groundwater migration in each park section is presented in Sections 5.3, 5.4 and 5.5.

5.1 INTRODUCTION

Groundwater is present in unconsolidated deposits (overburden) and all bedrock formations beneath Kodak Park. Groundwater in the overburden flows through primary pore spaces. The type of overburden deposit (e.g. grain size, sorting, and deposit geometry) affects the direction and rate of groundwater movement. Coarser grained deposits, such as alluvial sand and re-worked till, generally transmit larger volumes of water than fine-grained lacustrine silts and clay till. Fill deposits, because of their varied origin and composition, may transmit large or small volumes of groundwater.

Groundwater flow in bedrock occurs through primary structures such as bedding planes, as well as secondary porosity features such as joints, faults and fractures. The relative importance of primary or secondary features in transmitting groundwater depends on the lithology and diagenetic, structural and weathering history of the formation. Bedrock lithology, as well as regional fracture systems, local structures, and weathering processes affect the rate and direction of groundwater flow. At Kodak Park, observations of many hundreds of feet of rock core, as well as direct observation of rock outcrops in the Genesee River gorge, indicate that groundwater flows principally through joints and fractures in bedrock. In highly fractured portions of the bedrock the volume and rate of groundwater flow may be relatively large. In contrast, less fractured intervals of the stratigraphic column tend to act as barriers to groundwater flow.

Faults may act both as flow barriers or conduits for the flow of groundwater. In the Kodak Park area, several faults have been observed in the CSOAP tunnel system (see Part II, Section 3.3). Where the faults are filled with gouge and finer grained materials, they do not appear to transmit groundwater (as in the fault noted in central KPE). Other faults have been observed to transmit relatively large volumes of groundwater (H&A, 1987a). Faults may also serve to connect fractures from different flow horizons in the bedrock, and as such they may act as conduits for vertical groundwater migration across an aquitard.

Weathering processes have had a pronounced effect on the ability of bedrock formations beneath Kodak Park to transmit water. The upper portion of bedrock formations beneath Kodak Park have been subjected to intense physical and chemical weathering processes associated with relatively recent glacial activity. As a result, the primary and secondary porosity of the upper part of the bedrock have been greatly increased. In addition, weathering and groundwater circulation have continued to enhance the porosity of these bedrock features. The enhanced porosity and permeability of the upper bedrock formations (referred to hereafter as the top of rock, or TOR) has generally created a highly transmissive flow zone in the top 15 to 20 feet of subcropping bedrock across Kodak Park.

In the Kodak Park area, overburden and bedrock wells do not yield sufficient high-quality potable water for large-scale supply of water. Accordingly, water supply wells are not present in the Kodak Park area. Water supply aquifers are located to the east and south of Kodak Park. The largest of these aquifers occupies a buried valley formed by the pre-glacial Genesee River. Located beneath the Irondequoit Creek and Irondequoit Bay drainage area, this aquifer is frequently referred to as the Irondogenesee Valley Aquifer. It provides the municipal water supplies of East Rochester, Pittsford, Webster and approximately 1,000 additional private wells. The aquifer is characterized by a complex system of unconfined water table aquifers and deeper aquifers producing well yields of several hundred gallons-per-minute (Waller, 1982). Several smaller aquifers are located south of Kodak Park. These are generally unconfined and many are recharged by surface water sources. The yield of water from wells in these deposits range from less than 10 gallons-per-minute to more than 100 gallons-per-minute (Miller, 1988).

5.2 CONCEPTUAL MODEL OF GROUNDWATER FLOW AT KODAK PARK

Many hydrogeologic investigations have been completed at Kodak Park, beginning with an investigation of the Weiland Road Landfill leachate collection system (Dames and Moore, 1978) and continuing to the present with investigations in each of the major sections of Kodak Park (Table II-3.1). These investigations have provided data on soil and rock permeability, fracture occurrence and density, groundwater occurrence, groundwater elevation, and the direction of groundwater flow in specific hydrogeologic intervals. A detailed discussion of these data is beyond the scope of this document, but is provided in the "Kodak Park Hydrogeologic Site Review" series of reports (Eckenfelder, 1990b-e) and in the "Kodak Park Hydrogeologic Summary Report" (H&A, 1992e).

As of August, 1, 1993, 815 monitor and pumping wells have been installed in Kodak Park and surrounding areas, of which 630 are currently active wells (Figure II-5.1a-g) and 185 are abandoned or inactive (Figure II-5.1a-g). Of the active wells, 293 are screened across unconsolidated deposits (overburden) and 337 are screened in various intervals within the bedrock formations. Table II-5.1 summarizes the materials and method of construction, the monitoring interval elevations, and the date of installation of each monitor well installed by Kodak.

A synthesis of geologic and hydrogeologic data collected during 14 years of investigations is presented below. The synthesis is presented in terms of a conceptual model of groundwater flow at Kodak Park. Specifically, the model delineates the principal water bearing horizons in Kodak Park and discusses the interrelationship of groundwater flow within and between the horizons. It also provides a framework for discussing the boundary conditions governing the rate and direction of groundwater flow in each horizon, such as regional and local recharge and discharge areas. The conceptual model developed here is a qualitative model which is meant to serve as a basis for more rigorous quantitative models of the site.

Several numerical simulation models have been constructed for selected areas of Kodak Park (Table II-3.1). A recently completed model of the KPW park section (S.S. Papadopulos & Associates, 1992) has integrated the components of the conceptual model of Kodak Park and has lead to a more thorough understanding of the groundwater system beneath much of Kodak Park. Presently, Kodak is preparing a numerical simulation model of the regional groundwater flow system surrounding Kodak Park. This model is expected to be completed in December, 1993.

5.2.1 GROUNDWATER FLOW ZONES

Throughout the 1980's, hydrogeologic investigations in Kodak Park determined that groundwater was present at shallow depth (5 to 15 feet below grade) in unconsolidated fills and natural soils, and in the major bedrock formations subcropping beneath the Park. Initially, the overburden and shallow bedrock formations were considered as separate horizons, or zones, of groundwater flow. The overburden, because of the variety of deposits, it's unconsolidated nature, and the presence of unsaturated zones was considered a coherent flow horizon. The bedrock, particularly the shallow portions of the Grimsby Sandstone, was considered as a separate flow system characterized by a fractured matrix with a relatively variable permeability. Groundwater elevation, or hydraulic head, in the bedrock formation was determined to be lower than that in the overburden, so that a vertical component of flow was present between the two units.

As investigations proceeded deeper into the bedrock formations beneath the site, monitoring intervals were selected on an arbitrary, three-zoned basis: (1) zone G1 was considered to be the top 10 feet of the Grimsby Sandstone, (2) zone G2 was considered to be located 20 to 30 feet below the top of the Grimsby, and (3) zone G3 was located 30 to 40 feet below the top of the Grimsby. This bedrock monitoring scheme proved adequate for chemical monitoring purposes, but failed to provide consistent trends in hydraulic heads across park sections in the lower two (G2 & G3) monitoring intervals. Although hydraulic heads generally decreased with depth within the bedrock, the relationship of head within an individual cluster of wells could be unpredictable.

The non-uniformity in hydraulic heads within the Grimsby Sandstone was initially hypothesized to be the result of monitoring intervals intersecting randomly located fractures within the bedrock. According to this hypothesis, the head in one fracture might not be similar to that of a nearby, but un-connected fracture. In 1989, a review of hydrogeologic investigations in KPW conducted by AWARE, Inc. (later Eckenfelder, Inc.) suggested that zones of consistent hydraulic heads and relatively higher permeability were present. By packer testing discrete intervals of bedrock (constant head, borehole injection tests), AWARE, Inc. and H&A of New York were able to select monitoring intervals from test sections in which higher permeability was measured. Moreover, the higher permeability zones in the bedrock were correlated with increased fracture density noted in core samples from the selected interval (Eckenfelder, 1991b).

The hydraulic heads from wells constructed across the higher permeability portions of the Grimsby Sandstone were found to be consistent with other wells constructed in the same interval of high-permeability (Figure II-5.2). A program of retrofitting older G2 and G3 monitor wells based on packer-test-determined flow zones was initiated in 1989. After retrofitting, the existing wells were found to provide consistent and interpretable water levels.

As the technique of packer testing boreholes to determine "flow zones" was applied to other investigations across Kodak Park, a regular pattern of units was established for most areas of the site. Five principal hydrostratigraphic units are identified beneath most of the Kodak Park area. In descending order these are:

1) Overburden

2) Top of Bedrock (Top of Rock, or "TOR")

3) Intermediate Grimsby Sandstone

4) Grimsby-Queenston Contact Zone ("GQ")

5) Queenston Shale ("Q")

The overburden flow zone consists of the unsaturated and saturated portions of unconsolidated glacial, lacustrine, alluvial and fill deposits (see Part II, Section 3). It is present across all sections of Kodak Park and surrounding areas. The overburden flow zone is characterized by large-scale heterogeneity in effective porosity, permeability, and thickness. The degree of saturation in this flow zone is strongly influenced by local recharge and discharge (e.g. leaking water lines, building sumps and sewers) and by larger local and regional scale features (e.g. topography, Lake Ontario, and the Genesee River). The overburden is generally hydraulically connected to the underlying bedrock flow zones. Lateral groundwater flow within the overburden is limited to relatively short distances due to a stong vertical gradient toward the TOR (groundwater flow is strongly 3-dimensional). Although in some areas, such as KPM, where dense glacial till overlies the bedrock, a local semiconfined condition may be present in the top of rock flow zone.

The top of bedrock flow zone consists of the weathered and fractured upper part (generally 10 to 15 feet) of the first subcropping bedrock unit beneath Kodak Park. Throughout most of Kodak Park, the Grimsby Sandstone and Thorold Sandstone are the Top-of-Rock units. However, because of the east-west strike and southeast dip of the bedrock units, and the generally northern dip of the eroded bedrock topographic surface, progressively older units form the top of rock flow zone from south to north across Kodak Park (see Figure II-5.3). In northern KPE, the Queenston Shale is the subcropping bedrock unit, while in southern KPE the Grimsby Sandstone subcrops. The TOR flow zone in KPE is independent of the lithology of the subcropping unit and extends across KPE. The TOR flow zone is present in the Maplewood Shale in areas located to the south of KPE, KPW and KPX. The Rochester Shale forms the TOR flow zone in KPS.

In sections of Kodak Park where the Grimsby Sandstone subcrops, the interval below the top-of-rock flow zone and the next lower flow zone (the GQ Contact) is termed the "Intermediate Grimsby". The Intermediate Grimsby is characterized by relatively low hydraulic conductivity and a low frequency of "flow zones" as defined by packer testing. It serves at least in part as an aquitard, and restricts vertical communication between the TOR and lower flow zones. Because of the lack of "flow zones" within the Intermediate Grimsby, there is very little horizontal groundwater movement. The direction of flow within this unit is primarily vertically downward from the TOR to the underlying flow zone.

The Grimsby-Queenston contact zone is an interval of higher hydraulic conductivity associated with, or located approximately 15 feet above or below, the contact between the Grimsby Sandstone and the underlying Queenston Shale. The term Grimsby-Queenston is somewhat a misnomer, since the flow zone need not include the formational contact. Typically, this flow zone is defined by a band of higher permeability, as defined by packer tests, that may meander above or below the contact. Monitor wells installed in this flow zone have consistent heads across a park section. Moreover, pumping stresses, from extraction wells and from leakage into the CSOAP tunnel system, are propagated throughout the zone, while not affecting heads in monitor wells installed above or below the GQ Contact interval. While the GQ Contact zone appears connected across all sections of Kodak Park, the lateral continutity of the flow zone may vary within park sections. The GQ Contact zone appears continous across KPW, KPX and western KPE, but may be discontinuous (i.e., not present at all locations) in KPM and eastern KPE. The discontinuities may be envisioned as relatively unfractured blocks of bedrock within a network of more highly developed and interconnected fractures.

Except in Northern KPE, where the subcropping weathered Queenston Shale is the TOR unit, the Queenston Shale is a low permeability unit. Subordinate water-bearing zones, as defined by packer tests, occur within the Queenston, but do not appear to be laterally continuous.

The five flow zones outlined above have been encountered in KPE, KPW, KPX and KPM. The boring programs in KPS and KPT have not extended below the TOR. The lateral continuity and persistence of each flow zone is evident from contour maps of head constructed for each flow zone (see Part II, Section 5.3), except for the GQ Contact zone in KPM which is not well defined. Groundwater flows in consistent patterns, generally with a horizontal component to the east or northeast, except in the overburden, where flow is vertically downward, or where affected by pumping or recharge. The fact that pumping stresses, such as the Lot 50 MCS and discharge into drop shafts of the CSOAP tunnel system along Dewey and Eastman Avenue are visible across extensive areas of KPW and KPE is evidence that the flow zones are real features of the bedrock, and not artificial constructs. Additional evidence for the existence of a GQ flow zone in KPE is the presence of seeps and springs exposed in the Genesee gorge near KPE at the level of the GQ contact (H&A, 1992g).

The flow zones in Kodak Park are laterally consistent along the strike of the bedrock formations. However, as progressively older formations subcrop from south to north, the flow zones merge into a single flow zone (Figure II-5.3). This phenomenon is most apparent in KPE. In southern KPE, the TOR zone is in the Grimsby Sandstone, underlain by the Intermediate Grimsby, GQ, and Queenston zones. The flow zones merge north-northeastward across the site, due to the southern dip of the bedrock units. Just to the north of Eastman Avenue, where the Grimsby has thinned to less than 20 feet in thickness, the Grimsby TOR and GQ zones have merged into a combined flow zone. Further to the north, where the Queenston Shale is the subcropping unit, the TOR, GQ, and Queenston have merged into a single TOR flow zone (Figure II-5.3). The presence of saline water (approximately 10,000 ppm total dissolved solids) in borings completed in the upper Queenston Shale in KPW and KPM suggests that groundwater circulation within the Queenston Shale and lower units is restricted.

5.2.2 RECHARGE AND DRAINAGE IN KODAK PARK

Natural physical features and manmade structures impose hydraulic boundary conditions on the groundwater flow zones beneath Kodak Park. In addition, natural and artificially induced recharge in the Kodak Park area also influences the rate and direction of groundwater movement.

The primary hydraulic features in the Kodak Park area are Lake Ontario and the Genesee River. Both Lake Ontario and the Genesee River act as regional discharge points for groundwater, and both apparently influence the direction of groundwater flow in Kodak Park. In KPX, KPW, and KPE, the regional groundwater movement in the principal flow horizons (TOR, and GQ) is generally to the east, toward the Genesee River (flow in the overburden is predominantly downward to the TOR). Site features, such as sewers and pumping wells, may locally affect the direction of groundwater movement. In KPM, groundwater in the overburden and TOR flows to the north and northwest, toward Lake Ontario. The continuity of the GQ Contact zone in KPM has not been determined, but limited data suggest a northward flow component within a discontinuous flow zone. A flow divide exists in the overburden and TOR approximately beneath Mount Read Boulevard (see Part II, Section 5.3, 5.4).

Across Kodak Park, a vertical component of flow is present between the flow horizons. Hydraulic head decreases from the overburden to the TOR, and from the TOR to the GQ Contact flow zones (H&A, 1992e). The vertical gradients are caused by the difference in elevation between the recharge areas (Kodak Park and area overburden and TOR) and discharge areas (Lake Ontario and the Genesee River). The Genesee River is located 160 feet below the surface grade of KPE, at the stratigraphic level of the Queenston Shale. Groundwater flows with a horizontal component toward the river gorge, discharging along seepage faces in the gorge wall (Figure II-5.4; H&A, 1992g) or vertically downward through the overburden, TOR and GQ, and finally as baseflow into the river. A similar pattern is hypothesized for the northward movement of water in KPM toward Lake Ontario.

Recharge to the shallow groundwater system in the area surrounding Kodak Park is estimated to be approximately 1.5 inches per year (H&A, 1990b). Recharge to and discharge from the shallow groundwater system in the industrialized areas of Kodak Park is greater than in the surrounding areas, and appears to be strongly controlled by the dense network of buried utilities is these areas. These include water lines, steam lines, sanitary sewers, a combined industrial and storm sewer system, building drainage sumps, and groundwater extraction systems. Forty million gallons of water per day are supplied to Kodak Park through the water system, of which approximately 30 million gallons of waste water per day is collected from the park through the combined industrial and storm sewer system. The balance is disposed in storm sewers or lost to evaporation. Minor leakage from the water and steam systems is inevitable, and could go undetected if distributed over a large number of small leakage points. Leakage may also occur from segments of the Kodak Park industrial and sanitary sewer systems that are located above the water table. A small percentage loss from these distribution systems could create significant groundwater recharge. An estimate of recharge from numerical simulation of the KPW area indicates that in the industrial portion of KPW the recharge rate is approximately 13 inches per year, or approximately 8.5 times greater than the recharge in off-site areas (S.S. Papadopulos & Assoc., 1992).

In addition to providing a major potential for recharge, the utility systems provide an effective mechanism of drainage. Water table contours for the overburden and top-of-rock show that the industrial sewer system functions as a shallow groundwater drain (see Part II, Section 5-3, 5-4). While the effect of the larger sewer pipes is apparent because of their low invert elevations and large size, it is easily demonstrated (Kodak, 1993) that all elements of the sewer system, including small lines, have the potential to function as groundwater drains where the water table lies above the sewer pipe. Movement along the gravel bedding beneath the sewer pipes and leakage into the pipes at couplings or holes is possible in virtually any part of the system.

Tunnels of the Monroe County CSOAP system are located beneath and around Kodak Park (Figure II-3.1). These tunnels are bored in the Grimsby and Queenston formations, and are within close proximity to the GQ Contact zone throughout the area. The CSOAP tunnels were drilled by mining machines and subsequently lined with concrete grout. During the period between drilling and lining, the formation penetrated by the tunnel was exposed to atmospheric pressure along the tunnel wall. This change in pressure at the tunnel wall caused drawdowns of 15 to 35 feet in several wells near KPW and KPE (S.S. Papadopulos & Assoc., 1992). The average rate of flow into the tunnels during the open period was estimated to be less than one gallon per minute per 100 feet of tunnel length in unfractured sections; locally higher flows were estimated from some of the faults intersecting the tunnel system (H&A, 1990b). Following lining of the tunnels water levels recovered partially, but still show drawdowns relative to surrounding areas (Figure II-5.5a,b).

An estimated water budget for KPW was determined based on numerical simulation (Figure II-5.6). The water balance indicates that of the 13 inches per year of recharge in KPW, 86.5% flows laterally in the overburden and top-of-rock to sewer systems, extraction wells or to regional discharge points, while 13.5% migrates vertically through the Intermediate Grimsby to the GQ Contact zone. Once in the GQ Contact zone, 96% of the water is transmitted laterally to extraction wells, or other discharge points, while 4% is moves vertically downward to the Queenston Shale. Although this water balance is specific to the KPW area, it does indicate the relative importance of the overburden, TOR and GQ Contact zones for the movement of groundwater.

5.3 OVERBURDEN GROUNDWATER

The overburden is generally thin (less than 20 feet except in southern KPM) with saturated thickness ranging from unsaturated to 15 feet. It is unsaturated above the water table, above groundwater drains such as the industrial sewer, and in the vicinity of the Genesee River gorge, and areas with bedrock highs where glacial till is either thin or absent.

A large componant of groundwater flow in the overburden is downward, to the TOR, as evidenced by downward oriented hydraulic gradients between overburden and TOR wells. Lateral groundwater flow in the overburden is limited to relatively short flow paths, with flow paths entering the TOR within 10's to 100's of feet. The direction of the horizontal component of overburden groundwater flow in off-site areas located south of Kodak Park, and in KPS, is generally northward, from higher surface elevations toward lower elevations in KPE, KPW, KPX, and KPM (Figure II-5.7a-e, water level table contours in April, 1993). The horizontal component of overburden groundwater water flow beneath KPX, KPW and southern KPE is to the east toward the Genesee River. In northern KPE the horizontal component of groundwater flow in the overburden is to the northeast. Overburden groundwater flows to the north in KPM, with a northwest trending flow in the Western portion of KPM and the Weiland Road Landfill. A groundwater divide is located approximately beneath Mount Read Boulevard, which separates KPX and KPM. West of the divide, in KPM, overburden groundwater migrates to the north and northwest, possibly to a discharge point at Lake Ontario. To the east of the divide groundwater flow is to the east, toward the Genesee River.

The direction of groundwater flow in the overburden is impacted locally by natural and man-made features. Man-made features include the main trunk and laterals of the industrial sewer, building drains, sumps, pumping wells and remediation systems. Natural features include the Genesee River and Paddy Hill Creek. The influence of these features on groundwater flow direction is clearly illustrated on potentiometric contour maps as isolated mounds or depressions, or groundwater flow contrary to the regional trend.

The industrial sewer is located from 5 to 20 feet below the ground surface, with segments of pipe located above and below the groundwater table. The relationship of the sewer system to the groundwater beneath Kodak is complex. Hydrogeologic investigations in several areas have indicated that the sewer exerts considerable influence over the direction of groundwater flow and the configuration of the water table beneath Kodak Park. The role of the industrial sewer as a groundwater drain is illustrated by contours of groundwater equipotentials in KPW and KPE (Figure II-5.7b-c). Bending of equipotential contours near the sewer, and local increases in hydraulic gradient adjacent to the sewer indicate that the sewer is acting as a discharge point for overburden groundwater. Leakage from the industrial sewer may also cause local mounding, but it is not possible to distinguish the effect of sewer leakage from other sources of recharge, such as water lines.

Groundwater discharges to the main trunk of the industrial sewer in southern KPX, KPW and into the western portion of KPE. In eastern KPE the affect of the main sewer on overburden groundwater flow is not as pronounced. Several north/south trending lateral lines also act as sinks to groundwater in the overburden. Overburden groundwater discharges to the sewer laterals are apparent between Buildings 115 and 142, Buildings 137 and 141, and between Buildings 140 and 114. The influence of the industrial sewer on overburden groundwater flow in KPM is difficult to evaluate given the general lack of wells in the vicinity of the industrial sewer. KPS and KPT are not serviced by large diameter sewer lines capable of affecting groundwater flow.

The Genesee River serves as a major groundwater discharge point for eastern KPE. Data from wells installed in the area, (predominantly west of Lake Avenue), indicate minor increases in horizontal and vertical hydraulic gradients closer to the gorge. This suggests that groundwater continues to migrate horizontally, until discharging as seeps along the gorge face. These data are substantiated by groundwater seep observations presented in H&A(1992g). Other apparent groundwater discharge areas include Paddy Hill Creek in western KPM.

Areas of greater than average recharge rates are indicated by mounding on Figures II-5.7a-e. These areas include the Building 46/53 area of central KPE, the Building 119 area of central KPW, Mt. Read Boulevard between KPX and KPM, and the Vista Drive area of Koda Vista near northwestern KPM. The recharge areas are likely associated with zones of enhanced infiltration, either naturally-occurring due to elevated soil permeability, or lack of paved building areas, or artificially induced recharge (ie. leaking water mains and utilities).

The reported hydraulic conductivity of the overburden deposits ranges from 10^{-7} to 10^{-1} centimeters per second (cm/s) (see references, Table II-3.1). The wide range of values is an indication of the variability of the overburden sediments. Areas dominated by glacial till, lacustrine or other fine-grained soil deposits generally possess lower hydraulic conductivities, while high hydraulic conductivities may be associated with fill, beach sands, glacial outwash and other deposits having generally coarser grain sizes.

Overburden groundwater also exhibits a vertically downward component of flow toward the top of bedrock zone. The overburden may be locally separated hydraulically from the top of rock by the basal glacial till (and highly weathered bedrock in KPS and KPT) that is present across the Park, but a general correspondence of groundwater flow direction and similar response to pumping or sewer induced stress indicates that the overburden and top-of-rock hydrostratigraphic units are hydraulically connected.

5.3.1 KPE OVERBURDEN GROUNDWATER

The uppermost hydrostratigraphic unit throughout KPE is the overburden flow zone. This zone is presently monitored by 56 wells in KPE (Figure II-5.1a,b). As discussed in Part II, Section 3, the overburden materials are quite variable in KPE. Accordingly, hydraulic conductivity as measured by slug tests is also variable, ranging from $4.7x10^{-6}$ cm/sec to $7.9x10^{-3}$ cm/sec, with a geometric mean of $1.8x10^{-4}$ cm/sec (Eckenfelder, 1990c).

Groundwater flow in the overburden is influenced by variable stratigraphy and manmade features such as buried utilities, structures, and building foundations. This variability is reflected in contours of the water table (Figure II-5.7a,b). The general direction of groundwater flow is to the east in southern KPE and to the northeast in northern KPE.

The main trunk of the industrial sewer runs into KPE from KPW in the KPRR area, where the sewer is installed in a trench excavated approximately ten feet into bedrock. The main trunk crosses a bedrock low opposite the southeast corner of Building 46, where it emerges almost completely from the bedrock trench into overburden. From here east to Lake Avenue the industrial sewer is increasingly contained in a bedrock trench, and then emerges again into overburden as it crosses the bedrock surface escarpment beneath the intersection of Lake Avenue and Hanford Landing Road. The main trunk of the industrial sewer creates an east-west trending groundwater depression in the west-central portion of KPE. Groundwater elevations for the overburden water bearing zone in the vicinity of the industrial sewer indicate that groundwater in KPE west of Lake Avenue is above the level of industrial sewer main. Based upon the pattern of the groundwater contours and the groundwater elevations, the main trunk of the industrial sewer acts as a drain system for the overburden water bearing zone in the portion of KPE located west of Lake Avenue..

Groundwater elevation data for the overburden and top of rock flow zones indicate that the vertical component of groundwater flow is downward to the top of rock.

5.3.2 KPW OVERBURDEN GROUNDWATER

The overburden is the uppermost hydrostratigraphic unit in KPW. This zone is currently monitored by 93 wells in KPW (Figure II-5.1c). As discussed in Part II, Section 3, the overburden materials are quite variable. Accordingly, hydraulic conductivity is also variable, ranging from 5.4×10^{-7} cm/sec to 6.4×10^{-2} cm/sec with a geometric mean of 4.1×10^{-5} cm/sec (Eckenfelder, 1990b).

A calibrated groundwater simulation model of KPW provided estimates of the horizontal distribution of hydraulic conductivity and the vertical anisotropy ratio in the overburden (S.S. Papadopulos & Assoc., 1992). In the overburden, hydraulic conductivity was estimated to be 3.8×10^{-4} cm/s, based on model calibration (Table II-5.2). The vertical anisotropy, or the ratio of vertical to horizontal hydraulic conductivity (K_Z/K_H) was estimated to be 0.01.

In KPW, sewers and buried utilities have a pronounced affect on the direction of groundwater flow. The general direction of groundwater flow in the overburden water bearing zone within the central and northern portions of KPW is toward the east, consistent with the regional groundwater flow direction (Figure II-5.7c). Deviations from the regional flow directions occur in the south and central portions of KPW where the industrial sewer acts as a drain along its main east-west trending trunk and a northern lateral extension. The groundwater flow direction in the overburden is toward the industrial sewer from both the Parking Lot 50 area and southern KPW.

A groundwater mound in the vicinity of Building 119 is apparent based upon groundwater elevation data. This mound is created by increased recharge from water mains beneath Building 119 and from depressions caused by north-south laterals of the industrial sewer located east and west of the building. Groundwater elevation data for the overburden zone also indicate the presence of a groundwater low in the vicinity of Building 145. This may be attributed to basement sumps located beneath Building 145.

Groundwater elevation data indicate that the vertical component of groundwater flow in the overburden water bearing zone is downward to the top of rock zone.

5.3.3 KPX OVERBURDEN GROUNDWATER

The overburden is the uppermost hydrostratigraphic flow zone in KPX. This zone is presently monitored by 42 wells in KPX (Figure II-5.1d). Data from slug tests performed in 16 KPX overburden monitoring wells (installed in a variety of deposits) indicate hydraulic conductivities ranging from 9.9×10^{-5} to 1.6×10^{-2} cm/sec, with a geometric mean of 5.3×10^{-4} cm/sec (Blasland & Bouck, 1993c). The range of values is indicative of the heterogeneity of the material in which the overburden wells are screened.

A contour plan of the water table in KPX is presented in Figure II-5.7d. The general direction of groundwater flow in the central and northern portions of KPX is to the east while the direction of groundwater flow in the southern portions of KPX is to the north and northeast. A potentiometric depression in the overburden in northeastern KPX is the result of the Migration Control Trench located along the west side of Building 206 (see Part III, Section 3). Prior to installation of the Trench, a localized groundwater mound extended west-northwest from Building 218 creating local flow components to the northeast, east, and southwest from the Building 218 area. This mound was interpreted as a function of significant variations in hydraulic conductivities and till thickness in the courtyard area and to the west of Building 218 (Blasland & Bouck, 1993b), but it may also be caused by leakage from utilities in the Building 218 area.

Groundwater elevation data for the overburden and top of rock water bearing zones indicate that the vertical component of groundwater flow is downward to the top of rock.

5.3.4 KPM OVERBURDEN GROUNDWATER

The overburden is the uppermost hydrostratigraphic unit in KPM. It is currently monitored by 97 wells (Figure II-5.1e). As discussed in Part II, Section 3, the overburden materials are quite variable in KPM. Accordingly, hydraulic conductivity values, obtained from slug testing of 34 overburden wells, range from 2.9×10^{-6} cm/sec to 6.5×10^{-4} cm/sec, with a geometric mean of 3.7×10^{-5} cm/sec (Eckenfelder, 1990e).

A contour plan of the water table in KPM is presented in Figure II-5.7e. In the central and eastern portions of KPM, the general direction of groundwater flow is to the north, with the steepest gradients in the vicinity of the east-west trending bedrock escarpment. A convergence of flow occurs toward the north-south trending groundwater trough near Corona Road. This corresponds to an area along the northern KPM fence line where more permeable sands, rather than till, comprise the overburden (Blasland and Bouck, 1990c). A groundwater interceptor drain, approximately 1,500 feet in length, is located along the northern fence line of KPM (see Part III, Section 4). This drain fully penetrates the overburden and captures groundwater as it moves from the southern portion of KPM to the north fence line. The drain has created a depression in the water table near the drain, and has significantly altered the natural groundwater flow paths in area.

In the western section of KPM, the direction of groundwater flow is to the west-northwest, toward N.Y. State Route 390 and Paddy Hill Creek. There is also a component of flow from the north to south into KPM from the Koda Vista Drive area (Blasland and Bouck, 1991j).

The lateral seepage velocity in the overburden flow zone, primarily for the higher permeability deposits located south of the northern KPM fence line, is estimated to be approximately 4 feet per year (Eckenfelder, 1990e). Groundwater elevation data for the overburden and top of rock flow zones indicate that the vertical component of groundwater flow is primarily downward from the overburden to the top of rock.

5.3.5 KPS OVERBURDEN GROUNDWATER

A combined overburden and top of rock zone is the first hydrostratigraphic unit in KPS. This zone is presently monitored by 5 overburden and 13 top of rock wells (Figure II-5.1f). Hydraulic conductivity data for the overburden water bearing zone are not currently available. However, due to the variable nature of the overburden materials (manmade fill and glacial deposits) it is anticipated that the hydraulic conductivity for KPS is variable across the site.

Based on groundwater elevations measured in September, 1993, the direction of groundwater flow in the combined overburden and top of rock flow zone in KPS is toward the north-northwest-- toward the Weiland Road Landfill escarpment and Route 390 in the northwest quadrant of KPS. Groundwater flows to the northeast and east along the northeast and southeast quadrants, and to the southeast in the southwest quadrant of KPS (Figure II-5.7f). The former Erie Canal (now filled) lies along the KPS-KPM border, and may also be affecting the movement of water near the Canal. A seepage velocity can not be determined for the overburden water bearing zone due to insufficient data.

5.3.6 KPT OVERBURDEN GROUNDWATER

The overburden is the first hydrostratigraphic unit in KPT. This zone is not currently monitored by wells, but in the past 8 monitor wells were installed (Figure II-5.1g). The hydraulic conductivity of the overburden ranged from 5.7×10^{-5} cm/sec to 5.9×10^{-3} cm/sec, with a geometric mean of 3.4×10^{-4} cm/sec (Eckenfelder, 1990d).

Past monitoring data indicate that overburden groundwater flows to the northwest in the western portion of KPT, and to the north in central KPT.

5.4 TOP OF ROCK GROUNDWATER

The Top-of-Rock flow zone (TOR) is generally 15 to 20 feet thick with moderate to high permeability. The greater degree of fracturing and weathering encountered in this zone is the result of glacial weathering processes which have acted on the top-of-rock. The hydrogeologic character of this zones varies to some degree with subcropping units. Areas south of Weiland Road Landfill (WRL) where the Rochester Shale subcrops generally have lower hydraulic conductivities.

The groundwater flow direction in the TOR, like the overburden, is generally eastward in KPX, KPW and the southern portion of KPE (Figures II-5.8a-e). In the northern portion of KPE the direction of groundwater flow is to the northeast (Figure II-5.8a). In KPM and KPS, the direction of flow in the TOR is to the north or northwest (Figure II-5.8e). A flow divide exists beneath Mount Read Boulevard and localized recharge and discharge occurs in the areas noted for the overburden (Figures II-5.8d,e). As with the overburden groundwater, the industrial sewer serves as a major discharge point for groundwater in the top of rock zone. The influence of the industrial sewer as a sink for the TOR zone is observed in the western half of KPE in the vicinity of the main trunk and north of Parking Lot 50 in KPW (Figures II-5.8b,c). Recent studies at WRL indicate groundwater from the top of rock zone along the top of the escarpment discharges to the overburden at the base of the escarpment (H&A, 1992c).

The top of rock zone is characterized by the highest hydraulic conductivity found beneath Kodak Park (averaging approximately $1x10^{-4}$ cm/s from rising head tests). Typical groundwater discharge rates, as estimated by Eckenfelder (1990b-e), range from a low of 682 gpd in KPS to a high of 200,000 gpd in KPW. By combining discharge rates for individual park sections, the total horizontal groundwater flux in the top of rock zone is estimated to be 250,000 gpd. Based on these estimates the top of rock unit transmits the greatest quantities of groundwater beneath Kodak Park.

5.4.1 KPE TOP OF ROCK GROUNDWATER

The top of rock flow zone in KPE includes the upper weathered and fractured portions of the Thorold Sandstone, Grimsby Sandstone, and Queenston Shale. This zone is currently monitored by 33 wells in KPE (Figures II-5.1a,b). The hydraulic conductivity of the top of rock in KPE ranges from $6.7x10^{-6}$ cm/sec to $6.5x10^{-2}$ cm/sec with a geometric mean of $4.9x10^{-4}$ cm/sec. The lateral seepage velocity in the TOR has been estimated to be 361 feet per year (Eckenfelder, 1990c). The hydraulic conductivity in the top of bedrock zone appears to be reduced in the area north of Eastman Avenue where the lower Grimsby and Queenston Shale are the uppermost bedrock units (H&A, 1992e).

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Visual observations of flow in open rock excavations and reports of dewatering rates, for example, from caisson installations associated with the Kodak Park Storage Tank Improvement Program (STIP), confirm that this unit has the potential to transmit significant quantities of groundwater. In the vicinity of Building 53, up to ten gallons per minute of inflow was observed during caisson installation. As one moves south of KPE, however, this hydrostratigraphic unit likely becomes less effective as a flow zone due to the presence of the Maplewood Shale. Joints and fractures within the Maplewood Shale are more likely to be clay filled as the shale weathers to clay.

A contour map of the TOR piezometric surface is presented in Figures II-5.8a,b. The direction of groundwater flow is to the east, in southern KPE and northeast in northern KPE, similar to that of the overburden. A steep hydraulic gradient is present in the vicinity of the bedrock escarpment associated with the fault zone in south-central KPE (see Part II, Section 3). When mapped in the CSOAP tunnel north of Building 53, this fault was essentially dry. Where considerable fault gouge is present, as in the CSOAP tunnel, it is possible that the fault zone functions as a low-permeability barrier to groundwater movement. This aspect of the fault may contribute to the steepness of the groundwater flow gradient apparent in the top of bedrock zone.

Groundwater flow in the top of rock is generally less affected by artificial structures than the overburden. However, the main trunk of the industrial sewer appears to affect groundwater flow in western KPE (KPRR area), where the sewer is installed in a trench excavated approximately 10 feet into bedrock.

5.4.2 KPW TOP OF ROCK GROUNDWATER

The top of rock flow zone in KPW includes the upper weathered and fractured portions of the Thorold Sandstone and Grimsby Sandstone. This zone is currently monitored by 119 wells in KPW (Figure II-5.1c). Measurements of hydraulic conductivity in the TOR zone have been made through rising-head (slug) testing, packer testing, and an aquifer test conducted on well PB136S in 1988. Slug test data from 60 wells screened in the TOR indicate a range in hydraulic conductivity from 9.9×10^{-6} cm/sec to 2.8×10^{-1} cm/sec with a geometric mean conductivity of 5.3×10^{-4} cm/sec. The range of the mean hydraulic conductivity from over 50 packer tests in each 5-foot depth interval is 2.81×10^{-6} cm/sec to 4.04×10^{-4} cm/sec (Eckenfelder, 1991b). The hydraulic conductivity of the TOR computed from a pumping test on PB136S was 4.71×10^{-4} cm/sec, which is comparable to the geometric mean of the rising-head tests. Storativity estimates ranged from 1.2×10^{-4} to 4.2×10^{-4} (AWARE, 1988). The lateral seepage velocity in the top of rock zone has been estimated to be 186 feet per year (Eckenfelder, 1990b).

A calibrated groundwater simulation model of KPW provided estimates of the horizontal distribution of hydraulic conductivity and the vertical anisotropy ratio in the TOR (S.S. Papadopulos & Assoc., 1992). In the top of rock, hydraulic conductivity ranged from 1.5×10^{-4} cm/s to 1.5×10^{-3} cm/s, based on model calibration (Table II-5.2). The modeling indicated that hydraulic conductivity was greater near buildings 119, 135, and 140, in the eastern portion of KPW (Figure II-5.9). The vertical anisotropy, or the ratio of vertical to horizontal hydraulic conductivity (K_Z/K_H) was estimated to be 0.01.

The configuration of the top of rock piezometric surface is presented in Figure II-5.8c. In central KPW, the general direction of groundwater flow is to the east, toward KPE and the Genesee River. Immediately south of KPW, the groundwater flows to the north, from residential areas on Rand Street and Steko Avenue toward the main trunk of the industrial sewer. The main east-west trending trunk and two north-south trending laterals of the industrial sewer act as groundwater sinks, causing flow within southern KPW to be to the south and east toward the sewer lines. Near Building 119, a mound is present in the piezometric surface of the TOR. The mound is probably caused by aquifer recharge from leaking water lines beneath and near the building. A depression in the piezometric surface is present in the overburden and TOR flow zones near Building 145, possibly caused by building sumps in B-145.

5.4.3 KPX TOP OF ROCK GROUNDWATER

The top of rock flow zone in KPX includes the upper weathered and fractured portions of the Thorold Sandstone and Grimsby Sandstone. This zone is currently monitored by 13 wells in KPX (Figure II-5.1d). The results from rising-head (slug) tests performed on nine top of rock monitoring wells indicate a range of hydraulic conductivity from $1.3x10^{-4}$ to $5.5x10^{-3}$ cm/sec, with a geometric mean of $1.3x10^{-3}$ cm/sec (Blasland & Bouck, 1993c). These conductivity values suggest that the top of rock permeability is relatively uniform and that the TOR is generally more permeable than the overburden deposits. Fracture density was found to have a good correlation to hydraulic conductivity from borehole packer test data. Fracture densities in the TOR generally exceed 5 fractures per foot, and packer test hydraulic conductivities of approximately $1x10^{-4}$ cm/sec were observed in the TOR zone (Blasland & Bouck, 1993c).

The configuration of the top of rock piezometric surface is presented in Figure II-5.8d. The direction of groundwater flow is generally to the east. A potentiometric mound has been identified in the Building 218 courtyard area. This mound may relate to the overburden groundwater elevation mound in the same area.

The removal of overburden and top of rock groundwater by the Migration Control Trench has altered the piezometric surface in the top of rock (see Part III, Section 3). Based on November 1992 and April, 1993 data (Figure II-5.8d), during operation of the trench, the capture zone for top of rock groundwater appears to be comparable to that for overburden groundwater, suggesting a substantial hydraulic connection between the overburden and top of rock along the axis of the trench.

5.4.4 KPM TOP OF ROCK GROUNDWATER

The top of rock flow zone in KPM includes the upper weathered and fractured portions of the Thorold Sandstone and Grimsby Sandstone. This zone is currently monitored by 47 wells in KPM (Figure II-5.1e). The range of hydraulic conductivity determined from rising-head (slug) test is $1.2x10^{-6}$ cm/sec to $1.6x10^{-3}$ cm/sec with a geometric mean of $1.1x10^{-4}$ cm/sec (Eckenfelder, 1990e).

The configuration of the TOR piezometric surface is presented in Figure II-5.8e. The direction of groundwater flow in the central and northern portions of KPM is to the north, toward a groundwater trough near Corona Road. In the western portion of KPM, groundwater in the top of rock flow zone flows northwestward toward N.Y. State Route 390 and from north to south onto KPM from the Koda Vista neighborhood, similar to the overburden flow zone (Blasland and Bouck, 1991j). In southern KPM the water table is in the TOR north of the escarpment and extends to the north into the overburden in the landfill area. A groundwater interceptor drain, approximately 1,500 feet in length, is located along the northern fence line of KPM (see Part III, Section 4). This drain fully penetrates the overburden and captures groundwater as it moves from the southern portion of KPM to the north fence line. The drain has created a depression in the TOR piezometric surface near the drain, and has significantly altered the natural groundwater flow paths in area. The lateral seepage velocity in the top of rock zone prior to drain installation has been estimated to be 20 feet per year (Eckenfelder, 1990e).

5.4.5 KPS TOP OF ROCK GROUNDWATER

The top of rock flow zone in KPS is located in the upper weathered and fractured surface of the Rochester Shale Formation. As discussed in Part II, Section 5.3.5, the overburden and top of rock flow systems are combined in KPS. The water table exists in the overburden and, in some areas, the bedrock in KPS. Currently, 5 overburden and 13 top of rock wells monitor this zone. Wells screened in bedrock in this unit are designated by an "R" prefix (Figure II-5.1f).

The hydraulic conductivity of the TOR in the Rochester Shale, determined from rising-head (slug) testing of 3 wells, ranges from 2.1×10^{-5} cm/sec to 1.1×10^{-3} cm/sec (Blasland & Bouck, 1993d).

The piezometric surface of the combined overburden and TOR is presented in Figure II-5.7f. Based on groundwater elevations measured in September, 1993, the direction of groundwater flow in the combined overburden and top of rock flow zone in KPS is toward the north-northwest-- toward the Weiland Road Land Fill escarpment and Route 390 in the northwest quadrant of KPS. Groundwater flows to the northeast and east along the northeast and southeast quadrants, and to the southeast in the southwest quadrant of KPS. The lateral seepage velocity in the top of rock zone has been estimated to be 18 feet per year (Eckenfelder, 1990d).

5.4.6 KPT TOP OF ROCK GROUNDWATER

The top of bedrock (Rochester Shale) is the most extensive hydrostratigraphic unit in KPT. This zone is not currently monitored by wells, but in the past 8 monitor wells were installed (Figure II-5.1g). The hydraulic conductivity of the Rochester Shale ranged from 1.7×10^{-5} cm/sec to 2.3×10^{-3} cm/sec, with a geometric mean of 1.4×10^{-3} cm/sec (Eckenfelder, 1990d).

Past monitoring data indicate that top of rock groundwater flows to the northwest in the western portion of KPT, and to the north in central KPT.

5.5 INTERMEDIATE GRIMSBY, GRIMSBY-QUEENSTON and QUEENSTON GROUNDWATER

In KPE, KPW, KPX, and KPM the deeper bedrock consists of the Intermediate Grimsby Sandstone, the Grimsby-Queenston contact zone (GQ zone), and the Queenston Shale. In these areas the Intermediate Grimsby exhibits permeabilities of less than $1x10^{-6}$ cm/sec and generally acts as an aquitard separating the top of rock (TOR) zone from the underlying GQ contact zone. The deeper bedrock flow system beneath KPS and KPT has not been investigated to date.

The GQ contact zone has been extensively investigated in KPW and KPE where 69 monitoring wells have been completed across the flow zone (Figure II-5.1a,b,c). The GQ contact zone has been investigated to a lesser degree in KPX, and KPM. Although data are limited in KPM, they do suggest that GQ contact zone is present, but the lateral continuity of the unit has not been determined. Although the fracture density of the bedrock is lower in off-site areas south of KPW and KPE, the continuity of the GQ contact zone is evidenced by heads in off-site wells and the drawdown response associated with the Dewey Avenue leg of the CSOAP Tunnel.

The hydraulic head in the GQ contact zone in KPW and KPE has been affected by the mining of the CSOAP tunnels (Figure II-5.10a,b,c). This effect probably occurred in KPX prior to lining of the tunnel, however no significant drawdowns are noted in wells in KPX since completion of the tunnels. Tunneling for the CSOAP project began in 1987 with the Dewey-Eastman leg under KPE and generally progressed to the west. Figures II-5.5a,b are well hydrographs for clusters installed in KPW and KPE prior to the

CSOAP tunnel mining. These hydrographs illustrate the dewatering affect of the tunnels on the GQ contact zone. The impact of the CSOAP tunnels continues to the present, serving as a discharge point for the GQ zone of KPW and western KPE. This is indicated by the drawdown depressions in the piezometric surface near the Dewey-Eastman leg under Dewey Avenue (Figure II-5.10a,b,c) and toward the drop-shaft of the Eastman Avenue leg in west-central KPE.

Hydrogeologic investigations of the Queenston Shale have predominantly been conducted in KPW and northern KPE. In northern KPE the regional dip of the bedrock causes the thickness of the Grimsby Sandstone to decrease to the north, and the Queenston to subcrop in northern KPE. In this area the GQ and Q zones combine to form the TOR.

Well hydrographs, presented in Figure II-5.11, show several feet of head difference between the top of rock and lower rock, which suggests poor vertical communication across the Intermediate Grimsby. The observed head differences are an indication of the integrity of the less permeable Intermediate Grimsby which serves as an aquitard. The apparent vertical separation of the shallow and deeper hydrogeologic units is further supported by aquifer testing (Eckenfelder, 1991c) in the GQ zone which produced no measurable response in the TOR. This effect is also illustrated in Figures II-5.8 and II-5.10 which illustrate heads in the TOR and GQ contact zones during operation of the Lot 50 Migration Control System (see Part III, Section 2).

5.5.1 KPE INTERMEDIATE GRIMSBY, GRIMSBY-QUEENSTON, QUEENSTON GROUNDWATER

Eckenfelder (1990c) initially proposed four hydrostratigraphic units for the KPE area. Three units were classified as water-bearing units, and one unit was classified as an aquitard. The upper most unit was termed the overburden, underlain by the top of rock water bearing zone. The third and deepest water-bearing unit was termed the Queenston water-bearing zone. The low-permeability zone between the top of rock and Queenston zones was termed the "Lower Grimsby", and consisted of the equivalent Intermediate Grimsby and GQ Contact zones found in neighboring KPW. A re-evaluation of this interpretation of the Lower Grimsby, in light of findings from new well installations in the off-site area south of Rochester School 41, and along the Lake Avenue fence line of KPE suggests that a GQ Contact zone is present in KPE.

Monitor wells have been installed across the GQ contact in west- and south-central KPE near buildings 23, 49 and 65 (GQB23SW, GQB49NE, GQB65SE) and in Parking Lot 15 (GQL15E, GQL15N, GQL15S). In addition wells have been installed near Rochester School 41 (GQES3, GQES4, GQES10, GQES13, GQES16) and along public streets south of the school (GQES19, GQES20) (Figure II-5.1b,c). If one considers that the GQ contact zone may be located 10 to 15 feet above or below the Grimsby-Queenston contact, but not necessarily crossing the contact (e.g. the flow zone is not the contact itself, but a zone of increased fracture density around or near the contact, as found in KPW) then additional wells, classified by lithostratigraphy as Lower Grimsby (G2) and Queenston (Q) may be considered to be hydrostratigraphically located in the

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GQ Contact flow zone. These wells include GQB58NE (bottom of screen on the GQ contact), G2B59E (mid-point of screen located approximately 15 feet above the contact), G2B62SE (mid-point of screen located 13 feet above the contact), and GB16N (mid-point of screen approximately 5 feet above the contact). These four wells, together with wells GQB81E and QL27NW form a continuous north-south profile of the GQ Contact zone in eastern KPE, as it exists in southern KPE, to its merging with the TOR in the Queenston in northern KPE (Figure II-5.12). The currently proposed hydrostratigraphic model for KPE is the five unit model described for the Kodak Park site: Overburden, Top-of-Rock, Intermediate Grimsby (in southern KPE), GQ Contact, and Queenston.

The Intermediate Grimsby is present in the southern half of KPE, where the Grimsby Sandstone is of sufficient thickness for the development of a low permeability zone between the Top-of-Rock and the GQ Contact zones. In northern KPE, the Grimsby Sandstone thins, or is absent, and no lower permeability layer is present (see Part II, Section 3.0). Where present in KPE, the Intermediate Grimsby is currently monitored by 6 wells (Figures II-5.1a,b). Generally, in southern KPE the Intermediate Grimsby exhibits low (less than $1x10^{-6}$ cm/sec) permeability, and is presumed to function as an aquitard when it occurs in a relatively un-weathered and unfractured condition.

The GQ contact zone is currently monitored by 17 wells in KPE. Data from rising head tests on nine monitoring wells screened across the GQ contact in KPE indicate hydraulic conductivities ranging from $3.3x10^{-6}$ to $9.3x10^{-5}$ cm/sec, with a geometric mean of $1.6x10^{-5}$ cm/sec (Eckenfelder, 1990c). This conductivity value is approximately one order of magnitude lower than the mean GQ conductivity measured in the adjacent KPW section ($9.0x10^{-5}$ cm/sec, based on values from 48 KPW wells), but is within the range of reported vales from KPW. Hydraulic conductivity estimates from packer tests on boreholes completed in the GQ Contact zone have not been summarized at this time.

Prior to construction of the CSOAP tunnel system, flow in the GQ was probably to the east or southeast, in response to the regional discharge area of the Genesee River (Figure II-5.13). This prediction is supported in simulations of the GQ contact zone using the calibrated KPW model with tunnel drain nodes turned off (S.S. Papadopulos, 1992). The current configuration of the piezometric surface in the GQ contact zone is strongly influenced by the CSOAP tunnel system. In northern KPE, where the GQ Contact zone merges with the Queenston zone to form the Top-of-Rock zone, the piezometric surface of the combined TOR flow zone slopes northeastward, toward a discharge point in the Genesee River. In south-central KPE, a groundwater divide is present in the GQ Contact zone. East of the divide, groundwater flows to the east, toward the Genesee River. West of the divide, groundwater flows to the west and northwest toward the Dewey Avenue and Eastman Avenue legs of the CSOAP tunnel system (Figure II-5.10b). A large drawdown cone has developed around the drop shafts located at the east end of Parking Lot 50 and the west end of Eastman Avenue (Figures II-5.10a,b,c). The groundwater divide is the natural result of the two groundwater sinks located on the eastern and western sides of KPE. The fact that the drawdown cones associated with the CSOAP tunnel legs are approximately symmetrical in KPW and KPE lends support to the presence of the GQ Contact zones in KPE. If the GQ Contact zone was not present, the cones would be less well-developed in KPE.

During 1988, widespread depression of water levels was apparent in western KPE GQ Contact zone and Queenston wells. This event was caused by the mining of the Dewey and Eastman Avenue legs of the CSOAP tunnel system. The steepest declines were recorded in those wells closest to the tunnel. Groundwater levels recovered to levels less than the pre-CSOAP condition in most wells after lining of the tunnels in 1988. The start of water level recovery at a well generally correlates to the concrete lining of the tunnel walls nearest the well (Figures II-5.5). The groundwater level depression was not apparently as widespread in the Top-of-Rock flow zone wells (screened in the Grimsby Sandstone), although some groundwater level depression and subsequent rebound was apparent in 1988 at GL45W, GL12NW, and GB53N.

The Queenston Shale flow zone in southern KPE is generally lower in permeability than the GQ Contact zone, although borehole packer tests have delineated permeable horizons within the Queenston. Wells completed in the top of the Queenston Shale in southern KPE should be considered GQ Contact wells (see discussion above). Wells designated Q2, and Queenston Shale wells located more than 15 feet below the GQ Contact in southern KPE are considered Queenston Shale wells. There are presently 14 wells installed in the Queenston Shale in KPE. There is not sufficient data to determine the extent of the flow zones in the Queenston Shale in southern KPE.

Based on permeability data collected in neighboring KPW, the deeper Queenston Shale in southern KPE probably does not contain continuous, identifiable flow horizons.

In northern KPE the Queenston Shale forms the subcropping bedrock unit. The properties and flow directions of the Queenston shale in this area are discussed in Part II, Section 5.4.1.

5.5.2 KPW INTERMEDIATE GRIMSBY, GRIMSBY-QUEENSTON, QUEENSTON GROUNDWATER

The Intermediate Grimsby lies between the TOR and the Grimsby-Queenston contact zone in KPW. The Intermediate Grimsby is monitored by wells designated with "G2" (Figure II-5.1c). Presently 22 wells are installed in this zone and have hydraulic conductivities ranging from $5.0x10^{-8}$ cm/sec to $1.4x10^{-1}$ cm/sec, with a geometric mean conductivity of $3.9x10^{-5}$ cm/s (Eckenfelder, 1991b). These data are heavily biased toward higher permeability values, however, since wells were only installed at locations where borehole packer test results were greater than $5x10^{-6}$ cm/s. A calibrated groundwater simulation model of KPW provided estimates of the horizontal distribution of hydraulic conductivity and the vertical anisotropy ratio in the Intermediate Grimsby (S.S. Papadopulos & Assoc., 1992). The horizontal hydraulic conductivity of the intermediate Grimsby was estimated to be $1.4x10^{-5}$ cm/s and the vertical hydraulic conductivity ranged from $7x10^{-6}$ cm/s to $1.4x10^{-8}$ cm/s (Figure II-5.14), based on model calibration (Table II-5.2). The vertical anisotropy, or the ratio of vertical to horizontal hydraulic conductivity (K_Z/K_H) was estimated to range from 0.001 to 0.5.

The existence and hydraulic properties of the GQ contact zone have been well-documented in KPW. Presently, 52 wells are installed in the GQ flow zone in KPW (Figure II-5.1c). Borehole packer test data indicate that the flow zone is typically encountered within 5 feet above or below the stratigraphic contact. However, the flow zone has been encountered as much as 15 above or below the contact. Considering a typical packer test interval of 5 feet, it is difficult to determine the precise location of the water-bearing fractures.

Estimates of the hydraulic conductivity of the GQ contact zone have been made based on slug tests, borehole packer tests, a pumping test on well GQL50NW3, and a calibrated groundwater model of KPW. Hydraulic conductivity estimates from slug tests from 40 wells screened in the GQ contact zone range from $6.1x10^{-7}$ cm/sec to $2.9x10^{-1}$ cm/sec. The geometric mean hydraulic conductivity is $8.2x10^{-5}$ cm/s (Eckenfelder, 1991b). Hydraulic conductivity estimates from borehole packer tests indicate a geometric mean of approximately $5.8x10^{-6}$ cm/sec in a zone spanning five feet above and below the stratigraphic contact between the Grimsby and Queenston formations. Individual pressure test values ranged from less than $1x10^{-7}$ cm/sec to $1.3x10^{-3}$ cm/sec (Eckenfelder, 199b). The value of hydraulic conductivity computed from the pumping test conducted on GQL50NW3 is $2.4x10^{-3}$ cm/sec, which is approximately 30 times greater than the geometric mean of slug test data (Eckenfelder, 1991c).

The KPW groundwater simulation model provides estimates of the horizontal distribution of hydraulic conductivity and the vertical anisotropy ratio in the GQ contact zone (S.S. Papadopulos & Assoc., 1992). In the GQ contact zone, hydraulic conductivity ranged from 6×10^{-5} cm/s to 3×10^{-3} cm/s, based on model calibration (Table II-5.2). The modeling indicated that hydraulic conductivity was greater near the western end of Parking Lot 50, and lower near Buildings 126 and 140 (Figure II-5.15). The vertical anisotropy, or the ratio of vertical to horizontal hydraulic conductivity (K_Z/K_H) was estimated to be 0.01.

Prior to construction of the CSOAP tunnel system, flow in the GQ contact zone was probably to the east or southeast, in response to the regional discharge area of the Genesee River (Figure II-5.13). This prediction is supported in simulations of the GQ contact zone using the calibrated KPW model with tunnel drain nodes turned off (S.S. Papadopulos, 1992). The current configuration of the piezometric surface in the GQ contact zone is strongly influenced by the CSOAP tunnel system. Groundwater flows to the east and southeast toward the Dewey Avenue leg of the tunnel system. A large drawdown cone has developed around the drop shafts located at the east end of Parking Lot 50 and the west end of Eastman Avenue (Figures II-5.10b,c). The Lot 50 Migration Control System (see Part III, Section 2) affects the direction of groundwater flow in the GQ Contact zone located beneath the south fence line of KPW (the Parking Lot 50 area). A drawdown cone created by four pumping wells captures water from central and southern KPW, as well as in the off-site areas south of Parking Lot 50 (Figures II-5.10c and II-5.6). But Not All

The lowermost formation investigated in KPW is the Queenston Shale. Presently, 13 wells monitor this zone in KPW. Estimates of the hydraulic conductivity of the Queenston Shale are available from borehole packer and rising-head (slug) tests.

Packer test data have a geometric mean range from 1.5×10^{-5} cm/sec to less than 1.0×10^{-7} cm/sec. Slug test data, which are positively biased because monitor wells have only been installed across higher permeability intervals, range from 1.6×10^{-6} cm/sec to 3.1×10^{-3} cm/sec with a geometric mean of 9.9×10^{-5} cm/sec (Eckenfelder, 1991b).

Groundwater flow within the Queenston does not occur in a laterally continuous flow zone. However, based on piezometric surface elevations measured in November, 1990, Eckenfelder (1991b) determined that groundwater flow in the Queenston Shale in KPW is eastward, toward the Genesee River. This evaluation must be viewed with caution, however, because of the variation in the position of the open intervals of wells completed in the Queenston Shale. In addition, groundwater flow in the Queenston may be vertically upward in the vicinity of the CSOAP tunnels, based on a head elevation in QB119NE (located close to the CSOAP tunnel) higher than the tunnel elevation (Eckenfelder, 1991b).

5.5.3 KPX INTERMEDIATE GRIMSBY, GRIMSBY-QUEENSTON, QUEENSTON GROUNDWATER

The Intermediate Grimsby lies between the top of rock zone and the Grimsby-Queenston contact zone in KPX. It is not currently monitored by wells in KPX. Hydraulic conductivity estimates from packer tests on boreholes through the Intermediate Grimsby ranged from less than 5×10^{-6} cm/sec to 3.7×10^{-5} cm/sec. Most packer tests performed in the Intermediate Grimsby obtained hydraulic conductivity estimates of less than 5×10^{-6} cm/s (Blasland & Bouck, 1993c). Fracture densities in the Intermediate Grimsby in KPX were generally less than 5 per foot, in contrast to a density of greater than 5 per foot in the TOR. As in KPW and KPE, the Intermediate Grimsby in KPX is believed to function as an aquitard.

The GQ contact zone is currently monitored by 5 wells in northeast KPX. Data from rising-head (slug) tests on the five GQ monitoring wells located in the northeast KPX area indicate hydraulic conductivities ranging from 2.3×10^{-6} to 2.0×10^{-5} cm/sec, with a geometric mean of 8.3×10^{-6} cm/sec (Blasland & Bouck, 1993c). This conductivity value is approximately one order of magnitude lower than the mean GQ conductivity measured in the adjacent KPW section (9.0×10^{-5} cm/sec, based on values from 48 KPW wells), but is within the range of reported vales from KPW. Hydraulic conductivity estimates from packer tests on boreholes completed in the GQ Contact zone ranged from 4.6×10^{-7} cm/sec to 7.0×10^{-5} cm/sec, with a mean hydraulic conductivity of 3.5×10^{-5} cm/sec. Borehole fracture density near the GQ Contact is low, on the order of 0 to 1 fracture per foot of core (Blasland & Bouck, 1993c).

Groundwater in the GQ Contact zone in northeastern KPX flows to the east-northeast, around a piezometric mound present near B-120 in KPW (Figure II-5.10d). The regional direction of groundwater flow in the GQ Contact zone, based on the KPW groundwater simulation model (S.S. Papadopulos & Assoc., 1992) is to the southeast, toward the Genesee River. Unlike that created by the Dewey Avenue leg of the CSOAP tunnel in KPE, a drawdown effect has not been observed associated with the Tiger Carlisle leg of the CSOAP tunnel, which passes directly below Building 218.

The vertical hydraulic gradient between the TOR and GQ Contact zones in KPX is approximately 0.77 to 0.83. The difference in potentiometric head between the top of rock and GQ zones is indicative of a strong downward component in hydraulic gradient. The large gradient is a result of the low-permeability of the Intermediate Grimsby.

To date hydrogeologic investigations of the Queenston formation, below the GQ contact zone, have not been conducted in KPX.

5.5.4 KPM INTERMEDIATE GRIMSBY, GRIMSBY-QUEENSTON, QUEENSTON GROUNDWATER

The Intermediate Grimsby and GQ Contact zones in KPM have been less extensively defined through testing than the overburden and top of rock flow zones. An Intermediate Grimsby zone is present beneath the TOR. Borehole packer test data from 8 boreholes in KPM generally indicate permeability of less than $1x10^{-6}$ cm/sec below approximately 25 feet from the bedrock surface. Despite a moderate fracture density observed near the GQ contact, packer test hydraulic conductivity data from the same intervals area also generally are less than 10^{-6} cm/sec (see Figure II-3.11). The fractures within the GQ Contact zone appear to be structurally related (i.e. flow zones where encountered were structural features such as shear zones), although the degree of interconnection is difficult to assess.

Information obtained from wells installed across or near the Grimsby-Queenston contact zone (G2B349NW and G2B352NW) produce rising head hydraulic conductivity values ranging from 2.3×10^{-4} cm/sec to 3.0×10^{-4} cm/sec (Eckenfelder, 1990e; Blasland & Bouck, 1992i). Rising head permeability tests performed on wells G2B314S and G2B329SE2 indicate hydraulic conductivity values of 3.5×10^{-4} cm/sec and 4.4×10^{-4} cm/sec, respectively (Blasland and Bouck, 1991j). In addition, well GMN6 (rising head permeability 5.9×10^{-5} cm/sec), although installed in the TOR, is screened less than 5 feet above the Grimsby-Queenston contact (Figures II-3.11a,b). This may indicate that, as in KPE, the TOR and GQ Contact zone have combined in the area north of the KPM northern fence line.

Groundwater elevation data from the five existing lower Grimsby wells indicate that the direction of groundwater flow in this zone is to the north, similar to the direction of flow in the top of rock and overburden flow zones (Figure II-5.10e).

5.5.5 KPS LOWER-BEDROCK HYDROGEOLOGIC CONDITIONS

Hydrogeologic investigations have not been conducted in the lower bedrock in KPS, to date.

5.5.6 KPT LOWER-BEDROCK HYDROGEOLOGIC CONDITIONS

Hydrogeologic investigations have not been conducted in the lower bedrock in KPT, to date.

6.0

SECTION 6.0

KODAK PARK AVAILABLE MONITORING DATA

Environmental sampling of soil and groundwater has been conducted at Kodak Park since 1981. The evaluation of groundwater quality, particularly for the presence of volatile organic compounds, has been the primary focus of sampling programs. Soil samples have also been collected, albeit much less extensively than groundwater, during installation of groundwater monitor wells, for specific soil quality investigations, and to characterize excavated soil for proper disposal.

Kodak maintains an electronic data base of the results of all environmental testing on groundwater and soil at Kodak Park. Currently, the results of approximately 306,000 groundwater analyses on 643 monitor wells are available for statistical analysis in electronic format. Soil test results are not currently available for statistical analysis, and will not be discussed further in this Section.

Several summary reports of groundwater test results have been prepared for sections of Kodak Park, and for Kodak Park as a whole (H&A, 1992e; H&A, 1991d-e; Blasland & Bouck, 1991e-g). These reports discuss the reliability of test data, and summarize the occurrence and historical detection of organic and inorganic contaminants at Kodak Park prior to 1992. This Section provides a complete summary of test results for all Kodak Park wells sampled from 1981 through 1992. Section 6.1 provides a statistical summary of analyte-specific test results for each monitor well in the Kodak Park area. In Section 6.2, the areal distribution of organic compounds is discussed and depicted for each of the principal groundwater flow zones. A statistical summary of inorganic test results, and an evaluation of overburden background concentrations of selected metals in the Kodak Park area is presented in Part II, Section 6.3.

6.1 HISTORICAL GROUNDWATER QUALITY DATA

Based upon a review of historical sampling and laboratory analytical procedures, Blasland & Bouck (1991e-g) and H&A of New York (1991d-e) determined that Kodak Park groundwater analytical data based on organic compound analysis is generally quantitatively reliable after 1986. Prior to that time, field and laboratory quality control procedures were poorly documented, and may have led to errors in reported values. These data are considered to be qualitatively reliable. Similarly, laboratory methods for metals analysis were not well documented prior to 1985. The results of metals analyses on groundwater samples prior to this date are also qualitatively reliable. Beginning in 1989, all analytical procedures were performed in accordance with established EPA protocols. It is noteworthy that the majority of monitor wells, and subsequent groundwater sampling events, in Kodak Park were installed and conducted after 1986 (see Table II-3.1), so that a large, quantitatively reliable data base is available.

The majority of monitor wells at Kodak Park have been sampled and the groundwater analyzed for volatile organics, and in many cases semivolatile organics, metals and classical compounds. Many wells have been sampled periodically. To summarize the history of chemical detection across Kodak Park, a statistical summary of the laboratory test results for each well is presented in Appendix II. The summary was prepared from data stored electronically in Kodak's electronic data system.

To prepare the statistical summary, groundwater tests were placed into five general categories: 1) volatile organics, including alcohols, 2) semivolatile organics, 3) pesticides and polychlorinated biphenyls (PCBs), 4) metals, and 5) classical and routines. In some cases a specific analyte, such as 1,4-Dioxane, may have been analyzed by two or more methods, but all results are placed in only one category. For each well, the earliest and latest date of sampling, as well as the total number of samples collected (including duplicates) were determined for each of the five categories of tests.

Within each test category, a summary of the earliest and latest date of detection, minimum, average and maximum recorded concentrations, and the total number of detections for each analyte is presented. The criterion for chemical detection was selected to be any concentration greater than zero without an EPA qualifier of "U" or "ND". Analytes which were detected below the limits of quantification ("J" qualified test results) were included in the summary of chemical detection. Analytes which were tested, but were not detected in an individual well were eliminated from the summary table for that well.

6.2 DISTRIBUTION OF ORGANIC CONTAMINANTS

A review of the groundwater quality data presented in Appendix II indicates that organic compounds were detected at a greater frequency and at higher levels than other compounds at the site. Volatile organics, including halogenated solvents such as methylene chloride and 1,2-dichloropropane, non-halogenated compounds such as acetone, benzene and toluene, and alcohols such as methanol and isopropanol, have been detected with greater frequency and higher concentration than semi-volatile compounds.

To illustrate the distribution of organic contaminants in groundwater beneath Kodak Park, a series of maps depicting the concentration of total volatile and alcohol compounds detected in groundwater samples from each principal flow horizon is presented in Figures II-6.1a-r. The contours presented on the figures represent a schematic illustration of the concentration between monitoring locations; the actual levels may vary from the estimated concentration. These figures indicate areas of detected organic contaminants in the groundwater and provide a plan view of the general extent of contamination. These compounds were selected because of their relatively high frequency of detection at Kodak Park, and because they are generally more soluble and mobile than semivolatile compounds and metals. To prepare the maps, the total concentration of volatile and alcohol compounds were calculated for the most recent groundwater sample analyzed during the two-year period from January 1, 1991 through December 31, 1992 for each monitor well in the Kodak Park area. Estimated concentrations ("J" qualified test results) were included in the calculation of the total, while analytes which were tested, but not detected ("ND" or "U" qualified test results), were not included. The concentration of total volatile and alcohol compounds were computed for 456 wells at Kodak Park. Table II-6.1 lists the analytes included in the calculation of total volatile and alcohols, as well as the concentration of alcohols, halogenated, and non-halogenated compounds in each of the 456 samples utilized in map preparation.

6.2.1 ORGANIC CONTAMINANTS IN KPE

Environmental quality data have been obtained from soils, surface water and groundwater in KPE since 1984. This section summarizes KPE groundwater quality based on data obtained prior to January 1, 1993. In addition, groundwater quality data have been summarized in H&A(1991d). The H&A of New York report contains time series plot and water quality distribution maps for eight volatile organic compounds and calculated total volatiles. To date, soils data have not been summarized on a site-wide basis.

A review of the groundwater quality data presented in Appendix II indicate that organic compounds were detected at a greater frequency and at higher levels than other compounds in KPE. The most frequently detected compounds are methylene chloride, 1,2-dichloropropane, acetone, cyclohexane, methanol, ethanol, isopropanol, and n-butanol. The general spatial distribution of these compounds as total volatile and alcohol compounds is depicted on Figures II-6.1a-h. Semi-volatile compounds were detected at or below quantitation limits. PCBs and pesticides have not been detected in KPE groundwater.

The concentration of total volatiles and alcohols (TVOA) in the overburden in KPE (Figures II-6.1a,e) ranges from non-detected to 1.5 mg/l. Groundwater samples from overburden wells in KPE generally do not contain significant levels of TVOA.

Moderate levels of halogenated and non-halogenated compounds were detected in well SB53SW (0.131 mg/l TVOA) located in investigation area EIA-53 (KPE Investigation Area 53; see Part II, Section 1.0). Low to moderate levels of alcohols (less than 1.5 mg/l total alcohols) were detected in several wells in the KPRR area of southwestern KPE, associated with investigation area WIA-KPW.

The concentration of TVOA in the top-of-rock flow zone (excluding Queenston-TOR wells, discussed below) in KPE ranges from non-detected to approximately 3,600 mg/l (PB57W; Figures II-6.1b,f). Two areas of significant groundwater contamination are present in this flow zone in KPE. An area of halogenated organics, principally methylene chloride, extends from Buildings 57 and 53, north to Building 87. This area of contamination is associated with investigation area EIA-53. TVOA concentration in wells located in the B-53, B-52 and B-57 portion of EIA-53 generally range from 10 mg/l to 100 mg/l. The high concentration of methylene chloride in wells, and historic observations of DNAPL in fractures during CSOAP tunnel construction indicate that DNAPL is present in the bedrock in this area. A second area of elevated TVOA is located in the KPRR area of southwest KPE, associated with investigation area WIA-KPW. The concentration of TVOA, principally halogenated volatile organics, in the WIA-KPW area ranges from 0.010 mg/l to 100 mg/l. A third area of contamination is present near Building 62, near Lake Avenue. Vinyl chloride was detected in a single TOR well, GB62SE, at a concentration of approximately 0.2 mg/l. The source of the vinyl chloride is uncertain. It is probable that the vinyl chloride in the GB62SE well is a daughter product of aerobic biodegration of halogenated solvents in groundwater in EIA-53, which is located hydraulically upgradient from Building 62.

Groundwater contaminants in the GQ Contact zone in KPE are limited, based on available information, to the KPRR area of investigation area WIA-KPW, and in two monitor wells located south of Kodak Park. The principal contaminant in this area is methanol, accounting for all or the majority of the TVOA depicted on Figures II-6.1c,g (see Table II-6.1). TVOA concentrations in the contaminated area generally range from 0.01 to approximately 1 mg/l. Slightly higher TVOA concentrations were noted at GQL15E (22.4 mg/l) and GQB49NE (7.2 mg/l).

Groundwater contaminants in the Queenston flow zone in KPE generally consist of halogenated volatile organics in the EIA-53, EIA-27, and EIA-82 investigation areas (Figures II-6.1d,h). The concentration of TVOA near Building 47 (EIA-53) ranges from 0.01 to approximately 10 mg/L. An area of elevated TVOA extends from the northern portion of Building 57, north to the Building 82 area. TVOA concentrations in this area are generally less than 2 mg/l.

According to H&A of New York (1991d) temporal trends indicate a decrease in total volatile concentrations in 55 percent of the wells and general stabilization of total volatile concentrations in approximately 25 percent of KPE wells. The general trend of decreasing concentrations with time may be due to increased efforts at release prevention; a natural decrease in concentrations from dilution, advection, biodegradation, etc.; removal of mass by extraction systems; and/or improved sampling decontamination methods implemented in 1988.

Overburden groundwater contamination does not appear to be widely distributed. Detections are centered around apparent source areas. Based on this information and the known downward vertical hydraulic gradients from the overburden into the top of bedrock, it is apparent the principal contaminant migration direction in the overburden is downward. Bedrock groundwater quality data indicate more wide-spread and stable concentrations of organic compounds across KPE. The wide-spread nature of contamination is indicative of lateral contaminant transport. The high and stable concentrations of organics in the bedrock suggests probable DNAPL sources within the bedrock. DNAPL has been observed in the Building 53 area and in the CSOAP tunnel under Parking Lot 42.

6.2.2 ORGANIC CONTAMINANTS IN KPW

Environmental quality data have been obtained from soils, surface water and groundwater in KPW since 1984. This section summarizes KPW groundwater quality based on data obtained prior to January 1, 1993. In addition, groundwater quality data have been summarized in H&A(1991e). The H&A of New York report contains time series plot and water quality distribution maps for eight volatile organic compounds and calculated total volatiles. To date, surface water and soils data have not been summarized on a site-wide basis.

A review of the groundwater quality data presented in Appendix II indicate that organic compounds were detected at a greater frequency and at higher levels than other compounds in KPW. Several types of organic compounds have been detected in groundwater from KPW. Alcohols, halogenated solvents, and non-halogenated solvents were detected most frequently and in highest concentration separately in some areas, and in mixtures across most of KPW. The most frequently occurring and highest concentration organic contaminants detected in KPW are methylene chloride (dichloromethane), 1,2-dichloropropane, 1,2-dichloroethane, 1,2-dichloroethene, vinyl chloride, toluene, acetone, cyclohexane, benzene, methanol, isopropanol, n-butanol, ethanol, and 1,4-dioxane. The general spatial distribution of these compounds as total volatile and alcohol compounds is depicted on Figures II-6.1i-l. Semi-volatile compounds and pesticides have been detected in several monitoring wells. PCBs have not been detected in KPW groundwater.

The spatial distribution of total volatile organic and alcohol compounds (TVOA) in the overburden groundwater in KPW is depicted on Figure II-6.1*i* and listed by well in Table II-6.1. In general, the overburden flow zone in the southern and central portions of KPW has elevated levels of TVOA. The contaminated areas of the overburden are largely located within KPW proper, with detections of alcohol only in several overburden wells located on Rand Street, south of KPW. The industrial sewer system and existing remedial systems (see Part III, Section 2) appear to be preventing the spread of contaminants from KPW to off-site areas. Areas of high concentrations of TVOA are located near probable sources in the southwestern portion of KPW in the distilling complex and former tank farms and storage areas (Buildings 115, 120, 123 and adjacent buildings) and in the north-central portion of KPW, near Building 119. Groundwater contaminants in the southwest and distilling areas consist of a mixture alcohols, halogenated and non-halogenated compounds ranging in concentration from 0.01 mg/l to greater than 1,000 mg/l.

The spatial distribution of TVOA in the top-of-rock (TOR) flow zone in KPW is depicted on Figure II-6.1j and listed by well in Table II-6.1. Groundwater contaminants are distributed across most of KPW. In general, the type of compounds present in the TOR and the apparent source areas of groundwater contaminants is similar to that of the overburden, however concentrations in the TOR are generally greater than in the overlying overburden flow zone. Groundwater contaminant concentrations in the TOR are highest in the distilling (Building 115 and 120), southwestern (Buildings 123, 126, 137 and adjacent buildings), and north-central (Building 119) portion of KPW. The highest concentrations of contaminants form a band extending from Building 123, to Building 115, and then north to Building 119. The concentration of TVOA in this area ranges from 1 mg/l to greater than 100 mg/l. The principal contaminants are methylene chloride, 1,2-dichloropropane, acetone and methanol, however groundwater samples in this area generally contain a multi-component mixture of organic compounds. The high concentrations of halogenated solvents in the area suggests that an immobile dense non-aqueous phase liquid (DNAPL) source is present in the bedrock. This is supported by direct observation of DNAPL in several TOR wells in KPW (Figure II-6.2), including GB115N, GB120NW, GB121SW, G1B115S and GB136S.

Outside of the high-concentration area described above, groundwater contaminant concentrations in the TOR generally range from 0.1 to 1 mg/l (Figure II-6.1j; Table II-6.1). The types of compounds detected in monitor wells in these areas generally depends on the proximity to source areas in the central and southwest portions of KPW and the local direction of groundwater flow.

The spatial distribution of TVOA in the Grimsby-Queenston Contact (GQ Contact) zone in KPW is depicted on Figure II-6.1k and listed by well in Table II-6.1. Groundwater contaminants are distributed across the southern on-site portion of KPW and the southwest portion of KPE, with low levels of methanol contamination in some off-site wells. The groundwater contaminants in the GQ Contact zone are predominantly methylene chloride and methanol. The concentration of TVOA within the contaminated area ranges from 0.01 mg/l to greater than 100 mg/l. The highest concentrations, 10 mg/l to 600 mg/l TVOA, are located beneath the Building 115 distilling complex and in the Parking Lot 50 area. Direct observation of DNAPL in monitor wells installed in the intermediate and GQ Contact zones (wells G2B115S, G2L50SW3, G2L50SW2, G3B136S and G3B142S) indicate that a DNAPL source is present in this area.

The spatial distribution of TVOA in the Queenston Shale in KPW is depicted on Figure II-6.1l and listed by well in Table II-6.1. Groundwater contaminants are distributed across the southern on-site portion of KPW, similarly to the distribution of contaminants in the Grimsby-Queenston Contact zone. The groundwater contaminant in the Queenston Shale is predominantly methanol, with a lower concentration of methylene chloride. The concentration of TVOA within the contaminated area ranges from 0.01

mg/l to approximately 10 mg/l. The highest concentrations range from 2.6 mg/l to 8.7 mg/l TVOA and are distributed concentrically around a probable source area near the distilling complex (QB130SW, QL50SR, and QB135SE). The concentration of TVOA directly below the distilling complex is lower (0.2 to 0.5 mg/l) then that of the surrounding area, which suggests that DNAPL migration, rather than the vertical migration of groundwater may have played a major role in the emplacement and distribution of contaminants in the Queenston Shale.

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Subsurface contaminant mass may be distributed as a gas in the vadose zone, dissolved in groundwater, adsorbed to organic and mineral surfaces, diffused into the rock matrix, and as liquid DNAPL. The relative distribution of contaminant mass in the southwestern and distilling portions of KPW was estimated by Eckenfelder (1992c). They determined that, for this portion of KPW:

- The majority of contaminant mass exists in the overburden and top of rock intervals. These two intervals jointly contain an estimated 95 percent of the total mass of the contaminants. The remaining five percent exists within the Intermediate Grimsby, GQ Contact and Queenston Shale intervals, with decreasing contributions with depth. The majority of contamination is located within the top of rock interval, accounting for approximately 70 to 80 percent of the total estimated mass.
- Of the contaminant mass in the top of rock zone, approximately 50 to 65 percent of the total is present as immobile globules and ganglia of DNAPL. Contaminant mass in other forms (e.g. matrix diffused, dissolved, vapor phase) ranges from a low of 0.5 percent (soil vapor) to a high of 16 percent (groundwater and matrix contamination). Vadose zone contamination represents only 5 to 9 percent of the total emplaced contaminant mass.

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According to H&A of New York (1991e), temporal trends indicate that, of the wells in KPW with multiple sample results, 40 percent showed a decrease with time, 30 percent remained relatively constant, and 30 percent showed an increase. The large percentage of wells showing a general decrease with time may be due to increased efforts at release prevention; natural decrease in concentrations from dilution, advection, biodegradation, etc.; removal of mass by extraction systems; and/or improved sampling decontamination methods implemented in 1988.

6.2.3 ORGANIC CONTAMINANTS IN KPX

Environmental quality data have been obtained from soil, groundwater, and surface water in KPX since 1989. The majority of the data for KPX was collected in the years 1989 and 1990 and is therefore quantitatively reliable. This section discusses groundwater quality in KPX based on samples collected prior to January 1, 1993. For additional information, refer to Blasland & Bouck(1991f).

Thirty-six organic compounds have been detected in KPX, primarily in the Building 218 area. Thirty organic compounds were detected that tended to be present only in this portion of KPX. Twelve of these compounds (1,2-dichloroethane, 1,4-dioxane, benzene, ethyl acetate, ethylbenzene, isopropyl alcohol, isopropyl ether, methyl ethyl ketone, acetonitrile, trichloroethylene, tetrahydrofuran, and xylenes) were frequently detected, while the remaining compounds were detected only four times or less. The general spatial distribution of these compounds as total volatile and alcohol compounds is depicted on Figures II-6.1m,n,o.

The concentration of total volatiles and alcohols (TVOA) in the overburden in KPX (Figure II-6.1m) ranges from non-detected to approximately 360 mg/l (PB218NW). One area of contamination, associated with a known release in the Building 218 incinerator area (XIA-218), is present in the overburden. The concentration of TVOA in the XIA-218 area ranges from 0.01 mg/l to greater than 100 mg/l.

The spatial distribution of TVOA in the top-of-rock flow zone in KPX is similar to that in the overburden (Figure II-6.1n). The concentration of TVOA in groundwater ranges from non-detected to approximately 36 mg/l (GB218W). One area of significant groundwater contamination, associated with XIA-218, is present in this flow zone. TVOA concentration in wells located in the XIA-218 generally range from 0.01 mg/l to less than 100 mg/l.

Groundwater contaminants in the GQ Contact zone in KPX are limited, based on available information, to the XIA-218 area. The principal contaminants in this area are alcohols, accounting for the majority of the TVOA depicted on Figure II-6.10 (see Table II-6.1). TVOA concentrations in the five GQ monitor wells in the Building 218 area range from 0.01 to approximately 55 mg/l (GQB218NW). The distribution of contaminants in the GQ Contact zone in KPX is consistent with a vertically downward transport of contaminants from the more highly contaminated TOR and overburden flow zones.

6.2.4 ORGANIC CONTAMINANTS IN KPM

Environmental quality data have been obtained from soils, surface water and groundwater in KPM since 1981. This section summarizes KPM groundwater quality based on data obtained prior to January 1, 1993. In addition, groundwater quality data have been summarized in Blasland and Bouck(1991g). The Blasland and Bouck Engineers report contains time series plot and water quality distribution maps for volatile organic compounds and calculated total volatiles. To date, surface water and soils data have not been summarized on a site-wide basis.

The groundwater data for KPM consists of quantitatively reliable organic data (1987 to 1990) and inorganic data (1985 to 1990), in addition to earlier qualitative data dating back to 1981. A review of the organic data (Blasland & Bouck, 1991g) has identified several distinct contaminated areas. The distribution of monitoring wells, and the parameters and timing associated with various analytical programs, have resulted in a concentration of analytical data primarily along the northern fence line and in the Weiland Road Landfill area.

A total of 44 organic parameters have been detected in KPM groundwater. Of these compounds, 1,4-dioxane and methylene chloride have been detected in several areas of KPM and do not appear to be associated with activities at a single location. 1,4-dioxane has primarily been detected at the Weiland Road Landfill, at Buildings 351/352, and to a lesser extent at isolated locations along the northern fence line. The highest levels of methylene chloride have been detected at Buildings 329 and 351/352.

The distribution of total volatile organics and alcohols (TVOA) in KPM is depicted in Figures II-6.1p,q,r and Table II-6.1. The organic compounds of primary interest have been identified for investigation areas of KPM as follows:

- MIA-WRL (Weiland Road Landfill): 1,4-dioxane, and acid fuchsin (acid magenta)
- MIA-329 (Building 329): 1,2-dichloroethane, 1,4-dioxane, acetone, isopropanol, methanol, methyl ethyl ketone, methylene chloride, and toluene
- MIA-351 (Buildings 351/352): 1,4-dioxane, ethylene glycol, and methylene chloride
- MIA-308 (Tank Farm Area - Building 322): ethylbenzene, isopropyl ether, and xylenes
- MIA-301 (Building 324): 1,2-dichloroethene, isopropyl ether, trichloroethylene, and methylene chloride
- MIA-301 (Buildings 301/302): acetone, ethylbenzene, and isopropyl ether

The distribution of TVOA in the overburden and TOR is similar, however the concentration of organic compounds in TOR groundwater is generally lower than in the overburden. The concentration of TVOA in the overburden ranges from not detected to greater than 100 mg/l (Figure II-6.1p). The highest concentrations of contaminants is present in MIA-301 and MIA-308. The concentration of TVOA in the TOR in these areas is approximately one order of magnitude lower than the overburden (Figure II-6.1q). An exception to this pattern is the high concentration of TVOA (0.01 mg/l to approximately 40 mg/l), principally methylene chloride, in the TOR at Building 329; organic compound concentrations in the overburden near 329 are near the limits of detection.

There are limited data on groundwater quality in the GQ Contact zone in KPM. Three wells in the Weiland Road Landfill have TVOA concentrations ranging from 5 mg/l to 110 mg/l (Figure II-6.1r). These detections consist of alcohols, predominantly methanol (Table II-6.1).

6.2.5 ORGANIC CONTAMINANTS IN KPS

Limited groundwater monitoring data is available for KPS. This section summarizes the groundwater quality data for wells sampled prior to January 1, 1993 from KPS. Monitoring data during this period of time are restricted to wells located near the KPS Coal Pile, and Building 605. Additional information is contained in Blasland & Bouck(1991e).

Analytical data from 1981 through 1983 do not indicate significant organic contamination near the coal pile in KPS, although data from this period are generally not considered quantitative. However, methanol, 1,1-dichloroethylene, xylenes, and tetrahydrofuran, among other less significant compounds, were detected in KPS wells located along the northwest fence line. It is likely that tetrahydrofuran detections are an artifact of glue dissolution in some of the older wells. Recent investigations at the northeast corner of Building 605, at the site of a previous release from a below grade photochemical waste storage tank, indicate the presence of low to moderate levels of non-halogenated organics (see Table II-6.1).

6.2.6 ORGANIC CONTAMINANTS IN KPT

Limited groundwater monitoring data is available for KPT. This section summarizes the groundwater quality data for wells sampled prior to January 1, 1993 from KPT. Monitoring data during this period of time are restricted to only one set of data from each of 8 wells formerly located at TIA-SIA in the eastern portion of KPT. Samples from the eight wells were analyzed for a broad suite of organic compounds by EPA Methods 8240, 8270, 8015, and 8080. Semi-volatile organic compounds were found to occur at levels near the limit of detection in only one well (RKPT6). Additional information is contained in Blasland & Bouck(1991i).

6.3 DISTRIBUTION OF INORGANIC CONTAMINANTS

This section discusses the results of analyses of groundwater at Kodak Park for inorganic parameters, such as metals and naturally occurring species (e.g. sulfate, phosphate, chloride, etc.), and for some organic compounds that have traditionally been analyzed with inorganic species (e.g. nitrate, nitrite, and cyanide). Most of these inorganic species and metals occur naturally in groundwater. The concentration in groundwater of a particular species may depend strongly on soil type, rock composition, and local pH and oxidation/reduction conditions (Eh) of the aquifer. Therefore evaluation of their distribution in Kodak Park groundwater is different and more complicated than that of organic compounds.

A statistical summary of the range and average concentration of inorganic parameters (metals and classical analytes) from monitor wells in the Kodak Park area is presented in Table II-6.2. This summary was computed for monitor wells from each flow zone at Kodak Park. The minimum, average, and maximum values reported for each flow zone were computed from the test results of individual wells. For wells with multiple samples, a simple arithmetic average concentration was computed, and the average value was used in summary calculations. Tests results which were reported as non-detected (i.e. "ND" and "U" qualified) were eliminated prior to computing well averages.

Two trends are suggested from the data presented in Table II-6.2. First, a comparison of the results of testing of dissolved and total metal species is difficult, due to a generally large difference in the reported values; the total metal result is generally larger than the dissolved metal test result. The disparity is probably related to acid leaching of metals from suspended solids in the water sample in the total metal test. Second, the concentration of the ions of natural salts (such as sodium and chloride) generally increase with depth, reaching a maximum in the Queenston Shale. This suggests that the flux of groundwater in the queenston is much lower than that of the overburden, TOR and GQ flow zones.

6.3.1 METALS AND INORGANIC SPECIES IN KPE GROUNDWATER

H&A (1991d), reviewed the distribution of metals in KPE groundwater. They found similar concentrations in on-site and background areas for 12 of 18 dissolved metals they evaluated. Of the six remaining metals, barium, iron, manganese and chromium were above background in 5 percent of the KPE wells, indicating a general conformance between background and on-site conditions on a site-wide basis. A statistical analysis of background concentrations for cadmium and lead was inconclusive. The spatial distribution of these metals indicates wide-spread occurrence, particularly in the case of lead. The elevated levels of these compounds may be related to air emmissions and automobile exhaust. Elevated lead levels may also be attributed to application of lead-arsenate on orchards that were historically located in, and north of KPE.

Miscellaneous constituents also evaluated by H&A (1991d) included pH and total dissolved solids. Elevated pH values were generally associated with analyses performed immediately after wells were installed. Subsequent analyses of groundwater samples from these wells indicated a generally decreasing trend, suggesting potential pH influence from the grout. This condition was observed in only 10 wells in KPE. Total dissolved solids data indicated KPE groundwater to be slightly saline to very saline.

6.3.2 METALS AND INORGANIC SPECIES IN KPW GROUNDWATER

H&A (1991e) reviewed the distribution of metals in KPW groundwater. They found similar concentrations in on-site and background areas for 15 of 24 dissolved metals they evaluated. Of the nine remaining metals: antimony, arsenic, barium, cadmium, chromium, selenium, lead, iron, and thallium a statistical analysis was inconclusive. The spatial distribution of lead suggests wide-spread occurrence. The elevated levels of this compound may be related to air emmissions and automobile exhaust. Elevated lead levels may also be attributed to application of lead-arsenate on orchards that were historically located near Kodak Park.

Elevated pH values were generally associated with analyses performed shortly after wells were installed and may reflect pH influence from the grout, but there is insufficient data to evaluate trends with time. Sodium/chloride milliequivalence ratios indicate water quality in the upper flow systems is different from that in the Grimsby-Queenston flow zone, which suggests the presence of a middle Grimsby aquitard.

6.3.3 METALS AND INORGANIC SPECIES IN KPX GROUNDWATER

Blasland & Bouck (1991f) reviewed the distribution of metals in KPX groundwater. The results of their analysis are presented in Table II-6.3. Elevated metals concentrations are largely associated with total recoverable metals analysis from wells constructed of stainless steel in the vicinity of Building 218. These elevated metals concentrations are difficult to interpret due to inclusion of formation fine-grained particles (suspended solids) in total recoverable metals analysis and possible corrosion of stainless steel well screens (both factors which may lead to nonrepresentative results).

Inorganic results of samples from wells constructed of PVC, which were analyzed using dissolved and acid-soluble analytical methods, are distinctly lower and feasibly fall within the range of naturally occurring concentrations, with the possible exception of sodium and chloride (which could be a result of road salt contamination). To determine if significant inorganic contamination of groundwater beneath KPX is occurring, an evaluation of the impacts of the different analytical methods and well completion methods is required.

6.3.4 METALS AND INORGANIC SPECIES IN KPM GROUNDWATER

Blasland & Bouck (1991g) reviewed the distribution of metals in KPM groundwater. The results of their analysis are presented in Table II-6.4. Some inorganic constituents were identified in KPM groundwater samples at concentrations that were above state standards/guidance values and/or estimated natural background concentrations (Blasland & Bouck, 1991g). Several constituents were also identified for which the upper values appear elevated, relative to other groundwater samples, although no state standard or guidance values or estimated natural background concentrations have been established. Blasland and Bouck concluded that, disregarding influences from analytical procedures and well materials, no distinct distribution of inorganics in KPM is apparent with the exception of elevated concentrations of antimony, magnesium, thallium, arsenic, and zinc observed at the B324 well cluster.

So are
they going
to do
this?

6.3.5 METALS AND INORGANIC SPECIES IN KPS GROUNDWATER

Blasland & Bouck (1991e) reviewed the distribution of metals in KPS groundwater. The results of their analysis are presented in Table II-6.5. Most of the inorganic results suggest naturally occurring ions, as concentration values fall well within the range of concentrations measured for background bedrock conditions (relative to a reference area in KPT). Although chromium values have formerly been above the current state groundwater standard, they are now well below this standard for all wells analyzed in 1989 through 1990 (taken to be the most quantitatively reliable body of data). Antimony, arsenic, and selenium, which have only been monitored since 1988, show some concentrations that approach or are above state drinking water standards. No natural range of occurrence has been estimated for these metals; therefore, no firm conclusion can be drawn as to whether observed concentrations are a natural phenomenon or an impact of the coal pile.

According to next page antimony + selenium were non-detect in KPT

Sulfate concentrations are consistently above the state groundwater standard in all but one interior well associated with the KPS Coal Pile, yet are not elevated in the fence line wells. This indicates that oxidation of pyrite and organic sulfur compounds in the coal may be releasing excess soluble sulfate into the groundwater.

6.3.6 METALS AND INORGANIC SPECIES IN KPT GROUNDWATER

Limited groundwater monitoring data are available for KPT. This section summarizes the groundwater quality data for wells sampled prior to January 1, 1993 from

Is the info around. use KPT Reference DATA?

KPT. Monitoring data during this period of time are restricted to only one set of data from each of 8 wells formerly located in the eastern portion of KPT.

Several metals were not detected in KPT groundwater (antimony, beryllium, cadmium, selenium, silver and thallium). Metals detected at levels below state groundwater standards were mercury, arsenic, chromium, copper, barium, and zinc (Table II-6.6). Additional information is contained in Blasland & Bouck (1991i).

PART III

1.0

PART III

KODAK PARK IMPLEMENTATION OF CORRECTIVE MEASURES

SECTION 1.0

KPE CORRECTIVE MEASURES

Corrective measures in KPE have primarily focused on two geographic areas; Building 53 and the KPRR area. A groundwater extraction system was installed in the vicinity of Building 53 to mitigate groundwater contamination by volatile organic compounds (VOCs) including methylene chloride (see Part II, Section 6.2.1). Corrective measures in the KPRR area have included soil removal and installation of a dual vapor/groundwater extraction system in response to a release from a ruptured solvent transfer line in the pipe tunnel under Ridge Road (see Part II, Section 6.2.1). Each of these corrective measures is described more fully below.

1.1 BUILDING 53 MASS REMOVAL

1.1.1 OBJECTIVE

In October 1986, a hydrogeologic investigation of the northern portion of KPE was performed (H&A, 1987b). The program was intended to evaluate groundwater quality in bedrock relative to the proposed mining of the Eastman Avenue leg of the CSOAP tunnel north of Building 53. This investigation included the installation of twenty nine (29) wells at 12 locations within the overburden, Grimsby and Queenston Formations. Several of the wells were specifically constructed as groundwater extraction wells. The results of the investigation supported earlier findings which indicated the presence of VOCs in the groundwater.

In early 1987, a Phase II Hydrogeologic Investigation (H&A, 1987b) was performed to further characterize subsurface conditions in the KPE vicinity. As part of that investigation, two additional monitor well clusters and one additional recovery well were installed. Groundwater quality data indicated the presence of VOCs, primarily methylene chloride, and several other compounds. Based upon these findings, a groundwater extraction program was implemented to address the areas of highest VOC concentrations. The objective of the extraction wells is to remove contaminant mass from the top of bedrock flow zone. Several additional recovery wells (other than those installed during the Phase I and II investigations) were installed to perform mass removal remediation. Currently, the Building 53 area extraction wells consist of the following: PB53N2, PB54NW, PB54SE and PB57W. An additional extraction well (PB53N) was abandoned in April, 1989 due to construction activities.

1.1.2 EXTRACTION WELL DESIGN, OPERATION AND MAINTENANCE

Well construction details for Kodak Park pumping wells are summarized in Table II-5.1. The locations are shown on Figure II-5.1b and well construction diagrams are provided in Appendix III. The KPE pumping wells are constructed within the Grimsby Sandstone and Queenston Shale.

I don't think they asked us about this.

Pumping wells are equipped with either a submersible pump or pneumatic pump. Each well is also equipped with a flow meter and accumulator to determine the rate and the volume of groundwater extraction. Extracted groundwater is routed to the King's Landing Wastewater Purification Plant (KLWPP) via the industrial sewer system for appropriate treatment.

The operation and maintenance (O&M) of the groundwater extraction system is performed by Kodak personnel and O&M records are maintained at the Kodak Park Facility. Pumping well performance reports are prepared monthly, and summarized annually by Kodak and are on file at Kodak. Presently, annual reports for 1988, 1989, 1990, 1991 and 1992 are available.

Operation and maintenance of the extraction wells consists of recording daily flow rates and volumes and quarterly sampling of extracted groundwater. Periodic sanitizing of each well and defouling of pump and well screens is performed as needed. The well performance reports prepared by Kodak contain information regarding the details of O&M performed for each well including the percent of time that each well was operational, mechanical problems, well sanitizing, etc.

1.1.3 REMEDIAL SYSTEM EFFECTIVENESS

The objective of groundwater extraction in the Building 53 area of KPE is to perform removal of contaminant mass (primarily methylene chloride) in localized areas. The control of contaminant migration has not been established due to the low well yields, which range from several gallons to less than 0.1 gallons per minute (gpm) (H&A, 1992e). The effects of groundwater extraction in the Building 53 area are described below.

Groundwater quality data for both extraction wells and pumping wells has been evaluated and summarized by H&A (1991d). Additionally, groundwater quality data from pumping wells have been evaluated by Kodak and are provided in the annual pumping well performance reports. The total annual mass of contaminants removed from each of the currently operational wells in KPE is listed in Table III-1.1 for the period 1988 through 1992, and a listing of the mass removed in 1992 by analyte is presented in Appendix IV. Table III-1.2 lists the total annual volume of groundwater extracted from the wells during the same period. Contaminant time series plots depicting the concentration of total volatile organics and alcohols in the extracted groundwater over time at each pumping well are provided in Appendix V. The current rate of groundwater extraction from each pumping well, as illustrated by data collected during 1992, is provided in Appendix VI.

The results of the KPE Analytical Data Review (H&A, 1991d) suggest that significant improvements in groundwater quality may have occurred. During the period of 1984-1986, approximately 60% of samples from overburden wells and 80% of samples from the upper Grimsby Sandstone contained detectable concentrations of methylene chloride. In 1990, 20% of overburden well samples contained detectable concentrations of methylene chloride. Additional samples are necessary to confirm this trend. Methylene chloride concentrations in the upper Grimsby sandstone formation have been reduced particularly in the vicinity of extraction wells.

Concentration time series plots of TVOA for pumping wells PB53N, PB53N2, PB54NW, and PB54SE (Appendix V) indicate decreasing trends in concentration for each well. Annual summaries of the total pounds (lbs.) of VOCs removed from extraction wells PB53N, PB53N2, PB54NW, PB54SE and PB57W (Table III-1.1) indicate that the greatest total mass of VOCs have been removed by wells PB54NW (5174 lbs) and PB53N2 (3080 lbs) for the period of 1988 through June 1991.

1.2 KODAK PARK RAILROAD (KPRR) REMEDIATION

1.2.1 OBJECTIVE

The second area of corrective action in KPE is located beneath the West Ridge Road - Kodak Park Railroad bridge (KPRR). In December 1988, a release in excess of 10,000 gallons of T1 crude (mixed solvents) occurred from a solvent transfer line beneath the bridge. An hydrogeologic investigation was performed by H&A of New York in early 1989. The investigation included the installation of 21 monitoring wells in the area of the solvent release and City of Rochester Public School #41 (located south of the railroad bridge). Groundwater quality data from the hydrogeologic investigation indicated the presence of volatile organic compounds in the top of rock flow zone in the area of the solvent leak. Groundwater elevation data indicate that the direction of groundwater flow in the overburden and top of rock is to the northeast (toward the main trunk of the Kodak industrial sewer).

Additional studies were performed in two phases. The first phase (Phase One) included the installation and operation of a dual vapor/groundwater extraction system. The first phase system was operated from April 16 through November 9, 1989. The results of the first phase of system operation were used to evaluate the effectiveness of the system. Subsequent to this evaluation, the system was modified to increase the area of influence. The details of the Phase One activities are summarized in Part III, Section 1.2.2, from reports prepared by Terra Vac, Inc. (Terra Vac Inc, 1989 and 1991).

In April 1989, Terra Vac, Inc. installed a "Phase One" dual phase vapor/groundwater extraction system in the vicinity of the KPRR solvent leak. The objectives of the Phase One system were to:

(1) Initiate remediation of the soils and groundwater in the area of release.

(2) Minimize the migration of groundwater from the source area while removing the source of continuing groundwater contamination.

(3) Evaluate the effectiveness of activated carbon vapor treatment system.

(4) Obtain site specific design parameters for the implementation of a phase two system.

The Phase Two system included additional extraction wells and was designed in the same manner as the Phase One system. The addition of a second vacuum unit was required to achieve required vacuum levels. All other system design features were the same.

1.2.2 VAPOR/GROUNDWATER EXTRACTION SYSTEM DESIGN, OPERATION AND MAINTENANCE

1.2.2.1 Phase One System Design, Operation, and Maintenance

Three dual vacuum extraction wells (DE-1, DE-2 and DE-3; designated by Kodak as PL15W, PES11 and PES15, respectively) were installed during the period of April 5-15, 1989. The locations are shown on Figure II-5.1 and well construction diagrams are provided in Appendix III. Each well was constructed so that the overburden-top of rock contact was bridged by the well screen, allowing for vapor and groundwater extraction from both intervals. Each extraction well was connected to a manifold system, a 1000 gallon air/water separator tank, a vapor phase activated carbon system and a vacuum extraction unit.

Extraction wells DE-1 (PL15W) and DE-2 (PES11) were also equipped with deep well jet pumps. Extracted groundwater was discharged to a nearby industrial sewer catch basin. Water treatment was performed at the KLWPP. Additional equipment to allow for measurements of vacuum, air flow, temperature, water flow and volume were also installed. More specific design details are provided in Terra Vac, Inc., (1989).

In addition to the three extraction wells, an embankment drain (ED1) was connected to the dual vapor extraction system on April 27, 1989. The embankment drain consists of perforated pipe which extends an unknown distance beneath Ridge Road. A horizontal venting lateral (HE-1) was installed in late July 1989. This lateral extends 35 feet horizontally beneath Ridge Road, directly below the pipe tunnel where the solvent release occurred. Air emissions were monitored on a continuous basis using a HNu

Very abrupt transition

Model PI210-001 organic vapor analyzer. The monitoring system was designed to shut down operation when the carbon unit adsorption capacity was reached. Replacement of the carbon unit was then performed. More detailed information regarding well construction and system design is provided in the Phase One and Final Reports (Terra Vac, 1989 and 1991, respectively).

The Phase One system was in operation from April 16, 1989 to November 9, 1989, at which time the system was shut down for expansion to "Phase Two". During the period of operation, wells PL15W, PES11 and PES15, and HE1 and ED1 operated as vacuum extraction wells. Groundwater recovery was performed in wells PL15W and PES11.

1.2.2.2 Phase Two System Design, Operation, and Maintenance

In September, 1989 the Phase One system was expanded with the installation of additional extraction wells and piezometers. Four new wells (PES15, SES15, SES16 and GES16) were manifolded to the existing vacuum extraction system. Two of these wells (PES15 and GES16) were also equipped with groundwater recovery systems. Five additional monitoring wells were also installed (GQES1, GQES16, SES17, GES17 and SES18). The locations are shown on Figure II-5.1 and well construction diagrams are provided in Appendix III. Each extraction well was constructed so that the overburden-top of rock contact was bridged by the well screen, allowing for vapor and groundwater extraction from both intervals. Each extraction well was connected to a manifold system, a 1000 gallon air/water separator tank, a vapor phase activated carbon system and a vacuum extraction unit.

The groundwater extraction portion of the Phase Two system became operational on January 30, 1990. By February 14, 1990 all of the vacuum extraction wells were on line. Wells SES16, PES15 and SES15 were taken off line in March 1990 due to low VOC extraction rates. The balance of the system remained in operation until May 24, 1990.

1.2.3 REMEDIAL SYSTEM EFFECTIVENESS

Total volatile organic compound (VOC) and individual compound concentrations were monitored during the 168 days of Phase One operation. During that time, total vapor phase VOC concentrations decreased from an average of 4,260 parts per million (ppm) during the first 12 days of operation to 26 ppm during the last 55 days of operation. Concentrations vs. time plots for total VOCs presented in the Terra Vac Report (1991) indicate that the most significant reduction in total VOC concentrations generally occurred within the first 5 to 15 days of operation with a more gradual decline thereafter.

During Phase I operations, the average groundwater extraction rate was approximately 6,400 gallons per day (gpd) or 4.4 gallons per minute (gpm) with a total extracted volume of approximately 1,154,000 gallons. This includes water pumped from wells PL15W and PES11 and water entrained in the extracted air stream. Dissolved phase total VOC concentrations in wells PL15W and PES11 ranged from 83 to 884 mg/l and 20 to 681 mg/l, respectively. The average concentrations were 381 mg/l in PL15W and 245 mg/l in PES11. The primary constituent recovered from both wells was methylene chloride. Entrained groundwater contained total VOC concentrations ranging from 66 to 1400 mg/l. The primarily constituent was methanol, with an average concentration of 360 mg/l.

The concentrations of total VOCs (vapor phase) from the system continued to decrease through Phase Two operations. During the initial 12 days of Phase One operations, the average total VOC concentration in the extracted air stream was 4,260 ppm. At the time of system shutdown on (May 24, 1990), the concentration was reduced to 2.3 ppm.

By March 7, 1991, approximately 3,400,000 gallons of groundwater had been extracted by the system. In general, the total dissolved phase VOC concentrations exhibited a decreasing trend with time since start up of Phase Two operations.

Approximately 3,380 to 3,920 lbs. of vapor phase VOCs were recovered during Phase One and Phase Two operations. Additionally, a total of approximately 11,220 lbs. of dissolved phase VOCs were recovered by the groundwater extraction system through March, 1991. Additional information can be found in Terra Vac (1991).

2.0

SECTION 2.0

KPW CORRECTIVE MEASURES

Remedial measures consisting of the installation and operation of groundwater extraction systems have been implemented in three areas of KPW: (1) Building 119, (2) Building 115, (3) and the Parking Lot 50 area. These systems consist of multiple groundwater extraction wells for the control of contaminant migration, removal of contaminant mass from the aquifer, or a combination of the two objectives.

2.1 BUILDING 119 AREA REMEDIAL SYSTEM

2.1.1 OBJECTIVE

Hydrogeologic investigations in the Building 119 area were initiated in 1980 by Dames & Moore (Dames and Moore, 1980). The purpose of the investigation was to develop "an understanding of the groundwater system within and around KPW...". This initial investigation included the installation of monitoring wells, in-situ hydraulic conductivity testing, and characterization of groundwater flow patterns. In the summer of 1981, a vinylidene chloride (1,1-dichloroethene) leak was detected in an above-ground feed line in Building 119. It was determined the line was most likely leaking for longer than one year.

In 1982, Dames and Moore performed several investigations to characterize the extent of the vinylidene chloride contamination and design remedial system. These investigations included installation and sampling of monitoring wells, definition of potential groundwater recharge areas, slug testing, aquifer testing, and computer modeling. Based upon the findings of these investigations, three recovery wells (PB119E, PB119SE, and PB135E) screened in the top of rock flow zone were installed (Dames & Moore, 1982a, 1982b, 1983b). In March 1985, H&A of New York conducted an additional investigation of the Building 119 area (H&A, 1985a). Based upon the findings of this investigation (H&A, 1985c), three additional recovery wells were installed in August, 1985 (PB119E2, PB119NE and PB119W). The objective of the Building 119 extraction well network is to remove contaminant mass and to prevent the migration of contaminated groundwater in the top-of-rock flow zone beyond the release area.

2.1.2 EXTRACTION WELL DESIGN, OPERATION AND MAINTENANCE

Well construction details for Kodak Park pumping wells are summarized in Table II-5.1. The locations are shown on Figure II-5.1 and well construction diagrams for the Building 119 area wells are provided in Appendix III.

Based on the results of the Building 119 numerical modeling and groundwater analysis performed by Dames & Moore, three recovery wells (PB119SE, PB119E and PB135E) and two monitoring well (VS-7 and SB-135S) were installed in May 1983. The recovery wells are screened entirely within bedrock with screened intervals of 19 to 47 ft. (PB119SE), 19 to 50 ft. (PB119E) and 18 to 39 ft. (PB135E).

Operation of the recovery wells began in June 1983. The first year of operational performance for the three recovery wells was summarized by Dames & Moore in a June 1984 report (Dames & Moore, 1984). Initially, the pumping rates determined to be necessary based on the computer modeling study (1.5 to 3 gallons per minute) were achieved. However, by the end of the first year of operation, wells yields decreased, with PB119E only capable of providing 0.5 gpm. In addition, the anticipated effect in overburden and bedrock water levels had not occurred. The initial pumping rates achieved by wells PB119E2, PB119NE and PB119W were 0.7, 6.0, and 0.4 gpm, respectively.

Pumping wells are equipped with either a submersible pump or pneumatic pump. Each well is also equipped with a flow meter and accumulator to determine the rate and the volume of groundwater extraction. Extracted groundwater is routed to the King's Landing Wastewater Purification Plant (KLWPP) via the industrial sewer system for appropriate treatment.

The operation and maintenance (O&M) of the groundwater extraction system is performed by Kodak personnel and O&M records are maintained at the Kodak Park Facility. Pumping well performance reports are prepared monthly, and summarized annually by Kodak and are on file at Kodak. Presently, annual reports for 1988, 1989, 1990, 1991 and 1992 are available.

Operation and maintenance of the extraction wells consists of recording daily flow rates and volumes and quarterly sampling of extracted groundwater. Periodic sanitizing of each well and defouling of pump and well screens is performed as needed. The well performance reports prepared by Kodak contain information regarding the details of O&M performed for each well including the percent of time that each well was operational, mechanical problems, well sanitizing, etc.

2.1.3 REMEDIAL SYSTEM EFFECTIVENESS

An evaluation of the groundwater flow patterns and groundwater quality in the vicinity of Building 119 was performed by Eastman Kodak Company (Kodak, 1988c). The impact of the recovery wells on the groundwater flow patterns was assessed and, based upon data from 1983 to 1987, it was determined the recovery wells had little impact on the piezometric surface in the top of rock. A persistent groundwater mound, caused by leakage from water lines in the Building 119 area, combined with the low well yields, limits the effectiveness of the recovery system.

An assessment of pumping well PB119NE and PB119W was performed by H&A of New York (H&A, 1991c) in early 1991. Groundwater contour maps for pumping (September 1990) and non-pumping (December 1990) conditions in KPW were constructed using monitoring wells in the upper bedrock aquifer and pumping wells. In addition, well hydrographs for six monitoring wells in the vicinity of the two pumping wells were prepared using groundwater elevation data from February 1987 to December 1990. H&A concluded that "based on a qualitative comparison of the contour plan, there does not appear to be a significant change in the groundwater flow directions between pumping and non-pumping periods".

Groundwater quality data for both monitor wells and pumping wells have been evaluated and summarized by H&A (H&A, 1991e). Additionally, groundwater quality data from pumping wells have been evaluated by Kodak and are provided in the annual pumping well performance reports. The total annual mass of contaminants removed from each of the currently operational wells in the Building 119 area is listed in Table

III-1.1 for the period 1988 through 1992, and a listing of the mass removed in 1992 by analyte is presented in Appendix IV. Table III-1.2 lists the total annual volume of groundwater extracted from the wells during the same period. Contaminant time series plots depicting the concentration of total volatile organics and alcohols in the extracted groundwater over time at each pumping well are provided in Appendix V. The current rate of groundwater extraction from each pumping well, as illustrated by data collected during 1992, is presented in Appendix VI.

Groundwater quality assessments in the Building 119 area were performed by Kodak (Kodak, 1988) and H&A (1991e). The Kodak report includes concentration time series plots for pumping wells PB119SE, PB119E and PB135E and monitoring wells in the vicinity of Building 119 for various VOCs. According to the Kodak report, "groundwater quality with respect to vinylidene chloride has improved over the entire site. However, concentrations in the courtyard area remain higher than elsewhere, indicating a source for contamination in that area".

The KPW Analytical Data Review report (H&A, 1991e) identified fourteen significant organic compounds based upon frequency of occurrence and concentration. Vinylidene chloride (1,1-dichloroethene) was not identified as one of the "significant" VOCs. However, according to the report, concentrations of vinylidene chloride have been detected in wells within the top of rock in concentrations exceeding 100 mg/l. The highest mean concentrations have been detected within the top of rock.

An estimate of the total annual mass removed by each well in the Building 119 area is listed in Table III-1.1. The greatest mass removal is presently being accomplished by pumping wells PB119SE, PB119E and PB135E. The total volatile and alcohol compounds removed by PB135E during the operational period of 1988 through June 1991 was 290 lbs. Wells PB119SE and PB119E removed 190 lbs. and 83 lbs., respectively for the same operational period.

2.2 BUILDING 115 (DISTILLING) AREA REMEDIAL MEASURE

2.2.1 OBJECTIVE

From 1986 to 1988, several hydrogeologic investigations were undertaken to characterize subsurface conditions in the vicinity of the Building 115 Tank Farm area. An initial investigation performed by Kodak (undated) included the installation of 9 monitoring wells and 2 pumping wells (PB115N and PB115S). Aquifer testing was also performed in pumping well PB115N.

Investigations in the Parking Lot 50 area were performed by H&A (1988d,e) to further define hydrogeologic conditions in the vicinity of Building 115. As part of the investigation, 25 monitoring wells were installed. An additional hydrogeologic investigation of KPW was performed by AWARE, Inc. (AWARE, 1988). This investigation included installation and aquifer testing of pumping well PB136S and provides a conceptual design for a groundwater recovery system. The results of the investigations indicated that groundwater in the top of rock flow zone in the Building 115 area is contaminated by high levels of chlorinated solvents, predominantly methylene chloride and 1,2-dichloropropane. The objective of the groundwater extraction wells is to remove contaminant mass from the most highly contaminated portions of the top of rock.

2.2.2 EXTRACTION WELL DESIGN, OPERATION AND MAINTENANCE

As described above, several recovery wells (PB115N, PB115S and PB136S) were installed in the Building 115 area. The wells are all constructed within the uppermost 20 feet of the Grimsby Sandstone. Well construction details for Kodak Park pumping wells are summarized in Table II-5.1. The locations are shown on Figure II-5.1 and well construction diagrams for the Building 115 area wells are provided in Appendix III.

Pumping wells are equipped with either a submersible pump or pneumatic pump. Each well is also equipped with a flow meter and accumulator to determine the rate and the volume of groundwater extraction. Extracted groundwater is routed to the King's Landing Wastewater Purification Plant (KLWPP) via the industrial sewer system for appropriate treatment.

The operation and maintenance (O&M) of the groundwater extraction system is performed by Kodak personnel and O&M records are maintained at the Kodak Park Facility. Pumping well performance reports are prepared monthly, and summarized annually by Kodak and are on file at Kodak. Presently, annual reports for 1988, 1989, 1990, 1991 and 1992 are available.

Operation and maintenance of the extraction wells consists of recording daily flow rates and volumes and quarterly sampling of extracted groundwater. Periodic sanitizing of each well and defouling of pump and well screens is performed as needed. The well performance reports prepared by Kodak contain information regarding the details of O&M performed for each well including the percent of time that each well was operational, mechanical problems, well sanitizing, etc.

2.2.3 REMEDIAL SYSTEM EFFECTIVENESS

Groundwater quality data for both monitor wells and pumping wells have been evaluated and summarized by H&A (1991e). Additionally, groundwater quality data from pumping wells have been evaluated by Kodak and are provided in the annual pumping well performance reports. The total annual mass of contaminants removed from each of the currently operational wells in the Building 115 area is listed in Table III-1.1 for the period 1988 through 1992, and a listing of the mass removed in 1992 by analyte is presented in Appendix IV. Table III-1.2 lists the total annual volume of groundwater extracted from the wells during the same period. Contaminant time series plots depicting the concentration of total volatile organics and alcohols in the extracted groundwater over time at each pumping well are provided in Appendix V. The current rate of groundwater extraction from each pumping well, as illustrated by data collected during 1992, is provided in Appendix VI.

They haven't done much on this in the past.

Performance records for recovery wells PB115N, PB115S and PB136S are available from Kodak in their Annual Well Performance Reports (Kodak, 1988, 1989, 1990). The wells became operational in October 1988. During 1988 and 1989, well PB115N had numerous operational shutdowns due to mechanical problems, however, considering the low operational performance, significant quantities of total volatile organics and alcohols (TVOA) have been removed (approximately 35,872 lbs. for the period 1988 through 1992). Well PB115S exhibited a steady decrease in TVOA mass removal when operating. In June 1990 it was converted back to a monitoring well. Approximately 15,537 lbs of TVOA have been removed by well PB136S from 1988 through 1992.

2.3 PARKING LOT 50 MIGRATION CONTROL SYSTEM

2.3.1 OBJECTIVE

As a result of the initial investigations in the Parking Lot 50/Building 115 area, an hydrogeologic investigation was performed in the residential area located south of Parking Lot 50 (H&A, 1989d). From May through September 1989, several monitoring well clusters were installed in the Rand Street/Steko Avenue area to evaluate the soil and groundwater quality in the overburden and the bedrock/overburden interface. Several contaminants were detected in an initial sampling, prompting additional investigations. Historic groundwater quality data from KPW were summarized (H&A, 1989g) and indicated that the overburden and top of rock flow zones south of the industrial sewer had generally shown low to non-detected levels of organic compounds and that the transport of organic compounds in the overburden and upper Grimsby was unlikely, given the northward direction of groundwater flow. The study also indicated that southward contaminant transport in the deeper flow zones was probable, given the southeast direction of groundwater flow in the deeper GQ Contact flow zone. Subsequent investigations detected the presence of various organic constituents in the GQ Contact flow zone south of Parking Lot 50.

In response to the findings of the Building 115/Parking Lot 50 investigations, a groundwater migration control system (MCS) was designed by Eckenfelder, Inc. (1990a) for the GQ Contact zone in Parking Lot 50. The objective of the Parking Lot 50 MCS is to intercept southward groundwater flow in the Intermediate Grimsby and GQ Contact flow zones to prevent the southward migration of contaminants detected beneath the Distilling and Southwest portions of KPW. The system, which is comprised of 4 groundwater extraction wells, is designed to control groundwater flow, dissolved-phase constituent transport and perform incidental recovery of DNAPL should it occur.

2.3.2 EXTRACTION WELL DESIGN, OPERATION AND MAINTENANCE

Well construction details for Kodak Park pumping wells are summarized in Table II-5.1. The locations are shown on Figure II-5.1 and well construction diagrams for the Parking Lot 50 MCS extraction wells are provided in Appendix III. Complete details of the design and construction of the MCS wells are provided in Eckenfelder (1990a and 1992a) and are summarized below.

The Parking Lot 50 MCS consists of four extraction wells located along the northern fence line of Parking lot 50. The wells are designated, from west to east, as PL50W, PL50NW3, PL50N2, and PL50N3. They were installed in October and November, 1991, and are screened across the Grimsby-Queenston contact and any Intermediate Grimsby water bearing zone that was encountered during installation. A summary of the intake intervals and flow zones encountered in each well is listed in Table II-2.1.

Prior to installation of well screens and risers, the GQ flow zone was hydrofractured to enhance formation permeability and increase the hydraulic connection between the recovery wells and the aquifer. The intent of the hydrofracturing program was to increase the yield of water from each well and thereby maximize the portion of the aquifer within the capture zone of the MCS. Hydrofracturing was conducted in 12 foot long intervals using a double packer device in core holes that had been reamed to a nominal 6-inch diameter. A propping media (e.g. fine sand) was not utilized. The hydrofracturing system used was capable of applying up to 3,000 psi to the isolated interval, and/or pumping water at a rate of 200 gpm. The actual pressure required to hydrofracture the rock ranged from 50 psi to 500 psi, considerably less the maximum available pressure. Table III-2.2 summarizes the pressures and volume of fluid injected during hydrofracturing. The water yield from each borehole increased dramatically after the hydrofracturing process. Tables III-2.3 and III-2.4 compare the pre- and post-hydrofracturing well yields.

The MCS wells are constructed of a 40 foot long, 8 5/8-inch O.D., 0.080-inch slot, wire wound 316 stainless steel screen with a 10-foot, 8 5/8-inch O.D. 316 stainless steel sump attached below, and an 8 5/8-inch O.D. 316 stainless steel riser attached above. The well screen and sump are installed inside an 11-inch diameter borehole, with the base of the sump positioned between 5 feet and 15 feet below the Grimsby Sandstone-Queenston Shale contact. A clean, washed silica gravel filter pack was placed around the screen.

Each extraction well is equipped with a corrosion resistant, stainless steel submersible pump with an electronic flow control system consisting of the following hardware:

- A capacitive-type level probe to measure the water level in the well.
- An electronic level controller designed to throttle a valve on the pump discharge piping to maintain the desired water level in the well.
- A level alarm module to indicate a low water level condition
- A magnetic flow meter to measure water flow at the pump outlet.

This equipment provides an indication of the fluid level in the well, pumping rate, and total flow. A low flow/level alarm at the well head is also present. In addition, these data are also transferred hourly via modem to a monitoring computer located at the KLWPP.

Operation of the MCS is regulated through control of the water level within each well. The water level is monitored continuously and the flow rate is adjusted automatically based on the water level data. The rate of extraction is decreased when drawdown is excessive, and the rate is increased when drawdown is insufficient. The design set point elevations for the extraction wells are as follows:

PL50W	175 feet Kodak Park Datum
PL50NW3	170 feet Kodak Park Datum
PL50N2	170 feet Kodak Park Datum
PL50N3	165 feet Kodak Park Datum

These set points were chosen to obtain the lowest water level within the well, while maintaining saturation of the GQ water bearing zone. Maintaining saturation of the water bearing zone helps to limit mineral encrustation of water-bearing fractures and reduces necessary well maintenance.

2.3.3 REMEDIAL SYSTEM EFFECTIVENESS

The Parking Lot 50 MCS was started in December, 1991. A performance assessment program was conducted after the first 5 months of system operation (Eckenfelder, 1992b). The assessment included a review of modeled versus actual pumping rates and groundwater flow patterns in the Intermediate Grimsby and GQ Contact flow zones. Groundwater contour maps for pre-pumping (November, 1991) and pumping (March, April and time-weighted December, 1991 through April, 1992) conditions in KPW were constructed using monitoring wells in the Intermediate Grimsby and GQ Contact flow zones. In addition, well hydrographs for 23 monitoring wells in the vicinity of the two pumping wells were prepared using groundwater elevation data from November, 1991 to April, 1992. Eckenfelder (1992b) concluded that the MCS system is meeting the migration control objective. In addition they concluded that periodic failures of individual pumping wells do not significantly alter the effectiveness of the system. The extent of the capture zone created by operation of the MCS is depicted on Figure III-2.1. This figure is based on groundwater elevation measurements conducted in April, 1993. It indicates that, one year after the completion of the initial performance evaluation, the Parking Lot 50 MCS is meeting the required migration control objective.

Groundwater quality data from pumping wells have been evaluated by Kodak and are provided in the annual pumping well performance report for 1992. The total annual mass of contaminants removed from each of the currently operational wells in the Parking Lot 50 MCS is listed in Table III-1.1 for the period 1991 through 1992, and a listing of the mass removed in 1992 by analyte is presented in Appendix IV. Table III-1.2 lists the total annual volume of groundwater extracted from the wells during the same period. Contaminant time series plots depicting the concentration of total volatile organics and alcohols in the extracted groundwater over time at each pumping well are provided in Appendix V. The current rate of groundwater extraction from each pumping well, as illustrated by data collected during 1992, is provided in Appendix VI.

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SECTION 3.0

KPX CORRECTIVE MEASURES

Remedial measures consisting of the installation and operation of groundwater extraction wells and a horizontal drain have been implemented in three areas of KPX: (1) Building 205, (2) Building 218, and (3) Northeast KPX Overburden Groundwater Migration Control System (a replacement system for the Building 218 pump wells). These systems consist of single groundwater extraction wells or a single drainage tile for the control of contaminant migration, removal of contaminant mass from the aquifer, or a combination of the two objectives.

3.1 BUILDING 205 ELEVATOR SHAFT REMEDIAL MEASURE

3.1.1 OBJECTIVE & SUMMARY

A recovery well (PB205SE) was installed in an elevator shaft of Building 205 in May, 1989 in response to a loss of an undetermined quantity of No. 10 hydraulic fluid from the hydraulic cylinder in the elevator shaft. A well construction diagram is included in Appendix III. Well PB205SE was intended as a short-term corrective measure to remove the bulk of hydraulic fluid. This well is no longer used as a recovery well and is not included in the Kodak Annual Pumping Well Performance reports.

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3.2 BUILDING 218 GROUNDWATER EXTRACTION WELLS

3.2.1 OBJECTIVE

Building 218 houses the chemical incineration plant which serves Kodak Park. Two overburden extraction wells (PB218NW and PB218W) were installed in June 1990 to address past chemical releases from this area. The wells were installed to provide hydraulic control of groundwater from the source area and to remove contaminant mass from the overburden aquifer. According to a report by Blasland and Bouck Engineers (Blasland & Bouck, 1991f), of the 36 organic compounds detected in the groundwater in KPX, thirty were limited to the area of Building 218. The greatest concentrations and greatest frequencies of occurrence were generally confined to pumping wells PB218NW and PB218W.

3.2.2 EXTRACTION WELL DESIGN, OPERATION AND MAINTENANCE

As described above, two extraction wells (PB218NW and PB218W) were installed in the Building 218 court yard area. The wells are both constructed across the entire overburden (approximately 15 feet at this location). Well construction details for Kodak Park pumping wells are summarized in Table II-5.1. The locations are shown on Figure II-5.1 and well construction diagrams for the Building 218 area wells are provided in Appendix III.

Pumping wells are equipped with a submersible pump and automatic flow sensing and regulating device, as described for the Parking Lot 50 MCS system. Each well is also equipped with a flow meter and accumulator to determine the rate and the volume of groundwater extraction. Extracted groundwater is routed to the King's Landing Wastewater Purification Plant (KLWPP) via the industrial sewer system for appropriate treatment.

The operation and maintenance (O&M) of the groundwater extraction system is performed by Kodak personnel and O&M records are maintained at the Kodak Park Facility. Pumping well performance reports are prepared monthly, and summarized annually by Kodak and are on file at Kodak. Presently, annual reports for the Building 218 extraction wells for 1990, 1991 and 1992 are available.

When in operation, daily flow rates and volumes were recorded and quarterly sampling of extracted groundwater was performed. Periodic sanitizing of each well and defouling of pump and well screens was performed as needed. The well performance reports prepared by Kodak contain information regarding the details of O&M performed for each well including the percent of time that each well was operational, mechanical problems, well sanitizing, etc. The overall effectiveness of the system has decreased over time due to excessive fouling of the pump well screens. As a result, the pump wells have not operated since February 1992.

3.2.3 REMEDIAL SYSTEM EFFECTIVENESS

Groundwater extraction rate and quality data from the Building 218 extraction wells have been evaluated by Kodak and are provided in the annual pumping well performance reports. The total annual mass of contaminants removed from each well is listed in Table III-1.1 for the period 1990 through 1992, and a listing of the mass *removed in 1992 by analyte is presented in Appendix IV. Table III-1.2 lists the total* annual volume of groundwater extracted from the wells during the same period. Contaminant time series plots depicting the concentration of total volatile organics and alcohols in the extracted groundwater over time at each pumping well are provided in Appendix V. These wells are not currently operating. The rate of groundwater extraction from each well during 1992 is provided in Appendix VI.

Performance records for recovery wells PB218NW and PB218W are available from Kodak in the Annual Well Performance Reports (Kodak, 1990, 1991 and 1992). The wells became operational in 1990, but soon after start-up both encountered severe biofouling problems that caused numerous operational shutdowns and mechanical failures. According to the Kodak Annual Pumping Well Performance reports, wells PB218NW and PB218W pumped 168,735 gallons and 316,581 gallons, respectively and recovered 386 lbs. and 79 lbs, respectively of total volatile organic and alcohol compounds during the operational period of August 1990 through February 1992 (see Table III-1.1).

3.3 NORTHEAST KPX OVERBURDEN GROUNDWATER MIGRATION CONTROL SYSTEM

3.3.1 OBJECTIVE

Due to a decrease in the rate of groundwater extraction caused by biofouling of the Building 218 extraction wells, and to provide better control of overburden and top of rock groundwater in the Building 218 area, a drain tile (horizontal well) was constructed west of Building 206 during 1992. This system is referred to as the Northeast KPX Overburden Groundwater Migration Control System (MCS). The Northeast KPX Overburden MCS is designed to prevent the migration of overburden groundwater contaminants in the Building 218 area beyond the northern KPX property line. The drain was installed in August, 1992 along the west side of Building 206.

3.3.2 EXTRACTION SYSTEM DESIGN, OPERATION AND MAINTENANCE

The Northeast KPX Overburden MCS, designated PB218N, consists of a 264-foot long trench excavated to bedrock, ranging in depth from approximately 12 feet at the north end to 18 feet at the south end. An 8-inch diameter collection pipe with 1/4 inch diameter holes packed in cobble-sized stone is installed at the base of the trench. A clean-out manhole is located at the north and central portions of the trench. At the southern end of the trench is a manhole socketed five feet into rock. The location of the MCS is shown on Figure II-5.1 and construction diagrams are provided in Appendix III.

A stainless steel submersible pump located in the southern manhole discharges groundwater water through a 2-inch force main into the industrial sewer located west of Building 218. A metering and sampling train is located on pipe bents at the point where the force main comes out of the ground. Refer to "Engineering Design Description for Northeast KPX Overburden Groundwater Migration Control System", Kodak (1992), for additional details.

Operation and maintenance (O&M) of the MCS is performed by Kodak personnel and O&M records are maintained at the Kodak Facility. Operation and maintenance of the MCS consists of hourly recording of flow rates and volumes and sampling of extracted groundwater on quarterly basis. The Annual Well Performance Report (1992) prepared by Kodak contains information regarding the details of O&M performed for the system.

3.3.3 REMEDIAL SYSTEM EFFECTIVENESS

The Northeast KPX Overburden MCS commenced operation in late August 1992. The groundwater extraction rate, groundwater quality data and overall system performance for the MCS have been evaluated by Blasland and Bouck (1993b). The total annual mass of contaminants removed by the MCS is listed in Table III-1.1 for the 1992 operational period, and a listing of the mass removed in 1992 by analyte is presented in Appendix IV. Table III-1.2 lists the total annual volume of groundwater extracted from the MCS during the same period. A contaminant time series plot depicting the concentration of total volatile organics and alcohols in the extracted groundwater over time is provided in Appendix V. The rate of groundwater extraction from the MCS during 1992 is provided in Appendix VI.

Performance tests conducted by Blasland and Bouck (1993b) demonstrate that the capture zone created in the overburden aquifer by the MCS intercepts overburden groundwater flow towards the fence line area northeast of the Building 218 complex. The area of influence extends radially away from the trench and drain system in both the overburden and top of rock groundwater flow zones. The extent of the overburden and

TOR-capture zone created by operation of the MCS is depicted on Figure III-3.1. This figure is based on groundwater elevation measurements conducted in April, 1993.

According to the Kodak 1992 Annual Pumping Well Performance Report, the average rate of groundwater extraction from the MCS from August 26, to December 31, 1992 was approximately 9,000 gallons per day (6.2 gallons per minute). Approximately 1,033,459 gallons of water and 3 pounds of total volatile organic compounds and alcohols were removed from the aquifer during this period (Tables III-1.2 and III-1.1, respectively).

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SECTION 4.0

KPM CORRECTIVE MEASURES

Two corrective measures have been implemented in KPM. A groundwater extraction well was installed near Building 329 in 1980 to remediate a methylene chloride release, and an overburden groundwater interceptor drain (Northern KPM Migration Control System) was installed along the KPM north fence line in 1992 to prevent groundwater and dissolved organics from migrating into residential areas adjacent to Kodak.

4.1 BUILDING 329 GROUNDWATER EXTRACTION WELL

4.1.1 OBJECTIVE

A groundwater extraction well and three monitor wells (PB329SW, SB329SW, GB329SW, and GB329SE) were installed near Building 329 in 1980, in response to a release of methylene chloride from a waste solvent line on the south side of the building. The objective of the remedial system was to remove contaminant mass from the overburden in the area of the release.

4.1.2 EXTRACTION WELL DESIGN, OPERATION AND MAINTENANCE

A well construction diagram is not available for well PB329SW. Existing documentation indicates that the well was constructed within the overburden unit of 4-inch diameter PVC, however no information on the screened interval is available. When operating, PB329SW was equipped with a peristaltic pump for groundwater extraction and discharged water into the Kodak Park industrial sewer. Recovery operations were initiated in 1980 from well PB329SW and continued until July, 1990, when PB329SW was abandoned due to underground storage tank removal activities. Estimates of the mass removed by PB329SW are not available. A concentration time series is presented in Appendix V.

4.2 NORTHERN KPM MIGRATION CONTROL SYSTEM (MCS)

4.2.1 OBJECTIVE

Investigations in central and northern KPM have indicated the presence of low concentrations of 1,4-dioxane in the overburden and upper bedrock groundwater north of Building 351/352 (see Part II, Section 6.2.4). To prevent the northward migration of 1,4-dioxane contaminated groundwater in the overburden, an interceptor drain was constructed in 1992 along a portion of the northern KPM property fence line.

4.2.2 EXTRACTION SYSTEM DESIGN, OPERATION AND MAINTENANCE

The Northern KPM MCS is a gravel filled trench approximately 1,520 feet in length located along the northern fence line of KPM (Figure II-5.1). The trench was constructed across the full thickness of the overburden, with the bottom of the trench constructed on the top of bedrock (Grimsby Sandstone). Depths from the ground surface to the top of rock surface range from 4 to 20 feet. To provide for inspection and maintenance of the system, clean-out manholes and clean-outs are placed at approximately 150 to 200 feet intervals along the entire length of the system. Construction details of the trench are presented in Appendix III.

Water collected by the MCS is conveyed by gravity to a manhole located approximately midway along the length of the drain. The manhole consists of a 5 foot diameter pre-cast manhole and 2.5 foot diameter, 10 foot deep rock cored sump. A stainless steel constant speed submersible pump is installed in the sump. The collected groundwater is pumped into a 2-inch diameter polyethylene pipe housed in an 8-inch diameter polyethylene pipe sleeve. The discharge piping and sleeve travel approximately 80 feet from the pumping manhole to a meter vault. Water flows approximately 160 feet from the meter vault to the industrial sewer through a 2-inch diameter polyethylene pipe.

The Northern KPM MCS is designed to maintain a constant, preset water level within the drain. This is accomplished by adjusting the discharge rate of the pump to be either greater than or less than the rate at which groundwater flows into the sump from the interceptor trench. To provide remote continuous monitoring and to reduce the frequency of on-site equipment inspections, the local pump control panel is equipped with a data recorder and telemetry system. The system enables operation and maintenance personnel to monitor the sump's output and condition, remotely from KLWPP (Building 95). The rate of groundwater discharge from the MCS is monitored hourly, and reported on a monthly basis.

Operation and maintenance (O&M) of the Northern KPM MCS is performed by Kodak Personnel and O&M records are maintained at the Kodak Park Facility. Annual Pumping Well Performance Reports are prepared by Kodak and are on file at Kodak.

Presently, reports for the Northern KPM MCS are available for 1992. Additional information is provided in Blasland and Bouck (1992j).

4.2.3 REMEDIAL SYSTEM EFFECTIVENESS

The Northern KPM MCS (designated PB350NE2) began operation in July, 1992. The groundwater extraction rate, groundwater quality data and overall system performance for the MCS have been evaluated by Blasland and Bouck (1992l). The total annual mass of contaminants removed by the MCS is listed in Table III-1.1 for the 1992 operational period, and a listing of the mass removed in 1992 by analyte is presented in Appendix IV. Table III-1.2 lists the total annual volume of groundwater extracted from the MCS during the same period. A contaminant time series plot depicting the concentration of total volatile organics and alcohols in the extracted groundwater over time is provided in Appendix V. The rate of groundwater extraction from the MCS during 1992 is provided in Appendix VI.

Performance tests conducted by Blasland and Bouck (1992l) demonstrate that the capture zone created in the overburden aquifer by the MCS intercepts overburden groundwater flow towards the fence line area northern KPM. The area of influence extends up-gradient from the trench and drain system in the overburden and a portion of the saturated thickness of the top of rock groundwater flow zones. The lateral extent of the overburden and TOR capture zone created by operation of the MCS is depicted on Figure III-4.1. This figure is based on groundwater elevation measurements conducted in April, 1993. The vertical extent of the capture zone is not depicted on this figure; preliminary flow simulations using the USGS MODFLOW code suggest that some groundwater in the TOR may pass uncaptured beneath the MCS. The vertical extent of the MCS capture zone will be explored in more detail in the RFI and CMS investigations for the B-350 area.

The rate of groundwater extraction from the MCS from July, 1992, to December 31, 1992 ranged from approximately 4,000 to 18,000 gallons per day. Approximately 1,916,144 gallons of water and 9 pounds of total volatile organic compounds and alcohols were removed from the aquifer during this period (Tables III-1.2 and III-1.1, respectively).

5.0

SECTION 5.0

KPS AND KPT CORRECTIVE MEASURES

There have been no corrective measures conducted in KPS and KPT, to date.

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REFERENCES

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100. H&A, 1992e. Kodak Park Hydrogeologic Summary Report, (H&A of New York, Rochester, New York), August 1992.

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TABLES

TABLE I-2.1

KODAK PARK
ORDER-ON-CONSENT
SUMMARY

ORDER NO.	TITLE	DATE	STATUS*
B8-0190-87-06	CSOAP Tunnel	Jul-12-1988	non-active
B8-0190-88-4	Study Area #1 (Rand Street)	Jul-15-1988	active
B8-0190-88-10	B-53 Soils	Feb-12-1989	non-active
D8-6001-89-1	Storage Tank Improvement	Jun-07-1989	active through 1997
D8-4003-88-4	Enforcement	Apr-04-1990	active through 1992/1993
B8-0190-91-04	KPM	Jun-20-1991	active through 1993
D8-0190-90-06	Weiland Road Landfill	Nov-25-1991	active through 1994

*active: Work in progress. Anticipated closure date listed, if known.
non-active: Work completed, closure pending.

Outstanding Elements — otherwise violation of order

TABLE II-1.1

KODAK PARK
SWMU INVESTIGATION AREAS

PARK SECTION	INVESTIGATION AREA	BUILDINGS/STRUCTURES/BOUNDARIES
KPE	1 EIA-53	B-53, 54, 48, 18, 47, 52, 57, 64
	2 EIA-KL	KL, Genesee River
	3 EIA-82	B-82, Courtyard
	4 EIA-30	B-30
	5 EIA-27	B-43, 45, 51, 27, 46
	6 EIA-62	B-62 East
	7 EIA-2	B-2, 13
	8 EIA-IS	Industrial Sewer
KPW	9 WIA-KPW	KPW Section
	10 WIA-IS	Industrial Sewer
KPX	11 XIA-218	B-218, 219
	12 XIA-208	B-208, 212, 201, 213
	13 XIA-202	B-202, 210, 215, 217
	14 XIA-214	B-204, 214
	15 XIA-IS	Industrial Sewer
KPM	16 MIA-WRL	Weiland Road Landfill
	17 MIA-308	B-307, 308, 309, 312, 322
	18 MIA-301	B-301-304, 337, 339, 305, 325, 323, 331, M-35
	19 MIA-351	B-351, 352
	20 MIA-329	B-329, 349
	21 MIA-317	B-317, 313
	22 MIA-333	B-326, 333, M-95
	23 MIA-VH	Ver Hulst Farm
	24 MIA-IS	Industrial Sewer
KPS	25 SIA-605	B-605 (PCU/HWMU)
	26 SIA-502	B-502, S-26
KPT	27 TIA-701	B-701
	28 TIA-SIA	Sludge Incorporation Area

TABLE II-3.1

CHRONOLOGY OF MAJOR HYDROGEOLOGIC INVESTIGATIONS
KODAK PARK

REFER-ENCE (1)	DATE	PARK SECTION	STUDY AREA	INVESTI-GATOR (2)	REPORT TITLE / SUBJECT	INSTALLATIONS / SURVEYS
35	Dec-76	KPE	B-53	D&M	SEISMIC RISK ANALYSIS	SEISMIC SURVEY
36	Aug-78	KPM	WRL	D&M	"REPORT ON GEOHYDROLOGIC INVESTIGATION, EXISTING WEILAND ROAD LANDFILL" EVALUATE LEACHATE FLOW & COLLECTION SYSTEM	8 PIEZOMETERS
37	May-80	KPW	KPW	D&M	"PHASE I REPORT, GEOHYDROLOGIC SURVEY OF KPW" HYDROGEOLOGIC CHARACTERIZATION USING AVAILABLE INFORMATION	6 MONIT WELLS
114	Jul-80	KPM	WRL	MC	"IDENTIFICATION AND TESTING OF CHEMICAL DUMPING SITES" LEACHATE DETECTED IN SURFACE WATER	
---	Jun-80	KPM	B-329	EKC	POST-SPILL WELL INSTALLATION (NO REPORT)	3 MONIT WELLS, 1 RECOVERY WELL
124	May-81	KPS	COAL PILE	TRC	"REPORT TO THE NEW YORK STATE ENERGY RESEARCH AND DEVELOPMENT AGENCY ON SITE SELECTION FOR COAL PILE DRAINAGE MODEL STUDY"	
38	Sep-81	KPM	WRL	D&M	"SUPPLEMENTAL HYDROGEOLOGIC STUDIES, WEILAND ROAD LANDFILL" EVALUATE GROUNDWATER CONTAMINATION BY LEACHATE	7 MONIT WELLS
39	Jun-82	KPW	B-119	D&M	"INVESTIGATION OF STRUCTURAL UPLIFT, KPW BUILDING B-119" FIELD INVESTIGAION IN RESPONSE TO VINYLIDENE CHLORIDE LEAK	3 MONIT WELLS
40	Oct-82	KPW	B-119	D&M	"CONTINUING INVESTIGATION OF VINYLIDENE CHLORIDE LEAK, BUILDING 119, KPW" REVIEW AND ASSESSMENT OF CHEMICAL AND HYDROGEOLOGICAL DATA	
125	Feb-83	KPS	COAL PILE	TRC	"FINAL REPORT TO EKC FOR A SITE INVESTIGATION OF THE EXISTING KPS COAL STORAGE PILE" COAL PILE STUDY	
41	Feb-83	KPW	B-119	D&M	"FIELD PROGRAM AND REMEDIAL DESIGN, VINYLIDENE CHLORIDE LEAK" GROUNDWATER MODEL, REMEDIAL DESIGN	2 MONIT WELLS, 1 RECOV WELL
42	May-83	KPW	B-119	D&M	"VINYLIDENE CHLORIDE INVESTIGATION, REMEDIAL INSTALLATION" REMEDIATION INSTALLATION, REVIEW	3 RECOV WELLS, 2 MONIT WELLS
126	Jun-83	KPS	COAL PILE	TRC	"REPORT TO EKC ENGINEERING INVESTIGATION OF AN EXPANDED KPS COAL STORAGE PILE" ENGINEERING REPORT	
62	Feb-84	ALL	SITE WIDE	H&A	"REPORT ON KODAK PARK GROUNDWATER STUDY" KODAK PARK-WIDE HYDROGEOLOGIC SUMMARY	
43	Jun-84	KPW	B-119	D&M	"HYDROGEOLOGIC CONSULTATION" EVALUATION OF RECOVERY SYSTEM	
63	Mar-85	KPW	B-119	H&A	"REPORT ON HYDROGEO. INVESTIGATION, BUILDING 119/KPW GROUNDWATER RECOVERY" EVALUATION OF RECOVERY SYSTEM	

TABLE II-3.1

CHRONOLOGY OF MAJOR HYDROGEOLOGIC INVESTIGATIONS KODAK PARK

REFER-ENCE (1)	DATE	PARK SECTION	STUDY AREA	INVESTI-GATOR (2)	REPORT TITLE / SUBJECT	INSTALLATIONS / SURVEYS
64	May-85	KPE	KPE	H&A	"REPORT ON KODAK PARK EAST GROUNDWATER STUDY" HYDROGEOLOGIC CHARACTERIZATION USING AVAILABLE INFORMATION	
65	Sep-85	KPW	B-119	H&A	"TEST BORING LOGS AND MONITORING WELL INSTALLATION RECORDS, BUILDING 119" FIELD INVESTIGATION	3 MONIT WELLS
66	Aug-86	KPM	WRL	H&A	"REPORT ON HYDROGEOLOGIC INVESTIGATION, WEILAND ROAD LANDFILL" HYDROGEOL CHARAC., CALCULATE VERTICAL & HORIZONTAL FLOW VELOCITY	19 MONIT WELLS
106	May-87	KPM	WRL	EKC	"SITE INVESTIGATION STUDY, WEILAND ROAD LANDFILL" SUMMARY OF LANFILL OPERATIONS, GROUNDWATER QUALITY, HYDROGEOLOGY	19 MONIT WELLS
68	Jun-87	KPE	KPE	H&A	"REPORT ON KODAK PARK EAST HYDROGEOLOGIC STUDY" FIELD INVESTIGATION, HYDROGEOLOGIC CHARACTERIZATION	29 MONIT. WELLS
108	Jan-88	KPM	WRL	EKC	PART 373 PERMIT APPLICATION	
109	Feb-88	KPW	B-119	EKC	"REPORT ON HYDROGEOLOGIC CONDITIONS, BUILDING 119, KODAK PARK" EVALUATION OF UPGRADED RECOVERY SYSTEM	
70	Feb-88	KPT	KPT	H&A	"GEOLOGIC INVESTIGATION, EASTMAN KODAK KPT SITE" SITE CHARACTERIZATION	16 MONIT WELLS, 28 TEST PITS
71	Mar-88	KPE	B-53	H&A	"REPORT ON THE KODAK PARK EAST RECOVERY WELLS" RECOVERY WELL INSTALLATION AND YEILD TESTS	3 RECOV WELLS
72	Mar-88	KPE	NORTH KPE	H&A	"ANGLED BORING INVESTIGATION FOR KODAK PARK EAST" HYDROGEOLOGIC CHARACTERIZATION	9 ANGLED BORINGS
110	May-88	KPW	B-115	EKC	"INVESTIGATION OF HYDROGEOLOGIC CONDITIONS, BUILDING 115 AREA, KPW" HYDROGEOLOGIC CHARACTERIZATION,RECOVERY SYSTEM INSTALLATION	9 MONIT WELLS, 1 RECOV WELL,
73	May-88	KPW	ONSITE SA-1	H&A	"PARKING LOT 50 INVESTIGATION, KODAK PARK WEST" HYDROGEOLOGIC CHARACTERIZATION	13 MONIT WELLS
74	Jul-88	KPW	ONSITE SA-1	H&A	"KODAK PARK WEST MONITORING WELL INSTALLATION" FIELD INVESTIGATION, HYDROGEOLOGIC CHARACTERIZATION	12 MONIT WELLS
1	Aug-88	KPW	ONSITE SA -1	AWARE	"HYDROGEOLOGIC INVESTIGATION AND AQUIFER TEST REPORT, KPW DISTILLING AREA" REVIEW OF EXISTING DATA, AQUIFER TEST	
75	Oct-88	KPW	OFFSITE SA-1	H&A	"REPORT ON OFFSITE HISTORICAL REVIEW, KODAK PARK STUDY AREA 1" IDENTIFY OFFSITE CONTAMINATE SOURCES	
---	May-89	KPX	B-205	H&A	RECOVERY WELL DESIGN (NO REPORT)	1 RECOV WELL

TABLE II-3.1

CHRONOLOGY OF MAJOR HYDROGEOLOGIC INVESTIGATIONS
KODAK PARK

REFER-ENCE (1)	DATE	PARK SECTION	STUDY AREA	INVESTI-GATOR (2)	REPORT TITLE / SUBJECT	INSTALLATIONS / SURVEYS
78	Jun-89	KPE	KPRR	H&A	"SCHOOL 41 HYDROGEOLOGIC INVESTIGATION REPORT" HYDROGEOLOGIC CHARACTERIZATION	21 MONIT WELLS
2	Jun-89	KPM	FENCELINE	B&B	"KPM FENCELINE WELL EVALUATION REPORT, KPM FENCELINE, KODAK PARK" INSPECTION AND EVALUATION OF EXISTING WELLS	
121	Jul-89	KPE	KPRR	TV	"PHASE I REPORT, DUAL VACUUM EXTRACTION SYSTEM" FIELD INVESTIGATION, EXTRACTION SYSTEM INSTALLATION	3 EXTRACTION WELLS
79	Jul-89	KPW	OFFSITE SA-1	H&A	"OVERBURDEN MONITORING WELL INSTALLATION, TECHNICAL MEMORANDUM" HYDROGEOLOGIC CHARACTERIZATION	14 MONIT WELLS
80	Jul-89	KPW	OFFSITE SA-1	H&A	"INVESTIGATION AND RECOMMENDATIONS FOR EXISTING MONITORING WELLS" FIELD INSPECTION AND WELL EVALUATION	
81	Jul-89	KPW	OFFSITE SA-1	H&A	"REVIEW OF OFFSITE UTILITIES, TECHNICAL MEMORANDUM"	
82	Sep-89	KPW	OFFSITE SA-1	H&A	"SUMMARY OF EXISTING HYDROGEOLOGIC INFORMATION, TECHNICAL MEMORANDUM"	
3	Oct-89	KPM	KODA-VISTA	B&B	"TECHNICAL MEMORANDUM ON HEALTH-RELATED STUDY: KODA-VISTA GW SAMPLING" GROUNDWATER QUALITY-FLOW STUDY	3 MONIT WELLS
4	Oct-89	KPM	FENCELINE	B&B	"PHASE I TECHNICAL MEMORANDUM, KPM FENCELINE GROUNDWATER MONITORING UPGRADE" WELL UPGRADE, HYDROGEOLOGIC SUMMARY	
83	Oct-89	KPW	OFFSITE SA-1	H&A	"ANGLED BORING PROGRAM, TECHNICAL MEMORANDUM" *FIELD INVESTIGATION AND HYDROGEOLGOIC EVALUATION*	10 ANGLED BORINGS
85	Dec-89	KPM	WRL	H&A	"EVALUATION AND RECOMMENDATIONS FOR EXISTING MONITORING WELLS"	
84	Dec-89	KPM	WRL	H&A	"REVIEW AND SUMMARY OF EXISTING INFORMATION, WEILAND ROAD LANDFILL" REVIEW OF EXISTING HYDROGEOLOGIC AND GROUNDWATER QUALITY DATA	
60	Jan-90	KPM	WRL	H&A, CE	"RENEWAL OF AN EXISTING 6 NYCRR PART 360 PERMIT FOR WEILAND ROAD INDUSTRIAL SOLID WASTE LANDFILL"	
86	Jan-90	KPW	OFFSITE SA-1	H&A	"PHASE I HYDROGEOLOGIC REPORT, OFFSITE HYDROGEOLOGIC INVESTIGATION" COMPILATION OF EXISTING DATA	
5	Feb-90	KPM	B-322	B&B	"REPORT ON BUILDING 322 ACETONE RELEASE INVESTIGATION, KPM" POST-SPILL CHARACTERIZATION	3 MONIT WELLS
6	Feb-90	KPM	B-301	B&B	"BUILDING 301 TANK FARM INVESTIGATION RESULTS, KPM" POST-SPILL CHARACTERIZATION	1 PIEZOMETER
87	Aug-90	ALL	SITE WIDE	H&A	"REGIONAL GEOLOGY & HYDROGEOLOGY OF THE GREATER ROCHESTER AREA" COMPILATION OF AVAILABLE REGIONAL DATA	

TABLE II-3.1

CHRONOLOGY OF MAJOR HYDROGEOLOGIC INVESTIGATIONS
KODAK PARK

REFERENCE (1)	DATE	PARK SECTION	STUDY AREA	INVESTIGATOR (2)	REPORT TITLE / SUBJECT	INSTALLATIONS / SURVEYS
122	Aug-90	KPE	KPRR	TV	"REPORT ON SUBSURFACE CONDITIONS KODAK PARK RAILROAD SITE" FIELD INVESTIGATION, SYSTEM PERFORMANCE	9 MONIT WELLS
45	Aug-90	KPW	KPW	ECK	"ENGINEERING DESIGN REPORT, KPW MIGRATION CONTROL SYSTEM PHASE I" MIGRATION CONTROL SYSTEM DESIGN	
88	Aug-90	KPE	KPRR	H&A	"DRAFT REPORT ON HYDROGEOLOGIC INVESTIGATION, KODAK PARK RAILROAD AREA" PHASE II CHARACTERIZATION	15 MONIT WELLS
46	Sep-90	KPW	KPW	ECK	"KODAK PARK HYDROGEOLOGIC SITE REVIEW, KODAK PARK SECTION W" SUMMARY OF EXISTING HYDROGEOLOGIC DATA AND PREVIOUS REPORTS	
47	Oct-90	KPE	KPE	ECK	"KODAK PARK HYDROGEOLOGIC SITE REVIEW, KODAK PARK SECTION E" SUMMARY OF EXISTING HYDROGEOLOGIC DATA AND PREVIOUS REPORTS	
48	Oct-90	KPS, T, X	KPS, T, X	ECK	"KODAK PARK HYDROGEOLOGIC SITE REVIEW, KODAK PARK SECTION S, T, AND X" SUMMARY OF EXISTING HYDROGEOLOGIC DATA AND PREVIOUS REPORTS	
49	Nov-90	KPM	KPM	ECK	"KODAK PARK HYDROGEOLOGIC SITE REVIEW, KODAK PARK SECTION M" SUMMARY OF EXISTING HYDROGEOLOGIC DATA AND PREVIOUS REPORTS	
7	Dec-90	KPM	N FENCE	B&B	"KPM NORTHERN FENCELINE GROUNDWATER QUALITY ASSESSMENT" REVIEW OF EXISTING GROUNDWATER QUALITY DATA	
89	Dec-90	KPT	KPT	H&A	"SUMMARY REPORT ON THE KPT SITE INVESTIGATION" DRUM SEARCH	TEST PITS, MAGNETOMETER, RADIOLOGIC SURVEY
8	Dec-90	KPX	B-218	B&B	"NORTH KPX FENCELINE HYDROGEOLOGIC INVESTIGATION REPORT" POST-SPILL CHARACTERIZATION	15 MONIT WELLS, 2 RECOV WELLS
116	1990 -1991	ALL	SITE WIDE	RC	"KODAK PARK SITE OPERATIONS HISTORY REPORT" SUMMARY OF PAST/PRESENT SITE OPERATIONS AND USE	
9	Feb-91	KPE	E-24	B&B	"BULK PETROLEUM FACILITY MONITORING PROGRAM FOR BUILDINGS E-24 AND M41" FIELD INVESTIGATION AND GROUNDWATER MONITORING	4 MONIT WELLS
9	Feb-91	KPM	M-41	B&B	"BULK PETROLEUM FACILITY MONITORING PROGRAM FOR BUILDINGS E-24 AND M41" FIELD INVESTIGATION AND GROUNDWATER MONITORING	5 MONIT WELLS
90	Feb-91	KPE	KPRR	H&A	"SUMMARY REPORT, KPRR AREA, HYDROGEOLOGIC INVESTIGATION" SUMMARY OF EXISTING DATA	
91	Mar-91	KPW	OFFSITE SA-1	H&A	"FINAL REPORT, SA-1, OFFSITE HYDROGEO. INVEST., MIGRATION CONTROL SUPPLEMENT" HYDROGEOLOGIC CHARACTERIZATION TO AID MIGRATION CONTROL DESIGN	3 MONIT WELLS

TABLE II-3.1

CHRONOLOGY OF MAJOR HYDROGEOLOGIC INVESTIGATIONS
KODAK PARK

REFERENCE (1)	DATE	PARK SECTION	STUDY AREA	INVESTIGATOR (2)	REPORT TITLE / SUBJECT	INSTALLATIONS / SURVEYS
11	Apr-91	KPM	E FENCELINE	B&B	"KPM EAST FENCELINE GROUNDWATER INVESTIGATION" HYDROGEOLOGIC CHARACTERIZATION	6 MONIT WELLS
50	Apr-91	KPW	ONSITE SA-1	ECK	"KPW DISTILLING & SOUTHWEST KPW AREAS TREATABILITY STUDY" MIGRATION CONTROL DESIGN	
10	Apr-91	KPX	KPX-NE	B&B	"BUILDING 206 MONITORING WELL INSTALLATION"	2 MONIT WELLS
92	May-91	KPW	ONSITE SA-1	H&A	"BUILDING 119 PUMPING WELL EVALUATION LETTER REPORT"	
12	May-91	KPX	KPX-NE	B&B	"NORTHEAST KPX PHASE II HYDROGEOLOGIC INVESTIGATION WORK PLAN" NORTHEAST KPX MIGRATION CONTROL TRENCH DESIGN	
51	May-91	KPW	ONSITE SA-1	ECK	"KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEOLOGIC INVESTIGATION REPORT" FIELD INVESTIGATION AND HYDROGEOLOGIC STUDY	112 MONIT WELLS
123	Jun-91	KPE	KPRR	TV	"FINAL REPORT ON THE DUAL VACUUM EXTRACTION REMEDIATION, KPRR SITE" FINAL INVESTIGATION REPORT, SUMMARY OF SYSTEM PERFORMANCE	
14	Jul-91	KPX	KPX	B&B	"GROUNDWATER ANAYTICAL DATA REVIEW, KPX" SUMMARY AND EVALUATION OF EXISTING DATA	
13	Jul-91	KPS	KPS	B&B	"GROUNDWATER ANALYTICAL DATA REVIEW, KPS" SUMMARY AND EVALUATION OF EXISTING DATA	
93	Jul-91	KPE	KPE	H&A	"GROUNDWATER ANALYTICAL DATA REVIEW, KODAK PARK SECTION E" SUMMARY AND EVALUATION OF EXISTING DATA	
15	Aug-91	KPM	KPM	B&B	"GROUNDWATER ANALYTICAL DATA REVIEW, KPM" SUMMARY AND EVALUATION OF EXISTING DATA	
94	Aug-91	KPW	KPW	H&A	"GROUNDWATER ANALYTICAL DATA REVIEW, KODAK PARK SECTION W" SUMMARY AND EVALUATION OF EXISTING DATA	
16	Aug-91	KPM	N FENCE	B&B	"BUILDING 351/352 INTERIM REMEDIAL MEASURE CONCEPTUAL DESIGN WORK PLAN" IRM TRENCH DESIGN	
103	Sep-91	ALL	SITE WIDE	IT	"GENERIC FEASIBILITY STUDY, KODAK PARK"	
17	Sep-91	KPT	KPT	B&B	"GROUNDWATER ANALYTICAL DATA REVIEW, KPT" SUMMARY AND EVALUATION OF EXISTING DATA	
18	Sep-91	KPM	KPM	B&B	"INTERIM REPORT, KPM HYDROGEOLOGIC INVESTIGATION" SUMMARY OF EXISTING DATA	

TABLE II-3.1

CHRONOLOGY OF MAJOR HYDROGEOLOGIC INVESTIGATIONS
KODAK PARK

REFER-ENCE (1)	DATE	PARK SECTION	STUDY AREA	INVESTI-GATOR (2)	REPORT TITLE / SUBJECT	INSTALLATIONS / SURVEYS
57	Nov-91	KPM	KPM	GM	"KODAK PARK SEISMIC SURVEY RESULTS"	SEISMIC SURVEY
53	Jan-92	KPW	ONSITE SA-1	ECK	"WELL INSTALLATION REPORT, KPW MIGRATION CONTROL SYSTEM IRM" MCS INSTALLATION	4 RECOVERY WELLS
20	Jan-92	KPX	KPX-NE	B&B	"NORTHEAST KPX PHASE II HYDROGEOLOGIC INVESTIGATION REPORT" FIELD INVESTIGATION, HYDROGEOLOGIC CHARACTERIZATION	9 MONIT WELLS
55	Jan-92	KPW	ONSITE SA-1	ECK	"FEASIBILITY STUDY, KPW DISTILLING AND SOUTHWEST KPW AREAS"	
96	Feb-92	KPE	N & E FENCE	H&A	"KPE EAST AND NORTH FENCELINE SHALLOW HYDROGEOLOGIC INVESTIGATION" HYDROGEOLOGIC INVESTIGATION, CHARACTERIZATION OF FIRST WATER-BEARING ZONE	15 MONIT WELLS
21	Feb-92	KPM	B-308	B&B	"ADDITIONAL GROUNDWATER ASSESSMENT NEAR MONITORING WELL SB308E"	3 MONIT WELLS
22	Feb-92	KPM	B-301/304	B&B	"BUILDING 301/304 SITE ASSESSMENT, KPM ORDER ON CONSENT (INDEX #B8-0190-91-04)" FIELD INVESTIGAION AND HYDROGEOLOGIC CHARACTERIZATION	6 MONIT WELLS
23	Feb-92	KPM	KODA-VISTA	B&B	"B 351/352 IRM WELL INSTALLATION AT KODA VISTA; WELL REPLACEMENT AT NORTH FENCE-LINE;B351/352 IRM; NORTH FENCELINE AND NORTH FENCELINE ADENDUM GROUNDWATER DATA"	7 MONIT WELLS
117	Mar-92	KPW	KPW-NORTH	RC	"KPW NORTH FENCELINE OVERBURDEN GROUNDWATER MONITORING FINAL REPORT" HYDROGEOLOGIC CHARACTERIZATION	5 MONIT WELLS
24	Mar-92	KPM	B-329	B&B	"BUILDING 329 SITE ASSESSMENT, KPM ORDER ON CONSENT (INDEX # B8-0190-91-04) FIELD INVESTIGATION AND HYDROGEOLOGIC CHARACTERIZATION	3 MONIT WELLS
97	Apr-92	KPW	OFFSITE SA-1	H&A	"REPORT ON THE STUDY AREA NO. 1 PHASE II OFFSITE HYDROGEOLOGIC INVESTIGATION" FIELD INVESTIGATION AND HYDROGEOLOGIC CHARACTERIZATION	8 MONIT WELLS
98	May-92	KPM	WRL	H&A	"WEILAND ROAD LANDFILL INTERIM HYDROGEOLOGIC INVESTIGAION REPORT" HYDROGEOLOGIC CHARACTERIZATION	20 MONIT WELLS
25	Jun-92	KPS	B-605	B&B	"KODAK PARK BUILDING 605 PHOTOCHEMICAL TANK RELEASE INVESTIGATION" POST-RELEASE FIELD INVESTIGATION AND HYDROGEOLOGICAL CHARACTERIZATION	1 MONIT WELL
26	Jun-92	KPM	B-307/322	B&B	"BUILDINGS 307/322 SITE ASSESSMENT, KPM ORDER ON CONSENT (INDEX # B8-0190-91-04)"	13 MONIT WELLS
27	Jul-92	KPM	KPM	B&B	"PRELIM SITE ASSESSMENT, KPM ORDER ON CONSENT (INDEX # B8-0190-91-04)" SUMMARY OF EXISTING DATA, SWMU LISTING	
99	Aug-92	KPW	KPW-SE	H&A	"REPORT ON KPW SOUTHEAST HYDROGEOLOGIC INVESTIGATION" FIELD INVESTIGATION AND HYDROGEOLOGIC CHARACTERIZATION	16 MONIT WELLS
100	Aug-92	ALL	SITE WIDE	H&A	"KODAK PARK HYDROGEOLOGIC SUMMARY REPORT" SUMMARY OF EXISTING HYDROGEOLOGIC DATA	
54	Aug-92	KPW	KPW	ECK	"KPW MIGRATION CONTROL SYSTEM PERFORMANCE ASSESSMENT REPORT"	

TABLE II-3.1

CHRONOLOGY OF MAJOR HYDROGEOLOGIC INVESTIGATIONS
KODAK PARK

REFER-ENCE (1)	DATE	PARK SECTION	STUDY AREA	INVESTI-GATOR (2)	REPORT TITLE / SUBJECT	INSTALLATIONS / SURVEYS
120	Oct-92	KPW	KPW	SSPA	"SIMULATION OF GROUNDWATER FLOW CONDITIONS IN THE KODAK PARK WEST AREA" *GROUNDWATER MODEL*	
101	Nov-92	KPE	S FENCE	H&A	"KPE SOUTH FENCELINE SHALLOW HYDROGEOLOGIC INVESTIGATION" HYDROGEOLOGIC CHARACTERIZATION OF FIRST WATER-BEARING ZONE	3 MONIT WELLS
29	Nov-92	KPM	B-329	B&B	"BUILDING 329 PHASE II ASSESSMENT MONITORING WELL REPORT" FIELD INVESTIGATION AND HYDROGEOLOGIC CHARACTERIZATION	2 MONIT WELLS
102	Dec-92	KPE	GORGE	H&A	"REPORT ON GEOLOGIC CONDITIONS ALONG THE SLOPE OF THE GENESEE RIVER GORGE" GEOLOGIC MAPPING OF BEDROCK, FRACTURES AND GROUNDWATER SEEPS	
30	Dec-92	KPM	N FENCE	B&B	"BUILDING 351/352 INTERIM REMEADIAL MEASURES PERFORMANCE EVALUATION REPORT" TRENCH PERFORMANCE EVALUATION	MCS TRENCH
31	Mar-93	KPX	S FENCE	B&B	"KODAK PARK KPX SOUTH FENCELINE SHALLOW HYDROGEOLOGIC INVESTIGATION REPORT" HYDROGEOLOGIC CHARACTERIZATION OF FIRST WATER-BEARING ZONE	3 MONIT WELLS
32	Apr-93	KPX	KPX-NE	B&B	"NORTHEAST KPX OVERBURDEN GROUNDWATER MIGRATION CONTROL SYSTEM PERFORMANCE EVALUATION" TRENCH PERFORMANCE EVALUATION	MCS TRENCH
33	May-93	KPX	KPX-NE	B&B	"NORTHEAST KPX PHASE III HYDROGEOLOGIC INVESTIGATION" FIELD INVESTIGATION AND HYDROGEOLOGIC CHARACTERIZATION	18 MONIT WELLS
34	May-93	KPS	B-606	B&B	"KODAK PARK BUILDING 606 CHEMICAL RELEASE, PHASE II INVESTIGATION REPORT" POST-RELEASE FIELD INVESTIGATION AND HYDROGEOLOGIC CHARACTERIZATION	3 MONIT WELLS
118	May-93	KPW	NORTH	RC	"INTERIM REPORT, RESULTS OF PHASE I HYDROGEOLOGIC INVESTIGATION, NORTHERN KPW" FIELD INVESTIGATION OF SHALLOW WATER-BEARING ZONE	10 MONIT WELLS
112	Jul-93	ALL	SITE WIDE	EKC	"TECHNICAL EVALUATION OF SEWERS LOCATED BELOW THE GROUNDWATER TABLE AT KP"	

NOTES:

1. NUMBER REFERS TO BIBLIOGRAPHIC REFERENCES PROVIDED IN TEXT.

2. INVESTIGATORS KEY:

AWARE: AWARE, INC.
B&B: BLASLAND & BOUCK, ENGINEERING
CE: CLARK ENGINEERS ASSOC.
D&M: DAMES & MOORE
EKC: EASTMAN KODAK COMPANY
ECK: ECKENFELDER, INC.
GM: GEOSPHERE MIDWEST

H&A: H&A OF NEW YORK
IT: INTERNATIONAL TECHNOLOGY CORP.
MC: MONROE COUNTY REVIEW COMMITTEE
RC: RADIAN CORPORATION
SSPA: S.S. PAPDOPULOS & ASSOC.
TRC: TRC ENVIRONMENTAL CONSULTANTS, INC.
TV: TERRA VAC, INC.

TABLE II-5.1

KODAK PARK MONITOR WELL SUMMARY LEGEND

COLUMN	
1 (well)	Monitor Well Name
2 (park section)	Kodak Park Section (KPE, KPW, KPX, KPM, KPS, KPT)
3 (AQMS loc id)	Analytical Quality Management System (AQMS) location identification number
4 (strat interval)	Stratigraphic interval monitored by well
5 (boring)	Name of test boring associated with monitoring well
6 (install date)	Well installation date
7 (well length)	Total well length (feet)
8 (riser diam)	Diameter of well riser (inches)
9 (riser type)	Well riser construction material: SS - stainless steel RS - raw steel (black steel) PVC
10 (screen diam)	Diameter of screened interval (inches)
11 (screen type)	Well screen construction material: SS - stainless steel RS - raw steel (black steel) ROCK - open rock hole PVC
12 (top scr depth)	Depth to the top of the well screen from ground surface (feet)
13 (bot scr depth)	Depth to the bottom of the well screen from ground surface (feet)
14, 15 (north, east)	Surveyed Northings and Eastings of well location
16 (ref elev)	Elevation of reference location, typically the top of the well casing (KPD)
17 (gs elev)	Ground surface elevation at well location (KPD)
18 (top scr elev)	Elevation of the top of the well screen (KPD)
19 (bot scr elev)	Elevation of the bottom of the well screen (KPD)
20 (driller)	Name of company providing drilling services: Pennsylvania Drilling Company; Parratt Wolfe, Inc. Rochester Drilling Company; Hardin Huber Empire Soils Investigations, Inc.; Hydro Group, Inc. Eastman Kodak (Kodak Park Drillers)
21 (construction oversight)	Name of company providing oversight services: Blasland, Bouck & Lee; Dames & Moore, Inc. Eastman Kodak Company; Eckenfelder, Inc. H&A of New York; Radian Corporation TRC Environmental Consultants, Inc.; Terra Vac, Inc. Empire Soils Investigations, Inc.
22 (report/project)	Name and date of project or final investigation report
23,24,25 (drilling method)	Methods of drilling in order of depth
26 (pc type)	Protective casing type/construction

TABLE 5.1

KPE ACTIVE WELLS

	1	2	3	4	5	6	7	8	9	10	11	12	13
	WELL	PARK SECTION	AQMS LOC ID	STRAT INTERVAL	BORING	INSTALL DATE	WELL LENGTH (FEET)	RISER DIAM (INCHES)	RISER TYPE	SCREEN DIAM (INCHES)	SCREEN TYPE	TOP SCR DEPTH (FEET)	BOT SCR DEPTH (FEET)
1	G1ES10R	KPE	103385	G1	G1ES10R	17-Feb-92	42.13	4.0	SS	3.00	ROCK	24.40	42.40
2	G1ES2	KPE	102643	G1	G1ES2	27-Feb-89	31.92	4.0	SS	3.00	ROCK	22.30	32.20
3	G1ES3R	KPE	103384	G1	G1ES3R	18-Feb-92	38.47	4.0	SS	3.00	ROCK	18.80	38.40
4	G1ES4R	KPE	102678	G1	G1ES4R	31-Mar-89	27.19	2.0	SS	2.00	SS	22.50	27.50
5	G1ESR	KPE	102673	G1	G1ESR	29-Mar-89	33.72	2.0	SS	2.00	SS	24.00	34.00
6	G2B59E	KPE	103521	G2	G2B59E	16-Dec-92	50.57	2.00	PVC	2.00	PVC	36.00	51.00
7	G2B62SE	KPE	103522	G2	G2B62SE	23-Dec-92	43.53	2.00	PVC	2.00	PVC	34.00	44.00
8	G2ES10	KPE	102672	G2	G2ES10	2-Mar-89	44.80	4.0	SS	3.00	ROCK	33.00	44.80
9	G2ES2	KPE	102669	G2	G2ES2	27-Feb-89	41.95	4.0	SS	3.00	ROCK	32.60	42.60
10	G2ES4	KPE	102649	G2	G2ES4	20-Feb-89	38.39	4.0	SS	3.00	ROCK	28.50	38.50
11	G2ESR	KPE	102688	G2	G2ESR	30-Mar-89	45.56	2.0	SS	2.00	SS	35.50	45.50
12	GB16N	KPE	101991	G	GB16N	13-Oct-86	33.13	4.0	RS	3.00	ROCK	25.00	33.85
13	GB46N	KPE	102002	G	GB46N	30-Oct-86	39.26	6.0	RS	4.00	RS	13.50	40.00
14	GB49NE	KPE	102943	G	GB49NE	4-Apr-90	22.13	4.0	SS	4.00	ROCK	12.30	22.30
15	GB53SW	KPE	102004	G	GB53SW	16-Oct-86	36.45	2.0	RS	3.00	ROCK	26.50	36.50
16	GB57W	KPE	102021	G	GB57W	14-Nov-86	33.35	2.0	RS	3.00	ROCK	23.50	33.50
17	GB58NE	KPE	103518	G	GB58NE	3-Dec-92	49.45	2.00	PVC	2.00	PVC	35.00	50.00
18	GB59E	KPE	103520	G	GB59E	8-Dec-92	30.36	2.00	PVC	2.00	PVC	21.00	31.00
19	GB62SE	KPE	100971	G	GB62SE	15-Mar-84	23.47	4.0	PVC	3.00	ROCK	9.90	23.70
20	GB69N	KPE	103356	G	GB69N	5-Mar-92	27.73	4.0	SS	3.00	ROCK	19.50	28.50
21	GB9E	KPE	103193	G	B9E	12-Aug-91	18.36	2.0	PVC	2.00	PVC	13.70	18.70
22	GES16	KPE	102843	G	GES16	9-Oct-89	37.87	4.0	PVC	4.00	PVC	24.00	39.00
23	GES17	KPE	102840	G	GES17	25-Sep-89	34.40	4.0	PVC	4.00	PVC	25.00	35.00
24	GES7	KPE	103358	G	GES7	19-Feb-92	37.66	4.0	SS	3.00	ROCK	23.00	38.00
25	GL15E	KPE	102937	G	GL15E	15-Feb-90	32.77	4.0	SS	4.00	ROCK	20.20	33.20
26	GL15N	KPE	101666	G	GL15N	6-Dec-85	33.56	4.0	PVC	3.00	ROCK	19.05	34.05
27	GL15S	KPE	102934	G	GL15S	12-Feb-90	36.53	4.0	SS	4.00	ROCK	24.00	37.00
28	GL42SE	KPE	102228	G	GL42SE	27-May-87	28.78	6.0	RS	6.00	ROCK	24.00	29.00
29	GL42SE2	KPE	102225	G	GL42SE2	20-May-87	25.01	6.0	RS	6.00	ROCK	20.80	26.00
30	GQB23SW	KPE	102940	GQ	GQB23SW	14-Mar-90	62.80	4.0	SS	4.00	ROCK	53.00	63.00
31	GQB49NE	KPE	102944	GQ	GQB49NE	30-Mar-90	64.45	4.0	SS	4.00	ROCK	54.70	64.70
32	GQB58NE	KPE	103519	GQ	G2B58NE	30-Nov-92	74.65	2.00	PVC	2.00	PVC	60.00	75.00
33	GQB65SE	KPE	102941	GQ	GQB65SE	16-Mar-90	62.13	4.0	SS	4.00	ROCK	52.30	62.30
34	GQB69N	KPE	103357	GQ	GQB69N	2-Mar-92	73.72	4.0	SS	3.00	ROCK	62.50	74.00

TABLE 5.1

KPE ACTIVE WELLS

	1	14	15	16	17	18	19	20	21
	WELL	NORTH	EAST	REF	GS	TOP SCR	BOT SCR	DRILLER	CONSTRUCTION
				ELEV	ELEV	ELEV	ELEV		OVERSIGHT
1	G1ES10R	1166924.20	752500.84	232.13	232.40	208.00	190.00	PENN DRILLING	H&A
2	G1ES2	1166611.27	752441.18	227.83	228.18	205.81	195.91	ROCH DRILLING	H&A
3	G1ES3R	1166809.85	752282.72	227.61	227.57	208.74	189.14	PENN DRILLING	H&A
4	G1ES4R	1166814.53	752448.40	228.69	228.99	206.50	201.50	ROCH DRILLING	H&A
5	G1ESR	1166810.34	752627.72	230.02	230.30	206.30	196.30	ROCH DRILLING	H&A
6	G2B59E	1166734.09	754595.68	212.44	212.87	176.87	161.87	PENN DRILLING	H&A
7	G2B62SE	1167430.92	754662.83	209.19	209.66	175.66	165.66	PENN DRILLING	H&A
8	G2ES10	1166916.57	752495.57	231.92	232.17	198.92	187.12	ROCH DRILLING	H&A
9	G2ES2	1166602.77	752438.76	227.33	227.49	195.38	185.38	ROCH DRILLING	H&A
10	G2ES4	1166815.15	752432.39	228.96	229.00	200.57	190.57	ROCH DRILLING	H&A
11	G2ESR	1166810.36	752632.76	230.36	230.31	194.80	184.80	ROCH DRILLING	H&A
12	*GB16N*	*1168032.65*	*754545.34*	*205.92*	*206.66*	*181.64*	*172.79*	*ROCH DRILLING*	*H&A*
13	GB46N	1167484.33	753600.04	213.82	214.53	201.06	174.56	ROCH DRILLING	H&A
14	GB49NE	1167181.93	753222.58	219.41	219.49	207.28	197.28	ROCH DRILLING	H&A
15	GB53SW	1167744.48	753226.14	215.91	215.99	189.46	179.46	ROCH DRILLING	H&A
16	GB57W	1167498.18	754082.12	212.45	212.60	189.10	179.10	ROCH DRILLING	H&A
17	GB58NE	1165988.51	754461.38	220.36	220.91	185.91	170.91	PENN DRILLING	H&A
18	GB59E	1166747.55	754595.92	212.20	212.84	191.84	181.84	PENN DRILLING	H&A
19	GB62SE	1167434.61	754653.28	209.41	209.64	199.74	185.94	KODAK PARK DRILLERS	H&A
20	GB69N	1167155.58	751993.59	229.00	229.77	210.27	201.27	PENN DRILLING	H&A
21	GB9E	1166997.70	754646.94	212.21	212.55	198.85	193.85	PENN DRILLING	H&A
22	GES16	1167030.13	752636.78	232.06	232.99	209.19	194.19	PENN DRILLING	TERRA-VAC
23	GES17	1166965.63	752555.89	232.66	233.08	208.26	198.26	PENN DRILLING	TERRA-VAC
24	GES7	1166809.98	752097.75	227.19	227.53	204.53	189.53	PENN DRILLING	H&A
25	GL15E	1166895.65	752948.17	227.21	227.61	207.44	194.44	ROCH DRILLING	H&A
26	GL15N	1167088.64	752719.16	228.05	228.53	209.49	194.49	KODAK PARK DRILLER	H&A
27	GL15S	1166981.31	752723.55	229.63	230.10	206.10	193.10	ROCH DRILLING	H&A
28	GL42SE	1168212.40	753944.80	208.82	209.04	185.04	180.04	HYDRO GROUP, INC.	H&A
29	GL42SE2	1168178.70	753628.70	207.50	207.78	187.69	182.49	HYDRO GROUP, INC.	H&A
30	GQB23SW	1167174.94	752654.28	223.75	223.95	170.95	160.95	ROCH DRILLING	H&A
31	GQB49NE	1167185.82	753236.46	219.41	219.64	164.96	154.96	ROCH DRILLING	H&A
32	GQB58NE	1165968.63	754460.19	220.54	220.89	160.89	145.89	PENN DRILLING	H&A
33	GQB65SE	1166951.70	752348.86	216.80	216.97	164.67	154.67	ROCH DRILLING	H&A
34	GQB69N	1167145.75	751993.94	229.62	229.90	167.40	155.90	PENN DRILLING	H&A

TABL[illegible]-5.1

KPE ACTIVE WELLS

	1	22	23
	WELL	REPORT / PROJECT	DRILLING
			METHOD 1
1	G1ES10R	REPORT ON KPW SOUTHEAST HYDROGEO INVESTIG - AUG 1992	RETROFIT
2	G1ES2	SCHOOL 41 HYDROGEO INVESTIG REPORT - JUNE 1989	AUGERS TO 21.3
3	G1ES3R	REPORT ON KPW SOUTHEAST HYDROGEO INVESTIG - AUG 1992	AUGERS TO 18.8
4	G1ES4R		AUGERS TO 19.4
5	G1ESR		AUGERS TO 21.3
6	G2B59E	REPORT ON KPE NORTH AND EAST DEEP FENCELINE INVESTIGATION (IN PROGRESS)	AUGERS TO 18.0
7	G2B62SE	REPORT ON KPE NORTH AND EAST DEEP FENCELINE INVESTIGATION (IN PROGRESS)	AUGERS TO 10.0
8	G2ES10	SCHOOL 41 HYDROGEO INVESTIG REPORT - JUNE 1989	AUGERS TO 22.8
9	G2ES2	SCHOOL 41 HYDROGEO INVESTIG REPORT - JUNE 1989	AUGERS TO 20.6
10	G2ES4	SCHOOL 41 HYDROGEO INVESTIG REPORT - JUNE 1989	AUGERS TO 15.3
11	G2ESR		AUGERS TO 21.5
12	GB16N	PHASE I REPORT, KPE GROUNDWATER INVESTIGATION - JUNE 1987	AUGERS TO 24.2
13	GB46N	PHASE I REPORT, KPE GROUNDWATER INVESTIGATION - JUNE 1987	AUGERS TO 11.3
14	GB49NE	DRAFT REPORT ON HYDROGEO INVESTIG, KP RAILROAD AREA - AUG 1990	AUGERS TO 10.3
15	GB53SW	PHASE I REPORT, KPE GROUNDWATER INVESTIGATION - JUNE 1987	AUGERS TO 24.3
16	GB57W	PHASE I REPORT, KPE GROUNDWATER INVESTIGATION - JUNE 1987	AUGERS TO 9.5
17	GB58NE	REPORT ON KPE NORTH AND EAST DEEP FENCELINE INVESTIGATION (IN PROGRESS)	AUGERS TO 19.0
18	GB59E	REPORT ON KPE NORTH AND EAST DEEP FENCELINE INVESTIGATION (IN PROGRESS)	AUGERS TO 19.0
19	GB62SE	REPORT ON KPE GROUNDWATER STUDY - MAY 1985	AUGERS TO 9.4.
20	GB69N	REPORT ON KPW SOUTHEAST HYDROGEO INVESTIG - AUG 1992	AUGERS TO 17.5
21	GB9E	KPE EAST AND NORTH FENCELINE SHALLOW HYDROGEO INVESTIG - FEB 1992	AUGERS TO 9.0
22	GES16	REPORT ON SUBSURFACE CONDITIONS KP - KPRR SITE - AUG 1990	AUGERS TO 23.0
23	GES17	REPORT ON SUBSURFACE CONDITIONS KP - KPRR SITE - AUG 1990	AUGERS TO 23.5
24	GES7	REPORT ON KPW SOUTHEAST HYDROGEO INVESTIG - AUG 1992	AUGERS TO 17.4
25	GL15E	DRAFT REPORT ON HYDROGEO INVESTIG, KP RAILROAD AREA - AUG 1990	AUGERS TO 18.2
26	GL15N	INDUSTRIAL SEWER	AUGERS TO 18.7
27	GL15S	DRAFT REPORT ON HYDROGEO INVESTIG, KP RAILROAD AREA - AUG 1990	AUGERS TO 22
28	GL42SE	KPE GROUNDWATER INVESTIGATION	AIR ROTARY TO 29.0
29	GL42SE2	KPE GROUNDWATER INVESTIGATION	AIR ROTARY TO 26.0
30	GQB23SW	DRAFT REPORT ON HYDROGEO INVESTIG, KP RAILROAD AREA - AUG 1990	AUGERS TO 12.8
31	GQB49NE	DRAFT REPORT ON HYDROGEO INVESTIG, KP RAILROAD AREA - AUG 1990	AUGERS TO 9.7
32	GQB58NE	REPORT ON KPE NORTH AND EAST DEEP FENCELINE INVESTIGATION (IN PROGRESS)	AUGERS TO 25.0
33	GQB65SE	DRAFT REPORT ON HYDROGEO INVESTIG, KP RAILROAD AREA - AUG 1990	AUGERS TO 7.3
34	GQB69N	REPORT ON KPW SOUTHEAST HYDROGEO INVESTIG - AUG 1992	AUGERS TO 18.5

TABL[illegible]-5.1

KPE ACTIVE WELLS

	1	24	25	26
	WELL	DRILLING	DRILLING	PC
		METHOD 2	METHOD 3	TYPE
1	G1ES10R	NX CORE TO 42.4		FLUSH
2	G1ES2	ROLLER BIT TO 22.3	NX CORE TO 32.3	FLUSH
3	G1ES3R	NX CORE TO 38.8		FLUSH
4	G1ES4R	NX CORE TO 24.4		FLUSH
5	G1ESR	NX CORE TO 26.3	ROLLER BIT TO 34.1	FLUSH
6	G2B59E	ROLLER BIT TO 36.0	NX CORE TO 56.0	ROADWAY BOX
7	G2B62SE	NX CORE TO 49.0		ROADWAY BOX
8	G2ES10	ROLLER BIT TO 34.8	NX CORE TO 44.8	FLUSH
9	G2ES2	ROLLER BIT TO 32.6	NX CORE TO 42.6	FLUSH
10	G2ES4	ROLLER BIT TO 30.0	NX CORE TO 38.5	FLUSH
11	G2ESR	NX CORE TO 26.5	ROLLER BIT TO 46.4	FLUSH
12	GB16N	NX CORE TO 33.6		RS
13	GB46N	NX CORE TO 40.0		N/A
14	GB49NE	NX CORE TO 22.3	REAMED WITH ROLLER BIT	STEEL ROADWAY BOX
15	GB53SW	NX CORE TO 36.5	ROLLER BIT TO 26.5	STEEL ROADWAY BOX
16	GB57W	NX CORE TO 33.5		STEEL ROADWAY BOX
17	GB58NE	ROLLER BIT TO 26.0	NX CORE TO 50.0	ROADWAY BOX
18	GB59E	NX CORE TO 36.0		ROADWAY BOX
19	GB62SE	ROLLER BIT TO 10.4	NX CORE TO 24.2	STEEL ROADWAY BOX
20	GB69N	NX CORE TO 33.5		ROADWAY BOX
21	GB9E	NX CORE TO 24.0		ROADWAY BOX
22	GES16	NX CORE TO 39.0		FLUSH
23	GES17	NX CORE TO 35.0		FLUSH
24	GES7	NX CORE TO 38.0		FLUSH
25	GL15E	NX CORE TO 33.2	ROLLER BIT TO 20.2	STEEL ROADWAY BOX
26	GL15N	NX CORE TO 34.1		VALVE BOX
27	GL15S	ROLLER BIT TO 24.0	NX CORE TO 37.0	ROADWAY BOX
28	GL42SE			STEEL ROADWAY BOX
29	GL42SE2			STEEL ROADWAY BOX
30	GQB23SW	NX CORE TO 63.0		ROADWAY BOX
31	GQB49NE	NX CORE TO 64.7	REAMED WITH ROLLER BIT	STEEL ROADWAY BOX
32	GQB58NE	NX CORE TO 85.0		ROADWAY BOX
33	GQB65SE	NX CORE TO 62.3	REAMED WITH ROLLER BITS TO 52.3	STEEL ROADWAY BOX
34	GQB69N	NX CORE TO 74.0		ROADWAY BOX

TABLE 5.1

KPE ACTIVE WELLS

	1	2	3	4	5	6	7	8	9	10	11	12	13
	WELL	PARK SECTION	AQMS LOC ID	STRAT INTERVAL	BORING	INSTALL DATE	WELL LENGTH (FEET)	RISER DIAM (INCHES)	RISER TYPE	SCREEN DIAM (INCHES)	SCREEN TYPE	TOP SCR DEPTH (FEET)	BOT SCR DEPTH (FEET)
35	GQB81E	KPE	103212	GQ	B81E	6-Sep-91	16.87	2.0	PVC	2.00	PVC	8.20	17.20
36	GQES10	KPE	102931	GQ	GQES10	5-Mar-90	73.77	4.0	SS	4.00	ROCK	64.00	74.00
37	GQES13	KPE	103033	GQ	GQES13	10-Aug-90	81.78	4.0	SS	3.00	ROCK	72.30	81.90
38	GQES16	KPE	102844	GQ	GQES16	3-Oct-89	72.25	4.0	RS	3.00	ROCK	42.00	74.00
39	GQES19	KPE	103285	GQ	GQES19	6-Nov-91	92.60	4.0	SS	4.00	ROCK	82.00	93.00
40	GQES20	KPE	103329	GQ	GQES20	5-Nov-91	82.01	4.0		4.00	ROCK	72.40	82.40
41	GQES3	KPE	102929	GQ	GQES3	26-Feb-90	73.10	4.0	SS	4.00	ROCK	63.30	73.30
42	GQES4	KPE	102930	GQ	GQES4	22-Feb-90	74.98	4.0	SS	3.00	ROCK	65.80	75.20
43	GQL15E	KPE	102938	GQ	GQL15E	7-Feb-90	72.94	4.0	SS	3.00	ROCK	62.50	73.30
44	GQL15N	KPE	102932	GQ	GQL15N	21-Feb-90	73.51	4.0	SS	4.00	ROCK	63.70	73.70
45	GQL15S	KPE	102935	GQ	GQL15S	21-Feb-90	75.87	4.0	SS	3.00	ROCK	66.30	76.30
46	IB16E	KPE	103192	I	B16E	13-Aug-91	25.36	2.0	PVC	2.00	PVC	15.60	25.60
47	IBE24E	KPE	103122	I	IBE24E	11-Dec-90	16.26	4.0	PVC	4.00	PVC	6.60	16.10
48	IBE24NE	KPE	103123	I	IBE24NE	7-Dec-90	16.41	4.0	PVC	4.00	PVC	6.70	16.10
49	IBE24NW	KPE	103124	I	IBE24NW	12-Dec-90	16.17	4.0	PVC	4.00	PVC	6.60	16.10
50	IES	KPE	102640	I	IES	20-Feb-89	22.66	2.0	SS	2.00	SS	17.70	22.70
51	IES10	KPE	102670	I	IES10	28-Feb-89	23.77	2.0	SS	2.00	SS	18.80	23.80
52	IES13	KPE	102736	I	IES13	10-Jun-89	16.13	2.0	SS	2.00	SS	11.00	16.00
53	IES2	KPE	102668	I	IES2	28-Feb-89	20.12	2.0	SS	2.00	SS	16.00	21.00
54	IES3	KPE	102644	I	IES3	16-Feb-89	19.04	2.0	SS	2.00	SS	14.00	19.00
55	IES4	KPE	102647	I	IES4	17-Feb-89	19.91	2.0	SS	2.00	SS	15.50	20.50
56	IES7	KPE	102652	I	IES7	19-Feb-89	18.12	2.0	PVC	2.00	PVC	13.40	18.40
57	IES9	KPE	102654	I	IES9	19-Feb-89	20.00	2.0	PVC	2.00	PVC	16.00	20.00
58	PB53N2	KPE	102325	GQ	PB53N2	11-Aug-87	59.87	8.0	SS	8.00	SS	20.30	60.80
59	PB54NW	KPE	101999	G	PB54NW	3-Nov-86	35.93	6.0	RS	4.00	ROCK	18.00	38.00
60	PB54SE	KPE	102326	G	PB54SE	24-Aug-87	47.00	8.0	SS	8.00	SS	8.40	49.10
61	PB57W	KPE	102328	Q	PB57W	17-Sep-87	46.75	8.0	SS	8.00	SS	8.00	48.80
62	PES15	KPE	102827	G	PES15	19-Sep-89	33.32	4.0	PVC	4.00	PVC	25.00	34.70
63	PL15W	KPE	102690	G	PL15W	8-Apr-89	35.77	4.0	PVC	4.00	PVC	12.00	36.50
64	Q2L27NW	KPE	103531	Q2	Q2L27NW	11-Feb-93	92.55	2.00	PVC	2.00	PVC	83.00	93.00
65	Q2L42NE2	KPE	103529	Q2	Q2L42NE2	28-Jan-93	63.93	2.00	PVC	2.00	PVC	54.50	64.50
66	Q2L42NW	KPE	103527	Q2	Q2L42NW	27-Jan-93	93.42	2.00	PVC	2.00	PVC	84.50	94.50
67	Q2L45N	KPE	103525	Q2	Q2L45N	18-Jan-93	85.56	2.00	PVC	2.00	PVC	76.00	86.00
68	QB16E	KPE	103523	Q	QB16E	29-Dec-92	86.69	2.00	PVC	2.00	PVC	77.00	87.00

TABLE 5.1

KPE ACTIVE WELLS

	1	14	15	16	17	18	19	20	21
	WELL	NORTH	EAST	REF ELEV	GS ELEV	TOP SCR ELEV	BOT SCR ELEV	DRILLER	CONSTRUCTION OVERSIGHT
35	GQB81E	1168741.81	754789.50	194.16	194.49	186.29	177.29	PENN DRILLING	H&A
36	GQES10	1166935.35	752520.25	232.45	232.68	168.68	158.68	ROCH DRILLING	H&A
37	GQES13	1166723.83	751827.35	234.16	234.33	161.98	152.38	ROCH DRILLING	H&A
38	GQES16	1167034.75	752629.46	231.46	233.03	191.21	159.21	PENN DRILLING	TERRA-VAC
39	GQES19	1165968.05	752325.93	234.74	235.14	153.14	142.14	ROCH DRILLING	H&A
40	GQES20	1166361.87	752160.25	229.57	229.96	157.56	147.56	ROCH DRILLING	H&A
41	GQES3	1166810.24	752302.37	227.70	227.90	164.60	154.60	ROCH DRILLING	H&A
42	GQES4	1166831.41	752436.60	229.80	230.02	164.22	154.82	ROCH DRILLING	H&A
43	GQL15E	1166889.26	752957.71	227.11	227.45	164.97	154.17	ROCH DRILLING	H&A
44	GQL15N	1167075.44	752726.55	228.31	228.50	164.80	154.80	ROCH DRILLING	H&A
45	GQL15S	1166975.98	752730.55	229.67	230.10	163.80	153.80	ROCH DRILLING	H&A
46	IB16E	1167790.58	754588.37	206.96	207.20	191.60	181.60	PENN DRILLING	H&A
47	IBE24E	1168017.46	753209.98	210.56	210.90	204.30	194.80	ROCH DRILLING	BLASLAND,BOUCK,LEE
48	IBE24NE	1168057.61	753178.37	209.81	210.10	203.40	194.00	ROCH DRILLING	BLASLAND,BOUCK,LEE
49	IBE24NW	1168057.38	753126.40	209.87	210.30	203.70	194.20	ROCH DRILLING	BLASLAND,BOUCK,LEE
50	IES	1166811.76	752647.68	230.46	230.49	212.80	207.80	ROCH DRILLING	H&A
51	IES10	1166921.24	752498.26	232.03	232.17	213.26	208.26	ROCH DRILLING	H&A
52	IES13	1166810.36	751908.14	227.23	227.22	216.10	211.10	ROCH DRILLING	H&A
53	IES2	1166598.73	752438.18	227.10	227.36	211.98	206.98	ROCH DRILLING	H&A
54	IES3	1166810.01	752287.09	227.51	227.46	213.47	208.47	ROCH DRILLING	H&A
55	IES4	1166814.89	752437.90	228.48	229.09	213.57	208.57	ROCH DRILLING	H&A
56	IES7	1166810.04	752107.53	227.32	227.42	214.20	209.20	ROCH DRILLING	H&A
57	IES9	1166695.83	752764.64	230.20	230.17	214.20	210.20	ROCH DRILLING	H&A
58	PB53N2	1168044.67	753697.79	206.11	207.04	186.74	146.24	HYDRO GROUP, INC.	H&A
59	PB54NW	1167730.85	753692.12	210.51	212.74	194.58	174.58	ROCH DRILLING	H&A
60	PB54SE	1167623.43	753863.76	208.87	210.97	202.57	161.87	HYDRO GROUP, INC.	H&A
61	PB57W	1167496.37	754081.23	210.57	212.62	204.62	163.82	HYDRO GROUP, INC.	H&A
62	PES15	1166975.11	752545.77	232.14	232.29	208.52	198.82	PENN DRILLING	TERRA-VAC
63	PL15W	1167040.12	752649.70	229.56	230.29	218.29	193.79	EMPIRE SOILS	TERRA VAC
64	Q2L27NW	1169071.53	754589.01	207.95	208.40	125.40	115.40	PENN DRILLING	H&A
65	Q2L42NE2	1168970.52	753759.20	208.35	208.92	154.42	144.42	PENN DRILLING	H&A
66	Q2L42NW	1168966.77	752798.90	205.89	206.97	122.47	112.47	PENN DRILLING	H&A
67	Q2L45N	1168045.11	752159.68	216.44	216.88	140.88	130.88	PENN DRILLING	H&A
68	QB16E	1167801.14	754585.97	206.99	207.30	130.30	120.30	PENN DRILLING	H&A

TABLE 5.1

KPE ACTIVE WELLS

	1	22	23
	WELL	REPORT / PROJECT	DRILLING
			METHOD 1
35	GQB81E	KPE EAST AND NORTH FENCELINE SHALLOW HYDROGEO INVESTIG - FEB 1992	AUGERS TO 6.4
36	GQES10	DRAFT REPORT ON HYDROGEO INVESTIG, KP RAILROAD AREA - AUG 1990	AUGERS TO 23.0
37	GQES13	STUDY AREA NO.1 OFFSITE HYDROGEO INVESTIG. MIG. CONTROL SUPPL. - MAR 1991	AUGERS TO 22.4
38	GQES16	REPORT ON SUBSURFACE CONDITIONS KP - KPRR SITE - AUG 1990	AUGERS TO 23.0
39	GQES19	REPORT ON THE SA NO.1 PHASE II OFFSITE HYDROGEO INVESTIG - APR 1992	AUGERS TO 25.5
40	GQES20	REPORT ON THE SA NO.1 PHASE II OFFSITE HYDROGEO INVESTIG - APR 1992	AUGERS TO 24.2
41	GQES3	DRAFT REPORT ON HYDROGEO INVESTIG, KP RAILROAD AREA - AUG 1990	AUGERS TO 18.3
42	GQES4	DRAFT REPORT ON HYDROGEO INVESTIG, KP RAILROAD AREA - AUG 1990	AUGERS TO 19.2
43	GQL15E	DRAFT REPORT ON HYDROGEO INVESTIG, KP RAILROAD AREA - AUG 1990	AUGERS TO 20.0
44	GQL15N	DRAFT REPORT ON HYDROGEO INVESTIG, KP RAILROAD AREA - AUG 1990	AUGERS TO 17.7
45	GQL15S	DRAFT REPORT ON HYDROGEO INVESTIG, KP RAILROAD AREA - AUG 1990	AUGERS TO 21.3
46	IB16E	KPE EAST AND NORTH FENCELINE SHALLOW HYDROGEO INVESTIG - FEB 1992	AUGERS TO 20.8
47	IBE24E	REPORT ON BULK PETROLEUM FACILITY MONITORING PROG FOR BLDG E-24 AND M-41 - FEB 1991	AUGERS TO 13.5
48	IBE24NE	REPORT ON BULK PETROLEUM FACILITY MONITORING PROG FOR BLDG E-24 AND M-41 - FEB 1991	AUGERS TO 12.0
49	IBE24NW	REPORT ON BULK PETROLEUM FACILITY MONITORING PROG FOR BLDG E-24 AND M-41 - FEB 1991	AUGERS TO 12.0
50	IES	SCHOOL 41 HYDROGEO INVESTIG REPORT - JUNE 1989	AUGERS TO 22.8
51	IES10	SCHOOL 41 HYDROGEO INVESTIG REPORT - JUNE 1989	AUGERS TO 23.8
52	IES13	OVERBURDEN MONITORING WELL INSTALL. TECH. MEMO. OFFSITE HYDROGEO INVESTIG SA NO.1 - JULY 1989	AUGERS TO 17.0
53	IES2	SCHOOL 41 HYDROGEO INVESTIG REPORT - JUNE 1989	AUGERS TO 21.2
54	IES3	SCHOOL 41 HYDROGEO INVESTIG REPORT - JUNE 1989	AUGERS TO 18.0
55	IES4	SCHOOL 41 HYDROGEO INVESTIG REPORT - JUNE 1989	AUGERS TO 19.5
56	IES7	SCHOOL 41 HYDROGEO INVESTIG REPORT - JUNE 1989	AUGERS TO 20.0
57	IES9	SCHOOL 41 HYDROGEO INVESTIG REPORT - JUNE 1989	AUGERS TO 19.2
58	PB53N2	REPORT ON KPE RECOVERY WELLS - MAR 1988	AIR ROTARY TO 65.8
59	PB54NW	PHASE I REPORT, KPE GROUNDWATER INVESTIGATION - JUNE 1987	AUGERS TO 13.8
60	PB54SE	REPORT ON KPE RECOVERY WELLS - MAR 1988	AIR ROTARY TO 49.1
61	PB57W	REPORT ON KPE RECOVERY WELLS - MAR 1988	AIR ROTARY, USING WATER TO 48.8
62	PES15	REPORT ON SUBSURFACE CONDITIONS KP - KPRR SITE - AUG 1990	AUGERS TO 23
63	PL15W	PHASE ONE REPORT DUAL VACUUM EXTRACTION SYSTEM KP - JULY 1989	AUGERS TO 21.6
64	Q2L27NW	REPORT ON KPE NORTH AND EAST DEEP FENCELINE INVESTIGATION (IN PROGRESS)	AUGERS TO 33.0
65	Q2L42NE2	REPORT ON KPE NORTH AND EAST DEEP FENCELINE INVESTIGATION (IN PROGRESS)	AUGERS TO 30.6
66	Q2L42NW	REPORT ON KPE NORTH AND EAST DEEP FENCELINE INVESTIGATION (IN PROGRESS)	AUGERS TO 37.5
67	Q2L45N	REPORT ON KPE NORTH AND EAST DEEP FENCELINE INVESTIGATION (IN PROGRESS)	AUGERS TO 29.0
68	QB16E	REPORT ON KPE NORTH AND EAST DEEP FENCELINE INVESTIGATION (IN PROGRESS)	AUGERS TO 26.0

TABLE 5.1

KPE ACTIVE WELLS

	1	24	25	26
	WELL	DRILLING	DRILLING	PC
		METHOD 2	METHOD 3	TYPE
35	GQB81E	CORE TO 21.8		ROADWAY BOX
36	GQES10	NX CORE TO 74.0	REAM TO 64.0	FLUSH
37	GQES13	NX CORE TO 87.4		FLUSH
38	GQES16	NX CORE TO 74.0		FLUSH
39	GQES19	NX CORE TO 98.0		FLUSH
40	GQES20	NX CORE TO 88.4		FLUSH
41	GQES3	NX CORE TO 73.3		FLUSH
42	GQES4	8"REAM TO 65.2	NX CORE TO 75.2	FLUSH
43	GQL15E	NX CORE TO 73.3	REAMED WITH ROLLER BIT TO 62.5	STEEL ROADWAY BOX
44	GQL15N	NX CORE TO 73.7	REAMED WITH ROLLER BIT TO 63.7	ROADWAY BOX
45	GQL15S	NX CORE TO 76.3	REAMED WITH ROLLER BIT TO 66.3	ROADWAY BOX
46	IB16E	NX CORE TO 25.8		ROADWAY BOX
47	IBE24E	ROLLER BIT TO 17		FLUSH
48	IBE24NE	ROLLER BIT TO 17		FLUSH
49	IBE24NW	ROLLER BIT TO 17		FLUSH
50	IES			FLUSH
51	IES10			FLUSH
52	IES13			FLUSH
53	IES2			FLUSH
54	IES3	ROLLER BIT TO 19.0		FLUSH
55	IES4			FLUSH
56	IES7			FLUSH
57	IES9			FLUSH
58	PB53N2			NONE
59	PB54NW	UNKNOWN TO 38.0		NA
60	PB54SE			NA
61	PB57W			
62	PES15	NX CORE TO 39.7		FLUSH
63	PL15W	NX CORE TO 37.5		
64	Q2L27NW	ROLLER BIT TO 63.0	NX CORE TO 93.0	ROADWAY BOX
65	Q2L42NE2	ROLLER BIT TO 44.5	NX CORE TO 69.5	ROADWAY BOX
66	Q2L42NW	ROLLER BIT TO 54.5	NX CORE TO 99.5	ROADWAY BOX
67	Q2L45N	ROLLER BIT TO 66.0	NX CORE TO 91.0	ROADWAY BOX
68	QB16E	NX CORE TO 92.0		ROADWAY BOX

TABLE 5.1

KPE ACTIVE WELLS

	1	2	3	4	5	6	7	8	9	10	11	12	13
	WELL	PARK SECTION	AQMS LOC ID	STRAT INTERVAL	BORING	INSTALL DATE	WELL LENGTH (FEET)	RISER DIAM (INCHES)	RISER TYPE	SCREEN DIAM (INCHES)	SCREEN TYPE	TOP SCR DEPTH (FEET)	BOT SCR DEPTH (FEET)
69	QB57NR	KPE	103548	Q	QB57NR	11-Nov-91	54.90	2.0	SS	2.00	SS	50.00	55.00
70	QB81E	KPE	103532	Q	QB81E	5-Feb-93	50.00	2.00	PVC	2.00	PVC	35.00	50.00
71	QL27NW	KPE	103530	Q	QL27NW	4-Feb-93	57.00	2.00	PVC	2.00	PVC	38.00	58.00
72	QL42NE2	KPE	103528	Q	QL42NE2	26-Jan-93	38.85	2.00	PVC	2.00	PVC	32.50	39.50
73	QL42NW	KPE	103526	Q	QL42NW	21-Jan-93	47.93	2.00	PVC	2.00	PVC	39.50	48.50
74	QL42SER	KPE	103549	Q	QL42SER	15-Oct-91	40.25	6.0	RS	6.00	ROCK	35.00	40.50
75	QL42SR	KPE	103550	Q	QL42SR	15-Oct-91	40.72	4.0	RS	3.75	ROCK	31.50	41.00
76	QL45N	KPE	103524	Q	QL45N	8-Jan-93	60.46	2.00	PVC	2.00	PVC	51.00	61.00
77	SB12NE	KPE	103195	S	B12NE	13-Aug-91	15.50	2.0	PVC	2.00	PVC	10.70	15.70
78	SB16N2	KPE	103248	S	B16N2	11-Sep-91	21.43	2.0	PVC	2.00	PVC	16.30	21.60
79	SB18SW	KPE	102254	S	SB18SW	11-Aug-87	13.36	2.0	PVC	2.00	PVC	8.80	13.80
80	SB28NW	KPE	101240	S	SB28NW	18-Sep-84	19.99	2.0	PVC	2.00	PVC	15.40	20.40
81	SB29SE	KPE	103197	S	B29SE	15-Aug-91	20.25	2.0	PVC	2.00	PVC	15.50	20.50
82	SB2N	KPE	101238	S	SB2N	14-Sep-84	14.46	2.0	PVC	2.00	PVC	9.70	14.70
83	SB49NE	KPE	102942	S	SB49NE	3-Apr-90	10.86	2.0	SS	2.00	SS	8.00	11.00
84	SB53SW	KPE	102005	S	SB53SW	15-Oct-86	20.02	2.0	RS	2.50	SS	15.50	20.50
85	SB54SE	KPE	101239	S	SB54SE	26-Mar-84	6.21	2.0	PVC	2.00	PVC	1.50	6.50
86	SB57W	KPE	102154	S	SB57W	12-Nov-86	8.67	2.0	RS	2.50	SS	6.80	8.80
87	SB58NE	KPE	103196	S	B58NE	15-Aug-91	22.27	2.0	PVC	2.00	PVC	17.50	22.50
88	SB59E	KPE	103194	S	B59E	7-Aug-91	10.79	2.0	PVC	2.00	PVC	6.00	11.00
89	SB65SE	KPE	101678	S	SB65SE	8-Jan-86	6.56	2.0	PVC	2.00	PVC	2.00	7.00
90	SB69N	KPE	103355	S	SB69N	2-Mar-92	15.66	2.0	SS	2.00	SS	6.00	16.00
91	SB71NW	KPE	101882	S	SB71NW	28-Jul-86	30.00	2.0	PVC	2.00	PVC	13.60	28.60
92	SB72SE	KPE	102151	S	SB72SE	18-Jul-86	14.17	2.0	PVC	2.00	PVC	1.30	9.30
93	SB72SE2	KPE	102152	S	SB72SE2	16-Jul-86	14.44	2.0	PVC	2.00	PVC	2.30	12.30
94	SB77N	KPE	101883	S	SB77N	28-Jul-86	32.80	2.0	PVC	2.00	PVC	15.00	30.00
95	SB77N2	KPE	101884	S	SB77N2	22-Jul-86	32.93	2.0	PVC	2.00	PVC	15.30	30.30
96	SBE24SW	KPE	103125	S	SBE24SW	13-Dec-90	16.14	4.0	PVC	4.00	PVC	6.40	15.90
97	SES15	KPE	102842	S	SES15	7-Sep-89	21.54	4.0	PVC	4.00	PVC	8.00	23.00
98	SES16	KPE	102838	S	SES16	11-Oct-89	21.78	4.0	PVC	4.00	PVC	6.00	23.00
99	SES17	KPE	102839	S	SES17	8-Sep-89	23.43	4.0	PVC	4.00	PVC	4.00	24.00
100	SES18	KPE	102841	S	SES18	26-Sep-89	21.42	4.0	PVC	4.00	PVC	7.00	22.00
101	SES2	KPE	102667	S	SES2	1-Mar-89	12.76	2.0	SS	2.00	SS	8.60	13.60
102	SES5	KPE	102650	S	SES5	18-Feb-89	12.78	2.0	PVC	2.00	PVC	8.00	13.00

TABL -5.1

KPE ACTIVE WELLS

	1	14	15	16	17	18	19	20	21
	WELL	NORTH	EAST	REF	GS	TOP SCR	BOT SCR	DRILLER	CONSTRUCTION
				ELEV	ELEV	ELEV	ELEV		OVERSIGHT
69	QB57NR	1168042.06	754056.51	208.18	208.28	158.28	153.28	KODAK PARK DRILLING	
70	QB81E	1168732.59	754791.12	194.39	194.95	159.39	144.39	PENN DRILLING	H&A
71	QL27NW	1169070.68	754574.01	207.60	208.60	170.60	150.60	PENN DRILLING	H&A
72	QL42NE2	1168970.82	753785.71	207.40	208.05	175.55	168.55	PENN DRILLING	H&A
73	QL42NW	1168966.63	752768.23	206.54	207.11	167.61	158.61	PENN DRILLING	H&A
74	QL42SER	1168208.80	753942.60	208.78	209.01	174.03	168.53	KODAK PARK DRILLING	
75	QL42SR	1168306.53	753291.62	206.96	207.24	175.74	166.24	KODAK PARK DRILLER	
76	QL45N	1168046.74	752177.58	216.16	216.70	165.70	155.70	PENN DRILLING	H&A
77	SB12NE	1166437.27	754438.78	214.23	214.43	203.73	198.73	PENN DRILLING	H&A
78	SB16N2	1167999.55	754566.20	206.87	207.34	191.04	185.74	PENN DRILLING	H&A
79	SB18SW	1167265.50	753189.95	218.15	218.61	209.79	204.79	KODAK PARK DRILLER	
80	SB28NW	1166602.45	753359.11	227.50	227.92	212.51	207.51	KODAK PARK DRILLER	H&A
81	SB29SE	1165723.95	754461.61	217.65	217.90	202.40	197.40	PENN DRILLING	H&A
82	SB2N	1166792.60	753975.06	217.55	217.79	208.09	203.09	KODAK PARK DRILLER	H&A
83	SB49NE	1167179.77	753217.03	219.39	219.46	211.53	208.53	ROCH DRILLING	H&A
84	SB53SW	1167744.80	753231.41	215.52	215.99	200.50	195.50	ROCH DRILLING	H&A
85	SB54SE	1167596.49	753870.11	211.90	212.21	210.69	205.69	KODAK PARK DRILLER	H&A
86	SB57W	1167501.80	754081.84	212.39	212.54	205.72	203.72	ROCH DRILLING	H&A
87	SB58NE	1165974.84	754460.28	220.63	220.86	203.36	198.36	PENN DRILLING	H&A
88	SB59E	1166726.16	754596.06	212.76	212.97	206.97	201.97	PENN DRILLING	H&A
89	SB65SE	1166945.43	752337.45	216.63	217.07	215.07	210.07	KODAK PARK DRILLER	H&A
90	SB69N	1167165.46	751993.85	229.34	229.68	223.68	213.68	PENN DRILLING	H&A
91	SB71NW	1171472.75	754249.61	209.17	206.70	194.17	179.17	KODAK PARK DRILLER	
92	SB72SE	1170443.68	754628.81	172.61	170.20	166.44	158.44	KODAK PARK DRILLER	
93	SB72SE2	1170355.60	754615.74	172.76	170.50	168.32	158.32	KODAK PARK DRILLER	NA
94	SB77N	1171597.00	754600.73	209.73	207.30	191.93	176.93	KODAK PARK DRILLER	NA
95	SB77N2	1171498.19	754601.69	210.23	208.00	192.30	177.30	KODAK PARK DRILLER	NA
96	SBE24SW	1167961.77	753109.77	211.75	212.01	205.61	196.11	ROCH DRILLING	BLASLAND,BOUCK,LEE
97	SES15	1166978.00	752547.95	231.99	233.26	225.45	210.45	PENN DRILLING	TERRA-VAC
98	SES16	1167032.38	752632.81	231.95	232.96	227.17	210.17	PENN DRILLING	TERRA-VAC
99	SES17	1166970.40	752559.33	232.75	232.88	229.32	209.32	PENN DRILLING	TERRA-VAC
100	SES18	1166956.16	752568.88	232.63	232.88	226.21	211.21	PENN DRILLING	TERRA-VAC
101	SES2	1166594.32	752436.94	227.14	227.27	219.38	214.38	ROCH DRILLING	H&A
102	SES5	1166528.72	752112.70	229.58	229.62	221.80	216.80	EKC	H&A

TABLE 5.1

KPE ACTIVE WELLS

	1	22	23
	WELL	REPORT / PROJECT	DRILLING
			METHOD 1
69	QB57NR	GROUNDWATER WELL EVALUATION AND UPGRADE	RETROFIT
70	QB81E	REPORT ON KPE NORTH AND EAST DEEP FENCELINE INVESTIGATION (IN PROGRESS)	AUGERS TO 9.0
71	QL27NW	REPORT ON KPE NORTH AND EAST DEEP FENCELINE INVESTIGATION (IN PROGRESS)	AUGERS TO 33.0
72	QL42NE2	REPORT ON KPE NORTH AND EAST DEEP FENCELINE INVESTIGATION (IN PROGRESS)	AUGERS TO 30.5
73	QL42NW	REPORT ON KPE NORTH AND EAST DEEP FENCELINE INVESTIGATION (IN PROGRESS)	AUGERS TO 37.5
74	QL42SER	GROUNDWATER WELL EVALUATION AND UPGRADE	RETROFIT
75	QL42SR	GROUNDWATER WELL EVALUATION AND UPGRADE	RETROFIT
76	QL45N	REPORT ON KPE NORTH AND EAST DEEP FENCELINE INVESTIGATION (IN PROGRESS)	AUGERS TO 30.0
77	SB12NE	KPE EAST AND NORTH FENCELINE SHALLOW HYDROGEO INVESTIG - FEB 1992	AUGERS TO 17.1
78	SB16N2	KPE EAST AND NORTH FENCELINE SHALLOW HYDROGEO INVESTIG - FEB 1992	AUGERS TO 23.0
79	SB18SW	NAOH SPILL, OBS WELL	AUGERS TO 13.8
80	SB28NW	KPE, GEOLOGIC SURVEY	AUGERS TO 20.4
81	SB29SE	KPE EAST AND NORTH FENCELINE SHALLOW HYDROGEO INVESTIG - FEB 1992	AUGERS TO 22.0
82	SB2N	REPORT ON KPE GROUNDWATER STUDY - MAY 1985	AUGERS TO 14.7
83	SB49NE	DRAFT REPORT ON HYDROGEO INVESTIG, KP RAILROAD AREA - AUG 1990	AUGERS TO 11.0
84	SB53SW	PHASE I REPORT, KPE GROUNDWATER INVESTIGATION - JUNE 1987	AUGERS TO 20.5
85	SB54SE	REPORT ON KPE GROUNDWATER STUDY - MAY 1985	AUGERS TO 8.0
86	SB57W	PHASE I REPORT, KPE GROUNDWATER INVESTIGATION - JUNE 1987	AUGERS TO 9.0
87	SB58NE	KPE EAST AND NORTH FENCELINE SHALLOW HYDROGEO INVESTIG - FEB 1992	AUGERS TO 24.0
88	SB59E	KPE EAST AND NORTH FENCELINE SHALLOW HYDROGEO INVESTIG - FEB 1992	AUGERS TO 12.0
89	SB65SE	INDUSTRIAL SEWER	AUGERS TO 7.0
90	SB69N	REPORT ON KPW SOUTHEAST HYDROGEO INVESTIG - AUG 1992	AUGERS TO 16.5
91	SB71NW	ST. BERNARDS PIEZOMETER & MONITORING WELLS	AUGERS TO 30.0
92	SB72SE	ST. BERNARDS PIEZOMETERS & MONITORING WELLS	AUGERS TO 11.5
93	SB72SE2	ST. BERNARD'S PIEZOMETERS & MONITORING WELLS	AUGERS TO 20
94	SB77N	ST. BERNARD'S PIEZOMETERS & MONITORING WELLS	AUGERS TO 32.0
95	SB77N2	ST. BERNARD'S PIEZOMETERS & MONITORING WELLS	AUGERS TO 40.
96	SBE24SW	REPORT ON BULK PETROLEUM FACILITY MONITORING PROG FOR BLDG E-24 AND M-41 - FEB 1991	AUGERS TO 16.5
97	SES15	REPORT ON SUBSURFACE CONDITIONS KP - KPRR SITE - AUG 1990	AUGERS TO 23.0
98	SES16	REPORT ON SUBSURFACE CONDITIONS KP - KPRR SITE - AUG 1990	AUGERS TO 22.2
99	SES17	REPORT ON SUBSURFACE CONDITIONS KP - KPRR SITE - AUG 1990	AUGERS TO 23.5
100	SES18	REPORT ON SUBSURFACE CONDITIONS KP - KPRR SITE - AUG 1990	AUGERS TO 22.0
101	SES2	SCHOOL 41 HYDROGEO INVESTIG REPORT - JUNE 1989	AUGERS TO 14.0
102	SES5	SCHOOL 41 HYDROGEO INVESTIG REPORT - JUNE 1989	AUGERS TO 13.9

TABLE 5.1

KPE ACTIVE WELLS

	1	24	25	26
	WELL	DRILLING	DRILLING	PC
		METHOD 2	METHOD 3	TYPE
69	QB57NR			ROADWAY BOX
70	QB81E	NX CORE TO 55.0		ROADWAY BOX
71	QL27NW	NX CORE TO 63.0		ROADWAY BOX
72	QL42NE2	NX CORE TO 44.5		ROADWAY BOX
73	QL42NW	NX CORE TO 53.5		ROADWAY BOX
74	QL42SER			STEEL ROADWAY BOX
75	QL42SR			ROADWAY BOX
76	QL45N	NX CORE TO 66.0		ROADWAY BOX
77	SB12NE			ROADWAY BOX
78	SB16N2			ROADWAY BOX
79	SB18SW			CURB BOX
80	SB28NW			VALVE BOX
81	SB29SE			ROADWAY BOX
82	SB2N			
83	SB49NE			ROADWAY BOX
84	SB53SW			STEEL ROADWAY BOX
85	SB54SE			ROADWAY BOX
86	SB57W			STEEL ROADWAY BOX
87	SB58NE			ROADWAY BOX
88	SB59E			ROADWAY BOX
89	SB65SE			STEEL ROADWAY BOX
90	SB69N			STEEL ROADWAY BOX
91	SB71NW			SS
92	SB72SE			SS
93	SB72SE2			SS
94	SB77N			SS
95	SB77N2			SS
96	SBE24SW			FLUSH
97	SES15			FLUSH
98	SES16			FLUSH
99	SES17			FLUSH
100	SES18			FLUSH
101	SES2			FLUSH
102	SES5			FLUSH

TABLE 5.1

KPE ACTIVE WELLS

	1	2	3	4	5	6	7	8	9	10	11	12	13
	WELL	PARK	AQMS	STRAT	BORING	INSTALL	WELL	RISER	RISER	SCREEN	SCREEN	TOP SCR	BOT SCR
		SECTION	LOC ID	INTERVAL		DATE	LENGTH	DIAM	TYPE	DIAM	TYPE	DEPTH	DEPTH
							(FEET)	(INCHES)		(INCHES)		(FEET)	(FEET)
103	SES6	KPE	102651	S	SES6	18-Feb-89	11.88	2.0	PVC	2.00	PVC	7.00	12.00
104	SES8	KPE	102653	S	SES8	18-Feb-89	13.05	2.0	PVC	2.00	PVC	8.50	13.50
105	SL11NE	KPE	103415	S	SL11NE	14-Jul-92	26.81	2.0	PVC	2.00	PVC	17.40	27.40
106	SL15E	KPE	102936	S	SL15E	18-Dec-89	17.60	2.0		2.00	SS	12.80	17.80
107	SL15S	KPE	102933	S	SL15S	4-Jan-90	20.62	2.0	SS	2.00	SS	16.00	21.00
108	SL17N	KPE	103416	S	SL17N	15-Jul-92	27.60	2.0	PVC	2.00	PVC	18.20	28.20
109	SL27NW	KPE	103211	S	L27NW	30-Aug-91	26.63	2.0	PVC	2.00	PVC	22.00	27.00
110	SL42N	KPE	103205	S	L42N	23-Aug-91	23.58	2.0	PVC	2.00	PVC	9.00	24.00
111	SL42NE	KPE	103206	S	L42NE	28-Aug-91	23.78	2.0	PVC	2.00	PVC	19.10	24.10
112	SL42NE2	KPE	103207	S	L42NE2	27-Aug-91	25.81	2.0	PVC	2.00	PVC	16.00	26.00
113	SL42NW	KPE	103208	S	L42NW	22-Aug-91	25.79	2.0	PVC	2.00	PVC	11.00	26.00
114	SL42SE2	KPE	102224	S	SL42SE2	28-May-87	18.20	2.0		2.00	SS	13.30	18.50
115	SL42W	KPE	103209	S	L42W	22-Aug-91	13.78	2.0	PVC	2.00	PVC	9.00	14.00
116	SL43SW	KPE	103210	S	L43SW	5-Sep-91	23.88	2.0	PVC	2.00	PVC	19.30	24.30
117	SL45N	KPE	103213	S	L45N	29-Aug-91	23.92	2.0	PVC	2.00	PVC	14.10	24.10
118	SL45S	KPE	103413	S	SL45S	16-Jul-92	18.07	2.0	PVC	2.00	PVC	8.50	18.50
119	SL45WR	KPE	103414	S	SL45WR	9-Jul-92	10.33	2.0	PVC	2.00	PVC	6.00	11.00
120	SL47NR	KPE	103417	S	SL47NR	8-Jul-92	19.83	2.0	PVC	2.00	PVC	10.00	20.00

TABL[illegible]-5.1

KPE ACTIVE WELLS

	1	14	15	16	17	18	19	20	21
	WELL	NORTH	EAST	REF	GS	TOP SCR	BOT SCR	DRILLER	CONSTRUCTION
				ELEV	ELEV	ELEV	ELEV		OVERSIGHT
103	SES6	1166621.83	752220.69	227.88	227.88	221.00	216.00	EKC	H&A
104	SES8	1166726.80	752320.74	228.15	228.34	220.10	215.10	ROCH DRILLING	H&A
105	SL11NE	1166393.32	753245.10	230.98	231.57	214.17	204.17	PENN DRILLING	H&A
106	SL15E	1166871.77	752977.99	227.25	227.45	214.65	209.65	ROCH DRILLING	H&A
107	SL15S	1166962.90	752749.03	229.83	230.21	214.21	209.21	ROCH DRILLING	H&A
108	SL17N	1166128.99	753573.32	228.55	229.15	210.95	200.95	PENN DRILLING	H&A
109	SL27NW	1169063.69	754583.60	208.09	208.46	186.46	181.46	PENN DRILLING	H&A
110	SL42N	1168947.59	753248.82	206.54	206.96	197.96	182.96	PENN DRILLING	H&A
111	SL42NE	1169070.80	754226.08	208.65	208.97	189.87	184.87	PENN DRILLING	H&A
112	SL42NE2	1168955.79	753772.31	207.77	207.96	191.96	181.96	PENN DRILLING	H&A
113	SL42NW	1168938.55	752784.53	206.61	206.82	195.82	180.82	PENN DRILLING	H&A
114	SL42SE2	1168176.80	753626.50	207.54	207.84	194.54	189.34	HYDRO GROUP, INC.	H&A
115	SL42W	1168469.73	752621.04	206.88	207.10	198.10	193.10	PENN DRILLING	H&A
116	SL43SW	1168337.74	754712.70	207.82	208.24	188.94	183.94	PENN DRILLING	H&A
117	SL45N	1168031.74	752184.09	216.04	216.22	202.12	192.12	PENN DRILLING	H&A
118	SL45S	1167596.52	752074.90	225.76	226.19	217.69	207.69	PENN DRILLING	H&A
119	SL45WR	1167826.26	751846.66	223.28	223.95	217.95	212.95	PENN DRILLING	H&A
120	SL47NR	1165837.93	753935.30	226.88	227.55	217.55	207.55	PENN DRILLING	H&A

TABLE 5.1

KPE ACTIVE WELLS

	1	22	23
	WELL	REPORT / PROJECT	DRILLING
			METHOD I
103	SES6	SCHOOL 41 HYDROGEO INVESTIG REPORT - JUNE 1989	AUGERS TO 12.0
104	SES8	SCHOOL 41 HYDROGEO INVESTIG REPORT - JUNE 1989	AUGERS TO 18.3
105	SL11NE	KPE SOUTH FENCELINE SHALLOW HYDROGEO INVESTIG - NOV 1992	AUGERS TO 27.4
106	SL15E	DRAFT REPORT ON HYDROGEO INVESTIG, KP RAILROAD AREA - AUG 1990	AUGERS TO 18.0
107	SL15S	DRAFT REPORT ON HYDROGEO INVESTIG, KP RAILROAD AREA - AUG 1990	AUGERS TO 22.0
108	SL17N	KPE SOUTH FENCELINE SHALLOW HYDROGEO INVESTIG - NOV 1992	AUGERS TO 28.2
109	SL27NW	KPE EAST AND NORTH FENCELINE SHALLOW HYDROGEO INVESTIG - FEB 1992	AUGERS TO 28.5
110	SL42N	KPE EAST AND NORTH FENCELINE SHALLOW HYDROGEO INVESTIG - FEB 1992	AUGERS TO 31.1
111	SL42NE	KPE EAST AND NORTH FENCELINE SHALLOW HYDROGEO INVESTIG - FEB 1992	AUGERS TO 25.5
112	SL42NE2	KPE EAST AND NORTH FENCELINE SHALLOW HYDROGEO INVESTIG - FEB 1992	AUGERS TO 29.5
113	SL42NW	KPE EAST AND NORTH FENCELINE SHALLOW HYDROGEO INVESTIG - FEB 1992	AUGERS TO 31.3
114	SL42SE2	KPE GROUNDWATER INVESTIGATION	AIR ROTARY TO 18.5
115	SL42W	KPE EAST AND NORTH FENCELINE SHALLOW HYDROGEO INVESTIG - FEB 1992	AUGERS TO 15.3
116	SL43SW	KPE EAST AND NORTH FENCELINE SHALLOW HYDROGEO INVESTIG - FEB 1992	AUGERS TO 26.0
117	SL45N	KPE EAST AND NORTH FENCELINE SHALLOW HYDROGEO INVESTIG - FEB 1992	AUGERS TO 25.5
118	SL45S	KPE SOUTH FENCELINE SHALLOW HYDROGEO INVESTIG - NOV 1992	AUGERS TO 18.5
119	SL45WR	KPE SOUTH FENCELINE SHALLOW HYDROGEO INVESTIG - NOV 1992	AUGERS TO 11.0
120	SL47NR	KPE SOUTH FENCELINE SHALLOW HYDROGEO INVESTIG - NOV 1992	AUGERS TO 20.5

TABLE 5.1

KPE ACTIVE WELLS

	1	24	25	26
	WELL	DRILLING	DRILLING	PC
		METHOD 2	METHOD 3	TYPE
103	SES6			FLUSH
104	SES8			FLUSH
105	SL11NE			ROADWAY BOX
106	SL15E			ROADWAY BOX
107	SL15S			ROADWAY BOX
108	SL17N			ROADWAY BOX
109	SL27NW			ROADWAY BOX
110	SL42N			ROADWAY BOX
111	SL42NE			ROADWAY BOX
112	SL42NE2			ROADWAY BOX
113	SL42NW			ROADWAY BOX
114	SL42SE2			STEEL ROADWAY BOX
115	SL42W			ROADWAY BOX
116	SL43SW			ROADWAY BOX
117	SL45N			ROADWAY BOX
118	SL45S			ROADWAY BOX
119	SL45WR			ROADWAY BOX
120	SL47NR			ROADWAY BOX

TABL[illegible]5.1

KPW ACTIVE WELLS

	1	2	3	4	5	6	7	8	9	10	11	12	13
	WELL	PARK SECTION	AQMS LOC ID	STRAT INTERVAL	BORING	INSTALL DATE	WELL LENGTH (FEET)	RISER DIAM (INCHES)	RISER TYPE	SCREEN DIAM (INCHES)	SCREEN TYPE	TOP SCR DEPTH (FEET)	BOT SCR DEPTH (FEET)
1	G1B115SR	KPW	103007	G1	G1B115SR	08-Jun-90	29.14	4.0	SS	3.0	ROCK	12.50	28.80
2	G1B117NE	KPW	102972	G1	G1B117NE	04-Apr-90	29.46	2.0	SS	2.0	SS	14.00	30.00
3	G1B119W	KPW	101710	G1	G1B119W	01-Oct-85	27.92	4.0	PVC	3.0	ROCK	14.80	29.80
4	G1B126SW	KPW	102865	G1	G1B126SW	27-Nov-89	19.76	2.0	SS	2.0	SS	9.60	19.90
5	G1B137S	KPW	102921	G1	G1B137S	01-Feb-90	31.22	2.0	SS	2.0	SS	20.00	28.00
6	G1B137S2	KPW	102916	G1	G1B137S2	19-Jan-90	24.19	2.0	SS	2.0	SS	6.20	22.00
7	G1B142SR	KPW	102997	G1	G1B142SR	06-Jun-90	30.30	3.0	SS	3.0	ROCK	18.10	30.40
8	G1B148S	KPW	102950	G1	G1B148S	28-Mar-90	22.11	2.0	SS	2.0	SS	9.80	22.00
9	G1BD20W2	KPW	102904	G1	G1BD20W2	09-Jan-90	24.84	2.0	SS	2.0	SS	9.95	25.15
10	G1BD20WR	KPW	102990	G1	G1BD20WR	31-May-90	31.13	4.0	SS	3.5	ROCK	15.00	28.50
11	G1L50S	KPW	101826	G1	G1L50S	02-Dec-85	27.66	4.0	PVC	3.0	ROCK	13.40	28.40
12	G1L50S2R	KPW	102999	G1	G1L50S2R	04-Jun-90	27.22	4.0	SS	3.0	ROCK	14.60	27.60
13	G1L50SW	KPW	101668	G1	G1L50SW	22-Nov-87	28.71	4.0	PVC	3.0	ROCK	13.70	29.40
14	G1L50SW2R	KPW	103000	G1	G1L50SW2R	04-Jun-90	26.96	4.0	SS	3.0	ROCK	13.50	27.40
15	G1WS15	KPW	103282	G1	G1WS15	27-Sep-91	35.58	4.0	SS	4.0	ROCK	28.00	36.00
16	G2B115SR	KPW	103009	G2	G2B115SR	12-Jun-90	52.30	2.0	SS	2.0	SS	45.00	50.00
17	G2B117NE	KPW	102973	G2	G2B117NE	09-Apr-90	49.36	4.0	SS	3.0	ROCK	40.00	50.00
18	G2B119W	KPW	101054	G2	G2B119W	30-Dec-81	53.85	4.0	RS	3.0	ROCK		
19	G2B126SW	KPW	102902	G2	G2B126SW	16-Jan-90	44.58	4.0	SS	3.0	ROCK	33.00	44.80
20	G2B136S	KPW	102197	G2	G2B136S	31-Mar-87	28.70	4.0	SS	3.0	ROCK	18.65	28.95
21	G2B136S2	KPW	102494	G2	G2B136S2	04-Jun-88	29.38	4.0	SS	3.0	ROCK	19.50	29.50
22	G2B136S3	KPW	102507	G2	G2B136S3	02-Jun-88	28.93	4.0	SS	3.0	ROCK	19.00	29.00
23	G2B136S4	KPW	102496	G2	G2B136S4	03-Jun-88	29.33	4.0	SS	3.0	ROCK	19.50	29.50
24	G2B136S5	KPW	102497	G2	G2B136S5	03-Jun-88	29.44	4.0	SS	3.0	ROCK	19.60	29.60
25	G2B137S	KPW	102859	G2	G2B137S	17-Nov-89	50.39	4.0	SS	3.0	ROCK	35.70	48.00
26	G2B137S2	KPW	102924	G2	G2B137S2	13-Feb-90	54.45	4.0	SS	3.0	ROCK	35.50	52.00
27	G2B137SW	KPW	102926	G2	G2B137SW	22-Feb-90	49.76	4.0	SS	3.0	ROCK	38.00	50.00
28	G2B140W	KPW	103343	G2	G2B140W	09-Jan-92	59.31	4.0	SS	3.0	ROCK	53.00	60.00
29	G2B142SR	KPW	102996	G2	G2B142SR	04-Jun-90	49.58	2.0	SS	2.0	SS	45.10	49.60
30	G2B148S	KPW	102951	G2	G2B148S	27-Mar-90	50.04	4.0	SS	3.0	ROCK	40.00	50.50
31	G2BD20W2	KPW	102903	G2	G2BD20W2	19-Jan-90	45.48	4.0	SS	3.0	ROCK	36.00	46.40
32	G2BD20WR	KPW	102989	G2	G2BD20WR	30-May-90	56.15	2.0	SS	2.0	SS	45.10	54.60
33	G2L50S2R	KPW	102998	G2	G2L50S2R	01-Jun-90	49.67	2.0	SS	2.0	SS	45.50	50.00
34	G2L50SW	KPW	102317	G2	G2L50SW	29-Oct-87	33.89	4.0	SS	3.0	ROCK	24.70	34.30
35	G2L50SW2R	KPW	103004	G2	G2L50SW2R	07-Jun-90	52.35	2.0	SS	2.0	SS	37.00	52.50
36	G2L50SWR	KPW	103005	G2	G2L50SWR	08-Jun-90	60.43	2.0	SS	2.0	SS	50.50	60.40
37	G2WS15	KPW	103283	G2	G2WS15	09-Oct-91	50.65	4.0	SS	4.0	ROCK	41.00	51.00
38	GB101SW	KPW	102854	G	GB101SW	21-Nov-89	37.43	2.0	SS	2.0	SS	17.00	38.00
39	GB102S	KPW	103589	G	GB102S	21-May-93	32.85	4.0	PVC	3.0	ROCK	17.10	32.30

TABLE 5.1

KPW ACTIVE WELLS

	1	14	15	16	17	18	19	20	21
	WELL	NORTH	EAST	REF ELEV	GS ELEV	TOP SCR ELEV	B SCR ELEV	DRILLER	CONSTRUCTION OVERSIGHT
1	G1B115SR	1166909.60	750232.60	233.34	233.09	220.50	204.20	ROCH DRILLING	ECKENFELDER
2	G1B117NE	1167150.72	749801.55	232.30	232.84	218.84	202.84	PENN DRILLING	ECKENFELDER
3	G1B119W	1167527.90	750300.40	231.61	233.49	218.69	203.69	KODAK PARK DRILLING	KODAK
4	G1B126SW	1166961.73	749551.99	232.37	232.51	222.91	212.61	PENN DRILLING	ECKENFELDER
5	G1B137S	1166826.30	749426.41	236.02	232.80	212.80	204.80	PENN DRILLING	ECKENFELDER
6	G1B137S2	1166835.17	749459.03	235.02	232.83	226.63	210.83	PENN DRILLING	ECKENFELDER
7	G1B142SR	1166897.12	750535.63	232.60	232.71	214.60	202.30	ROCH DRILLING	ECKENFELDER
8	G1B148S	1167098.63	749443.58	232.27	232.16	222.36	210.16	PENN DRILLING	ECKENFELDER
9	G1BD20W2	1166665.53	749427.74	231.89	232.20	222.25	207.05	PENN DRILLING	ECKENFELDER
10	G1BD20WR	1166674.16	749614.14	236.73	234.16	219.10	205.60	ROCH DRILLING	ECKENFELDER
11	G1L50S	1166674.70	750685.00	226.58	227.31	213.92	198.92	KODAK PARK DRILLING	H&A
12	G1L50S2R	1166676.97	750513.79	227.93	228.50	213.71	200.71	ROCH DRILLING	ECKENFELDER
13	G1L50SW	1166668.90	750015.76	230.59	231.28	217.58	201.88	KODAK PARK DRILLING	H&A
14	G1L50SW2R	1166675.91	750362.43	228.72	229.16	215.66	201.76	ROCH DRILLING	ECKENFELDER
15	G1WS15	1166564.73	751716.32	233.81	234.23	206.23	198.23	ROCH DRILLING	H&A
16	G2B115SR	1166909.80	750244.70	236.10	234.10	189.10	184.10	ROCH DRILLING	ECKENFELDER
17	G2B117NE	1167160.43	749802.00	232.05	232.69	192.69	182.69	PENN DRILLING	ECKENFELDER
18	G2B119W	1167539.30	750300.20	233.17	233.16		179.32	KODAK PARK DRILLING	DAMES & MOORE
19	G2B126SW	1166961.49	749562.09	232.25	232.48	199.47	187.67	PENN DRILLING	ECKENFELDER
20	G2B136S	1166809.60	750295.17	227.84	228.09	209.44	199.14	KODAK PARK DRILLING	KODAK
21	G2B136S2	1166786.52	750281.14	228.11	228.22	208.73	198.73	ROCH DRILLING	ECKENFELDER
22	G2B136S3	1166813.10	750331.32	227.89	227.97	208.96	198.96	ROCH DRILLING	ECKENFELDER
23	G2B136S4	1166776.82	750312.47	228.06	228.23	208.73	198.73	ROCH DRILLING	ECKENFELDER
24	G2B136S5	1166752.92	750325.20	228.39	228.55	208.95	198.95	ROCH DRILLING	ECKENFELDER
25	G2B137S	1166838.62	749445.02	235.52	233.13	197.43	185.13	PENN DRILLING	ECKENFELDER
26	G2B137S2	1166832.79	749467.96	235.35	232.90	197.40	180.90	PENN DRILLING	ECKENFELDER
27	G2B137SW	1166913.70	749404.16	232.92	233.16	195.16	183.16	PENN DRILLING	ECKENFELDER
28	G2B140W	1167080.09	750731.10	233.89	234.58	181.58	174.58	PENN DRILLING	H&A
29	G2B142SR	1166897.62	750540.95	232.23	232.73	187.55	183.05	ROCH DRILLING	ECKENFELDER
30	G2B148S	1167099.59	749479.94	232.09	232.55	192.55	182.05	PENN DRILLING	ECKENFELDER
31	G2BD20W2	1166664.80	749420.81	231.58	232.50	196.50	186.10	PENN DRILLING	ECKENFELDER
32	G2BD20WR	1166674.44	749624.30	235.75	234.20	189.10	179.60	ROCH DRILLING	ECKENFELDER
33	G2L50S2R	1166676.94	750520.93	227.88	228.21	182.71	178.21	ROCH DRILLING	ECKENFELDER
34	G2L50SW	1166674.99	750064.71	230.93	231.34	206.64	197.04	KODAK PARK DRILLING	H&A
35	G2L50SW2R	1166675.79	750356.80	229.06	229.21	192.21	176.71	ROCH DRILLING	ECKENFELDER
36	G2L50SWR	1166674.97	750071.96	231.28	231.39	180.75	170.85	ROCH DRILLING	ECKENFELDER
37	G2WS15	1166564.83	751711.40	233.72	234.07	193.07	183.07	ROCH DRILLING	H&A
38	GB101SW	1167244.55	749859.60	233.26	233.94	216.83	195.83	HARDIN HUBER	ECKENFELDER
39	GB102S	1167830.56	749934.21	233.09	232.54	215.44	200.24	EMPIRE SOILS	H&A

TABLE [illegible]5.1

KPW ACTIVE WELLS

	1	22	23
	WELL	REPORT / PROJECT	DRILLING
			METHOD 1
1	G1B115SR	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	RETROFIT EXISTING WELL
2	G1B117NE	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 14.3
3	G1B119W		AUGERS TO 14.6
4	G1B126SW	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 9.5
5	G1B137S	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 17.7
6	G1B137S2	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 7.0
7	G1B142SR	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	RETROFIT EXISTING WELL
8	G1B148S	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 9.7
9	G1BD20W2	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 10.3
10	G1BD20WR	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	RETROFIT EXISTING WELL
11	G1L50S		AUGERS TO 12.4
12	G1L50S2R	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	RETROFIT EXISTING WELL
13	G1L50SW		AUGERS TO 13.7
14	G1L50SW2R	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	RETROFIT EXISTING WELL
15	G1WS15	REPORT ON STUDY AREA NO. 1 PHASE II OFFSITE HYDROGEO INVESTIG - APR 1992	AUGERS TO 25.7
16	G2B115SR	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	RETROFIT EXISTING WELL
17	G2B117NE	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 14.0
18	G2B119W		AUGERS TO 15.1
19	G2B126SW	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 10.0
20	G2B136S		AUGERS TO 9.15
21	G2B136S2		AUGERS TO 9.5
22	G2B136S3		AUGERS TO 9.0
23	G2B136S4		AUGERS TO 9.5
24	G2B136S5		AUGERS TO 9.75
25	G2B137S	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 13.0
26	G2B137S2	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 15.1
27	G2B137SW	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 9.5
28	G2B140W	REPORT ON KPW SOUTHEAST HYDROGEO INVESTIG - AUG 1992	AUGERS TO 19.9
29	G2B142SR	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	RETROFIT EXISTING WELL
30	G2B148S	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 6.6
31	G2BD20W2	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 8.8
32	G2BD20WR	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	RETROFIT EXISTING WELL
33	G2L50S2R	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	RETROFIT EXISTING WELL
34	G2L50SW		AUGERS TO 12.8
35	G2L50SW2R	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	RETROFIT EXISTING WELL
36	G2L50SWR	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	RETROFIT EXISTING WELL
37	G2WS15	REPORT ON STUDY AREA NO. 1 PHASE II OFFSITE HYDROGEO INVESTIG - APR 1992	AUGERS TO 25.7
38	GB101SW	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 14.5
39	GB102S		AUGERS TO 17.1

TABLE 5.1

KPW ACTIVE WELLS

	1	24	25	26
	WELL	DRILLING	DRILLING	PC
		METHOD 2	METHOD 3	TYPE
1	G1B115SR	NX CORE TO 28.8		STICK-UP
2	G1B117NE	NX CORE TO 30.0		FLUSH
3	G1B119W	NX CORE TO 29.8		FLUSH
4	G1B126SW	NX CORE TO 24.5		FLUSH
5	G1B137S	6"REAM TO 28.0	NX CORE TO 33.0	STICK-UP
6	G1B137S2	NX CORE TO 27.0		STICK-UP
7	G1B142SR	NX CORE TO 30.4		FLUSH
8	G1B148S	NX CORE TO 26.0		FLUSH
9	G1BD20W2	NX CORE TO 30.3		FLUSH
10	G1BD20WR	3.5" REAM TO 28.5		STICK-UP
11	G1L50S	NX CORE TO 28.4		FLUSH
12	G1L50S2R	EXTENDED COREHOLE FROM 22.6 TO 27.6		FLUSH
13	G1L50SW	NX CORE TO 28.7		FLUSH
14	G1L50SW2R	NX CORE TO 27.4		FLUSH
15	G1WS15	NX CORE TO 41.0		FLUSH
16	G2B115SR	NX CORE TO 50.0		STICK-UP
17	G2B117NE	NX CORE TO 50.5		FLUSH
18	G2B119W	NX CORE TO 54.1		FLUSH
19	G2B126SW	8" REAM TO 33.0	NX CORE TO 49.8	FLUSH
20	G2B136S	NX CORE TO 28.95		FLUSH
21	G2B136S2	8" REAM TO 19.5	NX CORE TO 29.5	FLUSH
22	G2B136S3	8" REAM TO 19.0	NX CORE TO 29.0	STICK-UP
23	G2B136S4	8" REAM TO 19.5	NX CORE TO 29.5	STICK-UP
24	G2B136S5	8" REAM TO 19.6	NX CORE TO 29.6	FLUSH
25	G2B137S	8" REAM TO 35.7	NX CORE TO 53.1	STICK-UP
26	G2B137S2	8" REAM TO 35.5	NX CORE TO 52.0	STICK-UP
27	G2B137SW	8" REAM TO 38.0	NX CORE TO 55.0	FLUSH
28	G2B140W	6" REAM TO 53.0	NX CORE TO 65.0	FLUSH
29	G2B142SR	4" REAM TO 50.0	NX CORE TO 50.0	FLUSH
30	G2B148S	8" REAM TO 40.0	NX CORE TO 50.5	FLUSH
31	G2BD20W2	NX CORE TO 46.4		FLUSH
32	G2BD20WR	REAM TO 55.0		STICK-UP
33	G2L50S2R	EXTENDED COREHOLE FROM 33.3 TO 50.0	REAM TO 50.5	FLUSH
34	G2L50SW	NX CORE TO 34.7		FLUSH
35	G2L50SW2R	NX CORE TO 52.5	4" REAM TO 52.5	FLUSH
36	G2L50SWR	4"REAM TO 60.4	NX CORE TO 75.0	FLUSH
37	G2WS15	4" ROLLER BIT TO 41.0	NX CORE TO 56.0	FLUSH
38	GB101SW	NX CORE TO 43.0	6" REAM TO 38.42	FLUSH
39	GB102S	ROLLER BIT TO 32.3		STICK-UP

TABLE 5.1

KPW ACTIVE WELLS

	1	2	3	4	5	6	7	8	9	10	11	12	13
	WELL	PARK SECTION	AQMS LOC ID	STRAT INTERVAL	BORING	INSTALL DATE	WELL LENGTH (FEET)	RISER DIAM (INCHES)	RISER TYPE	SCREEN DIAM (INCHES)	SCREEN TYPE	TOP SCR DEPTH (FEET)	BOT SCR DEPTH (FEET)
40	GB104SE	KPW	102500	G	GB104SE	10-Dec-84	34.76	4.0	PVC	2.5	ROCK	20.40	35.40
41	GB105E	KPW	103353	G	GB105E	31-Jan-92	37.29	2.0	SS	2.0	SS	20.50	35.50
42	GB105NE	KPW	100999	G	GB105NE	18-Oct-79	38.43	4.0	SS	3.0	ROCK	21.00	36.00
43	GB105SE2	KPW	103351	G	GB105SE2	16-Jan-92	30.96	2.0	SS	2.0	SS	21.50	31.50
44	GB105SER	KPW	103382	G	GB105SER	07-Feb-92	22.39	2.0	SS	2.0	SS	13.00	23.00
45	GB105SW	KPW	101669	G	GB105SW	03-Jan-86	32.77	4.0	PVC	3.0	ROCK	18.10	33.10
46	GB110S	KPW	103586	G	GB110S	25-May-93	24.56	4.0	PVC	3.0	ROCK	9.70	24.70
47	GB112W	KPW	102783	G	GB112W	09-Aug-89	29.80	2.0	SS	2.0	SS	18.50	28.50
48	GB114SW	KPW	101001	G	GB114SW	14-Apr-83	27.12	4.0	PVC	3.0	ROCK	13.10	27.50
49	GB114SW2	KPW	102831	G	GB114SW2	11-Oct-89	29.75	2.0	SS	2.0	SS	25.00	30.00
50	GB115E	KPW	102981	G	GB115E	15-May-90	23.09	2.0	SS	2.0	SS	11.00	21.50
51	GB115N	KPW	102964	G	GB115N	08-Mar-90	32.96	2.0	SS	2.0	SS	17.00	33.00
52	GB115SE2	KPW	102817	G	GB115SE2	29-Sep-89	37.43	2.0	SS	2.0	SS	22.00	38.00
53	GB115W	KPW	102976	G	GB115W	03-Apr-90	29.32	2.0	SS	2.0	SS	11.00	27.00
54	GB119E	KPW	101048	G	GB119E	01-Sep-82	30.26	4.0	PVC	3.0	ROCK	15.10	29.70
55	GB119N	KPW	101055	G	GB119N	13-Nov-82	49.74	2.0	SS	2.0	SS		
56	GB119NE	KPW	101002	G	B119NE	16-Oct-79	40.64	4.0	SS	3.0	ROCK	22.50	38.00
57	GB119NW	KPW	103477	G	GB119NW	9-Oct-92	32.33	4.0	SS	3.0	ROCK	15.50	30.00
58	GB119S	KPW	102970	G	GB119S	18-Jan-90	27.51	2.0	SS	2.0	SS	18.00	28.00
59	GB119SE	KPW	101701	G	GB119SE	12-Dec-84	34.67	4.0	PVC	2.5	ROCK	20.30	35.30
60	GB119W2R	KPW	103401	G	GB119W2R	27-Jan-92	28.00	4.0	SS	3.0	ROCK	17.90	28.50
61	GB119W3	KPW	101053	G	GB119W3	23-Dec-81	34.58	4.0	RS	3.0	ROCK	15.10	34.30
62	GB120E	KPW	102819	G	GB120E	03-Oct-89	28.34	2.0	SS	2.0	SS	13.17	28.67
63	GB120NW	KPW	102834	G	GB120NW	06-Oct-89	28.53	2.0	SS	2.0	SS	19.50	29.50
64	GB120SE	KPW	101670	G	B120SE	11-Dec-85	28.53	4.0	PVC	3.0	ROCK	14.40	29.40
65	GB120SW	KPW	101003	G	GB120SW	20-Jul-81	28.94	2.5	PVC	2.5	PVC	11.60	26.60
66	GB120SW2	KPW	102959	G	GB120SW2	07-Mar-90	34.50	2.0	SS	2.0	SS	16.75	32.40
67	GB120SW3	KPW	102811	G	GB120SW3	21-Sep-89	27.41	2.0	SS	2.0	SS	18.00	28.00
68	GB121N	KPW	102829	G	GB121N	13-Oct-89	28.57	2.0	SS	2.0	SS	15.00	25.00
69	GB121SW	KPW	102858	G	GB121SW	09-Nov-89	42.90	2.0	SS	2.0	SS	14.66	40.80
70	GB122SW	KPW	102861	G	GB122SW	27-Nov-89	24.16	2.0	SS	2.0	SS	14.00	24.50
71	GB123NE	KPW	102894	G	GB123NE	12-Jan-90	22.74	2.0	SS	2.0	SS	13.20	23.20
72	GB123SW	KPW	102925	G	GB123SW	16-Feb-90	21.73	2.0	SS	2.0	SS	11.65	21.65
73	GB129NW	KPW	101004	G	GB129NW	27-Jul-81	33.74	4.0	PVC	3.0	ROCK	15.80	30.80
74	GB129SE	KPW	102947	G	GB129SE	12-Mar-90	18.35	2.0	SS	2.0	SS	8.60	18.60
75	GB130SW	KPW	102883	G	GB130SW	13-Dec-89	22.40	2.0	SS	2.0	SS	10.00	20.50
76	GB134E	KPW	102856	G	GB134E	28-Nov-89	35.64	2.0	SS	2.0	SS	21.00	36.00
77	GB135NE	KPW	101741	G	GB135NE	04-Oct-85	31.43	4.0	PVC	2.5	ROCK	17.10	31.80
78	GB135NW	KPW	101713	G	GB135NW	30-Sep-85	31.37	4.0	PVC	3.0	ROCK	18.10	31.95

TABLE 5.1

KPW ACTIVE WELLS

	1	14	15	16	17	18	19	20	21
	WELL	NORTH	EAST	REF ELEV	GS ELEV	TOP SCR ELEV	B SCR ELEV	DRILLER	CONSTRUCTION OVERSIGHT
40	GB104SE	1167380.80	750573.20	231.16	231.64	211.40	196.40	KODAK PARK DRILLING	KODAK
41	GB105E	1167009.36	751727.92	235.09	233.30	212.80	197.80	PENN DRILLING	H&A
42	GB105NE	1167213.30	751640.90	235.55	233.08	212.12	197.12	KODAK PARK DRILLING	DAMES & MOORE
43	GB105SE2	1166903.76	751518.73	232.26	232.80	211.30	201.30	PENN DRILLING	H&A
44	GB105SER	1166815.45	751428.32	225.48	226.01	213.09	203.09	PENN DRILLING	H&A
45	GB105SW	1166912.70	751308.10	228.52	228.85	210.75	195.75	KODAK PARK DRILLING	H&A
46	GB110S	1167257.82	749585.04	232.15	232.29	222.59	207.59	EMPIRE SOILS	H&A
47	GB112W	1167111.93	750468.50	236.60	235.30	216.80	206.80	HARDIN HUBER	ECKENFELDER
48	GB114SW	1166304.10	750720.90	225.51	225.82	212.79	198.39	EMPIRE SOILS	EMPIRE SOILS
49	GB114SW2	1166861.95	750621.59	233.58	233.83	208.83	203.83	HARDIN HUBER	ECKENFELDER
50	GB115E	1166980.02	750300.93	236.59	235.30	224.30	213.80	HARDIN HUBER	ECKENFELDER
51	GB115N	1167160.90	750243.85	233.95	233.99	216.99	200.99	HARDIN HUBER	ECKENFELDER
52	GB115SE2	1166850.44	750249.97	231.90	232.47	210.47	194.47	HARDIN HUBER	ECKENFELDER
53	GB115W	1166944.30	750145.99	233.61	231.29	220.29	204.29	HARDIN HUBER	ECKENFELDER
54	GB119E	1167492.30	750486.20	231.63	230.90	215.97	201.37	KODAK PARK DRILLING	KODAK
55	GB119N	1167684.20	750342.50	231.67	231.91		181.93	KODAK PARK DRILLING	DAMES & MOORE
56	GB119NE	1167892.40	750547.10	233.49	231.00	208.35	192.85	KODAK PARK DRILLING	DAMES & MOORE
57	GB119NW	1167906.33	750158.19	232.60	230.27	214.77	200.27	PARRATT WOLFFE	RADIAN
58	GB119S	1167251.05	750204.71	233.98	234.55	216.47	206.47	HARDIN HUBER	ECKENFELDER
59	GB119SE	1167273.40	750489.30	232.77	233.19	213.10	198.10	HARDIN HUBER	ECKENFELDER
60	GB119W2R	1167503.69	750330.76	233.87	234.37	216.47	205.87	PENN DRILLING	RADIAN
61	GB119W3	1167523.20	750327.40	234.43	234.15	219.05	199.85	KODAK PARK DRILLING	DAMES & MOORE
62	GB120E	1166992.91	750073.84	233.98	234.33	221.14	205.64	HARDIN HUBER	ECKENFELDER
63	GB120NW	1167161.98	749952.99	233.73	234.75	215.20	205.20	HARDIN HUBER	ECKENFELDER
64	GB120SE	1166884.20	750018.20	232.38	233.25	218.85	203.85	KODAK PARK DRILLING	H&A
65	GB120SW	1166819.70	749956.46	234.33	232.10	220.39	205.39	KODAK PARK DRILLING	KODAK
66	GB120SW2	1166890.43	749953.28	235.30	233.20	216.45	200.80	HARDIN HUBER	ECKENFELDER
67	GB120SW3	1166859.29	749984.75	232.39	232.98	214.98	204.98	HARDIN HUBER	ECKENFELDER
68	GB121N	1167051.01	749920.82	236.91	234.00	218.64	208.64	HARDIN HUBER	ECKENFELDER
69	GB121SW	1166962.91	749902.40	235.22	233.12	218.46	192.32	HARDIN HUBER	ECKENFELDER
70	GB122SW	1166855.36	749724.99	231.50	231.84	217.84	207.34	PENN DRILLING	ECKENFELDER
71	GB123NE	1167098.89	749758.60	233.06	233.52	220.32	210.32	HARDIN HUBER	ECKENFELDER
72	GB123SW	1166958.50	749701.09	231.56	231.83	220.18	210.18	PENN DRILLING	ECKENFELDER
73	GB129NW	1167741.70	749331.10	234.44	231.60	215.70	200.70	KODAK PARK DRILLING	KODAK
74	GB129SE	1167314.38	749483.03	231.81	232.06	223.46	213.46	PENN DRILLING	ECKENFELDER
75	GB130SW	1166912.16	749300.31	234.80	232.90	222.90	212.40	PENN DRILLING	ECKENFELDER
76	GB134E	1167302.05	750588.74	233.65	233.90	213.01	198.01	HARDIN HUBER	ECKENFELDER
77	GB135NE	1167830.80	751024.50	230.23	230.60	213.50	198.80	KODAK PARK DRILLING	KODAK
78	GB135NW	1167779.90	750525.64	230.10	230.68	212.58	198.73	KODAK PARK DRILLING	KODAK

TABLE 5.1

KPW ACTIVE WELLS

	1	22	23
	WELL	REPORT / PROJECT	DRILLING
			METHOD 1
40	GB104SE		
41	GB105E	REPORT ON KPW SOUTHEAST HYDROGEO INVESTIG - AUG 1992	AUGERS TO 19.0
42	GB105NE		AUGERS TO 20.0
43	GB105SE2	REPORT ON KPW SOUTHEAST HYDROGEO INVESTIG - AUG 1992	AUGERS TO 18.2
44	GB105SER	REPORT ON KPW SOUTHEAST HYDROGEO INVESTIG - AUG 1992	AUGERS TO 13.0
45	GB105SW		AUGERS TO 13.4
46	GB110S		AUGERS TO 9.7
47	GB112W	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 16.8
48	GB114SW		AUGERS TO 13.1
49	GB114SW2	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 22.0
50	GB115E	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 10.0
51	GB115N	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 16.5
52	GB115SE2	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 21.0
53	GB115W	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 11.0
54	GB119E		AUGERS TO 14.7
55	GB119N		AUGERS TO 10.0
56	GB119NE		AUGERS TO ~20
57	GB119NW	INTERIM REPORT RESULTS OF PHASE I HYDROGEOLOGIC INVESTIGATION NORTHERN KPW - MAY 1993	AUGERS TO 15.5
58	GB119S	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 16.1
59	GB119SE	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 19.6
60	GB119W2R	MONITORING WELL REHABILITATION PROJECT SUMMARY OF RESULTS - MAR 1992	
61	GB119W3		AUGERS TO 15.4
62	GB120E	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 12.0
63	GB120NW	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 18.5
64	GB120SE		AUGERS TO 14.0
65	GB120SW		AUGERS TO 11.0
66	GB120SW2	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 17.0
67	GB120SW3	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 17.3
68	GB121N	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 14.8
69	GB121SW	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 15.75
70	GB122SW	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 13.5
71	GB123NE	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 13.5
72	GB123SW	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 12.0
73	GB129NW		AUGERS TO 15.3
74	GB129SE	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 8.5
75	GB130SW	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 10.1
76	GB134E	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 21.0
77	GB135NE		AUGERS TO 16.7
78	GB135NW		AUGERS TO 17.8

TABLE 5.1

KPW ACTIVE WELLS

	1	24	25	26
	WELL	DRILLING	DRILLING	PC
		METHOD 2	METHOD 3	TYPE
40	GB104SE			FLUSH
41	GB105E	AIR HAMMER TO 35.5		STICK-UP
42	GB105NE	NX CORE TO 36.1		NONE
43	GB105SE2	NX CORE TO 31.5		FLUSH
44	GB105SER	NX CORE TO 28.0		FLUSH
45	GB105SW	NX CORE TO 33.1		FLUSH
46	GB110S	ROLLER BIT TO 24.7		FLUSH
47	GB112W	12" REAM TO 18.0	NX CORE TO 30.0	STICK-UP
48	GB114SW	NX CORE TO 27.5		FLUSH
49	GB114SW2	NX CORE TO 35.0		FLUSH
50	GB115E	NX CORE TO 26.0		STICK-UP
51	GB115N	NX CORE TO 37.5		FLUSH
52	GB115SE2	NX CORE TO 43.0	6" REAM TO 38.0	FLUSH
53	GB115W	NQ CORE TO 32.0		STICK-UP
54	GB119E			STICK-UP
55	GB119N	NX CORE TO 50.0		FLUSH
56	GB119NE	NX CORE TO 38.0		STICK-UP
57	GB119NW	NX CORE TO 30.0		SS STICK-UP
58	GB119S	NX CORE TO 33.0		FLUSH
59	GB119SE	BX CORE TO 35.3		FLUSH
60	GB119W2R			FLUSH
61	GB119W3	NX CORE TO 34.3		FLUSH
62	GB120E	NX CORE TO 33.7		FLUSH
63	GB120NW	NX CORE TO 34.5		FLUSH
64	GB120SE	NX CORE TO 29.1		FLUSH
65	GB120SW	NX CORE TO 26.6		STICK-UP
66	GB120SW2	NX CORE TO 37.0		STICK-UP
67	GB120SW3	NX CORE TO 32.0		FLUSH
68	GB121N	NX CORE TO 30.0		STICK-UP
69	GB121SW	NX CORE TO 40.8		STICK-UP
70	GB122SW	NX CORE TO 29.5		FLUSH
71	GB123NE	NX CORE TO 28.5		FLUSH
72	GB123SW	NX CORE TO 27.0		FLUSH
73	GB129NW	NX CORE TO 30.8		STICK-UP
74	GB129SE	6" REAM TO 18.6	NX CORE TO 23.5	FLUSH
75	GB130SW	6" REAM TO 20.5	NX CORE TO 25.5	STICK-UP
76	GB134E	6" REAM TO 36.0	NX CORE TO 41.0	FLUSH
77	GB135NE	BX CORE TO 31.8		FLUSH
78	GB135NW	BX CORE TO 31.95		FLUSH

TABLE 5.1

KPW ACTIVE WELLS

	1	2	3	4	5	6	7	8	9	10	11	12	13
	WELL	PARK SECTION	AQMS LOC ID	STRAT INTERVAL	BORING	INSTALL DATE	WELL LENGTH (FEET)	RISER DIAM (INCHES)	RISER TYPE	SCREEN DIAM (INCHES)	SCREEN TYPE	TOP SCR DEPTH (FEET)	BOT SCR DEPTH (FEET)
79	GB135SE	KPW	103345	G	GB135SE	14-Feb-92	43.42	4.0	SS	3.0	ROCK	24.00	43.80
80	GB136S6	KPW	102805	G	GB136S6	18-Sep-89	25.12	8.0	SS	8.0	SS	10.00	25.50
81	GB136SR	KPW	102994	G	GB136SR	06-Jun-90	29.88	4.0	SS	3.0	ROCK	10.15	30.30
82	GB137SW	KPW	101006	G	GB137SW	17-Oct-79	30.52	4.0	SS	3.0	ROCK	12.00	28.15
83	GB140E	KPW	101007	G	GB140E	18-Sep-81	37.39	4.0	PVC	2.5	PVC	20.10	34.90
84	GB140W	KPW	102821	G	GB140W	06-Oct-89	42.83	2.0	SS	2.0	SS	21.40	43.00
85	GB142W	KPW	102786	G	GB142W	14-Jul-89	28.06	2.0	SS	2.0	SS	15.00	25.00
86	GB143SE	KPW	103479	G	GB143SE	14-Oct-92	31.93	4.0	SS	3.0	ROCK	17.40	32.40
87	GB145NW	KPW	101743	G	GB145NW	16-Dec-85	32.98	4.0	PVC	3.0	ROCK	18.70	33.70
88	GB145SE	KPW	103473	G	GB145SE	21-Oct-92	33.84	4.0	SS	3.0	ROCK	16.20	31.20
89	GB151SE	KPW	101008	G	GB151SE	24-Jun-81	32.88	4.0	PVC	3.0	ROCK	15.50	30.50
90	GB153NE	KPW	103471	G	GB153NE	7-Oct-92	29.89	4.0	SS	3.0	ROCK	15.00	30.00
91	GBD20W3	KPW	102882	G	GBD20W3	16-Dec-89	23.72	2.0	SS	2.0	SS	9.20	24.20
92	GBD3E	KPW	102799	G	GBD3E	11-Sep-89	26.29	2.0	SS	2.0	SS	16.75	26.75
93	GL50N	KPW	102810	G	GL50N	25-Sep-89	23.35	8.0	SS	8.0	SS	8.50	23.50
94	GL50N2	KPW	102803	G	GL50N2	19-Sep-89	25.07	8.0	SS	8.0	SS	10.40	25.40
95	GL50NE2	KPW	103350	G	GL50NE2	12-Feb-92	20.54	4.0	SS	3.0	ROCK	12.00	21.00
96	GL50NW	KPW	102809	G	GL50NW	25-Aug-89	29.89	8.0	SS	8.0	SS	10.00	30.00
97	GL50NW3	KPW	102807	G	GL50NW3	21-Sep-89	31.19	8.0	SS	8.0	SS	11.50	31.50
98	GL50SE2R	KPW	102987	G	GL50SE2R	24-May-90	35.28	4.0	SS	3.0	ROCK	17.00	35.50
99	GL50SW3R	KPW	102985	G	GL50SW3R	22-May-90	30.41	4.0	SS	3.0	ROCK	13.90	30.60
100	GL55N	KPW	103392	G	GL55N	09-Jun-93	34.72	4.0	SS	3.0	ROCK	10.00	35.00
101	GL56NW	KPW	101232	G	GL56NW	20-Dec-84	46.86	4.0	PVC	3.0	ROCK	32.00	47.00
102	GQB101SW	KPW	102880	GQ	GQB101SW	18-Dec-89	67.31	4.0	SS	3.0	ROCK	58.00	68.00
103	GQB105E	KPW	103354	GQ	GQB105E	30-Jan-92	82.62	4.0	SS	3.0	ROCK	69.00	80.50
104	GQB105NE	KPW	102788	GQ	GQB105NE	13-Jul-89	76.47	4.0	SS	3.0	ROCK	63.00	77.00
105	GQB105SE2	KPW	103352	GQ	GQB105SE2	15-Jan-92	84.71	4.0	SS	3.0	ROCK	75.00	85.00
106	GQB112W	KPW	102784	GQ	GQB112W	03-Aug-89	70.04	4.0	SS	3.0	ROCK	53.00	68.00
107	GQB114SW	KPW	103235	GQ	B114SW	22-Aug-91	67.70	4.0	SS	3.0	ROCK	58.00	68.00
108	GQB115E	KPW	102982	GQ	GQB115E	14-May-90	72.45	4.0	SS	3.0	ROCK	57.80	73.00
109	GQB115N	KPW	102965	GQ	GQB115N	02-Mar-90	77.31	4.0	SS	2.0	ROCK	62.50	77.50
110	GQB115SR	KPW	103006	GQ	GQB115SR	08-Jun-90	72.99	2.0	SS	2.0	SS	60.00	70.00
111	GQB115W	KPW	102979	GQ	GQB115W	14-May-90	74.09	4.0	SS	3.0	ROCK	61.50	72.00
112	GQB119S	KPW	102896	GQ	GQB119S	17-Jan-90	75.48	4.0	SS	3.0	ROCK	63.00	76.00
113	GQB120NW	KPW	102966	GQ	GQB120NW	12-Mar-90	70.35	4.0	SS	3.0	ROCK	55.00	70.00
114	GQB120SW2	KPW	102960	GQ	GQB120SW2	01-Mar-90	78.13	4.0	SS	3.0	ROCK	61.00	76.00
115	GQB120SW3	KPW	102801	GQ	GQB120SW3	31-Aug-89	61.68	4.0	SS	3.0	ROCK	50.00	62.00
116	GQB121N	KPW	102830	GQ	GQB121N	01-Nov-89	79.76	4.0	SS	3.0	ROCK	61.50	77.00

TABLE 5.1

KPW ACTIVE WELLS

	1	14	15	16	17	18	19	20	21
	WELL	NORTH	EAST	REF	GS	TOP SCR	B SCR	DRILLER	CONSTRUCTION
				ELEV	ELEV	ELEV	ELEV		OVERSIGHT
79	GB135SE	1167286.22	751038.42	232.49	232.87	208.87	189.07	PENN DRILLING	H&A
80	*GB136S6*	*1166798.78*	*750316.48*	*227.67*	*228.05*	*218.05*	*202.55*	*HARDIN HUBER*	*ECKENFELDER*
81	GB136SR	1166809.56	750305.39	227.59	228.01	217.86	197.71	ROCH DRILLING	ECKENFELDER
82	GB137SW	1166911.70	749414.20	235.61	233.16	221.24	205.09	KODAK PARK DRILLING	DAMES & MOORE
83	GB140E	1166982.00	751038.20	236.27	233.77	213.68	198.88	KODAK PARK DRILLING	KODAK
84	GB140W	1167107.05	750731.25	234.38	234.55	213.15	191.55	HARDIN HUBER	ECKENFELDER
85	*GB142W*	*1166999.80*	*750487.27*	*237.31*	*234.43*	*219.25*	*209.25*	*HARDIN HUBER*	*ECKENFELDER*
86	GB143SE	1167858.92	749764.98	231.34	231.81	214.41	199.41	PARRATT WOLFFE	RADIAN
87	GB145NW	1167602.40	749846.20	231.80	232.52	213.82	198.82	KODAK PARK DRILLING	H&A
88	GB145SE	1167498.54	750104.43	236.79	234.15	217.95	202.95	PARRATT WOLFFE	RADIAN
89	GB151SE	1168122.00	749932.20	234.04	231.76	216.16	201.16	KODAK PARK DRILLING	KODAK
90	GB153NE	1168118.97	750332.24	230.55	230.66	215.66	200.66	PARRATT WOLFFE	RADIAN
91	GBD20W3	1166704.84	749200.85	233.32	233.78	224.60	209.60	PENN DRILLING	ECKENFELDER
92	GBD3E	1167092.68	750393.71	233.72	234.21	217.43	207.43	HARDIN HUBER	ECKENFELDER
93	GL50N	1166801.27	750604.46	226.39	226.56	218.04	203.04	HARDIN HUBER	ECKENFELDER
94	GL50N2	1166799.69	750436.34	227.22	227.68	217.15	202.15	HARDIN HUBER	ECKENFELDER
95	*GL50NE2*	*1166805.21*	*751260.20*	*225.00*	*225.46*	*213.46*	*204.46*	*PENN DRILLING*	*H&A*
96	GL50NW	1166763.90	749957.82	230.82	231.12	220.93	200.93	HARDIN HUBER	ECKENFELDER
97	GL50NW3	1166793.08	750110.99	231.22	231.53	220.03	200.03	HARDIN HUBER	ECKENFELDER
98	GL50SE2R	1166721.73	751493.36	227.35	227.57	210.57	192.07	ROCH DRILLING	ECKENFELDER
99	GL50SW3R	1166680.84	749798.07	232.58	232.71	218.87	202.17	ROCH DRILLING	ECKENFELDER
100	*GL55N*	*1168277.52*	*749492.09*	*229.46*	*229.74*	*219.74*	*194.74*	*EMPIRE SOILS*	*H&A*
101	GL56NW	1168136.60	751528.20	223.60	223.91	191.74	176.74	KODAK PARK DRILLING	KODAK
102	GQB101SW	1167245.00	749869.93	233.26	233.85	175.95	165.95	HARDIN HUBER	ECKENFELDER
103	GQB105E	1167019.34	751993.94	235.32	233.20	164.20	152.70	PENN DRILLING	H&A
104	GQB105NE	1167227.48	751602.84	232.84	233.25	170.37	156.37	HARDIN HUBER	ECKENFELDER
105	GQB105SE2	1166903.76	751528.70	232.42	232.71	157.71	147.71	PENN DRILLING	H&A
106	GQB112W	1167103.37	750467.83	237.34	235.60	182.30	167.30	HARDIN HUBER	ECKENFELDER
107	GQB114SW	1166797.75	750694.31	225.60	225.90	167.90	157.90	ROCH DRILLING	ECKENFELDER
108	GQB115E	1166978.18	750306.94	238.45	236.90	181.20	166.00	HARDIN HUBER	ECKENFELDER
109	GQB115N	1167168.37	750233.79	233.70	233.89	171.39	156.39	HARDIN HUBER	ECKENFELDER
110	GQB115SR	1166909.80	750249.90	235.99	232.88	173.00	163.00	ROCH DRILLING	ECKENFELDER
111	GQB115W	1166944.51	750138.93	233.89	231.80	170.30	159.80	HARDIN HUBER	ECKENFELDER
112	GQB119S	1167251.15	750194.75	233.89	234.41	171.41	158.41	HARDIN HUBER	ECKENFELDER
113	GQB120NW	1167159.52	749930.41	234.55	234.85	179.20	164.20	HARDIN HUBER	ECKENFELDER
114	GQB120SW2	1166890.01	749946.26	235.22	233.09	172.09	157.09	HARDIN HUBER	ECKENFELDER
115	GQB120SW3	1166859.19	749994.13	232.61	233.05	182.93	170.93	HARDIN HUBER	ECKENFELDER
116	GQB121N	1167049.11	749947.11	236.74	234.30	172.48	156.98	HARDIN HUBER	ECKENFELDER

TABLE [illegible].1

KPW ACTIVE WELLS

	1	22	23
	WELL	REPORT / PROJECT	DRILLING
			METHOD 1
79	GB135SE	REPORT ON KPW SOUTHEAST HYDROGEO INVESTIG - AUG 1992	AUGERS TO 21.5
80	GB136S6	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 10.0
81	GB136SR	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	RETROFIT EXISTNG WELL
82	GB137SW		AUGERS TO 12.0
83	GB140E		AUGERS TO 19.86
84	GB140W	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 23.0
85	GB142W	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 15.7
86	GB143SE	INTERIM REPORT RESULTS OF PHASE I HYDROGEOLOGIC INVESTIGATION NORTHERN KPW - MAY 1993	AUGERS TO 16.5
87	GB145NW		AUGERS TO 18.7
88	GB145SE	INTERIM REPORT RESULTS OF PHASE I HYDROGEOLOGIC INVESTIGATION NORTHERN KPW - MAY 1993	AUGERS TO 15.5
89	GB151SE		AUGERS TO 15.0
90	GB153NE	INTERIM REPORT RESULTS OF PHASE I HYDROGEOLOGIC INVESTIGATION NORTHERN KPW - MAY 1993	AUGERS TO 14.1
91	GBD20W3	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 7.0
92	GBD3E	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 15.8
93	GL50N	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 8.5
94	GL50N2	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 8.0
95	GL50NE2	REPORT ON KPW SOUTHEAST HYDROGEO INVESTIG - AUG 1992	AUGERS TO 10.8
96	GL50NW	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 10.0
97	GL50NW3	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 11.0
98	GL50SE2R	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	RETROFIT EXISTING WELL
99	GL50SW3R	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	RETROFIT EXISTING WELL
100	GL55N		AUGERS TO 10.0
101	GL56NW		AUGERS TO 31.5
102	GQB101SW	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 11.8
103	GQB105E	REPORT ON KPW SOUTHEAST HYDROGEO INVESTIG - AUG 1992	AUGERS TO 17.5
104	GQB105NE	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 18.0
105	GQB105SE2	REPORT ON KPW SOUTHEAST HYDROGEO INVESTIG - AUG 1992	AUGERS TO 20.0
106	GQB112W	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 16.8
107	GQB114SW		AUGERS TO 7.0
108	GQB115E	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 9.0
109	GQB115N	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 15.5
110	GQB115SR	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	RETROFIT EXISTING WELL
111	GQB115W	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 11.0
112	GQB119S	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 13.5
113	GQB120NW	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 16.0
114	GQB120SW2	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 16.7
115	GQB120SW3	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 12.0
116	GQB121N	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 12.0

TABLE 5.1

KPW ACTIVE WELLS

	1	24	25	26
	WELL	DRILLING	DRILLING	PC
		METHOD 2	METHOD 3	TYPE
79	GB135SE	NX CORE TO 48.8		FLUSH
80	GB136S6	12" REAM TO 25.5	NX CORE TO 35.0	FLUSH
81	GB136SR	NX CORE FROM 20.3 TO 30.3		FLUSH
82	GB137SW	NX CORE TO 28.15		STICK-UP
83	GB140E	NX CORE TO 34.9		STICK-UP
84	GB140W	NX CORE TO 48.0		FLUSH
85	GB142W	NX CORE TO 25.8		FLUSH
86	GB143SE	ROLLER BIT TO 17.4	NX CORE TO 32.4	CURB BOX
87	GB145NW	NX CORE TO 35.2		FLUSH
88	GB145SE	NX CORE TO 31.2		SS STICK-UP
89	GB151SE	NX CORE TO 30.5		STICK-UP
90	GB153NE	ROLLER BIT TO 15.0	NX CORE TO 30.0	CURB BOX
91	GBD20W3	NX CORE TO 29.2		FLUSH
92	GBD3E	NX CORE TO 26.75	6" REAM TO 26.9	FLUSH
93	GL50N	NX CORE TO 28.5		FLUSH
94	GL50N2	NX CORE TO 30.5		FLUSH
95	GL50NE2	NX CORE TO 26.0		FLUSH
96	GL50NW	NX CORE TO 35.0		FLUSH
97	GL50NW3	NX CORE TO 37.0		FLUSH
98	GL50SE2R	NX CORE TO 35.5		FLUSH
99	GL50SW3R	NX CORE TO 31.6		FLUSH
100	GL55N	ROLLER BIT TO 45.0		FLUSH
101	GL56NW			FLUSH
102	GQB101SW	NX CORE TO 68.0		FLUSH
103	GQB105E	NX CORE TO 80.5		STICK-UP
104	GQB105NE	NX CORE TO 77.0		FLUSH
105	GQB105SE2	NX CORE TO 90.0		FLUSH
106	GQB112W	8" REAM TO 53.0	NX CORE TO 68.0	STICK-UP
107	GQB114SW	8" REAM TO 58.0	NX CORE TO 68.0	FLUSH
108	GQB115E	NX CORE TO 73.0		STICK-UP
109	GQB115N	NQ CORE TO 77.5		FLUSH
110	GQB115SR	4" REAM TO 70.0		STICK-UP
111	GQB115W	NQ CORE TO 72.0		STICK-UP
112	GQB119S	NX CORE TO 76.0		FLUSH
113	GQB120NW	NX CORE TO 70.0		FLUSH
114	GQB120SW2	NX CORE TO 76.0		STICK-UP
115	GQB120SW3	8" REAM TO 50.0	NX CORE TO 62.0	STICK-UP
116	GQB121N	8" REAM TO 61.5	NX CORE TO 77.0	STICK-UP

TABLE 5.1

KPW ACTIVE WELLS

	1	2	3	4	5	6	7	8	9	10	11	12	13
	WELL	PARK	AQMS	STRAT	BORING	INSTALL	WELL	RISER	RISER	SCREEN	SCREEN	TOP SCR	BOT SCR
		SECTION	*LOC ID*	*INTERVAL*		*DATE*	*LENGTH*	*DIAM*	*TYPE*	*DIAM*	*TYPE*	*DEPTH*	*DEPTH*
							(FEET)	(INCHES)		(INCHES)		(FEET)	(FEET)
117	GQB121SW	KPW	102833	GQ	GQB121SW	03-Nov-89	76.75	4.0	SS	3.0	ROCK	62.66	75.75
118	GQB122SW	KPW	102862	GQ	GQB122SW	21-Nov-89	67.65	4.0	SS	3.0	ROCK	56.00	68.00
119	GQB123NE	KPW	102893	GQ	GQB123NE	09-Jan-90	67.66	4.0	SS	3.0	ROCK	56.50	68.50
120	GQB123SW	KPW	102945	GQ	GQB123SW	02-Mar-90	72.76	4.0	SS	3.0	ROCK	58.00	73.00
121	GQB126SW	KPW	102915	GQ	GQB126SW	30-Jan-90	64.61	4.0	SS	3.0	ROCK	53.00	65.00
122	GQB129NW	KPW	102892	GQ	GQB129NW	12-Jan-90	60.64	4.0	SS	3.0	ROCK	45.50	60.50
123	GQB129SE	KPW	102974	GQ	GQB129SE	03-Apr-90	69.69	4.0	SS	3.0	ROCK	55.00	70.00
124	GQB129SW	KPW	103596	GQ	GQB129SW	21-Jul-93	76.73	4.0	SS	3.8	ROCK	49.00	74.60
125	GQB130SW	KPW	102901	GQ	GQB130SW	17-Jan-90	75.42	4.0	SS	3.0	ROCK	62.60	73.00
126	GQB134E	KPW	102857	GQ	GQB134E	20-Nov-89	86.72	4.0	SS	3.0	ROCK	74.00	87.00
127	GQB135E2	KPW	103590	GQ	GQB135E2	29-Jun-93	80.01	4.0	SS	2.8	ROCK	41.00	80.50
128	GQB135NW	KPW	103597	GQ	GQB135NW	10-Aug-93	74.83	4.0	SS	3.0	ROCK	54.50	75.00
129	GQB137SW	KPW	102948	GQ	GQB137SW	06-Mar-90	72.80	4.0	SS	3.0	ROCK	58.20	73.00
130	GQB140E	KPW	103347	GQ	GQB140E	27-Feb-92	56.50	4.0	SS	3.0	ROCK	42.00	57.00
131	GQB140W	KPW	103344	GQ	GQB140W	22-Jan-92	79.69	4.0	SS	3.0	ROCK	64.00	80.00
132	GQB142SR	KPW	102995	GQ	GQB142SR	01-Jun-90	69.83	2.0	SS	2.0	SS	59.90	69.60
133	GQB142W	KPW	102787	GQ	GQB142W	15-Aug-89	73.10	4.0	SS	3.0	ROCK	55.00	70.50
134	GQB143SE	KPW	103598	GQ	GQB143SE	17-Aug-93	72.87	4.0	PVC	3.0	ROCK	37.00	73.00
135	GQB148S	KPW	102952	GQ	GQB148S	29-Mar-90	69.65	4.0	SS	3.0	ROCK	57.00	70.00
136	GQBD20W2	KPW	102922	GQ	GQBD20W2	08-Feb-90	70.18	4.0	SS	3.0	ROCK	58.00	71.00
137	GQBD20W3	KPW	102899	GQ	GQBD20W3	03-Jan-90	73.42	4.0	SS	3.0	ROCK	63.50	73.50
138	GQBD20WR	KPW	102988	GQ	GQBD20WR	24-May-90	72.28	2.0	SS	2.0	SS	60.55	70.05
139	GQBD3E	KPW	102800	GQ	GQBD3E	06-Sep-89	76.40	4.0	SS	3.0	ROCK	66.42	76.75
140	GQL50N2	KPW	102804	GQ	GQL50N2	13-Sep-89	68.94	4.0	SS	3.0	ROCK	55.50	69.00
141	GQL50NE	KPW	103238	GQ	GQL50NE	05-Aug-91	74.59	4.0	SS	3.0	ROCK	59.80	75.00
142	GQL50NE2	KPW	103349	GQ	GQL50NE2	04-Feb-92	55.94	4.0	SS	3.0	ROCK	40.70	56.70
143	GQL50NW3	KPW	102808	GQ	GQL50NW3	14-Sep-89	69.71	4.0	SS	3.0	ROCK	53.00	70.50
144	GQL50S2R	KPW	102991	GQ	GQL50S2R	22-May-90	63.72	2.0	SS	2.0	SS	59.70	64.30
145	GQL50S3	KPW	103236	GQ	GQL50S3	12-Jun-91	70.69	4.0	SS	3.0	ROCK	60.00	71.00
146	GQL50SE2R	KPW	102986	GQ	GQL50SE2R	23-May-90	67.70	2.0	SS	2.0	SS	58.00	68.00
147	GQL50SE3	KPW	103237	GQ	GQL50SE3	24-Jun-91	73.89	4.0	SS	3.0	ROCK	59.60	74.00
148	GQL50SW2R	KPW	102992	GQ	G3L50SW2	24-May-90	67.82	2.0	SS	2.0	SS	63.50	68.10
149	GQL50SW3R	KPW	102984	GQ	G3L50SW3	22-May-90	67.78	2.0	SS	2.0	SS	58.00	68.00
150	GQWS12	KPW	102815	GQ	GQWS12	11-Jul-89	85.65	4.0	SS	3.0	ROCK	76.00	86.00
151	GQWS13	KPW	102791	GQ	GQWS13	06-Jul-89	103.65	4.0	SS	3.0	ROCK	94.00	104.00
152	GQWS15	KPW	103284	GQ	GQWS15	28-Oct-91	80.61	4.0	SS	4.0	ROCK	66.00	81.00
153	GQWS17	KPW	103328	GQ	GQWS17	25-Nov-91	102.45	4.0	SS	4.0	ROCK	87.00	103.00
154	GQWS3	KPW	103234	GQ	GQWS3	20-Aug-91	73.69	4.0	SS	3.0	ROCK	59.00	74.00
155	GQWS5	KPW	103031	GQ	GQWS5	23-Jul-90	74.67	4.0	SS	3.0	ROCK	65.00	75.00

TABL[illegible]-5.1

KPW ACTIVE WELLS

	1	14	15	16	17	18	19	20	21
	WELL	NORTH	EAST	REF ELEV	GS ELEV	TOP SCR ELEV	B SCR ELEV	DRILLER	CONSTRUCTION OVERSIGHT
117	GQB121SW	1166968.46	749901.80	233.98	232.98	170.32	157.23	HARDIN HUBER	ECKENFELDER
118	GQB122SW	1166856.07	749735.65	231.51	231.86	175.86	163.86	PENN DRILLING	ECKENFELDER
119	GQB123NE	1167098.52	749766.52	232.74	233.54	177.08	165.08	HARDIN HUBER	ECKENFELDER
120	GQB123SW	1166959.49	749712.47	231.68	231.92	173.92	158.92	PENN DRILLING	ECKENFELDER
121	GQB126SW	1166961.40	749572.33	231.91	232.30	179.30	167.30	PENN DRILLING	ECKENFELDER
122	GQB129NW	1167728.76	749357.50	231.34	231.20	185.70	170.70	HARDIN HUBER	ECKENFELDER
123	GQB129SE	1167321.22	749482.80	231.69	232.00	177.00	162.00	PENN DRILLING	ECKENFELDER
124	GQB129SW	1167377.30	749271.75	234.43	232.30	183.30	157.70	EMPIRE SOILS	H&A
125	GQB130SW	1166921.39	749300.68	235.52	233.10	170.50	160.10	PENN DRILLING	ECKENFELDER
126	GQB134E	1167291.03	750587.08	234.06	233.90	160.34	147.34	HARDIN HUBER	ECKENFELDER
127	GQB135E2	1167611.32	751146.14	230.67	231.16	190.16	150.66	EMPIRE SOILS	H&A
128	GQB135NW	1167838.75	750715.01	229.03	229.20	174.70	154.20	EMPIRE SOILS	H&A
129	GQB137SW	1166921.21	749406.65	233.04	233.24	175.04	160.24	PENN DRILLING	ECKENFELDER
130	GQB140E	1166965.53	751045.76	233.24	233.74	191.74	176.74	PENN DRILLING	H&A
131	GQB140W	1167073.71	750730.80	234.32	234.63	170.63	154.63	PENN DRILLING	H&A
132	GQB142SR	1166897.78	750547.13	231.84	232.08	172.11	162.41	ROCH DRILLING	ECKENFELDER
133	GQB142W	1166984.54	750486.33	236.83	234.22	179.25	163.75	HARDIN HUBER	ECKENFELDER
134	GQB143SE	1167857.35	749752.36	231.60	231.73	194.73	158.73	EMPIRE SOILS	H&A
135	GQB148S	1167098.03	749453.34	232.10	232.45	175.45	162.45	PENN DRILLING	ECKENFELDER
136	GQBD20W2	1166665.42	749441.20	231.38	232.20	174.20	161.20	PENN DRILLING	ECKENFELDER
137	GQBD20W3	1166704.38	749178.98	234.12	234.33	170.70	160.70	PENN DRILLING	ECKENFELDER
138	GQBD20WR	1166674.66	749630.16	235.93	234.10	173.55	164.05	ROCH DRILLING	ECKENFELDER
139	GQBD3E	1167102.76	750394.01	233.72	234.17	167.65	157.32	HARDIN HUBER	ECKENFELDER
140	GQL50N2	1166800.08	750485.93	227.30	227.30	171.86	158.36	HARDIN HUBER	ECKENFELDER
141	GQL50NE	1166801.50	751095.19	224.42	224.83	165.03	149.83	ROCH DRILLING	ECKENFELDER
142	GQL50NE2	1166805.64	751252.96	224.69	225.45	184.75	168.75	PENN DRILLING	H&A
143	GQL50NW3	1166793.42	750090.11	231.16	231.99	178.95	161.45	HARDIN HUBER	ECKENFELDER
144	GQL50S2R	1166676.80	750528.11	227.53	228.15	168.41	163.81	ROCH DRILLING	ECKENFELDER
145	GQL50S3	1166673.57	750886.25	225.73	226.04	166.04	155.04	ROCH DRILLING	ECKENFELDER
146	GQL50SE2R	1166722.97	751483.89	227.15	227.45	169.45	159.45	ROCH DRILLING	ECKENFELDER
147	GQL50SE3	1166675.25	751098.94	225.44	225.55	165.95	151.55	ROCH DRILLING	ECKENFELDER
148	GQL50SW2R	1166675.80	750350.99	228.92	229.20	165.70	161.10	ROCH DRILLING	ECKENFELDER
149	GQL50SW3R	1166680.81	749808.96	232.35	232.57	174.57	164.57	ROCH DRILLING	ECKENFELDER
150	GQWS12	1166262.04	749149.28	245.16	245.51	169.51	159.51	ROCH DRILLING	H&A
151	GQWS13	1165780.07	750041.42	252.79	253.05	159.14	149.14	ROCH DRILLING	H&A
152	GQWS15	1166564.63	751721.07	233.96	234.35	168.35	153.35	ROCH DRILLING	H&A
153	GQWS17	1165926.74	750991.42	264.91	265.46	178.46	162.46	ROCH DRILLING	H&A
154	GQWS3	1166560.91	750032.88	233.75	234.06	175.06	160.06	ROCH DRILLING	ECKENFELDER
155	GQWS5	1166543.89	750580.85	227.52	227.85	162.85	152.85	ROCH DRILLING	H&A

TABLE [illegible].1

KPW ACTIVE WELLS

	1	22	23
	WELL	REPORT / PROJECT	DRILLING METHOD 1
117	GQB121SW	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 15.75
118	GQB122SW	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 13.0
119	GQB123NE	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 12.5
120	GQB123SW	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 11.0
121	GQB126SW	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 8.6
122	GQB129NW	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 15.5
123	GQB129SE	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 7.0
124	GQB129SW		AUGERS TO 9.5
125	GQB130SW	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 9.3
126	GQB134E	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 21.5
127	GQB135E2		AUGERS TO 21.0
128	GQB135NW		AUGERS TO 17.0
129	GQB137SW	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 8.5
130	*GQB140E*	*REPORT ON KPW SOUTHEAST HYDROGEO INVESTIG - AUG 1992*	AUGERS TO 22.0
131	GQB140W	REPORT ON KPW SOUTHEAST HYDROGEO INVESTIG - AUG 1992	AUGERS TO 17.5
132	GQB142SR	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	RETROFIT EXISTING WELL
133	GQB142W	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 15.5
134	GQB143SE		AUGERS TO 16.0
135	GQB148S	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 7.3
136	GQBD20W2	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 9.2
137	GQBD20W3	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 7.8
138	GQBD20WR	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	RETROFIT EXISTING WELL
139	GQBD3E	KPW DISTILLING AND SW KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 15.8
140	GQL50N2	*KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991*	*AUGERS TO 9.0*
141	GQL50NE		AUGERS TO 10.5
142	GQL50NE2	REPORT ON KPW SOUTHEAST HYDROGEO INVESTIG - AUG 1992	AUGERS TO 11.7
143	GQL50NW3	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 10.5
144	GQL50S2R	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	RETROFIT EXISTING WELL
145	GQL50S3		AUGERS TO 12.5
146	GQL50SE2R	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	RETROFIT EXISTING WELL
147	GQL50SE3		AUGERS TO 13.0
148	GQL50SW2R	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	RETROFIT EXISTING WELL
149	GQL50SW3R	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	RETROFIT EXISTING WELL
150	GQWS12	*PHASE I HYDROGEO REPORT, OFFSITE HYDROGEO INVESTIG SA NO.1 - JAN 1990*	AUGERS TO 9.5
151	GQWS13	PHASE I HYDROGEO REPORT, OFFSITE HYDROGEO INVESTIG SA NO.1 - JAN 1990	AUGERS TO 9.0
152	GQWS15	REPORT ON STUDY AREA NO. 1 PHASE II OFFSITE HYDROGEO INVESTIG - APR 1992	AUGERS TO 25.7
153	GQWS17	REPORT ON STUDY AREA NO. 1 PHASE II OFFSITE HYDROGEO INVESTIG - APR 1992	AUGERS TO 40.5
154	GQWS3		AUGERS TO 18.4
155	GQWS5	STUDY AREA NO.1 OFFSITE HYDROGEO INVESTIG. MIG. CONTROL SUPPL. - MAR 1991	AUGERS TO 15.0

TABLE [illegible].1

KPW ACTIVE WELLS

	1	24	25	26
	WELL	DRILLING	DRILLING	PC
		METHOD 2	METHOD 3	TYPE
117	GQB121SW	8" REAM TO62.66	NX CORE TO 75.75	FLUSH
118	GQB122SW	8" REAM TO 56.0	NX CORE TO 68.0	FLUSH
119	GQB123NE	8" REAM TO 56.5	NX CORE TO 68.5	FLUSH
120	GQB123SW	8" REAM TO 58.0	NX CORE TO 76.0	FLUSH
121	GQB126SW	8" REAM TO 53.0	NX CORE TO65.0	FLUSH
122	GQB129NW	8" REAM TO 45.5	NX CORE TO 60.5	STICK-UP
123	GQB129SE	8" REAM TO 55.0	NX CORE TO 70.0	FLUSH
124	GQB129SW	10" ROLLER BIT TO 49.0	HQ CORE TO 74.6	STICK-UP
125	GQB130SW	8" REAM TO 62.6	NX CORE TO 73.0	STICK-UP
126	GQB134E	8" REAM TO 74.0	NX CORE TO 87.0	FLUSH
127	GQB135E2	ROLLER BIT TO 41.0	HQ CORE TO 80.5	FLUSH
128	GQB135NW	ROLLER BIT TO 42.0	NQ CORE TO 75.0	FLUSH
129	GQB137SW	8" REAM TO 58.2	NX CORE TO 75.0	FLUSH
130	GQB140E	6" REAM TO 42.0	NX CORE TO72.0	FLUSH
131	GQB140W	6" REAM TO 64.0	NX CORE TO 105.0	FLUSH
132	GQB142SR	4" REAM TO 70.0		FLUSH
133	GQB142W	8" REAM TO 55.0	NX CORE TO 70.5	STICK-UP
134	GQB143SE	ROLLER BIT TO 37.0	NQ CORE TO 73.0	FLUSH
135	GQB148S	8" REAM TO 57.0	NX CORE TO 70.0	FLUSH
136	GQBD20W2	REAM TO 45.4	NX CORE TO 76.4	FLUSH
137	GQBD20W3	NX CORE TO 73.5		STICK-UP
138	GQBD20WR	REAM TO 70.5		FLUSH
139	GQBD3E	NX CORE TO 76.75		FLUSH
140	GQL50N2	NX CORE TO 69.0		FLUSH
141	GQL50NE	8" REAM TO 60.0	NX CORE TO 75.0	FLUSH
142	GQL50NE2	6" REAM TO 40.7	NX CORE TO 61.7	FLUSH
143	GQL50NW3	NX CORE TO 70.5		FLUSH
144	GQL50S2R	REAMED COREHOLE TO 4" WIDTH		FLUSH
145	GQL50S3	8" REAM TO 80.0	NX CORE TO 80.0	FLUSH
146	GQL50SE2R	4"REAM TO 68.0		FLUSH
147	GQL50SE3	8" REAM TO 59.6	NX CORE TO 74.0	FLUSH
148	GQL50SW2R	4" REAM TO 68.5		FLUSH
149	GQL50SW3R	REAMED 4" COREHOLE TO 68.0		FLUSH
150	GQWS12	NX CORE TO 86.0		FLUSH
151	GQWS13	NX CORE TO 104.0		FLUSH
152	GQWS15	4" ROLLER BIT TO 56.0	NX CORE TO 86.0	FLUSH
153	GQWS17	NX CORE TO 108.0		FLUSH
154	GQWS3	8" REAM TO 59.2	NX CORE TO 74.0	FLUSH
155	GQWS5	NX CORE TO 82.5		FLUSH

TABLE 5.1

KPW ACTIVE WELLS

	1	2	3	4	5	6	7	8	9	10	11	12	13
	WELL	PARK SECTION	AQMS LOC ID	STRAT INTERVAL	BORING	INSTALL DATE	WELL LENGTH (FEET)	RISER DIAM (INCHES)	RISER TYPE	SCREEN DIAM (INCHES)	SCREEN TYPE	TOP SCR DEPTH (FEET)	BOT SCR DEPTH (FEET)
156	GQWS9	KPW	102816	GQ	GQWS9	27-Sep-89	93.47	4.0	SS	3.0	ROCK	84.00	94.00
157	GWS12	KPW	102814	G	GWS12	13-Sep-89	42.15	4.0	SS	3.0	ROCK	32.50	42.50
158	GWS14	KPW	103032	G	GWS14	20-Jul-90	60.20	4.0	SS	4.0	ROCK	50.50	60.50
159	GWS16	KPW	103327	G	GWS16	01-Oct-91	44.59	4.0	SS	4.0	ROCK	34.00	45.00
160	GWS5	KPW	103281	G	GWS5	01-Oct-91	28.64	4.0	SS	4.0	ROCK	15.50	29.10
161	IWS11	KPW	102733	I	IWS11	25-May-89	10.12	2.0	SS	2.0	SS	4.90	10.30
162	IWS12	KPW	102734	I	IWS12	08-Jun-89	8.50	2.0	SS	2.0	SS	5.50	8.90
163	IWS13	KPW	102735	I	IWS13	06-Jun-89	10.62	2.0	SS	2.0	SS	5.60	11.00
164	IWS3	KPW	102725	I	IWS3	26-May-89	11.43	2.0	SS	2.0	SS	7.50	12.50
165	IWS4R	KPW	103038	I	IWS4R	24-Jul-90	13.14	2.0	SS	2.0	SS	8.50	13.50
166	IWS5	KPW	102727	I	IWS5	31-May-89	11.54	2.0	SS	2.0	SS	6.50	11.90
167	MTGWS13	KPW	102790	MTG	MTGWS13	13-Jul-89	48.59	4.0	SS	3.0	ROCK	39.00	49.00
168	MWS12R	KPW	102813	M	WS12R	18-Sep-89	26.55	4.0	SS	3.0	ROCK	12.00	27.00
169	PB115N	KPW	102202	G	B115N	16-Apr-87	40.87	6.5	SS	5.0	SS	20.00	38.60
170	PB119E	KPW	101050	G	B119E	06-Apr-83	47.04	4.0	SS	4.0	SS	19.00	50.00
171	PB119E2	KPW	101233	G	B119E2	06-Aug-85	44.77	4.0	SS	4.0	SS	21.80	47.50
172	PB119NE	KPW	101234	G	B119NE	08-Aug-85	46.08	4.0	SS	4.0	SS	22.80	48.50
173	PB119SE	KPW	101049	G	B119SE	12-Apr-83	42.93	4.0	SS	4.0	SS	14.93	47.00
174	PB119W	KPW	101235	G	B119W	19-Aug-85	46.81	4.0	SS	4.0	SS	20.80	46.50
175	PB135E	KPW	101051	G	B135E	13-Apr-83	36.12	4.0	SS	4.0	SS	19.00	39.00
176	PB136S	KPW	102493	G	B136S	23-May-88	34.07	8.5	SS	7.8	ROCK	10.50	31.50
177	PL50N2	KPW	103241	G	L50N2	27-Aug-91	80.53	8.0	SS	8.0	SS	27.00	73.10
178	PL50N3	KPW	103242		L50N3	29-Aug-91	86.85	8.0	SS	8.0	SS	45.10	76.00
179	PL50NW3	KPW	103240		L50NW3	27-Aug-91	88.80	8.0	SS	8.0	SS	34.90	81.20
180	PL50W	KPW	103239		L50W	23-Aug-91	86.43	8.0	SS	8.0	SS	37.70	78.60
181	QB105NE	KPW	102891	Q	QB105NE	14-Dec-89	128.51	8.0	SS	3.0	ROCK	72.00	128.50
182	QB115N	KPW	102928	Q	QB115N	14-Feb-90	102.44	4.0	SS	3.0	ROCK	91.00	102.50
183	QB115SE	KPW	102852	Q	QB115SE	14-Nov-89	105.66	4.0	SS	3.0	ROCK	92.00	106.00
184	QB119NE	KPW	102789	Q	QB119NE	22-Aug-89	89.81	4.0	SS	3.0	ROCK	60.80	87.50
185	QB120NW	KPW	102967	Q	QB120NW	02-Mar-90	102.69	4.0	SS	3.0	ROCK	93.00	103.00
186	QB120SW2	KPW	102927	Q	QB120SW2	15-Feb-90	112.56	4.0	SS	3.0	ROCK	100.00	111.00
187	QB123NE	KPW	102878	Q	QB123NE	19-Dec-89	87.76	4.0	SS	3.0	ROCK	77.50	88.50
188	QB129NW	KPW	102879	Q	QB129NW	03-Jan-90	75.76	4.0	SS	3.0	ROCK	65.50	75.50
189	QB129SE	KPW	102975	Q	QB129SE	02-Apr-90	85.72	4.0	SS	3.0	ROCK	76.00	86.00
190	QB130SW	KPW	102898	Q	QB130SW	10-Jan-90	114.38	4.0	SS	3.0	ROCK	100.00	112.30
191	QB135SE	KPW	103346	Q	QB135SE	11-Feb-92	83.67	4.0	SS	3.0	ROCK	73.00	84.00
192	QB142S	KPW	102977	Q	QB142S	13-Apr-90	101.60	4.0	SS	3.0	ROCK	92.00	102.00
193	QL50SR	KPW	103003	Q	QL50SR	07-Jun-90	75.73	2.0	SS	2.0	SS	71.30	75.80
194	SB101SW	KPW	102853	S	SB101SW	27-Nov-89	9.80	2.0	SS	2.0	SS	5.37	10.37

TABLE [illegible].1

KPW ACTIVE WELLS

	1	14	15	16	17	18	19	20	21
	WELL	NORTH	EAST	REF ELEV	GS ELEV	TOP SCR ELEV	B SCR ELEV	DRILLER	CONSTRUCTION OVERSIGHT
156	GQWS9	1166243.92	751103.82	244.74	245.27	161.27	151.27	ROCH DRILLING	H&A
157	GWS12	1166263.38	749193.40	244.52	244.87	212.37	202.37	ROCH DRILLING	H&A
158	GWS14	1166533.10	751044.33	227.25	227.55	177.05	167.05	ROCH DRILLING	H&A
159	GWS16	1166267.56	750341.19	236.80	237.21	203.21	192.21	ROCH DRILLING	H&A
160	GWS5	1166543.87	750571.64	227.60	228.06	212.56	198.96	ROCH DRILLING	H&A
161	IWS11	1166264.21	749739.54	242.85	243.04	238.13	232.73	ROCH DRILLING	H&A
162	IWS12	1166261.97	749136.59	245.15	245.50	240.05	236.65	ROCH DRILLING	H&A
163	IWS13	1165847.89	750031.54	252.77	253.05	247.55	242.15	ROCH DRILLING	H&A
164	IWS3	1166518.06	750029.63	233.31	233.98	226.88	221.88	ROCH DRILLING	H&A
165	IWS4R	1166523.58	750395.36	230.20	230.47	222.06	217.06	ROCH DRILLING	H&A
166	IWS5	1166543.87	750581.88	227.43	227.78	221.29	215.89	ROCH DRILLING	H&A
167	MTGWS13	1165775.17	750041.85	252.64	253.15	214.05	204.05	ROCH DRILLING	H&A
168	MWS12R	1166262.78	749215.76	244.37	244.82	232.82	217.82	ROCH DRILLING	H&A
169	PB115N	1167150.35	750243.86	236.57	234.30	214.30	195.70	KODAK PARK DRILLING	H&A
170	PB119E	1167581.20	750432.50	229.44	232.40	213.40	182.40	ROCH DRILLING	DAMES & MOORE
171	PB119E2	1167442.10	750440.10	229.37	232.10	210.30	184.60	ROCH DRILLING	H&A
172	PB119NE	1167764.31	750462.66	228.38	230.80	208.00	182.30	ROCH DRILLING	H&A
173	PB119SE	1167282.20	750421.70	230.19	234.26	219.33	187.26	ROCH DRILLING	DAMES & MOORE
174	PB119W	1167546.50	750342.20	233.71	233.40	212.60	186.90	ROCH DRILLING	H&A
175	PB135E	1167513.62	751212.01	224.62	227.50	208.50	188.50	ROCH DRILLING	DAMES & MOORE
176	PB136S	1166797.17	750301.61	230.67	228.10	217.60	196.60	ROCH DRILLING	H&A
177	PL50N2	1166797.96	750494.98	224.61	227.21	200.18	154.08	ROCH DRILLING	ECKENFELDER
178	PL50N3	1166799.86	750878.19	223.38	224.98	177.43	146.53	ROCH DRILLING	ECKENFELDER
179	PL50NW3	1166792.55	750117.36	228.93	231.33	196.43	150.13	ROCH DRILLING	ECKENFELDER
180	PL50W	1166725.11	749816.16	230.19	232.36	194.66	153.76	ROCH DRILLING	ECKENFELDER
181	QB105NE	1167212.27	751610.05	233.21	233.53	161.20	104.70	HARDIN HUBER	ECKENFELDER
182	QB115N	1167161.03	750233.65	233.93	233.99	142.99	131.49	HARDIN HUBER	ECKENFELDER
183	QB113SE	1166890.66	750293.81	232.76	233.40	141.10	127.10	HARDIN HUBER	ECKENFELDER
184	QB119NE	1167880.62	750535.49	232.71	230.40	169.60	142.90	HARDIN HUBER	ECKENFELDER
185	QB120NW	1167160.73	749923.96	234.09	234.40	141.40	131.40	HARDIN HUBER	ECKENFELDER
186	QB120SW2	1166889.96	749928.99	235.05	233.49	133.49	122.49	HARDIN HUBER	ECKENFELDER
187	QB123NE	1167098.89	749772.12	232.64	233.38	155.88	144.88	HARDIN HUBER	ECKENFELDER
188	QB129NW	1167717.71	749360.97	231.87	231.61	166.11	156.11	HARDIN HUBER	ECKENFELDER
189	QB129SE	1167295.35	749483.76	231.74	232.02	156.02	146.02	PENN DRILLING	ECKENFELDER
190	QB130SW	1166913.50	749311.13	235.08	233.00	133.00	120.70	PENN DRILLING	ECKENFELDER
191	QB135SE	1167286.08	751028.74	232.58	232.91	159.91	148.91	PENN DRILLING	H&A
192	QB142S	1166879.04	750522.93	232.39	232.79	140.79	130.79	HARDIN HUBER	ECKENFELDER
193	QL50SR	1166678.21	750700.63	226.69	227.16	155.86	151.36	ROCH DRILLING	ECKENFELDER
194	SB101SW	1167244.22	749849.99	233.24	233.78	228.44	223.44	HARDIN HUBER	ECKENFELDER

TABLE 5.1

KPW ACTIVE WELLS

	1	22	23
	WELL	REPORT / PROJECT	DRILLING METHOD I
156	GQWS9	PHASE I HYDROGEO REPORT, OFFSITE HYDROGEO INVESTIG SA NO.1 - JAN 1990	AUGERS TO 20.2
157	GWS12		ROLLER BIT TO 22.5
158	GWS14	STUDY AREA NO.1 OFFSITE HYDROGEO INVESTIG. MIG. CONTROL SUPPL. - MAR 1991	AUGERS TO 15.5
159	GWS16	REPORT ON STUDY AREA NO. 1 PHASE II OFFSITE HYDROGEO INVESTIG - APR 1992	AUGERS TO 15.5
160	GWS5	REPORT ON STUDY AREA NO. 1 PHASE II OFFSITE HYDROGEO INVESTIG - APR 1992	AUGERS TO 13.1
161	IWS11	OVERBURDEN MONITORING WELL INSTALL. TECH. MEMO. OFFSITE HYDROGEO INVESTIG SA NO.1 - JULY 1989	AUGERS TO 11.1
162	IWS12	OVERBURDEN MONITORING WELL INSTALL. TECH. MEMO. OFFSITE HYDROGEO INVESTIG SA NO.1 - JULY 1989	AUGERS TO 10.0
163	IWS13	OVERBURDEN MONITORING WELL INSTALL. TECH. MEMO. OFFSITE HYDROGEO INVESTIG SA NO,1 - JULY 1989	AUGERS TO 9.1
164	IWS3	OVERBURDEN MONITORING WELL INSTALL. TECH. MEMO. OFFSITE HYDROGEO INVESTIG SA NO.1 - JULY 1989	AUGERS TO 13.0
165	IWS4R	STUDY AREA NO.1 OFFSITE HYDROGEO INVESTIG. MIG. CONTROL SUPPL. - MAR 1991	AUGERS TO 15.7
166	IWS5	OVERBURDEN MONITORING WELL INSTALL. TECH. MEMO. OFFSITE HYDROGEO INVESTIG SA NO.1 - JULY 1989	AUGERS TO 11.9
167	MTGWS13	PHASE I HYDROGEO REPORT, OFFSITE HYDROGEO INVESTIG SA NO.1 - JAN 1990	AUGERS TO 8.5
168	MWS12R		AUGERS TO 12.0
169	PB115N		AUGERS TO 17.25
170	PB119E		AUGERS TO 15.0
171	PB119E2		AUGERS TO 17.7
172	PB119NE		AUGERS TO 15.5
173	PB119SE		AUGERS TO 15.0
174	PB119W		AUGERS TO 12.0
175	PB135E		AUGERS TO 18.0
176	PB136S		AUGERS TO 9.4
177	PL50N2	WELL INSTALLATION REPORT, KPW MIGRATION CONTROL SYSTEM IRM - JAN 1992	AUGERS TO 10.0
178	PL50N3	WELL INSTALLATION REPORT, KPW MIGRATION CONTROL SYSTEM IRM - JAN 1992	AUGERS TO 10.0
179	PL50NW3	WELL INSTALLATION REPORT, KPW MIGRATION CONTROL SYSTEM IRM - JAN 1992	AUGERS TO 12.0
180	PL50W	WELL INSTALLATION REPORT, KPW MIGRATION CONTROL SYSTEM IRM - JAN 1992	AUGERS TO 12.0
181	QB105NE	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 19.3
182	QB115N	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 16.5
183	QB115SE	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 13.9
184	QB119NE	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 16.5
185	QB120NW	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 17.4
186	QB120SW2	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 16.0
187	QB123NE	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 13.6
188	QB129NW	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 15.5
189	QB129SE	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 7.0
190	QB130SW	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 10.3
191	QB135SE	REPORT ON KPW SOUTHEAST HYDROGEO INVESTIG - AUG 1992	AUGERS TO 24.0
192	QB142S	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 15.5
193	QL50SR	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	RETROFIT EXISTING WELL
194	SB101SW	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 13.0

TABLE [illegible].1

KPW ACTIVE WELLS

	1	24	25	26
	WELL	DRILLING METHOD 2	DRILLING METHOD 3	PC TYPE
156	GQWS9	REAM TO 84.0	NX CORE TO 94.0	FLUSH
157	GWS12	NX CORE TO 42.5		FLUSH
158	GWS14	NX CORE TO 85.5		FLUSH
159	GWS16	NX CORE TO 85.0		FLUSH
160	GWS5	NX CORE TO 34.4		FLUSH
161	IWS11			FLUSH
162	IWS12			FLUSH
163	IWS13			FLUSH
164	IWS3			FLUSH
165	IWS4R			FLUSH
166	IWS5			FLUSH
167	MTGWS13	REAM TO 39.0	NX CORE TO 49.0	FLUSH
168	MWS12R	NX CORE TO 27.0		FLUSH
169	PB115N	NX CORE TO 38.55		STICK-UP
170	PB119E	NX CORE TO 50.0		FLUSH
171	PB119E2	NX CORE TO 50.5		FLUSH
172	PB119NE			STICK-UP
173	PB119SE			FLUSH
174	PB119W	NX CORE TO 49.9		STICK-UP
175	PB135E	NX CORE TO 50.1		FLUSH
176	PB136S	NX CORE TO 19.4		STICK-UP
177	PL50N2	NX CORE TO 78.0		VAULT
178	PL50N3	NX CORE TO 77.5	REAM TO 88.0	VAULT
179	PL50NW3	NX CORE TO 90.0	REAM TO 91.2	VAULT
180	PL50W	NX CORE TO 88.8	REAM TO 89.0	VAULT
181	QB105NE	12" REAM TO 72.0	NX CORE TO 128.5	FLUSH
182	QB115N	NX CORE TO 102.5		FLUSH
183	QB115SE	NX CORE TO 106.0		FLUSH
184	QB119NE	NX CORE TO 87.5		STICK-UP
185	QB120NW	NX CORE TO 103.0		STICK-UP
186	QB120SW2	8" REAM TO 100.0	NX CORE TO 111.0	STICK-UP
187	QB123NE	8" REAM TO 77.5	NX CORE TO88.5	FLUSH
188	QB129NW	12" REAM TO 65.5	NX CORE TO 75.5	FLUSH
189	QB129SE	8" REAM TO 76.0	NX CORE TO 86.0	FLUSH
190	QB130SW	8" REAM TO 100.0	NX CORE TO112.3	STICK-UP
191	QB135SE	NX CORE TO 89.0		FLUSH
192	QB142S	8" REAM TO 92.0	NX CORE TO 102.0	FLUSH
193	QL50SR	EXTENDED COREHOLE FROM 65.9 TO 80.9		FLUSH
194	SB101SW			FLUSH

TABLE [illegible].1

KPW ACTIVE WELLS

	1	2	3	4	5	6	7	8	9	10	11	12	13
	WELL	PARK	AQMS	STRAT	BORING	INSTALL	WELL	RISER	RISER	SCREEN	SCREEN	TOP SCR	BOT SCR
		SECTION	LOC ID	INTERVAL		DATE	LENGTH	DIAM	TYPE	DIAM	TYPE	DEPTH	DEPTH
							(FEET)	(INCHES)		(INCHES)		(FEET)	(FEET)
195	SB102S	KPW	103588	S	SB102S	13-May-93	18.24	2.0	PVC	2.0	PVC	4.50	16.50
196	SB102W	KPW	103587	S	SB102W	24-May-93	17.29	2.0	PVC	2.0	PVC	5.00	15.50
197	SB105NE	KPW	101009	S	SB105NE	18-Oct-79	19.55	4.0	SS	4.0	SS	4.50	17.60
198	SB105SER	KPW	103381	S	SB105SER	06-Feb-92	14.98	2.0	SS	2.0	SS	6.40	11.40
199	SB108SW	KPW	103480	S	SB108SW	19-Oct-92	13.86	2.0	PVC	2.0	PVC	5.00	14.20
200	SB110S	KPW	103585	S	SB110S	26-May-93	10.68	2.0	PVC	2.0	PVC	4.00	11.00
201	SB112W	KPW	102782	S	SB112W	10-Aug-89	15.18	2.0	SS	2.0	SS	8.50	13.50
202	SB114SWR	KPW	102742	S	SB114SWR	22-Jun-89	10.01	2.0	SS	2.0	SS	4.70	10.10
203	SB115E	KPW	102980	S	SB115E	17-May-90	12.54	2.0	SS	2.0	SS	3.00	8.00
204	SB115N2R	KPW	103399	S	SB115N2R	29-Jan-92	14.51	2.0	SS	2.0	SS	5.90	15.60
205	SB115S	KPW	102049	S	SB115S	19-Dec-86	12.10	2.0	SS	2.0	SS	2.50	12.50
206	SB115W	KPW	102978	S	SB115W	07-May-90	10.17	2.0	SS	2.0	SS	3.00	8.00
207	SB117NE	KPW	102971	S	SB117NE	02-Apr-90	10.72	2.0	SS	2.0	SS	6.10	11.10
208	SB119NE	KPW	101013	S	B119NE	16-Oct-79	18.64	4.0	SS	4.0	SS	5.00	16.00
209	SB119NE2	KPW	103475	S	SB119NE2	16-Oct-92	14.70	2.0	SS	2.0	SS	4.70	14.70
210	SB119NW	KPW	103476	S	SB119NW	8-Oct-92	16.07	2.0	SS	2.0	SS	3.92	13.92
211	SB119S	KPW	102897	S	SB119S	23-Jan-90	15.50	2.0	SS	2.0	SS	11.00	16.00
212	SB119SW	KPW	101014	S	SB119SW	18-Apr-84	15.19	2.0	PVC	2.0	PVC	10.50	15.50
213	SB119W	KPW	101712	S	SB119W	02-Oct-85	12.07	2.0	PVC	2.0	PVC	2.90	12.90
214	SB119W4R	KPW	103400	S	SB119W4R	22-Jan-92	14.41	2.0	SS	2.0	SS	5.60	15.30
215	SB120E	KPW	102820	S	SB120E	04-Oct-89	9.54	2.0	SS	2.0	SS	5.00	10.00
216	SB120NW	KPW	102823	S	SB120NW	06-Oct-89	11.16	2.0	SS	2.0	SS	7.00	12.00
217	SB120SW	KPW	101015	S	B120SW	17-Jul-81	12.33	2.0	PVC	2.0	PVC	7.50	11.50
218	SB120SW2	KPW	102958	S	SB120SW2	08-Mar-90	17.25	2.0	SS	2.0	SS	5.20	15.20
219	SB121N	KPW	102963	S	SB121N	22-Mar-90	10.88	2.0	SS	2.0	SS	3.00	8.00
220	SB121SW	KPW	102832	S	SB121SW	18-Oct-89	10.50	2.0	SS	2.0	SS	5.00	10.30
221	SB122SW	KPW	102860	S	SB122SW	14-Nov-89	10.49	2.0	SS	2.0	SS	6.00	11.00
222	SB123NE	KPW	102895	S	SB123NE	15-Jan-90	8.26	2.0	SS	2.0	SS	3.50	8.50
223	SB123SWR	KPW	103402	S	SB123SWR	31-Jan-92	8.90	2.0	SS	2.0	SS	4.80	9.70
224	SB126SW	KPW	102864	S	SB126SW	16-Nov-89	10.02	2.0	SS	2.0	SS	5.35	10.35
225	SB129NW	KPW	101017	S	SB129NW	24-Jul-81	11.01	2.0	PVC	2.0	PVC	3.10	8.10
226	SB129SE	KPW	102946	S	SB129SE	07-Mar-90	8.28	2.0	SS	2.0	SS	4.30	8.80
227	SB129W	KPW	103584	S	SB129W	13-May-93	13.67	2.0	PVC	2.0	PVC	4.00	14.00
228	SB130SW	KPW	102863	S	SB130SW	16-Nov-89	9.98	2.0	SS	2.0	SS	4.25	9.25
229	SB134E	KPW	102855	S	SB134E	17-Nov-89	16.83	2.0	SS	2.0	SS	7.00	17.00
230	SB135E2	KPW	103279	S	SB135E2	30-Oct-91	13.43	2.0	SS	2.0	SS	9.00	14.00
231	SB135E3	KPW	103280	S	SB135E3	23-Oct-91	15.95	2.0	SS	2.0	SS	11.50	16.50
232	SB135N	KPW	102501	S	SB135N	24-Jun-83	15.73	1.5	PVC	1.5	PVC	5.95	16.00

TABLE [illegible].1

KPW ACTIVE WELLS

	1	14	15	16	17	18	19	20	21
	WELL	NORTH	EAST	REF ELEV	GS ELEV	TOP SCR ELEV	B SCR ELEV	DRILLER	CONSTRUCTION OVERSIGHT
195	SB102S	1167830.67	749945.60	234.25	232.51	228.01	216.01	EMPIRE SOILS	H&A
196	SB102W	1167924.08	749850.01	234.29	232.50	227.50	217.00	EMPIRE SOILS	H&A
197	SB105NE	1167218.50	751632.90	235.27	233.32	228.82	215.72	KODAK PARK DRILLING	DAMES & MOORE
198	SB105SER	1166815.36	751410.92	225.74	226.16	215.76	210.76	PENN DRILLING	H&A
199	SB108SW	1167715.08	749549.30	233.19	233.53	228.53	219.33	PARRATT WOLFFE	RADIAN
200	SB110S	1167258.69	749575.72	232.06	232.38		221.38	EMPIRE SOILS	H&A
201	SB112W	1167119.20	750468.91	236.68	235.00	226.50	221.50	HARDIN HUBER	ECKENFELDER
202	SB114SWR	1166795.32	750704.46	225.90	225.92	221.29	215.89	ROCH DRILLING	H&A
203	SB115E	1166973.33	750302.50	238.44	236.80	230.90	225.90	HARDIN HUBER	ECKENFELDER
204	SB115N2R	167151.31	750234.79	233.29	234.38	228.48	218.78	PENN DRILLING	RADIAN
205	SB115S	1166910.02	750240.10	232.60	233.00	230.50	220.50	KODAK PARK DRILLING	KODAK
206	SB115W	1166950.29	750139.85	233.97	231.80	228.80	223.80	HARDIN HUBER	ECKENFELDER
207	SB117NE	1167168.87	749801.18	232.51	232.89	226.79	221.79	PENN DRILLING	ECKENFELDER
208	SB119NE	1167886.50	750556.50	233.54	230.80	225.90	214.90	KODAK PARK DRILLING	DAMES & MOORE
209	SB119NE2	1167901.93	750297.02	229.80	229.80	225.10	215.10	PARRATT WOLFFE	RADIAN
210	SB119NW	1167909.27	750145.64	232.49	230.34	226.42	216.42	PARRATT WOLFFE	RADIAN
211	SB119S	1167251.30	750212.29	234.01	234.51	223.51	218.51	HARDIN HUBER	ECKENFELDER
212	SB119SW	1167258.60	750093.50	233.78	234.09	223.59	218.59	KODAK PARK DRILLING	KODAK
213	SB119W	1167535.20	750300.40	232.68	233.50	230.61	220.61	KODAK PARK DRILLING	KODAK
214	SB119W4R	1167402.51	750311.36	233.75	234.64	229.04	219.34	PENN DRILLING	RADIAN
215	SB120E	1167003.71	750073.91	233.78	234.24	229.24	224.24	HARDIN HUBER	ECKENFELDER
216	SB120NW	1167153.62	749954.14	233.76	234.97	227.60	222.60	HARDIN HUBER	ECKENFELDER
217	SB120SW	1166819.72	749961.78	232.95	232.12	224.62	220.62	KODAK PARK DRILLING	KODAK
218	SB120SW2	1166889.72	749920.39	235.15	233.10	227.90	217.90	HARDIN HUBER	ECKENFELDER
219	SB121N	1167050.10	749936.44	236.68	234.30	231.30	226.30	HARDIN HUBER	ECKENFELDER
220	SB121SW	1166978.78	749902.17	232.98	232.78	227.78	222.48	HARDIN HUBER	ECKENFELDER
221	SB122SW	1166855.55	749716.71	231.36	231.87	225.87	220.87	PENN DRILLING	ECKENFELDER
222	SB123NE	1167098.73	749750.38	233.01	233.55	230.05	225.05	HARDIN HUBER	ECKENFELDER
223	SB123SWR	1166979.80	749713.50	231.19	232.29	227.49	222.59	PENN DRILLING	RADIAN
224	SB126SW	1166961.57	749541.44	232.21	232.54	227.19	222.19	PENN DRILLING	ECKENFELDER
225	SB129NW	1167748.20	749348.80	234.51	231.70	228.50	223.50	KODAK PARK DRILLING	KODAK
226	SB129SE	1167337.39	749482.69	231.59	232.21	227.91	223.41	PENN DRILLING	ECKENFELDER
227	SB129W	1167623.72	749292.87	231.87	232.20		218.20	EMPIRE SOILS	H&A
228	SB130SW	1166902.50	749306.27	233.23	232.50	228.25	223.25	PENN DRILLING	ECKENFELDER
229	SB134E	1167310.42	750590.99	233.48	233.40	226.65	216.65	HARDIN HUBER	ECKENFELDER
230	SB135E2	1167617.03	751147.75	230.48	231.05	222.05	217.05	ROCH DRILLING	RADIAN
231	SB135E3	1167362.59	751381.55	229.74	230.29	218.79	213.79	ROCH DRILLING	RADIAN
232	SB135N	1167822.30	750668.50	229.38	229.64	223.70	213.65	KODAK PARK DRILLING	KODAK

TABLE [illegible].1

KPW ACTIVE WELLS

	1	22	23
	WELL	REPORT / PROJECT	DRILLING
			METHOD I
195	SB102S		AUGERS TO 17.2
196	SB102W		AUGERS TO 16.3
197	SB105NE		
198	SB105SER	REPORT ON KPW SOUTHEAST HYDROGEO INVESTIG - AUG 1992	AUGERS TO 12.0
199	SB108SW	INTERIM REPORT RESULTS OF PHASE I HYDROGEOLOGIC INVESTIGATION NORTHERN KPW - MAY 1993	AUGERS TO 15.5
200	SB110S		AUGERS TO 11.4
201	*SB112W*	*KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991*	*AUGERS TO 16.5*
202	SB114SWR		AUGERS TO 11.3
203	SB115E	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 16.5
204	SB115N2R	MONITORING WELL REHABILITATION PROJECT SUMMARY OF RESULTS - MAR 1992	AUGERS TO 16.0 FT.
205	SB115S		AUGERS TO 12.5
206	SB115W	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 10.0
207	SB117NE	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 11.3
208	SB119NE		AUGERS TO ~ 20
209	SB119NE2	INTERIM REPORT RESULTS OF PHASE I HYDROGEOLOGIC INVESTIGATION NORTHERN KPW - MAY 1993	AUGERS TO 15.1
210	SB119NW	INTERIM REPORT RESULTS OF PHASE I HYDROGEOLOGIC INVESTIGATION NORTHERN KPW - MAY 1993	AUGERS TO 14.3
211	SB119S	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 16.1
212	SB119SW		AUGERS TO 15.5
213	SB119W		AUGERS TO 12.9
214	SB119W4R	MONITORING WELL REHABILITATION PROJECT SUMMARY OF RESULTS - MAR 1992	AUGERS TO 17.2
215	*SB120E*	*KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991*	*AUGERS TO 14.7*
216	SB120NW	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 18.5
217	SB120SW		AUGERS TO 11.5
218	SB120SW2	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 15.2
219	SB121N	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 15.4
220	SB121SW	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 14.8
221	SB122SW	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 12.2
222	SB123NE	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 12.5
223	SB123SWR	MONITORING WELL REHABILITATION PROJECT SUMMARY OF RESULTS - MAR 1992	AUGERS TO 10.0
224	SB126SW	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 10.6
225	SB129NW		AUGERS TO 8.1
226	SB129SE	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 8.9
227	SB129W		AUGERS TO 14.3
228	SB130SW	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 9.5
229	SB134E	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 17.0
230	SB135E2		AUGERS TO 21.0
231	SB135E3		AUGERS TO 20.4
232	SB135N		AUGERS TO 16.3

TABLE 5.1

KPW ACTIVE WELLS

	1	24	25	26
	WELL	DRILLING	DRILLING	PC
		METHOD 2	METHOD 3	TYPE
195	SB102S			
196	SB102W			STICK-UP
197	SB105NE			STICK-UP
198	SB105SER			FLUSH
199	SB108SW			CURB BOX
200	SB110S			FLUSH
201	SB112W			STICK-UP
202	SB114SWR			FLUSH
203	SB115E			STICK-UP
204	SB115N2R			FLUSH
205	SB115S			STICK-UP
206	SB115W			STICK-UP
207	SB117NE			STICK-UP
208	SB119NE			NONE
209	SB119NE2			CURB BOX
210	SB119NW			SS STICK-UP
211	SB119S			FLUSH
212	SB119SW			FLUSH
213	SB119W			FLUSH
214	SB119W4R			FLUSH
215	SB120E			FLUSH
216	SB120NW			FLUSH
217	SB120SW			FLUSH
218	SB120SW2			STICK-UP
219	SB121N			STICK-UP
220	SB121SW			FLUSH
221	SB122SW			FLUSH
222	SB123NE			FLUSH
223	SB123SWR			FLUSH
224	SB126SW			FLUSH
225	SB129NW			STICK-UP
226	SB129SE	10" REAM TO 8.9		FLUSH
227	SB129W			FLUSH
228	SB130SW	10" REAM TO 9.5		STICK-UP
229	SB134E	8" REAM TO 17.0		FLUSH
230	SB135E2			FLUSH
231	SB135E3			FLUSH
232	SB135N			FLUSH

TABLE [illegible].1

KPW ACTIVE WELLS

	1	2	3	4	5	6	7	8	9	10	11	12	13
	WELL	PARK SECTION	AQMS LOC ID	STRAT INTERVAL	BORING	INSTALL DATE	WELL LENGTH (FEET)	RISER DIAM (INCHES)	RISER TYPE	SCREEN DIAM (INCHES)	SCREEN TYPE	TOP SCR DEPTH (FEET)	BOT SCR DEPTH (FEET)
233	SB135NE	KPW	102157	S	SB135NE	28-Jun-83	16.13	1.5	PVC	1.5	PVC	6.45	16.20
234	SB135S	KPW	102504	S	SB135S	21-Jun-83	22.62	1.5	PVC	1.5	PVC	8.25	23.00
235	SB135SER	KPW	103383	S	SB135SER	06-Mar-92	19.40	2.0	PVC	2.0	PVC	9.70	19.70
236	SB135W	KPW	102502	S	SB135W	23-Jun-83	18.40	1.5	PVC	1.5	PVC	3.85	18.80
237	SB137S	KPW	102917	S	SB137S	30-Jan-90	16.13	2.0	SS	2.0	SS	7.50	12.50
238	SB137S2	KPW	102923	S	SB137S2	13-Feb-90	12.94	2.0	SS	2.0	SS	5.50	10.50
239	SB137SW	KPW	101018	S	SB137SW	17-Nov-79	13.36	4.0	SS	4.0	SS	5.50	10.50
240	SB139SW	KPW	103474	S	SB139SW	15-Oct-92	19.23	2.0	SS	2.0	SS	4.92	19.92
241	SB140E	KPW	101019	S	SB140E	16-Sep-81	22.42	2.0	PVC	2.0	PVC	15.00	20.00
242	SB140W	KPW	102822	S	SB140W	03-Oct-89	18.46	2.0	SS	2.0	SS	8.20	18.90
243	SB142WR	KPW	103131	S	SB142WR	19-Dec-90	19.60	2.0	SS	2.0	SS	12.10	17.10
244	SB143SE	KPW	103478	S	SB143SE	13-Oct-92	16.83	2.0	PVC	2.0	PVC	6.40	16.40
245	SB145NW	KPW	101744	S	SB145NW	16-Dec-85	16.44	2.0	PVC	2.0	PVC	11.90	16.90
246	SB145S	KPW	103591	S	SB145S	26-May-93	13.62	2.0	PVC	2.0	PVC	4.00	14.00
247	SB145SE	KPW	103472	S	SB145SE	21-Oct-92	17.49	2.0	SS	2.0	SS	5.00	15.00
248	SB148S	KPW	102949	S	SB148S	06-Mar-90	7.90	2.0	SS	2.0	SS	4.15	8.10
249	SB151SER	KPW	103398	S	SB151SER	29-Jan-92	15.38	2.0	SS	2.0	SS	8.00	13.00
250	SB153NE	KPW	103277	S	SB153NE	23-Oct-91	12.40	2.0	SS	2.0	SS	8.00	13.00
251	SBD20W	KPW	102155	S	SBD20W	14-Apr-88	13.57	2.0	SS	2.0	SS	6.60	11.60
252	SBD20W2	KPW	102905	S	SBD20W2	09-Jan-90	8.69	2.0	SS	2.0	SS	5.20	9.20
253	SBD20W3	KPW	102881	S	SBD20W3	06-Dec-89	9.80	2.0	SS	2.0	SS	5.20	10.20
254	SBD27S	KPW	103593	S	SBD27S	12-May-93	12.82	2.0	PVC	2.0	PVC	5.00	13.00
255	SBD3E	KPW	102798	S	SBD3E	23-Aug-89	15.51	2.0	SS	2.0	SS	5.80	15.80
256	SL50N	KPW	102962	S	SL50N	19-Mar-90	7.37	2.0	SS	2.0	SS	2.50	7.50
257	SL50N2	KPW	102802	S	SL50N2	18-Aug-89	11.34	2.0	SS	2.0	SS	5.00	10.00
258	SL50NE2	KPW	103348	S	SL50NE2	30-Jan-92	10.99	2.0	SS	2.0	SS	7.00	11.50
259	SL50NW2	KPW	102900	S	SL50NW2	24-Jan-90	13.69	2.0	SS	2.0	SS	9.00	14.30
260	SL50NW3	KPW	102806	S	SL50NW3	29-Jul-89	13.51	2.0	SS	2.0	SS	8.70	13.70
261	SL50NW4	KPW	102961	S	SL50NW4	14-Mar-90	7.90	2.0	SS	2.0	SS	3.10	8.10
262	SL50S	KPW	101702	S	SL50S	02-Dec-85	9.01	2.0	PVC	2.0	PVC	4.40	9.40
263	SL50S2	KPW	102222	S	SL50S2	26-May-87	12.20	2.0	SS	2.0	SS	6.80	12.20
264	SL50SE2	KPW	101005	S	SL50SE2	08-Apr-88	12.53	2.0	SS	2.0	SS	7.90	12.90
265	SL50SW	KPW	101676	S	SL50SW	22-Nov-85	11.86	2.0	PVC	2.0	PVC	7.10	12.10
266	SL50SW2	KPW	102221	S	SL50SW2	26-May-87	12.50	2.0	RS	2.0	SS	7.30	12.60
267	SL50SW3	KPW	102153	S	SL50SW3	07-Apr-88	11.30	2.0	SS	2.0	SS	6.50	11.50
268	SL53N	KPW	103278	S	SL53N	29-Oct-91	16.83	2.0	SS	2.0	SS	7.50	17.50
269	SL55N	KPW	103276	S	SL55N	24-Oct-91	8.05	2.0	SS	2.0	SS	3.50	8.50
270	SL56NW	KPW	101229	S	SL56NW	20-Dec-84	28.09	2.0	PVC	2.0	PVC	8.00	28.00

TABLE [illegible].1

KPW ACTIVE WELLS

	1	14	15	16	17	18	19	20	21
	WELL	NORTH	EAST	REF ELEV	GS ELEV	TOP SCR ELEV	B SCR ELEV	DRILLER	CONSTRUCTION OVERSIGHT
233	SB135NE	1167826.30	751028.60	230.35	230.47	223.97	214.22	KODAK PARK DRILLING	KODAK
234	SB135S	1167284.20	750864.90	232.22	232.59	224.35	209.60	KODAK PARK DRILLING	KODAK
235	SB135SER	1167285.83	751089.55	232.39	232.69	222.99	212.99	PENN DRILLING	H&A
236	SB135W	1167679.20	750522.50	230.86	231.22	227.41	212.46	KODAK PARK DRILLING	KODAK
237	SB137S	1166832.80	749440.32	236.23	232.60	225.10	220.10	PENN DRILLING	ECKENFELDER
238	SB137S2	1166820.75	749454.33	232.54	230.10	224.60	219.60	PENN DRILLING	ECKENFELDER
239	SB137SW	1166921.80	749415.60	235.94	233.00	227.58	222.58	KODAK PARK DRILLING	DAMES & MOORE
240	SB139SW	1167655.74	750080.02	232.21	232.90	227.98	212.98	PARRATT WOLFFE	RADIAN
241	SB140E	1166986.50	751038.50	236.26	233.77	218.84	213.84	KODAK PARK DRILLING	KODAK
242	SB140W	1167092.34	750729.59	234.10	234.54	226.34	215.64	HARDIN HUBER	ECKENFELDER
243	SB142WR	1167031.05	750487.92	236.90	234.40	222.30	217.30	ROCH DRILLING	ECKENFELDER
244	SB143SE	1167859.17	749775.50	231.58	231.85	225.45	215.45	PARRATT WOLFFE	RADIAN
245	SB145NW	1167602.50	749840.90	232.20	232.66	220.76	215.76	KODAK PARK DRILLING	H&A
246	SB145S	1167455.55	749877.01	232.26	232.64	228.64	218.64	EMPIRE SOILS	H&A
247	SB145SE	1167497.77	750099.08	236.66	234.17	229.17	219.17	PARRATT WOLFFE	RADIAN
248	SB148S	1167097.66	749462.83	232.21	232.41	228.26	224.31	PENN DRILLING	ECKENFELDER
249	SB151SER	1168120.90	749938.10	233.71	231.73	223.73	218.73	PENN DRILLING	RADIAN
250	SB153NE	1168128.67	750334.90	230.21	230.81	222.81	217.81	ROCH DRILLING	RADIAN
251	SBD20W	1166673.65	749619.48	235.97	234.01	227.40	222.40	ROCH DRILLING	H&A
252	SBD20W2	1166665.51	749432.19	231.79	232.30	227.10	223.10	PENN DRILLING	ECKENFELDER
253	SBD20W3	1166704.64	749210.97	233.60	234.00	228.80	223.80	PENN DRILLING	ECKENFELDER
254	SBD27S	1167993.96	749407.18	231.67	231.85		218.85	EMPIRE SOILS	H&A
255	SBD3E	1167112.63	750394.12	233.71	234.05	228.20	218.20	HARDIN HUBER	ECKENFELDER
256	SL50N	1166802.91	750595.66	226.42	226.55	224.05	219.05	HARDIN HUBER	ECKENFELDER
257	SL50N2	1166800.26	750475.22	227.25	227.53	220.91	215.91	HARDIN HUBER	ECKENFELDER
258	SL50NE2	1166805.52	751244.34	224.94	225.45	218.45	213.95	PENN DRILLING	H&A
259	SL50NW2	1166757.79	749856.02	231.26	231.87	222.87	217.57	HARDIN HUBER	ECKENFELDER
260	SL50NW3	1166793.85	750072.36	232.01	232.25	223.50	218.50	HARDIN HUBER	ECKENFELDER
261	SL50NW4	1166796.31	750190.16	228.84	229.56	226.34	221.34	HARDIN HUBER	ECKENFELDER
262	SL50S	1166674.60	750679.80	226.93	227.34	222.92	217.92	KODAK PARK DRILLING	H&A
263	SL50S2	1166677.20	750506.80	228.24	228.54	221.74	216.34	ROCH DRILLING	H&A
264	SL50SE2	1166715.27	751496.56	227.39	227.76	219.86	214.86	ROCH DRILLING	H&A
265	SL50SW	1166669.20	750021.00	231.12	231.36	224.26	219.26	KODAK PARK DRILLING	H&A
266	SL50SW2	1166675.80	750372.00	229.03	229.13	221.83	216.53	ROCH DRILLING	H&A
267	SL50SW3	1166680.96	749813.51	232.35	232.65	226.05	221.05	ROCH DRILLING	H&A
268	SL53N	1167947.27	750805.66	229.83	230.50	223.00	213.00	ROCH DRILLING	RADIAN
269	SL55N	1168269.77	749520.26	229.03	229.48	225.98	220.98	ROCH DRILLING	RADIAN
270	SL56NW	1168135.90	751514.70	223.83	224.09	215.74	195.74	KODAK PARK DRILLING	KODAK

TABLE [illegible].1

KPW ACTIVE WELLS

	1	22	23
	WELL	REPORT / PROJECT	DRILLING METHOD 1
233	SB135NE		AUGERS TO 17.14
234	SB135S		AUGERS TO 23.65
235	SB135SER	REPORT ON KPW SOUTHEAST HYDROGEO INVESTIG - AUG 1992	AUGERS TO 20.0
236	SB135W		AUGERS TO 19.3
237	SB137S	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 12.5
238	SB137S2	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 10.5
239	SB137SW		AUGERS TO 10.0
240	SB139SW	INTERIM REPORT RESULTS OF PHASE I HYDROGEOLOGIC INVESTIGATION NORTHERN KPW - MAY 1993	AUGERS TO 20.5
241	SB140E		AUGERS TO 23.0
242	SB140W	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 21.9
243	SB142WR		AUGERS TO 17.1
244	SB143SE	INTERIM REPORT RESULTS OF PHASE I HYDROGEOLOGIC INVESTIGATION NORTHERN KPW - MAY 1993	AUGERS TO 17.2
245	SB145NW		AUGERS TO 17.2
246	SB145S		AUGERS TO 14.7
247	SB145SE	INTERIM REPORT RESULTS OF PHASE I HYDROGEOLOGIC INVESTIGATION NORTHERN KPW - MAY 1993	AUGERS TO 17.0
248	SB148S	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 8.4
249	SB151SER	MONITORING WELL REHABILITATION PROJECT SUMMARY OF RESULTS - MAR 1992	AUGERS TO 13.5
250	SB153NE		AUGERS TO 14.4
251	SBD20W		
252	SBD20W2	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 9.2
253	SBD20W3	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 10.2
254	SBD27S		AUGERS TO 13.8
255	SBD3E	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 15.8
256	SL50N	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 9.8
257	SL50N2	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 11.2
258	SL50NE2	REPORT ON KPW SOUTHEAST HYDROGEO INVESTIG - AUG 1992	AUGERS TO 11.5
259	SL50NW2	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 14.3
260	SL50NW3	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 14.3
261	SL50NW4	KPW DISTILLING AND SOUTHWEST KPW AREAS HYDROGEO INVESTIG REPORT - MAY 1991	AUGERS TO 11.3
262	SL50S		AUGERS TO 12.4
263	SL50S2		AUGERS TO 13.0
264	SL50SE2		
265	SL50SW		AUGERS TO 12.7
266	SL50SW2		AUGERS TO 13.6
267	SL50SW3		AUGERS TO 11.5
268	SL53N		AUGERS TO 19.1
269	SL55N		AUGERS TO 9.0
270	SL56NW		AUGERS TO 31.5

TABLE [illegible].1

KPW ACTIVE WELLS

	1	24	25	26
	WELL	DRILLING	DRILLING	PC
		METHOD 2	METHOD 3	TYPE
233	SB135NE			FLUSH
234	SB135S			FLUSH
235	SB135SER			FLUSH
236	SB135W			FLUSH
237	SB137S			STICK-UP
238	SB137S2			STICK-UP
239	SB137SW			STICK-UP
240	SB139SW			CURB BOX
241	SB140E			STICK-UP
242	SB140W			FLUSH
243	SB142WR			STICK-UP
244	SB143SE			CURB BOX
245	SB145NW			FLUSH
246	SB145S			FLUSH
247	SB145SE			SS STICK-UP
248	SB148S			STICK-UP
249	SB151SER			STICK-UP
250	SB153NE			FLUSH
251	SBD20W			STICK-UP
252	SBD20W2			FLUSH
253	SBD20W3			FLUSH
254	SBD27S			FLUSH
255	SBD3E			FLUSH
256	SL50N			FLUSH
257	SL50N2			FLUSH
258	SL50NE2			FLUSH
259	SL50NW2			FLUSH
260	SL50NW3			FLUSH
261	SL50NW4			FLUSH
262	SL50S			FLUSH
263	SL50S2			FLUSH
264	SL50SE2			FLUSH
265	SL50SW			FLUSH
266	SL50SW2			FLUSH
267	SL50SW3			FLUSH
268	SL53N			FLUSH
269	SL55N			FLUSH
270	SL56NW			FLUSH

TABLE [illegible].1

KPW ACTIVE WELLS

	1	2	3	4	5	6	7	8	9	10	11	12	13
	WELL	PARK SECTION	AQMS LOC ID	STRAT INTERVAL	BORING	INSTALL DATE	WELL LENGTH (FEET)	RISER DIAM (INCHES)	RISER TYPE	SCREEN DIAM (INCHES)	SCREEN TYPE	TOP SCR DEPTH (FEET)	BOT SCR DEPTH (FEET)
271	SWS	KPW	102723	S	SWS	26-May-89	17.82	2.0	SS	2.0	SS	12.50	17.50
272	SWS2	KPW	102724	S	SWS2	31-May-89	11.09	2.0	SS	2.0	SS	5.90	11.30
273	SWS6	KPW	102728	S	SWS6	02-Jun-89	9.74	2.0	SS	2.0	SS	5.20	10.20
274	SWS7	KPW	102729	S	SWS7	02-Jun-89	10.29	2.0	SS	2.0	SS	5.50	10.90
275	SWS8	KPW	102730	S	SWS8	07-Jun-89	19.84	2.0	SS	2.0	SS	15.10	20.10
276	SWS9	KPW	102731	S	SWS9	02-Jun-89	18.45	2.0	SS	2.0	SS	14.40	19.80

TABLE [illegible].1

KPW ACTIVE WELLS

	1	14	15	16	17	18	19	20	21
	WELL	NORTH	EAST	REF	GS	TOP SCR	B SCR	DRILLER	CONSTRUCTION
				ELEV	ELEV	ELEV	ELEV		OVERSIGHT
271	SWS	1166533.73	749138.33	245.02	245.00	232.20	227.20	ROCH DRILLING	H&A
272	SWS2	1166513.14	749559.46	233.69	234.08	228.00	222.60	ROCH DRILLING	H&A
273	SWS6	1166548.41	750983.23	226.43	226.80	221.69	216.69	ROCH DRILLING	H&A
274	SWS7	1166551.55	751417.51	229.50	230.07	224.61	219.21	ROCH DRILLING	H&A
275	SWS8	1166286.85	751710.83	239.86	240.21	225.02	220.02	ROCH DRILLING	H&A
276	SWS9	1166249.05	751108.17	243.84	245.23	230.79	225.39	ROCH DRILLING	H&A

TABLE [illegible].1

KPW ACTIVE WELLS

	1	22	23
	WELL	REPORT / PROJECT	DRILLING METHOD 1
271	SWS	OVERBURDEN MONITORING WELL INSTALL. TECH. MEMO. OFFSITE HYDROGEO INVESTIG SA NO.1 - JULY 1989	AUGERS TO 21.5
272	SWS2	OVERBURDEN MONITORING WELL INSTALL. TECH. MEMO. OFFSITE HYDROGEO INVESTIG SA NO.1 - JULY 1989	AUGERS TO 12.1
273	SWS6	OVERBURDEN MONITORING WELL INSTALL. TECH. MEMO. OFFSITE HYDROGEO INVESTIG SA NO.1 - JULY 1989	AUGERS TO 13.4
274	SWS7	OVERBURDEN MONITORING WELL INSTALL. TECH. MEMO. OFFSITE HYDROGEO INVESTIG SA NO.1 - JULY 1989	AUGERS TO 12.5
275	SWS8	OVERBURDEN MONITORING WELL INSTALL. TECH. MEMO. OFFSITE HYDROGEO INVESTIG SA NO.1 - JULY 1989	AUGERS TO 21.9
276	SWS9	OVERBURDEN MONITORING WELL INSTALL. TECH. MEMO. OFFSITE HYDROGEO INVESTIG SA NO.1 - JULY 1989	AUGERS TO 20.7

TABLE 5.1

KPW ACTIVE WELLS

	1	24	25	26
	WELL	DRILLING	DRILLING	PC
		METHOD 2	METHOD 3	TYPE
271	SWS			FLUSH
272	SWS2			FLUSH
273	SWS6			FLUSH
274	SWS7			FLUSH
275	SWS8			FLUSH
276	SWS9			FLUSH

TABLE [illegible].1

KPX ACTIVE WELLS

	1 WELL	2 PARK SECTION	3 AQMS LOC ID	4 STRAT INTERVAL	5 BORING	6 INSTALL DATE	7 WELL LENGTH (FEET)	8 RISER DIAM (INCHES)	9 RISER TYPE	10 SCREEN DIAM (INCHES)	11 SCREEN TYPE	12 TOP SCR DEPTH (FEET)	13 BOT SCR DEPTH (FEET)
1	GB204NW	KPX	102411	G	GB204NW	19-Apr-83	27.42	1.50	PVC	1.50	ROCK	18.90	27.60
2	GB205NE	KPX	101022	G	GB205NE	12-Jun-81	43.47	4.00	PVC	3.00	ROCK	25.20	40.20
3	GB206E	KPX	103424	G	GB206E	8-Oct-92	22.28	4.00	PVC	3.00	ROCK	13.50	22.50
4	GB206NW2	KPX	103423	G	GB206NW2	6-Nov-92	30.40	4.00	PVC	3.00	ROCK	13.00	28.30
5	GB206SW	KPX	103425	G	GB206SW	10-Nov-92	31.77	4.00	PVC	3.00	ROCK	14.50	29.80
6	GB207E	KPX	103467	G	GB207E	28-Sep-92	18.01	1.00	PVC	1.00	PVC	15.00	18.50
7	GB208NE2	KPX	103218	G	GB208NE2	12-Sep-91	33.97	4.00	SS	3.00	ROCK	22.50	32.20
8	GB216W	KPX	103459	G	GB216W	30-Sep-92	32.85	2.00	PVC	2.00	PVC	27.00	33.00
9	GB218E	KPX	103221	G	GB218E	6-Sep-91	31.70	4.00	SS	3.00	ROCK	20.00	29.80
10	GB218NE	KPX	103428	G	GB218NE	24-Sep-92	35.58	4.00	PVC	3.00	ROCK	19.00	33.70
11	GB218NW	KPX	103222	G	GB218NW	10-Sep-91	27.67	4.00	SS	3.00	ROCK	19.00	28.10
12	GB218SE	KPX	103223	G	GB218SE	12-Sep-91	32.63	4.00	SS	3.00	ROCK	20.90	30.80
13	GB218W4	KPX	103432	G	GB218W4	26-Oct-92	29.51	4.00	PVC	3.00	ROCK	20.20	29.80
14	GQB208NE2	KPX	103430	GQ	GQB208NE2	20-Oct-92	76.66	2.00	PVC	2.00	PVC	65.20	75.20
15	GQB218E	KPX	103436	GQ	GQB218E	6-Oct-92	66.92	2.00	PVC	2.00	PVC	55.10	65.10
16	GQB218NE	KPX	103429	GQ	GQB218NE	30-Sep-92	68.06	2.00	PVC	2.00	PVC	56.50	66.50
17	GQB218NW	KPX	103426	GQ	GQB218NW	3-Nov-92	62.82	2.00	PVC	2.00	PVC	45.30	60.30
18	GQB218SE	KPX	103435	GQ	GQB218SE	14-Oct-92	77.52	2.00	PVC	2.00	PVC	65.40	75.40
19	IB205NE	KPX	102409	I	IB205NE	10-Jun-81	24.53	2.00	PVC	2.00	PVC	16.30	21.30
20	PB218N	KPX	103446	S	PB218N	26-Aug-92							
21	PB218NW	KPX	103002	S	PB218NW	5-Jun-90	17.29	8.00	SS	8.00	SS	3.50	18.00
22	PB218W	KPX	103001	S	PB218W	11-Jun-90	16.97	8.00	SS	8.00	SS	4.00	18.90
23	SB203S	KPX	103458	S	SB203S	28-Sep-92	16.44	2.00	PVC	2.00	PVC	4.50	14.50
24	SB203W	KPX	103380	S	SB203W	17-Mar-92	22.72	2.00	PVC	2.00	PVC	6.00	20.50
25	SB204NW	KPX	102410	S	SB204NW	19-Apr-83	14.60	1.50	PVC	1.50	PVC	5.00	14.76
26	SB205NE	KPX	101023	S	SB205NE	4-Jun-81	16.44	2.00	PVC	2.00	PVC	8.10	13.10
27	SB206E	KPX	103137	S	SB206E	21-Jan-91	11.90	2.00	PVC	2.00	PVC	5.00	12.00
28	SB206NE	KPX	103087	S	SB206NE	26-Sep-90	14.88	2.00	SS	2.00	SS	8.10	12.70
29	SB206NW	KPX	103086	S	SB206NW	2-Oct-90	18.09	2.00	SS	2.00	SS	6.00	15.60
30	SB206NW2	KPX	103214	S	SB206NW2	29-Aug-91	14.52	2.00	PVC	2.00	PVC	7.40	11.90
31	SB206S	KPX	103482	S	SB206S	11-Nov-92	15.35	1.00	PVC	1.00	PVC	5.80	15.80
32	SB206S2	KPX	103483	S	SB206S2	11-Nov-92	15.98	1.00	PVC	1.00	PVC	6.50	16.50
33	SB206S3	KPX	103484	S	SB206S3	12-Nov-92	15.13	1.00	PVC	1.00	PVC	5.60	15.60
34	SB206S4	KPX	103485	S	SB206S4	12-Nov-92	15.14	1.00	PVC	1.00	PVC	5.80	15.80
35	SB206SE	KPX	103215	S	SB206SE	27-Aug-91	18.26	2.00	PVC	2.00	PVC	6.50	16.00
36	SB206SWR	KPX	103422	S	SB206SWR	9-Nov-92	15.69	2.00	PVC	2.00	PVC	3.50	13.50
37	SB206W	KPX	103481	S	SB206W	10-Nov-92	12.94	1.00	PVC	1.00	PVC	3.20	13.20
38	SB208NE	KPX	103216	S	SB208NE	30-Aug-91	23.84	2.00	PVC	2.00	PVC	6.90	21.40
39	SB208NE2	KPX	103217	S	SB208NE2	29-Aug-91	23.06	2.00	PVC	2.00	PVC	6.50	21.00

TABLE 5.1

KPX ACTIVE WELLS

	1	14	15	16	17	18	19	20	21
	WELL	NORTH	EAST	REF	GS	TOP SCR	BOT SCR	DRILLER	CONSTRUCTION
				ELEV	ELEV	ELEV	ELEV		OVERSIGHT
1	GB204NW	1167102.85	746950.99	245.60	245.81	226.88	218.18	KODAK PARK DRILLER	
2	GB205NE	1168452.03	746910.69	249.77	247.18	221.30	206.30	KODAK PARK DRILLER	
3	GB206E	1168012.51	748754.40	232.90	233.12	219.62	210.62	PARRATT WOLFF	BLASLAND, BOUCK, LEE
4	GB206NW2	1168150.73	748605.05	236.24	234.14	221.14	205.84	PARRATT WOLFF	BLASLAND, BOUCK, LEE
5	GB206SW	1167942.92	748573.97	236.47	234.50	220.00	204.70	PARRATT WOLFF	BLASLAND, BOUCK, LEE
6	GB207E	1166773.51	748414.09	239.95	240.44	225.44	221.94	PENN DRILLING	BLASLAND, BOUCK, LEE
7	GB208NE2	1167739.39	748251.27	244.31	242.54	220.04	210.34	PENN DRILLING	BLASLAND, BOUCK, LEE
8	GB216W	1166574.19	747910.16	250.05	250.20	223.20	217.20	PENN DRILLING	BLASLAND, BOUCK, LEE
9	GB218E	1167633.10	748824.74	238.08	236.18	216.18	206.38	PENN DRILLING	BLASLAND, BOUCK, LEE
10	GB218NE	1167758.04	748825.65	237.98	236.10	217.10	202.40	PARRATT WOLFF	BLASLAND, BOUCK, LEE
11	GB218NW	1167804.48	748573.54	237.21	237.40	218.64	209.54	PENN DRILLING	BLASLAND, BOUCK, LEE
12	GB218SE	1167560.98	748661.71	240.26	238.43	217.53	207.63	PENN DRILLING	BLASLAND, BOUCK, LEE
13	GB218W4	1167696.87	748535.01	237.71	238.00	217.80	208.20	PARRATT WOLFF	BLASLAND, BOUCK, LEE
14	GQB208NE2	1167748.70	748248.78	243.89	242.43	177.23	167.23	PARRATT WOLFF	BLASLAND, BOUCK, LEE
15	GQB218E	1167638.89	748829.19	237.82	236.00	180.90	170.90	PARRATT WOLFF	BLASLAND, BOUCK, LEE
16	GQB218NE	1167757.55	748830.43	237.77	236.22	179.71	169.71	PARRATT WOLFF	BLASLAND, BOUCK, LEE
17	GQB218NW	1167802.00	748528.97	240.62	238.10	192.80	177.80	PARRATT WOLFF	BLASLAND, BOUCK, LEE
18	GQB218SE	1167559.43	748651.39	240.94	238.82	173.42	163.42	PARRATT WOLFF	BLASLAND, BOUCK, LEE
19	IB205NE	1168439.32	746910.75	249.73	247.10	230.20	225.20	KODAK PARK DRILLER	
20	PB218N	1167811.18	748618.22	244.35	243.70				BLASLAND, BOUCK, LEE
21	PB218NW	1167698.06	748497.37	236.98	238.40	234.69	220.19	ROCH DRILLING	BLASLAND, BOUCK, LEE
22	PB218W	1167674.88	748569.52	235.77	238.43	234.20	219.30	ROCH DRILLING	BLASLAND, BOUCK, LEE
23	SB203S	1166526.98	747044.90	252.09	250.15	245.65	235.65	PENN DRILLING	BLASLAND, BOUCK, LEE
24	SB203W	1166697.20	746410.40	250.52	248.80	242.80	228.30	PENN DRILLING	BLASLAND, BOUCK, LEE
25	SB204NW	1167102.23	746947.03	245.78	245.94	240.94	231.18	KODAK PARK DRILLER	
26	SB205NE	1168444.68	746910.60	249.74	247.25	238.30	233.30	KODAK PARK DRILLER	
27	SB206E	1168016.53	748752.53	233.90	234.00	229.00	222.00	ROCH DRILLING	BLASLAND, BOUCK, LEE
28	SB206NE	1168329.76	749007.72	235.93	234.15	226.05	221.45	ROCH DRILLING	BLASLAND, BOUCK, LEE
29	SB206NW	1168295.55	748362.85	241.18	239.19	233.19	223.59	ROCH DRILLING	BLASLAND, BOUCK, LEE
30	SB206NW2	1168144.30	748598.13	235.98	233.86	226.46	221.96	PENN DRILLING	BLASLAND, BOUCK, LEE
31	SB206S	1167848.52	748626.51	234.55	235.00	229.20	219.20	PARRATT WOLFF	BLASLAND, BOUCK, LEE
32	SB206S2	1167849.11	748673.01	234.52	235.04	228.54	218.54	PARRATT WOLFF	BLASLAND, BOUCK, LEE
33	SB206S3	1167856.62	748717.75	233.99	234.46	228.86	218.86	PARRATT WOLFF	BLASLAND, BOUCK, LEE
34	SB206S4	1167858.65	748811.05	234.46	235.12	229.32	219.32	PARRATT WOLFF	BLASLAND, BOUCK, LEE
35	SB206SE	1167869.31	748752.57	236.45	234.69	228.19	218.69	PENN DRILLING	BLASLAND, BOUCK, LEE
36	SB206SWR	1167935.98	748574.50	236.79	234.60	231.10	221.10	PARRATT WOLFF	BLASLAND, BOUCK, LEE
37	SB206W	1168073.54	748597.34	234.11	234.37	231.17	221.17	PARRATT WOLFF	BLASLAND, BOUCK, LEE
38	SB208NE	1167567.57	748312.69	245.48	243.54	236.64	222.14	PENN DRILLING	BLASLAND, BOUCK, LEE
39	SB208NE2	1167727.30	748248.92	244.26	242.70	236.20	221.70	PENN DRILLING	BLASLAND, BOUCK, LEE

TABLE .1

KPX ACTIVE WELLS

	1	22	23	24
	WELL	REPORT / PROJECT	DRILLING	DRILLING
			METHOD 1	METHOD 2
1	GB204NW	OBSERVATION WELLS	AUGERS TO 17.6	AX CORE TO 27.6
2	GB205NE	OBSERVATION WELLS	AUGERS TO 25.2	NX CORE TO 40.2
3	GB206E	NE KPX PHASE III HYDROGEOLOGIC INVESTIG - MAY 1993	AUGERS TO 13.5	NX CORE TO 22.5
4	GB206NW2	NE KPX PHASE III HYDROGEOLOGIC INVESTIG - MAY 1993	AUGERS TO 13.0	NX CORE TO 28.3
5	GB206SW	NE KPX PHASE III HYDROGEOLOGIC INVESTIG - MAY 1993	AUGERS TO 13.8	NX CORE TO 29.8
6	GB207E	KPX SOUTH FENCELINE SHALLOW HYDROGEO INVESTIG - MAR 1993	AUGERS TO 13.7	CORE TO 18.5
7	GB208NE2	NE KPX PHASE II HYDROGEO INVESTIG - JAN 1992	AUGERS TO 21.6	NX CORE TO 32.3
8	*GB216W*	*KPX SOUTH FENCELINE SHALLOW HYDROGEO INVESTIG - MAR 1993*	*AUGERS TO 23.0*	NX CORE TO 38.0
9	GB218E	NE KPX PHASE II HYDROGEO INVESTIG - JAN 1992	AUGERS TO 19.0	NX CORE TO 29.8
10	GB218NE	NE KPX PHASE III HYDROGEOLOGIC INVESTIG - MAY 1993	AUGERS TO 18.0	NX CORE TO 34.9
11	GB218NW	NE KPX PHASE II HYDROGEO INVESTIG - JAN 1992	AUGERS TO 19.0	NX CORE TO 28.7
12	GB218SE	NE KPX PHASE II HYDROGEO INVESTIG - JAN 1992	AUGERS TO 20.9	NX CORE TO 30.8
13	GB218W4	NE KPX PHASE III HYDROGEOLOGIC INVESTIG - MAY 1993	AUGERS TO 20.2	NX CORE TO 29.8
14	GQB208NE2	NE KPX PHASE III HYDROGEOLOGIC INVESTIG - MAY 1993	AUGERS TO 20.4	NX CORE TO 75.2
15	GQB218E	NE KPX PHASE III HYDROGEOLOGIC INVESTIG - MAY 1993	AUGERS TO 18.	NX CORE TO 67.5
16	GQB218NE	NE KPX PHASE III HYDROGEOLOGIC INVESTIG - MAY 1993	AUGERS TO 18.0	NX CORE TO 65.9
17	GQB218NW	NE KPX PHASE III HYDROGEOLOGIC INVESTIG - MAY 1993	AUGERS TO 20.5	NX CORE TO 60.0
18	GQB218SE	NE KPX PHASE III HYDROGEOLOGIC INVESTIG - MAY 1993	AUGERS TO 22.0	NX CORE TO 75.1
19	*IB205NE*	*OBSERVATION WELLS*	*AUGERS TO 22.0*	
20	PB218N	NE KPX OVERBURDEN GW MIGRATION CONTROL SYSTEM TRENCH		
21	PB218NW	NORTH KPX FENCELINE HYDROGEO INVESTIG - DEC 1990	AUGERS TO 19.5	
22	PB218W	NORTH KPX FENCELINE HYDROGEO INVESTIG - DEC 1990	AUGERS TO 19.5	
23	SB203S	KPX SOUTH FENCELINE SHALLOW HYDROGEO INVESTIG - MAR 1993	AUGERS TO 16.0	
24	SB203W	KPX SOUTH FENCELINE SHALLOW HYDROGEO INVESTIG - MAR 1993	AUGERS TO 21.5	
25	SB204NW	OBSERVATION WELLS	AUGERS TO 17.2	
26	SB205NE	OBSERVATION WELLS	AUGERS TO 13.1	
27	SB206E	NORTH KPX FENCELINE HYDROGEO INVESTIG - DEC 1990	AUGERS TO 12.5	
28	SB206NE	NORTH KPX FENCELINE HYDROGEO INVESTIG - DEC 1990	AUGERS TO 13.2	
29	SB206NW	NORTH KPX FENCELINE HYDROGEO INVESTIG - DEC 1990	AUGERS TO 16.1	
30	*SB206NW2*	*NE KPX PHASE II HYDROGEO INVESTIG - JAN 1992*	*AUGERS TO 12.5*	
31	SB206S	NE KPX PHASE III HYDROGEOLOGIC INVESTIG - MAY 1993	AUGERS TO 15.8	
32	SB206S2	NE KPX PHASE III HYDROGEOLOGIC INVESTIG - MAY 1993	AUGERS TO 16.5	
33	SB206S3	NE KPX PHASE III HYDROGEOLOGIC INVESTIG - MAY 1993	AUGERS TO 15.6	
34	SB206S4	NE KPX PHASE III HYDROGEOLOGIC INVESTIG - MAY 1993	AUGERS TO 15.8	
35	SB206SE	NE KPX PHASE II HYDROGEO INVESTIG - JAN 1992	AUGERS TO 16.5	
36	SB206SWR	NE KPX PHASE III HYDROGEOLOGIC INVESTIG - MAY 1993	AUGERS TO 14.0	
37	SB206W	NE KPX PHASE III HYDROGEOLOGIC INVESTIG - MAY 1993	AUGERS TO 13.5	
38	SB208NE	NE KPX PHASE II HYDROGEO INVESTIG - JAN 1992	AUGERS TO 22.1	
39	SB208NE2	NE KPX PHASE II HYDROGEO INVESTIG - JAN 1992	AUGERS TO 21.6	

TABLE I[illegible]1

KPX ACTIVE WELLS

	1	25	26
	WELL	DRILLING	PC
		METHOD 3	TYPE
1	GB204NW		ROADWAY BOX
2	GB205NE		SS STICK-UP
3	GB206E		STEEL FLUSH CURB-BOX
4	GB206NW2		SS STICK-UP
5	GB206SW		SS STICK-UP
6	GB207E		ROADWAY BOX
7	GB208NE2		SS STICK-UP
8	GB216W		ROADWAY BOX
9	GB218E		SS STICK-UP
10	GB218NE		SS STICK-UP
11	GB218NW		FLUSH
12	GB218SE		SS STICK-UP
13	GB218W4		STEEL FLUSH CURB BOX
14	GQB208NE2	REAMED WITH ROLLER BIT 21.1 TO 75.2	SS STICK-UP
15	GQB218E	REAMED WITH ROLLER BIT 19.0 TO 67.5	SS STICK-UP
16	GQB218NE	REAMED WITH ROLLER BIT TO 20.0 TO 66.5	SS STICK-UP
17	GQB218NW	REAMED WITH ROLLER BIT 20.5 TO 60.3	SS STICK-UP
18	GQB218SE	REAMED WITH ROLLER BIT 22.0 TO 75.4	SS STICK-UP
19	IB205NE		SS STICK-UP
20	PB218N		
21	PB218NW		VAULT
22	PB218W		VAULT
23	SB203S		SS STICK-UP
24	SB203W		SS STICK-UP
25	SB204NW		ROADWAY BOX
26	SB205NE		SS STICK-UP
27	SB206E		STEEL CURB BOX
28	SB206NE		SS STICK-UP
29	SB206NW		SS STICK-UP
30	SB206NW2		SS STICK-UP
31	SB206S		FLUSH
32	SB206S2		FLUSH
33	SB206S3		FLUSH
34	SB206S4		FLUSH
35	SB206SE		SS STICK-UP
36	SB206SWR		SS STICK-UP
37	SB206W		FLUSH
38	SB208NE		SS STICK-UP
39	SB208NE2		SS STICK-UP

TABLE 5.1

KPX ACTIVE WELLS

	1	2	3	4	5	6	7	8	9	10	11	12	13
	WELL	PARK	AQMS	STRAT	BORING	INSTALL	WELL	RISER	RISER	SCREEN	SCREEN	TOP SCR	BOT SCR
		SECTION	LOC ID	INTERVAL		DATE	LENGTH	DIAM	TYPE	DIAM	TYPE	DEPTH	DEPTH
							(FEET)	(INCHES)		(INCHES)		(FEET)	(FEET)
40	SB209NW	KPX	102241	S	SB209NW	22-Jun-87	15.11	4.00	PVC	4.00	PVC	11.00	16.00
41	SB211NE	KPX	103219	S	SB211NE	3-Sep-91	16.92	2.00	PVC	2.00	PVC	5.40	14.90
42	SB211SE	KPX	103083	S	SB211SE	27-Sep-90	19.67	2.00	SS	2.00	SS	7.50	17.00
43	SB212NE2	KPX	103085	S	SB212NE2	1-Oct-90	18.61	2.00	SS	2.00	SS	4.20	18.80
44	SB212NW	KPX	103084	S	SB212NW	28-Sep-90	23.39	2.00	SS	2.00	SS	6.30	21.00
45	SB216E	KPX	103460	S	SB216E	25-Sep-92	16.72	2.00	PVC	2.00	PVC	4.90	14.90
46	SB218ER	KPX	103220	S	SB218ER	27-Aug-91	20.03	2.00	PVC	2.00	PVC	8.50	18.00
47	SB218N	KPX	103020	S	SB218N	10-Jul-90	21.16	2.00	SS	2.00	SS	4.00	19.00
48	SB218NE	KPX	103427	S	SB218NE	22-Sep-92	18.54	2.00	PVC	2.00	PVC	6.90	16.90
49	SB218NW	KPX	103021	S	SB218NW	13-Jul-90	21.39	2.00	SS	2.00	SS	4.00	19.00
50	SB218NW2	KPX	103034	S	SB218NW2	16-May-90	14.04			1.25	SS	0.00	15.00
51	SB218NW3	KPX	103035	S	SB218NW3	9-May-90	13.37			1.25	SS	0.00	14.00
52	SB218NW4	KPX	103036	S	SB218NW4	16-May-90	15.46			1.25	SS	0.00	15.50
53	SB218NW5	KPX	103037	S	SB218NW5	16-May-90	15.01			1.25	SS	0.00	16.00
54	SB218SE	KPX	103022	S	SB218SE	17-Jul-90	21.23	2.00	SS	2.00	SS	3.90	18.90
55	SB218SW	KPX	103434	S	SB218SW	20-Oct-92	19.09	2.00	PVC	2.00	PVC	7.20	17.20
56	SB218W	KPX	103023	S	SB218W	11-Jul-90	22.08	2.00	SS	2.00	SS	4.70	19.70
57	SB218W2	KPX	103152	S	SB218W2	12-Mar-91	21.79	2.00	PVC	2.00	PVC	4.60	19.60
58	SB218W3	KPX	103224	S	SB218W3	28-Aug-91	19.47	2.00	PVC	2.00	PVC	7.60	17.10
59	SB218W4	KPX	103431	S	SB218W4	22-Oct-92	16.46	2.00	PVC	2.00	PVC	7.20	17.20
60	SL60N	KPX	103088	S	SL60N	3-Oct-90	12.65	2.00	SS	2.00	SS	7.90	12.50

TABLE 5.1

KPX ACTIVE WELLS

	1	14	15	16	17	18	19	20	21
	WELL	NORTH	EAST	REF	GS	TOP SCR	BOT SCR	DRILLER	CONSTRUCTION
				ELEV	ELEV	ELEV	ELEV		OVERSIGHT
40	SB209NW	1166796.03	747755.58	242.36	243.40	232.25	227.25	KODAK PARK DRILLER	
41	SB211NE	1168367.01	747591.59	241.88	240.36	234.96	225.46	PENN DRILLING	BLASLAND, BOUCK, LEE
42	SB211SE	1168004.04	747596.22	243.61	241.44	233.94	224.44	ROCH DRILLING	BLASLAND, BOUCK, LEE
43	SB212NE2	1168042.74	748064.76	241.79	242.00	238.08	223.48	ROCH DRILLING	BLASLAND, BOUCK, LEE
44	SB212NW	1167783.64	747826.69	245.50	243.49	237.21	222.51	ROCH DRILLING	BLASLAND, BOUCK, LEE
45	SB216E	1166589.55	748882.21	247.42	245.60	240.70	230.70	PENN DRILLING	BLASLAND, BOUCK, LEE
46	SB218ER	1167626.32	748820.53	237.84	236.31	227.81	218.31	PENN DRILLING	BLASLAND, BOUCK, LEE
47	SB218N	1167728.04	748608.08	239.73	237.97	233.97	218.97	ROCH DRILLING	BLASLAND, BOUCK, LEE
48	SB218NE	1167758.19	748821.02	237.86	236.22	229.32	219.32	PARRATT WOLFF	BLASLAND, BOUCK, LEE
49	SB218NW	1167803.39	748542.72	240.50	238.51	234.51	219.51	ROCH DRILLING	BLASLAND, BOUCK, LEE
50	SB218NW2	1167733.22	748561.49	237.04	237.67	237.04	223.00	KODAK PARK DRILLING	BLASLAND, BOUCK, LEE
51	SB218NW3	1167711.69	748520.34	237.67	238.30	237.67	224.30	KODAK PARK DRILLING	BLASLAND, BOUCK, LEE
52	SB218NW4	1167694.57	748509.74	238.36	238.40	238.40	222.90	KODAK PARK DRILLING	BLASLAND, BOUCK, LEE
53	SB218NW5	1167675.98	748563.31	237.20	237.97	237.20	222.19	KODAK PARK DRILLING	BLASLAND, BOUCK, LEE
54	SB218SE	1167565.00	748655.87	240.83	238.90	235.00	220.00	ROCH DRILLING	BLASLAND, BOUCK, LEE
55	SB218SW	1167459.37	748477.42	241.89	240.00	232.80	222.80	PARRATT WOLFF	BLASLAND, BOUCK, LEE
56	SB218W	1167681.16	748344.76	243.78	241.79	237.10	222.10	ROCH DRILLING	BLASLAND, BOUCK, LEE
57	SB218W2	1167687.73	748343.89	243.89	241.69	237.10	222.10	ROCH DRILLING	BLASLAND, BOUCK, LEE
58	SB218W3	1167784.85	748358.56	242.68	240.81	233.21	223.71	PENN DRILLING	BLASLAND, BOUCK, LEE
59	SB218W4	1167696.82	748530.50	237.31	238.05	230.85	220.85	PARRATT WOLFF	BLASLAND, BOUCK, LEE
60	SL60N	1168396.55	748658.32	233.65	234.00	226.10	221.50	ROCH DRILLING	BLASLAND, BOUCK, LEE

TABLE 5.1

KPX ACTIVE WELLS

	1	22	23	24
	WELL	REPORT / PROJECT	DRILLING	DRILLING
			METHOD 1	METHOD 2
40	SB209NW	WELL AT FUEL TANK SITE (REMOVED)	AUGERS TO 16.0	
41	SB211NE	NE KPX PHASE II HYDROGEO INVESTIG - JAN 1992	AUGERS TO 16.4	
42	SB211SE	NORTH KPX FENCELINE HYDROGEO INVESTIG - DEC 1990	AUGERS TO 17.7	
43	SB212NE2	NORTH KPX FENCELINE HYDROGEO INVESTIG - DEC 1990	AUGERS TO 19.1	
44	SB212NW	NORTH KPX FENCELINE HYDROGEO INVESTIG - DEC 1990	AUGERS TO 21.4	
45	SB216E	KPX SOUTH FENCELINE SHALLOW HYDROGEO INVESTIG - MAR 1993	AUGERS TO 16.0	
46	SB218ER	NE KPX PHASE II HYDROGEO INVESTIG - JAN 1992	AUGERS TO 19.0	
47	SB218N	NORTH KPX FENCELINE HYDROGEO INVESTIG - DEC 1990	AUGERS TO 19.4	
48	SB218NE	NE KPX PHASE III HYDROGEOLOGIC INVESTIG - MAY 1993	AUGERS TO 18.0	
49	SB218NW	NORTH KPX FENCELINE HYDROGEO INVESTIG - DEC 1990	AUGERS TO 19.4	
50	SB218NW2	NORTH KPX FENCELINE HYDROGEO INVESTIG - DEC 1990	AUGERS TO 15.0	
51	SB218NW3	NORTH KPX FENCELINE HYDROGEO INVESTIG - DEC 1990	AUGERS TO 14.	
52	SB218NW4	NORTH KPX FENCELINE HYDROGEO INVESTIG - DEC 1990	AUGERS TO 16.5	
53	SB218NW5	NORTH KPX FENCELINE HYDROGEO INVESTIG - DEC 1990	AUGERS TO 16	
54	SB218SE	NORTH KPX FENCELINE HYDROGEO INVESTIG - DEC 1990	AUGERS TO 19.3	
55	SB218SW	NE KPX PHASE III HYDROGEOLOGIC INVESTIG - MAY 1993	AUGERS TO 18.7	
56	SB218W	NORTH KPX FENCELINE HYDROGEO INVESTIG - DEC 1990	AUGERS TO 20.4	
57	SB218W2	NORTH KPX FENCELINE HYDROGEO INVESTIG - DEC 1990	AUGERS TO 20.4	
58	SB218W3	NE KPX PHASE II HYDROGEO INVESTIG - JAN 1992	AUGERS TO 17.6	
59	SB218W4	NE KPX PHASE III HYDROGEOLOGIC INVESTIG - MAY 1993	AUGERS TO 19.4	
60	SL60N	NORTH KPX FENCELINE HYDROGEO INVESTIG - DEC 1990	AUGERS TO 13.	

TABLE 5.1

KPX ACTIVE WELLS

	1	25	26
	WELL	DRILLING	PC
		METHOD 3	TYPE
40	SB209NW		FLUSH VALVE BOX
41	SB211NE		SS STICK-UP
42	SB211SE		SS STICK-UP
43	SB212NE2		FLUSH MOUNT
44	SB212NW		SS STICK-UP
45	SB216E		SS STICK-UP
46	SB218ER		SS STICK-UP
47	SB218N		SS STICK-UP
48	SB218NE		SS STICK-UP
49	SB218NW		SS STICK-UP
50	SB218NW2		CURB BOX
51	SB218NW3		CURB BOX
52	SB218NW4		CURB BOX
53	SB218NW5		CURB BOX
54	SB218SE		SS STICK-UP
55	SB218SW		SS STICK-UP
56	SB218W		SS STICK-UP
57	SB218W2		SS STICK-UP
58	SB218W3		SS STICK-UP
59	SB218W4		STEEL FLUSH CURB BOX
60	SL60N		FLUSH MOUNT STEEL CURBBOX

TABLE 5.1

KPM ACTIVE WELLS

	1	2	3	4	5	6	7	8	9	10	11	12
	WELL	PARK SECTION	AQMS LOC ID	STRAT INTERVAL	BORING	INSTALL DATE	WELL LENGTH (FEET)	RISER DIAM (INCHES)	RISER TYPE	SCREEN DIAM (INCHES)	SCREEN TYPE	TOP SCR DEPTH (FEET)
1	G1B314S	KPM	103168	G1	G1B314S	2-May-91	32.58	2.00	PVC	2.00	PVC	20.00
2	G1B329SE2	KPM	103173	G1	B329SE2	28-May-91	43.10	2.00	PVC	2.00	PVC	31.00
3	G1B331SW	KPM	103177	G1	G1B331SW	30-Apr-91	44.75	4.00	SS	3.00	ROCK	30.00
4	G1B349NW	KPM	102764	G1	G1B349NW	29-Jun-89	32.55	4.00	SS	3.00	ROCK	21.00
5	G1B352NW2	KPM	102761	G1	G1B352NW2	28-Jun-89	25.04	4.00	SS	3.00	ROCK	13.70
6	G2B314S	KPM	103169	G2	G2B314S	3-Jun-91	66.40	4.00	SS	3.00	ROCK	54.00
7	G2B329SE2	KPM	103174	G2	B329SE2	30-May-91	56.42	4.00	SS	3.00	ROCK	44.00
8	G2B331SW	KPM	103178	G2	G2B331SW	5-Jun-91	65.83	4.00	SS	3.00	ROCK	53.70
9	G2B349NW	KPM	102765	G2	G2B349NW	13-Jun-89	64.54	4.00	SS	4.00	ROCK	53.00
10	G2B352NW2	KPM	102762	G2	G2B352NW2	19-Jun-89	40.41	4.00	SS	4.00	ROCK	29.00
11	G2L72SE	KPM	103314	G2	G2L72SE	13-Nov-91	62.80	4.00	SS	4.00	ROCK	58.00
12	G2WRNW	KPM	103298	G2	G2WRNW	4-Nov-91	58.58	4.00	SS	4.00	ROCK	51.50
13	GB302E	KPM	102160	G	GB302E	19-Apr-83	36.16	1.50	PVC	1.50	ROCK	28.90
14	GB303SE	KPM	103163	G	GB303SE	16-May-91	40.71	4.00	SS	3.00	ROCK	28.00
15	GB313W	KPM	103166	G	GB313W	23-May-91	37.23	4.00	SS	3.00	ROCK	27.40
16	GB317N	KPM	103171	G	GB317N	6-May-91	32.98	2.00	PVC	2.00	PVC	21.20
17	GB318SW	KPM	102396	G	GB318SW			1.50	PVC		ROCK	
18	GB319N	KPM	102759	G	GB319N	22-Jun-89	35.57	4.00	SS	4.00	ROCK	18.00
19	GB324NER	KPM	102768	G	GB324NER	14-Jul-89	31.59	4.00	SS	3.00	ROCK	20.20
20	GB329E	KPM	103421	G	GB329E	4-Aug-92	42.62	2.00	PVC	2.00	PVC	30.50
21	GB329NW	KPM	100978	G	GB329NW	29-Jan-81	40.60	4.00	PVC	3.00	ROCK	23.75
22	GB329S	KPM	103376	G	GB329S	19-Dec-91	35.42	4.00	SS	3.00	ROCK	25.30
23	GB329SW2	KPM	103333	G	GB329SW2	13-Jan-92	34.46	4.00	SS	3.00	ROCK	25.70
24	GB329SW3	KPM	103378	G	GB329SW3	8-Jan-92	34.35	4.00	SS	3.00	ROCK	25.30
25	GB329W	KPM	103420	G	GB329W	30-Jul-92	43.40	4.00	SS	4.00	ROCK	27.00
26	GB332NE	KPM	100979	G	GB332NE	5-Feb-81	33.06	4.00	PVC	3.00	ROCK	16.00
27	GB333NW	KPM	100980	G	GB333NW	27-May-81	39.34	4.00	PVC	3.00	ROCK	22.47
28	GB350NE	KPM	100981	G	GB350NE	4-Feb-81	21.86	4.00	PVC	3.00	ROCK	4.83
29	GB350NWR	KPM	103274	G	GB350NWR	29-Oct-91	22.21	4.00	SS	3.00	ROCK	10.00
30	GB352NW	KPM	100982	G	GB352NW	27-Jan-81	45.95	4.00	PVC	3.00	ROCK	29.50
31	GBM32N	KPM	101719	G	GBM32N	8-May-86	64.08	4.00	PVC	3.00	ROCK	54.00
32	GL72SE	KPM	101716	G	GL72SE	19-May-86	49.93	4.00	PVC	3.00	ROCK	39.00
33	GL73S	KPM	101717	G	GL73S	28-May-86	74.77	4.00	PVC	3.00	ROCK	64.50
34	GL76S	KPM	101718	G	GL76S	23-May-86	48.19	4.00	PVC	3.00	ROCK	37.00
35	GMN4	KPM	103227	G	GMN4	25-Sep-91	47.15	4.00	SS	3.00	ROCK	38.00
36	GMN5	KPM	103229	G	GMN5	13-Sep-91	45.33	4.00	SS	3.00	ROCK	36.20
37	GMN6	KPM	103231	G	MN6	5-Sep-91	30.18	4.00	SS	3.00	ROCK	20.30
38	GQL76S	KPM	103317	GQ	GQL76S	13-Nov-91	88.20	4.00	SS	4.00	ROCK	78.00
39	GQWRE	KPM	103303	GQ	GQWRE	30-Oct-91	108.69	4.00	SS	4.00	ROCK	100.00

TABLE 5.1

KPM ACTIVE WELLS

	1	13	14	15	16	17	18	19	20
	WELL	BOT SCR. DEPTH (FEET)	NORTH	EAST	REF ELEV	GS ELEV	TOP SCR ELEV	BOT SCR ELEV	DRILLER
1	G1B314S	30.00	1166419.16	744973.01	249.78	247.20	227.20	217.20	PENN DRILLING
2	G1B329SE2	41.00	1166739.87	742975.14	258.20	256.10	225.10	215.10	PENN DRILLING
3	G1B331SW	42.00	1166885.93	745443.86	256.05	253.30	223.30	211.30	PENN DRILLING
4	G1B349NW	31.00	1167124.59	742356.75	252.89	251.34	230.34	220.34	PARRATT WOLFFE
5	G1B352NW2	23.70	1167722.02	744034.33	235.86	234.52	220.82	210.82	PARRATT WOLFFE
6	G2B314S	64.00	1166424.32	744980.20	249.80	247.40	193.40	183.40	PENN DRILLING
7	G2B329SE2	54.00	1166739.16	742981.22	258.72	256.30	212.30	202.30	PENN DRILLING
8	G2B331SW	63.70	1166886.51	745434.32	254.93	252.80	199.10	189.10	PENN DRILLING
9	G2B349NW	63.00	1167124.62	742350.88	252.87	251.33	198.33	188.33	PARRATT WOLFFE
10	G2B352NW2	39.00	1167721.74	744029.11	236.06	234.65	205.65	195.65	PARRATT WOLFFE
11	G2L72SE	63.00	1165942.83	743348.60	256.63	256.83	198.83	193.83	PENN DRILLING
12	G2WRNW	56.50	1165837.75	741272.54	243.58	241.50	190.00	185.00	PENN DRILLING
13	GB302E	36.70	1166900.15	746086.85	254.14	254.78	225.78	217.98	KODAK PARK DRILLER
14	GB303SE	38.00	1166929.90	746198.31	258.41	255.70	227.70	217.70	PENN DRILLING
15	GB313W	37.40	1166472.94	743720.42	246.20	246.37	218.97	208.97	PENN DRILLING
16	GB317N	31.20	1167146.89	743982.95	244.98	243.20	222.00	212.00	PENN DRILLING
17	GB318SW		1166652.78	744426.31	243.98	244.27			KODAK PARK DRILLER
18	GB319N	34.00	1167698.45	745075.83	236.91	235.34	217.34	201.34	PARRATT WOLFFE
19	GB324NER	30.20	1167699.99	745555.34	246.64	245.25	225.05	215.05	PARRATT WOLFFE
20	GB329E	40.50	1166881.59	742952.81	258.92	256.80	226.30	216.30	PENN DRILLING
21	GB329NW	38.75	1167121.91	742762.53	256.23	254.52	230.63	215.63	ROCH DRILLING
22	GB329S	35.90	1166642.91	742810.05	253.51	253.99	228.69	218.09	PENN DRILLING
23	GB329SW2	34.90	1166770.45	742840.96	252.65	253.09	227.39	218.19	PENN DRILLING
24	GB329SW3	34.80	1166711.89	742698.26	254.95	255.40	230.10	220.60	PENN DRILLING
25	GB329W	41.50	1166893.53	742680.74	256.46	254.56	227.56	213.06	PENN DRILLING
26	GB332NE	31.00	1167108.62	743339.78	245.76	244.16	227.70	212.70	ROCH DRILLING
27	GB333NW	37.47	1167029.40	741588.03	247.87	246.17	223.53	208.53	KODAK PARK DRILLER
28	GB350NE	19.83	1167716.30	744662.80	229.73	227.95	222.87	207.87	ROCH DRILLING
29	GB350NWR	20.00	1167714.53	744260.16	233.91	231.70	221.70	211.70	PENN DRILLING
30	GB352NW	44.50	1167721.72	743463.50	254.93	253.27	223.98	208.98	ROCH DRILLING
31	GBM32N	64.00	1165839.38	742749.92	269.48	269.59	215.40	205.40	ROCH DRILLING
32	GL72SE	50.00	1165954.92	743365.39	254.63	254.60	215.70	204.70	ROCH DRILLING
33	GL73S	74.50	1165616.30	743748.49	271.47	271.54	206.70	196.70	ROCH DRILLING
34	GL76S	48.20	1165973.53	744038.86	252.09	252.39	215.10	203.90	ROCH DRILLING
35	GMN4	47.70	1167329.86	743218.11	259.52	260.07	222.07	212.37	PENN DRILLING
36	GMN5	45.90	1167647.02	742997.76	250.22	250.79	214.59	204.89	PENN DRILLING
37	GMN6	30.50	1168281.08	743601.02	231.56	231.88	211.58	201.38	PENN DRILLING
38	GQL76S	88.30	1165983.38	744033.32	251.96	251.99	174.06	163.76	PENN DRILLING
39	GQWRE	106.50	1165410.01	742118.07	277.29	275.10	175.10	168.60	PENN DRILLING

TABLE [illegible].1

KPM ACTIVE WELLS

	1	21	22
	WELL	CONSTRUCTION OVERSIGHT	REPORT / PROJECT
1	G1B314S	BLASLAND,BOUCK,LEE	KPM HYDROGEOLOGIC INVESTIG. INTERIM REPORT SEPT 1991
2	G1B329SE2	BLASLAND,BOUCK,LEE	KPM HYDROGEOLOGIC INVESTIG. INTERIM REPORT SEPT 1991
3	G1B331SW	BLASLAND,BOUCK,LEE	KPM HYDROGEOLOGIC INVESTIG. INTERIM REPORT SEPT 1991
4	G1B349NW	BLASLAND,BOUCK,LEE	PHASE I TECH MEMO KPM FL G-W MONITORING UPGRADE - OCT 1989
5	G1B352NW2	BLASLAND,BOUCK,LEE	PHASE I TECH MEMO KPM FL G-W MONITORING UPGRADE - OCT 1989
6	G2B314S	BLASLAND,BOUCK,LEE	KPM HYDROGEOLOGIC INVESTIG. INTERIM REPORT SEPT 1991
7	G2B329SE2	BLASLAND,BOUCK,LEE	KPM HYDROGEOLOGIC INVESTIG. INTERIM REPORT SEPT 1991
8	G2B331SW	BLASLAND,BOUCK,LEE	KPM HYDROGEOLOGIC INVESTIG. INTERIM REPORT SEPT 1991
9	G2B349NW	BLASLAND,BOUCK,LEE	PHASE I TECH MEMO KPM FL G-W MONITORING UPGRADE - OCT 1989
10	G2B352NW2	BLASLAND,BOUCK,LEE	PHASE I TECH MEMO KPM FL G-W MONITORING UPGRADE - OCT 1989
11	G2L72SE	H&A	WEILAND ROAD LANDFILL INTERIM HYDROGEO. INVESTIG. - MAY 1992
12	G2WRNW	H&A	WEILAND ROAD LANDFILL INTERIM HYDROGEO. INVESTIG. - MAY 1992
13	GB302E		(OBSERVATION WELLS)
14	GB303SE	BLASLAND,BOUCK,LEE	KPM HYDROGEOLOGIC INVESTIG. INTERIM REPORT SEPT 1991
15	GB313W	BLASLAND,BOUCK,LEE	KPM HYDROGEOLOGIC INVESTIG. INTERIM REPORT SEPT 1991
16	GB317N	BLASLAND,BOUCK,LEE	KPM HYDROGEOLOGIC INVESTIG. INTERIM REPORT SEPT 1991
17	GB318SW		
18	GB319N	BLASLAND,BOUCK,LEE	PHASE I TECH MEMO KPM FL G-W MONITORING UPGRADE - OCT 1989
19	GB324NER	BLASLAND,BOUCK,LEE	PHASE I TECH MEMO KPM FL G-W MONITORING UPGRADE - OCT 1989
20	GB329E	BLASLAND,BOUCK,LEE	LETTER REPORT: BLDG.329 PHASE II MONITORING WELL INSTALLATION - NOV 1992
21	GB329NW	KODAK PARK DRILLER	(DEEP GROUND WATER WELLS)
22	GB329S	BLASLAND,BOUCK,LEE	BUILDING 329 SITE ASSESSMENT - MAR 1992
23	GB329SW2	BLASLAND,BOUCK,LEE	BUILDING 329 SITE ASSESSMENT - MAR 1992
24	GB329SW3	BLASLAND,BOUCK,LEE	BUILDING 329 SITE ASSESSMENT - MAR 1992
25	GB329W	BLASLAND,BOUCK,LEE	LETTER REPORT: BLDG.329 PHASE II MONITORING WELL INSTALLATION - NOV. 4, 1992
26	GB332NE	ROCH DRILLING	(DEEP GROUND WATER WELLS, EKC)
27	GB333NW		(DEEP WELL INSTALLATION)
28	GB350NE	ROCH DRILLING	(DEEP GROUND WATER WELLS, EKC)
29	GB350NWR	BLASLAND,BOUCK,LEE	LETTER REPORT: B351/352 IRM WELL INSTALLATION AT KODA-VISTA... - FEB 1992
30	GB352NW	ROCH DRILLING	(DEEP GROUND WATER WELLS, EK)
31	GBM32N	H&A	REPORT ON HYDROGEOLOGICAL INVESTIGATION - WEILAND RD LANDFILL - AUG 1986
32	GL72SE	H&A	REPORT ON HYDROGEOLOGICAL INVESTIGATION - WEILAND RD LANDFILL - AUG 1986
33	GL73S	H&A	REPORT ON HYDROGEOLOGICAL INVESTIGATION - WEILAND RD LANDFILL - AUG 1986
34	GL76S	H&A	REPORT ON HYDROGEOLOGICAL INVESTIGATION - WEILAND RD LANDFILL - AUG 1986
35	GMN4	BLASLAND,BOUCK,LEE	LETTER REPORT: KPM N FL ADDENDUM, KODA-VISTA WELL COMPLETION REPORT - NOV 1991
36	GMN5	BLASLAND,BOUCK,LEE	LETTER REPORT: KPM N FL ADDENDUM, KODA-VISTA WELL COMPLETION REPORT - NOV 1991
37	GMN6	BLASLAND,BOUCK,LEE	LETTER REPORT: KPM N FL ADDENDUM, KODA-VISTA WELL COMPLETION REPORT - NOV 1991
38	GQL76S	H&A	WEILAND ROAD LANDFILL INTERIM HYDROGEO. INVESTIG. - MAY 1992
39	GQWRE	H&A	WEILAND ROAD LANDFILL INTERIM HYDROGEO. INVESTIG. - MAY 1992

TABLE [illegible].1

KPM ACTIVE WELLS

	1	23	24	25	26
	WELL	DRILLING	DRILLING	DRILLING	PC
		METHOD 1	METHOD 2	METHOD 3	TYPE
1	G1B314S	AUGERS TO 22.0	6" ROLLER BIT TO 34.0		SS STICK-UP
2	G1B329SE2	AUGERS TO 27.5	4" ROLLER BIT TO 41.0		SS STICK-UP
3	G1B331SW	ROTARY TO 30.0	NX CORE TO 42.0		SS STICK-UP
4	G1B349NW	AUGERS TO 21.0	NX CORE TO 31.0		STICK-UP
5	G1B352NW2	AUGERS TO 12.7	NX CORE TO 23.7		SS STICK-UP
6	G2B314S	AUGERS TO 22.5	NX CORE TO 64.0		SS STICK-UP
7	G2B329SE2	AUGERS TO 27.5	NX CORE TO 54.0		SS STICK-UP
8	G2B331SW	ROTARY TO 53.7	NX CORE TO 63.7		SS STICK-UP
9	G2B349NW	AUGERS TO 19.7	NX CORE TO 74.7	ROLLER BIT TO 53.0	STICK-UP
10	G2B352NW2	AUGERS TO 12.7	NX CORE TO 54.2 (4")		SS STICK-UP
11	G2L72SE	AUGERS TO 36.9	ROLLER BIT (3-7/8") TO 47.5	NX CORE TO 98.0	ROADWAY BOX
12	G2WRNW	AUGERS TO 19.1	ROLLER BIT TO 31.5	NX CORE TO 81.5	SS STICK-UP
13	GB302E	AUGERS TO 25.5	NX CORE TO 36.7		CURB BOX
14	GB303SE	AUGERS TO 28.0	NX CORE TO 38.0		SS STICK-UP
15	GB313W	AUGERS TO 26.4	NX CORE TO 37.4		STEEL CURB BOX
16	GB317N	AUGERS TO 17.0	NX CORE TO 29.0	ROLLER BIT TO 31.2	SS STICK-UP
17	GB318SW				
18	GB319N	AUGERS TO 11.3	NX CORE TO 53.7		SS STICK-UP
19	GB324NER	AUGERS TO 30.2			SS STICK-UP
20	GB329E	AUGERS TO 29.6	NX CORE TO 42.9		SS STICK-UP
21	GB329NW	AUGERS TO 23.0	NX CORE TO 38.9		STICK-UP
22	GB329S	AUGERS TO 25.3	NX CORE TO 35.9		CURB BOX
23	GB329SW2	AUGERS TO 24.2	NX CORE TO 34.9		CURB BOX
24	GB329SW3	AUGERS TO 24.0	NX CORE TO 34.8		CURB BOX
25	GB329W	AUGERS TO 27.0	NX CORE TO 41.5		SS STICK-UP
26	GB332NE	AUGERS TO 16.0	NX CORE TO 31.0		STICK-UP
27	GB333NW	AUGERS TO 22.47			STICK-UP
28	GB350NE	AUGERS TO 3.3	NX CORE TO 19.8		STICK-UP
29	GB350NWR	AUGERS TO 10.0	NX CORE TO 20.0		SS STICK-UP
30	GB352NW	AUGERS TO 29.6	NX CORE TO 44.5		STICK-UP
31	GBM32N	AUGERS TO 49.0	NX CORE TO 64.0		ROADWAY BOX
32	GL72SE	AUGERS TO 35.3	NX CORE TO 50.0		STEEL ROADWAY BOX
33	GL73S	AUGERS TO 19.0	NX CORE TO 74.5		ROADWAY BOX
34	GL76S	AUGERS TO 33.0	NX CORE TO 48.2		ROADWAY BOX
35	GMN4	AUGERS TO 37.0	NX CORE TO 47.7		CURB BOX
36	GMN5	AUGERS TO 35.0	NX CORE TO 45.9		CURB BOX
37	GMN6	AUGERS TO 19.3	NX CORE TO 30.5		CURB BOX
38	GQL76S	AUGERS TO 33.0	ROLLER BIT TO 48.0	NX CORE TO 98.0	ROADWAY BOX
39	GQWRE	AUGERS TO 61.5	NX CORE TO 111.5		SS STICK-UP

TABLE [illegible]1

KPM ACTIVE WELLS

	1	2	3	4	5	6	7	8	9	10	11	12
	WELL	PARK SECTION	AQMS LOC ID	STRAT INTERVAL	BORING	INSTALL DATE	WELL LENGTH (FEET)	RISER DIAM (INCHES)	RISER TYPE	SCREEN DIAM (INCHES)	SCREEN TYPE	TOP SCR DEPTH (FEET)
40	GQWRSE	KPM	103305	GQ	GQWRSE	8-Oct-91	129.40	4.00	SS	4.00	ROCK	116.50
41	GTCS	KPM	101720	G	GTCS	30-May-86	73.84	4.00	PVC	3.00	ROCK	63.00
42	GWRNE	KPM	101721	G	GWRNE	16-Apr-86	45.33	4.00	PVC	3.00	ROCK	35.50
43	GWRNW	KPM	101722	G	GWRNW	10-Apr-86	33.72	4.00	PVC	3.00	ROCK	21.00
44	GWRNW2	KPM	103301	G	GWRNW2	30-Oct-91	54.08	4.00	SS	4.00	ROCK	48.00
45	GWRS4	KPM	103309	G	GWRS4	22-Oct-91	131.10	4.00	SS	4.00	ROCK	119.00
46	GWRSE	KPM	101723	G	GWRSE	6-May-86	93.28	4.00	PVC	3.00	ROCK	80.00
47	GWRSW	KPM	101724	G	GWRSW	29-Apr-86	108.66	4.00	PVC	3.00	ROCK	96.50
48	GWRW	KPM	101725	G	GWRW	24-Apr-86	84.27	4.00	PVC	3.00	ROCK	63.50
49	IB320SE	KPM	102398	I	IB320SE	4-May-81	15.44	2.00	PVC	2.00	PVC	10.65
50	IWRNW2	KPM	103299	I	IWRNW2	29-Oct-91	31.80	2.00	PVC	2.00	PVC	20.30
51	IWRS3	KPM	103308	I	IWRS3	24-Sep-91	37.11	4.00	SS	4.00	ROCK	27.00
52	IWRS4	KPM	103311	I	IWRS4	8-Oct-91	45.75	4.00	SS	4.00	ROCK	30.00
53	LSL73S2	KPM	103315	LS	LSL73S2	2-Nov-91	49.56	4.00	SS	4.00	ROCK	30.00
54	LSWRS4	KPM	103310	LS	LSWRS4	10-Oct-91	55.94	4.00	SS	4.00	ROCK	46.50
55	ML73S2	KPM	103316	M	ML73S2	16-Oct-91	79.57	4.00	SS	4.00	ROCK	65.50
56	PB350NE2	KPM	103405	S		22-Jul-92						
57	RB320SE	KPM	100976	R	RB320SE	8-May-81	30.31	4.00	PVC	3.00	ROCK	13.00
58	RWRSE	KPM	103306	R	RWRSE	27-Sep-91	43.19	4.00	SS	4.00	ROCK	34.00
59	S1B307E	KPM	103364	S1	S1B307E	20-Feb-92	15.60	2.00	PVC	2.00	PVC	6.00
60	S1B307W	KPM	103366	S1	S1B307W	10-Mar-92	20.06	2.00	PVC	2.00	PVC	6.00
61	S1B312NW	KPM	103359	S1	S1B312NW	10-Feb-92	32.44	2.00	PVC	2.00	PVC	15.30
62	S1B313W	KPM	103164	S1	B313W	21-May-91	15.44	2.00	PVC	2.00	PVC	5.00
63	S1B331SW	KPM	103175	S1	S1B331SW	18-Apr-91	17.99	2.00	PVC	2.00	PVC	6.00
64	S1WRE	KPM	103302	S1	S1WRE	30-Oct-91	31.86	2.00	PVC	2.00	PVC	15.00
65	S2B307E	KPM	103365	S2	S2B307E	21-Feb-92	31.59	2.00	PVC	2.00	PVC	22.00
66	S2B307W	KPM	103367	S2	S2B307W	4-Mar-92	36.35	2.00	PVC	2.00	PVC	27.00
67	S2B312NW	KPM	103360	S2	S2B312NW	6-Feb-92	42.80	2.00	PVC	2.00	PVC	36.10
68	S2B313W	KPM	103165	S2	B313W	21-May-91	29.93	2.00	PVC	2.00	PVC	20.80
69	S2B331SW	KPM	103176	S2	B331SW	21-May-91	31.15	2.00	PVC	2.00	PVC	19.00
70	S2WRE	KPM	103304	S2	S2WRE	22-Oct-91	55.18	2.00	PVC	2.00	PVC	38.90
71	SB301SE	KPM	103138	S	SB301SE	17-Jan-91	27.16	2.0	PVC	2.0	PVC	5.00
72	SB301W	KPM	103323	S	SB301W	10-Dec-91	28.47	2.00	PVC	2.00	PVC	9.20
73	SB302E	KPM	102161	S	SB302E	19-Apr-83	13.97	2.00	PVC	2.00	PVC	6.19
74	SB302W	KPM	102869	S	SB302W	8-Dec-89	13.18	2.00	PVC	2.00	PVC	3.50
75	SB303SE	KPM	103139	S	SB303SE	16-Jan-91	21.88	2.00	PVC	2.00	PVC	10.00
76	SB303W	KPM	103321	S	SB303W	11-Dec-91	27.17	2.00	PVC	2.00	PVC	7.70
77	SB304NW	KPM	103322	S	SB304NW	12-Dec-91	26.50	2.00	PVC	2.00	PVC	7.00
78	SB305W	KPM	103319	S	SB305W	5-Dec-91	19.18	2.00	PVC	2.00	PVC	9.60

TABLE [illegible].1

KPM ACTIVE WELLS

	1	13	14	15	16	17	18	19	20
	WELL	BOT SCR	NORTH	EAST	REF	GS	TOP SCR	BOT SCR	DRILLER
		DEPTH			ELEV	ELEV	ELEV	ELEV	
		(FEET)							
40	GQWRSE	127.50	1164942.78	742126.60	285.30	283.40	166.90	155.90	PENN DRILLING
41	GTCS	73.00	1165250.07	742883.19	275.54	273.88	211.70	201.70	ROCH DRILLING
42	GWRNE	45.50	1165862.23	741660.27	252.83	253.09	217.50	207.50	ROCH DRILLING
43	GWRNW	31.50	1165838.59	741290.54	243.62	241.50	220.40	209.90	ROCH DRILLING
44	GWRNW2	53.00	1165553.96	741070.90	247.18	246.10	198.10	193.10	PENN DRILLING
45	GWRS4	129.00	1164544.65	741206.17	309.51	307.41	188.41	178.41	PENN DRILLING
46	GWRSE	90.00	1164915.12	742115.34	288.78	285.95	205.50	195.50	ROCH DRILLING
47	GWRSW	106.70	1164664.86	740892.16	308.66	306.37	210.20	200.00	ROCH DRILLING
48	GWRW	73.50	1165165.71	740931.06	293.47	291.00	219.20	209.20	ROCH DRILLER
49	IB320SE	12.65	1165252.00	746033.06	305.49	303.09	292.05	290.05	KODAK PARK DRILLER
50	IWRNW2	30.30	1165574.64	741071.84	247.30	245.80	225.50	215.50	PENN DRILLING
51	IWRS3	35.00	1164713.64	741695.96	309.01	306.90	279.90	271.90	PENN DRILLING
52	IWRS4	44.00	1164536.87	741188.19	309.25	307.50	277.50	263.50	PENN DRILLING
53	LSL73S2	47.00	1165505.94	743787.88	310.72	308.16	278.16	261.16	PENN DRILLING
54	LSWRS4	54.00	1164540.75	741197.89	309.24	307.30	260.80	253.30	PENN DRILLING
55	ML73S2	77.00	1165508.07	743798.08	310.88	308.31	242.81	231.31	PENN DRILLING
56	PB330NE2		1167754.45	744680.71	228.34	228.34			
57	RB320SE	27.60	1165251.27	746028.46	305.41	303.09	289.70	275.10	KODAK PARK DRILLER
58	RWRSE	42.50	1164933.06	742125.02	284.99	284.30	250.30	241.80	PENN DRILLING
59	S1B307E	15.50	1165877.96	745579.36	259.89	260.29	254.29	244.79	PENN DRILLING
60	S1B307W	20.50	1165927.80	745414.80	255.56	256.50	250.50	236.00	PENN DRILLING
61	S1B312NW	29.80	1166008.72	745188.99	261.84	259.70	244.40	229.90	PENN DRILLING
62	S1B313W	15.80	1166457.97	743720.68	246.15	246.51	241.51	230.71	PENN DRILLING
63	S1B331SW	16.00	1166868.34	745444.45	255.69	253.70	247.70	237.70	PENN DRILLING
64	S1WRE	30.00	1165417.93	742118.41	276.76	274.90	259.90	244.90	PENN DRILLING
65	S2B307E	31.50	1165873.59	745579.07	259.97	260.38	238.38	228.88	PENN DRILLING
66	S2B307W	36.50	1165932.70	745414.50	255.84	256.49	229.49	219.99	PENN DRILLING
67	S2B312NW	40.60	1165999.17	745186.93	261.69	259.99	223.89	219.39	PENN DRILLING
68	S2B313W	30.40	1166465.30	743720.40	246.04	246.51	225.71	216.11	PENN DRILLING
69	S2B331SW	29.00	1166876.68	745443.91	255.65	253.50	234.50	224.50	PENN DRILLING
70	S2WRE	53.90	1165399.10	742118.78	276.78	275.50	236.60	221.60	PENN DRILLING
71	SB301SE	25.00	1166714.50	746175.59	259.29	257.13	252.13	232.13	ROCH DRILLING
72	SB301W	28.60	1166787.88	745853.54	255.16	255.79	246.59	227.19	PENN DRILLING
73	SB302E	14.19	1166899.29	746078.06	254.64	254.88	248.67	240.67	KODAK PARK DRILLER
74	SB302W	13.50	1166853.29	745664.85	255.43	255.93	252.25	242.25	PARRATT WOLFFE
75	SB303SE	19.50	1166937.20	746197.51	257.89	255.51	245.51	236.01	PENN DRILLING
76	SB303W	27.10	1167020.50	745779.82	253.63	254.06	246.36	226.96	PENN DRILLING
77	SB304NW	26.60	1167163.77	745824.50	254.19	254.69	247.69	228.09	PENN DRILLING
78	SB305W	19.20	1167107.47	745331.56	246.44	246.96	237.36	227.76	PENN DRILLING

TABLE I 1

KPM ACTIVE WELLS

	1	21	22
	WELL	CONSTRUCTION OVERSIGHT	REPORT / PROJECT
40	GQWRSE	H&A	WEILAND ROAD LANDFILL INTERIM HYDROGEO. INVESTIG. - MAY 1992
41	GTCS	H&A	REPORT ON HYDROGEOLOGICAL INVESTIGATION - WEILAND RD LANDFILL - AUG 1986
42	GWRNE	H&A	REPORT ON HYDROGEOLOGICAL INVESTIGATION - WEILAND RD LANDFILL - AUG 1986
43	GWRNW	H&A	REPORT ON HYDROGEOLOGICAL INVESTIGATION - WEILAND RD LANDFILL - AUG 1986
44	GWRNW2	H&A	WEILAND ROAD LANDFILL INTERIM HYDROGEO. INVESTIG. - MAY 1992
45	GWRS4	H&A	WEILAND ROAD LANDFILL INTERIM HYDROGEO. INVESTIG. - MAY 1992
46	GWRSE	H&A	REPORT ON HYDROGEOLOGICAL INVESTIGATION - WEILAND RD LANDFILL - AUG 1986
47	GWRSW	H&A	REPORT ON HYDROGEOLOGICAL INVESTIGATION - WEILAND RD LANDFILL - AUG 1986
48	GWRW	H&A	REPORT ON HYDROGEOLOGICAL INVESTIGATION - WEILAND RD LANDFILL - AUG 1986
49	IB320SE		(INTERFACE WELL INSTALLATION)
50	IWRNW2	H&A	WEILAND ROAD LANDFILL INTERIM HYDROGEO. INVESTIG. - MAY 1992
51	IWRS3	H&A	WEILAND ROAD LANDFILL INTERIM HYDROGEO. INVESTIG. - MAY 1992
52	IWRS4	H&A	WEILAND ROAD LANDFILL INTERIM HYDROGEO. INVESTIG. - MAY 1992
53	LSL73S2	H&A	WEILAND ROAD LANDFILL INTERIM HYDROGEO. INVESTIG. - MAY 1992
54	LSWRS4	H&A	WEILAND ROAD LANDFILL INTERIM HYDROGEO. INVESTIG. - MAY 1992
55	ML73S2	H&A	WEILAND ROAD LANDFILL INTERIM HYDROGEO. INVESTIG. - MAY 1992
56	PB350NE2		
57	RB320SE		(DEEP WELL INSTALLATION)
58	RWRSE	H&A	WEILAND ROAD LANDFILL INTERIM HYDROGEO. INVESTIG. - MAY 1992
59	S1B307E	BLASLAND,BOUCK,LEE	BUILDING 307/322 SITE ASSESSMENT - JUNE 1992
60	S1B307W	BLASLAND,BOUCK,LEE	BUILDING 307/322 SITE ASSESSMENT - JUNE 1992
61	S1B312NW	BLASLAND,BOUCK,LEE	BUILDING 307/322 SITE ASSESSMENT - JUNE 1992
62	S1B313W	BLASLAND,BOUCK,LEE	KPM HYDROGEOLOGIC INVESTIG. INTERIM REPORT SEPT 1991
63	S1B331SW	BLASLAND,BOUCK,LEE	KPM HYDROGEOLOGIC INVESTIG. INTERIM REPORT SEPT 1991
64	S1WRE	H&A	WEILAND ROAD LANDFILL INTERIM HYDROGEO. INVESTIG. - MAY 1992
65	S2B307E	BLASLAND,BOUCK,LEE	BUILDING 307/322 SITE ASSESSMENT - JUNE 1992
66	S2B307W	BLASLAND,BOUCK,LEE	BUILDING 307/322 SITE ASSESSMENT - JUNE 1992
67	S2B312NW	BLASLAND,BOUCK,LEE	BUILDING 307/322 SITE ASSESSMENT - JUNE 1992
68	S2B313W	BLASLAND,BOUCK,LEE	KPM HYDROGEOLOGIC INVESTIG. INTERIM REPORT SEPT 1991
69	S2B331SW	BLASLAND,BOUCK,LEE	KPM HYDROGEOLOGIC INVESTIG. INTERIM REPORT SEPT 1991
70	S2WRE	H&A	WEILAND ROAD LANDFILL INTERIM HYDROGEO. INVESTIG. - MAY 1992
71	SB301SE	BLASLAND,BOUCK,LEE	KPM EAST FENCELINE GW INVESTIG. - APR 1991
72	SB301W	BLASLAND,BOUCK,LEE	BUILDING 301-304 SITE ASSESSMENT - FEB 1992
73	SB302E		(OBSERVATION WELLS)
74	SB302W	BLASLAND,BOUCK,LEE	B-301 RELEASE INVESTIG.
75	SB303SE	BLASLAND,BOUCK,LEE	KPM HYDROGEOLOGIC INVESTIG. INTERIM REPORT SEPT 1991
76	SB303W	BLASLAND,BOUCK,LEE	BUILDING 301-304 SITE ASSESSMENT - FEB 1992
77	SB304NW	BLASLAND,BOUCK,LEE	BUILDING 301-304 SITE ASSESSMENT - FEB 1992
78	SB305W	BLASLAND,BOUCK,LEE	BUILDING 301-304 SITE ASSESSMENT - FEB 1992

TABLE [illegible].1

KPM ACTIVE WELLS

	1	23	24	25	26
	WELL	DRILLING	DRILLING	DRILLING	PC
		METHOD 1	METHOD 2	METHOD 3	TYPE
40	GQWRSE	AUGERS TO 32.0	ROLLER BIT TO 47.5	NX CORE TO 127.6	SS STICK-UP
41	GTCS	AUGERS TO 22.4	ROLLER BIT TO 63.0	NX CORE TO 73.0	STEEL STICK-UP
42	GWRNE	AUGERS TO 30.0	NX CORE TO 45.5		ROADWAY BOX
43	GWRNW	AUGERS TO 15.3	NX CORE TO 31.5		STEEL PIPE
44	GWRNW2	AUGERS TO 25.0	ROLLER BIT TO 38.0	NX CORE TO 58.0	SS STICK-UP
45	GWRS4	AUGERS TO 28.0	ROLLER BIT TO 59.0	NX CORE TO 154.0	SS STICK-UP
46	GWRSE	AUGERS TO 20.0	ROLLER BIT TO 80.0	NX CORE TO 90.0	STEEL PIPE
47	GWRSW	AUGERS TO 91.5	NX CORE TO 106.7		STEEL PIPE
48	GWRW	AUGERS TO 58.0	NX CORE TO 73.5		NONE
49	IB320SE	AUGERS TO 12.65			SS STICK-UP
50	IWRNW2	AUGERS TO 24.0	NX CORE TO 38.5		SS STICK-UP
51	IWRS3	AUGERS TO 25.0	NX CORE TO 35.0		SS STICK-UP
52	IWRS4	AUGERS TO 28.0	NX CORE TO 44.0		SS STICK-UP
53	LSL73S2	AUGERS TO 22.0	NX CORE TO 47.0		SS STICK-UP
54	LSWRS4	AUGERS TO 28.0	ROLLER BIT TO 44.0	NX CORE TO 59.0	SS STICK-UP
55	ML73S2	AUGERS TO 22.0	ROLLER BIT (3-7/8") TO 47.0	NX CORE TO 158.7	SS STICK-UP
56	PB350NE2				MCS TRENCH PUMP
57	RB320SE	AUGERS TO 9.1	NX CORE TO 27.6		SS STICK-UP
58	RWRSE	AUGERS TO 32.5	NX CORE TO 47.5		SS STICK-UP
59	S1B307E	AUGERS TO 16.8			CURB BOX
60	S1B307W	AUGERS TO 21.0			CURB BOX
61	S1B312NW	AUGERS TO 30.3			SS STICK-UP
62	S1B313W	AUGERS TO 16.0			STEEL CURB BOX
63	S1B331SW	AUGERS TO 20.0			SS STICK-UP
64	S1WRE	AUGERS TO 31.0			SS STICK-UP
65	S2B307E	AUGERS TO 44.1			CURB BOX
66	S2B307W	AUGERS TO 39.4			CURB BOX
67	S2B312NW	AUGERS TO 41.1			SS STICK-UP
68	S2B313W	AUGERS TO 30.7			STEEL CURB BOX
69	S2B331SW	AUGERS TO 29.0			SS STICK-UP
70	S2WRE	AUGERS TO 31.0	NX CORE TO 61.5		SS STICK-UP
71	SB301SE	AUGERS TO 28.7			SS STICK-UP
72	SB301W	AUGERS TO 28.0			CURB BOX
73	SB302E	AUGERS TO			CURB BOX
74	SB302W	AUGERS TO 26.0			CURB BOX
75	SB303SE	AUGERS TO 20.0			SS STICK-UP
76	SB303W	AUGERS TO 27.6			CURB BOX
77	SB304NW	AUGERS TO 27.0			CURB BOX
78	SB305W	AUGERS TO 19.7			CURB BOX

TABLE 5.1

KPM ACTIVE WELLS

	1	2	3	4	5	6	7	8	9	10	11	12
	WELL	PARK	AQMS	STRAT	BORING	INSTALL	WELL	RISER	RISER	SCREEN	SCREEN	TOP SCR
		SECTION	LOC ID	INTERVAL		DATE	LENGTH	DIAM	TYPE	DIAM	TYPE	DEPTH
							(FEET)	(INCHES)		(INCHES)		(FEET)
79	SB306SW	KPM	102499	S	SB306SW	20-Nov-81	16.19	2.00	PVC	2.00	PVC	8.40
80	SB306W	KPM	103363	S	SB306W	18-Feb-92	18.08	2.00	PVC	2.00	PVC	6.30
81	SB307N	KPM	103368	S	SB307N	9-Mar-92	29.28	2.00	PVC	2.00	PVC	12.10
82	SB307S	KPM	103361	S	SB307S	19-Feb-92	9.04	2.00	PVC	2.00	PVC	5.00
83	SB308E	KPM	103140	S	SB308E	10-Jan-91	26.01	2.00	PVC	2.00	PVC	9.20
84	SB308E2	KPM	103294	S	SB308E2	11-Nov-91	26.08	2.00	PVC	2.00	PVC	9.00
85	SB308E3	KPM	103295	S	SB308E3	7-Nov-91	26.04	2.00	PVC	2.00	PVC	9.00
86	SB308N	KPM	103332	S	SB308N	26-Feb-92	32.52	2.00	PVC	2.00	PVC	18.00
87	SB308N2	KPM	103449	S	SB308N2	28-Feb-92	30.36	2.00	PVC	2.00	PVC	16.00
88	SB308NE	KPM	103334	S	SB308NE	4-Mar-92	30.07	2.00	PVC	2.00	PVC	16.00
89	SB308SE	KPM	103141	S	SB308SE	14-Jan-91	18.86	2.00	PVC	2.00	PVC	7.00
90	SB309E	KPM	103362	S	SB309E	13-Nov-91	23.74	2.00	PVC	2.00	PVC	9.00
91	SB309S	KPM	101065	S	SB309S	24-Nov-81	12.68	2.00	PVC	2.00	PVC	4.90
92	SB309SW	KPM	103338	S	SB309SW	17-Jan-92	29.77	2.00	PVC	2.00	PVC	8.20
93	SB310SW	KPM	101066	S	SB310SW	25-Nov-81	7.30	2.00	PVC	2.00	PVC	3.00
94	SB314NW	KPM	103337	S	SB314NW	12-Feb-92	16.03	2.00	PVC	2.00	PVC	6.90
95	SB314S	KPM	103167	S	B314S	24-Apr-91	21.70	2.00	PVC	2.00	PVC	4.30
96	SB317N	KPM	103170	S	B317N	3-May-91	17.75	2.00	PVC	2.00	PVC	5.80
97	SB318SW	KPM	102397	S	SB318SW			2.00	PVC	2.00	PVC	
98	SB319N	KPM	102758	S	SB319N	30-Jun-89	11.46	2.00	SS	2.00	SS	5.00
99	SB319NZ	KPM	103410	S	SB319NZ	23-Jun-92	9.19	1.00	PVC	1.00	PVC	4.80
100	SB320SE	KPM	100983	S	SB320SE	8-May-81	11.64	2.00	PVC	2.00	PVC	3.30
101	SB322N	KPM	102866	S	SB322N	15-Nov-89	14.96	2.00	PVC	2.00	PVC	3.50
102	SB322NE	KPM	102867	S	SB322NE	17-Nov-89	15.43	2.00	PVC	2.00	PVC	3.50
103	SB322NE2	KPM	102868	S	SB322NE2	7-Dec-89	15.77	2.00	PVC	2.00	PVC	3.50
104	SB323SE	KPM	103318	S	SB323SE	4-Dec-91	22.85	2.00	PVC	2.00	PVC	8.30
105	SB324N2Z	KPM	103412	S	SB324N2Z	24-Jun-92	17.01	1.00	PVC	1.00	PVC	8.00
106	SB324NER	KPM	102767	S	SB324NER	17-Jul-89	18.36	2.00	SS	2.00	SS	7.00
107	SB324NZ	KPM	103411	S	SB324NZ	23-Jun-92	14.04	1.00	PVC	1.00	PVC	5.00
108	SB327E	KPM	103339	S	SB327E	13-Feb-92	14.50	2.00	PVC	2.00	PVC	5.00
109	SB329NWR	KPM	102766	S	SB329NWR	18-Jul-89	17.30	2.00	SS	2.00	SS	6.00
110	SB329SE2	KPM	103172	S	B329SE2	10-May-91	29.88	2.00	PVC	2.00	PVC	13.00
111	SB331SW2	KPM	103320	S	SB331SW2	6-Dec-91	30.04	2.00	PVC	2.00	PVC	13.40
112	SB332NE	KPM	100987	S	SB332NE	28-Jan-81	13.99	2.00	PVC	2.00	PVC	6.30
113	SB333NW	KPM	100988	S	SB333NW	23-May-81	19.46	2.00	PVC	2.00	PVC	11.00
114	SB339NE	KPM	103142	S	SB339NE	15-Jan-91	17.83	2.00	PVC	2.00	PVC	5.00
115	SB349NW	KPM	102763	S	SB349NW	6-Jul-89	19.60	2.00	SS	2.00	SS	8.00
116	SB350NE	KPM	100989	S	SB350NE	26-Jan-80	4.89	2.00	PVC	2.00	PVC	1.85
117	SB350NWR	KPM	103273	S	SB350NWR	28-Oct-91	11.60	2.00	PVC	2.00	PVC	4.60

TABLE [illegible].1

KPM ACTIVE WELLS

	1	13	14	15	16	17	18	19	20
	WELL	BOT SCR DEPTH (FEET)	NORTH	EAST	REF ELEV	GS ELEV	TOP SCR ELEV	BOT SCR ELEV	DRILLER
79	SB306SW	13.40	1166377.37	745215.68	259.59	257.11	248.40	243.40	KODAK PARK DRILLER
80	SB306W	15.80	1166512.94	745166.01	248.78	247.00	240.70	231.20	PENN DRILLING
81	SB307N	26.60	1166051.90	745528.30	260.98	258.80	246.70	232.20	PENN DRILLING
82	SB307S	9.50	1165747.62	745478.65	259.25	260.21	255.21	250.71	PENN DRILLING
83	SB308E	23.70	1166164.30	746040.68	263.03	260.72	251.52	237.02	ROCH DRILLING
84	SB308E2	24.00	1166219.08	746165.90	263.68	261.60	252.60	237.60	PENN DRILLING
85	SB308E3	24.00	1166112.27	746159.50	263.14	261.15	252.10	237.10	PENN DRILLING
86	SB308N	32.50	1166537.39	745887.46	260.66	261.14	243.14	228.64	PENN DRILLING
87	SB308N2	30.50	1166447.91	745894.80	261.19	261.83	245.83	231.33	PENN DRILLING
88	SB308NE	30.50	1166510.65	746165.56	260.87	261.80	245.80	231.30	PENN DRILLING
89	SB308SE	16.60	1165739.94	746016.27	266.48	264.22	257.22	247.62	ROCH DRILLING
90	SB309E	24.00	1166291.82	745573.55	258.72	258.98	249.98	234.98	PENN DRILLING
91	SB309S	9.90	1166114.38	745530.87	261.98	259.09	254.30	249.30	KODAK PARK DRILLER
92	SB309SW	27.70	1166226.50	745355.75	263.45	261.88	253.68	234.18	PENN DRILLING
93	SB310SW	4.50	1165645.17	745375.47	263.80	261.11	257.80	256.30	KODAK PARK DRILLER
94	SB314NW	16.40	1166576.33	744861.50	244.20	245.07	238.17	228.67	PENN DRILLING
95	SB314S	19.30	1166413.59	744966.30	249.60	247.20	242.90	227.90	PENN DRILLING
96	SB317N	15.80	1167146.42	743990.29	245.15	243.20	237.40	227.40	PENN DRILLING
97	SB318SW		1166652.98	744419.77	243.98	244.17	0.00	0.00	
98	SB319N	10.00	1167698.33	745081.01	236.90	235.44	230.44	225.44	PARRATT WOLFFE
99	SB319NZ	9.30	1167754.04	745081.05	234.21	234.82	230.02	225.52	PENN DRILLING
100	SB320SE	8.30	1165251.56	746048.07	305.54	303.09	298.90	293.90	KODAK PARK DRILLER
101	SB322N	13.50	1166314.08	745065.86	249.26	247.80	244.30	234.30	PARRATT WOLFFE
102	SB322NE	13.50	1166270.80	745116.58	250.33	248.40	244.90	234.90	PARRATT WOLFFE
103	SB322NE2	13.50	1166308.00	745102.65	250.57	248.30	244.80	234.80	PARRATT WOLFFE
104	SB323SE	22.90	1166931.41	745288.85	247.83	248.38	240.08	225.48	PENN DRILLING
105	SB324N2Z	17.50	1167767.79	745491.78	243.32	244.31	236.31	226.81	PENN DRILLING
106	SB324NER	17.00	1167699.76	745550.21	246.63	245.27	238.27	228.27	PARRATT WOLFFE
107	SB324NZ	14.00	1167766.40	745442.91	242.75	243.21	238.21	229.21	PENN DRILLING
108	SB327E	14.50	1166333.12	744798.14	246.09	246.59	241.59	232.09	PENN DRILLING
109	SB329NWR	16.00	1167120.93	742767.57	255.88	254.58	248.58	238.58	PARRATT WOLFFE
110	SB329SE2	28.00	1166740.59	742968.73	257.78	255.90	242.90	227.90	PENN DRILLING
111	SB331SW2	28.00	1167008.95	745572.38	255.73	254.09	240.69	226.09	PENN DRILLING
112	SB332NE	11.80	1167110.09	743334.31	245.99	244.51	237.50	232.00	KODAK PARK DRILLER
113	SB333NW	17.50	1167029.83	741594.30	247.66	245.97	234.70	228.20	KODAK PARK DRILLER
114	SB339NE	15.00	1167409.67	746177.68	253.95	251.12	246.12	236.12	ROCH DRILLING
115	SB349NW	18.00	1167124.25	742361.81	253.10	251.50	243.50	233.50	PARRATT WOLFFE
116	SB350NE	2.85	1167718.73	744666.76	229.64	227.62	225.75	224.75	KODAK PARK DRILLER
117	SB350NWR	9.20	1167712.69	744269.27	234.10	232.10	227.50	222.90	PENN DRILLING

TABLE [illegible].1

KPM ACTIVE WELLS

	1	21	22
	WELL	CONSTRUCTION OVERSIGHT	REPORT / PROJECT
79	SB306SW		D.P.I. WELL INSTALLATION, B-312
80	SB306W	BLASLAND,BOUCK,LEE	BUILDING 307/322 SITE ASSESSMENT - JUNE 1992
81	SB307N	BLASLAND,BOUCK,LEE	BUILDING 307/322 SITE ASSESSMENT - JUNE 1992
82	SB307S	BLASLAND,BOUCK,LEE	BUILDING 307/322 SITE ASSESSMENT - JUNE 1992
83	SB308E	BLASLAND,BOUCK,LEE	KPM EAST FENCELINE GW INVESTIG. - APR 1991
84	SB308E2	BLASLAND,BOUCK,LEE	LETTER REPORT: ADDITIONAL GW ASSESSMENT NEAR MW SB308E - FEB 1992
85	SB308E3	BLASLAND,BOUCK,LEE	LETTER REPORT: ADDITIONAL GW ASSESSMENT NEAR MW SB308E - FEB 1992
86	SB308N	BLASLAND,BOUCK,LEE	LETTER REPORT: B308N PIEZOMETER INSTALLATIONS... - APRIL 1992
87	SB308N2	BLASLAND,BOUCK,LEE	LETTER REPORT: B308N PIEZOMETER INSTALLATIONS... - APRIL 1992
88	SB308NE	BLASLAND,BOUCK,LEE	LETTER REPORT: B308N PIEZOMETER INSTALLATIONS... - APRIL 1992
89	SB308SE	BLASLAND,BOUCK,LEE	KPM EAST FENCELINE GW INVESTIG. - APR 1991
90	SB309E	BLASLAND,BOUCK,LEE	LETTER REPORT: ADDITIONAL GW ASSESSMENT NEAR MW SB308E - FEB 1992
91	SB309S		D.P.I. WELL INSTALLATION, B-312
92	SB309SW	BLASLAND,BOUCK,LEE	BUILDING 307/322 SITE ASSESSMENT - JUNE 1992
93	SB310SW		D.P.I., WELL INSTALLATION, BLDG.312
94	SB314NW	BLASLAND,BOUCK,LEE	BUILDING 307/322 SITE ASSESSMENT - JUNE 1992
95	SB314S	BLASLAND,BOUCK,LEE	KPM HYDROGEOLOGIC INVESTIG. INTERIM REPORT SEPT 1991
96	SB317N	BLASLAND,BOUCK,LEE	KPM HYDROGEOLOGIC INVESTIG. INTERIM REPORT SEPT 1991
97	SB318SW		
98	SB319N	BLASLAND,BOUCK,LEE	PHASE I TECH MEMO KPM FL G-W MONITORING UPGRADE - OCT 1989
99	SB319NZ	BLASLAND,BOUCK,LEE	KPM TRENCH PIEZOMETER INSTALLATION (NO REPORT)
100	SB320SE		(SHALLOW WELL INSTALLATION)
101	SB322N	BLASLAND,BOUCK,LEE	BUILDING 322 ACETONE RELEASE INVESTIG. - FEB 1990
102	SB322NE	BLASLAND,BOUCK,LEE	BUILDING 322 ACETONE RELEASE INVESTIG. - FEB 1990
103	SB322NE2	BLASLAND,BOUCK,LEE	BUILDING 322 ACETONE RELEASE INVESTIG. - FEB 1990
104	SB323SE	BLASLAND,BOUCK,LEE	BUILDING 301-304 SITE ASSESSMENT - FEB 1992
105	SB324N2Z	BLASLAND,BOUCK,LEE	KPM TRENCH PIEZOMETER INSTALLATION (NO REPORT)
106	SB324NER	BLASLAND,BOUCK,LEE	PHASE I TECH MEMO KPM FL G-W MONITORING UPGRADE - OCT 1989
107	SB324NZ	BLASLAND,BOUCK,LEE	KPM TRENCH PIEZOMETER INSTALLATION (NO REPORT)
108	SB327E	BLASLAND,BOUCK,LEE	BUILDING 307/322 SITE ASSESSMENT - JUNE 1992
109	SB329NWR	BLASLAND,BOUCK,LEE	PHASE I TECH MEMO KPM FL G-W MONITORING UPGRADE - OCT 1989
110	SB329SE2	BLASLAND,BOUCK,LEE	KPM HYDROGEOLOGIC INVESTIG. INTERIM REPORT SEPT 1991
111	SB331SW2	BLASLAND,BOUCK,LEE	BUILDING 301-304 SITE ASSESSMENT - FEB 1992
112	SB332NE		(WELL INSTALLATION)
113	SB333NW		(SHALLOW WELL INSTALLATION)
114	SB339NE	BLASLAND,BOUCK,LEE	KPM EAST FENCELINE GW INVESTIG. - APR 1991
115	SB349NW	BLASLAND,BOUCK,LEE	PHASE I TECH MEMO KPM FL G-W MONITORING UPGRADE - OCT 1989
116	SB350NE		(WELL INSTALLATION)
117	SB350NWR	BLASLAND,BOUCK,LEE	LETTER REPORT: B351/352 IRM WELL INSTALLATION AT KODA-VISTA... - FEB 1992

TABLE [illegible].1

KPM ACTIVE WELLS

	1	23	24	25	26
	WELL	DRILLING METHOD 1	DRILLING METHOD 2	DRILLING METHOD 3	PC TYPE
79	SB306SW	AUGERS TO 14.15			SS STICK-UP
80	SB306W	AUGERS TO 21.4			SS STICK-UP
81	SB307N	AUGERS TO 28.1			SS STICK-UP
82	SB307S	AUGERS TO 11.0			CURB BOX
83	SB308E	AUGERS TO 24.7			SS STICK-UP
84	SB308E2	AUGERS TO 24.5			SS STICK-UP
85	SB308E3	AUGERS TO 32.0			SS STICK-UP
86	SB308N	AUGERS TO 36.3			CURB BOX
87	SB308N2	AUGERS TO 37.3			CURB BOX
88	SB308NE	AUGERS TO 36.1			CURB BOX
89	SB308SE	AUGERS TO 17.0			SS STICK-UP
90	SB309E	AUGERS TO 44.0			CURB BOX
91	SB309S	AUGERS TO 10.4			SS STICK-UP
92	SB309SW	AUGERS TO 46.3			SS STICK-UP
93	SB310SW	AUGERS TO 6.36			SS STICK-UP
94	SB314NW	AUGERS TO 24.2			CURB BOX
95	SB314S	AUGERS TO 20.0			SS STICK-UP
96	SB317N	AUGERS TO 15.8			SS STICK-UP
97	SB318SW	AUGERS TO			
98	SB319N	AUGERS TO 11.3			SS STICK-UP
99	SB319NZ	AUGERS TO 9.8			CURB BOX
100	SB320SE	AUGERS TO 8.3			SS STICK-UP
101	SB322N	AUGERS TO 14.5			SS STICK-UP
102	SB322NE	AUGERS TO 14.0			SS STICK-UP
103	SB322NE2	AUGERS TO 14.0			SS STICK-UP
104	SB323SE	AUGERS TO 24.1			CURB BOX
105	SB324N2Z	AUGERS TO 19.0			CURB BOX
106	SB324NER	AUGERS TO 19.2			SS STICK-UP
107	SB324NZ	AUGERS TO 15.5			CURB BOX
108	SB327E	AUGERS TO 29.8			CURB BOX
109	SB329NWR	AUGERS TO 21.4			SS STICK-UP
110	SB329SE2	AUGERS TO 28.5			SS STICK-UP
111	SB331SW2	AUGERS TO 28.0			SS STICK-UP
112	SB332NE	AUGERS TO 15.5			STICK-UP
113	SB333NW	AUGERS TO 17.5			STICK-UP
114	SB339NE	AUGERS TO 31.8			SS STICK-UP
115	SB349NW	AUGERS TO 19.6			SS STICK-UP
116	SB350NE	AUGERS TO 3.25			STICK-UP
117	SB350NWR	AUGERS TO 10.0			SS STICK-UP

TABLE [illegible].1

KPM ACTIVE WELLS

	1	2	3	4	5	6	7	8	9	10	11	12
	WELL	PARK SECTION	AQMS LOC ID	STRAT INTERVAL	BORING	INSTALL DATE	WELL LENGTH (FEET)	RISER DIAM (INCHES)	RISER TYPE	SCREEN DIAM (INCHES)	SCREEN TYPE	TOP SCR DEPTH (FEET)
118	SB350NWZ	KPM	103409	S	SB350NWZ	25-Jun-92	9.35	1.00	PVC	1.00	PVC	4.80
119	SB352NW	KPM	100990	S	SB352NW	22-Jan-81	21.37	2.00	PVC	2.00	PVC	5.00
120	SB352NW2R	KPM	103017	S	SB352NW2R	13-Jul-90	14.21	2.00	SS	2.00	SS	7.20
121	SB352NW2Z	KPM	103408	S	SB352NW2Z	23-Jun-92	16.57	1.00	PVC	1.00	PVC	7.50
122	SB352NW3	KPM	103018	S	SB352NW3	12-Jul-90	14.28	2.00	PVC	2.00	PVC	8.00
123	SB352NWZ	KPM	103407	S	SB352NWZ	24-Jun-92	17.94	1.00	PVC	1.00	PVC	8.50
124	SBM32N	KPM	101728	S	SBM32N	7-May-86	19.85	2.00	PVC	2.00	PVC	15.00
125	SBM41NW	KPM	103126	S	SBM41NW	11-Dec-90	22.22	4.0	PVC	4.00	PVC	5.00
126	SBM41SE	KPM	103127	S	SBM41SE	6-Dec-90	23.47	4.0	PVC	4.00	PVC	6.00
127	SBM41SE2	KPM	103128	S	SBM41SE2	6-Dec-90	29.17	4.0	PVC	4.00	PVC	12.00
128	SBM41SW	KPM	103129	S	SBM41SW	12-Dec-90	23.25	4.0	PVC	4.00	PVC	6.00
129	SBM41W	KPM	103130	S	SBM41W	10-Dec-90	22.19	4.0	PVC	4.00	PVC	5.00
130	SL72SE	KPM	101726	S	SL72SE	19-May-86	18.79	2.00	PVC	2.00	PVC	15.00
131	SL74NE	KPM	103143	S	SL74NE	9-Jan-91	20.85	2.00	PVC	2.00	PVC	5.30
132	SL76S	KPM	101727	S	SL76S	21-May-86	20.05	2.00	PVC	2.00	PVC	15.00
133	SMN1	KPM	102774	S	SMN1	8-Aug-89	14.59	2.00	SS	2.00	SS	5.00
134	SMN10	KPM	103271	S	SMN10	15-Oct-91	11.23	2.00	PVC	2.00	PVC	6.50
135	SMN11	KPM	103272	S	SMN11	18-Oct-91	14.32	2.00	PVC	2.00	PVC	5.00
136	SMN2	KPM	102775	S	SMN2	9-Aug-89	14.64	2.00	SS	2.00	SS	5.00
137	SMN3	KPM	102776	S	SMN3	7-Aug-89	15.74	2.00	SS	2.00	SS	6.00
138	SMN4	KPM	103226	S	SMN4	24-Sep-91	35.79	2.00	PVC	2.00	PVC	16.10
139	SMN5	KPM	103228	S	SMN5	16-Sep-91	31.76	2.00	PVC	2.00	PVC	12.10
140	SMN6	KPM	103230	S	MN6	3-Sep-91	18.39	2.00	PVC	2.00	PVC	8.70
141	SMN7	KPM	103268	S	SMN7	16-Oct-91	22.49	2.00	PVC	2.00	PVC	8.30
142	SMN8	KPM	103269	S	SMN8	17-Oct-91	10.48	2.00	PVC	2.00	PVC	6.10
143	SMN9	KPM	103270	S	SMN9	15-Oct-91	20.70	2.00	PVC	2.00	PVC	6.10
144	STCS	KPM	101729	S	STCS	30-May-86	8.94	2.00	PVC	2.00	PVC	3.50
145	STCS2	KPM	103313	S	STCS2	22-Oct-91	21.36	2.00	PVC	2.00	PVC	14.50
146	SWRNE	KPM	101731	S	SWRNE	15-Apr-86	18.30	2.00	PVC	2.00	PVC	13.50
147	SWRNW	KPM	101732	S	SWRNW	10-Apr-86	14.24	2.00	PVC	2.00	PVC	9.50
148	SWRNW2	KPM	103300	S	SWRNW2	29-Oct-91	16.64	2.00	PVC	2.00	PVC	7.00
149	SWRSE	KPM	103307	S	SWRSE	30-Sep-91	31.00	2.00	PVC	2.00	PVC	19.40
150	SWRSW	KPM	101733	S	SWRSW	29-Apr-86	37.05	2.00	PVC	2.00	PVC	30.00
151	SWRWR	KPM	102757	S	SWRWR	12-Apr-89	55.00	2.00	PVC	2.00	PVC	46.00
152	WTCS2	KPM	103312	W	WTCS2	11-Oct-91	37.30	4.00	SS	4.00	ROCK	20.50

TABLE [illegible].1

KPM ACTIVE WELLS

	1	13	14	15	16	17	18	19	20
	WELL	BOT SCR	NORTH	EAST	REF	GS	TOP SCR	BOT SCR	DRILLER
		DEPTH			ELEV	ELEV	ELEV	ELEV	
		(FEET)							
118	SB350NWZ	9.30	1167741.20	744350.94	230.72	231.17	226.37	221.87	PENN DRILLING
119	SB352NW	20.00	1167718.16	743460.09	255.25	253.36	248.88	233.88	KODAK PARK DRILLER
120	SB352NW2R	12.20	1167721.10	744023.05	236.71	235.00	227.80	222.80	PARRATT WOLFFE
121	SB352NW2Z	17.00	1167745.44	743888.66	239.91	240.84	233.34	223.84	PENN DRILLING
122	SB352NW3	12.50	1167718.34	744017.72	236.78	235.10	227.10	222.60	PARRATT WOLFFE
123	SB352NWZ	18.00	1167737.60	743837.56	241.72	242.28	233.78	224.28	PENN DRILLING
124	SBM32N	20.00	1165840.59	742753.77	269.35	269.69	254.50	249.50	ROCH DRILLING
125	SBM41NW	19.70	1166175.91	744617.20	250.97	248.75	243.75	229.05	ROCH DRILLING
126	SBM41SE	20.70	1166083.75	744803.74	253.89	251.42	245.42	230.72	ROCH DRILLING
127	SBM41SE2	26.70	1165976.04	744772.76	262.07	259.90	247.90	233.20	ROCH DRILLING
128	SBM41SW	20.70	1166096.92	744640.10	255.05	252.80	246.80	232.10	ROCH DRILLING
129	SBM41W	19.70	1166166.50	744701.19	252.39	250.20	245.20	230.50	ROCH DRILLING
130	SL72SE	20.00	1165950.54	743365.85	254.79	254.89	241.00	236.00	ROCH DRILLING
131	SL74NE	18.30	1167761.15	746184.09	252.59	250.04	244.74	231.74	ROCH DRILLING
132	SL76S	20.00	1165981.68	744044.78	251.95	252.10	236.90	231.90	ROCH DRILLING
133	SMN1	15.00	1167926.89	744232.98	224.79	225.20	220.20	210.20	PARRATT WOLFFE
134	SMN10	11.10	1167944.24	745140.16	228.43	228.70	222.20	217.60	PENN DRILLING
135	SMN11	14.60	1168301.95	745035.45	218.48	219.16	214.16	204.56	PENN DRILLING
136	SMN2	15.00	1167926.85	744460.21	223.12	223.48	218.48	208.48	PARRATT WOLFFE
137	SMN3	16.00	1168068.65	744318.36	221.88	222.14	216.14	206.14	PARRATT WOLFFE
138	SMN4	36.00	1167324.29	743212.35	259.77	260.28	244.18	224.28	PENN DRILLING
139	SMN5	32.00	1167646.54	742993.02	250.08	250.62	238.52	218.62	PENN DRILLING
140	SMN6	18.40	1168284.67	743603.62	231.34	231.65	222.95	213.25	PENN DRILLING
141	SMN7	22.90	1167928.49	743978.75	230.18	230.99	222.69	208.09	PENN DRILLING
142	SMN8	10.70	1168349.65	744304.65	218.38	219.00	212.90	208.30	PENN DRILLING
143	SMN9	20.70	1167928.65	744739.81	222.37	222.77	216.67	202.07	PENN DRILLING
144	STCS	7.00	1165219.12	742846.10	278.04	276.40	272.60	269.10	ROCH DRILLING
145	STCS2	19.50	1165157.43	742910.61	312.08	310.22	295.72	290.72	PENN DRILLING
146	SWRNE	18.50	1165862.05	741667.41	253.00	253.22	239.70	234.70	ROCH DRILLING
147	SWRNW	11.50	1165838.32	741283.14	244.14	241.50	231.90	229.90	ROCH DRILLING
148	SWRNW2	15.00	1165564.35	741071.21	247.44	245.80	238.80	230.80	PENN DRILLING
149	SWRSE	29.30	1164925.21	742125.76	286.80	285.10	265.70	255.80	PENN DRILLING
150	SWRSW	35.00	1164657.73	740892.14	309.35	306.74	277.30	272.30	ROCH DRILLING
151	SWRWR	51.00	1165176.52	740933.03	293.05	291.00	243.05	238.05	KODAK PARK DRILLER
152	WTCS2	35.50	1165155.21	742905.99	311.90	310.10	289.60	274.60	PENN DRILLING

TABLE [illegible].1

KPM ACTIVE WELLS

	1	21	22
	WELL	CONSTRUCTION OVERSIGHT	REPORT / PROJECT
118	SB350NWZ	BLASLAND,BOUCK,LEE	KPM TRENCH PIEZOMETER INSTALLATION (NO REPORT)
119	SB352NW		(WELL INSTALLATION)
120	SB352NW2R	BLASLAND,BOUCK,LEE	KPM N FL G-W QUALITY ASSESSMENT - DEC 1990
121	SB352NW2Z	BLASLAND,BOUCK,LEE	KPM TRENCH PIEZOMETER INSTALLATION (NO REPORT)
122	SB352NW3	BLASLAND,BOUCK,LEE	KPM N FL G-W QUALITY ASSESSMENT - DEC 1990
123	SB352NWZ	BLASLAND,BOUCK,LEE	KPM TRENCH PIEZOMETER INSTALLATION (NO REPORT)
124	SBM32N	H&A	REPORT ON HYDROGEOLOGICAL INVESTIGATION - WEILAND RD LANDFILL - AUG 1986
125	SBM41NW	BLASLAND,BOUCK,LEE	REPORT ON BULK PETROLEUM FACILITY MONITORING PROG FOR BLDG E-24 AND M-41 - FEB 1991
126	SBM41SE	BLASLAND,BOUCK,LEE	REPORT ON BULK PETROLEUM FACILITY MONITORING PROG FOR BLDG E-24 AND M-41 - FEB 1991
127	SBM41SE2	BLASLAND,BOUCK,LEE	REPORT ON BULK PETROLEUM FACILITY MONITORING PROG FOR BLDG E-24 AND M-41 - FEB 1991
128	SBM41SW	BLASLAND,BOUCK,LEE	REPORT ON BULK PETROLEUM FACILITY MONITORING PROG FOR BLDG E-24 AND M-41 - FEB 1991
129	SBM41W	BLASLAND,BOUCK,LEE	REPORT ON BULK PETROLEUM FACILITY MONITORING PROG FOR BLDG E-24 AND M-41 - FEB 1991
130	SL72SE	H&A	REPORT ON HYDROGEOLOGICAL INVESTIGATION - WEILAND RD LANDFILL - AUG 1986
131	SL74NE	BLASLAND,BOUCK,LEE	KPM EAST FENCELINE GW INVESTIG. - APR 1991
132	SL76S	H&A	REPORT ON HYDROGEOLOGICAL INVESTIGATION - WEILAND RD LANDFILL - AUG 1986
133	SMN1	BLASLAND,BOUCK,LEE	TECH MEMO: HEALTH RELATED STUDY: KODA-VISTA G-W SAMPLING - OCT 1989
134	SMN10	BLASLAND,BOUCK,LEE	LETTER REPORT: B351/352 IRM WELL INSTALLATION AT KODA-VISTA... - FEB 1992
135	SMN11	BLASLAND,BOUCK,LEE	LETTER REPORT: B351/352 IRM WELL INSTALLATION AT KODA-VISTA... - FEB 1992
136	SMN2	BLASLAND,BOUCK,LEE	TECH MEMO: HEALTH RELATED STUDY: KODA-VISTA G-W SAMPLING - OCT 1989
137	SMN3	BLASLAND,BOUCK,LEE	TECH MEMO: HEALTH RELATED STUDY: KODA-VISTA G-W SAMPLING - OCT 1989
138	SMN4	BLASLAND,BOUCK,LEE	LETTER REPORT: KPM N FL ADDENDUM, KODA-VISTA WELL COMPLETION REPORT - NOV 1991
139	SMN5	BLASLAND,BOUCK,LEE	LETTER REPORT: KPM N FL ADDENDUM, KODA-VISTA WELL COMPLETION REPORT - NOV 1991
140	SMN6	BLASLAND,BOUCK,LEE	LETTER REPORT: KPM N FL ADDENDUM, KODA-VISTA WELL COMPLETION REPORT - NOV 1991
141	SMN7	BLASLAND,BOUCK,LEE	LETTER REPORT: B351/352 IRM WELL INSTALLATION AT KODA-VISTA... - FEB 1992
142	SMN8	BLASLAND,BOUCK,LEE	LETTER REPORT: B351/352 IRM WELL INSTALLATION AT KODA-VISTA... - FEB 1992
143	SMN9	BLASLAND,BOUCK,LEE	LETTER REPORT: B351/352 IRM WELL INSTALLATION AT KODA-VISTA... - FEB 1992
144	STCS	H&A	REPORT ON HYDROGEOLOGICAL INVESTIGATION - WEILAND RD LANDFILL - AUG 1986
145	STCS2	H&A	WEILAND ROAD LANDFILL INTERIM HYDROGEO. INVESTIG. - MAY 1992
146	SWRNE	H&A	REPORT ON HYDROGEOLOGICAL INVESTIGATION - WEILAND RD LANDFILL - AUG 1986
147	SWRNW	H&A	REPORT ON HYDROGEOLOGICAL INVESTIGATION - WEILAND RD LANDFILL - AUG 1986
148	SWRNW2	H&A	WEILAND ROAD LANDFILL INTERIM HYDROGEO. INVESTIG. - MAY 1992
149	SWRSE	H&A	WEILAND ROAD LANDFILL INTERIM HYDROGEO. INVESTIG. - MAY 1992
150	SWRSW	H&A	REPORT ON HYDROGEOLOGICAL INVESTIGATION - WEILAND RD LANDFILL - AUG 1986
151	SWRWR		(REPLACEMENT WELL FOR SWRW)
152	WTCS2	H&A	WEILAND ROAD LANDFILL INTERIM HYDROGEO. INVESTIG. - MAY 1992

TABLE ●.1

KPM ACTIVE WELLS

	1	23	24	25	26
	WELL	DRILLING	DRILLINO	DRILLING	PC
		METHOD 1	METHOD 2	METHOD 3	TYPE
118	SB350NWZ	AUGERS TO 9.8			CURB BOX
119	SB352NW	AUGERS TO 25.96			STICK-UP
120	SB352NW2R	AUGERS TO 12.7			SS STICK-UP
121	SB352NW2Z	AUGERS TO 18.5			CURB BOX
122	SB352NW3	AUGERS TO 13.3			SS STICK-UP
123	SB352NWZ	AUGERS TO 19.5			CURB BOX
124	SBM32N	AUGERS TO 21.0			STEEL ROADWAY BOX
125	SBM41NW	AUGERS TO 21.0			SS
126	SBM41SE	AUGERS TO 22.0			SS
127	SBM41SE2	AUGERS TO 28.0			SS
128	SBM41SW	AUGERS TO 22.0			SS
129	SBM41W	AUGERS TO 21.0			SS
130	SL72SE	AUGERS TO 21.0			FLUSH-MOUNT
131	SL74NE	AUGERS TO 18.5			SS STICK-UP
132	SL76S	AUGERS TO 21.0			ROADWAY BOX
133	SMN1	AUGERS TO 24.0			FLUSH-MOUNT CURB BOX
134	SMN10	AUGERS TO 12.3			CURB BOX
135	SMN11	AUGERS TO 15.0			CURB BOX
136	SMN2	AUGERS TO 21.0			FLUSH-MOUNT CURB BOX
137	SMN3	AUGERS TO 19.0			FLUSH-MOUNT CURB BOX
138	SMN4	AUGERS TO 38.0			CURB BOX
139	SMN5	AUGERS TO 36.7			CURB BOX
140	SMN6	AUGERS TO 19.0			CURB BOX
141	SMN7	AUGERS TO 28.4			CURB BOX
142	SMN8	AUGERS TO 11.6			CURB BOX
143	SMN9	AUGERS TO 24.2			CURB BOX
144	STCS	AUGERS TO 8.0			STEEL STICK-UP
145	STCS2	AUGERS TO 20.5	NX CORE TO 35.5		SS STICK-UP
146	SWRNE	AUGERS TO 19.0			ROADWAY BOX
147	SWRNW	AUGERS TO 12.0			STEEL PIPE
148	SWRNW2	AUGERS TO 18.0			SS STICK-UP
149	SWRSE	AUGERS TO 30.7			SS STICK-UP
150	SWRSW	AUGERS TO 36.0			STEEL PIPE
151	SWRWR	AUGERS TO 51.2			PVC PIPE STICK-UP
152	WTCS2	AUGERS TO 20.5	ROLLER BIT TO 35.5	NX CORE TO 153.5	SS STICK-UP

TABLE [illegible].1

KPS ACTIVE WELLS

	1	2	3	4	5	6	7	8	9	10	11	12	13
	WELL ID	PARK SECTION	AQMS LOC ID	STRAT INTERVAL	BORING	INSTALL DATE	WELL LENGTH (FEET)	RISER DIAM (INCHES)	RISER TYPE	SCREEN DIAM (INCHES)	SCREEN TYPE	TOP SCR DEPTH (FEET)	BOT SCR DEPTH (FEET)
1	RB502NE	KPS	100991	R	RB502NE	17-Apr-81	29.46	4.0	PVC	3.0	ROCK	11.82	26.82
2	RB502NW	KPS	100992	R	RB502NW	5-Apr-81	34.34	4.0	PVC	3.0	ROCK	16.35	31.35
3	RB507NW	KPS	100993	R	RB507NW	14-Apr-81	35.21	4.0	PVC	3.0	ROCK	12.95	27.95
4	RB508SW	KPS	103567	R	RB508SW	26-May-93	30.00	2.0	PVC	2.0	PVC	12.90	27.40
5	RB601NW	KPS	103565	R	RB601NW	27-May-93	19.69	2.0	PVC	2.0	PVC	10.00	20.00
6	RB605NE	KPS	103379	R	RB605NE	16-Mar-92	12.52	2.0	PVC	2.0	PVC	5.00	9.50
7	RB605NE2	KPS	103468	R	RB605NE2	22-Sep-92	19.94	2.0	PVC	2.0	PVC	3.70	18.00
8	RB605NE3	KPS	103469	R	RB605NE3	22-Sep-92	17.42	2.0	PVC	2.0	PVC	5.00	15.00
9	RB605NE4	KPS	103470	R	RB605NE4	17-Sep-92	19.09	2.0	PVC	2.0	PVC	12.30	17.30
10	RB605SE2	KPS	103566	R	RB605SE2	28-May-93	20.24	2.0	PVC	2.0	PVC	7.70	17.70
11	RCPE5	KPS	100997	R	RCPE5	16-Nov-82	33.14	2.0	PVC	2.0	PVC	20.00	30.00
12	RCPE6	KPS	101807	R	RCPE6	17-Nov-82	32.73	2.0	PVC	2.0	PVC	20.00	30.00
13	RCPW6	KPS	100998	R	RCPW6	10-Nov-82	32.02	2.0	PVC	2.0	PVC	19.00	29.00
14	SB506SE	KPS	103563	S	SB506SE	20-May-93	14.55	2.0	PVC	2.0	PVC	5.30	12.30
15	SB514NE	KPS	103570	S	SB514NE	20-May-93	14.45	2.0	PVC	2.0	PVC	5.00	12.00
16	SB604E	KPS	103569	S	SB604E	24-May-93	13.11	2.0	PVC	2.0	PVC	4.00	10.50
17	SB604SW	KPS	103564	S	SB604SW	21-May-93	12.35	2.0	PVC	2.0	PVC	4.70	9.70
18	SB605SE	KPS	103568	S	SB605SE	25-May-93	11.54	2.0	PVC	2.0	PVC	4.20	9.20

TABLE [illegible].1

KPS ACTIVE WELLS

	1	14	15	16	17	18	19	20	21
	WELL ID	NORTH	EAST	REF ELEV	GS ELEV	TOP SCR ELEV	BOT SCR ELEV	DRILLER	CONSULTANT
1	RB502NE	1164731.13	740097.80	320.04	317.70	305.58	290.58	KODAK PARK DRILLER	
2	RB502NW	1164694.82	742503.52	320.49	318.00	301.15	286.15	KODAK PARK DRILLER	
3	RB507NW	1164163.40	741021.98	320.53	317.82	300.32	285.32	KODAK PARK DRILLER	
4	RB508SW	1162896.83	740863.78	326.18	323.58	310.68	296.18	EMPIRE SOILS	BLASLAND, BOUCK, LEE
5	RB601NW	1161207.14	741055.29	331.14	331.45	321.45	311.45	EMPIRE SOILS	BLASLAND, BOUCK, LEE
6	RB605NE	1162067.00	743882.04	326.12	323.60	318.60	314.10	PENN DRILLING	BLASLAND, BOUCK, LEE
7	RB605NE2	1162210.84	743818.01	327.87	325.93	322.23	307.93	PENN DRILLING	BLASLAND, BOUCK, LEE
8	RB605NE3	1162215.49	743911.09	323.55	321.13	316.13	306.13	PENN DRILLING	BLASLAND, BOUCK, LEE
9	RB605NE4	1161598.94	743888.32	326.27	324.48	312.18	307.18	PENN DRILLING	BLASLAND, BOUCK, LEE
10	RB605SE2	1159766.76	745599.69	324.97	322.43	314.73	304.73	EMPIRE SOILS	BLASLAND, BOUCK, LEE
11	RCPE5	1163001.07	743423.09	329.36	326.65	306.22	296.22	ROCH DRILLING	TRC ENVIRONMENTAL CONSULTANTS, INC.
12	RCPE6	1162964.81	742717.38	331.50	329.00	308.77	298.77	ROCH DRILLING	TRC ENVIRONMENTAL CONSULTANTS, INC.
13	RCPW6	1162428.76	742842.37	340.22	337.90	318.20	308.20	ROCH DRILLING	TRC ENVIRONMENTAL CONSULTANTS, INC.
14	SB506SE	1163481.00	744453.79	318.57	316.32	311.02	304.02	EMPIRE SOILS	BLASLAND, BOUCK, LEE
15	SB514NE	1163154.47	745740.20	299.90	297.45	292.45	285.45	EMPIRE SOILS	BLASLAND, BOUCK, LEE
16	SB604E	1161800.11	746025.77	302.11	299.50	295.50	289.00	EMPIRE SOILS	BLASLAND, BOUCK, LEE
17	SB604SW	1161007.71	745359.13	307.02	304.37	299.67	294.67	EMPIRE SOILS	BLASLAND, BOUCK, LEE
18	SB605SE	1160229.43	744419.16	322.34	320.00	315.80	310.80	EMPIRE SOILS	BLASLAND, BOUCK, LEE

TABLE 5.1

KPS ACTIVE WELLS

	1	22	23	24
	WELL ID	REPORT / PROJECT	DRILLING METHOD 1	DRILLING METHOD 2
1	RB502NE		AUGERS TO 11.32	CORE TO 26.82
2	RB502NW		AUGERS TO 15.85	CORE TO 31.95
3	RB507NW		AUGERS TO 12.45	CORE TO 27.95
4	RB508SW	(IN PROGRESS)	AUGERS TO 11.8	NX CORE TO 32.0
5	RB601NW	(IN PROGRESS)	AUGERS TO 4.1	NX CORE TO 24.5
6	RB605NE	B-605 TRANSFER PIPE RELEASE INVESTIG - JUNE 1992	AUGERS TO 10.5	
7	RB605NE2	B-605 CHEMICAL RELEASE PHASE II INVESTIG - MAY 1993	AUGERS TO 29.0	
8	RB605NE3	B-605 CHEMICAL RELEASE PHASE II INVESTIG - MAY 1993	AUGERS TO 18.0	
9	RB605NE4	B-605 CHEMICAL RELEASE PHASE II INVESTIG - MAY 1993	AUGERS TO 22.3	
10	RB605SE2	(IN PROGRESS)	AUGERS TO 4.8	NX CORE TO 20.5
11	RCPE5	FINAL REPORT TO EKC FOR A SITE INVESTIG OF KPS COAL STORAGE PILE - FEB 1983	AUGERS TO 30.0	
12	RCPE6	FINAL REPORT TO EKC FOR A SITE INVESTIG OF KPS COAL STORAGE PILE - FEB 1983	AUGERS TO 30.0	
13	RCPW6	FINAL REPORT TO EKC FOR A SITE INVESTIG OF KPS COAL STORAGE PILE - FEB 1983	AUGERS TO 30.0	
14	SB506SE	(IN PROGRESS)	AUGERS TO 12.4	
15	SB514NE	(IN PROGRESS)	AUGERS TO 12.3	
16	SB604E	(IN PROGRESS)	AUGERS TO 10.8	
17	SB604SW	(IN PROGRESS)	AUGERS TO 10.0	
18	SB605SE	(IN PROGRESS)	AUGERS TO 9.4	

TABLE [illegible].1

KPS ACTIVE WELLS

	1	25	26
	WELL ID	DRILLING	PC
		METHOD 3	TYPE
1	RB502NE		SS STICK-UP
2	RB502NW		SS STICK-UP
3	RB507NW		SS STICK-UP
4	RB508SW	REAMED W/ ROLLER BIT TO 27.4	SS STICK-UP
5	RB601NW	REAMED W/ ROLLER BIT TO 20.0	FLUSH
6	RB605NE		SS STICK-UP
7	RB605NE2		SS STICK-UP
8	RB605NE3		SS STICK-UP
9	RB605NE4		SS STICK-UP
10	RB605SE2	REAMED W/ ROLLER BIT TO 17.7	SS STICK-UP
11	RCPE5		SS STICK-UP
12	RCPE6		SS STICK-UP
13	RCPW6		SS STICK-UP
14	SB506SE		SS STICK-UP
15	SB514NE		SS STICK-UP
16	SB604E		SS STICK-UP
17	SB604SW		SS STICK-UP
18	SB605SE		SS STICK-UP

TABLE [illegible].1

INACTIVE WELLS AS OF 10/15/93

	1	2	3	4	5	6	7	8	9	10
	WELL ID	PARK SECTION	AQMS LOC ID	BORING NAME	INSTALL DATE	WELL LENGTH (FEET)	RISER DIAM (INCHES)	RISER TYPE	SCREEN DIAM (INCHES)	SCREEN TYPE
1	GB21N	KPE	101671	GB21N	22-Jan-86	29.30	4.00	PVC	3.00	ROCK
2	GB23SW	KPE	101665	GB23SW	13-Jan-86	27.67	4.00	PVC	3.00	ROCK
3	GB28NW	KPE	101237	GB28NW	18-Sep-84	39.75	4.00	PVC	3.00	ROCK
4	GB2N	KPE	101236	GB2N	14-Sep-84	34.89	3.00	PVC	3.00	ROCK
5	GB53N	KPE	102020	GB53N	17-Nov-86	32.20	2.00	RS	2.00	RS
6	GB54SE	KPE	100970	GB54SE	26-Mar-84	23.52	4.00	PVC	3.00	ROCK
7	GB57N	KPE	101994	GB57N	24-Oct-86	34.90	4.00	RS	4.00	ROCK
8	GL12NW	KPE	102007	GL12NW	10-Oct-86	32.07	4.00	RS	3.00	ROCK
9	GL42S	KPE	102034	GL42S	17-Dec-86	23.86	2.00	RS	2.00	RS
10	GL45W	KPE	100967	GL45W	29-Mar-84	25.77	4.00	PVC	3.00	ROCK
11	GL47N	KPE	101231	GL47N	21-Sep-84	44.96	4.00	PVC	3.00	ROCK
12	QB46N	KPE	102001	QB46N	21-Oct-86	62.48	4.00	RS	3.00	ROCK
13	QB53NE	KPE	101996	QB53NE	28-Oct-86	70.58	4.00	RS	3.00	ROCK
14	QB54NW	KPE	101998	QB54NW	21-Oct-86	51.84	4.00	RS	3.00	ROCK
15	QB54SE	KPE	101997	QB54SE	29-Oct-86	61.67	4.00	RS	3.00	ROCK
16	QL12NW	KPE	102006	QL12NW	3-Nov-86	69.00	4.00	RS	3.00	ROCK
17	SB21N	KPE	101677	SB21N	22-Jan-86	14.43	2.00	PVC	2.00	PVC
18	SB23SW	KPE	101673	SB23SW	13-Jan-86	11.76	2.00	PVC	2.00	PVC
19	SB46N	KPE	102003	SB46N	17-Oct-86	9.66	2.00	RS	2.50	SS
20	GB49W	KPE	102616	GB49W	16-Jan-89	12.90	4.00	SS	4.00	SS
21	SB53NE	KPE	100974	SB53NE	20-Feb-84	16.50	2.00	PVC	2.00	PVC
22	SB54NW	KPE	102000	SB54NW	20-Oct-86	13.23	2.00	RS	2.50	SS
23	SB57N	KPE	101995	SB57N	27-Oct-86	21.04	2.00	RS	2.00	SS
24	GB65E	KPE	102615	GB65E	16-Jan-89	12.80	4.00	SS	4.00	SS
25	SL12NW	KPE	102008	SL12NW	9-Oct-86	15.35	2.00	RS	2.50	SS
26	SL14SW	KPE	102037	SL14SW	19-Dec-86	23.89	2.00	RS	2.50	SS
27	SL42S	KPE	102035	SL42S	11-Dec-86	14.62	2.00	RS	2.50	SS
28	SL42SE	KPE	102227	SL42SE	28-May-87	21.50	2.00	RS	2.00	RS
29	G2	KPM	101045	G2	1-Apr-80	42.36	2.00	PVC		ROCK
30	GB329SE	KPM	102604	GB329SE	30-Apr-80	47.54	1.50	SS	1.89	ROCK
31	GM5	KPM	102505	GM5	19-Apr-83	65.36	4.00	PVC	3.00	ROCK
32	M3	KPM	101038	M3	17-Jul-80		2.00	PVC	2.00	PVC
33	M4	KPM	101039	M4	14-Jul-80	30.20	2.00	PVC	2.00	PVC
34	M6	KPM	101041	M6	3-Jul-80	13.50	2.00	PVC	2.00	PVC
35	PB329S2	KPM	103583				8.00	SS		
36	S2	KPM	102162							
37	SB325NE	KPM	100985							

TABLE [illegible].1

INACTIVE WELLS AS OF 10/15/93

	1	11	12	13	14	15	16	17	18
	WELL			REF	GS	TOP SCR	BOT SCR		CONSTRUCTION
	ID	NORTH	EAST	ELEV	ELEV	ELEV	ELEV	DRILLER	OVERSIGHT
1	GB21N	1167270.50	753912.80	215.04	215.39	199.04	185.74	KODAK PARK DRILLER	H&A
2	GB23SW	1167165.22	752661.78	222.91	223.54	210.14	195.24	KODAK PARK DRILLER	H&A
3	GB28NW	1166612.60	753360.01	227.17	227.72	201.52	187.42	KODAK PARK DRILLER	
4	GB2N	1166793.44	753984.15	217.47	217.6	196.98	182.58	KODAK PARK DRILLER	
5	GB53N	1168047.05	753678.94	208.08	208.48	185.88	175.88	ROCH DRILLING	H&A
6	GB54SE	1167606.16	753866.77	210.54	211.17	202.37	187.02	KODAK PARK DRILLER	H&A
7	GB57N	1168042.11	754050.54	208.06	208.36	183.16	173.16	ROCH DRILLING	H&A
8	GL12NW	1168041.70	752801.86	211.1	211.53	189.03	179.03	ROCH DRILLING	H&A
9	GL42S	1168316.47	753292.08	207.01	207.15	189.15	183.15	ROCH DRILLING	H&A
10	GL45W	1167826.06	751855.20	223.55	223.88	210.28	197.78	KODAK PARK DRILLER	
11	GL47N	1165838.04	753927.77	226.47	227.27	197.46	181.51	KODAK PARK DRILLER	
12	QB46N	1167487.25	753599.91	214.54	214.56	162.06	152.06	ROCH DRILLING	H&A
13	QB53NE	1168046.70	753702.33	208.58	208.5	172.00	138.00	ROCH DRILLING	H&A
14	QB54NW	1167735.90	753690.23	212.2	212.6	170.36	160.36	ROCH DRILLING	H&A
15	QB54SE	1167591.14	753870.91	212.57	212.6	161.20	150.90	ROCH DRILLING	H&A
16	QL12NW	1168048.86	752803.38	210.76	211.29	170.29	141.29	ROCH DRILLING	H&A
17	SB21N	1167270.44	753918.01	215.22	215.59	205.79	200.79	KODAK PARK DRILLER	H&A
18	SB23SW	1167166.96	752666.24	222.75	223.29	215.99	210.99	KODAK PARK DRILLER	H&A
19	SB46N	1167486.62	753597.01	214.06	214.5	209.40	204.40	ROCH DRILLING	H&A
20	GB49W	1167080.50	752626.00	208.70	208.60	205.80	195.80	ROCH DRILLING	H&A
21	SB53NE	1168052.13	753703.89	208.42	208.83	197.92	191.92	KODAK PARK DRILLER	H&A
22	SB54NW	1167736.66	753685.05	212.12	212.7	203.89	198.89	ROCH DRILLING	H&A
23	SB57N	1168042.48	754042.99	208.12	208.38	191.88	187.08	ROCH DRILLING	H&A
24	GB65E	1166994.60	752507.90	208.50	208.40	205.70	195.70	ROCH DRILLING	H&A
25	SL12NW	1168035.82	752802.27	211.24	211.69	200.89	195.89	ROCH DRILLING	H&A
26	SL14SW	1168257.19	754360.22	208.38	208.99	194.49	184.49	ROCH DRILLING	H&A
27	SL42S	1168302.01	753292.33	206.88	207.26	197.26	192.26	ROCH DRILLING	H&A
28	SL42SE	1168216.90	753947.40	208.74	209.04	192.14	187.24	HYDRO GROUP, INC.	H&A
29	G2			257.01	255.97	224.47	213.61	KODAK PARK DRILLER	
30	GB329SE			257.01	255.97		209.47	KODAK PARK DRILLER	
31	GM5			265.42	265.86	215.06	200.06	EMPIRE SOILS	EMPIRE SOILS
32	M3	1165362.00	742527.00		273.1	263.10	237.10	CE	DAMES & MOORE
33	M4	1165823.00	742438.00		270.4	265.90	240.20	CE	DAMES & MOORE
34	M6	1165893.00	744339.00		255.9	252.90	242.40	CE	DAMES & MOORE
35	PB329S2	1166738.04	742793.50	253.42	256.01				
36	S2								
37	SB325NE								

TABLE [illegible].1

INACTIVE WELLS AS OF 10/15/93

	1	2	3	4	5	6	7	8	9	10
	WELL ID	PARK SECTION	AQMS LOC ID	BORING NAME	INSTALL DATE	WELL LENGTH (FEET)	RISER DIAM (INCHES)	RISER TYPE	SCREEN DIAM (INCHES)	SCREEN TYPE
38	SB351SE	KPM	101060				2.00	PVC		
39	SB352SW	KPM	101062	SB352SW	19-Apr-84	16.50	2.00	PVC	2.00	PVC
40	SB352W	KPM	102603				2.00	PVC	2.00	PVC
41	SM5	KPM	102506	SM5	19-Apr-83	49.74	2.00	PVC	1.50	PVC
42	SWRL1	KPM	102592	SWRL1	12-Jun-78		2.00	PVC	2.00	PVC
43	SWRL6	KPM	102597	SWRL6	16-Jun-78		2.00	PVC	2.00	PVC
44	SWRL7	KPM	102598	SWRL7	16-Jun-78		2.00	PVC	2.00	PVC
45	RCPE3	KPS	100995	RCPE3	11-Nov-82	32.64	2.0	PVC	2.0	PVC
46	IWS10	KPW	102732	IWS10	26-May-89	10.70	2.0	SS	2.0	SS
47	SB104SE	KPW	101714	SB104SE	30-Jun-83	20.66	1.5	PVC	1.5	PVC
48	SB115SW	KPW	102048	B115SW	23-Dec-86	14.61	2.0	SS	2.0	SS
49	SB119E	KPW	101711	B119E	02-Oct-85	13.09	2.0	PVC	2.0	PVC
50	PB205SE	KPX	102918	PB205SE	1-May-89		6.00	SS	6.00	SS

TABLE [illegible].1

INACTIVE WELLS AS OF 10/15/93

	1	11	12	13	14	15	16	17	18
	WELL			REF	GS	TOP SCR	BOT SCR		CONSTRUCTION
	ID	NORTH	EAST	ELEV	ELEV	ELEV	ELEV	DRILLER	OVERSIGHT
38	SB351SE			241.94	240.70				
39	SB352SW	1167415.76	744069.85	237.99	238.19	231.49	221.49	KODAK PARK DRILLER	
40	SB352W	1167685.25	743909.22	240.66	240.23				
41	SM5			265.84	266.1	244.10	216.10	KODAK PARK DRILLER	
42	SWRL1					245.00	229.00		DAMES & MOORE
43	SWRL6					234.20	229.20		DAMES & MOORE
44	SWRL7					233.60	228.60		DAMES & MOORE
45	RCPE3	1162421.64	743395.9	341.34	338.98	318.7	308.7	ROCH DRILLING	TRC ENVIRONMENTAL CON
46	IWS10	1166274.91	750554.94	233.77	233.92	228.47	223.07	ROCH DRILLING	H&A
47	SB104SE			232.87	233.51	221.96	212.21	KODAK PARK DRILLING	KODAK
48	SB115SW	1166905.55	750143.89	235.31	232.60	230.70	220.70	KODAK PARK DRILLING	KODAK
49	SB119E			230.07	230.83	226.98	216.98	KODAK PARK DRILLER	KODAK
50	PB205SE							ROCH DRILLING	

TABLE [illegible].1

ABANDONED WELLS AS OF 10/15/93

	1	2	3	4	5	6	7	8	9	10	11
	WELL ID	PARK SECTION	AQMS LOC ID	BORING NAME	INSTALL DATE	ABANDON DATE	WELL LENGTH (FEET)	RISER DIAM (INCHES)	RISER TYPE	SCREEN DIAM (INCHES)	SCREEN TYPE
1	G1ES	KPE	102641	G1ES	14-Feb-89	20-Feb-89		4.00	SS		ROCK
2	G1ES10	KPE	102671	G1ES10	3-Mar-89	17-Feb-92	32.40	4.00	SS	3.00	ROCK
3	G1ES3	KPE	102645	G1ES3	15-Feb-89	18-Feb-92	28.53	4.00	SS	3.00	ROCK
4	G1ES4	KPE	102648	G1ES4	19-Feb-89	1-Mar-89		4.00	SS		
5	G2ES	KPE	102642	G2ES	17-Feb-89	20-Feb-89		4.00	SS		ROCK
6	G2ES3	KPE	102646	G2ES3	16-Feb-89	18-Feb-92	39.73	4.00	SS	3.00	ROCK
7	GB18S	KPE	102009	GB18S	31-Oct-86	18-Mar-91	50.77	4.00	RS	3.00	ROCK
8	GB29NE	KPE	100968	GB29NE	22-Mar-84	1-Jun-88	34.52	4.00	PVC	3.00	ROCK
9	GB53NE	KPE	100969	GB53NE	20-Feb-84	1-Nov-86	34.00	4.00	PVC	3.00	ROCK
10	GB65SE	KPE	101672	GB65SE	8-Jan-86	26-Nov-91	26.44	3.00	PVC	3.00	ROCK
11	GQES14	KPE	102826	GQES14	25-Oct-89	15-Jul-93	73.90	4.00	RS	3.00	ROCK
12	PB53N	KPE	102223	PB53N	13-May-87	1-Apr-89	35.10	6.00	SS	6.00	SS
13	PES11	KPE	102691	PES11	14-Apr-89	15-Jul-93	37.38	4.00	PVC	4.00	PVC
14	PES12	KPE	102692	PES12	15-Apr-89	15-Jul-93	25.00	4.00	PVC	4.00	PVC
15	QB57N	KPE	101993	QB57N	23-Oct-86	11-Nov-91	69.70	4.00	RS	3.00	ROCK
16	QL14SW	KPE	102036	QL14SW	19-Dec-86	26-Nov-91	67.44	4.00	RS	3.00	ROCK
17	QL42S	KPE	102033	QL42S	15-Dec-86	15-Oct-91	60.73	4.00	RS	3.00	ROCK
18	QL42SE	KPE	102229	QL42SE	26-May-87	15-Oct-91	40.20	6.00	RS	6.00	ROCK
19	QL42SE2	KPE	102226	QL42SE2	19-May-87	26-Nov-91	60.23	6.00	RS	6.00	ROCK
20	SB16N	KPE	101992	SB16N	13-Oct-86	12-Sep-91	14.54	2.00	RS	2.00	SS
21	SB18S	KPE	102010	SB18S	30-Oct-86	18-Mar-91	16.35	2.00	RS	2.50	SS
22	SB29NE	KPE	100973	SB29NE	22-Mar-84	1-Jun-88	15.04	2.00	PVC	2.00	PVC
23	SB38NE	KPE	102156	SB38NE	19-Aug-87	1-Oct-88	19.80	2.00	PVC	2.00	PVC
24	SB38NW	KPE	102159	SB38NW	26-Aug-87	1-Oct-88	19.50	2.00	PVC	2.00	PVC
25	SB62SE	KPE	100975	SB62SE	15-Mar-84	11-Sep-91	7.65	2.00	PVC	2.00	PVC
26	SB72SE3	KPE	102600	SB72SE3	17-Jul-86	1-Nov-86	13.00	2.00	PVC	2.00	PVC
27	SL15N	KPE	101674	SL15N	6-Dec-85	5-Feb-92	18.43	2.00	PVC	2.00	PVC
28	SL45W	KPE	100972	SL45W	29-Mar-84	9-Jul-92	10.32	2.00	PVC	2.00	PVC
29	SL47N	KPE	101230	SL47N	21-Sep-84	8-Jul-92	19.95	2.00	PVC	2.00	PVC
30	GB324NE	KPM	100977	GB324NE	21-Jan-81	12-Jul-89	34.18	4.00	PVC	3.00	ROCK
31	GB329SW	KPM	101044	GB329SW	1-Apr-80	1-Jul-90	38.62	1.50	RS	1.89	ROCK
32	GB350NW	KPM	101057	GB350NW	29-Mar-82	30-Oct-91	26.55	4.00	PVC	3.00	ROCK
33	GWRC1	KPM	101027	GWRC1	11-Jun-80	23-Oct-91	98.67	4.00	PVC	4.00	PVC
34	GWRC2	KPM	101030	GWRC2	18-Jun-80	24-Oct-91	39.38	4.00	PVC	4.00	PVC
35	GWRC3	KPM	101033	GWRC3	10-Jun-80	24-Oct-91	66.57	4.00	PVC	4.00	PVC
36	IB332NE	KPM	102399	IB332NE	18-Mar-81	19-Jul-89	15.69	2.00	PVC	2.00	PVC
37	IB333NW	KPM	102408	IB333NW	22-May-81	12-Jul-89	24.17	2.00	PVC	2.00	PVC

TABLE [illegible].1

ABANDONED WELLS AS OF 10/15/93

	1	12	13	14	15	16	17	18	19
	WELL			REF	GS	TOP SCR	BOT SCR		CONSTRUCTION
	ID	NORTH	EAST	ELEV	ELEV	ELEV	ELEV	DRILLER	OVERSIGHT
								----	---
1	G1ES	1166810.90	752637.97	230.36	230.50			ROCH DRILLING	H&A
2	G1ES10	1166924.61	752500.89	232.00	232.00	207.60	199.60	ROCH DRILLING	H&A
3	G1ES3	1166809.93	752282.78	227.60	227.47	208.67	199.07	ROCH DRILLING	H&A
4	G1ES4	1166814.90	752444.69	229.06	229.07			ROCH DRILLING	H&A
5	G2ES	1166812.69	752641.71	230.51	230.50			ROCH DRILLING	H&A
6	G2ES3	1166809.36	752279.02	227.40	227.47	197.67	187.67	ROCH DRILLING	H&A
7	GB18S	1167323.36	753329.10	218.69	218.92	197.92	167.92	ROCH DRILLING	H&A
8	GB29NE	1166283.30	754476.33	215.69	216.17	194.67	181.17	KODAK PARK DRILLER	
9	GB53NE	1168049.86	753720.04	208.69	208.69	188.69	174.69	KODAK PARK DRILLER	H&A
10	GB65SE	1166947.46	752341.96	216.29	217.05	208.05	189.85	KODAK PARK DRILLER	H&A
11	GQES14	1167043.88	752618.59	232.94	233.32	168.54	159.04	PENN DRILLING	TERRA VAC
12	PB53N	1167974.55	753702.02	207.40	208.80	196.80	172.30	HYDRO GROUP INC.	H&A
13	PES11	1167045.90	752616.09	231.80	233.42	219.42	194.42	EMPIRE SOILS	TERRA VAC
14	PES12	1167042.07	752619.89	231.23	233.25	216.75	206.25	EMPIRE SOILS	TERRA VAC
15	QB57N	1168042.06	754056.51	208.00	208.30	165.30	138.30	ROCH DRILLING	H&A
16	QL14SW	1168261.57	754356.72	208.94	209.00	171.50	141.50	ROCH DRILLING	H&A
17	QL42S	1168306.53	753291.62	206.96	207.23	175.73	146.23	ROCH DRILLING	H&A
18	QL42SE	1168208.80	753942.60	208.76	209.06	174.06	168.56	HYDRO GROUP INC.	H&A
19	QL42SE2	1168181.90	753632.60	207.65	207.82	175.82	147.42	HYDRO GROUP INC.	H&A
20	SB16N	1168033.99	754540.65	206.14	206.60	196.60	191.60	ROCH DRILLING	H&A
21	SB18S	1167319.76	753326.79	218.62	218.97	207.27	202.27	ROCH DRILLING	H&A
22	SB29NE	1166287.70	754476.26	215.69	216.15	205.65	200.65	KODAK PARK DRILLER	
23	SB38NE			216.60	216.80	201.80	196.80	ROCH DRILLING	H&A
24	SB38NW			217.80	218.00	203.30	198.30	ROCH DRILLING	H&A
25	SB62SE	1167432.99	754658.47	209.18	209.53	206.53	201.53	KODAK PARK DRILLER	H&A
26	SB72SE3							KODAK PARK DRILLER	
27	SL15N	1167091.78	752715.04	228.43	228.63	215.00	210.00	KODAK PARK DRILLER	
28	SL45W	1167825.76	751846.58	223.30	223.98	217.98	212.98	KODAK PARK DRILLER	
29	SL47N	1165837.65	753935.50	226.77	227.42	216.82	206.82	KODAK PARK DRILLER	
30	GB324NE	1167738.52	745526.20	243.98	244.22	224.80	209.80	ROCH DRILLING	ROCH DRILLING
31	GB329SW	1166767.05	742779.79	257.03	256.41		218.41	KODAK PARK DRILLER	
32	GB350NW	1167743.22	744341.91	232.75	231.14	221.20	206.20	KODAK PARK DRILLER	
33	GWRC1	1164803.10	740958.80	304.27	301.49	216.50	205.60	CE	DAMES & MOORE
34	GWRC2	1165534.20	741055.47	250.18	246.88	224.80	210.80	CE	DAMES & MOORE
35	GWRC3	1165372.00	742002.10	264.64	261.00	216.30	198.07	CE	DAMES & MOORE
36	IB332NE	1167110.06	743326.34	244.18	244.60	234.39	228.49	KODAK PARK DRILLER	
37	IB333NW	1167030.21	741579.31	247.10	246.77	223.93	222.93	KODAK PARK DRILLER	

TABLE I[illegible]1

ABANDONED WELLS AS OF 10/15/93

	1	2	3	4	5	6	7	8	9	10	11
	WELL ID	PARK SECTION	AQMS LOC ID	BORING NAME	INSTALL DATE	ABANDON DATE	WELL LENGTH (FEET)	RISER DIAM (INCHES)	RISER TYPE	SCREEN DIAM (INCHES)	SCREEN TYPE
38	IB352NW	KPM	102400	IB352NW	17-Mar-81	21-Jul-89	31.03	2.00	PVC	2.00	PVC
39	IWRC1	KPM	101028	IWRC1	11-Jun-80	23-Oct-91	81.89	2.00	PVC	2.00	PVC
40	IWRC2	KPM	101032	IWRC2	18-Jun-80	24-Oct-91	28.14	2.00	PVC	2.00	PVC
41	IWRC3	KPM	101034	IWRC3	10-Jun-80	24-Oct-91	38.32	2.00	PVC	2.00	PVC
42	M1	KPM	101037	M1	1-Jun-80	23-Oct-91	79.38	2.00	PVC	2.00	PVC
43	M22	KPM	101042	M22	24-Jun-80	23-Oct-91	64.70	2.00	PVC	2.00	PVC
44	M23	KPM	101043	M23	30-Jun-80	23-Oct-91	66.49	2.00	PVC	2.00	PVC
45	M5	KPM	101040	M5	30-Jun-80	25-Oct-91		2.00	PVC	2.00	PVC
46	PB329SW	KPM	101047			1-Jul-90		4.00	PVC		
47	RWRS	KPM	102836	RWRS	10-Oct-89	25-Oct-91	34.12	2.00	PVC	2.00	PVC
48	RWRS2	KPM	102837	RWRS2	6-Oct-90	25-Oct-91	32.72	2.00	PVC	2.00	PVC
49	SB308S	KPM	101064	SB308S	13-Nov-81	2-Oct-91	17.30	2.00	PVC	2.00	PVC
50	SB324NE	KPM	100984	SB324NE	13-Mar-81	11-Jul-89	18.65	2.00	PVC	2.00	PVC
51	SB329NW	KPM	100986	SB329NW	21-Mar-81	10-Jul-89	11.06	2.00	PVC	2.00	PVC
52	SB329SW	KPM	101046	SB329SW	29-Apr-80	1-Jul-90	30.00	1.50	PVC	1.50	PVC
53	SB350NW	KPM	101058	SB350NW	30-Mar-82	30-Oct-91	11.91	2.00	PVC	2.00	PVC
54	SB350NW2	KPM	101059	SB350NW2	22-Mar-82	30-Oct-91	11.89	2.00	PVC	2.00	PVC
55	SB351SW	KPM	102602			15-Feb-93		2.00	PVC	2.00	PVC
56	SB352NE	KPM	101061			7-Oct-93		2.00	PVC		
57	SB352NW2	KPM	102760	SB352NW2	29-Jun-89	12-Jun-90	11.57	2.00	SS	2.00	SS
58	SWRA	KPM	101730	SWRA	1-May-86	24-Oct-91	53.10	2.00	PVC	2.00	PVC
59	SWRC1	KPM	101029	SWRC1	11-Jun-80	23-Oct-91	69.56	2.00	PVC	2.00	PVC
60	SWRC2	KPM	101031	SWRC2	18-Jun-80	24-Oct-91	22.85	2.00	PVC	2.00	PVC
61	SWRC3	KPM	101035	SWRC3	10-Jun-80	24-Oct-91	19.38	2.00	PVC	2.00	PVC
62	SWRL2	KPM	102593	SWRL2	12-Jun-78	24-Oct-91		2.00	PVC	2.00	PVC
63	SWRL3	KPM	102594	SWRL3	13-Jun-78	24-Oct-91	29.40	2.00	PVC	2.00	PVC
64	SWRL4	KPM	102595	SWRL4	13-Jun-78	24-Oct-91	13.90	2.00	PVC	2.00	PVC
65	SWRL5	KPM	102596	SWRL5	14-Jun-78	24-Oct-91	11.70	2.00	PVC	2.00	PVC
66	SWRW	KPM	101734	SWRW	23-Apr-86	7-Oct-93	50.33	2.00	PVC	2.00	PVC
67	RCPE1	KPS	101806	RCPE1	12-Nov-82	13-May-91	34.25	2.00	PVC	2.00	PVC
68	RCPE10	KPS	102243			13-May-91		4.00	PVC	3.00	ROCK
69	RCPE11	KPS	102404			13-May-91		4.00	PVC	3.00	ROCK
70	RCPE2	KPS	100994	RCPE2	12-Nov-82	1-Jun-89	33.19	2.00	PVC	2.00	PVC
71	RCPE4	KPS	100996	RCPE4	16-Nov-82	1-Jun-87	33.00	2.00	PVC	2.00	PVC
72	RCPE7	KPS	102401			14-May-91		4.00	PVC	3.00	ROCK
73	RCPE8	KPS	102402			13-May-91		4.00	PVC	3.00	ROCK
74	RCPE9	KPS	102403			14-May-91		4.00	PVC	3.00	ROCK

TABLE [illegible].1

ABANDONED WELLS AS OF 10/15/93

	1	12	13	14	15	16	17	18	19
	WELL			REF	GS	TOP SCR	BOT SCR		CONSTRUCTION
	ID	NORTH	EAST	ELEV	ELEV	ELEV	ELEV	DRILLER	OVERSIGHT
								----	—
38	IB352NW	1167714.10	743455.59	253.57	253.85	227.84	222.54	KODAK PARK DRILLER	
39	IWRC1	1164800.00	740969.00	304.69	303.18	225.30	222.80	CE	DAMES & MOORE
40	IWRC2	1165524.15	741054.49	250.54	246.94	227.90	222.40	CE	DAMES & MOORE
41	IWRC3	1165363.10	741992.80	263.92	260.30	244.10	225.60	CE	DAMES & MOORE
42	M1	1165017.88	740932.01	302.28	294.58	242.30	222.90	CE	DAMES & MOORE
43	M22	1165199.13	740968.02	291.40	288.40	242.20	226.70	CE	DAMES & MOORE
44	M23	1165194.19	740921.11	292.49	288.89	237.60	226.00	CE	DAMES & MOORE
45	M5				246.60	238.10	220.60	CE	
46	PB329SW	1166762.14	742794.72	256.49	256.30				
47	RWRS	1164578.12	741265.91	309.62	306.80	285.50	275.50	ROCH DRILLING	H&A
48	RWRS2	1164770.81	741874.71	309.62	306.90	286.90	276.90	ROCH DRILLING	H&A
49	SB308S	1166009.64	745727.17	261.35	261.35	252.05	244.05	KODAK PARK DRILLER	
50	SB324NE	1167739.09	745542.49	244.47	245.00	231.22	225.82	KODAK PARK DRILLER	
51	SB329NW	1167113.45	742757.46	253.94	254.42	245.38	242.88	KODAK PARK DRILLER	
52	SB329SW	1166778.74	742780.16	257.21	256.54		227.21	KODAK PARK DRILLER	
53	SB350NW	1167742.42	744336.14	233.01	231.26	226.10	221.10	KODAK PARK DRILLER	
54	SB350NW2	1167741.46	744328.99	233.59	231.76	226.70	221.70	KODAK PARK DRILLER	
55	SB351SW	1167287.52	744236.12	242.67	242.05				
56	SB352NE	1167709.20	744252.15	232.77	230.77				
57	SB352NW2	1167721.72	744039.68	235.88	234.31	229.31	224.31	PARRATT WOLFFE	BLASLAND, BOUCK, LEE
58	SWRA	1164815.95	740917.54	301.70		253.60	248.60	ROCH DRILLING	H&A
59	SWRC1	1164821.40	740966.50	307.66	300.84	248.60	238.10	CE	DAMES & MOORE
60	SWRC2	1165556.29	741077.84	249.65	245.75	237.30	226.80	CE	DAMES & MOORE
61	SWRC3	1165379.10	741991.50	263.98	260.07	257.10	244.60	CE	DAMES & MOORE
62	SWRL2	1165555.50	741078.20			235.10	232.60		DAMES & MOORE
63	SWRL3	1165392.93	741486.84	274.30	268.80	249.40	239.40		DAMES & MOORE
64	SWRL4	1165172.63	741632.32	268.76	259.90	251.00	246.00		DAMES & MOORE
65	SWRL5	1165681.97	741906.34	261.10	259.60	252.90	247.90		DAMES & MOORE
66	SWRW	1165166.11	740940.35	294.23	288.23	242.90	237.90	ROCH DRILLING	H&A
67	RCPE1	1162880.17	743055.35	331.80	327.55	307.55	297.55	ROCH DRILLING	TRC ENVIRONMENTAL
68	RCPE10	1162827.46	742610.17	333.64	330.40				
69	RCPE11	1162837.50	742387.93	330.60	329.90				
70	RCPE2	1162715.44	743432.55	337.92	334.40	314.73	304.73	ROCH DRILLING	TRC ENVIRONMENTAL
71	RCPE4	1162701.48	742722.15	338.44	335.44	315.44	305.44	ROCH DRILLING	TRC ENVIRONMENTAL
72	RCPE7	1162531.58	742660.92	335.18	330.80				
73	RCPE8	1162542.32	743575.78	331.88	328.50				
74	RCPE9	1162197.38	743485.53	329.90	326.40				

TABLE 5.1

ABANDONED WELLS AS OF 10/15/93

	1	2	3	4	5	6	7	8	9	10	11
	WELL ID	PARK SECTION	AQMS LOC ID	BORING NAME	INSTALL DATE	ABANDON DATE	WELL LENGTH (FEET)	RISER DIAM (INCHES)	RISER TYPE	SCREEN DIAM (INCHES)	SCREEN TYPE
75	SB601S	KPS	102405			22-May-91		4.00	PVC		
76	SB601S2	KPS	102406			22-May-91		4.00	PVC		
77	RKPT1	KPT	102175	RKPT1	24-Apr-87	1-Jul-89	26.30	4.00	PVC	3.00	ROCK
78	RKPT2	KPT	102177	RKPT2	23-Apr-87	28-Jan-92	29.80	4.00	PVC	3.00	ROCK
79	RKPT3	KPT	102179	RKPT3	21-Apr-87	30-Jan-92	28.10	4.00	PVC	3.00	ROCK
80	RKPT4	KPT	102181	RKPT4	17-Apr-87	30-Jan-92	34.75	4.00	PVC	3.00	ROCK
81	RKPT5	KPT	102183	RKPT5	15-Apr-87	30-Jan-92	27.58	4.00	PVC	3.00	ROCK
82	RKPT6	KPT	102185	RKPT6	16-Apr-87	31-Jan-92	31.71	4.00	PVC	3.00	ROCK
83	RKPT7	KPT	102187	RKPT7	14-Apr-87	31-Jan-92	24.00	4.00	PVC	3.00	ROCK
84	RKPT8	KPT	102189	RKPT8	15-Apr-87	30-Jan-92	34.09	4.00	PVC	3.00	ROCK
85	SKPT1	KPT	102176	SKPT1	23-Apr-87	1-Jul-89	10.20	2.00	PVC	2.00	PVC
86	SKPT2	KPT	102178	SKPT2	22-Apr-87	28-Jan-92	9.05	2.00	PVC	2.00	PVC
87	SKPT3	KPT	102180	SKPT3	21-Apr-87	29-Jan-92	12.30	2.00	PVC	2.00	PVC
88	SKPT4	KPT	102182	SKPT4	20-Apr-87	29-Jan-92	12.09	2.00	PVC	2.00	PVC
89	SKPT5	KPT	102184	SKPT5	15-Apr-87	29-Jan-92	10.27	2.00	PVC	2.00	PVC
90	SKPT6	KPT	102186	SKPT6	16-Apr-87	29-Jan-92	14.70	2.00	PVC	2.00	PVC
91	SKPT7	KPT	102188	SKPT7	14-Apr-87	30-Jan-92	9.00	2.00	PVC	2.00	PVC
92	SKPT8	KPT	102190	SKPT8	15-Apr-87	29-Jan-92	15.04	2.00	PVC	2.00	PVC
93	G1B115S	KPW	102050	G1B115S	19-Dec-86	8-Jun-90	22.88	4.00	SS	3.00	ROCK
94	G1B136S	KPW	102196	G1B136S	31-Mar-87	6-Jun-90	19.62	4.00	SS	3.00	ROCK
95	G1B142S	KPW	102319	G1B142S	12-Nov-87	6-Jun-90	24.94	4.00	SS	3.00	ROCK
96	G1BD20W	KPW	102158	G1BD20W	14-Apr-88	31-May-90	25.61	4.00	SS	3.00	ROCK
97	G1L50S2	KPW	102311	G1L50S2	15-Oct-87	1-Jun-90	21.87	4.00	SS	3.00	ROCK
98	G1L50SE2	KPW	101063	G1L50SE2	12-Apr-88	24-May-90	26.95	4.00	SS	3.00	ROCK
99	G1L50SW2	KPW	102310	G1L50SW2	6-Oct-87	4-Jun-90	21.70	4.00	SS	3.00	ROCK
100	G1L50SW3	KPW	101703	G1L50SW3	31-Mar-88	22-May-90	23.70	4.00	SS	3.00	ROCK
101	G2B115S	KPW	102199	G2B115S	10-Apr-86	12-Jun-90	34.61	4.00	SS	3.00	ROCK
102	G2B142S	KPW	102320	G2B142S	13-Nov-87	4-Jun-90	34.74	4.00	SS	3.00	ROCK
103	G2BD20W	KPW	102452	G2BD20W	18-Apr-88	30-May-90	36.70	4.00	SS	3.00	ROCK
104	G2L50S	KPW	102314	G2L50S	2-Nov-87	26-Nov-91	33.40	4.00	SS	3.00	ROCK
105	G2L50S2	KPW	102312	G2L50S2	16-Oct-87	4-Jun-90	33.10	4.00	SS	3.00	ROCK
106	G2L50SE2	KPW	101699	G2L50SE2	11-Apr-88	26-Nov-91	36.29	4.00	SS	3.00	ROCK
107	G2L50SW2	KPW	102309	G2L50SW2	7-Oct-87	7-Jun-90	31.91	4.00	SS	3.00	ROCK
108	G2L50SW3	KPW	101742	G2L50SW3	4-Apr-88	26-Nov-91	36.08	4.00	SS	3.00	ROCK
109	G3B115S	KPW	102200	G3B115S	14-Apr-86	8-Jun-90	54.85	4.00	SS	3.00	ROCK
110	G3B136S	KPW	102198	G3B136S	31-Mar-87	5-Jun-90	58.91	4.00	SS	3.00	ROCK
111	G3B142S	KPW	102321	G3B142S	16-Nov-87	31-May-90	70.05	4.00	SS	3.00	ROCK

TABLE [illegible].1

ABANDONED WELLS AS OF 10/15/93

	1	12	13	14	15	16	17	18	19
	WELL			REF	GS	TOP SCR	BOT SCR		CONSTRUCTION
	ID	NORTH	EAST	ELEV	ELEV	ELEV	ELEV	DRILLER	OVERSIGHT
								-----	---
75	SB601S	1160661.37	741175.82	333.10	332.33				
76	SB601S2	1160661.77	741113.66	332.40	332.57				
77	RKPT1	1161559.90	735274.99	318.15	316.35	301.85	291.85	ROCH DRILLING	H&A
78	RKPT2	1161734.87	736473.52	312.91	310.51	293.11	283.11	ROCH DRILLING	H&A
79	RKPT3	1160954.58	735551.28	309.73	307.63	291.63	281.63	ROCH DRILLING	H&A
80	RKPT4	1160730.36	736525.64	320.56	319.11	295.91	285.81	ROCH DRILLING	H&A
81	RKPT5	1161545.79	738418.58	324.69	323.11	307.11	297.11	ROCH DRILLING	H&A
82	RKPT6	1161501.90	739266.61	325.01	322.80	303.30	293.30	ROCH DRILLING	H&A
83	RKPT7	1160211.08	738632.54	343.13	341.13	329.13	319.13	ROCH DRILLING	H&A
84	RKPT8	1160566.06	739553.18	350.26	347.67	326.17	316.17	ROCH DRILLING	H&A
85	SKPT1	1161554.93	735271.45	318.52	316.52	312.32	308.32	ROCH DRILLING	H&A
86	SKPT2	1161725.28	736474.37	312.23	309.70	306.18	303.18	ROCH DRILLING	H&A
87	SKPT3	1160953.55	735556.72	310.31	307.91	302.01	298.01	ROCH DRILLING	H&A
88	SKPT4	1160733.65	736530.25	321.40	319.01	314.31	309.31	ROCH DRILLING	H&A
89	SKPT5	1161542.24	738422.22	325.67	323.40	320.40	315.40	ROCH DRILLING	H&A
90	SKPT6	1161498.19	739270.96	326.11	323.41	316.41	311.41	ROCH DRILLING	H&A
91	SKPT7	1160265.54	738555.03	343.01	341.01	338.01	334.01	ROCH DRILLING	H&A
92	SKPT8	1160573.06	739577.09	350.54	348.00	340.50	335.50	ROCH DRILLING	H&A
93	G1B115S	1166909.60	750232.60	233.38	233.09	220.50	210.50	KODAK PARK DRILLER	
94	G1B136S	1166809.56	750305.39	227.48	228.01	217.86	207.86	KODAK PARK DRILLER	H&A
95	G1B142S	1166897.12	750535.63	232.25	232.71	216.81	207.31	KODAK PARK DRILLER	H&A
96	G1BD20W	1166674.16	749614.14	236.71	234.16	219.10	211.10	ROCH DRILLING	H&A
97	G1L50S2	1166676.97	750513.79	227.93	228.32	213.66	206.06	KODAK PARK DRILLER	H&A
98	G1L50SE2	1166721.73	751493.36	229.59	227.64	210.64	202.64	ROCH DRILLING	H&A
99	G1L50SW2	1166675.91	750362.43	228.66	229.16	215.66	206.96	KODAK PARK DRILLER	H&A
100	G1L50SW3	1166680.84	749798.07	234.56	232.77	218.86	210.86	ROCH DRILLING	H&A
101	G2B115S	1166909.80	750244.70	234.21	233.31	209.50	199.50	KODAK PARK DRILLER	
102	G2B142S	1166897.62	750540.95	232.12	232.65	206.98	197.38	KODAK PARK DRILLER	H&A
103	G2BD20W	1166674.44	749624.30	235.90	234.20	209.20	199.20	ROCH DRILLING	H&A
104	G2L50S	1166678.65	750692.28	226.75	227.18	203.58	193.78	KODAK PARK DRILLER	H&A
105	G2L50S2	1166676.94	750520.93	228.01	228.21	204.61	194.91	KODAK PARK DRILLER	H&A
106	G2L50SE2	1166714.69	751484.36	227.26	227.67	201.47	190.97	ROCH DRILLING	H&A
107	G2L50SW2	1166675.79	750356.80	228.83	229.21	206.62	196.92	KODAK PARK DRILLER	H&A
108	G2L50SW3	1166681.11	749803.18	234.85	232.67	208.77	198.77	ROCH DRILLING	H&A
109	G3B115S	1166909.80	750249.90	234.28	232.88	199.20	179.20	KODAK PARK DRILLER	
110	G3B136S	1166809.61	750286.79	227.83	228.12	199.97	168.92	KODAK PARK DRILLER	H&A
111	G3B142S	1166897.78	750547.13	231.56	232.08	196.61	161.51	KODAK PARK DRILLER	H&A

TABLE [illegible].1

ABANDONED WELLS AS OF 10/15/93

	1	2	3	4	5	6	7	8	9	10	11
	WELL ID	PARK SECTION	AQMS LOC ID	BORING NAME	INSTALL DATE	ABANDON DATE	WELL LENGTH (FEET)	RISER DIAM (INCHES)	RISER TYPE	SCREEN DIAM (INCHES)	SCREEN TYPE
112	G3BD20W	KPW	102453	G3BD20W	21-Apr-88	25-May-90	71.90	4.00	SS	3.00	ROCK
113	G3L50S	KPW	102315	G3L50S	3-Nov-87	7-Jun-90	65.70	4.00	SS	3.00	ROCK
114	G3L50S2	KPW	102313	G3L50S2	17-Oct-87	22-May-90	64.30	4.00	SS	3.00	ROCK
115	G3L50SE2	KPW	101700	G3L50SE2	2-May-88	23-May-90	70.10	4.00	SS	3.00	ROCK
116	G3L50SW	KPW	102318	G3L50SW	30-Oct-87	8-Jun-90	64.29	4.00	SS	3.00	ROCK
117	G3L50SW2	KPW	102308	G3L50SW2	8-Oct-87	25-May-90	66.49	4.00	SS	3.00	ROCK
118	G3L50SW3	KPW	101715	G3L50SW3	6-Apr-88	22-May-90	72.08	4.00	SS	3.00	ROCK
119	GB105SE	KPW	101000	GB105SE	15-Apr-83	6-Feb-92	28.33	3.00	PVC	3.00	PVC
120	GB119W2	KPW	101052	GB119W2	22-Dec-81	23-Jan-92	59.66	4.00	RS	3.00	ROCK
121	GL50SE	KPW	101667	GL50SE	4-Dec-85	26-Jun-89	29.16	4.00	PVC	3.00	ROCK
122	GQB114SW2	KPW	102818	GQB114SW2	6-Oct-89	21-May-90	98.68	4.00	SS	3.00	ROCK
123	GQB136SR	KPW	102993	GQB136SR	5-Jun-90	26-Nov-91	69.88	2.00	SS	2.00	SS
124	IWS4	KPW	102726	IWS4	31-May-89	10-May-90	13.50	2.00	SS	2.00	SS
125	MWS12	KPW	102812	WS12	16-Sep-89	4-Oct-89		4.00	SS	3.00	ROCK
126	SB105SE	KPW	101010	SB105SE	14-Apr-83	6-Feb-92	10.80	2.00	PVC	2.00	PVC
127	SB114SW	KPW	101011	SB114SW	14-Apr-83	23-Jun-89	11.25	2.00	PVC	2.00	PVC
128	SB115N	KPW	101012			1-Apr-87		2.00	PVC	2.00	PVC
129	SB115N2	KPW	102201	SB115N2	7-Apr-87	29-Jan-92	15.61	5.00	SS	5.00	SS
130	SB115SE	KPW	102051	B115SE	19-Dec-86	1-Jan-90	15.98	2.00	SS	2.00	SS
131	SB119W4	KPW	101056	SB119W4	12-Nov-82	22-Jan-92	16.20	2.00	RS	2.00	RS
132	SB123SW	KPW	101016	SB123SW	24-Aug-83	31-Jan-92	10.17	2.00	PVC	2.00	PVC
133	SB135SE	KPW	102503	SB135SE	22-Jun-83	6-Mar-92	19.28	1.50	PVC	1.50	PVC
134	SB136S	KPW	102220	SB136S	27-May-87	12-Jun-89	9.04	2.00	SS	2.00	SS
135	SB142W	KPW	102785	SB142W	13-Jul-89	18-Dec-90	18.09	2.00	SS	2.00	SS
136	SB151SE	KPW	101020	SB151SE	18-Jun-81	29-Jan-92	12.88	2.00	PVC	2.00	PVC
137	SL50SE	KPW	101675	SL50SE	4-Dec-85	26-Jun-89	13.32	2.00	SS	2.00	PVC
138	GB212NE	KPX	101862	GB212NE	19-Apr-83	15-May-91	32.05	1.50	PVC	1.25	ROCK
139	SB206SW	KPX	103136	SB206SW	24-Jan-91	15-Sep-92	15.65	2.00	PVC	2.00	PVC
140	SB212NE	KPX	101863	SB212NE	19-Apr-83	15-May-91	16.97	1.50	PVC	1.50	PVC
141	SB218E	KPX	103019	SB218E	16-Jul-90	16-Sep-91	20.86	2.00	SS	2.00	SS

TABLE [illegible].1

ABANDONED WELLS AS OF 10/15/93

	1	12	13	14	15	16	17	18	19
	WELL			REF	GS	TOP SCR	BOT SCR		CONSTRUCTION
	ID	NORTH	EAST	ELEV	ELEV	ELEV	ELEV	DRILLER	OVERSIGHT
112	G3BD20W	1166674.66	749630.16	236.00	234.10	197.10	164.10	ROCH DRILLING	H&A
113	G3L50S	1166678.21	750700.63	226.71	227.16	193.31	161.01	KODAK PARK DRILLER	H&A
114	G3L50S2	1166676.80	750528.11	227.41	228.11	194.31	163.11	KODAK PARK DRILLER	H&A
115	G3L50SE2	1166722.97	751483.89	229.33	227.43	189.43	159.23	ROCH DRILLING	H&A
116	G3L50SW	1166674.97	750071.96	230.84	231.25	196.55	166.55	KODAK PARK DRILLER	H&A
117	G3L50SW2	1166675.80	750350.99	228.19	229.20	196.90	161.70	KODAK PARK DRILLER	H&A
118	G3L50SW3	1166680.81	749808.96	234.73	232.54	196.65	162.65	ROCH DRILLING	H&A
119	GB105SE	1166801.20	751450.80	225.81	226.18	211.98	197.48	EMPIRE SOILS	EMPIRE SOILS
120	GB119W2	1167485.30	750333.30	235.76	234.40	218.00	176.10	KODAK PARK DRILLER	DAMES & MOORE
121	GL50SE	1166682.10	751467.60	227.47	227.81	212.01	198.31	KODAK PARK DRILLER	H&A
122	GQB114SW2	1166861.56	750637.87	233.66	233.98	176.73	134.98	HARDIN HUBER	ECKENFELDER
123	GQB136SR	1166809.61	750286.79	228.12	228.14	168.34	158.24	ROCH DRILLING	ECKENFELDER
124	IWS4	1166522.69	750389.38	230.40	230.59	222.09	217.09	ROCH DRILLING	H&A
125	MWS12	1166261.98	749149.09		245.26			ROCH DRILLING	H&A
126	SB105SE	1166814.80	751404.20	225.90	226.20		215.10	EMPIRE SOILS	EMPIRE SOILS
127	SB114SW	1166802.30	750703.60	225.77	226.02		214.52	EMPIRE SOILS	EMPIRE SOILS
128	SB115N	1167143.72	750230.53	236.26	234.20				
129	SB115N2	1167140.75	750234.77	235.18	234.37	229.57	219.57	KODAK PARK DRILLER	
130	SB115SE	1166910.20	750306.30	236.38	234.23	230.40	220.40	KODAK PARK DRILLER	
131	SB119W4	1167342.76	750162.79	233.39	234.26	227.19	217.19		DAMES & MOORE
132	SB123SW	1166979.80	749713.50	232.02	232.25	230.75	221.85	KODAK PARK DRILLER	
133	SB135SE	1167286.40	751089.90	232.19	232.61	222.66	212.91	KODAK PARK DRILLER	
134	SB136S	1166806.92	750323.14	227.80	227.99	223.96	218.76	ROCH DRILLING	H&A
135	SB142W	1167010.83	750487.46	236.54	234.52	223.45	218.45	HARDIN HUBER	ECKENFELDER
136	SB151SE	1168120.90	749938.10	232.41	231.67	224.53	219.53	KODAK PARK DRILLER	
137	SL50SE	1166684.50	751475.90	227.34	227.82	219.02	214.02	KODAK PARK DRILLER	H&A
138	GB212NE	1167798.71	748133.00	243.25	242.97	220.30	211.20	KODAK PARK DRILLER	
139	SB206SW	1167926.70	748588.88	237.05	234.90	231.40	221.40	ROCH DRILLING	BLASLAND, BOUCK, LEE
140	SB212NE	1167797.81	748139.55	245.76	242.92	235.71	225.95	KODAK PARK DRILLER	
141	SB218E	1167641.56	748767.33	239.17	237.31	233.31	218.31	ROCH DRILLING	BLASLAND, BOUCK, LEE

TABLE II-5.2

KPW CALIBRATED MODEL RANGES OF HORIZONTAL HYDRAULIC CONDUCTIVITY AND ANISOTROPY RATIO

(From S.S. Papdopulos & Associates, 1992)

UNIT	K_h (cm/sec)	K_z/K_h
Overburden	3.8×10^{-4}	10^{-2}
Top of Rock	1.5×10^{-4} - 1.5×10^{-3}	10^{-2}
Intermediate	1.4×10^{-6}	10^{-3} - 5×10^{-1}
Grimsby		
GQ Flow Zone	6×10^{-5} - 3×10^{-3}	10^{-2}
Queenston	3.5×10^{-5}	10^{-3}

K_h =horizontal hydraulic conductivity

K_z =vertical hydraulic conductivity

TABLE II-6.1

KODAK PARK MONITORING WELLS
TOTAL VOLATILE AND ALCOHOL CONCENTRATION*
1991 THROUGH 1992

PARK SECTION	WELL NAME	FLOW ZONE	TOTAL ALCOHOLS (mg/l)	TOTAL NON-HAL. (mg/l)	TOTAL HALOGENS (mg/l)	TOTAL ALCO. & VOLS. (mg/l)
KPE	G1ES10R	G1	0.000	0.173	0.490	0.663
KPE	G1ES3	G1	0.000	0.160	1.060	1.220
KPE	G1ES3R	G1	0.689	0.472	0.137	1.298
KPE	G2ES2	G2	0.550	0.096	0.000	0.646
KPE	GB16N	G	0.000	0.000	0.000	0.000
KPE	GB21N	G	0.000	0.300	0.160	0.460
KPE	GB23SW	G	0.000	0.063	0.001	0.064
KPE	GB28NW	G	0.000	0.000	0.009	0.009
KPE	GB2N	G	0.000	0.000	0.055	0.055
KPE	GB46N	G	0.000	0.000	0.000	0.000
KPE	GB49NE	G	0.000	0.002	0.000	0.002
KPE	GB53SW	G	0.000	0.000	0.000	0.000
KPE	GB54SE	G	0.300	10.200	15.000	25.500
KPE	GB57N	G	0.000	0.000	0.005	0.005
KPE	GB57W	G	23.220	14.900	3,600.000	3,638.120
KPE	GB62SE	G	0.000	0.000	0.241	0.241
KPE	GB65SE	G	0.000	0.300	0.131	0.431
KPE	GB69N	G	0.006	0.002	0.000	0.008
KPE	GB9E	G	0.000	0.044	0.001	0.045
KPE	GES16	G	0.000	0.000	0.000	0.000
KPE	GES7	G	0.000	0.083	3.560	3.643
KPE	GL12NW	G	0.000	0.000	0.000	0.000
KPE	GL15E	G	0.130	0.001	0.000	0.131
KPE	GL15N	G	0.250	0.000	120.000	120.250
KPE	GL15S	G	0.000	0.004	0.000	0.004
KPE	GL42S	G	0.000	0.000	0.004	0.004
KPE	GL42SE	G	0.000	0.220	0.004	0.224
KPE	GL42SE2	G	2.900	0.280	2.516	5.696
KPE	GL45W	G	0.000	0.000	0.000	0.000
KPE	GL47N	G	0.000	0.000	0.000	0.000
KPE	GQB23SW	GQ	0.000	0.024	0.000	0.024
KPE	GQB49NE	GQ	7.100	0.004	0.071	7.175
KPE	GQB65SE	GQ	1.400	0.305	0.127	1.832
KPE	GQB81E	GQ	0.000	0.000	0.028	0.028
KPE	GQES10	GQ	0.000	0.011	0.060	0.071
KPE	GQES13	GQ	0.300	0.000	0.000	0.300
KPE	GQES19	GQ	1.250	0.000	0.000	1.250
KPE	GQES20	GQ	0.420	0.009	0.000	0.429
KPE	GQES3	GQ	1.100	0.022	0.000	1.122
KPE	GQES4	GQ	2.100	0.000	0.000	2.100

* See page 13 for list of parameters used in preparation of table

TABLE II-6.1

KODAK PARK MONITORING WELLS
TOTAL VOLATILE AND ALCOHOL CONCENTRATION*
1991 THROUGH 1992

PARK SECTION	WELL NAME	FLOW ZONE	TOTAL ALCOHOLS (mg/l)	TOTAL NON-HAL. (mg/l)	TOTAL HALOGENS (mg/l)	TOTAL ALCO. & VOLS. (mg/l)
KPE	GQL15E	GQ	22.140	0.254	0.003	22.397
KPE	GQL15N	GQ	0.000	0.000	0.000	0.000
KPE	GQL15S	GQ	0.800	0.018	0.000	0.818
KPE	IB16E	I	0.000	0.005	0.003	0.009
KPE	IES	I	0.000	0.000	0.000	0.000
KPE	IES10	I	0.209	0.000	0.000	0.209
KPE	IES13	I	0.900	0.000	0.000	0.900
KPE	IES3	I	0.000	0.000	0.000	0.000
KPE	IES4	I	0.000	0.000	0.000	0.000
KPE	PB53N2	P	0.490	1.840	152.300	154.630
KPE	PB54NW	P	2.500	1.700	250.400	254.600
KPE	PB54SE	P	2.470	2.850	9.400	14.720
KPE	PB57W	P	7.320	2.200	370.840	380.360
KPE	PES11	P	0.000	0.000	0.000	0.000
KPE	PL15W	P	0.000	1.790	129.400	131.190
KPE	QB46N	Q	0.000	0.448	9.356	9.804
KPE	QB54SE	Q	0.000	0.005	0.044	0.049
KPE	QB57N	Q	0.000	0.085	0.289	0.374
KPE	QL12NW	Q	0.000	0.000	0.000	0.000
KPE	QL14SW	Q	1.000	0.137	0.015	1.152
KPE	QL42S	Q	0.000	0.013	0.003	0.016
KPE	QL42SE	Q	0.000	0.030	1.203	1.233
KPE	SB12NE	S	0.000	0.000	0.000	0.000
KPE	SB16N2	S	0.000	0.000	0.003	0.003
KPE	SB21N	S	0.000	0.000	0.003	0.003
KPE	SB29SE	S	0.000	0.000	0.003	0.003
KPE	SB53SW	S	0.000	0.036	0.095	0.131
KPE	SB57N	S	0.000	0.004	0.000	0.004
KPE	SB58NE	S	0.000	0.000	0.000	0.000
KPE	SB59E	S	0.000	0.000	0.000	0.000
KPE	SB69N	S	0.000	0.000	0.000	0.000
KPE	SES2	S	0.000	0.000	0.000	0.000
KPE	SL11NE	S	0.000	0.000	0.000	0.000
KPE	SL12NW	S	0.000	0.000	0.000	0.000
KPE	SL14SW	S	0.000	0.000	0.005	0.005
KPE	SL15E	S	1.500	0.000	0.000	1.500
KPE	SL15S	S	0.000	0.000	0.000	0.000
KPE	SL17N	S	0.000	0.000	0.000	0.000
KPE	SL27NW	S	0.000	0.000	0.019	0.019
KPE	SL42N	S	0.000	0.000	0.001	0.001

* See page 13 for list of parameters used in preparation of table

TABLE II-6.1

KODAK PARK MONITORING WELLS
TOTAL VOLATILE AND ALCOHOL CONCENTRATION*
1991 THROUGH 1992

PARK SECTION	WELL NAME	FLOW ZONE	TOTAL ALCOHOLS (mg/l)	TOTAL NON-HAL. (mg/l)	TOTAL HALOGENS (mg/l)	TOTAL ALCO. & VOLS. (mg/l)
KPE	SL42NE	S	0.000	0.000	0.002	0.002
KPE	SL42NE2	S	0.000	0.000	0.002	0.002
KPE	SL42NW	S	0.000	0.000	0.002	0.002
KPE	SL42SE	S	0.000	0.000	0.000	0.000
KPE	SL42SE2	S	0.000	0.002	0.007	0.009
KPE	SL42W	S	0.000	0.000	0.000	0.000
KPE	SL43SW	S	0.000	0.000	0.005	0.005
KPE	SL45N	S	0.000	0.000	0.000	0.000
KPE	SL45WR	S	0.000	0.000	0.000	0.000
KPE	SL47N	S	0.000	0.000	0.001	0.001
KPE	SL47NR	S	0.000	0.027	0.001	0.028
KPM	G1B314S	G1	0.031	11.006	0.230	11.266
KPM	G1B329SE2	G1	0.007	0.000	0.000	0.007
KPM	G1B331SW	G1	2.720	12.584	23.969	39.273
KPM	G1B349NW	G1	0.000	0.000	0.008	0.008
KPM	G1B352NW2	G1	0.000	0.002	0.006	0.008
KPM	G2B314S	G2	0.011	3.600	0.048	3.659
KPM	G2B329SE2	G2	0.000	0.000	0.108	0.108
KPM	G2B331SW	G2	2.730	8.951	16.248	27.929
KPM	G2B349NW	G2	0.000	0.000	0.009	0.009
KPM	G2B352NW2	G2	0.023	0.000	0.005	0.028
KPM	G2L72SE	G2	27.000	0.000	0.000	27.000
KPM	G2WRNW	G2	2.100	0.000	0.008	2.108
KPM	GB303SE	G	0.018	0.000	0.002	0.020
KPM	GB313W	G	0.000	0.006	0.000	0.006
KPM	GB317N	G	6.500	0.450	0.000	6.950
KPM	GB319N	G	0.001	0.001	0.000	0.002
KPM	GB324NER	G	0.230	0.020	0.051	0.301
KPM	GB329E	G	1.100	0.032	0.036	1.167
KPM	GB329NW	G	0.000	0.000	0.000	0.000
KPM	GB329S	G	0.624	0.029	0.000	0.653
KPM	GB329SW2	G	13.371	23.000	367.000	403.371
KPM	GB329SW3	G	0.000	0.000	0.000	0.000
KPM	GB329W	G	0.000	0.065	40.194	40.259
KPM	GB332NE	G	0.000	0.000	0.000	0.000
KPM	GB333NW	G	0.000	0.000	0.000	0.000
KPM	GB350NE	G	0.021	0.000	0.001	0.022
KPM	GB350NW	G	0.470	0.009	0.004	0.483
KPM	GB350NWR	G	0.630	0.000	0.000	0.630
KPM	GB352NW	G	0.000	0.000	0.005	0.005

* See page 13 for list of parameters used in preparation of table

TABLE II-6.1

KODAK PARK MONITORING WELLS
TOTAL VOLATILE AND ALCOHOL CONCENTRATION*
1991 THROUGH 1992

PARK SECTION	WELL NAME	FLOW ZONE	TOTAL ALCOHOLS (mg/l)	TOTAL NON-HAL. (mg/l)	TOTAL HALOGENS (mg/l)	TOTAL ALCO. & VOLS. (mg/l)
KPM	GBM32N	G	0.000	0.010	0.000	0.010
KPM	GL72SE	G	0.000	0.067	0.002	0.069
KPM	GL76S	G	0.005	0.003	0.001	0.009
KPM	GMN4	G	0.000	0.005	0.000	0.005
KPM	GMN5	G	0.000	0.000	0.000	0.000
KPM	GMN6	G	0.000	0.000	0.000	0.000
KPM	GQL76S	GQ	57.000	0.019	0.001	57.020
KPM	GQWRE	GQ	110.000	0.027	0.001	110.028
KPM	GQWRSE	GQ	4.900	0.015	0.001	4.916
KPM	GWRNE	G	0.000	0.000	0.000	0.000
KPM	GWRNW	G	0.006	0.000	0.000	0.006
KPM	GWRNW2	G	6.800	0.019	0.000	6.819
KPM	GWRS4	G	5.410	0.028	0.005	5.442
KPM	GWRSE	G	0.000	0.018	0.000	0.018
KPM	GWRSW	G	0.008	0.000	0.000	0.008
KPM	GWRW	G	0.073	0.000	0.001	0.074
KPM	IWRNW2	I	0.000	0.015	0.000	0.015
KPM	IWRS3	I	0.610	0.016	0.002	0.628
KPM	IWRS4	I	0.550	0.017	0.000	0.567
KPM	LSL73S2	LS	0.870	0.000	0.000	0.870
KPM	LSWRS4	LS	3.790	0.028	0.004	3.822
KPM	ML73S2	M	0.390	0.028	0.001	0.419
KPM	PB350NE2	P	0.900	0.000	0.000	0.900
KPM	RWRSE	R	0.000	0.007	0.001	0.008
KPM	S1B307E	S1	1.220	280.000	0.000	281.220
KPM	S1B307W	S1	0.000	3.500	0.000	3.500
KPM	S1B312NW	S1	0.000	0.700	5.700	6.400
KPM	S1B313W	S1	0.000	0.000	0.002	0.002
KPM	S1B331SW	S1	177.610	37.300	12.000	226.910
KPM	S1WRE	S1	0.000	0.016	0.005	0.021
KPM	S2B307E	S2	0.000	1.000	0.000	1.000
KPM	S2B307W	S2	0.005	11.000	0.160	11.165
KPM	S2B312NW	S2	0.175	1.190	1.211	2.576
KPM	S2B313W	S2	0.000	0.000	0.000	0.000
KPM	S2B331SW	S2	2.465	13.190	2.870	18.525
KPM	S2WRE	S2	0.000	0.013	0.000	0.013
KPM	SB301SE	S	0.000	0.000	0.018	0.018
KPM	SB301W	S	0.697	9.986	0.000	10.683
KPM	SB302W	S	0.000	53.626	0.000	53.626
KPM	SB303SE	S	0.000	0.016	0.006	0.022

* See page 13 for list of parameters used in preparation of table

TABLE II-6.1

KODAK PARK MONITORING WELLS
TOTAL VOLATILE AND ALCOHOL CONCENTRATION*
1991 THROUGH 1992

PARK SECTION	WELL NAME	FLOW ZONE	TOTAL ALCOHOLS (mg/l)	TOTAL NON-HAL. (mg/l)	TOTAL HALOGENS (mg/l)	TOTAL ALCO. & VOLS. (mg/l)
KPM	SB303W	S	12.920	68.200	0.000	81.120
KPM	SB304NW	S	0.344	0.670	0.003	1.016
KPM	SB305W	S	0.004	0.002	0.114	0.120
KPM	SB306SW	S	0.000	0.000	0.000	0.000
KPM	SB306W	S	0.000	0.000	0.003	0.003
KPM	SB307N	S	0.002	11.000	3.390	14.392
KPM	SB307S	S	0.000	0.010	0.015	0.025
KPM	SB308E	S	0.000	0.005	0.007	0.012
KPM	SB308E2	S	0.000	0.001	0.080	0.081
KPM	SB308E3	S	0.000	0.000	0.000	0.000
KPM	SB308SE	S	0.000	0.000	0.001	0.001
KPM	SB309E	S	0.000	0.000	0.004	0.004
KPM	SB309S	S	0.000	0.000	0.000	0.000
KPM	SB309SW	S	0.047	350.000	0.000	350.047
KPM	SB310SW	S	0.000	0.000	0.000	0.000
KPM	SB314NW	S	0.000	0.000	0.002	0.002
KPM	SB314S	S	0.008	14.000	2.240	16.248
KPM	SB317N	S	0.089	0.000	0.000	0.089
KPM	SB319N	S	0.002	0.000	0.000	0.002
KPM	SB322N	S	0.028	17.510	0.000	17.538
KPM	SB322NE	S	0.005	4.585	0.042	4.632
KPM	SB322NE2	S	0.023	120.034	0.000	120.057
KPM	SB323SE	S	4.000	6.281	4.710	14.991
KPM	SB324NER	S	0.167	0.000	0.000	0.167
KPM	SB327E	S	0.000	0.090	0.000	0.090
KPM	SB329NWR	S	0.000	0.000	0.000	0.000
KPM	SB329SE2	S	0.000	0.000	0.000	0.000
KPM	SB331SW2	S	0.206	7.130	0.000	7.336
KPM	SB332NE	S	0.000	0.000	0.000	0.000
KPM	SB333NW	S	0.100	0.000	0.000	0.100
KPM	SB339NE	S	0.000	0.000	0.001	0.001
KPM	SB349NW	S	0.000	0.000	0.007	0.007
KPM	SB350NE	S	0.000	0.000	0.000	0.000
KPM	SB350NW	S	0.380	0.010	0.004	0.394
KPM	SB350NW2	S	0.610	0.014	0.018	0.642
KPM	SB350NWR	S	0.081	0.000	0.006	0.087
KPM	SB352NW	S	0.000	0.000	0.004	0.004
KPM	SB352NW2R	S	0.195	0.002	0.041	0.238
KPM	SB352NW3	S	0.014	0.000	0.006	0.020
KPM	SBM32N	S	0.000	0.000	0.000	0.000

* See page 13 for list of parameters used in preparation of table

TABLE II-6.1

KODAK PARK MONITORING WELLS
TOTAL VOLATILE AND ALCOHOL CONCENTRATION*
1991 THROUGH 1992

PARK SECTION	WELL NAME	FLOW ZONE	TOTAL ALCOHOLS (mg/l)	TOTAL NON-HAL. (mg/l)	TOTAL HALOGENS (mg/l)	TOTAL ALCO. & VOLS. (mg/l)
KPM	SL72SE	S	0.000	0.000	0.005	0.005
KPM	SL74NE	S	0.007	0.000	0.000	0.007
KPM	SL76S	S	0.000	0.680	0.000	0.680
KPM	SMN1	S	0.034	0.000	0.000	0.034
KPM	SMN10	S	0.000	0.000	0.000	0.000
KPM	SMN11	S	0.000	0.000	0.000	0.000
KPM	SMN2	S	0.016	0.000	0.000	0.016
KPM	SMN3	S	0.000	0.000	0.000	0.000
KPM	SMN4	S	0.500	0.000	0.000	0.500
KPM	SMN5	S	0.000	0.000		0.000
KPM	SMN6	S	0.500	0.006	0.000	0.506
KPM	SMN7	S	0.019	0.007	0.003	0.029
KPM	SMN8	S	0.000	0.000	0.000	0.000
KPM	SMN9	S	0.322	0.000	0.000	0.322
KPM	SWRNE	S	0.000	0.000	0.000	0.000
KPM	SWRNW	S	0.000	0.000	0.000	0.000
KPM	SWRNW2	S	0.000	0.000	0.000	0.000
KPM	SWRSE	S	0.000	0.000	0.006	0.006
KPM	WTCS2	W	0.710	0.000	0.000	0.710
KPS	RB605NE	R	0.000	0.055	0.008	0.064
KPS	RB605NE2	R	0.000	0.014	0.000	0.014
KPS	RB605NE3	R	0.000	0.000	0.000	0.000
KPS	RB605NE4	R	0.000	0.000	0.000	0.000
KPW	G1B115SR	G1	281.900	10.200	158.100	450.200
KPW	G1B137S	G1	0.000	0.000	0.057	0.057
KPW	G1B142SR	G1	0.000	0.321	0.000	0.321
KPW	G1B148S	G1	0.000	4.900	0.177	5.077
KPW	G1BD20W2	G1	0.000	0.025	0.000	0.025
KPW	G1BD20WR	G1	0.000	0.007	0.000	0.007
KPW	G1L50S	G1	0.000	0.012	0.000	0.012
KPW	G1L50S2R	G1	0.000	0.018	0.013	0.031
KPW	G1L50SW	G1	0.000	0.009	0.007	0.016
KPW	G1L50SW2R	G1	0.000	0.033	0.007	0.040
KPW	G1WS15	G1	0.000	0.003	0.015	0.018
KPW	G2B136S	G2	2.500	2.400	10.218	15.118
KPW	G2B140W	G2	4.600	0.355	7.690	12.645
KPW	G2B142SR	G2	0.000	1.147	14.700	15.847
KPW	G2BD20W2	G2	0.000	0.026	0.000	0.026
KPW	G2BD20WR	G2	0.000	0.190	0.026	0.216
KPW	G2L50S	G2	0.000	0.000	6.900	6.900

* See page 13 for list of parameters used in preparation of table

TABLE II-6.1

KODAK PARK MONITORING WELLS
TOTAL VOLATILE AND ALCOHOL CONCENTRATION*
1991 THROUGH 1992

PARK SECTION	WELL NAME	FLOW ZONE	TOTAL ALCOHOLS (mg/l)	TOTAL NON-HAL. (mg/l)	TOTAL HALOGENS (mg/l)	TOTAL ALCO. & VOLS. (mg/l)
KPW	G2L50S2R	G2	0.000	0.460	7.490	7.950
KPW	G2L50SE2	G2	0.000	0.010	0.002	0.012
KPW	G2L50SW	G2	0.000	0.237	3.204	3.441
KPW	G2L50SW2R	G2	3.500	4.540	89.400	97.440
KPW	G2L50SW3	G2	0.000	0.015	0.035	0.050
KPW	G2L50SWR	G2	0.000	0.097	0.048	0.145
KPW	G2WS15	G2	0.000	0.018	0.001	0.019
KPW	GB101SW	G	0.005	0.001	0.008	0.015
KPW	GB105E	G	0.148	0.002	0.000	0.150
KPW	GB105NE	G	0.000	0.008	0.039	0.047
KPW	GB105SE2	G	0.180	0.004	0.010	0.194
KPW	GB105SER	G	0.450	0.000	0.000	0.450
KPW	GB105SW	G	0.430	0.001	0.019	0.450
KPW	GB112W	G	0.000	1.932	1.012	2.944
KPW	GB115E	G	69.300	92.520	265.530	427.350
KPW	GB115N	G	36.270	22.000	526.920	585.190
KPW	GB115W	G	1.313	15.402	107.700	124.415
KPW	GB119E	G	9.170	11.611	35.460	56.241
KPW	GB119N	G	0.690	0.059	0.036	0.785
KPW	GB119NE	G	0.270	0.023	0.000	0.293
KPW	GB119NW	G	0.032	0.157	0.004	0.192
KPW	GB119S	G	0.280	0.102	0.002	0.384
KPW	GB119W2	G	7.270	3.200	9.700	20.170
KPW	GB120E	G	109.940	17.640	108.650	236.230
KPW	GB120NW	G	0.000	0.980	43.000	43.980
KPW	GB120SW2	G	0.000	15.960	0.000	15.960
KPW	GB121SW	G	11.000	28.229	4.546	43.775
KPW	GB123NE	G	0.210	2.212	1.140	3.562
KPW	GB123SW	G	963.900	579.940	250.100	1,793.940
KPW	GB129NW	G	0.430	0.045	0.004	0.479
KPW	GB130SW	G	0.320	0.022	0.012	0.354
KPW	GB134E	G	0.000	0.152	0.028	0.180
KPW	GB135NE	G	0.000	0.003	0.001	0.005
KPW	GB135SE	G	1.220	0.082	0.041	1.343
KPW	GB136SR	G	22.840	8.810	92.860	124.510
KPW	GB137SW	G	5.490	0.190	0.143	5.823
KPW	GB140E	G	0.220	0.000	0.000	0.220
KPW	GB142W	G	0.000	0.008	0.003	0.011
KPW	GB145NW	G	0.340	0.025	0.020	0.385
KPW	GB145SE	G	1.004	0.006	0.003	1.013

* See page 13 for list of parameters used in preparation of table

TABLE II-6.1

KODAK PARK MONITORING WELLS
TOTAL VOLATILE AND ALCOHOL CONCENTRATION*
1991 THROUGH 1992

PARK SECTION	WELL NAME	FLOW ZONE	TOTAL ALCOHOLS (mg/l)	TOTAL NON-HAL. (mg/l)	TOTAL HALOGENS (mg/l)	TOTAL ALCO. & VOLS. (mg/l)
KPW	GB151SE	G	0.220	0.000	0.000	0.220
KPW	GB153NE	G	0.033	0.003	0.000	0.036
KPW	GBD20W3	G	0.000	0.009	0.000	0.009
KPW	GBD3E	G	0.000	0.600	0.043	0.643
KPW	GL50N	G	0.000	0.003	0.004	0.007
KPW	GL50N2	G	0.000	5.604	3.000	8.604
KPW	GL50NE2	G	0.700	0.000	0.000	0.700
KPW	GL50NW	G	0.000	0.026	0.013	0.039
KPW	GL50NW3	G	0.000	0.031	0.004	0.035
KPW	GL50SE2R	G	0.210	0.006	0.000	0.216
KPW	GL50SW3R	G	0.000	0.010	0.012	0.022
KPW	GL56NW	G	0.000	0.003	0.000	0.003
KPW	GQB101SW	GQ	0.091	0.014	0.024	0.129
KPW	GQB105E	GQ	6.900	0.000	0.016	6.916
KPW	GQB105NE	GQ	0.390	0.000	0.000	0.390
KPW	GQB105SE2	GQ	2.500	0.045	0.000	2.545
KPW	GQB112W	GQ	0.000	8.600	188.300	196.900
KPW	GQB114SW	GQ	0.270	0.000	185.600	185.870
KPW	GQB115E	GQ	0.000	0.079	0.022	0.101
KPW	GQB115N	GQ	0.000	0.076	0.016	0.092
KPW	GQB115SR	GQ	0.000	0.150	0.032	0.181
KPW	GQB115W	GQ	0.097	0.089	0.017	0.203
KPW	GQB119S	GQ	0.013	0.000	0.004	0.017
KPW	GQB120NW	GQ	0.000	0.123	0.117	0.240
KPW	GQB120SW2	GQ	0.100	0.072	0.006	0.178
KPW	GQB121SW	GQ	0.200	0.025	0.316	0.541
KPW	GQB123NE	GQ	0.000	0.051	0.011	0.062
KPW	GQB123SW	GQ	0.082	0.069	0.011	0.162
KPW	GQB129SE	GQ	0.000	0.028	0.029	0.057
KPW	GQB130SW	GQ	0.000	0.000	0.000	0.000
KPW	GQB134E	GQ	0.185	0.850	13.730	14.765
KPW	GQB136SR	GQ	8.300	11.630	112.600	132.530
KPW	GQB137SW	GQ	0.630	0.000	0.000	0.630
KPW	GQB140E	GQ	3.700	0.037	0.001	3.738
KPW	GQB140W	GQ	0.027	0.019	0.045	0.091
KPW	GQB142SR	GQ	0.000	1.750	37.600	39.350
KPW	GQB142W	GQ	0.110	0.178	0.892	1.180
KPW	GQB148S	GQ	0.310	0.047	0.000	0.357
KPW	GQBD20W2	GQ	0.000	0.000	0.000	0.000
KPW	GQBD20W3	GQ	0.015	0.000	0.000	0.015

* See page 13 for list of parameters used in preparation of table

TABLE II-6.1

KODAK PARK MONITORING WELLS
TOTAL VOLATILE AND ALCOHOL CONCENTRATION*
1991 THROUGH 1992

PARK SECTION	WELL NAME	FLOW ZONE	TOTAL ALCOHOLS (mg/l)	TOTAL NON-HAL. (mg/l)	TOTAL HALOGENS (mg/l)	TOTAL ALCO. & VOLS. (mg/l)
KPW	GQBD20WR	GQ	0.000	0.103	0.016	0.119
KPW	GQL50N2	GQ	0.000	0.000	39.900	39.900
KPW	GQL50NE	GQ	0.000	0.000	210.000	210.000
KPW	GQL50NW3	GQ	0.000	0.173	0.044	0.217
KPW	GQL50S2R	GQ	0.000	0.158	2.440	2.598
KPW	GQL50S3	GQ	0.000	0.110	15.900	16.010
KPW	GQL50SE2R	GQ	0.320	0.166	0.008	0.494
KPW	GQL50SE3	GQ	0.100	0.019	0.010	0.129
KPW	GQL50SW2R	GQ	33.400	7.700	211.000	252.100
KPW	GQL50SW3R	GQ	0.000	0.022	0.010	0.032
KPW	GQWS12	GQ	0.000	0.004	0.001	0.005
KPW	GQWS13	GQ	0.000	0.000	0.018	0.018
KPW	GQWS15	GQ	0.000	0.000	0.000	0.000
KPW	GQWS17	GQ	5.400	0.021	0.000	5.421
KPW	GQWS3	GQ	0.000	0.058	0.003	0.061
KPW	GQWS5	GQ	0.000	0.000	0.005	0.005
KPW	GQWS9	GQ	0.000	0.000	0.000	0.000
KPW	GWS16	G	0.000	0.058	0.003	0.061
KPW	GWS5	G	0.900	0.000	0.000	0.900
KPW	IWS10	I	0.000	0.000	0.000	0.000
KPW	IWS11	I	0.000	0.000	0.000	0.000
KPW	IWS13	I	0.000	0.000	0.001	0.001
KPW	IWS3	I	0.210	0.000	0.000	0.210
KPW	IWS4R	I	0.210	0.000	0.003	0.213
KPW	PB115N	P	30.400	31.300	1,115.000	1,176.700
KPW	PB119E	P	1.500	0.000	0.000	1.500
KPW	PB119E2	P	19.000	1.000	150.530	170.530
KPW	PB119NE	P	0.000	0.000	0.000	0.000
KPW	PB119SE	P	0.870	0.000	0.000	0.870
KPW	PB119W	P	2.200	0.000	2.300	4.500
KPW	PB135E	P	1.500	0.000	0.000	1.500
KPW	PB136S	P	0.660	17.030	80.300	97.990
KPW	PL50N2	P	2.230	3.850	657.000	663.080
KPW	PL50N3	P	1.100	0.390	1.700	3.190
KPW	PL50NW3	P	0.000	0.000	1.500	1.500
KPW	PL50W	P	0.000	0.000	0.000	0.000
KPW	QB115N	Q	0.000	0.031	0.007	0.038
KPW	QB115SE	Q	0.000	0.018	0.003	0.021
KPW	QB120NW	Q	0.000	0.042	0.008	0.050
KPW	QB120SW2	Q	0.110	0.017	0.003	0.130

* See page 13 for list of parameters used in preparation of table

TABLE II-6.1

KODAK PARK MONITORING WELLS
TOTAL VOLATILE AND ALCOHOL CONCENTRATION*
1991 THROUGH 1992

PARK SECTION	WELL NAME	FLOW ZONE	TOTAL ALCOHOLS (mg/l)	TOTAL NON-HAL. (mg/l)	TOTAL HALOGENS (mg/l)	TOTAL ALCO. & VOLS. (mg/l)
KPW	QB130SW	Q	3.670	0.028	0.000	3.698
KPW	QB135SE	Q	7.600	0.080	1.032	8.712
KPW	QB142S	Q	0.000	0.030	0.009	0.039
KPW	QL50SR	Q	2.318	0.014	0.318	2.650
KPW	SB105SER	S	0.000	0.000	0.000	0.000
KPW	SB115E	S	43.100	33.284	10.923	87.307
KPW	SB115N2	S	0.000	0.019	0.720	0.739
KPW	SB115W	S	7.300	8.320	340.000	355.620
KPW	SB119NE	S	0.100	0.062	0.004	0.166
KPW	SB119NE2	S	0.052	0.000	0.003	0.055
KPW	SB119S	S	0.000	0.000	0.000	0.000
KPW	SB119W4	S	3.200	4.950	0.000	8.150
KPW	SB120E	S	2,328.500	5.234	16.021	2,349.755
KPW	SB120SW2	S	7.500	136.100	3.800	147.400
KPW	SB121N	S	0.000	0.000	0.078	0.078
KPW	SB123NE	S	0.015	0.235	0.091	0.341
KPW	SB123SW	S	15.400	90.580	45.400	151.380
KPW	SB130SW	S	0.350	0.000	0.047	0.397
KPW	SB134E	S	0.210	0.003	0.000	0.213
KPW	SB135E2	S	0.000	0.000	0.000	0.000
KPW	SB135E3	S	0.000	0.000	0.000	0.000
KPW	SB135N	S	0.000	0.006	0.012	0.018
KPW	SB135NE	S	0.000	0.000	0.005	0.005
KPW	SB135SER	S	0.048	0.000	0.001	0.049
KPW	SB139SW	S	1.217	0.000	0.007	1.224
KPW	SB142WR	S	0.000	0.000	0.000	0.000
KPW	SB145SE	S	0.001	0.050	0.003	0.054
KPW	SB148S	S	0.000	3.440	0.033	3.473
KPW	SB151SER	S	0.300	0.020	0.000	0.320
KPW	SB153NE	S	0.000	0.000	0.000	0.000
KPW	SBD20W	S	0.000	0.000	0.000	0.000
KPW	SBD20W2	S	0.000	0.034	0.000	0.034
KPW	SBD20W3	S	0.000	0.000	0.000	0.000
KPW	SL50NE2	S	3.300	0.000	0.000	3.300
KPW	SL50SE2	S	0.000	0.012	0.000	0.012
KPW	SL50SW	S	0.000	0.008	0.001	0.009
KPW	SL50SW2	S	0.000	0.008	0.013	0.021
KPW	SL50SW3	S	0.000	0.010	0.005	0.015
KPW	SL53N	S	0.000	0.000	0.000	0.000
KPW	SL55N	S	0.450	0.000	0.000	0.450

* See page 13 for list of parameters used in preparation of table

TABLE II-6.1

KODAK PARK MONITORING WELLS
TOTAL VOLATILE AND ALCOHOL CONCENTRATION*
1991 THROUGH 1992

PARK SECTION	WELL NAME	FLOW ZONE	TOTAL ALCOHOLS (mg/l)	TOTAL NON-HAL. (mg/l)	TOTAL HALOGENS (mg/l)	TOTAL ALCO. & VOLS. (mg/l)
KPW	SL56NW	S	0.000	0.000	0.000	0.000
KPW	SWS	S	0.000	0.000	0.000	0.000
KPW	SWS2	S	16.000	0.000	0.002	16.002
KPW	SWS6	S	0.194	0.000	0.000	0.194
KPW	SWS7	S	0.344	0.000	0.000	0.344
KPW	SWS8	S	0.000	0.000	0.000	0.000
KPW	SWS9	S	0.000	0.000	0.000	0.000
KPX	GB205NE	G	0.000	0.006	0.000	0.006
KPX	GB206E	G	0.054	0.030	0.013	0.097
KPX	GB206NW2	G	0.025	0.000	0.000	0.025
KPX	GB206SW	G	0.580	0.050	0.027	0.657
KPX	GB208NE2	G	0.052	0.013	0.018	0.083
KPX	GB216W	G	0.000	0.000	0.000	0.000
KPX	GB218E	G	0.054	0.000	0.000	0.054
KPX	GB218NE	G	0.030	0.027	0.063	0.120
KPX	GB218NW	G	20.400	15.462	0.473	36.335
KPX	GB218SE	G	1.200	0.090	0.327	1.617
KPX	GB218W4	G	7.860	23.871	0.095	31.826
KPX	GQB208NE2	GQ	0.004	0.002	0.014	0.020
KPX	GQB218E	GQ	0.543	0.016	0.004	0.563
KPX	GQB218NE	GQ	0.022	0.006	0.011	0.039
KPX	GQB218NW	GQ	50.080	4.829	0.000	54.909
KPX	GQB218SE	GQ	0.028	0.030	0.001	0.060
KPX	IB205NE	I	0.000	0.000	0.000	0.000
KPX	PB218N	P	0.000	0.003	0.000	0.003
KPX	PB218NW	P	293.760	36.800	30.600	361.160
KPX	PB218W	P	1.100	0.973	0.511	2.584
KPX	SB203S	S	0.000	0.000	0.000	0.000
KPX	SB203W	S	0.000	0.000	0.000	0.000
KPX	SB205NE	S	0.000	0.000	0.000	0.000
KPX	SB206E	S	0.240	0.000	0.002	0.242
KPX	SB206NE	S	0.000	0.000	0.000	0.000
KPX	SB206NW	S	0.000	0.000	0.000	0.000
KPX	SB206NW2	S	0.000	0.000	0.000	0.000
KPX	SB206SE	S	0.000	0.000	0.006	0.006
KPX	SB206SW	S	0.005	0.011	0.006	0.021
KPX	SB206SWR	S	2.008	0.057	0.023	2.088
KPX	SB208NE	S	0.047	0.025	0.083	0.155
KPX	SB208NE2	S	0.001	0.009	0.013	0.024
KPX	SB211NE	S	0.000	0.000	0.000	0.000

* See page 13 for list of parameters used in preparation of table

TABLE II-6.1

KODAK PARK MONITORING WELLS
TOTAL VOLATILE AND ALCOHOL CONCENTRATION*
1991 THROUGH 1992

PARK SECTION	WELL NAME	FLOW ZONE	TOTAL ALCOHOLS (mg/l)	TOTAL NON-HAL. (mg/l)	TOTAL HALOGENS (mg/l)	TOTAL ALCO. & VOLS. (mg/l)
KPX	SB211SE	S	0.000	0.000	0.000	0.000
KPX	SB212NE2	S	0.000	0.000	0.001	0.001
KPX	SB212NW	S	0.000	0.000	0.000	0.000
KPX	SB216E	S	0.000	0.000	0.000	0.000
KPX	SB218E	S	0.041	0.007	0.000	0.048
KPX	SB218ER	S	0.000	0.034	0.003	0.037
KPX	SB218N	S	0.000	0.538	0.002	0.540
KPX	SB218NE	S	0.001	0.000	0.000	0.001
KPX	SB218NW	S	0.170	1.328	0.013	1.511
KPX	SB218SE	S	0.000	0.004	0.002	0.006
KPX	SB218SW	S	0.000	0.009	0.000	0.009
KPX	SB218W	S	0.030	0.156	0.037	0.223
KPX	SB218W2	S	0.092	0.410	0.048	0.550
KPX	SB218W3	S	0.000	0.000	0.084	0.084
KPX	SB218W4	S	5.230	46.834	0.089	52.153
KPX	SL60N	S	0.000	0.000	0.000	0.000

* See page 13 for list of parameters used in preparation of table

* See page 13 for list of parameters used in preparation of table

TABLE II-6.1

KODAK PARK MONITORING WELLS
TOTAL VOLATILE AND ALCOHOL CONCENTRATION
1991 THROUGH 1992

LIST OF PARAMETERS

CLASSIFICATION	PARAMETER NAME	CLASSIFICATION	PARAMETER NAME
ALCOHOL	1,4-Diethylene Dioxane	HAL. VOC	Trans-1,2-Dichloroethylene
ALCOHOL	1,4-Dioxane	HAL. VOC	Trans-1,3-Dichloropropene
ALCOHOL	1-Butanol	HAL. VOC	Trans-1,4-Dichloro-2-Butene
ALCOHOL	Cellosolve	HAL. VOC	Trichloroethylene
ALCOHOL	Diethylene Glycol	HAL. VOC	Trichlorofluoromethane
ALCOHOL	Ethanol	HAL. VOC	Trichlorotrifluoroethane
ALCOHOL	Ethyl Alcohol	HAL. VOC	Vinyl Chloride
ALCOHOL	Ethylene Glycol	NON-HAL. VOC	2-Hexanone
ALCOHOL	Isobutyl Alcohol	NON-HAL. VOC	2-Methyl-1,3-Dioxolane
ALCOHOL	Isopropyl Alcohol	NON-HAL. VOC	2-Methyl-1,3-dioxolane
ALCOHOL	Methanol	NON-HAL. VOC	Acetone
ALCOHOL	Methyl Alcohol	NON-HAL. VOC	Acetonitrile
ALCOHOL	Methyl Cellosolve	NON-HAL. VOC	Acrolein
ALCOHOL	N-Butanol	NON-HAL. VOC	Acrylonitrile
ALCOHOL	N-Butyl Alcohol	NON-HAL. VOC	Benzene
HAL. VOC	1,1,1,2-Tetrachloroethane	NON-HAL. VOC	Butyl Acetate
HAL. VOC	1,1,1-Trichloroethane	NON-HAL. VOC	Butylated Hydroxy Toluene
HAL. VOC	1,1,2,2-Tetrachloroethane	NON-HAL. VOC	Carbon Disulfide
HAL. VOC	1,1,2-Trichloro-1,2,2-Trifluoroethane	NON-HAL. VOC	Cyclohexane
HAL. VOC	1,1,2-Trichloroethane	NON-HAL. VOC	Cyclohexanone
HAL. VOC	1,1-Dichloroethane	NON-HAL. VOC	Epichlorohydrin
HAL. VOC	1,1-Dichloroethylene	NON-HAL. VOC	Ethyl Acetate
HAL. VOC	1,2,3-Trichloropropane	NON-HAL. VOC	Ethyl Ether
HAL. VOC	1,2-Dibromo-3-Chloropropane	NON-HAL. VOC	Ethyl Methacrylate
HAL. VOC	1,2-Dibromoethane	NON-HAL. VOC	Ethyl ether
HAL. VOC	1,2-Dichloroethane	NON-HAL. VOC	Ethylbenzene
HAL. VOC	1,2-Dichloroethene	NON-HAL. VOC	Heptane
HAL. VOC	1,2-Dichloropropane	NON-HAL. VOC	Hexane
HAL. VOC	1,3-Dichloropropylene	NON-HAL. VOC	Isopropyl Ether
HAL. VOC	112Trichlor, 122Trifluroethane	NON-HAL. VOC	M&P Xylene
HAL. VOC	2-Chloroethyl Vinyl Ether	NON-HAL. VOC	M-Xylene
HAL. VOC	Allyl Chloride	NON-HAL. VOC	Methyacrylonitrile
HAL. VOC	Bromodichloromethane	NON-HAL. VOC	Methyl Acetate Ketone
HAL. VOC	Bromoform	NON-HAL. VOC	Methyl Ethyl Ketone
HAL. VOC	Carbon Tetrachloride	NON-HAL. VOC	Methyl Isobutyl Ketone
HAL. VOC	Chlorobenzene	NON-HAL. VOC	Methyl Methacrylate
HAL. VOC	Chloroethane	NON-HAL. VOC	Methyl Propyl Ketone
HAL. VOC	Chloroform	NON-HAL. VOC	Methyl acetate
HAL. VOC	Chloroprene	NON-HAL. VOC	O,P-Xylene
HAL. VOC	Cis-1,3-Dichloropropene	NON-HAL. VOC	O-xylene
HAL. VOC	Dibromochloromethane	NON-HAL. VOC	P-Cymene
HAL. VOC	Dibromoethane	NON-HAL. VOC	Priopionitrile
HAL. VOC	Dichlorodifluoromethane	NON-HAL. VOC	Propylene Oxide
HAL. VOC	Epichlorohydrin	NON-HAL. VOC	Styrene
HAL. VOC	Methyl Bromide	NON-HAL. VOC	Tetrahydrofuran
HAL. VOC	Methyl Chloride	NON-HAL. VOC	Toluene
HAL. VOC	Methyl Iodide	NON-HAL. VOC	Total Petroleum Hydrocarbons
HAL. VOC	Methylene Chloride	NON-HAL. VOC	Vinyl Acetate
HAL. VOC	Tetrachloroethene	NON-HAL. VOC	Xylenes
HAL. VOC	Tetrachloroethylene		

HAL. VOC = Halogenated Volatile Organic Compounds

NON-HAL. VOC = Non-Halogenated Volatile Organic Compounds

TABLE II-6.2

KODAK PARK GROUNDWATER
METALS AND CLASSICAL ANALYTE SUMMARY*

PARAMETER	OVERBURDEN Minimum (mg/L)	OVERBURDEN Average (mg/L)	OVERBURDEN Maximum (mg/L)	OVERBURDEN Count	INTERMEDIATE GRIMSBY Minimum (mg/L)	INTERMEDIATE GRIMSBY Average (mg/L)	INTERMEDIATE GRIMSBY Maximum (mg/L)	INTERMEDIATE GRIMSBY Count
Acid Fuchsin	0.0400	43.4242	216.7662	4				
Alkalinity	67.0000	415.0748	5080.0000	7	65.0000	397.0177	1900.0000	5
Aluminum, Acid Soluble	0.1000	0.5589	3.6650	4	0.5700	0.5700	0.5700	1
Aluminum, Dissolved	0.0050	0.5728	15.8860	5	0.0400	0.3750	0.8815	3
Aluminum, Total Recoverable	0.2400	19.7107	453.0000	11	0.2000	1.5246	8.0650	6
Ammonia Distilled/Titration	0.5000	4.9600	19.0000	1	6.3000	13.6500	21.0000	1
Ammonia-N, Titration	0.0100	0.3538	1.0000	2				
Antimony, Dissolved	0.0300	0.0740	0.4800	2	0.0030	0.1336	0.2700	2
Antimony, Total Recoverable	0.0040	0.1185	3.0500	4	0.0050	0.1303	0.3200	2
Apha 408 C (Potentiometric)	97.0000	97.0000	97.0000	1				
Arsenic Dissolved	0.0020	0.0212	0.0530	2	0.0057	0.0279	0.0500	1
Arsenic total	0.0020	0.0215	0.2950	7	0.0030	0.0277	0.0730	2
Arsenic, Dissolved	0.0020	0.0100	0.0500	2	0.0020	0.0103	0.0620	2
Arsenic, Total Recoverable	0.0020	0.0418	0.6777	5	0.0035	0.0206	0.1740	2
Barium, Acid Soluble	0.0300	0.2785	1.8000	3	3.5000	3.5000	3.5000	1
Barium, Dissolved	0.0183	0.2630	3.2200	6	0.0210	0.8834	3.6000	5
Barium, Total Recoverable	0.0329	0.5650	4.1800	10	0.0300	0.8502	4.2100	5
Beryllium, Dissolved	0.0010	0.0015	0.0040	1				
Beryllium, Total Recoverable	0.0010	0.0024	0.0110	3	0.0010	0.0023	0.0040	2
Cadmium, Acid Soluble	0.0012	0.0156	0.0300	1				
Cadmium, Dissolved	0.0010	0.0109	0.0650	3	0.0050	0.1300	0.3600	1
Cadmium, Total Recoverable	0.0003	0.0252	1.3063	4	0.0030	0.0084	0.0160	2
Calcium, Acid Soluble	54.0000	288.3229	990.0000	3				
Calcium, Dissolved	4.7400	180.9951	944.0000	6	1.9000	192.3240	800.0000	5
Calcium, Total Recoverable	30.2000	295.1788	1390.0000	12	14.4333	193.9268	844.4000	6
Chloride	12.0000	825.4148	10850.0000	5	140.2500	838.3204	4000.0000	5
Chloride (Potentiometric)	34.5000	676.8404	2700.0000	4	360.0000	916.6667	1200.0000	3
Chloride by IC	2.0000	975.6591	19000.0000	9	35.0000	1195.7500	6400.0000	3
Chromium, Acid Soluble	0.0140	0.0363	0.0800	1				
Chromium, Dissolved	0.0030	0.0337	0.1225	5	0.0100	0.0250	0.0550	3
Chromium, Hexavalent	0.5000	0.5000	0.5000	1				
Chromium, Total Recoverable	0.0030	0.3316	11.3295	11	0.0031	0.0329	0.1680	5
Cobalt, Acid Soluble	0.0300	0.0300	0.0300	1				
Cobalt, Dissolved	0.0040	0.0129	0.0500	3	0.0130	0.0130	0.0130	1
Cobalt, Total Recoverable	0.0035	0.0361	0.3400	5	0.0040	0.0108	0.0220	1
Copper, Acid Soluble	0.0170	0.0388	0.1050	3				
Copper, Dissolved	0.0030	0.0312	0.2888	5	0.0010	0.0343	0.0780	3
Copper, Total Recoverable	0.0045	0.0934	1.3000	11	0.0070	0.0612	0.5000	5
Cyanide, Total H2O, Effluent	0.0010	0.0072	0.0300	2	0.0010	0.0069	0.0300	1
Cyanide, Total, Titrimetric	0.0060	0.0177	0.0600	4				

TABLE II-6.2

KODAK PARK GROUNDWATER
METALS AND CLASSICAL ANALYTE SUMMARY*

PARAMETER	OVERBURDEN Minimum (mg/L)	Average (mg/L)	Maximum (mg/L)	Count	INTERMEDIATE GRIMSBY Minimum (mg/L)	Average (mg/L)	Maximum (mg/L)	Count
Iron, Acid Soluble	0.0200	5.2313	120.0000	4	5.6000	5.6000	5.6000	1
Iron, Dissolved	0.0030	3.2413	113.0400	7	0.0070	7.5067	42.2125	4
Iron, Total Recoverable	0.1735	38.5247	992.0000	12	0.3468	9.6056	89.0000	6
Lead	0.0010	0.0161	0.0900	8	0.0024	0.0129	0.0359	2
Lead Dissolved	0.0020	0.0062	0.0190	1	0.0040	0.0044	0.0048	1
Lead, Acid Soluble	0.0130	0.0810	0.1400	2				
Lead, Dissolved	0.0020	0.0560	0.2100	4	0.0030	0.0518	0.1200	1
Lead, Total Recoverable	0.0030	0.0878	3.8000	5	0.0030	0.0220	0.0930	3
Lithium, Acid Soluble	0.0200	0.0600	0.3300	2	0.0400	0.0400	0.0400	1
Lithium, Dissolved	0.0020	0.1452	7.0050	5	0.0300	0.7759	10.0000	4
Lithium, Total Recoverable	0.0060	0.0752	0.5000	2	0.0110	0.2007	0.6210	2
Magnesium, Acid Soluble	0.0500	33.1855	170.0000	3	99.0000	99.0000	99.0000	1
Magnesium, Dissolved	0.1920	33.9280	154.0000	6	0.1100	58.4230	525.0000	5
Magnesium, Total Recoverable	1.6100	62.0785	482.5000	12	0.1320	31.2360	78.0000	6
Manganese	0.0200	0.8079	4.6000	3	0.4600	0.4600	0.4600	1
Manganese, Dissolved	0.0020	1.0676	21.3500	6	0.0010	0.5938	3.5000	4
Manganese, Total Recoverable	0.0200	2.0929	17.0000	11	0.0150	0.3390	1.4000	6
Mercury	0.0004	0.0004	0.0004	1				
Mercury, Dissolved	0.0003	0.0003	0.0003	1				
Mercury, Total Recoverable	0.0001	0.0008	0.0225	8	0.0002	0.0003	0.0003	3
Molybdenium Total	0.1185	0.1186	0.1185	1				
Molybdenum, Dissolved	0.0030	6.2430	105.0045	2				
Nickel, Acid Soluble	0.0200	0.0668	0.2750	2	0.0400	0.0400	0.0400	1
Nickel, Dissolved	0.0060	0.1056	1.7800	4	0.0160	0.0387	0.0650	2
Nickel, Total Recoverable	0.0030	0.3778	33.6660	10	0.0040	0.0376	0.1100	2
Nitrate by IC	0.2000	4.0886	28.0000	2	1.1000	7.5500	14.0000	1
Phosphorus	0.0300	1.0500	4.0000	1				
Phosphorus, Acid Soluble	0.8900	368.5300	1100.0000	1				
Phosphorus, Dissolved	0.0330	0.9063	8.7000	4	0.9400	1.2200	1.5000	2
Potassium, Acid Soluble	3.5000	58.1077	410.0000	2	21.0000	21.0000	21.0000	1
Potassium, Dissolved	0.8850	16.3967	266.0000	5	9.5000	54.8049	186.3333	4
Potassium, Total Recoverable	1.7000	15.8421	259.0000	11	4.5000	44.8076	175.0000	6
Selenium	0.0001	0.0046	0.0330	3	0.0014	0.0054	0.0150	2
Selenium Dissolved	0.0040	0.0144	0.0630	2	0.0050	0.0050	0.0050	1
Selenium, Dissolved	0.0020	0.0306	0.3410	2				
Selenium, Total Recoverable	0.0020	0.0902	0.5120	2	0.0021	0.1150	0.2800	1
Silver, Acid Soluble	0.0200	0.0400	0.0600	1				
Silver, Dissolved	0.0010	0.3164	10.0000	3	0.0160	0.0180	0.0200	1
Silver, Total Recoverable	0.0010	0.0226	0.8300	5	0.0010	0.0145	0.0510	2
Sodium, Acid Soluble	*33.0000*	*1196.6786*	*7200.0000*	*3*	*460.0000*	*460.0000*	*460.0000*	*1*

TABLE II-6.2

KODAK PARK GROUNDWATER
METALS AND CLASSICAL ANALYTE SUMMARY*

PARAMETER	OVERBURDEN Minimum (mg/L)	OVERBURDEN Average (mg/L)	OVERBURDEN Maximum (mg/L)	OVERBURDEN Count	INTERMEDIATE GRIMSBY Minimum (mg/L)	INTERMEDIATE GRIMSBY Average (mg/L)	INTERMEDIATE GRIMSBY Maximum (mg/L)	INTERMEDIATE GRIMSBY Count
Sodium, Dissolved	2.6000	641.2003	5250.0000	8	65.7000	442.1549	1420.0000	5
Sodium, Total Recoverable	3.4200	48191.8618	9000000.0000	12	32.0333	459.4586	2720.0000	6
Solids at 105C, Total	2600.0000	8256.6667	34000.0000	3				
Solids, Dissolved, Total	230.0000	3020.0000	17500.0000	4	2075.0000	2075.0000	2075.0000	1
Strontium Total	0.6600	0.6600	0.6600	1				
Sulfate, Soluble, Turbidi	44.0000	170.6000	410.0000	1				
Sulfate, Soluble, Turbidm, -1	17.0000	162.2527	1250.0000	5	10.0000	104.4583	310.0000	3
Sulfates	2.4000	145.2649	1300.0000	7	9.0000	169.7113	680.0000	5
Sulfates by IC	3.0000	175.6393	2000.0000	7	5.7500	40.7542	160.0000	4
Sulfide	0.2000	32.4000	96.0000	2	0.2000	0.2000	0.2000	1
TDS	185.0000	2684.1864	32000.0000	16	820.0000	3303.8889	11000.0000	4
TKN, Digest., Titration	0.1000	2.0889	10.0000	1	2.7000	3.0500	3.4000	1
TKN, Titration (NH3-N+ORG)	0.6000	1.9318	7.5000	2				
TSS	5.5000	1651.4048	14000.0000	3	120.0000	205.0000	290.0000	1
Thallium	0.0010	0.0455	0.0900	1				
Thallium Dissolved	0.0030	0.0030	0.0030	1	0.0024	0.0024	0.0024	1
Thallium Total	0.0004	0.0207	0.1900	3	0.0030	0.0035	0.0040	1
Thallium, Dissolved	0.0040	0.0040	0.0040	1	0.0920	0.1190	0.1460	1
Thallium, Total Recoverable	0.0002	0.0618	0.2400	2	0.0200	0.0200	0.0200	1
Tin, Acid Soluble	0.3200	0.5050	0.6900	1	0.3000	0.3000	0.3000	1
Tin, Dissolved	0.0100	0.1445	0.4900	2	0.3950	1.0308	1.6667	2
Tin, Total Recoverable	0.0040	0.0103	0.0200	1				
Vanadium, Dissolved	0.0060	0.0123	0.0208	1	0.0061	0.0250	0.0500	1
Vanadium, Total Recoverable	0.0020	0.0587	0.8600	8	0.0030	0.0279	0.1200	3
Zinc, Acid Soluble	0.0130	0.0530	0.3000	3				
Zinc, Dissolved	0.0080	0.1001	3.2975	5	0.0090	0.1221	0.7500	3
Zinc, Total Recoverable	0.0020	0.2901	12.7620	11	0.0230	0.1575	1.5900	6

*NOTE: Summary covers the period 1981 through 1992, inclusive. Values were computed based on tests results equal to or greater than the method detection limit (DL). "ND" and "U" qualifed samples were eliminated prior to summary analysis.
For wells with miltiple samples, a simple arithmetic average concentration was computed, and the average value was used in summary preparation.
Blanks indicate that no samples were collected for these parameters.

TABLE II-6.2

KODAK PARK GROUNDWATER
METALS AND CLASSICAL ANALYTE SUMMARY*

PARAMETER	TOP OF ROCK Minimum (mg/L)	TOP OF ROCK Average (mg/L)	TOP OF ROCK Maximum (mg/L)	TOP OF ROCK Count	GQ CONTACT Minimum (mg/L)	GQ CONTACT Average (mg/L)	GQ CONTACT Maximum (mg/L)	GQ CONTACT Count
Acid Fuchsin	0.0100	0.0361	0.1054	3				
Alkalinity	55.0000	359.3936	1900.0000	9	65.0000	363.1606	1800.0000	4
Aluminum, Acid Soluble	0.1000	0.6641	5.3000	5				
Aluminum, Dissolved	0.0250	0.6094	10.3000	7	0.0330	0.6074	2.8400	1
Aluminum, Total Recoverable	0.0740	2.4015	22.3733	8	0.1300	4.6967	60.0000	4
Ammonia Distilled/Titration	0.3000	1.9778	5.8000	2	1.6000	9.2000	18.0000	2
Ammonia-N, Titration								
Antimony, Dissolved	0.0040	0.1238	0.4400	3	0.0160	0.1154	0.5000	2
Antimony, Total Recoverable	0.0040	0.1122	1.2800	6	0.0060	0.0915	0.2500	2
Apha 408 C (Potentiometric)								
Arsenic Dissolved	0.0030	0.0452	0.2800	2	0.0052	0.0289	0.1380	1
Arsenic total	0.0021	0.0219	0.1940	5	0.0050	0.0194	0.0670	2
Arsenic, Dissolved	0.0020	0.2663	11.0000	3	0.0020	0.0414	0.1900	2
Arsenic, Total Recoverable	0.0030	0.0483	0.3200	6	0.0040	0.0826	0.9600	2
Barium, Acid Soluble	0.0200	0.6975	6.7000	2				
Barium, Dissolved	0.0180	1.0475	51.0000	7	0.0290	0.3406	3.9300	5
Barium, Total Recoverable	0.0360	0.5058	3.3100	7	0.0500	0.5105	4.1200	3
Beryllium, Dissolved	0.0010	0.0020	0.0030	1	0.0060	0.0060	0.0060	1
Beryllium, Total Recoverable	0.0010	0.0026	0.0480	3	0.0010	0.0024	0.0070	1
Cadmium, Acid Soluble	0.0300	0.0300	0.0300	2				
Cadmium, Dissolved	0.0010	0.0126	0.0500	5	0.0060	0.0067	0.0070	1
Cadmium, Total Recoverable	0.0020	0.0119	0.1600	4	0.0030	0.0481	0.4500	2
Calcium, Acid Soluble	33.0000	256.2083	610.0000	2				
Calcium, Dissolved	11.0000	214.4554	1183.3333	8	2.6000	108.5826	1130.0000	5
Calcium, Total Recoverable	9.3000	325.5478	12969.4600	8	15.0000	204.8577	3450.0000	5
Chloride	21.0000	1224.9091	11950.0000	8	200.0000	1042.8399	9900.0000	4
Chloride (Potentiometric)	56.5000	1019.1563	2850.0000	4	453.3333	490.0000	526.6667	1
Chloride by IC	4.0000	1115.2665	8850.0000	11	7.1000	3259.3273	24000.0000	2
Chromium, Acid Soluble	0.0140	0.0437	0.1200	2				
Chromium, Dissolved	0.0010	0.0446	0.3267	7	0.0090	0.0505	0.3200	1
Chromium, Hexavalent								
Chromium, Total Recoverable	0.0030	0.1356	7.8380	7	0.0030	0.0714	1.6000	4
Cobalt, Acid Soluble	0.0350	0.0358	0.0367	2				
Cobalt, Dissolved	0.0030	0.0174	0.0700	4	0.0070	0.0070	0.0070	1
Cobalt, Total Recoverable	0.0040	0.0354	0.6380	3	0.0040	0.1425	1.3500	2
Copper, Acid Soluble	0.0110	1.7559	50.0000	3				
Copper, Dissolved	0.0020	0.0313	0.4435	7	0.0010	0.0244	0.0770	2
Copper, Total Recoverable	0.0025	0.0403	0.3492	7	0.0031	0.0642	0.7500	3
Cyanide, Total H2O, Effluent	0.0010	0.0094	0.1900	3	0.0010	0.0030	0.0130	2
Cyanide, Total, Titrimetric	0.0030	0.0115	0.0200	2				

TABLE II-6.2

KODAK PARK GROUNDWATER
METALS AND CLASSICAL ANALYTE SUMMARY*

PARAMETER	TOP OF ROCK Minimum (mg/L)	TOP OF ROCK Average (mg/L)	TOP OF ROCK Maximum (mg/L)	TOP OF ROCK Count	GQ CONTACT Minimum (mg/L)	GQ CONTACT Average (mg/L)	GQ CONTACT Maximum (mg/L)	GQ CONTACT Count
Iron, Acid Soluble	0.0200	9.8996	135.0000	4				
Iron, Dissolved	0.0050	14.8090	230.0000	8	0.0060	1.8567	14.0500	4
Iron, Total Recoverable	0.2380	18.2580	309.0140	8	0.2240	7.5519	70.4000	5
Lead	0.0018	0.0098	0.0580	4	0.0020	0.0139	0.0800	2
Lead Dissolved	0.0030	0.0070	0.0200	1	0.0028	0.0039	0.0050	1
Lead, Acid Soluble	0.0615	0.0991	0.1733	4				
Lead, Dissolved	0.0022	0.0761	0.5500	6	0.0029	0.0508	0.1800	1
Lead, Total Recoverable	0.0020	0.0287	0.3640	5	0.0020	0.0643	0.7100	3
Lithium, Acid Soluble	0.0200	0.0560	0.1200	2				
Lithium, Dissolved	0.0040	0.0625	0.7860	6	0.0600	0.3414	1.0000	3
Lithium, Total Recoverable	0.0060	0.0369	0.1200	2	0.0140	0.3108	0.8700	2
Magnesium, Acid Soluble	9.5000	82.2244	580.0000	2				
Magnesium, Dissolved	2.7500	53.2763	525.0000	8	0.0050	32.7204	110.0000	5
Magnesium, Total Recoverable	0.8800	68.0133	1994.4600	8	1.2000	41.1041	435.0000	5
Manganese	0.0290	1.3531	17.0000	3				
Manganese, Dissolved	0.0030	1.1203	13.3000	9	0.0015	0.3008	2.0000	4
Manganese, Total Recoverable	0.0240	1.4558	25.3906	8	0.0210	0.4822	2.2000	5
Mercury								
Mercury, Dissolved	0.0001	0.0001	0.0001	1				
Mercury, Total Recoverable	*0.0001*	*0.0024*	*0.1005*	*4*	*0.0001*	*0.0003*	*0.0007*	*1*
Molybdenium Total								
Molybdenum, Dissolved	0.0030	0.0726	0.9000	2				
Nickel, Acid Soluble	0.0200	0.0390	0.1000	4				
Nickel, Dissolved	0.0040	0.0898	2.7100	6	0.0060	0.0631	0.3120	1
Nickel, Total Recoverable	0.0030	0.0416	0.2183	5	0.0040	0.0734	0.7900	2
Nitrate by IC	0.1000	3.5128	17.0000	2	11.0000	50.2500	89.5000	2
Phosphorus	0.0240	0.1168	0.4500	1				
Phosphorus, Acid Soluble	0.7350	6.9613	24.0000	2				
Phosphorus, Dissolved	0.0200	0.5936	5.7000	3	0.8300	0.8300	0.8300	1
Potassium, Acid Soluble	4.8000	26.1462	250.0000	2				
Potassium, Dissolved	1.7675	21.3109	517.5000	7	10.9000	46.6131	330.0000	5
Potassium, Total Recoverable	1.8850	34.5834	1133.4860	8	9.3100	57.6834	508.0000	5
Selenium	0.0010	0.0049	0.0200	3	0.0017	0.0050	0.0080	1
Selenium Dissolved	0.0060	0.0270	0.1200	1	0.0013	0.0045	0.0080	1
Selenium, Dissolved	0.0030	0.0516	0.3380	1	1.2000	1.2000	1.2000	1
Selenium, Total Recoverable	0.0020	0.0445	0.1800	2				
Silver, Acid Soluble	0.0300	0.0300	0.0300	1				
Silver, Dissolved	0.0010	0.0155	0.0500	3	0.0100	0.0187	0.0400	1
Silver, Total Recoverable	0.0010	0.0297	0.9550	5	0.0010	0.0508	0.5200	2
Sodium, Acid Soluble	15.5000	773.2619	5300.0000	2				

TABLE II-6.2

KODAK PARK GROUNDWATER
METALS AND CLASSICAL ANALYTE SUMMARY*

PARAMETER	TOP OF ROCK Minimum (mg/L)	Average (mg/L)	Maximum (mg/L)	Count	GO CONTACT Minimum (mg/L)	Average (mg/L)	Maximum (mg/L)	Count
Sodium, Dissolved	4.8033	581.4465	4933.3333	8	166.5000	666.0546	4430.0000	5
Sodium, Total Recoverable	13.2950	529.5021	8182.0200	8	21.0000	952.9774	16000.0000	5
Solids at 105C, Total	250.0000	19952.3810	240000.0000	2				
Solids, Dissolved, Total	275.0000	3052.3056	14500.0000	4				
Strontium Total								
Sulfate, Soluble, Turbidi	7.0000	456.5000	2400.0000	1				
Sulfate, Soluble, Turbidm, -1	5.1000	231.6785	4750.0000	4	27.0000	164.1667	550.0000	3
Sulfates	7.0000	203.4607	4000.0000	8	4.0000	320.1872	1200.0000	4
Sulfates by IC	5.6667	174.7039	2270.0000	7	12.0000	48.4545	135.0000	2
Sulfide	0.1000	19.9688	113.0000	3	0.2000	4.1333	12.0000	2
TDS	200.0000	2852.7340	14500.0000	16	130.0000	6014.3182	44500.0000	3
TKN, Digest., Titration	0.6000	1.4800	2.9000	2	0.6000	2.3000	4.0000	2
TKN, Titration (NH3-N+ORG)								
TSS	7.3000	216.9683	1500.0000	4	17.0000	241.5833	2000.0000	3
Thallium	0.3300	0.3300	0.3300	1				
Thallium Dissolved	0.0026	0.0063	0.0100	1	0.0023	0.0062	0.0100	1
Thallium Total	0.0000	0.0073	0.0260	2	0.0035	0.0108	0.0245	2
Thallium, Dissolved	0.0350	0.1450	0.2900	1	0.0200	0.0880	0.1500	1
Thallium, Total Recoverable	0.0100	0.0758	0.3200	2	0.0780	0.1697	0.3800	1
Tin, Acid Soluble	0.2200	0.4586	0.8000	1				
Tin, Dissolved	0.0100	8.3035	210.2050	4				
Tin, Total Recoverable	0.0070	0.0600	0.2160	1	4.0000	4.0000	4.0000	1
Vanadium, Dissolved	0.0010	0.0536	0.2100	2	0.0110	0.0557	0.1200	1
Vanadium, Total Recoverable	0.0020	0.0277	0.2110	3	0.0020	0.0680	0.7200	2
Zinc, Acid Soluble	0.0200	0.0589	0.5000	4				
Zinc, Dissolved	0.0090	0.0511	0.1537	7	0.0050	0.0534	0.4580	3
Zinc, Total Recoverable	0.0060	0.1721	5.5508	8	0.0140	0.1117	0.7850	4

*NOTE: Summary covers the period 1981 through 1992, inclusive.
Values were computed based on tests results equal to or greater than the method detection limit (DL). "ND" and "U" qualifed samples were eliminated prior to summary analysis.
For wells with multiple samples, a simple arithmetic average concentration was computed, and the average value was used in summary preparation.
Blanks indicate that no samples were collected for these parameters.

TABLE II-6.2

KODAK PARK GROUNDWATER
METALS AND CLASSICAL ANALYTE SUMMARY*

PARAMETER	QUEENSTON Minimum (mg/L)	Average (mg/L)	Maximum (mg/L)	Count
Acid Fuchsin				
Alkalinity	34.0000	255.2407	420.0000	3
Aluminum, Acid Soluble				
Aluminum, Dissolved	0.0600	0.4398	1.5800	3
Aluminum, Total Recoverable	0.5400	77.3490	420.0000	3
Ammonia Distilled/Titration				
Ammonia-N, Titration				
Antimony, Dissolved	0.3000	0.5050	0.7100	1
Antimony, Total Recoverable	0.1800	1.0475	2.0000	1
Apha 408 C (Potentiometric)				
Arsenic Dissolved				
Arsenic total	0.0400	0.1200	0.2000	1
Arsenic, Dissolved	0.0100	0.0370	0.0560	1
Arsenic, Total Recoverable	0.0160	1.7783	14.6953	2
Barium, Acid Soluble				
Barium, Dissolved	0.0225	1.0888	11.0000	5
Barium, Total Recoverable	0.0480	2.9068	11.9500	2
Beryllium, Dissolved				
Beryllium, Total Recoverable	0.0050	0.0050	0.0050	1
Cadmium, Acid Soluble				
Cadmium, Dissolved	0.0010	0.0108	0.0400	2
Cadmium, Total Recoverable	0.0050	0.0404	0.1200	1
Calcium, Acid Soluble				
Calcium, Dissolved	6.0667	137.6775	1500.0000	4
Calcium, Total Recoverable	8.3200	1036.6093	5700.0000	3
Chloride	320.0000	2549.4118	24000.0000	2
Chloride (Potentiometric)	290.0000	600.0000	910.0000	1
Chloride by IC	110.0000	558.5667	1110.0000	2
Chromium, Acid Soluble				
Chromium, Dissolved	0.0045	0.0246	0.0630	3
Chromium, Hexavalent				
Chromium, Total Recoverable	0.0050	4.1577	34.0110	2
Cobalt, Acid Soluble				
Cobalt, Dissolved	0.0030	0.0099	0.0165	1
Cobalt, Total Recoverable	0.0500	0.1600	0.2200	1
Copper, Acid Soluble				
Copper, Dissolved	0.0125	0.0370	0.0790	3
Copper, Total Recoverable	0.0050	0.2253	0.8400	2
Cyanide, Total H2O, Effluent	0.0010	0.0050	0.0120	1
Cyanide, Total, Titrimetric				

TABLE II-6.2

KODAK PARK GROUNDWATER
METALS AND CLASSICAL ANALYTE SUMMARY*

PARAMETER	QUEENSTON Minimum (mg/L)	Average (mg/L)	Maximum (mg/L)	Count
Iron, Acid Soluble				
Iron, Dissolved	0.0400	5.2706	52.6000	5
Iron, Total Recoverable	0.5100	138.9170	694.6820	3
Lead	0.0100	0.0120	0.0140	1
Lead Dissolved				
Lead, Acid Soluble				
Lead, Dissolved	0.0060	0.0532	0.1300	2
Lead, Total Recoverable	0.0040	1.3825	9.5790	2
Lithium, Acid Soluble				
Lithium, Dissolved	0.1100	1.1058	13.0000	4
Lithium, Total Recoverable	0.1200	1.9830	14.0000	1
Magnesium, Acid Soluble				
Magnesium, Dissolved	0.3525	32.3541	220.0000	4
Magnesium, Total Recoverable	1.0200	95.5683	269.0000	2
Manganese				
Manganese, Dissolved	0.0170	0.3239	1.6000	5
Manganese, Total Recoverable	0.0175	2.8838	12.5260	3
Mercury				
Mercury, Dissolved	0.0150	0.0150	0.0150	1
Mercury, Total Recoverable	0.0070	0.0070	0.0070	1
Molybdenium Total				
Molybdenum, Dissolved	0.0090	0.0666	0.2530	1
Nickel, Acid Soluble				
Nickel, Dissolved	0.0100	0.0448	0.1700	2
Nickel, Total Recoverable	0.0030	9.3401	45.0105	2
Nitrate by IC				
Phosphorus				
Phosphorus, Acid Soluble				
Phosphorus, Dissolved	0.0200	2.2550	15.0000	2
Potassium, Acid Soluble				
Potassium, Dissolved	14.3333	67.6187	535.0000	4
Potassium, Total Recoverable	18.6500	1711.0383	15926.7333	3
Selenium				
Selenium Dissolved				
Selenium, Dissolved				
Selenium, Total Recoverable				
Silver, Acid Soluble				
Silver, Dissolved	0.0040	0.0587	0.4300	2
Silver, Total Recoverable	0.0010	0.0423	0.1100	1
Sodium, Acid Soluble				

TABLE II-6.2

KODAK PARK GROUNDWATER
METALS AND CLASSICAL ANALYTE SUMMARY*

	QUEENSTON			
PARAMETER	Minimum (mg/L)	Average (mg/L)	Maximum (mg/L)	Count
Sodium, Dissolved	280.0000	1237.9658	13000.0000	4
Sodium, Total Recoverable	330.0000	22108.2167	201805.6667	3
Solids at 105C, Total	2200.0000	3471.4286	5600.0000	1
Solids, Dissolved, Total				
Strontium Total				
Sulfate, Soluble, Turbidi				
Sulfate, Soluble, Turbidm, -1	48.0000	151.6667	280.0000	1
Sulfates	37.0000	319.7917	1200.0000	2
Sulfates by IC	23.0000	222.9867	996.6667	2
Sulfide				
TDS	750.0000	2111.9667	5057.5000	3
TKN, Digest., Titration				
TKN, Titration (NH3-N+ORG)				
TSS	16.0000	57.6667	130.0000	1
Thallium				
Thallium Dissolved				
Thallium Total	0.0290	0.0290	0.0290	1
Thallium, Dissolved	0.0360	0.0360	0.0360	1
Thallium, Total Recoverable	0.0550	0.0550	0.0550	1
Tin, Acid Soluble				
Tin, Dissolved	0.0200	0.2263	0.5600	1
Tin, Total Recoverable				
Vanadium, Dissolved	0.1000	0.1000	0.1000	1
Vanadium, Total Recoverable	0.0900	0.5067	0.8700	1
Zinc, Acid Soluble				
Zinc, Dissolved	0.0150	0.0593	0.1450	5
Zinc, Total Recoverable	0.0225	2.3189	17.3650	2

*NOTE: Summary covers the period 1981 through 1992, inclusive. Values were computed based on tests results equal to or greater than the method detection limit (DL). "ND" and "U" qualifed samples were eliminated prior to summary analysis.
For wells with miltiple samples, a simple arithmetic average concentration was computed, and the average value was used in summary preparation.
Blanks indicate that no samples were collected for these parameters.

TABLE II-6.3

KPX
RANGE OF METAL CONCENTRATIONS IN GROUNDWATER BY ANALYTICAL METHODS

(From Blasland & Bouck, 1991f)

PARAMETER	ANALYTICAL METHOD MAS	MDS	MTR	FREQUENCY OF OCCURENCE (all methods)	STATE STANDARD[1]	ESTIMATED NATURAL CONCENTRATION (IN BEDROCK)[2]
Aluminum	ND - 1.0	ND - 1.2	ND - 241	34/39	—	—
Antimony	—	—	ND - 0.08	1/24	0.003	—
Barium	0.04 - 0.11	ND - 0.35	ND - 2.04	19/41	1.0	0.12 - 0.2
Beryllium	—	—	ND - 0.01	1/24	0.003	—
Calcium	—	24 - 880	31 - 1120	35/35	—	32 - 120
Chromium	ND - 0.12	ND - 0.12	ND - 0.59	31/41	0.05	0.03 - 0.09
Copper	ND - 0.03	ND - 0.05	ND - 0.44	15/43	0.2	—
Iron	ND - 0.04	ND - 5.8	0.94 - 345	36/43	0.3	0.9 - 33
Lead	ND - 0.11	ND - 0.13	ND - 2.2	23/43	0.025	0.015 - 0.1
Lithium	0.03 - 0.1	ND - 14	0.02 - 0.14	18/19	—	—
Magnesium	9.3 - 190	ND - 190	ND - 330	31/37	35	—
Manganese	ND - 0.24	ND - 1.7	0.01 - 11.3	35/43	0.3	0.04 - 0.15
Molybdenum	ND	ND - 210	—	4/13	—	—
Nickel	ND - 0.03	ND - 0.16	ND - 570	16/43	—	—
Potassium	17 - 18	ND - 17	ND - 70.8	19/37	—	—
Selenium	—	ND	ND - 0.16	1/24	0.01	0.0048 - 0.016
Sodium	720 - 5300	ND - 5300	ND - 2000	32/37	20	15 - 760
Tin	ND	ND - 0.12	—	4/13	—	—
Vanadium	—	—	ND - 0.49	4/24	—	—
Zinc	ND - 0.04	ND - 0.05	ND - 1.07	29/43	0.3	—

Notes:
All concentrations reported in mg/L
MAS = Metals, acid soluble
MDS = Metals, dissolved
MTR = Metals, total recoverable
1 = Standard or Guidance Value for Class GA Groundwater (potable) as per NYSDEC Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1, (September 1990)
2 = Bedrock Chemistry for Grimsby Formation (H&A of New York, February 1984)
— = Not Available
ND = Not Detected

what is difference between MAS and MTR ?

TABLE II-6.4

KPM
RANGE OF METAL CONCENTRATIONS IN GROUNDWATER BY ANALYTICAL METHODS

(From Blasland & Bouck, 1991g)

PARAMETER	ANALYTICAL METHOD MAS	MDS	MTR	FREQUENCY OF OCCURRENCE (all methods)	STATE STANDARD[1]	ESTIMATED NATURAL CONCENTRATION IN BEDROCK[2]
Aluminum	ND-1.9	ND-12	ND-85	138/219(63%)	—	—
Antimony	—	ND-0.13	ND-0.81	44/121(36%)	0.003	—
Arsenic	—	ND-0.27	ND-0.28	25/121(21%)	0.025	0.003-0.22
Barium	0.03-1	ND-3	ND-0.36	123/214(57%)	1.0	0.12-0.2
Beryllium	ND	ND	ND	0/138(0%)	0.003	—
Cadmium	ND	ND-0.04	ND-0.01*	7/247(3%)	0.01	0.01-0.05
Calcium	53-290	ND-680	ND-490	186/194(96%)	—	32-120
Chromium	ND-0.14	ND-0.15	ND-1.3	139/394(35%)	0.05	0.03-0.09
Cobalt	ND	ND-0.02	ND-0.04	17/219(8%)	—	—
Copper	ND-0.05	ND-0.1	ND-0.14*	72/247(29%)	0.2	—
Iron	ND-26	ND-100	ND-100	217/390(56%)	0.3	0.9-33
Lead	ND-0.11	ND-5.8**	ND-0.21	66/404(16%)	0.025	0.015-0.1
Lithium	ND-0.08	ND-10	ND-0.18	96/127(76%)	—	—
Magnesium	ND-320	0.19-300	ND-260	196/206(95%)	35	—
Manganese	ND-4.2	ND-7.7	ND-7.9	287/388(74%)	0.3	0.04-0.15
Mercury	—	ND	ND-0.008*	17/120(14%)	0.002	0.002-0.0067
Molybdenum	ND	ND-0.02	—	1/67(1%)	—	—
Nickel	ND-0.16	ND-0.27	ND-0.75*	61/247(25%)	—	—
Phosphorous	ND-0.76	ND-0.48	—	14/65(22%)	—	—
Potassium	ND-130	ND-110	ND-54	97/203(48%)	—	—
Selenium	—	ND-0.002	ND-0.006	3/126(2%)	0.010	0.0048-0.016
Silver	ND	ND-0.04	ND-0.09	22/215(10%)	0.05	—
Sodium	16-3500	ND-6210	ND-5100	337/344(98%)	20	15-760
Thallium	—	ND-0.25*	ND-0.25	9/121(7%)	0.004	—
Tin	ND	ND-0.35	—	4/65(6%)	—	—
Vanadium	—	ND-0.06	ND-0.48	32/122(26%)	—	—
Zinc	ND-0.3	ND-2.03**	ND-0.53	118/247(48%)	0.3	—

Notes:

Concentrations reported in mg/L.
MAS = Metals, acid soluble
MDS = Metals, dissolved
MTR = Metals, total recoverable
[1] = Standard of Guidance Value for Class GA Groundwater (potable) as per NYSDEC Division of Water Technial and Operational Guidance Series (TOGS) 1.1.1, (September 1990).
[2] = Bedrock Chemistry for Grimsby Formation (H&A of New York, February 1984).
— = Not Available.
ND = Not Detected.
* Value corrected for identified error in database.
** Highest value probable outlier

TABLE II-6.5
(cont'd)

KPS
OCCURRENCES OF INORGANIC COMPOUNDS
1980 - 1990

(From Blasland & Bouck, 1991e)

WELL	PARAMETER	METHOD	NO. HITS REL. TO NO. OF ANALYSES	DATES	MEAN	RANGE	STATE STD*	CONCENTRATION RANGE IN KPT BEDROCK WELLS**
RCPW6	CHROMIUM	MDS,MAS	7/7	1983-1990	0.04	0.03-0.05	0.05	ND
	MAGNESIUM	MDS,MAS	6/6	1983-1990	83	68-98	35	44.2-62.4
	POTASSIUM	MDS,MAS	1/4	1983-1987	10	---	---	2.7-7.9
	SODIUM	MDS,MAS	4/4	1985-1987	12.9	---	20	3.1-142
	ZINC	MDS,MAS	4/10	1983-1990	0.025	0.01-0.03	0.3	0.010-0.054
	MANGANESE	MDS,MAS	10/10	1983-1990	0.08	0.01-0.10	0.3	0.011-0.28
	LITHIUM	MDS,MAS	4/5	1983-1987	0.04	0.02-0.06	---	---
	CALCIUM	MDS,MAS	5/5	1983-1990	144	110-180	---	94.3-140
	BARIUM	MDS,MAS	5/5	1983-1987	0.07	0.07-0.11	1.0	0.043-0.130
	ALUMINUM	MDS,MAS	9/10	1983-1990	0.48	0.28-1.1	---	0.22-0.67
	IRON	MDS,MAS	1/9	1983-1990	0.04	---	0.3	0.48-3.9
	COPPER	MDS	1/10	1983-1990	0.01	---	0.2	ND-0.0064
	PHOSPHORUS	MDS	0/6	1983-1987	---	---	---	---
	NICKEL	MAS	0/10	1983-1990	---	---	---	ND
	TIN	MAS	0/5	1983-1987	---	---	---	---
	ANTIMONY	MDS	2/3	1988-1990	0.2	0.10-0.30	0.003	ND
	ARSENIC	MDS	2/3	1988-1990	0.07	0.01-0.12	0.025	ND-0.0027
	LEAD	MDS,MAS	0/10	1983-1990	---	---	0.025	ND
	SELENIUM	MDS	0/3	1988-1990	---	---	0.01	ND
	VANADIUM	MDS	1/3	1988-1990	0.01	---	---	ND
	SULFATES	CPL	10/10	1983-1990	318	200-590	250	75-170
	CHLORIDE	CPL	1/1	1987	15	---	250	11-300
	NITRATE	CPL	---	---	---	---	10	---

Notes:

All concentrations reported in mg/L (ppm).

* Standard or Guidance Value for Class GA Groundwater (potable) as per NYSDEC Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1 (September 1990)

** Based on sampling event, May 1990

--- = Not available

ND = Not detected

TABLE II-6.5
(cont'd)

KPS
OCCURRENCES OF INORGANIC COMPOUNDS
1980 - 1990

(From Blasland & Bouck, 1991e)

WELL	PARAMETER	METHOD	NO. HITS REL. TO NO. OF ANALYSES	DATES	MEAN	RANGE	STATE STD*	CONCENTRATION RANGE IN KPT BEDROCK WELLS**
RCPE10	CHROMIUM	MDS,MAS	1/3	1987-1990	0.01	---	0.05	ND
	MAGNESIUM	MDS,MAS	4/4	1987-1990	52	50-57	35	44.2-62.4
	POTASSIUM	MDS,MAS	1/1	1987	14	---	---	2.7-7.9
	SODIUM	MDS,MAS	1/1	1987	6	---	20	3.1-142
	ZINC	MDS,MAS	2/4	1987-1990	0.015	0.01-0.02	0.3	0.010-0.054
	MANGANESE	MDS,MAS	4/4	1987-1990	0.04	0.01-0.06	0.3	0.011-0.28
	LITHIUM	MDS,MAS	1/1	1987	0.04	---	---	---
	CALCIUM	MDS,MAS	4/4	1987-1990	93	78-100	---	94.3-140
	BARIUM	MDS,MAS	1/1	1987	0.06	---	1.0	0.043-0.130
	ALUMINUM	MDS,MAS	4/4	1987-1990	0.42	0.29-0.63	---	0.22-0.67
	IRON	MDS,MAS	1/4	1987-1990	0.03	---	0.3	0.48-3.9
	COPPER	MDS	3/4	1987-1990	0.02	0.01-0.03	0.2	ND-0.0064
	PHOSPHORUS	MDS	0/1	1987	---	---	---	---
	NICKEL	MAS	0/4	1987-1990	---	---	---	ND
	TIN	MAS	0/1	1987	---	---	---	---
	ANTIMONY	MDS	1/3	1988-1990	0.16	---	0.003	ND
	ARSENIC	MDS	1/3	1988-1990	0.01	---	0.025	ND-0.0027
	LEAD	MDS,MAS	0/4	1987-1990	---	---	0.025	ND
	SELENIUM	MDS	0/3	1988-1990	---	---	0.01	ND
	VANADIUM	MDS	0/2	1988-1990	---	---	---	ND
	SULFATES	CPL	4/4	1987-1990	90	59-160	250	75-170
	CHLORIDE	CPL	1/1	1987	15	---	250	11-300
	NITRATE	CPL	---	---		---	10	---

Notes:

All concentrations reported in mg/L (ppm).

* Standard or Guidance Value for Class GA Groundwater (potable) as per NYSDEC Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1 (September 1990)

** Based on sampling event, May 1990

--- = Not available

ND = Not detected

TABLE II-6.5
(cont'd)

KPS
OCCURRENCES OF INORGANIC COMPOUNDS
1980 - 1990

(From Blasland & Bouck, 1991e)

WELL	PARAMETER	METHOD	NO. HITS REL. TO NO. OF ANALYSES	DATES	MEAN	RANGE	STATE STD*	CONCENTRATION RANGE IN KPT BEDROCK WELLS**
RCPE5	CHROMIUM	MDS,MAS	3/4	1984-1990	0.03	---	0.05	ND
	MAGNESIUM	MDS,MAS	4/4	1984-1990	73	69-76	35	44.2-62.4
	POTASSIUM	MDS,MAS	1/1	1986	17	---	---	2.7-7.9
	SODIUM	MDS,MAS	1/1	1986	20	---	20	3.1-142
	ZINC	MDS,MAS	1/5	1984-1990	0.01	---	0.3	0.010-0.054
	MANGANESE	MDS,MAS	5/5	1984-1990	0.06	0.01-0.08	0.3	0.011-0.28
	LITHIUM	MDS,MAS	1/1	1984-1988	0.05	---	---	---
	CALCIUM	MDS,MAS	4/4	1986-1990	0.01	96-110	---	94.3-140
	BARIUM	MDS,MAS	1/1	1986-1988	0.07	---	1.0	0.043-0.130
	ALUMINUM	MDS,MAS	5/5	1984-1990	0.49	0.16-0.82	---	0.22-0.67
	IRON	MDS,MAS	1/5	1984-1990	0.03	---	0.3	0.48-3.9
	COPPER	MDS	1/5	1984-1990	0.01	---	0.2	ND-0.0064
	PHOSPHORUS	MDS	0/1	1986	---	---	---	---
	NICKEL	MAS	0/5	1984-1990	---	---	---	ND
	TIN	MAS	0/1	1986	---	---	---	---
	ANTIMONY	MDS	1/3	1988-1990	0.24	---	0.003	ND
	ARSENIC	MDS	2/3	1988-1990	0.05	0.01-0.09	0.025	ND-0.0027
	LEAD	MDS,MAS	0/5	1984-1990	---	---	0.025	ND
	SELENIUM	MDS	0/2	1989-1990	---	---	0.01	ND
	VANADIUM	MDS	1/2	1989-1990	0.01	---	---	ND
	SULFATES	CPL	5/5	1984-1990	336	130-780	250	75-170
	CHLORIDE	CPL	0/0	---	---	---	250	11-300
	NITRATE	CPL	---	---	---	---	10	---

Notes:

All concentrations reported in mg/L (ppm).

* Standard or Guidance Value for Class GA Groundwater (potable) as per NYSDEC Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1 (September 1990)

** Based on sampling event, May 1990

--- = Not available

ND = Not detected

TABLE II-6.5
(cont'd)

KPS
OCCURRENCES OF INORGANIC COMPOUNDS
1980 - 1990

(From Blasland & Bouck, 1991e)

WELL	PARAMETER	METHOD	NO. HITS REL. TO NO. OF ANALYSES	DATES	MEAN	RANGE	STATE STD*	CONCENTRATION RANGE IN KPT BEDROCK WELLS**
RCPE4	CHROMIUM	MDS,MAS	4/4	1984-1986	0.05	0.03-0.07	0.05	ND
	MAGNESIUM	MDS,MAS	3/3	1985-1986	130	---	35	44.2-62.4
	POTASSIUM	MDS,MAS	0/3	1985-1986	---	---	---	2.7-7.9
	SODIUM	MDS,MAS	3/3	1985-1986	6.1	5.7-6.3	20	3.1-142
	ZINC	MDS,MAS	1/5	1984-1986	0.04	---	0.3	0.010-0.054
	MANGANESE	MDS,MAS	5/5	1984-1986	0.08	0.06-0.11	0.3	0.011-0.28
	LITHIUM	MDS,MAS	4/4	1985-1986	0.04	0.03-0.05	---	---
	CALCIUM	MDS,MAS	1/1	1986	240	---	---	94.3-140
	BARIUM	MDS,MAS	3/3	1985-1986	0.06	0.06-0.07	1.0	0.043-0.130
	ALUMINUM	MDS,MAS	5/5	1984-1986	0.71	0.61-0.86	---	0.22-0.67
	IRON	MDS,MAS	5/5	1984-1986	0.05	0.03-0.06	0.3	0.48-3.9
	COPPER	MDS	1/5	1984-1986	0.02	---	0.2	ND-0.0064
	PHOSPHORUS	MDS	0/3	1985-1986	---	---	---	---
	NICKEL	MAS	3/5	1984-1986	0.02	0.02-0.03	---	ND
	TIN	MAS	0/3	1985-1986	---	---	---	---
	ANTIMONY	MDS	0/0	---	---	---	0.003	ND
	ARSENIC	MDS	0/0	---	---	---	0.025	ND-0.0027
	LEAD	MDS,MAS	0/5	1984-1986	---	---	0.025	ND
	SELENIUM	MDS	0/0	---	---	---	0.01	ND
	VANADIUM	MDS	0/0	---	---	---	---	ND
	SULFATES	CPL	5/5	1984-1986	574	350-710	250	75-170
	CHLORIDE	CPL	---	---	---	---	250	11-300
	NITRATE	CPL	---	---	---	---	10	---

Notes:

All concentrations reported in mg/L (ppm).
* Standard or Guidance Value for Class GA Groundwater (potable) as per NYSDEC Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1 (September 1990)
** Based on sampling event, May 1990
--- = Not available
ND = Not detected

TABLE II-6.5
(cont'd)

KPS
OCCURRENCES OF INORGANIC COMPOUNDS
1980 - 1990

(From Blasland & Bouck, 1991e)

WELL	PARAMETER	METHOD	NO. HITS REL. TO NO. OF ANALYSES	DATES	MEAN	RANGE	STATE STD*	CONCENTRATION RANGE IN KPT BEDROCK WELLS**
RCPE3	CHROMIUM	MDS,MAS	7/7	1983-1990	0.06	0.02-0.09	0.05	ND
	MAGNESIUM	MDS,MAS	8/8	1983-1990	112	66-150	35	44.2-62.4
	POTASSIUM	MDS,MAS	7/7	1983-1987	22	16-28	---	2.7-7.9
	SODIUM	MDS,MAS	5/5	1983-1987	16.3	7.5-35	20	3.1-142
	ZINC	MDS,MAS	4/9	1983-1990	0.04	0.01-0.11	0.3	0.010-0.054
	MANGANESE	MDS,MAS	8/9	1983-1990	0.1	0.05-0.13	0.3	0.011-0.28
	LITHIUM	MDS,MAS	5/5	1983-1987	0.05	0.04-0.06	---	---
	CALCIUM	MDS,MAS	6/6	1983-1990	180	150-210	---	94.3-140
	BARIUM	MDS,MAS	5/5	1983-1987	0.06	0.04-0.08	1.0	0.043-0.130
	ALUMINUM	MDS,MAS	10/10	1983-1990	0.73	0.34-1.3	---	0.22-0.67
	IRON	MDS,MAS	4/9	1983-1990	0.05	0.03-0.08	0.3	0.48-3.9
	COPPER	MDS	4/9	1983-1990	0.02	0.01-0.03	0.2	ND-0.0064
	PHOSPHORUS	MDS	1/5	1983-1987	0.76	---	---	---
	NICKEL	MAS	2/9	1983-1990	0.035	0.03-0.04	---	ND
	TIN	MAS	1/5	1983-1987	0.2	---	---	---
	ANTIMONY	MDS	1/2	1988-1990	0.25	---	0.003	ND
	ARSENIC	MDS	2/3	1988-1990	0.09	0.02-0.15	0.025	ND-0.0027
	LEAD	MDS,MAS	0/9	1983-1990	---	---	0.025	ND
	SELENIUM	MDS	1/3	1988-1990	0.02	---	0.01	ND
	VANADIUM	MDS	1/3	1988-1990	0.01	---	---	ND
	SULFATES	CPL	10/10	1983-1990	550	240-790	250	75-170
	CHLORIDE	CPL	1/1	1987	17	---	250	11-300
	NITRATE	CPL	---	---	---	---	10	---

Notes:

All concentrations reported in mg/L (ppm).
* Standard or Guidance Value for Class GA Groundwater (potable) as per NYSDEC Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1 (September 1990)
** Based on sampling event, May 1990
--- = Not available
ND = Not detected

TABLE II-6.5
(cont'd)

KPS
OCCURRENCES OF INORGANIC COMPOUNDS
1980 - 1990

(From Blasland & Bouck, 1991c)

WELL	PARAMETER	METHOD	NO. HITS REL. TO NO. OF ANALYSES	DATES	MEAN	RANGE	STATE STD*	CONCENTRATION RANGE IN KPT BEDROCK WELLS**
RCPE2	CHROMIUM	MDS,MAS	5/5	1983-1988	0.07	0.05-0.10	0.05	ND
	MAGNESIUM	MDS,MAS	6/6	1983-1988	150	110-180	35	44.2-62.4
	POTASSIUM	MDS,MAS	4/5	1983-1987	12	13-17	---	2.7-7.9
	SODIUM	MDS,MAS	5/5	1983-1987	16	9.2-22	20	3.1-142
	ZINC	MDS,MAS	3/6	1983-1988	0.09	0.02-0.21	0.3	0.010-0.054
	MANGANESE	MDS,MAS	8/8	1983-1988	0.12	0.09-0.14	0.3	0.011-0.28
	LITHIUM	MDS,MAS	5/5	1983-1987	0.05	0.04-0.07	---	---
	CALCIUM	MDS,MAS	4/4	1983-1988	265	220-290	---	94.3-140
	BARIUM	MDS,MAS	5/5	1983-1987	0.05	0.04-0.07	1.0	0.043-0.130
	ALUMINUM	MDS,MAS	7/7	1983-1988	0.92	0.45-1.7	---	0.22-0.67
	IRON	MDS,MAS	4/5	1983-1988	0.07	0.04-0.14	0.3	0.48-3.9
	COPPER	MDS	3/6	1983-1988	0.03	0.02-0.03	0.2	ND-0.0064
	PHOSPHORUS	MDS	1/5	1985-1988	0.79	---	---	---
	NICKEL	MAS	3/8	1983-1988	0.03	0.02-0.05	---	ND
	TIN	MAS	0/5	1983-1987	---	---	---	---
	ANTIMONY	MDS	0/1	1988	---	---	0.003	ND
	ARSENIC	MDS	0/1	1988	---	---	0.025	ND-0.0027
	LEAD	MDS,MAS	0/7	1983-1988	---	---	0.025	ND
	SELENIUM	MDS	0/1	1988	---	---	0.01	ND
	VANADIUM	MDS	0/1	1988	---	---	---	ND
	SULFATES	CPL	8/8	1983-1988	883	665-1200	250	75-170
	CHLORIDE	CPL	1/1	1987	21	---	250	11-300
	NITRATE	CPL	---	---	---	---	10	---

Notes:

All concentrations reported in mg/L (ppm).

* Standard or Guidance Value for Class GA Groundwater (potable) as per NYSDEC Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1 (September 1990)

** Based on sampling event, May 1990

--- = Not available

ND = Not detected

TABLE II-6.5

KPS
OCCURRENCES OF INORGANIC COMPOUNDS
1980 - 1990

(From Blasland & Bouck, 1991e)

WELL	PARAMETER	METHOD	NO. HITS REL. TO NO. OF ANALYSES	DATES	MEAN	RANGE	STATE STD*	CONCENTRATION RANGE IN KPT BEDROCK WELLS**
RB502NW	CHROMIUM	MDS,MAS	6/6	1982-1990	0.03	0.01-0.07	0.05	ND
	MAGNESIUM	MDS,MAS	7/7	1982-1990	68	49-80	35	44.2-62.4
	POTASSIUM	MDS,MAS	2/2	1982-1988	13	12-14	---	2.7-7.9
	SODIUM	MDS,MAS	4/4	1982-1987	67	47-77	20	3.1-142
	ZINC	MDS,MAS	4/8	1982-1990	0.03	0.01-0.05	0.3	0.010-0.054
	MANGANESE	MDS,MAS	8/8	1982-1990	0.06	0.01-0.08	0.3	0.011-0.28
	LITHIUM	MDS,MAS	3/3	1985-1987	0.03	0.02-0.03	---	---
	CALCIUM	MDS,MAS	6/6	1982-1990	163	140-180	---	94.3-140
	BARIUM	MDS,MAS	4/4	1982-1987	0.15	0.13-0.19	1.0	0.043-0.130
	ALUMINUM	MDS,MAS	6/7	1983-1990	0.48	0.23-0.75	---	0.22-0.67
	IRON	MDS,MAS	2/8	1983-1990	0.51	0.02-1.0	0.3	0.48-3.9
	COPPER	MDS	3/7	1982-1990	0.02	0.01-0.03	0.2	ND-0.0064
	PHOSPHORUS	MDS	0/3	1983-1987	---	---	---	---
	NICKEL	MAS	1/8	1982-1990	0.04	---	---	ND
	TIN	MAS	0/3	1983-1987	---	---	---	---
	ANTIMONY	MDS	1/3	1988-1990	0.24	---	0.003	ND
	ARSENIC	MDS	2/3	1988-1990	0.05	0.01-0.08	0.025	ND-0.0027
	LEAD	MDS,MAS	0/8	1982-1990	---	---	0.025	ND
	SELENIUM	MDS	0/2	1989-1990	---	---	0.01	ND
	VANADIUM	MDS	1/3	1988-1990	0.01	---	---	ND
	SULFATES	CPL	8/8	1982-1990	77	61-100	250	75-170
	CHLORIDE	CPL	2/2	1982-1987	223	186-260	250	11-300
	NITRATE	CPL	1/1	1982	0.08	---	10	---

Notes:

All concentrations reported in mg/L (ppm).

* Standard or Guidance Value for Class GA Groundwater (potable) as per NYSDEC Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1 (September 1990)

** Based on sampling event, May 1990

--- = Not available

ND = Not detected

TABLE II-6.6

KPT
OCCURRENCES OF INORGANIC COMPOUNDS
OVERBURDEN WELLS

(From Blasland & Bouck, 1991i)

	SKPT5	SKPT6	SPKT7	SKPT8	STATE STD.[1]
Aluminum	3.6	19.4	5.3	22.6	--
Arsenic	0.0021	0.0034	ND	0.0048	0.025
Barium	0.049	0.1	0.04	0.17	1
Calcium	130	403	128	463	--
Chromium	0.0064	0.02	ND	0.027	0.05
Cobalt	ND	0.0077	ND	0.014	--
Copper	0.0061	0.027	0.0066	0.034	0.2
Iron	3	23.6	6.8	34.2	0.3
Lead	0.0065	0.023	0.009	0.034	0.025
Magnesium	20.4	60.4	53.5	110	35
Manganese	0.11	0.51	0.3	1.1	0.3
Mercury	ND	ND	ND	ND	0.002
Nickel	ND	0.018	ND	0.026	--
Potassium	2.3	10.2	4.1	9.9	--
Sodium	9.2	18.9	15	31.3	20
Vanadium	ND	0.026	0.0063	0.033	--
Zinc	0.046	0.14	0.03	0.1	0.3
Cyanide	0.11	0.01	ND	ND	0.1
Chloride	ND	100	20	75	250
Sulfate	77	150	140	53	250
Alkalinity	300	340	290	360	--

Notes:
[1]Standard or Guidance Value for Class Groundwater (potable) as per NYSDEC Division of Water Technical Operational Guidance Series (TOGS) 1.1.1 (September 1990)
ND = Not detected
-- = Not available

TABLE II-6.6
(cont'd)

KPT
OCCURRENCES OF INORGANIC COMPOUNDS
BEDROCK WELLS

(From Blasland & Bouck, 1991i)

	RKPT5	RKPE5 Dup.	RKPT6	RKPT7	RKPT8	STATE STD.[1]
Aluminum	0.31	0.29	0.22	0.67	0.44	–
Arsenic	ND	ND	ND	ND	0.0027	0.025
Barium	0.088	0.088	0.043	0.045	0.13	1
Calcium	94.3	94.8	133	97	140	–
Chromium	ND	ND	ND	ND	ND	0.05
Cobalt	ND	ND	ND	ND	ND	–
Copper	0.0064	ND	0.0064	ND	ND	0.2
Iron	0.66	0.6	0.48	0.52	3.9	0.3
Lead	ND	ND	ND	ND	ND	0.025
Magnesium	42.6	44.2	62.4	52.8	60.2	35
Manganese	0.011	0.011	0.016	0.016	0.28	0.3
Mercury	ND	ND	0.00022	ND	ND	0.002
Nickel	ND	ND	ND	ND	ND	–
Potassium	6.6	6.8	5.1	7.9	2.7	–
Sodium	9.6	10	49.8	3.1	142	20
Vanadium	ND	ND	ND	ND	ND	–
Zinc	0.054	0.045	0.043	0.01	0.022	0.3
Cyanide	0.01	0.01	0.01	ND	ND	0.1
Chloride	11	11	180	15	300	250
Sulfate	75	76	140	110	170	250
Alkalinity	320	–	350	340	320	–

Notes:
[1]Standard or Guidance Value for Class GA Groundwater (potable) as per NYSDEC Division of Water Technical Operational Guidance Series (TOGS) 1.1.1 (September 1990)
ND = Not detected
– = Not available

TABLE III-1.1

KODAK PARK PUMPING WELLS
TOTAL MASS OF CONTAMINANTS RECOVERED
1988 THROUGH 1992
(POUNDS)

PUMP WELL	1988	1989	1990	1991	1992
PB115N	1,320	3,150	18,507	8,068	4,827
PB119E	0	3	73	308	8
PB119NE	1	8	6	1	2
PB119SE	40	20	79	68	21
PB119W	4	1	4	3	2
PB135E	90	130	138	546	26
PB136S	940	7,100	5,013	1,105	1,379
PB218N	---	---	---	---	3
PB218NW	---	---	203	123	60
PB218W	---	---	66	11	2
PB350NE2	---	---	---	---	9
PB53N2	1,960	440	515	325	323
PB54NW	400	214	4,354	248	279
PB54SE	590	100	246	74	54
PB57W	130	160	294	41	36
PES11	**	**	**	**	133
PL15W	**	**	**	**	553
PL50N2	---	---	---	147	2,216
PL50N3	---	---	---	7	18
PL50NW3	---	---	---	0	48
PL50W	---	---	---	0	2
ANNUAL TOTAL:	5,475	11,326	29,498	11,075	10,001

Note:

--- system not operational

** dual water/vapor extraction

TABLE III-1.2

KODAK PARK PUMPING WELLS
TOTAL VOLUME OF GROUNDWATER RECOVERED
1988 THROUGH 1992
(GALLONS)

PUMP WELL	1988	1989	1990	1991	1992
PB115N	44,000	120,000	390,000	920,000	659,330
PB119E	980,000	700,000	3,100,000	1,200,000	566,406
PB119NE	860,000	1,400,000	2,100,000	2,300,000	2,768,864
PB119SE	470,000	480,000	790,000	1,100,000	964,429
PB119W	71,000	45,000	38,000	42,000	41,277
PB135E	1,700,000	2,400,000	3,700,000	3,800,000	2,315,972
PB136S	30,000	750,000	1,200,000	640,000	998,743
PB218N	---	---	---	---	1,033,459
PB218NW	---	---	66,000	84,000	18,735
PB218W	---	---	72,000	160,000	84,581
PB350NE2	---	---	---	---	1,916,144
PB53N2	400,000	160,000	260,000	360,000	291,733
PB54NW	64,000	280,000	1,200,000	270,000	151,289
PB54SE	150,000	29,000	32,000	26,000	25,421
PB57W	29,000	36,000	110,000	19,000	8,174
PES11	**	**	**	**	299,000
PL15W	**	**	**	**	926,000
PL50N2	---	---	---	20,000	261,939
PL50N3	---	---	---	7,300	221,882
PL50NW3	---	---	---	220,000	2,426,891
PL50W	---	---	---	190,000	1,946,848
ANNUAL TOTAL:	4,798,000	6,400,000	13,058,000	11,358,300	17,927,117

Note:
--- system not operational
** dual water/vapor extraction

TABLE III-2.1

KPW RECOVERY WELLS
SUMMARY OF WELL INTAKE INTERVALS AND FLOW ZONES ENCOUNTERED

(From Eckenfelder, 1992a)

RECOVERY WELL	GRIMSBY-QUEENSTON CONTACT	FLOW ZONES*		HYDRO-FRACTURED ZONES	INTAKE INTERVAL (BASE OF 12" CASING TO TOP OF SUMP)
		TOP OF ROCK ZONE	GQ AND INTERMEDIATE GRIMSBY ZONES		
PL50W	63.4	12.0-26.5	58.8-75.8	59.0-71.0 64.0-76.0	35.8-78.6
PL50NW3	64.4	10.0-30.0	35.0-50.0 65.0-75.0	63.0-75.0	35.0-81.2
PL50N2	61.3	9.3-23.1	28.1-33.1 58.0-63.0	56.0-68.0	28.0-73.1
PL50N3	62.1	9.5-34.4	no flow or take zones	59.0-71.0	44.0-76.0

* Flow zones determined by packer pressure testing.
All depths referenced in feet from ground surface elevation.

TABLE III-2.2

KPW RECOVERY WELLS HYDROFRACTURE SUMMARY

(From Eckenfelder,1992a)

WELL	INTERVAL TREATED (ft. below grade)	INITIAL PRESSURE (psi)	FINAL PRESSSURE (psi)	AVE. PUMP RATE (gpm)	INJECTED VOLUME (gal)	BACKFLOW VOLUME (gal)
PL50W	64-76	500	100	129	1800	675
	59-71	<50	<50	106	1800	925
PL50NW3	63-75	200	50	90	1800	750
	63-75	50	<50	100	1800	750
PL50N2	56-68	450	<50	86	1800	410
	56-68	100	<50	78	1800	390
PL50N3	59-71	450	50	82	1800	450
	59-71	50	50	90	1800	950

TABLE III-2.3

KPW RECOVERY WELLS PRE-HYDROFRACTURE YIELD EVALUATION SUMMARY

(From Eckenfelder, 1992a)

RECOVERY WELL	OPEN INTERVAL TESTED* (ft. below grade)	APPROX. DRAWDOWN** (feet)	YIELD (gpm)	REMARKS
PL50W	35.8-78.8	42	6.5	See App. E for drawdown measurements in offset wells.
PL50NW3	35.0-85.0	53	3.0	Water cascading from G2 interval. Poor response in offset wells.
PL50N2	28.0-78.0	45	0.004	Yield too low to test with pump.
PL50N3	44.0-77.5	---	0	No flow zones encountered. Did not test with pump.

*Interval from the base of the 12" casing to the base of the 6 1/8" diam. borehole.

**Drawdowns approximate as static water level often was not established prior to testing due to time constraints and well construction activities.

TABLE III-2.4

KPW RECOVERY WELLS
POST-HYDROFRACTURE
YIELD EVALUATION SUMMARY

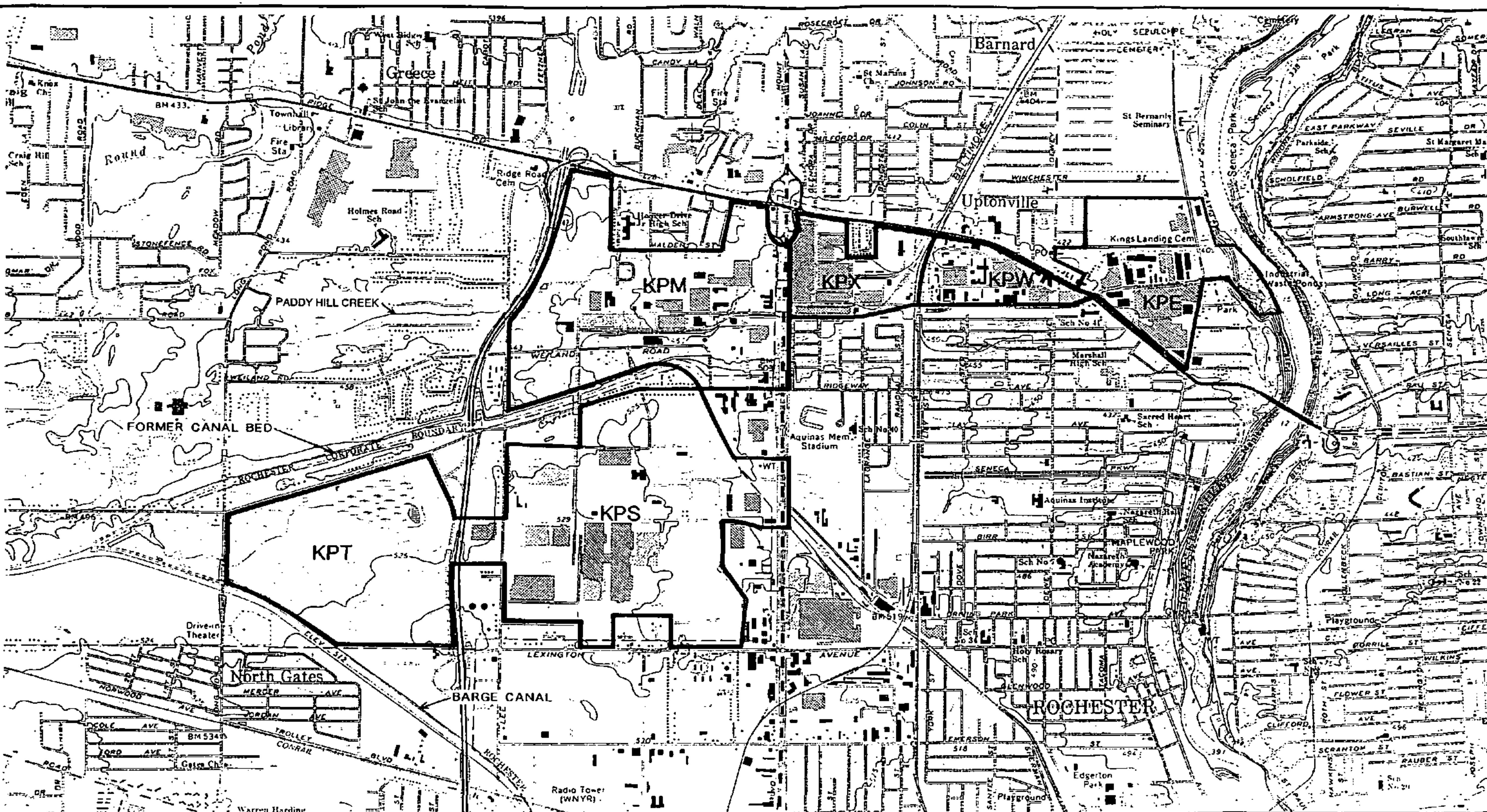
(From Eckenfelder, 1992a)

RECOVERY WELL	OPEN INTERVAL TESTED* (ft. below grade)	APPROX. DRAWDOWN** (feet)	YIELD (gpm)	REMARKS
PL50W	35.8-88.7	42	9.6	GQL50SW3 draw-down: approx. 14.5'
PL50NW3	35.0-85.0	33	6.5	GQL50NW3 draw-down: approx. 28.5'
PL50N2	28.0-78.0	38	2.0	GQL50N2 draw-down: approx. 31'
PL50N3	44.0-77.5	23	2.7	

*Interval form the base of the 12" casing to the base of the 6 1/8" diam. borehole.
**Drawdowns approximate as static water level often was not established prior to testing due to the time constraints and well construction activities.

NOTE: These yield tests were conducted immediately after hydrofracture treatment and were of short duration (6-8 hrs.). Thus, the yields determined from these tests may overestimate the actual long-term yields attainable from the recovery wells.

FIGURES



SCALE: 1 IN. = 2000 FT.

N

QUADRANGLE LOCATION

U.S.G.S. QUADRANGLE: ROCHESTER EAST & WEST, N.Y.

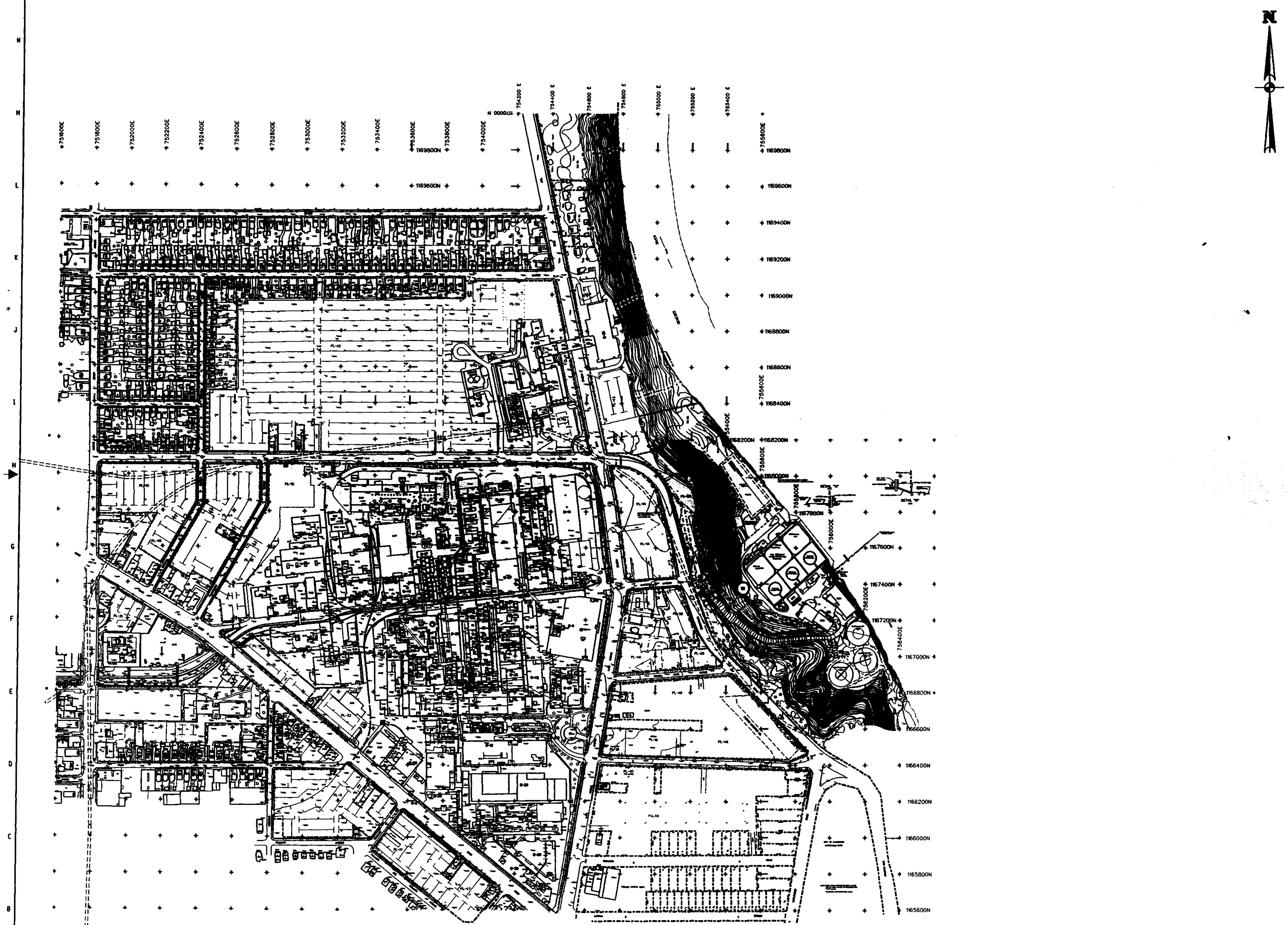
EASTMAN KODAK COMPANY
GROUNDWATER QUALITY SECTION

PROJECT LOCATION AND TOPOGRAPHY

SCALE AS SHOWN | REFERENCE: H&A OF NEW YORK, 1992

FIGURE NO. I-1.1a | DWG. BY: H&A OF NEW YORK

CHARRETTE



MAP PREPARED BY PHOTOGRAMMETRIC METHODS FROM PHOTOGRAPHY
EXPOSED APRIL 1982 BY LOCKWOOD MAPPING INC. ROCHESTER N.Y.

CO-ORDINATES AND AZIMUTHS SHOWN ARE BASED ON THE
NEW YORK STATE TRANSVERSE MERCATOR PROJECTION
PLANE CO-ORDINATE SYSTEM FOR THE WEST ZONE.
"0" AZIMUTH IS CONSIDERED TO BE GRID NORTH.
ALL DISTANCES SHOWN ARE GROUND LENGTHS.
ELEVATIONS ARE KODAK PARK DATUM.

IG C.G. D

1" = 200'

EASTMAN KODAK COMPANY
KODAK PARK DIVISION

DRAWN K L MYERS
DATE 12/3/90
DESIGN S.A. / DEL.SUPVR. F B GRABSKI

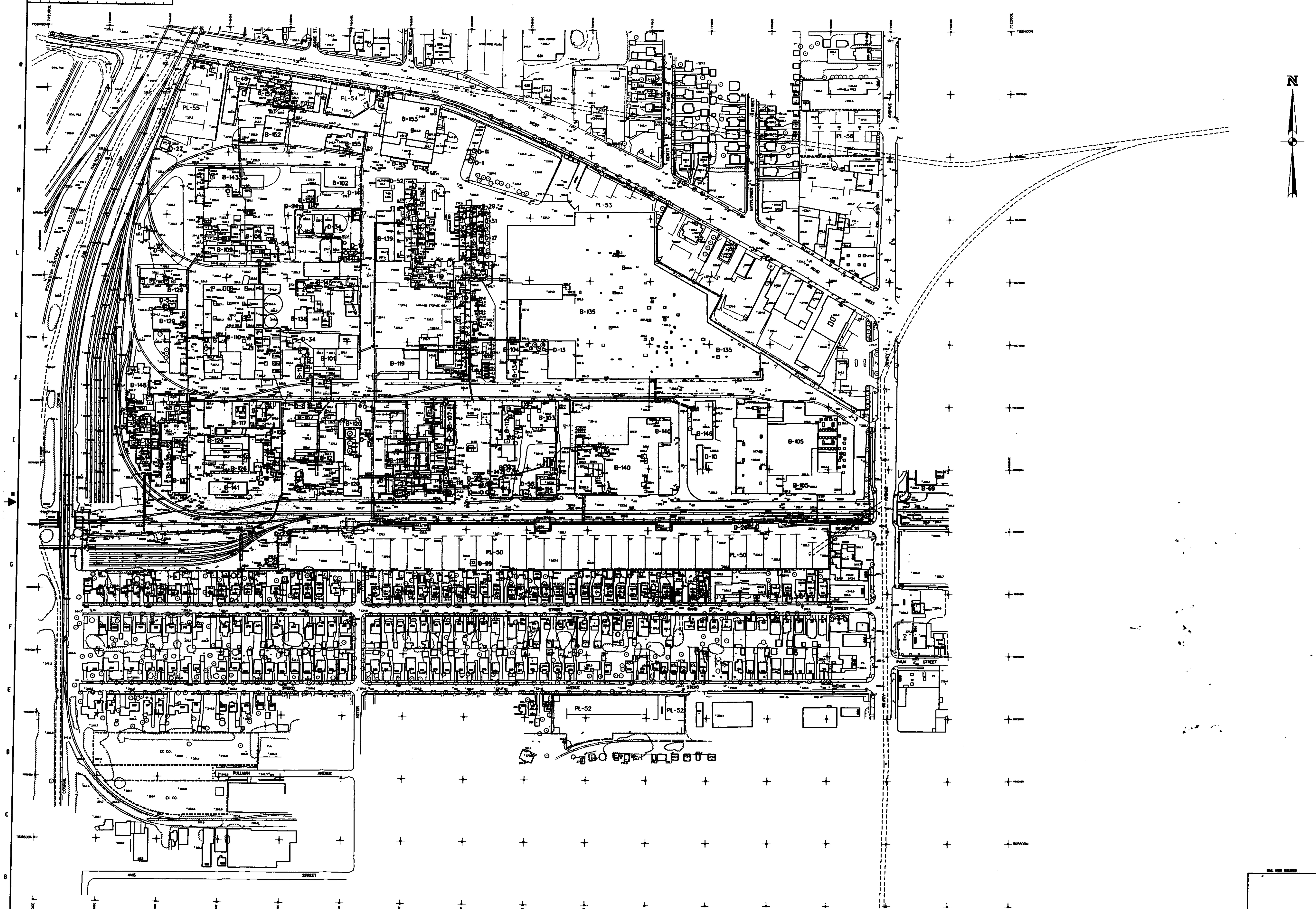
PROJECT LOCATION AND TOPOGRAPHY

FIGURE 1-1.1b

M

KPE

EKPEXX-000-019



MAP PREPARED BY PHOTOGRAMMETRIC METHODS FROM PHOTOGRAPHY EXPOSED APRIL 1982 BY LOCKWOOD MAPPING INC. ROCHESTER N.Y.

CO-ORDINATES AND AZIMUTHS SHOWN ARE BASED ON THE NEW YORK STATE TRANSVERSE MERCATOR PROJECTION PLANE CO-ORDINATE SYSTEM FOR THE WEST ZONE.
"0" AZIMUTH IS CONSIDERED TO BE GRID NORTH.
ALL DISTANCES SHOWN ARE GROUND LENGTHS.
ELEVATIONS ARE KODAK PARK DATUM.
KODAK PARK DATUM + 221.75 = USC&GS DATUM

IG C.G. D

SCALE: 1"=100'

EASTMAN KODAK COMPANY
KODAK PARK DIVISION

DRAWN: K L MYERS
DATE: 9/18/90
DES.SUPVR.: F B GRABSKI

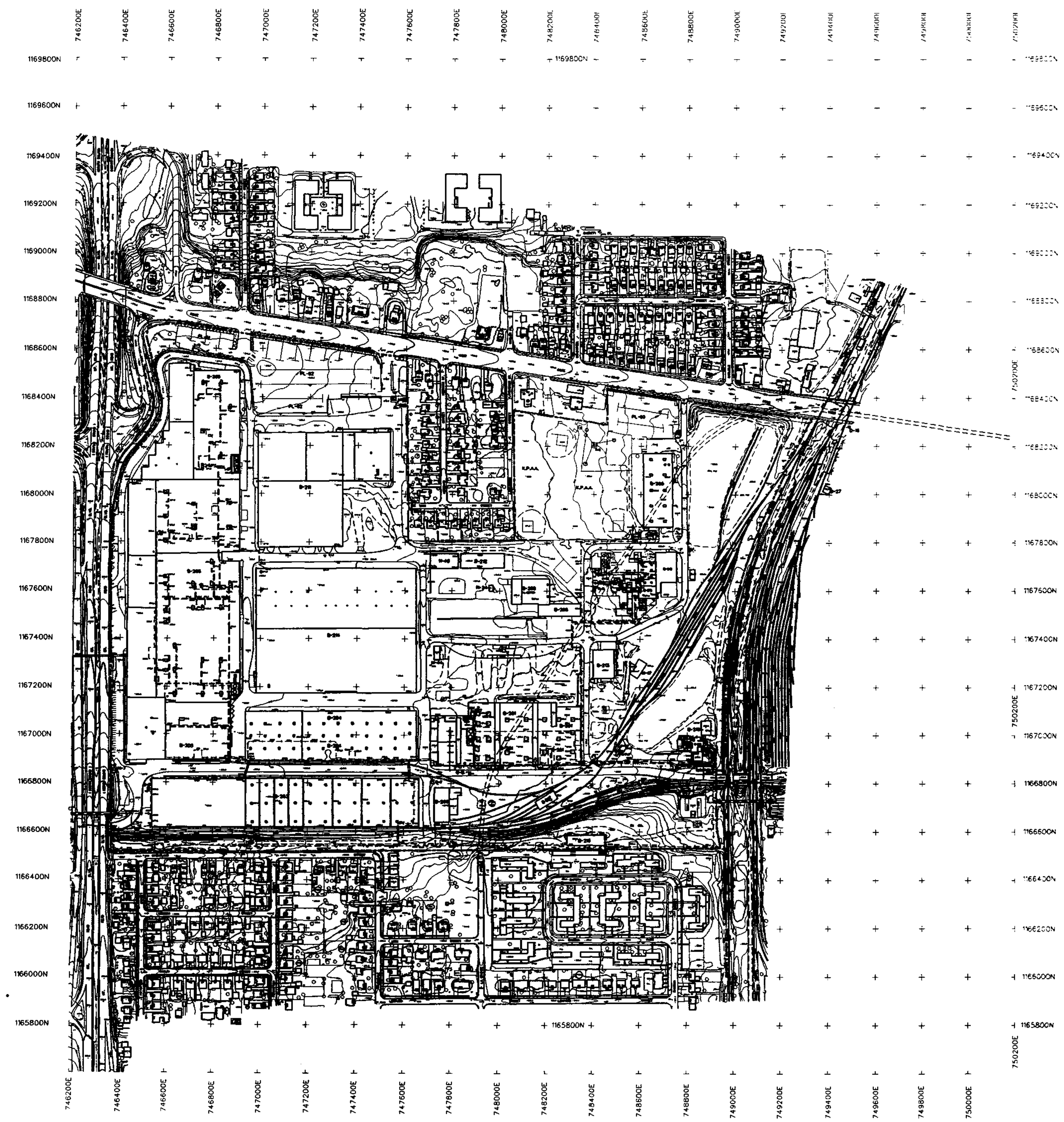
PROJECT LOCATION AND TOPOGRAPHY

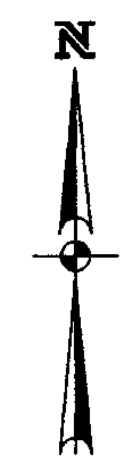
FIGURE 1-1.1c

M

KPW

EKPWXX-000-014





MAP PREPARED BY PHOTOGRAMMETRIC METHODS FROM PHOTOGRAPHY
EXPOSED APRIL 1982 BY LOCKWOOD MAPPING INC. ROCHESTER N.Y.

CO-ORDINATES AND AZIMUTHS SHOWN ARE BASED ON THE
NEW YORK STATE TRANSVERSE MERCATOR PROJECTION
PLANE CO-ORDINATE SYSTEM FOR THE WEST ZONE.
"0" AZIMUTH IS CONSIDERED TO BE GRID NORTH.
ALL DISTANCES SHOWN ARE GROUND LENGTHS.
ELEVATIONS ARE KODAK PARK DATUM.

IG C.G. D

EASTMAN KODAK COMPANY
KODAK PARK DIVISION

SCALE: 1" = 200'

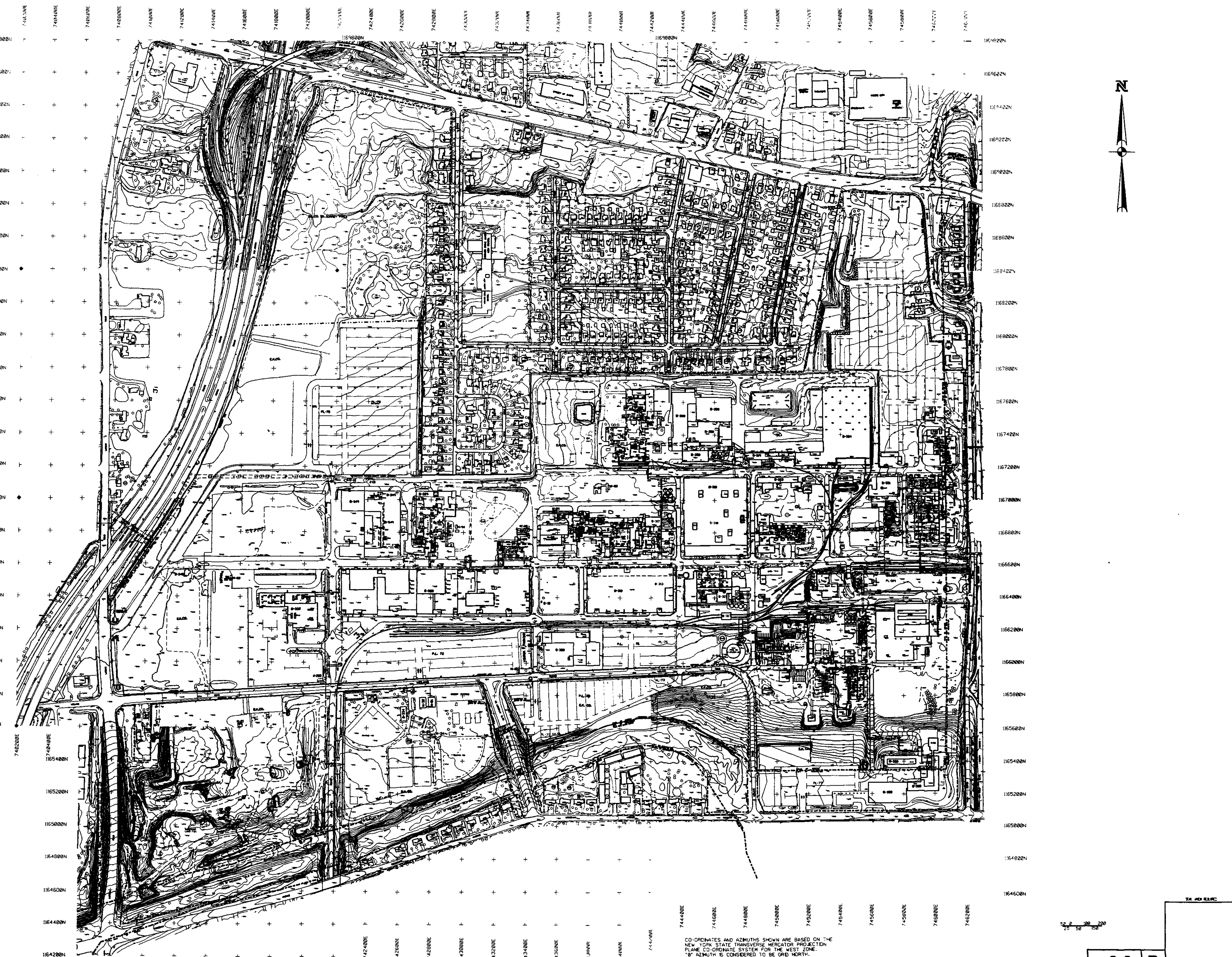
PROJECT LOCATION AND TOPOGRAPHY

FIGURE 1.1.1d

DES. SUPVR. F. B. GRABSKI

LOCATION KPY

EKPXXX-022-008



CO-ORDINATES AND AZIMUTHS SHOWN ARE BASED ON THE NEW YORK STATE TRANSVERSE MERCATOR PROJECTION PLANE CO-ORDINATE SYSTEM FOR THE WEST ZONE.
'0' AZIMUTH IS CONSIDERED TO BE GRID NORTH.
ALL DISTANCES SHOWN ARE GROUND LENGTHS.
ELEVATIONS ARE KODAK PARK DATUM.

MAP PREPARED BY PHOTOGRAMMETRIC METHODS FROM PHOTOGRAPHY EXPOSED APRIL 1982 BY LOCKWOOD MAPPING INC. ROCHESTER N.Y.

1G C.G. D

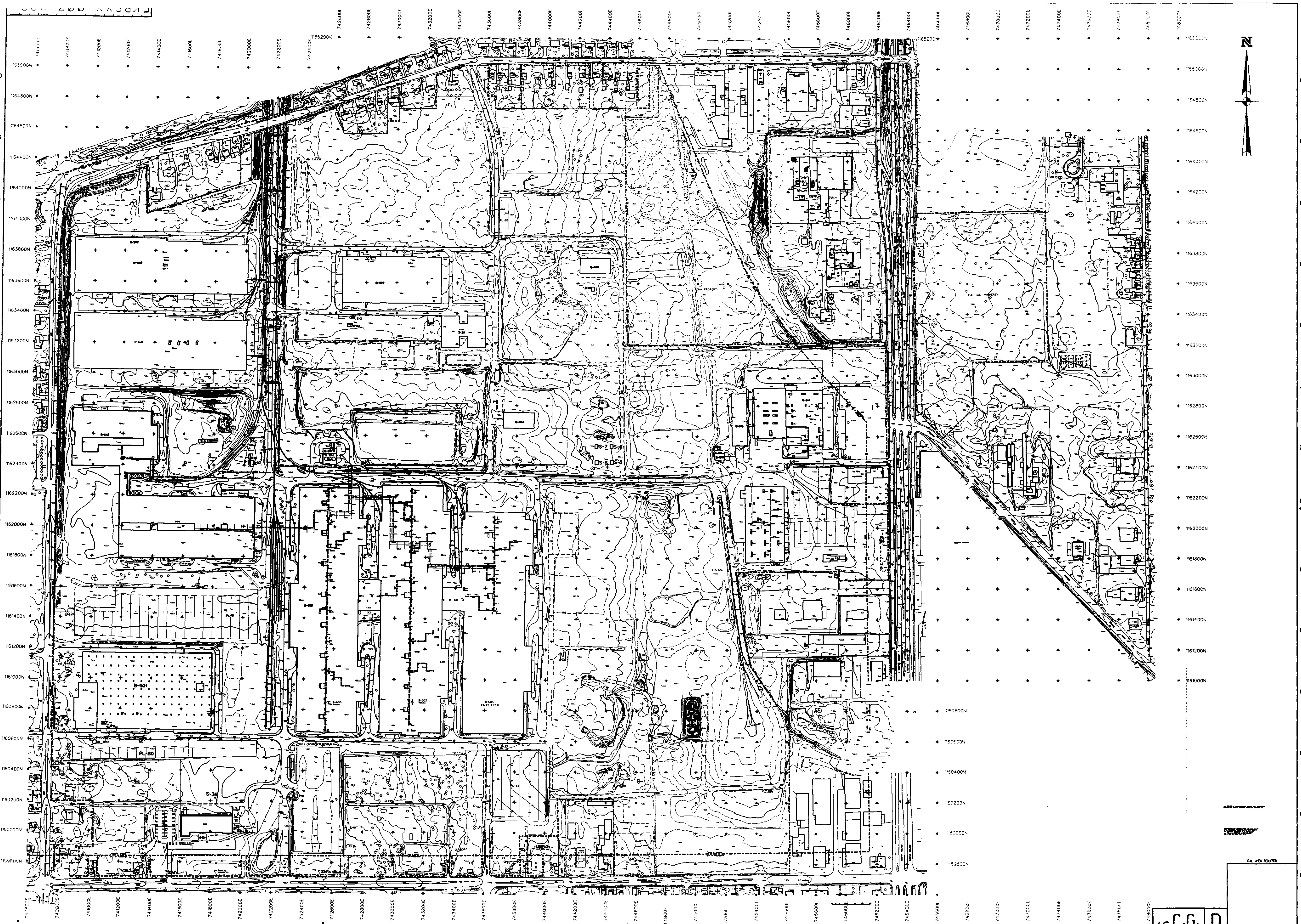
SCALE: 1" = 200'

EASTMAN KODAK COMPANY
KODAK PARK DIVISION

DRAWN: K. L. MYERS
DATE: 11/01/91
DES. SUPVR.: F. B. GRABSKI

PROJECT LOCATION AND TOPOGRAPHY

EKPMXX-002-024



DRAWN	K L MYERS
DATE	5/22/91
CHECKED	
DATE	
DESIGN S.O.	
DES.SUPVR.	F B GRABSKI

SCALE-ORIGINAL: 1" = 200'

EASTMAN KODAK COMPANY
KODAK PARK DIVISION

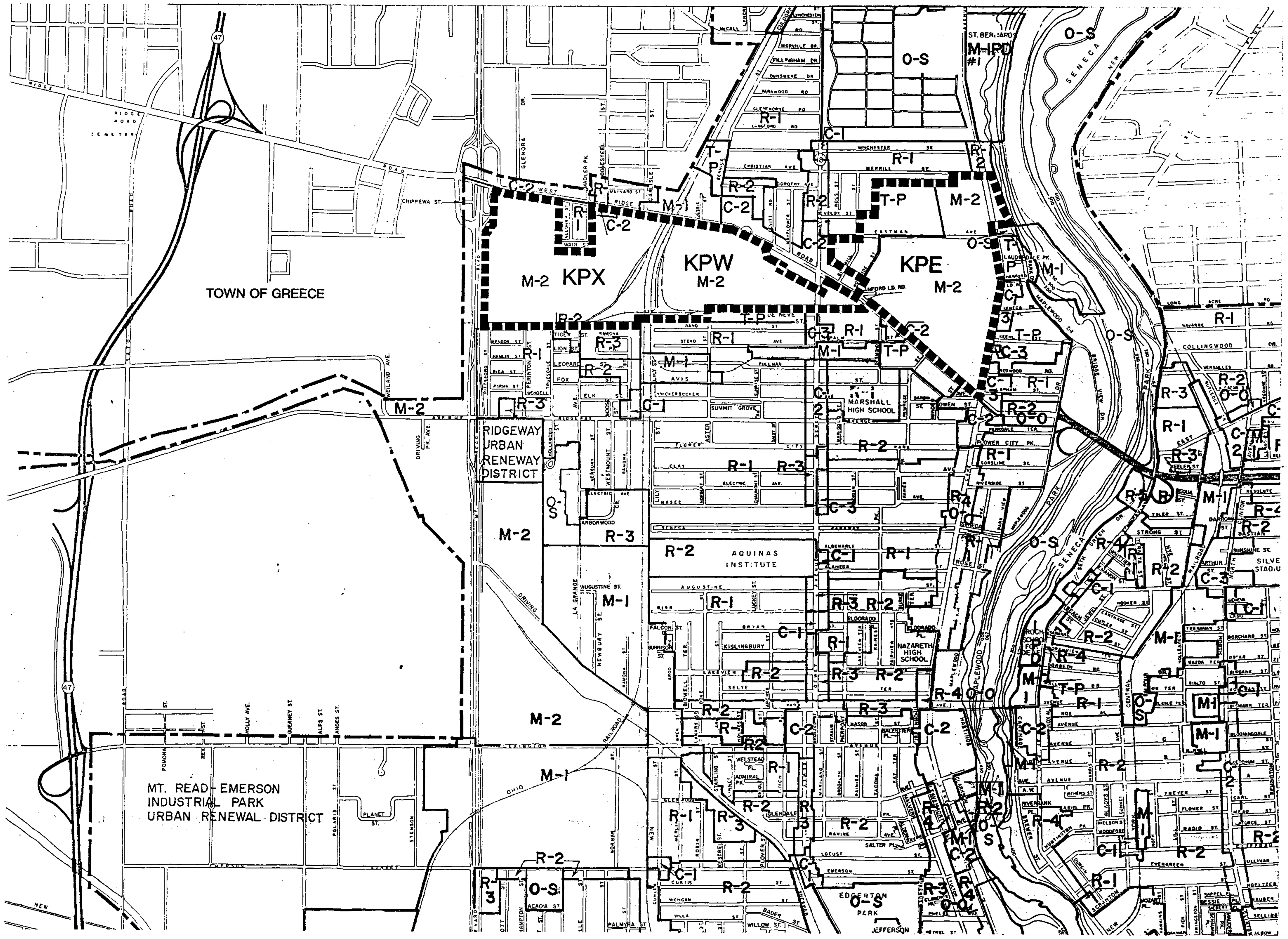
PROJECT LOCATION AND TOPOGRAPHY

FIGURE 1.1f

LOCATION: KPS

1G C.G. D

EKPSXX-002 020



DISTRICTS:

R-1	SINGLE-FAMILY RESIDENTIAL
R-2	TWO-FAMILY RESIDENTIAL
R-3	LOW-MEDIUM DENSITY RESIDENTIAL
R-4	MEDIUM DENSITY RESIDENTIAL
R-5	HIGH DENSITY RESIDENTIAL
C-1	NEIGHBORHOOD COMMERCIAL
C-2	COMMUNITY COMMERCIAL
C-3	GENERAL COMMERCIAL
C-4	CENTRAL BUSINESS
M-1	MANUFACTURING-INDUSTRIAL
M-2	MANUFACTURING-INDUSTRIAL
RPD	RESIDENTIAL PLANNED DEVELOPMENTS
CPD	COMMERICAL PLANNED DEVELOPMENTS
M-IPD	MANUFACTURING-INDUSTRIAL PLANNED DEVELOPMENTS
IPD	INSTITUTIONAL PLANNED DEVELOPMENTS
MPD	MIXED PLANNED DEVELOPMENTS
H-2	LOW-MEDIUM DENSITY HISTORIC
H-4	MEDIUM-HIGH DENSITY HISTORIC
O-S	OPEN SPACE
O-O	OVERLAY OFFICE
O-B	OVERLAY BOUTIQUE
O-R	OVERLAY RESIDENTIAL
ORP	OVERLAY RESIDENTIAL PARKING
T-P	TRANSITIONAL PARKING
....	PRESERVATION
-.-.-.-	CULTURAL
-----	OITP-OVERLAY INSTITUTIONAL TRANSITIONAL PARKING
R-H	RIVER HARBOR
■■■■	KODAK PARK PROPERTY BOUNDARY

NOTE:

THIS MAP WAS DEVELOPED FROM AN ORIGINAL DRAWING ENTITLED "CITY OF ROCHESTER OFFICIAL ZONING MAP," PROVIDED BY THE ZONING BUREAU, DEPARTMENT OF COMMUNITY DEVELOPMENT OF THE CITY OF ROCHESTER AND DATED OCTOBER 1975 (REVISED JULY 15, 1986). ORIGINAL SCALE: 1 INCH = 1000 FEET.

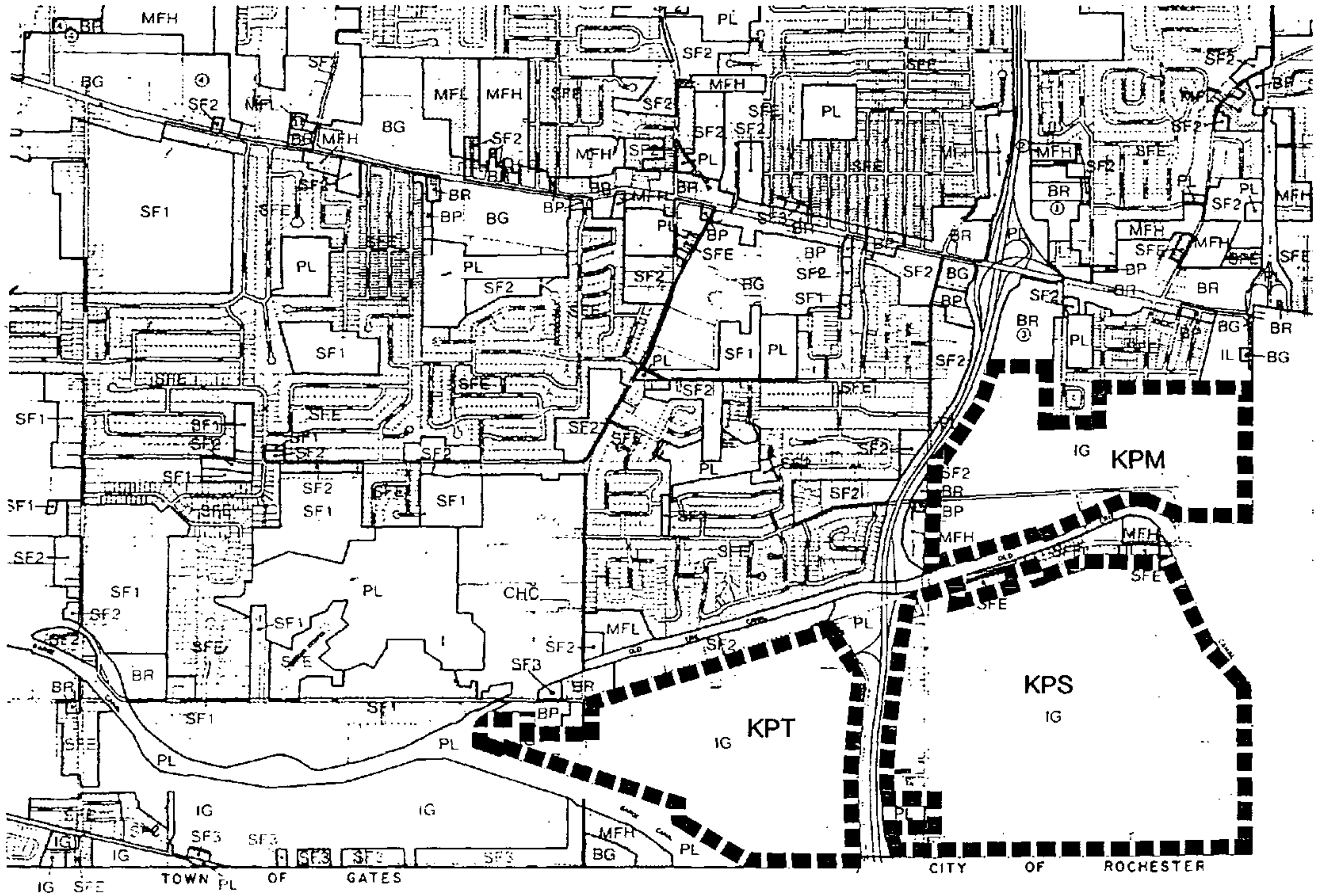
EAST - DAK COMPANY
FACILITY RE UALITY SECTION

DAK PA K ZONING CODES
CITY (F ROCHESTER

REFERENCE:

DWG. BY: H&A OF NEW YORK

CHARRETTE



DISTRICTS:

SF1	SINGLE FAMILY RESIDENTIAL
SF2	SINGLE FAMILY RESIDENTIAL
SF3	SINGLE FAMILY RESIDENTIAL
SFE	SINGLE FAMILY RESIDENTIAL
COS	CLUSTER/OPEN SPACE OVERLAY
MFL	MULTIPLE FAMILY RESIDENTIAL
MFH	MULTIPLE FAMILY RESIDENTIAL
CHC	CENTRAL HEALTH CARE
BP	PROFESSIONAL OFFICE
BR	RESTRICTED BUSINESS
BG	GENERAL BUSINESS
MXU	MIXED USE OVERLAY
IL	LIGHT INDUSTRIAL
IG	GENERAL INDUSTRIAL
PL	PUBLIC LAND

DISTRICT BOUNDARY LINES

KODAK PARK PROPERTY BOUNDARY

NOTE:

THIS MAP WAS DEVELOPED FROM AN ORIGINAL DRAWING ENTITLED "THE OFFICIAL ZONING MAP OF THE TOWN OF GREECE, NEW YORK," PROVIDED BY THE TOWN OF GREECE ZONING BOARD AND DATED SEPTEMBER 1, 1987. ORIGINAL SCALE: 1 INCH = 2000 FEET.

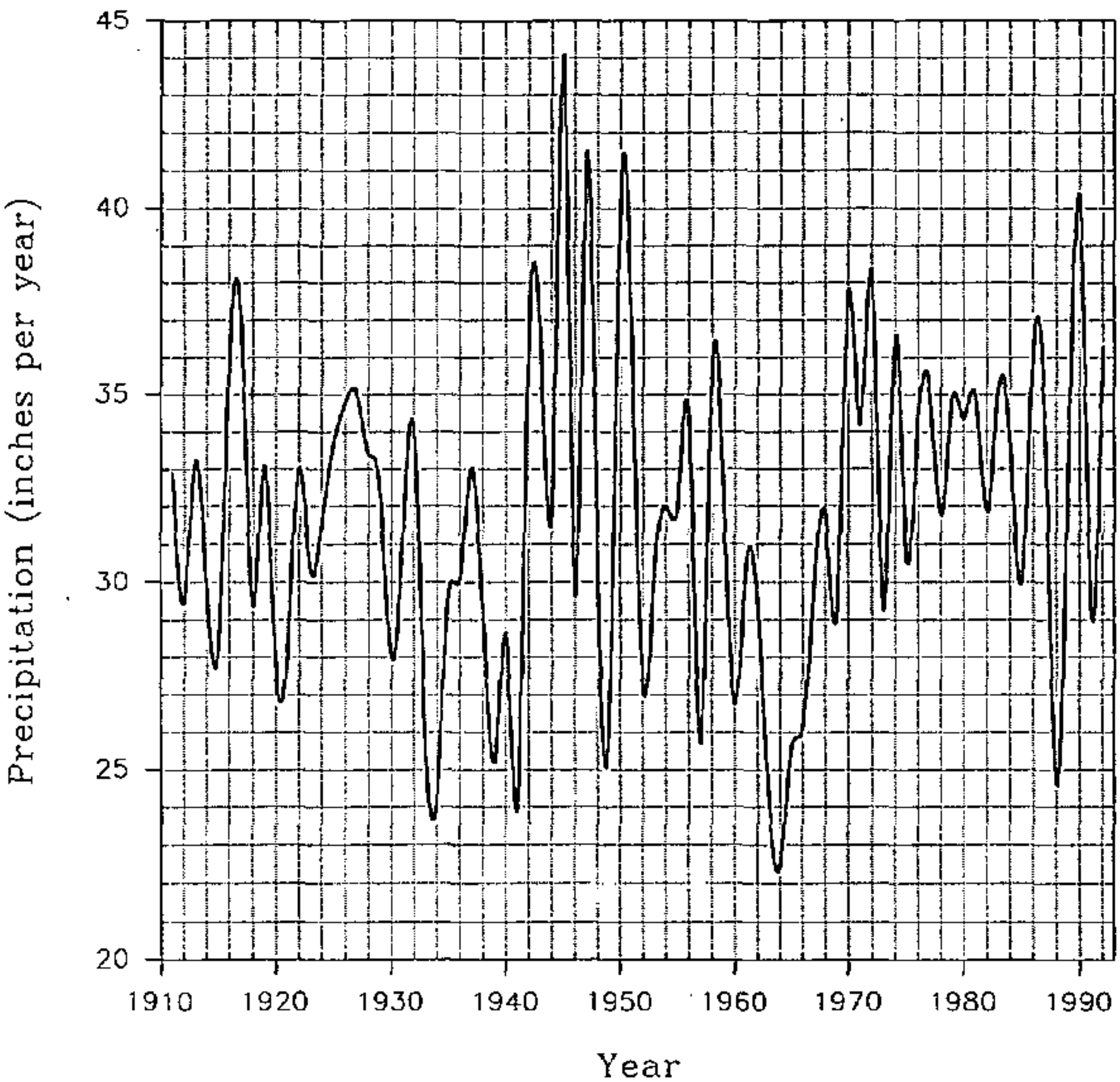
EASTMAN KODAK COMPANY
GROUNDWATER QUALITY SECTION

KODAK PARK ZONING CODES
TOWN OF GREECE

SCALE AS SHOWN | REFERENCE:

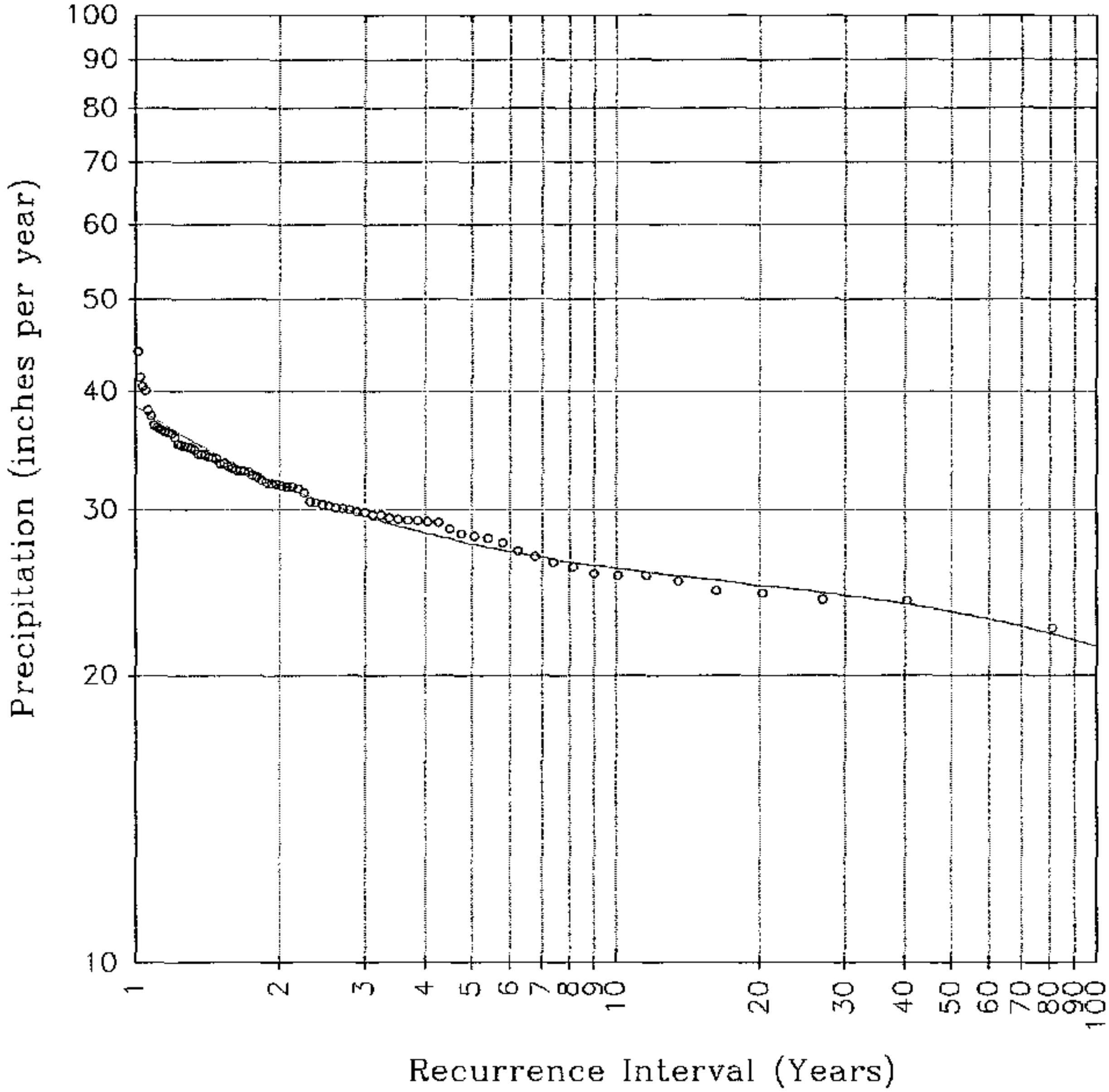
FIGURE NO. I-1.4 | DWG. BY: H&A OF NEW YORK

CHARRETTE



EASTMAN KODAK COMPANY	Date: 28-Jul-93
	Drawn by: GVC

Figure II-2.1: Yearly Precipitation Amounts In Rochester, New York

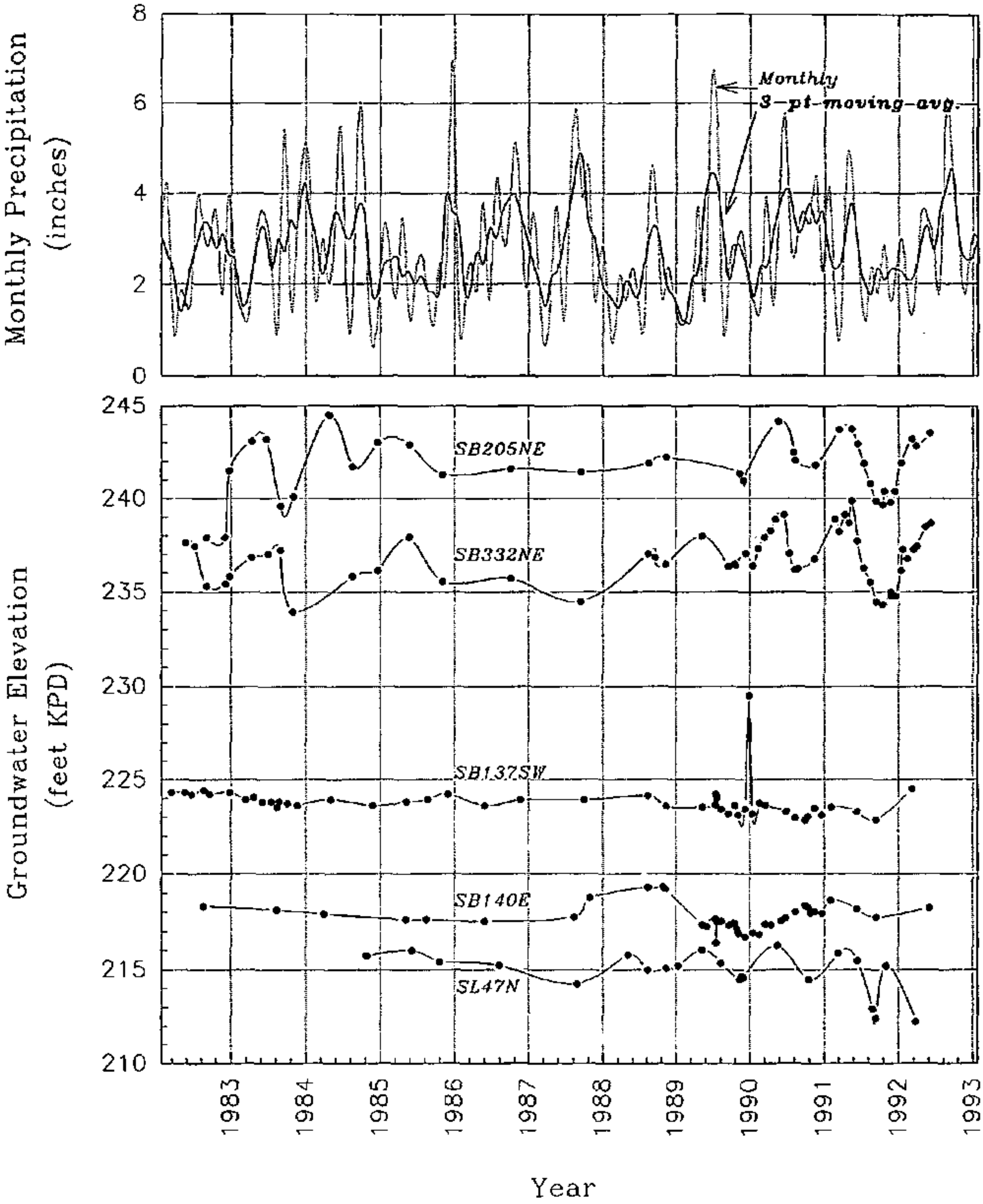


EASTMAN KODAK COMPANY

Date: 28-Jul-93

Drawn by: GVC

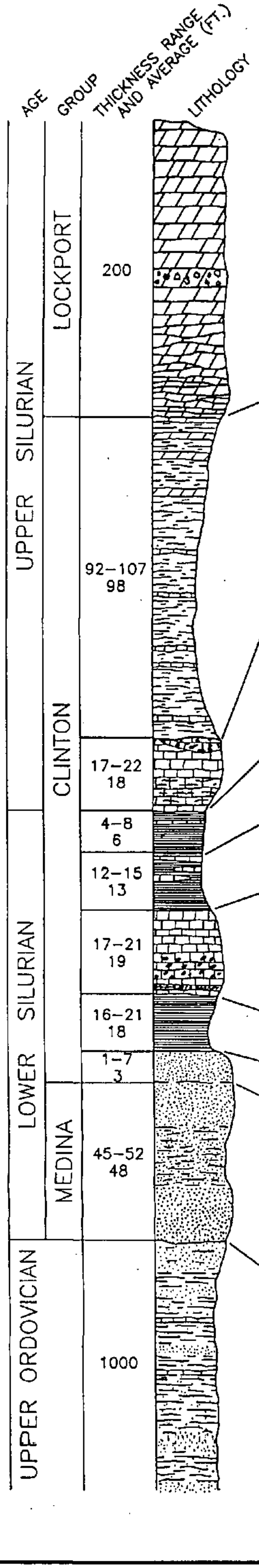
Figure II-2.2: Frequency Analysis of Yearly Precipitation Data



EASTMAN KODAK COMPANY	Date: 28-Jul-93
	Drawn by: GVC

Figure II-2.3: Monthly Precipitation in the Rochester, New York Area and Representative Hydrographs for Kodak Park Overburden Monitor Wells for the Period 1982 Through 1992

GENERAL STRATIGRAPHIC PROFILE OF THE ROCHESTER, NEW YORK AREA



FORMATION DESCRIPTION:

LOCKPORT DOLOMITE – Light to medium gray, fine to medium-grained, thin to medium-bedded, siliceous DOLOMITE. Stylolites, secondary gypsum nodules, pits and vugs; close to moderately close argillaceous partings, some of which contain secondary gypsum seams.

Consists of three members in Rochester area: Oak Orchard at top, Penfield, Decew at base.

Basal few feet of Oak Orchard Member contains a heavily pitted, vuggy zone of secondary mineralization. Upper 25 ft. of Penfield Member contains a heavily pitted zone a few feet thick; lower 30 ft. of Penfield has one or two slickensided shears of minor displacement. Decew Member is argillaceous and mottled and grades downward, becoming increasingly shaly. In places, a clay parting marks the contact with underlying Rochester, but where this parting is absent, the basal contact of Decew is indistinct and arbitrary.

ROCHESTER SHALE – Light to dark gray, fine-grained, dolomitic MUDSTONE, very thinly color-banded. Has few pits and small vugs, decreasing downward and scattered fossils, increasing downwards. Gypsum nodules are scattered throughout the formation. Secondary gypsum seams occurs in close to very close, undulating partings.

Upper 15 to 20 ft. is Gates Dolomite Member; thin to very thin argillaceous dolomite beds interbedded with shale. Thin to very thin, silty, close to moderately close, limestone beds occur from just below Gates member, to within few feet of base of Rochester; their thickness and frequency generally increasing downward. They are fine-grained and grade into mudstone above and below.

Occasional very thin clay beds and severely weathered clay partings occur.

Basal contact grades into underlying formation with distinct color and lithology change.

IRONDEQUOIT LIMESTONE – Light to medium gray, fine to medium-grained, thin to medium-bedded, fossiliferous LIMESTONE, interbedded with dark gray, thin to very thin dolomitic SHALE BEDS. Few pits and small vugs near top.

Occasional gypsum nodules. Close to moderately close argillaceous partings; some may have secondary gypsum seams. Bedding undulates; small scattered reefs in uppermost few feet. Lower quarter is limy shale. Basal contact distinct; lithology change.

WILLIAMSON SHALE – Dark greenish gray SHALE, with some very thin scattered, fossil zones. Light to medium gray, very thin limestone near top and interbedded with very thin black fissile shale beds, containing graptolites, near base. Basal contact distinct.

LOWER SODUS SHALE – Dark greenish gray to grayish brown SHALE. Fossils present at several levels. In upper third of formation are several light gray, thin to very thin shell limestone beds, called "Pearly Shell". Lower half of formation predominantly brown. Basal contact contact distinct; lithology change.

REYNALES LIMESTONE – Light to medium gray, fine to medium-grained, crystalline, thin-bedded, fossiliferous LIMESTONE, interbedded with dark gray, very thin shale beds. Pits and vugs may occur near top; stylolites at several levels. Secondary gypsum seams in some of the close to very close argillaceous partings. Scattered lenses of chert and occasional thin beds of arenaceous dolomite. Thin Furnaceville hematitic limestone member occurs at top of lower sixth of formation. Basal contact sharp; lithology change.

MAPLEWOOD SHALE – Light greenish gray argillaceous SHALE. Barren of fossils, lower few inches dark gray and silty. Basal contact may be gradational, but sometimes distinct; color and lithology change.

THOROLD SANDSTONE – Light gray to greenish gray, fine to medium-grained, medium to thick-bedded SANDSTONE. Basal contact distinct, but only color change.

GRIMSBY SANDSTONE – Reddish brown, fine to medium-grained, thin to thick-bedded SANDSTONE. Gray and greenish gray color mottling in upper two-thirds. Closely to widely spaced, argillaceous partings with occasional gypsum seams.

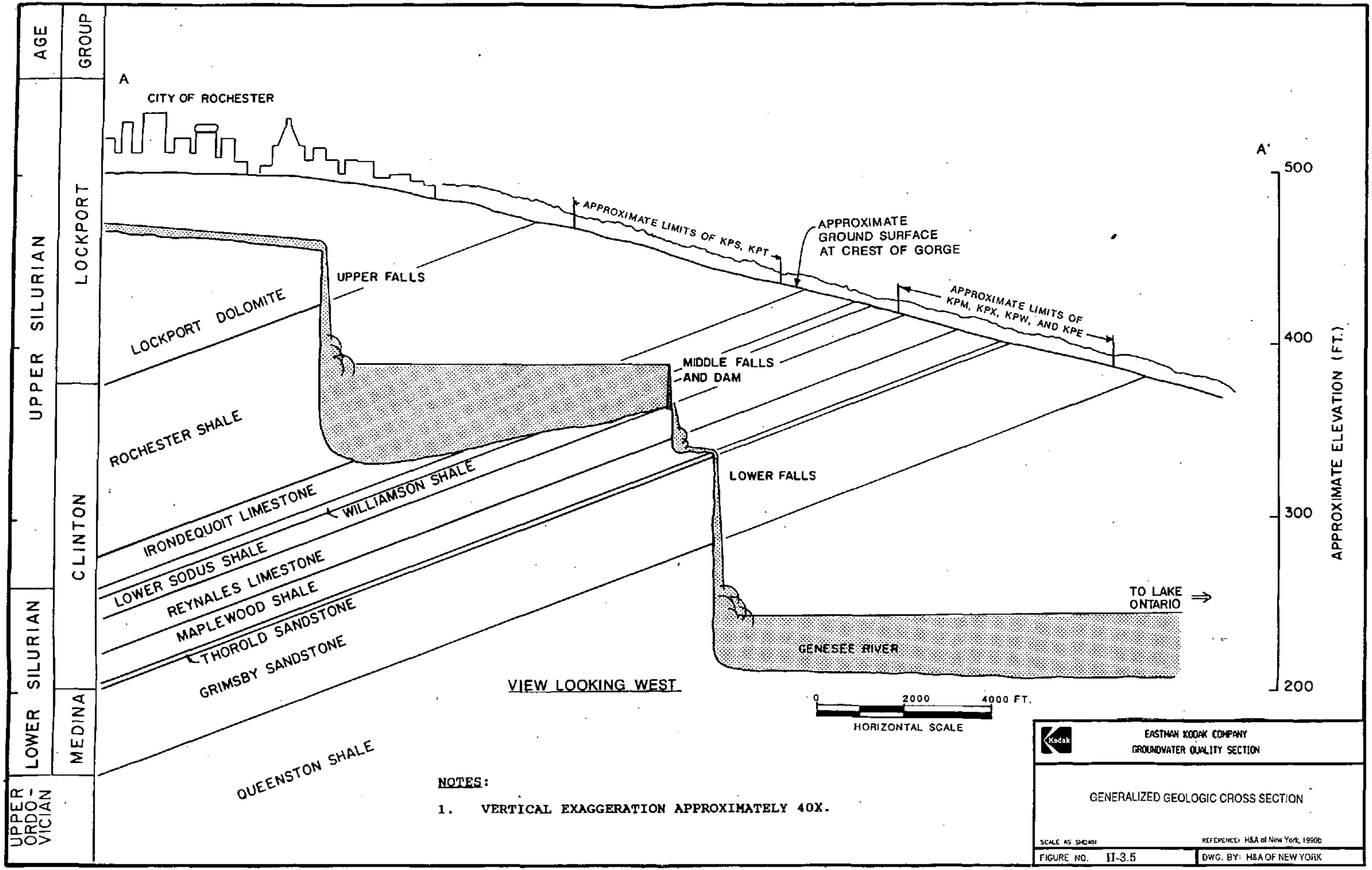
Swirly bedding, due to action of marine worms, in upper third. Middle third shaly and gray, green, brown and pink banded, with some shallow cross-bedding. Lower third is massive, has shallow cross-bedding, and has coarsest grain size in formation.

Basal contact is sharp and undulating; an uncomformity in Rochester area. No color change, similar lithology but smaller grain size in Queenston below. Frequently marked by weathered shaly or clay parting.

QUEENSTON SHALE – Reddish brown, fine-grained, thin to thick-bedded SANDSTONE, with some greenish gray to light gray mottling and very thin color banding. Close to moderately close argillaceous partings, some of which have secondary gypsum seams. Lithology grading laterally and vertically, including sandstone, siltstone, mudstone and very thin limestone beds. Barren of fossils.

NOTE: Formation descriptions prepared by H&A of New York, based on local outcrops and examination of over 75,000 ft. of rock core.

EASTMAN KODAK COMPANY GROUNDWATER QUALITY SECTION	
GENERAL STRATIGRAPHIC PROFILE OF THE ROCHESTER AREA REFERENCE: H&A OF NEW YORK, 1992	
FIGURE NO. II-3.2	DWG. BY: H&A OF NEW YORK

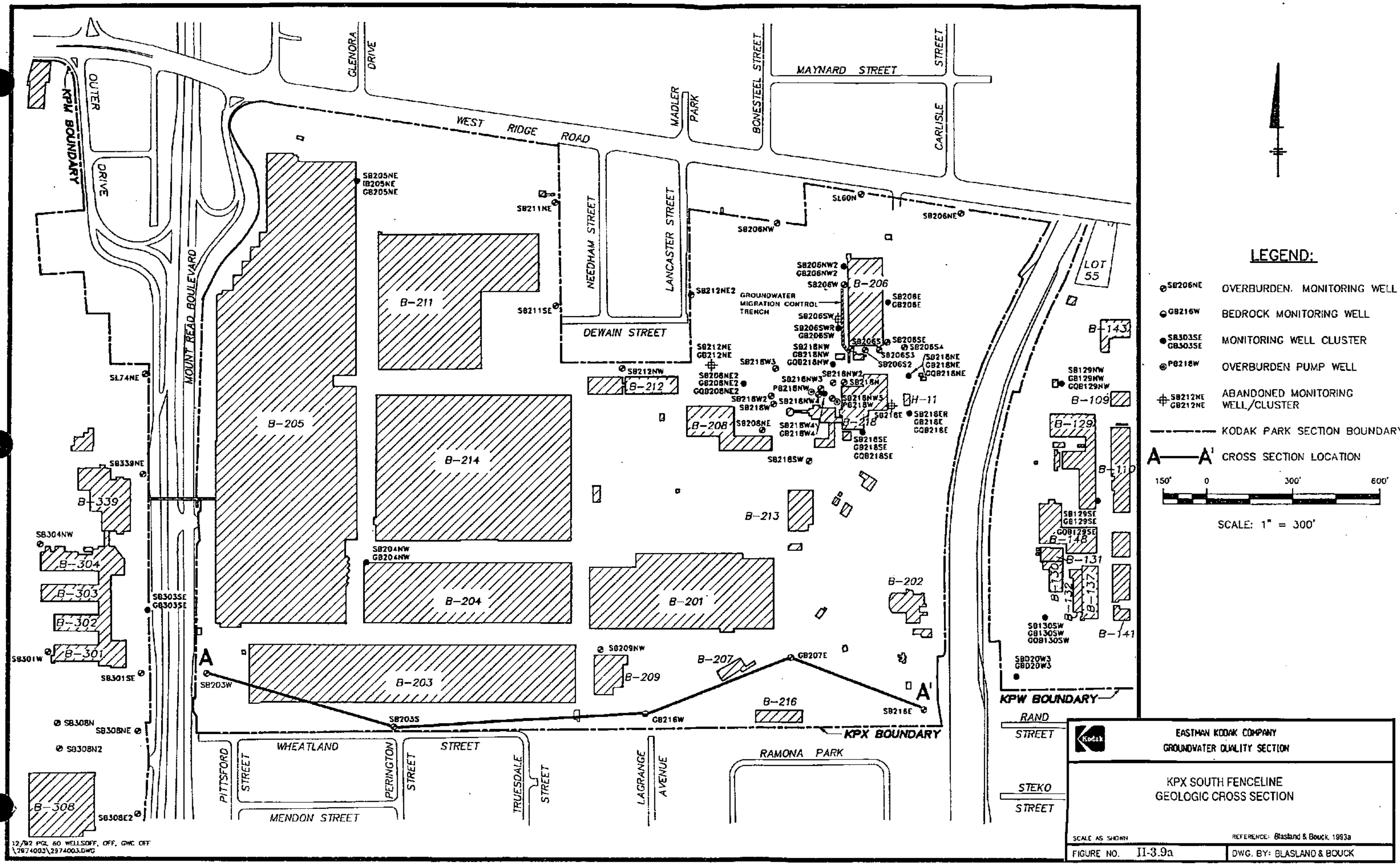


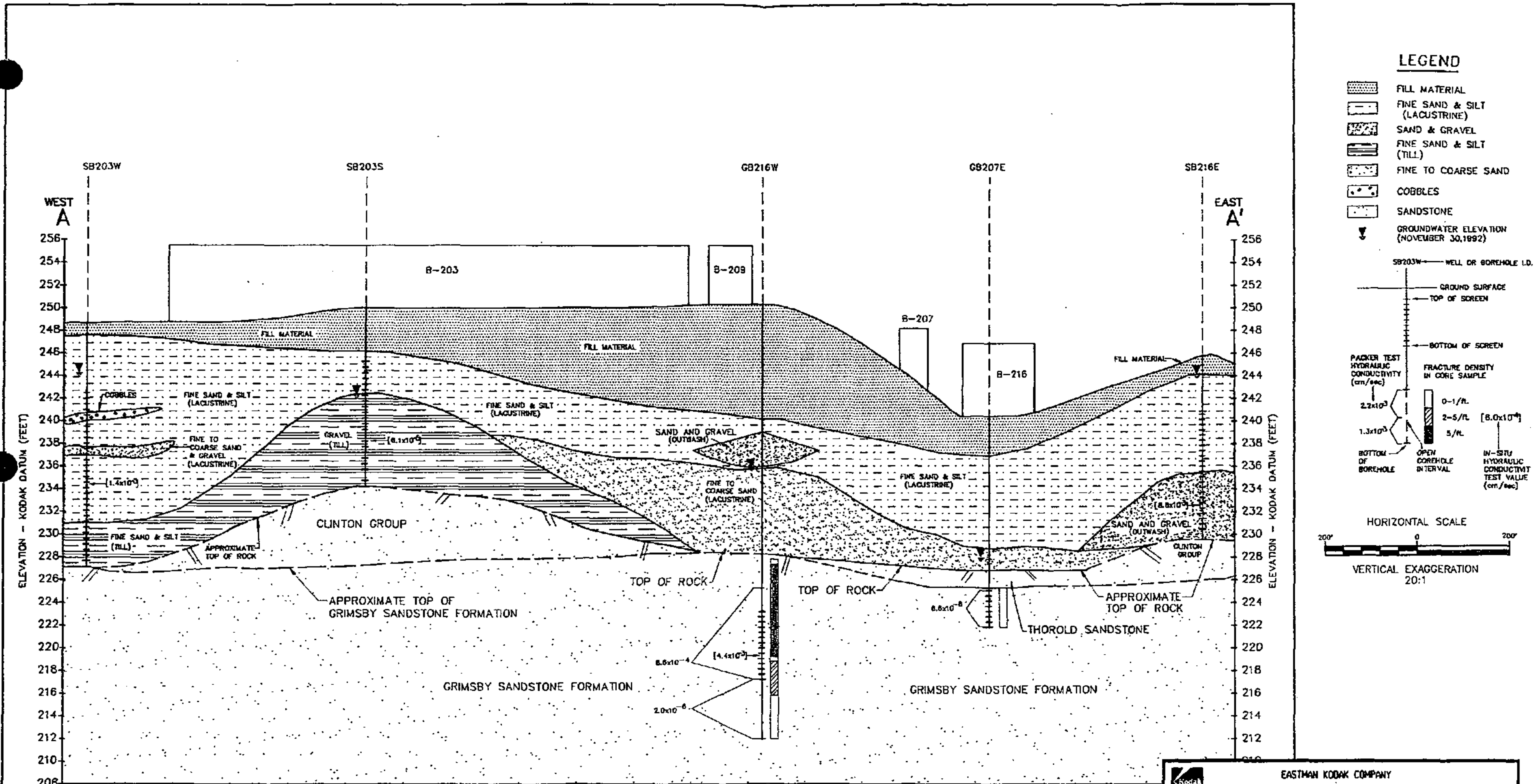
EASTMAN KODAK COMPANY
GROUNDWATER QUALITY SECTION

GENERALIZED GEOLOGIC CROSS SECTION

SCALE AS SHOWN
REFERENCE: H&A of New York, 1990b

FIGURE NO. II-3.5
DWG. BY: H&A OF NEW YORK


LEGEND:
SB206NE OVERBURDEN MONITORING WELL
GB216W BEDROCK MONITORING WELL
SB303SE GB303SE MONITORING WELL CLUSTER
PB218W OVERBURDEN PUMP WELL
SB212NE GB212NE ABANDONED MONITORING WELL/CLUSTER
KODAK PARK SECTION BOUNDARY
A—A' CROSS SECTION LOCATION
150' 0 300' 600'
SCALE: 1" = 300'
WEST RIDGE ROAD
MAYNARD STREET
MOUNT READ BOULEVARD
OUTER DRIVE
KPM BOUNDARY
KPW BOUNDARY
KPX BOUNDARY
GLENORA DRIVE
NEEDHAM STREET
LANCASTER STREET
DEWAIN STREET
MADLER PARK
BONESTEEL STREET
CARLISLE STREET
LOT 55
GROUNDWATER MIGRATION CONTROL TRENCH
WHEATLAND STREET
PITTSFORD STREET
PERINGTON STREET
TRUESDALE STREET
LAGRANGE AVENUE
MENDON STREET
RAMONA PARK
RAND STREET
STEKO STREET
B-205
B-211
B-214
B-204
B-203
B-201
B-202
B-206
B-207
B-208
B-209
B-212
B-213
B-216
B-218
H-11
B-339
B-304
B-303
B-302
B-301
B-308
B-143
B-109
B-129
B-110
B-148
B-131
B-130
B-132
B-137
B-141
A
A'
SB203W
SB203S
GB216W
GB207E
SB216E
SB205NE
IB205NE
GB205NE
SB211NE
SB211SE
SB206NW
SL60N
SB206NE
SB212NE2
SB204NW
GB204NW
SB209NW
SL74NE
SB339NE
SB304NW
SB303SE
GB303SE
SB301W
SB301SE
SB308N
SB308NE
SB308N2
SB308E2
SB129NW
GB129NW
GQB129NW
SB129SE
GB129SE
GQB129SE
SB130SW
GB130SW
GQB130SW
SB020W3
GB020W3
12/92 PGL 60 WELLSOFF, OFF, GWC OFF
\2974003\2974003.DWG
EASTMAN KODAK COMPANY
GROUNDWATER QUALITY SECTION
KPX SOUTH FENCELINE
GEOLOGIC CROSS SECTION
SCALE AS SHOWN
REFERENCE: Blasland & Bouck, 1993a
FIGURE NO. II-3.9a
DWG. BY: BLASLAND & BOUCK



EASTMAN KODAK COMPANY
GROUNDWATER QUALITY SECTION

KPX SOUTH FENCELINE
GEOLOGIC CROSS SECTION

SCALE AS SHOWN

REFERENCE: Blasland & Bouck, 1993a

FIGURE NO. II-3.9b

DWG. BY: BLASLAND & BOUCK

2/22/93 60-PGL
C:\WP\2974003\2974003A.DWG

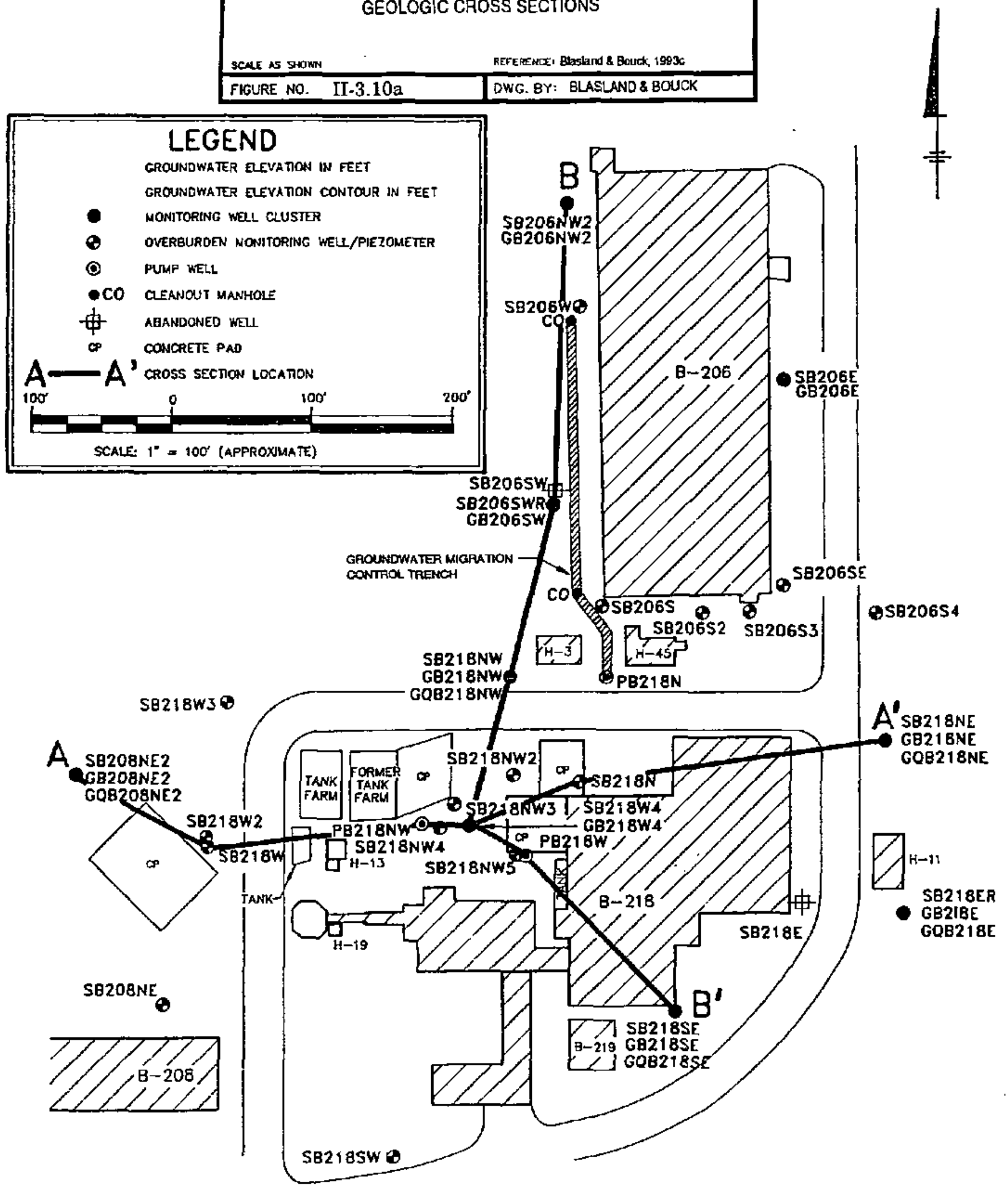
EASTMAN KODAK COMPANY
GROUNDWATER QUALITY SECTION

NORTHEAST KPX
GEOLOGIC CROSS SECTIONS

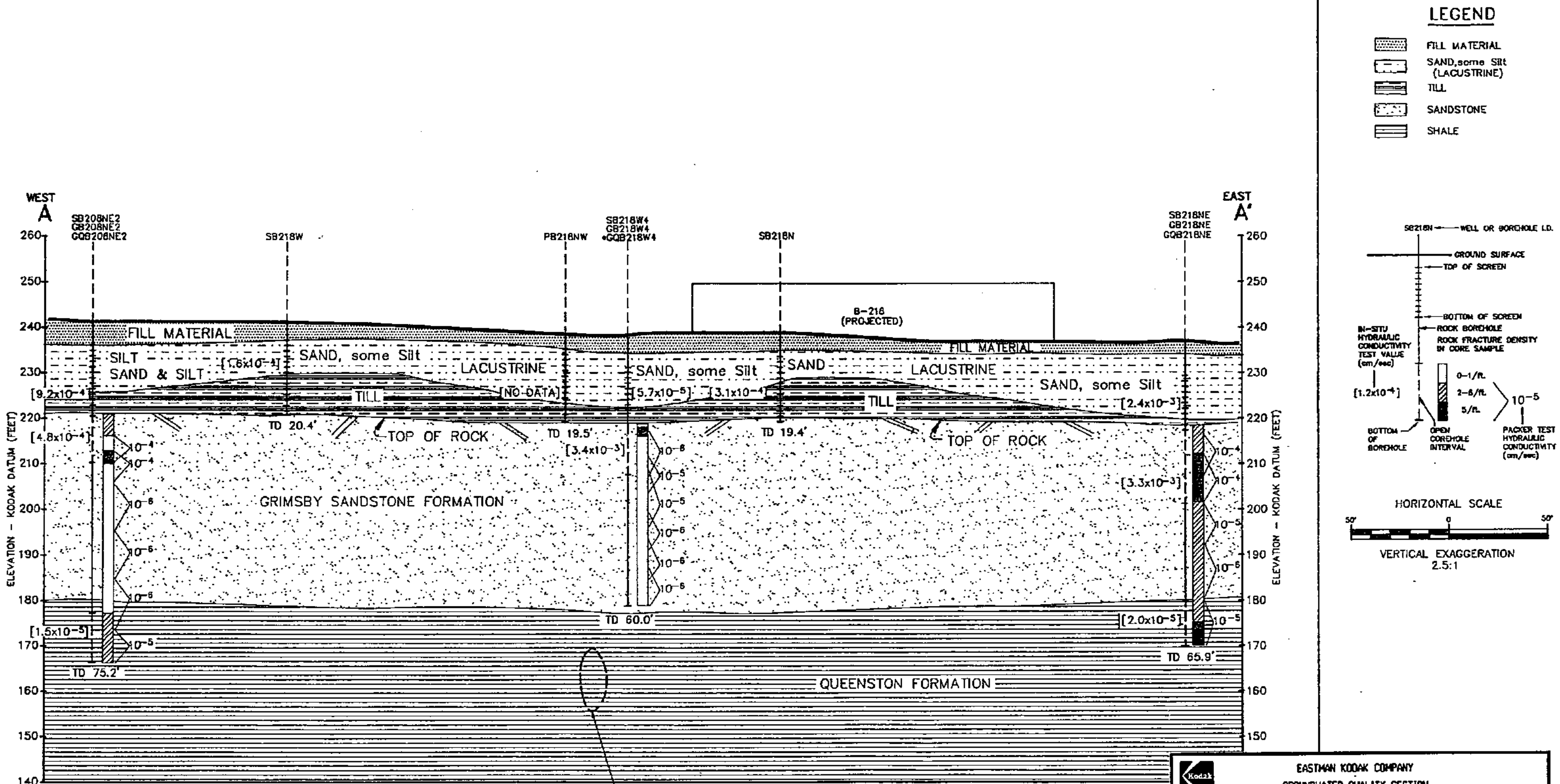
SCALE AS SHOWN

REFERENCE: Blasland & Bouck, 1993c

FIGURE NO. II-3.10a	DWG. BY: BLASLAND & BOUCK



1/18/93 60-PGL
C:\WP\2872901R\29729G33.DWG



NOTES: •1. A MONITORING WELL WAS NOT INSTALLED IN BOREHOLE GQB218W4. THE BOREHOLE WAS GROUTED TO GROUND SURFACE.

APPROXIMATE LOCATION OF THE TIGER-CARLISLE CSOAP TUNNEL

EASTMAN KODAK COMPANY
GROUNDWATER QUALITY SECTION

NORTHEAST KPX
GEOLOGIC CROSS SECTIONS
A - A'

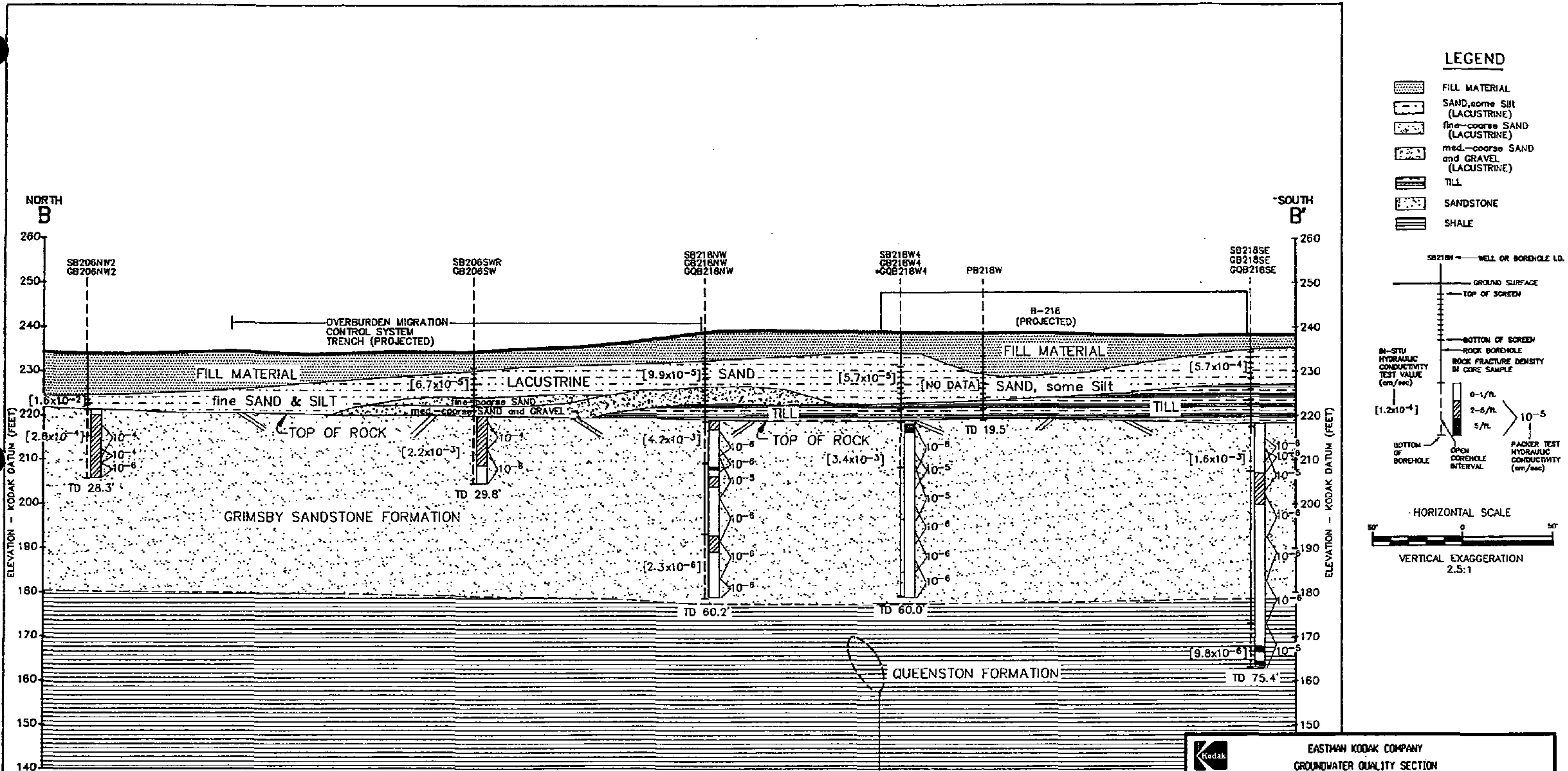
SCALE AS SHOWN

REFERENCE: Blasland & Bouck, 1993c

FIGURE NO. II-3.10b

DWG. BY: BLASLAND & BOUCK

9/93 60-PCL
KIP\2974003\29740CSA.DWG



NOTES: •1. A MONITORING WELL WAS NOT INSTALLED IN BOREHOLE GQB218W4. THE BOREHOLE WAS GROUTED TO GROUND SURFACE.

2/22/95 60-PCL/DMW
C:\WP\2974003\29740CSB.DWG

EASTMAN KODAK COMPANY
GROUNDWATER QUALITY SECTION

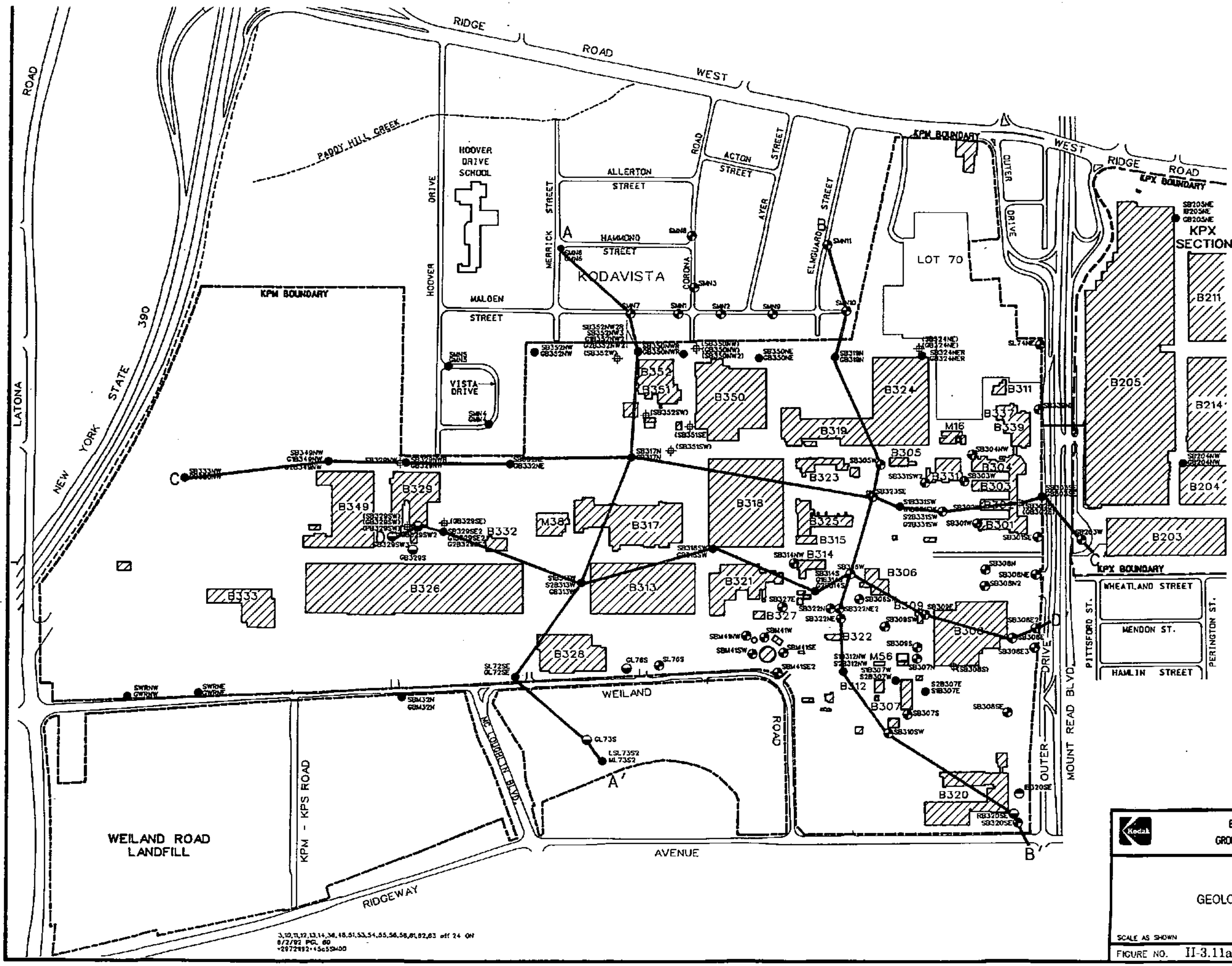
NORTHEAST KPX
GEOLOGIC CROSS SECTIONS
B - B'

SCALE AS SHOWN

REFERENCE: Blasland & Bouck, 1993c

FIGURE NO. II-3.10c

DWG. BY: BLASLAND & BOUCK



LEGEND

A—A', B—B', C—C', D—D' GEOLOGIC CROSS-SECTION LOCATIONS

SB320SE OVERBURDEN MONITORING WELL

SB324NER / GB324NER MONITORING WELL CLUSTER

GB329S BEDROCK MONITORING WELL

IB320SE INTERFACE MONITORING WELL

(SB324NE) / (GB324NE) ABANDONED MONITORING WELL/CLUSTER

NOTE: THE FOLLOWING MONITORING WELLS WITHIN A CLUSTER WERE ABANDONED: IB333NW, IB332NE, SB352NW2, IB352NW.

SCALE 250' 0' 250' 500' FEET

EASTMAN KODAK COMPANY
GROUNDWATER QUALITY SECTION

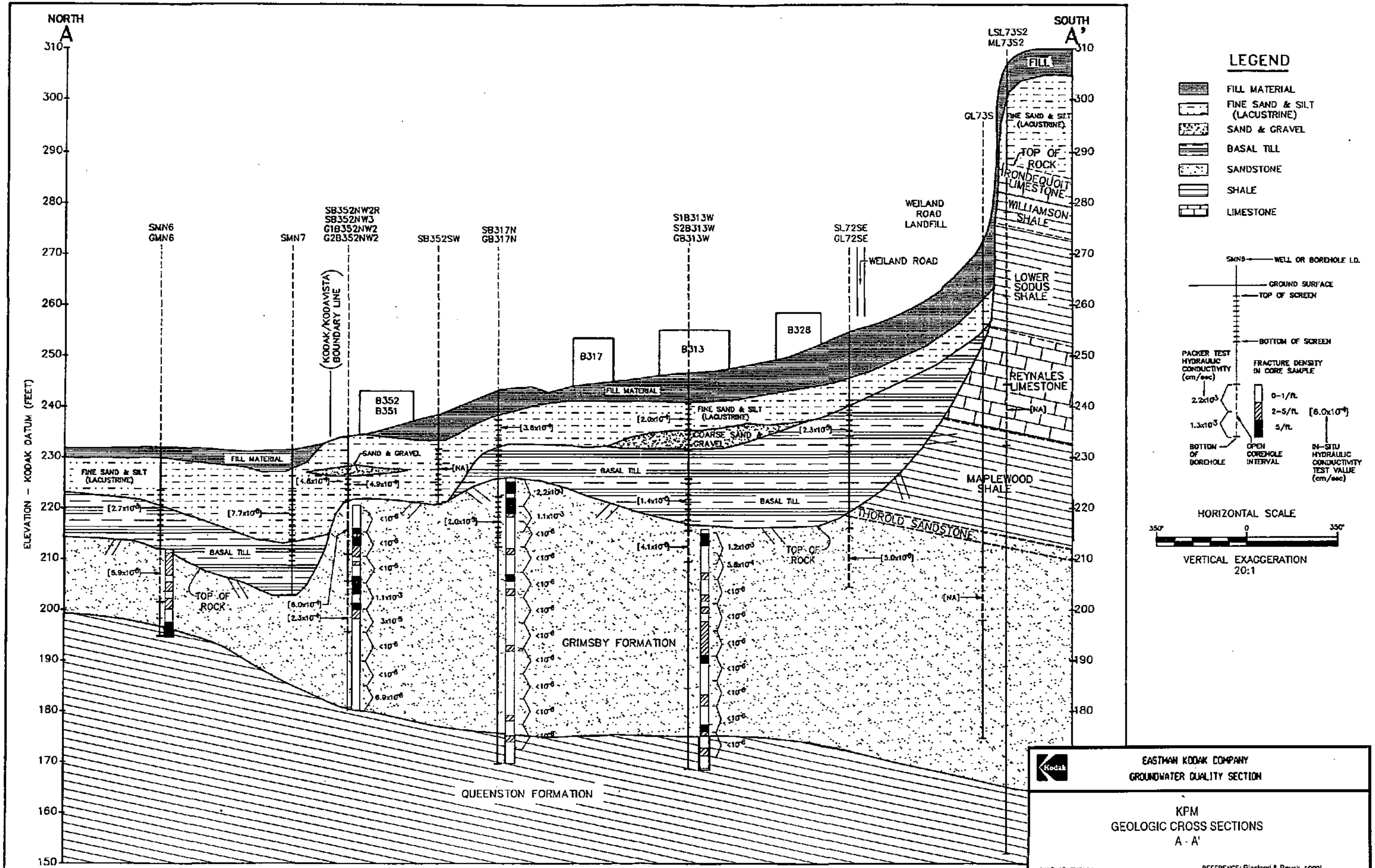
KPM
GEOLOGIC CROSS SECTIONS

SCALE AS SHOWN

REFERENCE: Blasland & Bouck, 1992

FIGURE NO. II-3.11a

DWG. BY: BLASLAND & BOUCK



EASTMAN KODAK COMPANY
GROUNDWATER QUALITY SECTION

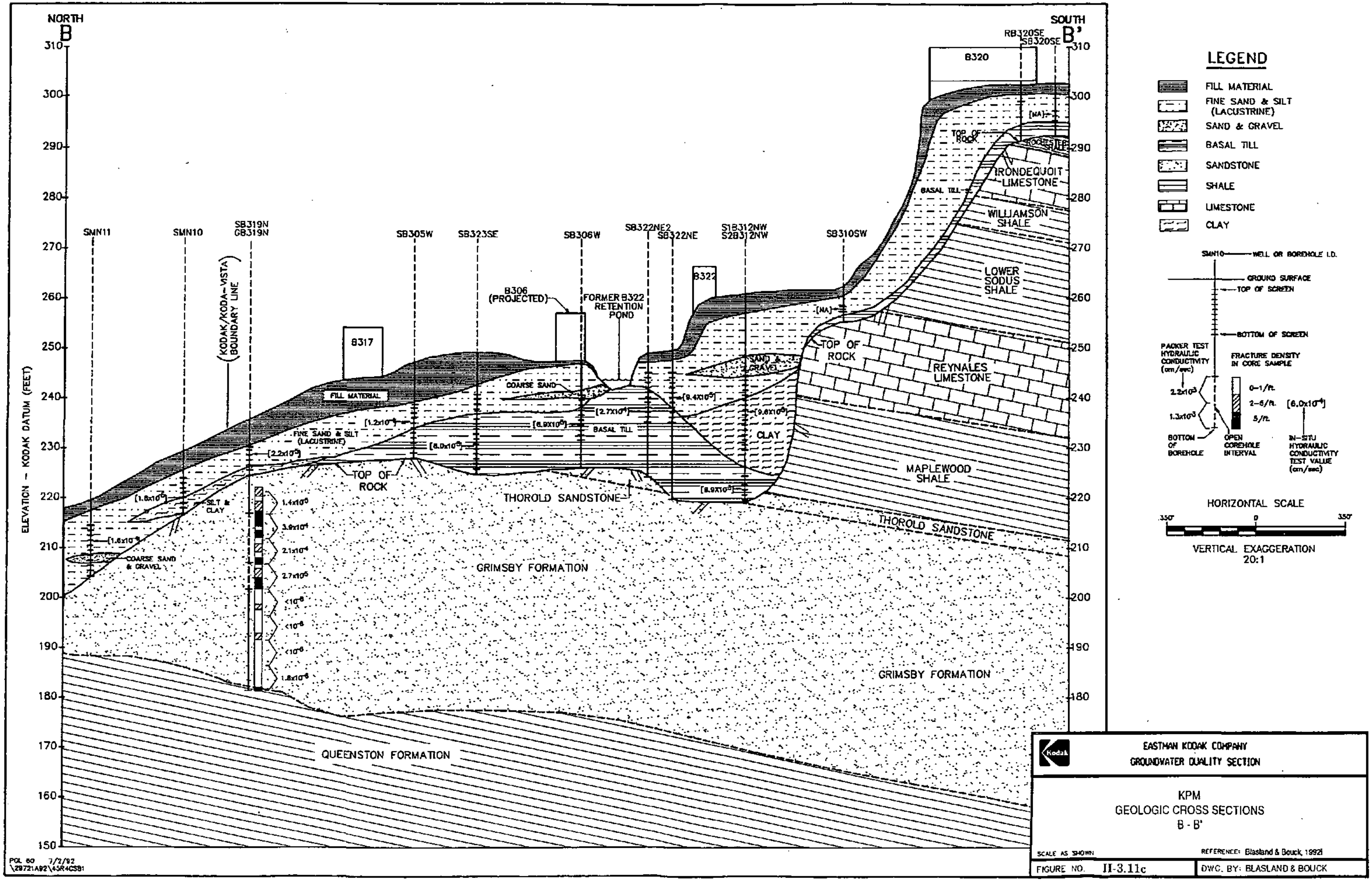
KPM
GEOLOGIC CROSS SECTIONS
A - A'

SCALE AS SHOWN

REFERENCE: Blasland & Bouck, 1992

FIGURE NO. II-3.11b

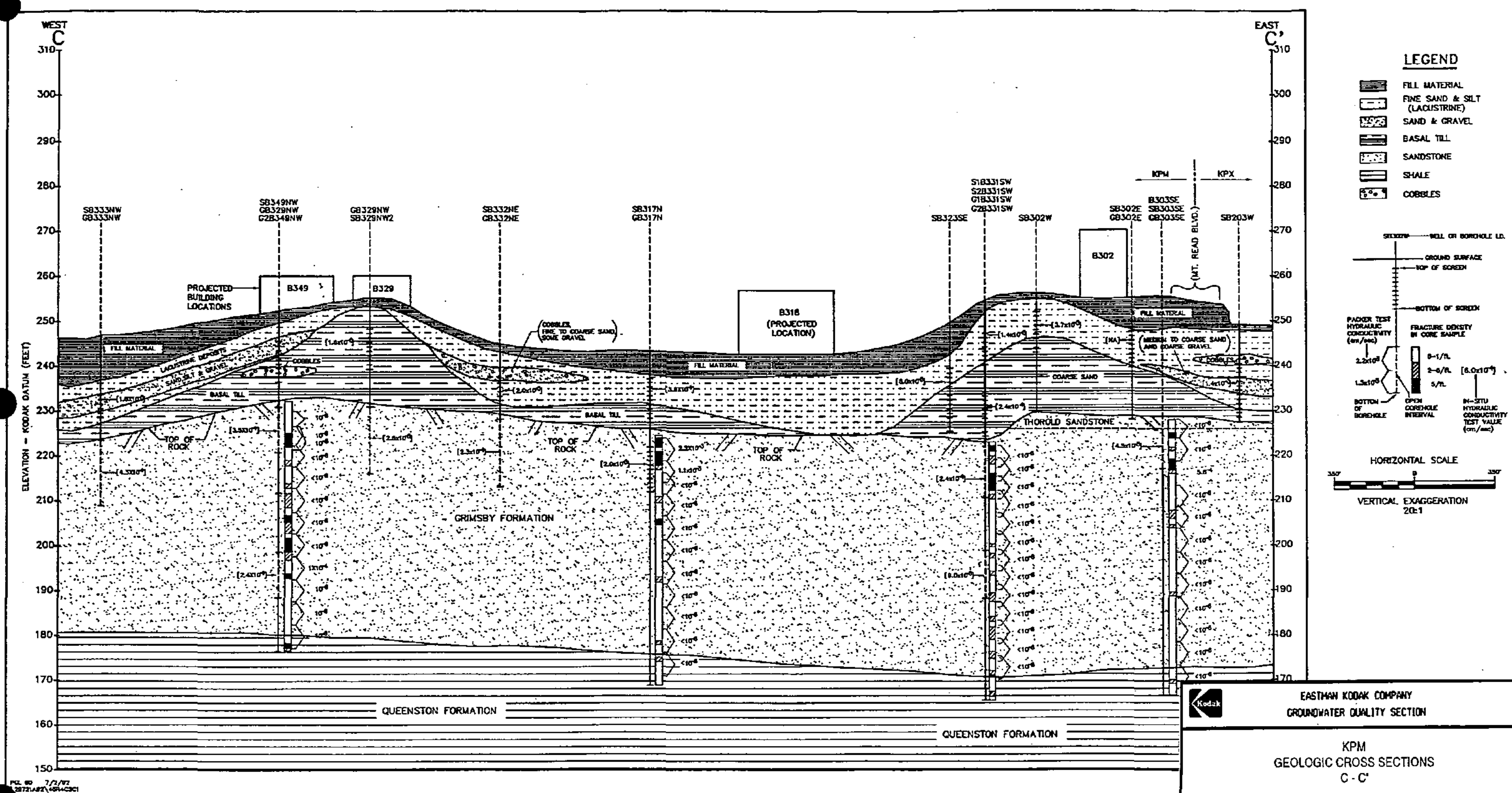
DWG. BY: BLASLAND & BOUCK



EASTMAN KODAK COMPANY
GROUNDWATER QUALITY SECTION

KPM
GEOLOGIC CROSS SECTIONS
B - B'

SCALE AS SHOWN
REFERENCE: Blasland & Bouck, 1992
FIGURE NO. II-3.11c
DWG. BY: BLASLAND & BOUCK



EASTMAN KODAK COMPANY
GROUNDWATER QUALITY SECTION

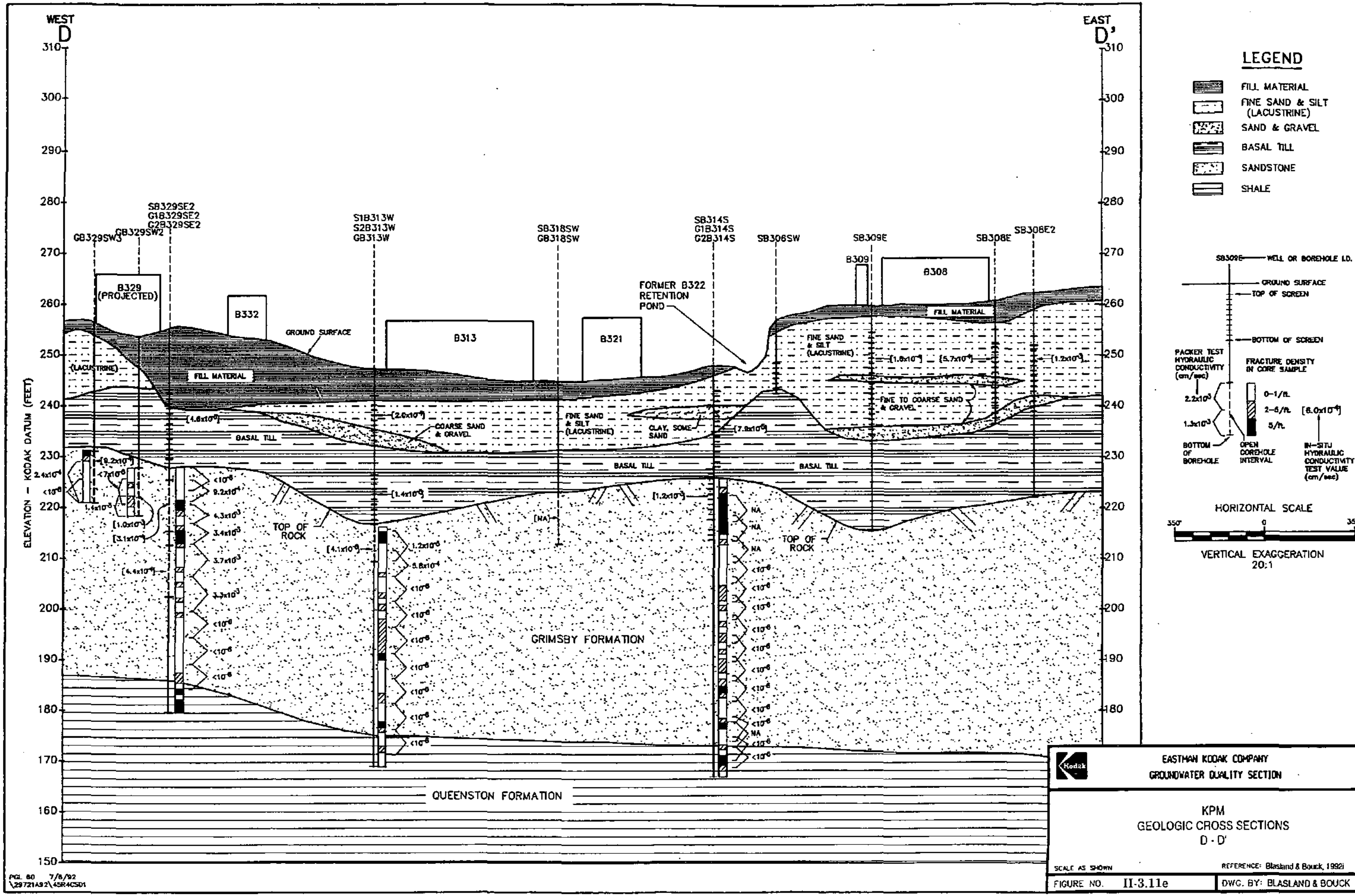
KPM
GEOLOGIC CROSS SECTIONS
C - C'

SCALE AS SHOWN

REFERENCE: Blasland & Bouck, 1992i

FIGURE NO. II-3.11d

DWG. BY: BLASLAND & BOUCK



EASTMAN KODAK COMPANY
GROUNDWATER QUALITY SECTION

KPM
GEOLOGIC CROSS SECTIONS
D - D'

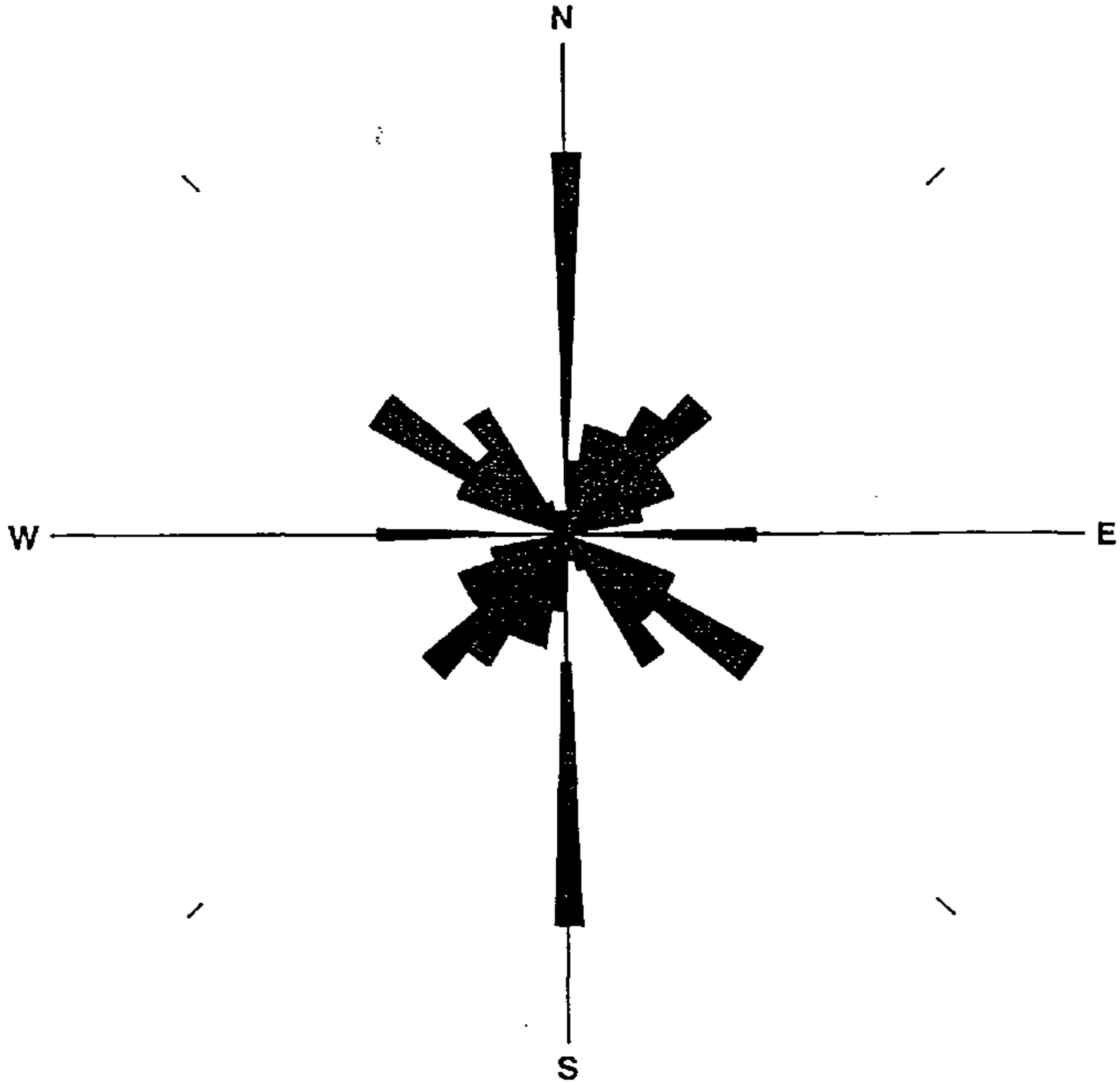
SCALE AS SHOWN

REFERENCE: Blasland & Bouck, 1992i

FIGURE NO. II-3.11e

DWG. BY: BLASLAND & BOUCK

PGL 80 7/6/92
\29721A92\45R4CS01



NOTES:

1. NUMBER OF OBSERVATIONS = 61.

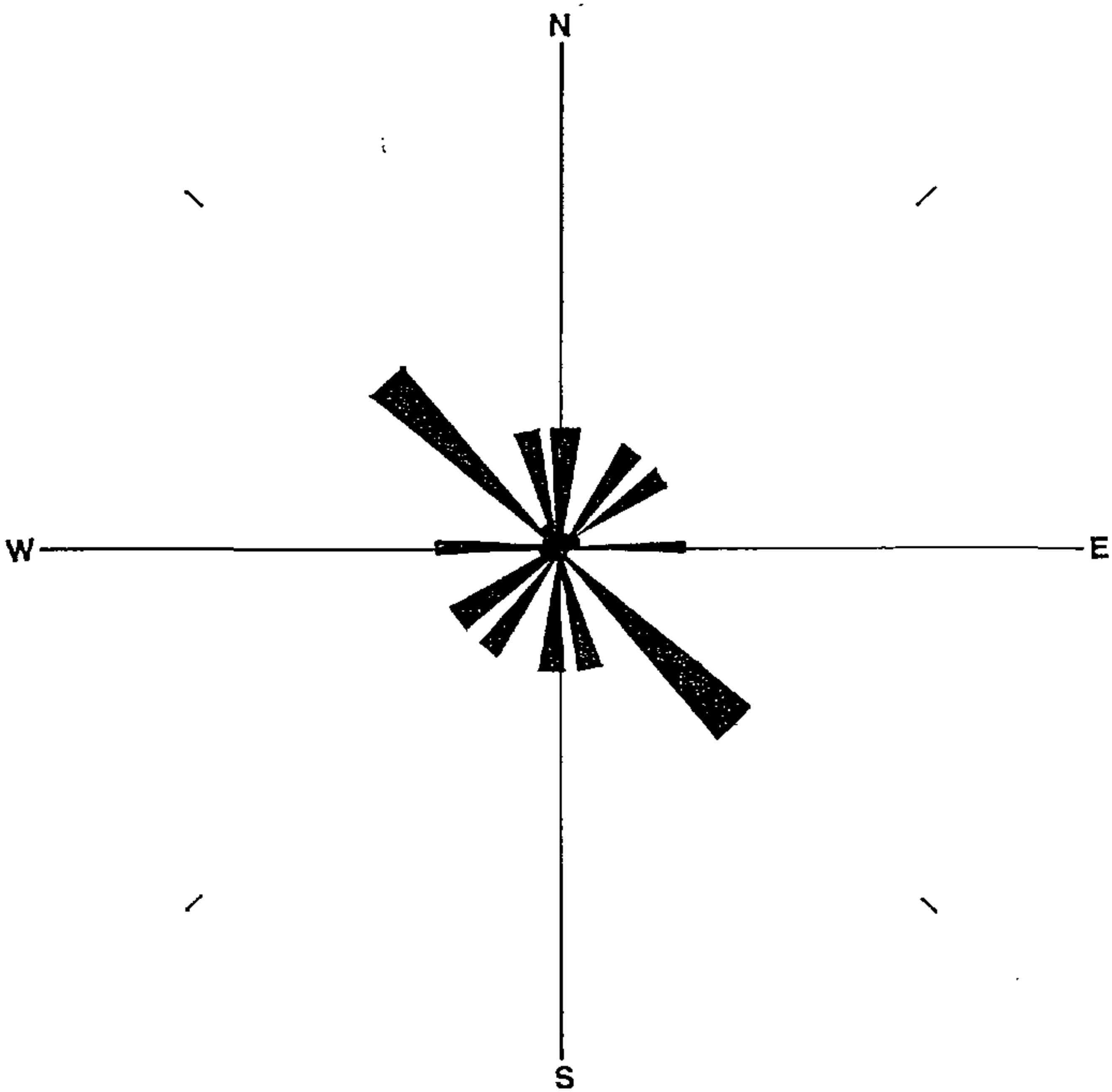
EASTMAN KODAK COMPANY
GROUNDWATER QUALITY SECTION

ANGULAR JOINT SUMMARY
TIGER-CARLISLE TUNNEL

REFERENCE: H&A of New York, 1990b

FIGURE NO. II-3.13a | DWG. BY: H&A OF NEW YORK

CHARRETTE



NOTES:

1. NUMBER OF OBSERVATIONS = 8.

EASTMAN KODAK COMPANY
GROUNDWATER QUALITY SECTION

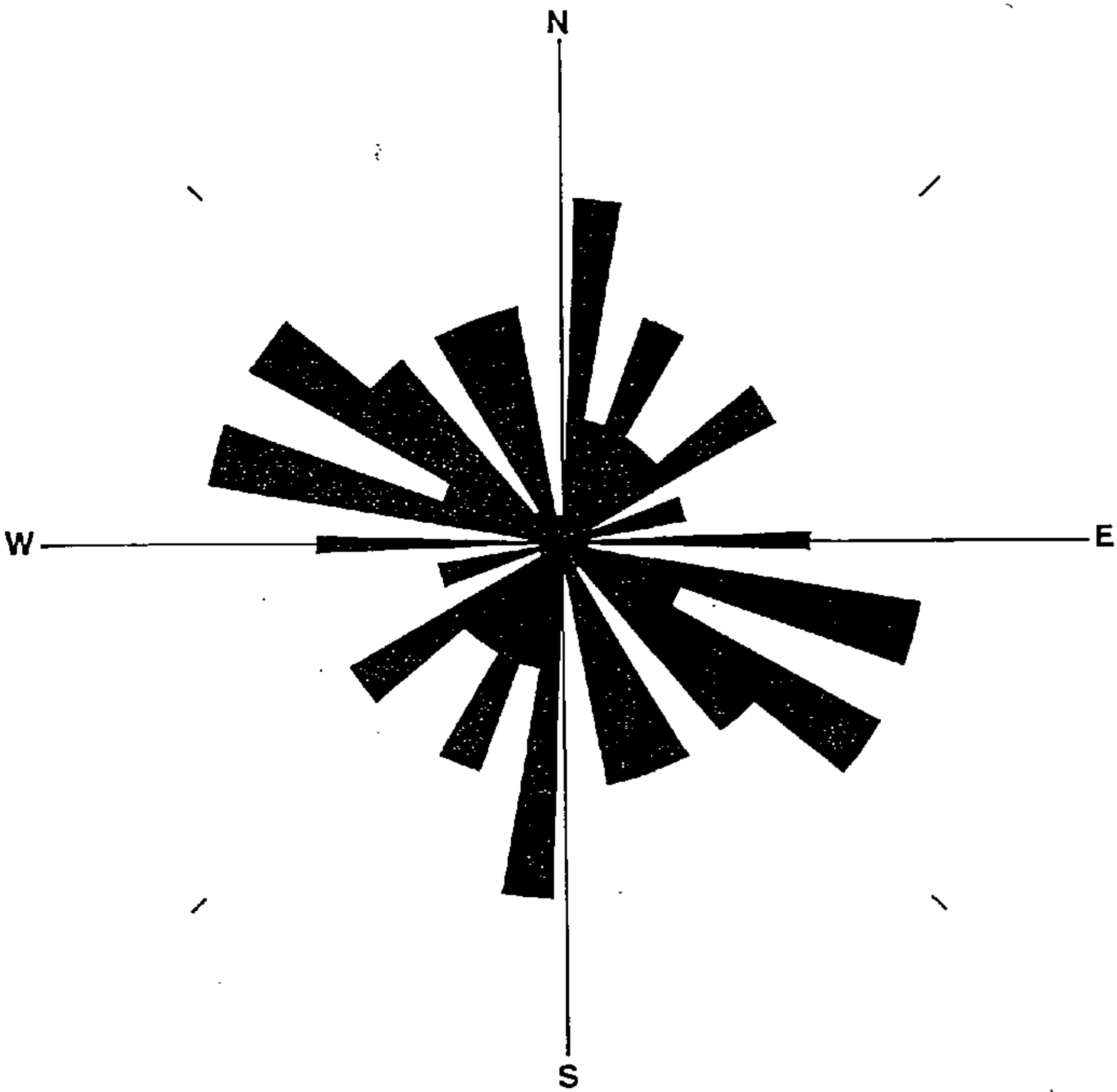
ANGULAR JOINT SUMMARY
DEWEY-EASTMAN TUNNEL

REFERENCE: H&A of New York, 1990b

FIGURE NO. II-3.13b

DWG. BY: H&A OF NEW YORK

CHARRETTE



NOTES:

1. NUMBER OF OBSERVATIONS = 26.

EASTMAN KODAK COMPANY
GROUNDWATER QUALITY SECTION

ANGULAR JOINT SUMMARY
LAKE AVENUE TUNNEL

REFERENCE: H&A of New York, 1990b

FIGURE NO. II-3.13c | DWG. BY: H&A OF NEW YORK

CHARRETTE

EASTMAN KODAK COMPANY
GROUNDWATER QUALITY SECTION

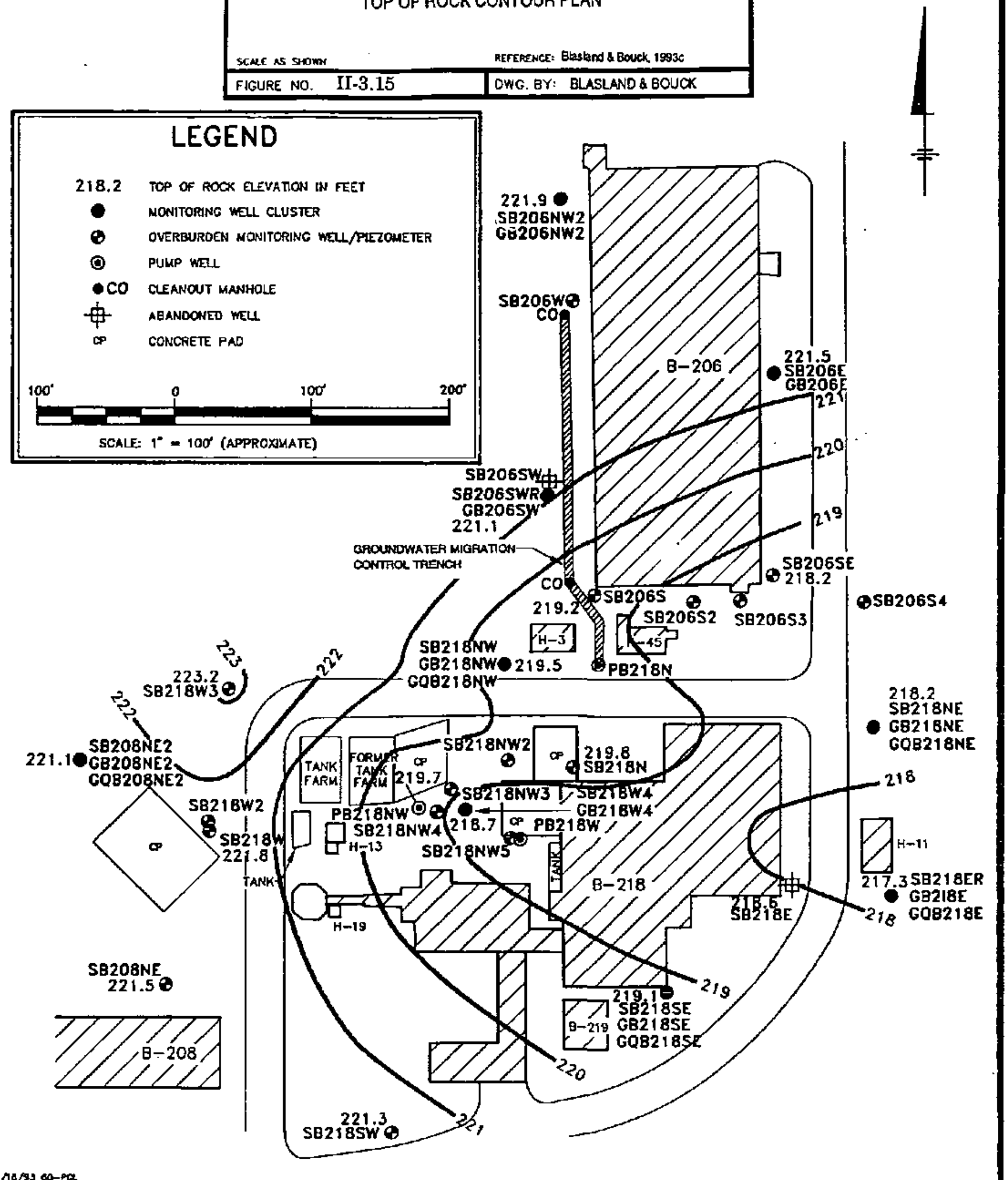
NORTHEAST KPX
TOP OF ROCK CONTOUR PLAN

SCALE AS SHOWN

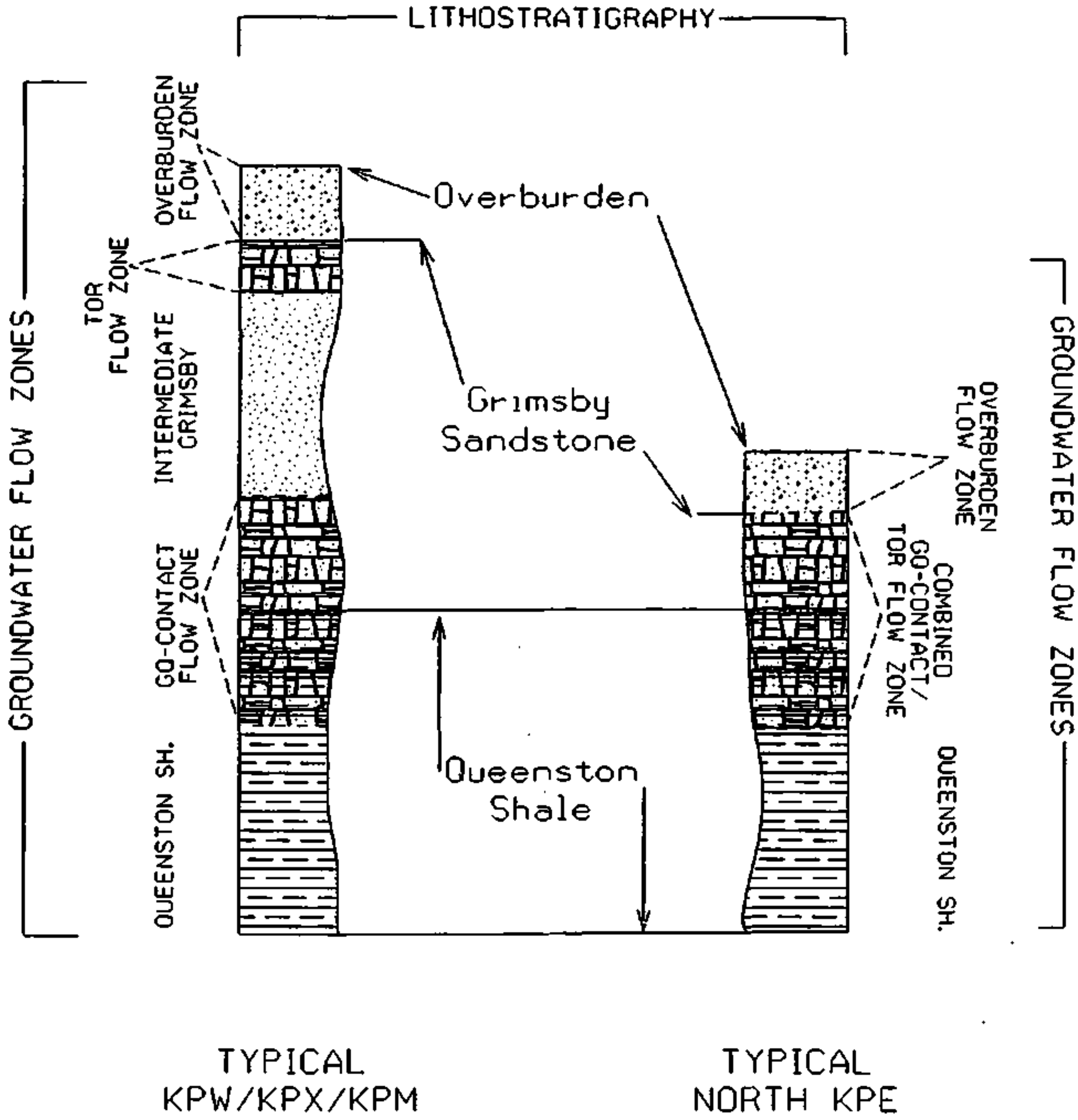
REFERENCE: Blasland & Bouck, 1993c

FIGURE NO. II-3.15

DWG. BY: BLASLAND & BOUCK



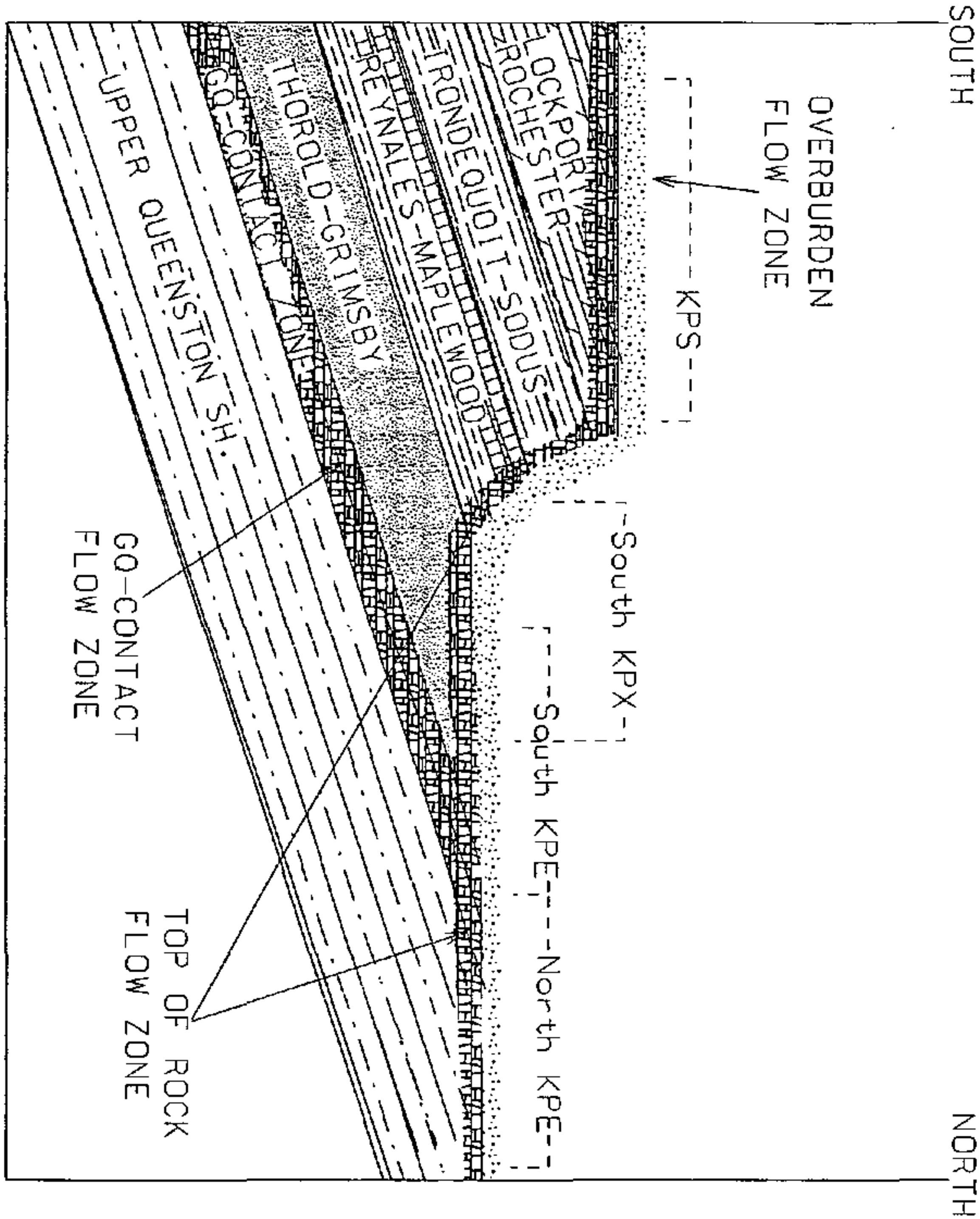
1/18/93 60-PCL
C:\WP\29729018\29729033.DWG



*Not to scale

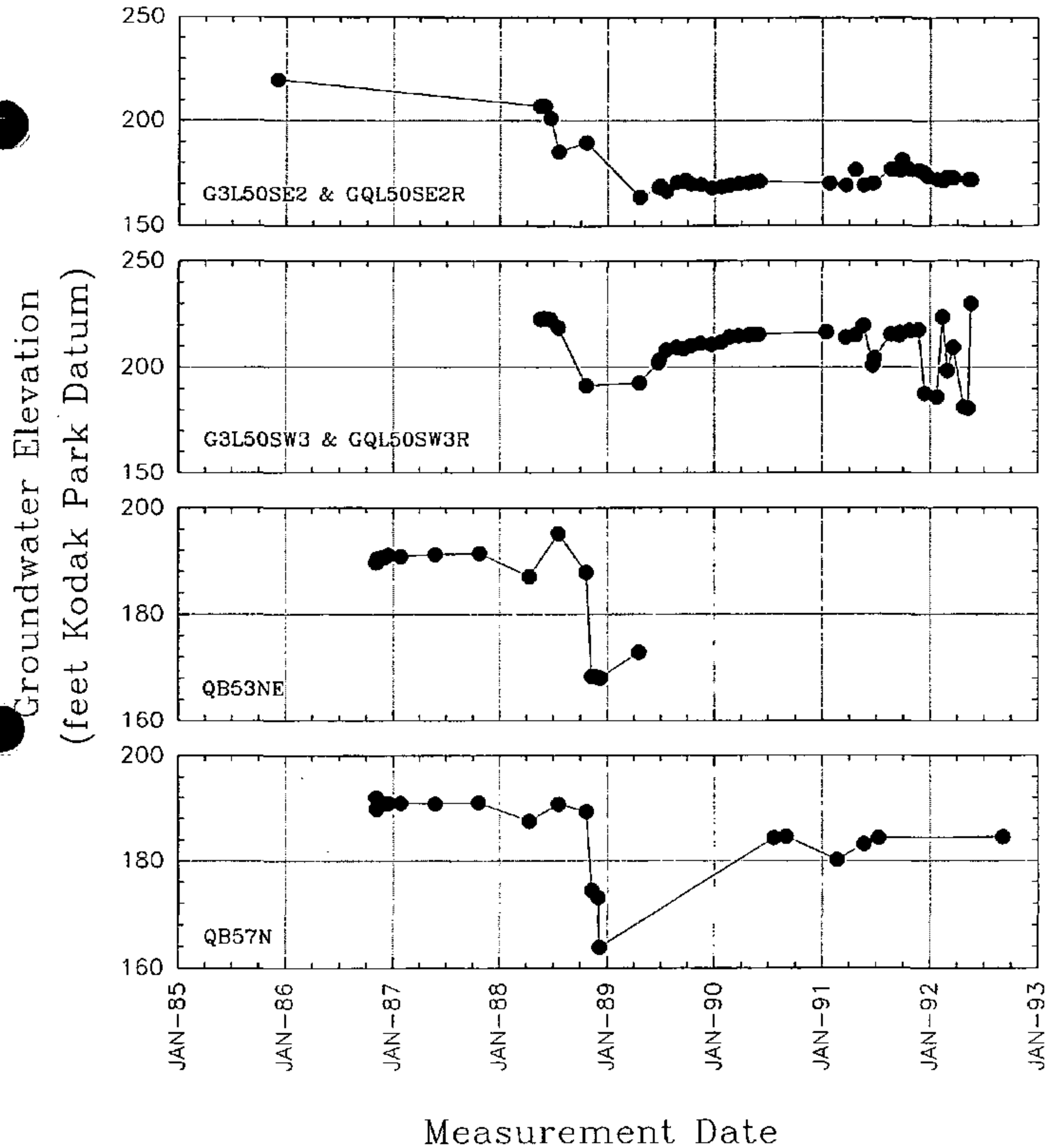
DRAWN BY GVC	DATE 10/25/93	EASTMAN KODAK COMPANY GROUNDWATER QUALITY SECTION	TITLE RELATIONSHIP OF LITHOSTRATIGRAPHY AND HYDROSTRATIGRAPHY IN KODAK PARK
CHECKED BY	DATE		
APPROVED BY	DATE		DWG. NO. II-5.2 REV.

g:\lfra_dgn\hydco1.dgn Oct. 25, 1993 09:19:51



*Not to scale
Park section projections approximate

DRAWN BY	DATE	EASTMAN KODAK COMPANY	TITLE IDEALIZED CROSS-SECTION THROUGH KODAK PARK SUBSURFACE ILLUSTRATING MAJOR GROUNDWATER FLOW HORIZONS AND SUBCROP PATTERNS
GVC	10/25/93	GROUNDWATER QUALITY SECTION	
CHECKED BY	DATE		
APPROVED BY	DATE		DWG. NO. 11-5.3 REV.

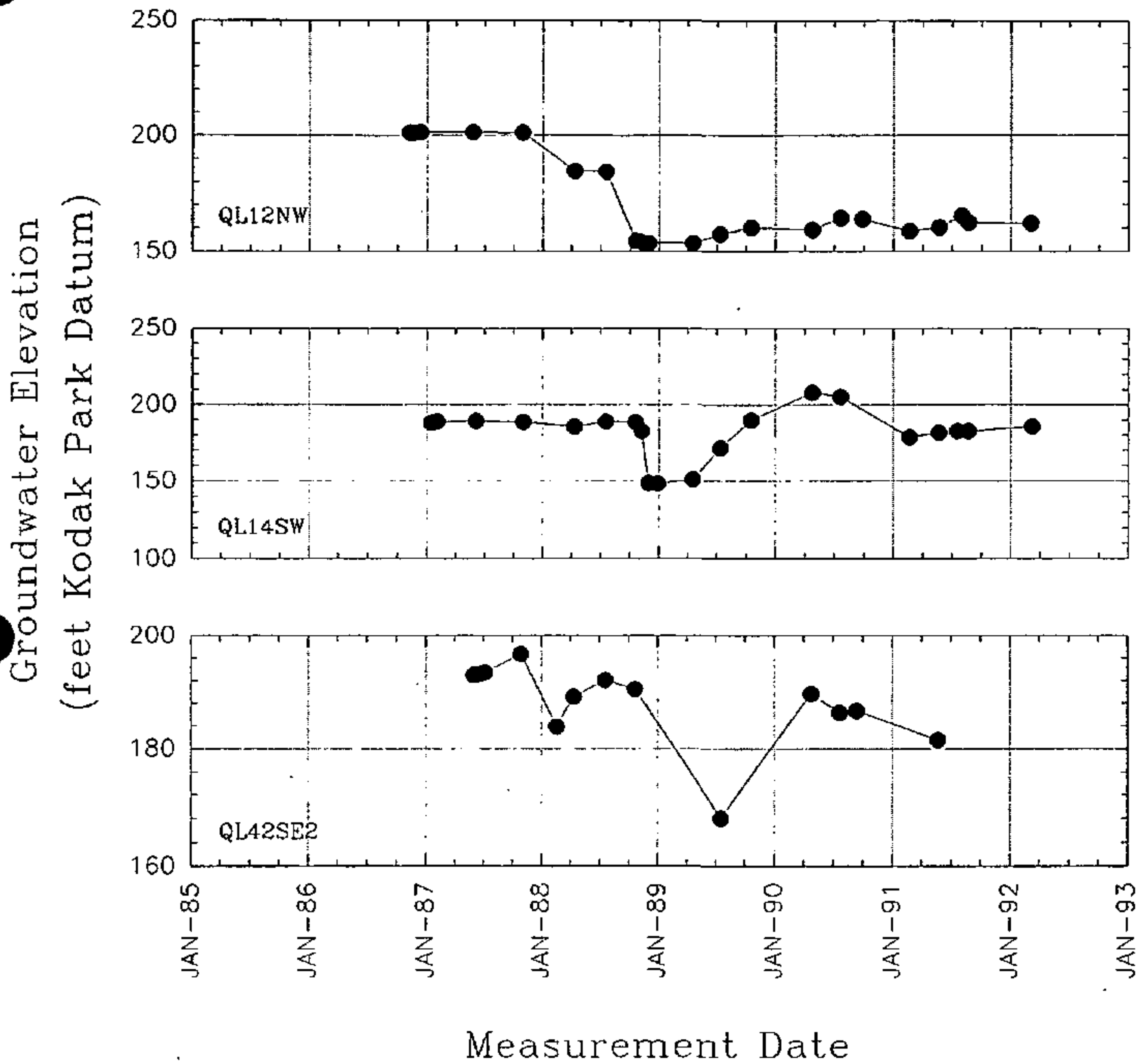


EASTMAN KODAK COMPANY

Date: 06-Oct-93

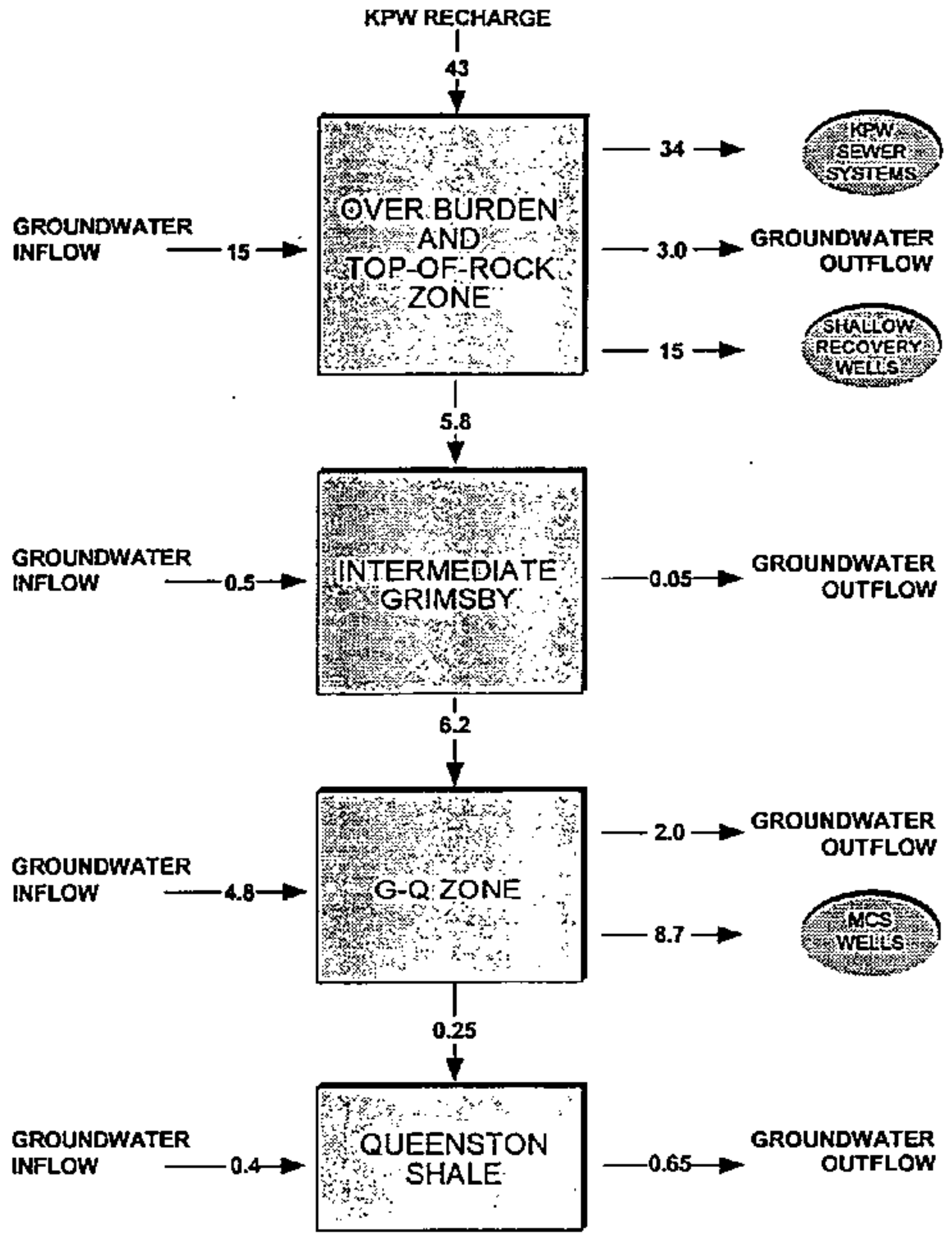
Drawn by: GVC

Figure II-5.5a: Groundwater Hydrographs of Wells Near CSOAP Tunnels



EASTMAN KODAK COMPANY	Date: 06-Oct-93
	Drawn by: GVC

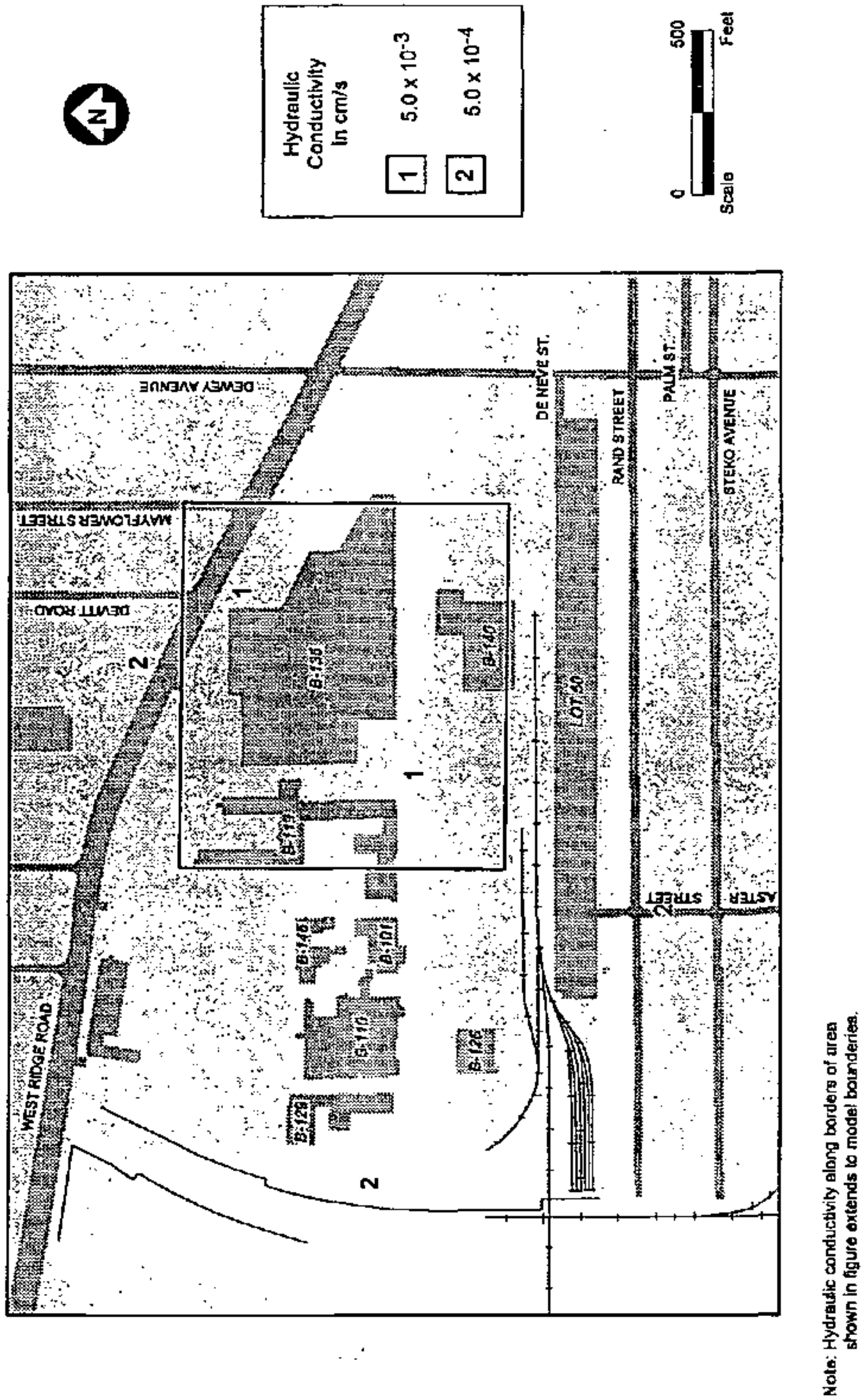
Figure II-5.5b: Groundwater Hydrographs of Wells Near CSOAP Tunnels



Note: All flows are in gallons per minute

DRAWN BY DATE S.S. PAPADOPULOS & ASSOC., 1992	EASTMAN KODAK COMPANY GROUNDWATER QUALITY SECTION	TITLE PRESENT WATER BALANCE IN THE GROUNDWATER SYSTEM BENEATH KPW AS CALCULATED WITH CALIBRATED FLOW MODEL SOURCE: S.S. Papadopulos & Assoc., 1992
CHECKED BY DATE		
APPROVED BY DATE		DWG. NO. II-5.6 REV.

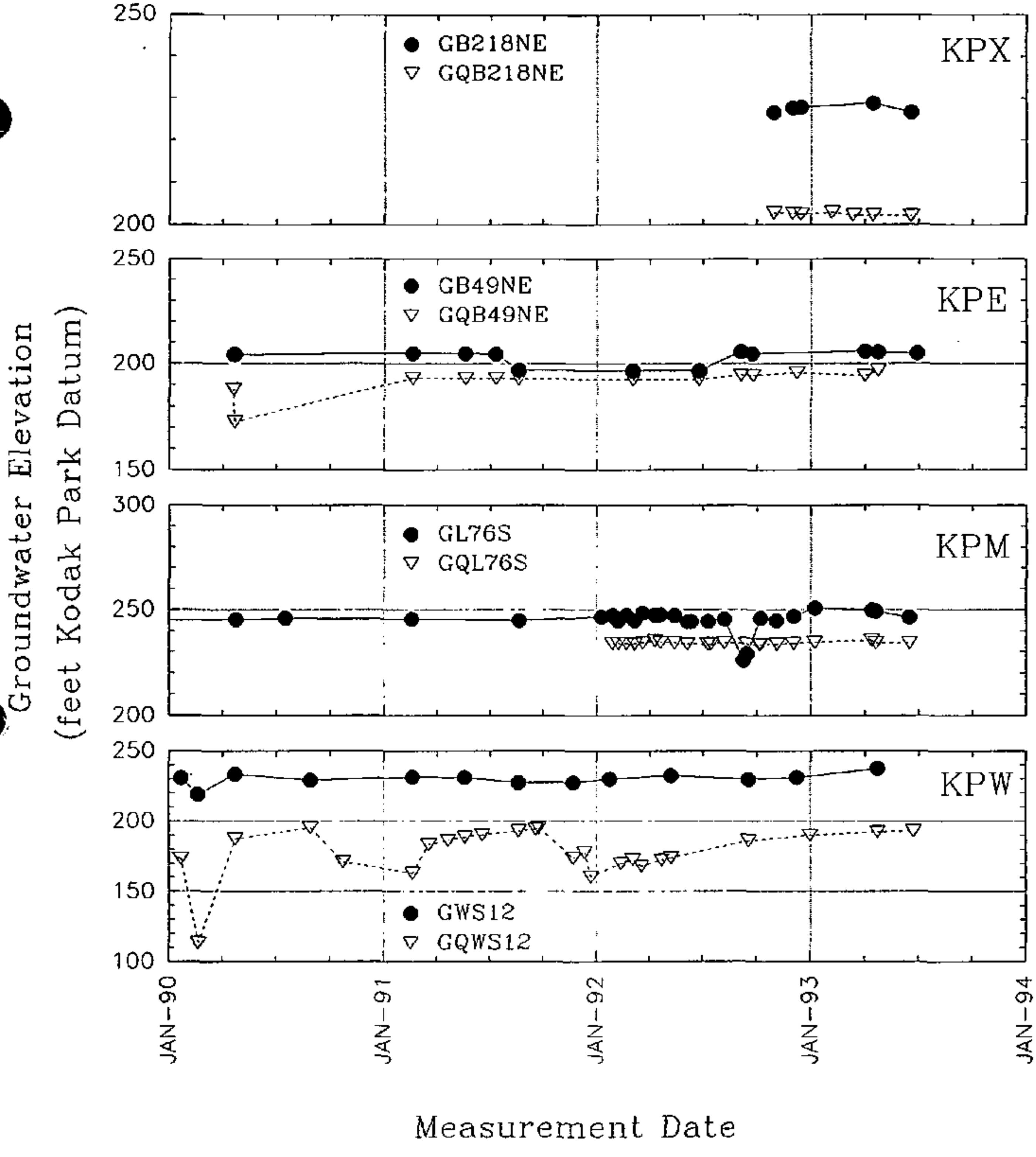
g:\frd_dgn\papa.dgn Oct. 29, 1993 06:17:51



Note: Hydraulic conductivity along borders of area shown in figure extends to model bounderies.

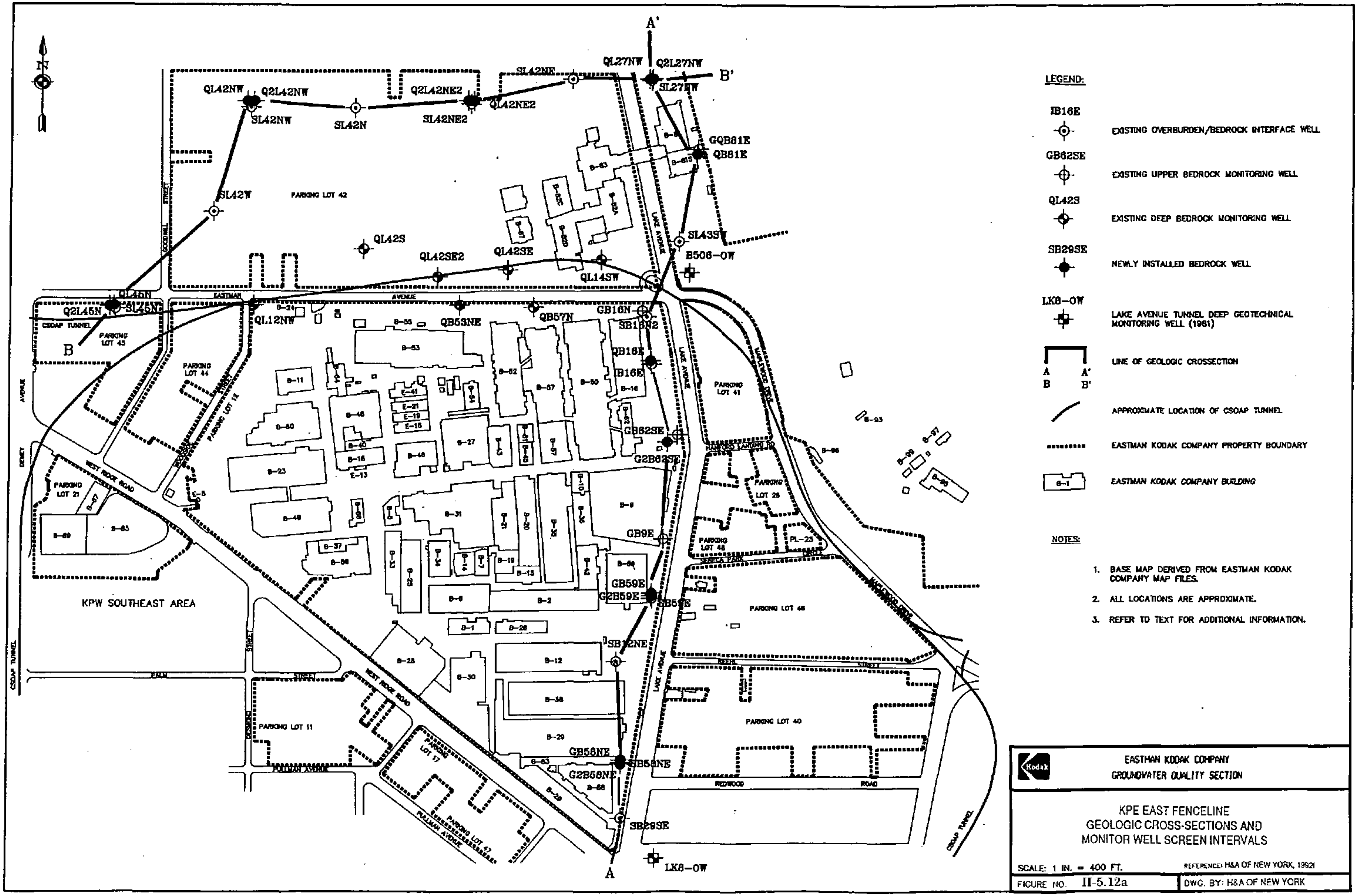
DRAWN BY	DATE	EASTMAN KODAK COMPANY GROUNDWATER QUALITY SECTION	TITLE TOP OF ROCK FLOW ZONE HORIZONTAL HYDRAULIC CONDUCTIVITY DISTRIBUTION IN CALIBRATED KPW MODEL
S.S. PAPADOPULOS & ASSOC., 1992			SOURCE: S.S. Papadopulos & Assoc., 1992
CHECKED BY	DATE		
APPROVED BY	DATE		DWG. NO. II-5.9 REV.

g:\frd_dgn\papa.dgn Oct. 26, 1993 09:08:53

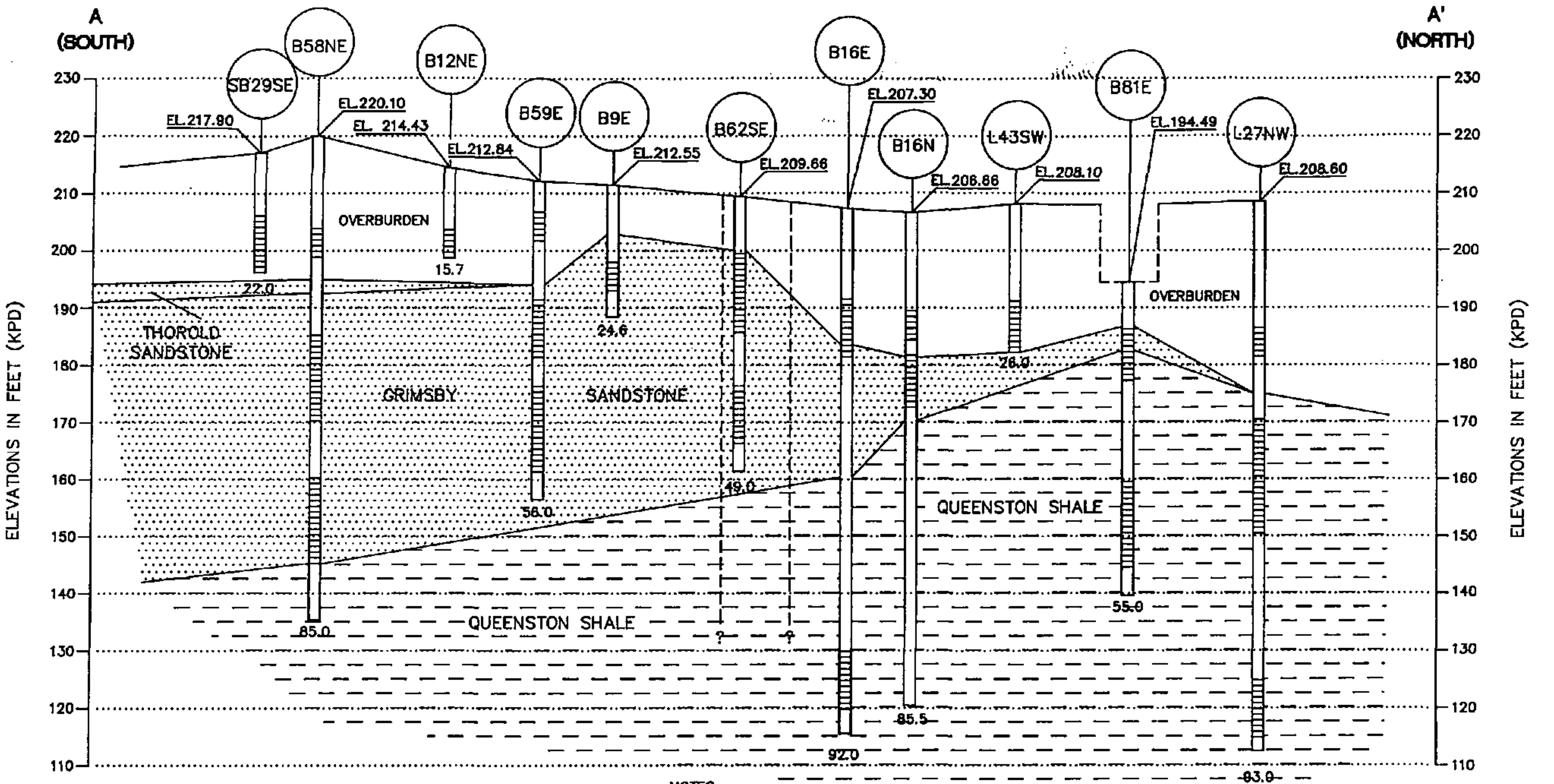


EASTMAN KODAK COMPANY	Date: 06-Oct-93
	Drawn by: GVC

Figure II-5.11: Groundwater Hydrographs of TOR and GQ Well Pairs



FILE NO. 70309-41



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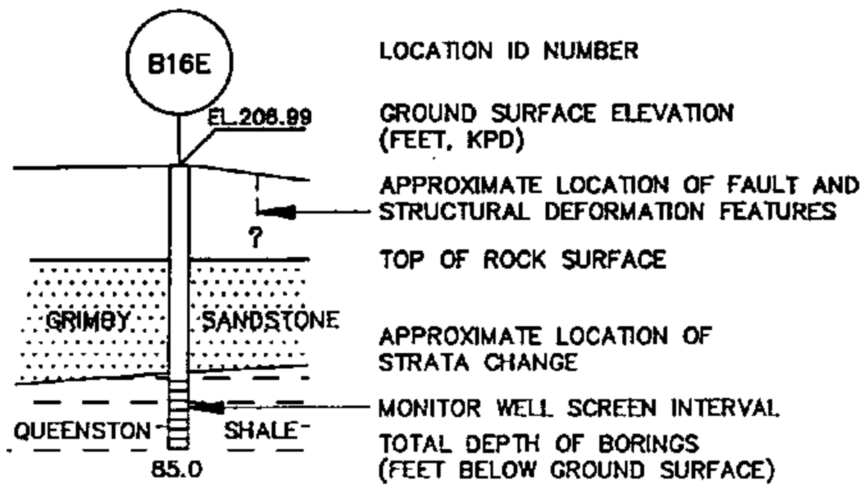
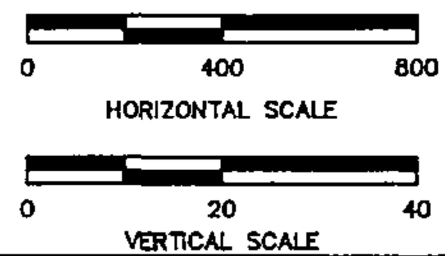


NOTES:

1. SURVEY DATA PROVIDED BY EASTMAN KODAK COMPANY.
2. GEOLOGIC CROSS SECTIONS INDICATE APPROXIMATE EXTENT OF INDENTIFIED UNITS BASED ON GEOLOGIC DATA FROM ONSITE SUBSURFACE EXPLORATIONS.
3. SEE FOR LOCATIONS OF PROFILES.
4. ALL ELEVATIONS ARE MEASURED IN FEET RELATIVE TO KODAK DATUM, FOR NGVD ADD 201.75.
5. DASHES REPRESENT INFERRED CONDITIONS.
6. SEE REPORT FOR ADDITIONAL INFORMATION.
7. LOCATIONS OF FAULTS TAKEN FROM KODAK PARK HYDROGEOLOGIC SUMMARY REPORT, AUG. 1992, SHEET 12.
8. VERTICAL EXAGGERATION EQUALS 20X.

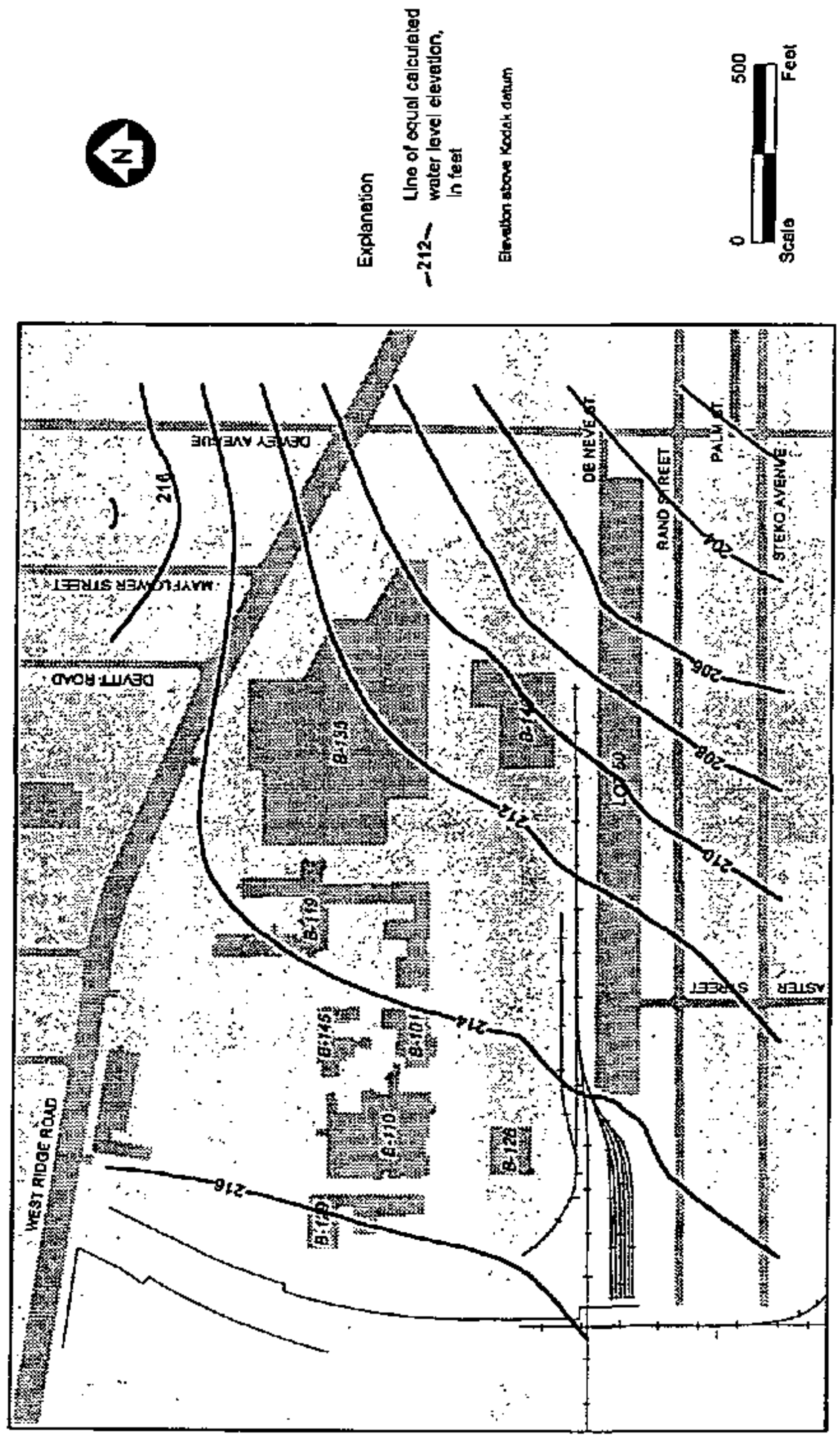


EASTMAN KODAK COMPANY
GROUNDWATER QUALITY SECTION

KPE EAST FENCELINE
GEOLOGIC CROSS-SECTIONS AND
MONITOR WELL SCREEN INTERVALS

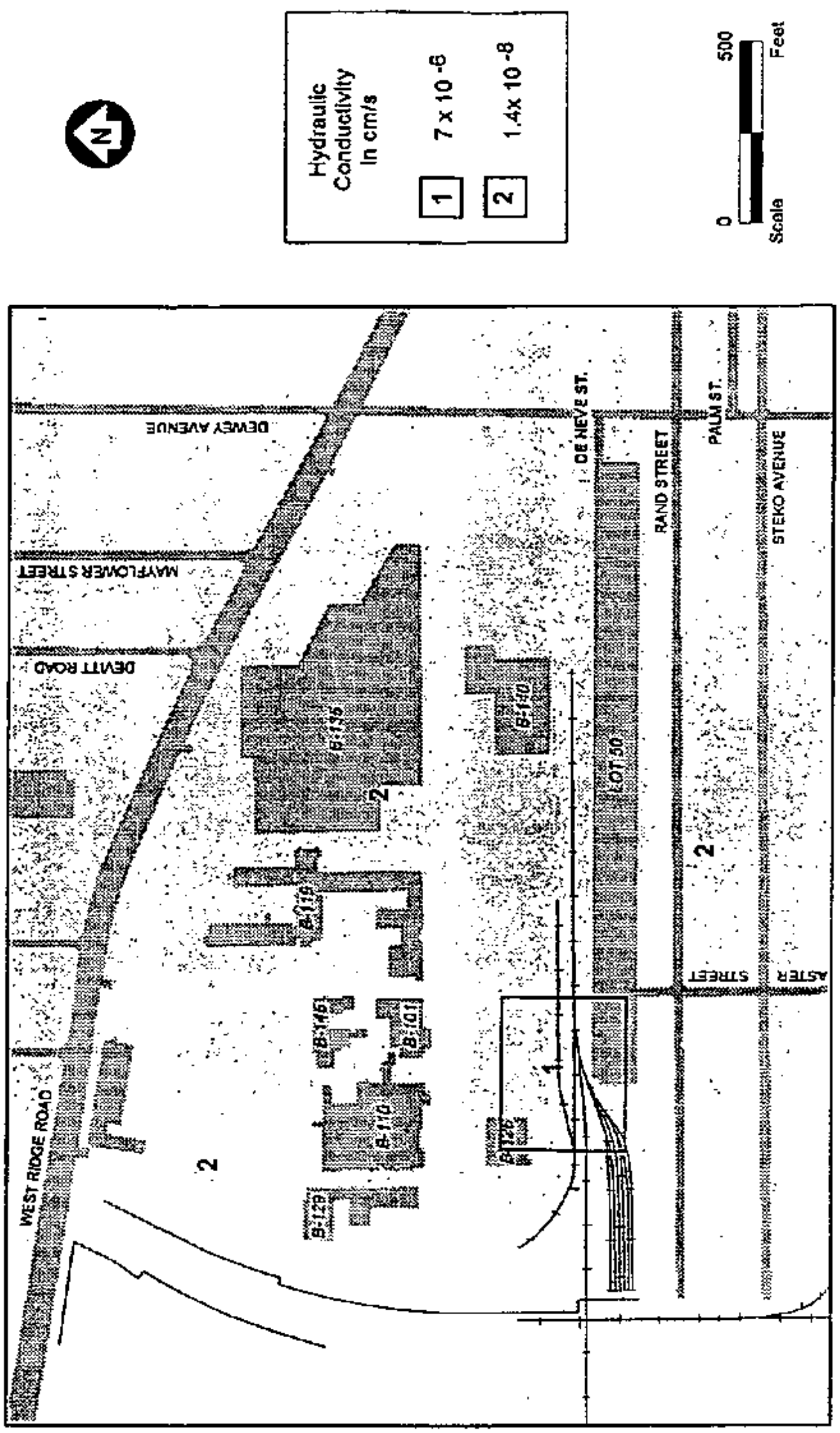
SCALE AS SHOWN | REFERENCE: H&A OF NEW YORK, 1992

FIGURE NO. II-5.12b | DWG. BY: H&A OF NEW YORK



DRAWN BY	DATE	EASTMAN KODAK COMPANY GROUNDWATER QUALITY SECTION	TITLE CALCULATED PRE-CSOAP WATER LEVELS IN THE GO-CONTACT ZONE FROM CALIBRATED KPW MODEL
S.S. PAPADOPULOS & ASSOC., 1992			SOURCE: S.S. Papadopulos & Assoc., 1992
CHECKED BY	DATE		
APPROVED BY	DATE		DWG. NO. II-5.13 REV.

g:\frd_dgn\papa.dgn Oct. 26, 1993 09:09:15



Note: Hydraulic conductivity along borders of area shown in figure extends to model boundaries.

DRAWN BY	DATE
S.S. PAPADOPULOS & ASSOC., 1992	
CHECKED BY	DATE
APPROVED BY	DATE

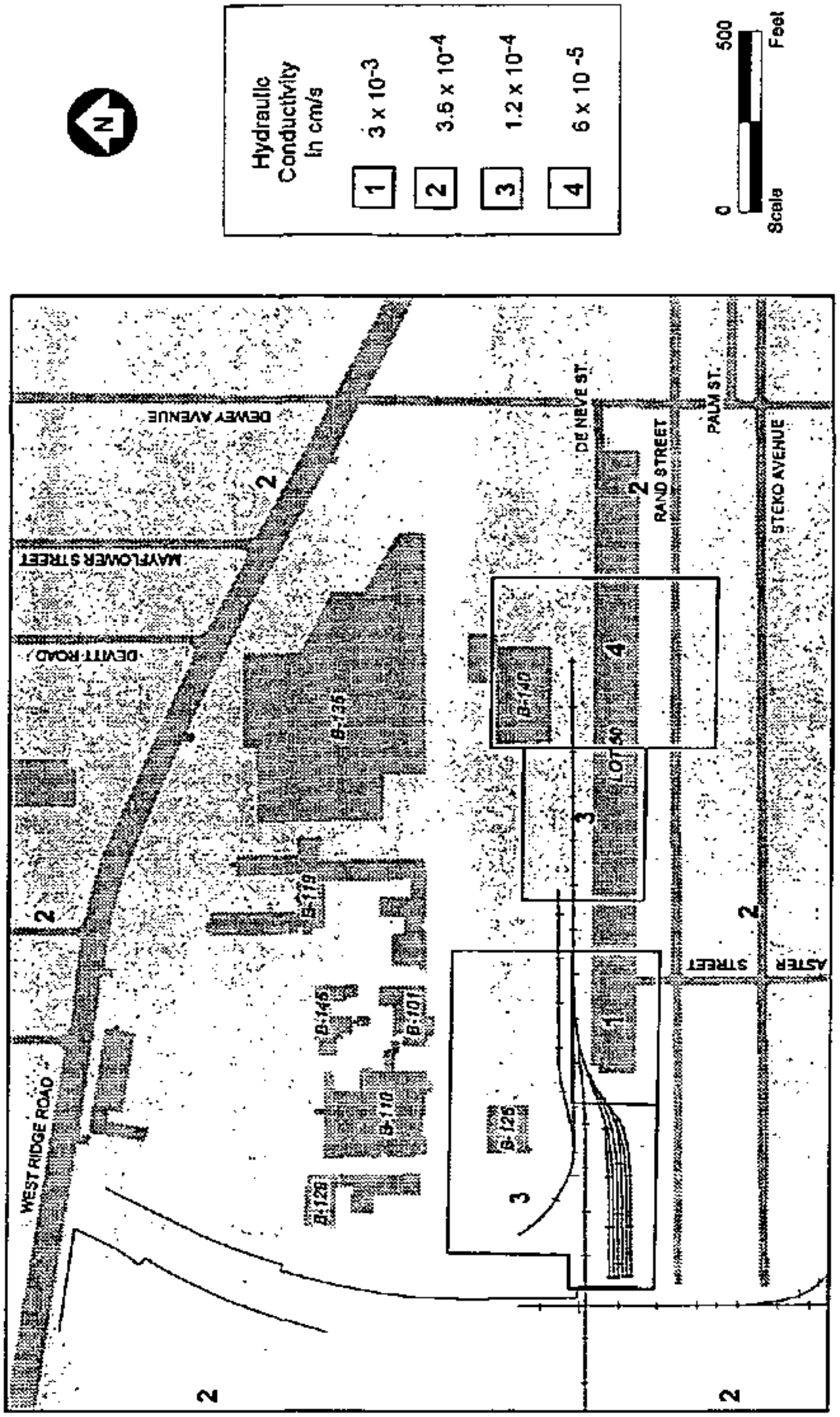
EASTMAN KODAK COMPANY
GROUNDWATER QUALITY SECTION

TITLE
INTERMEDIATE GRIMSBY VERTICAL HYDRAULIC CONDUCTIVITY DISTRIBUTION IN CALIBRATED KPW MODEL

SOURCE: S.S. Papadopulos & Assoc., 1992

DWG. NO. II-5.14 | REV.

g:\frd_dgn\papa.dgn Oct. 26, 1993 09:09:37

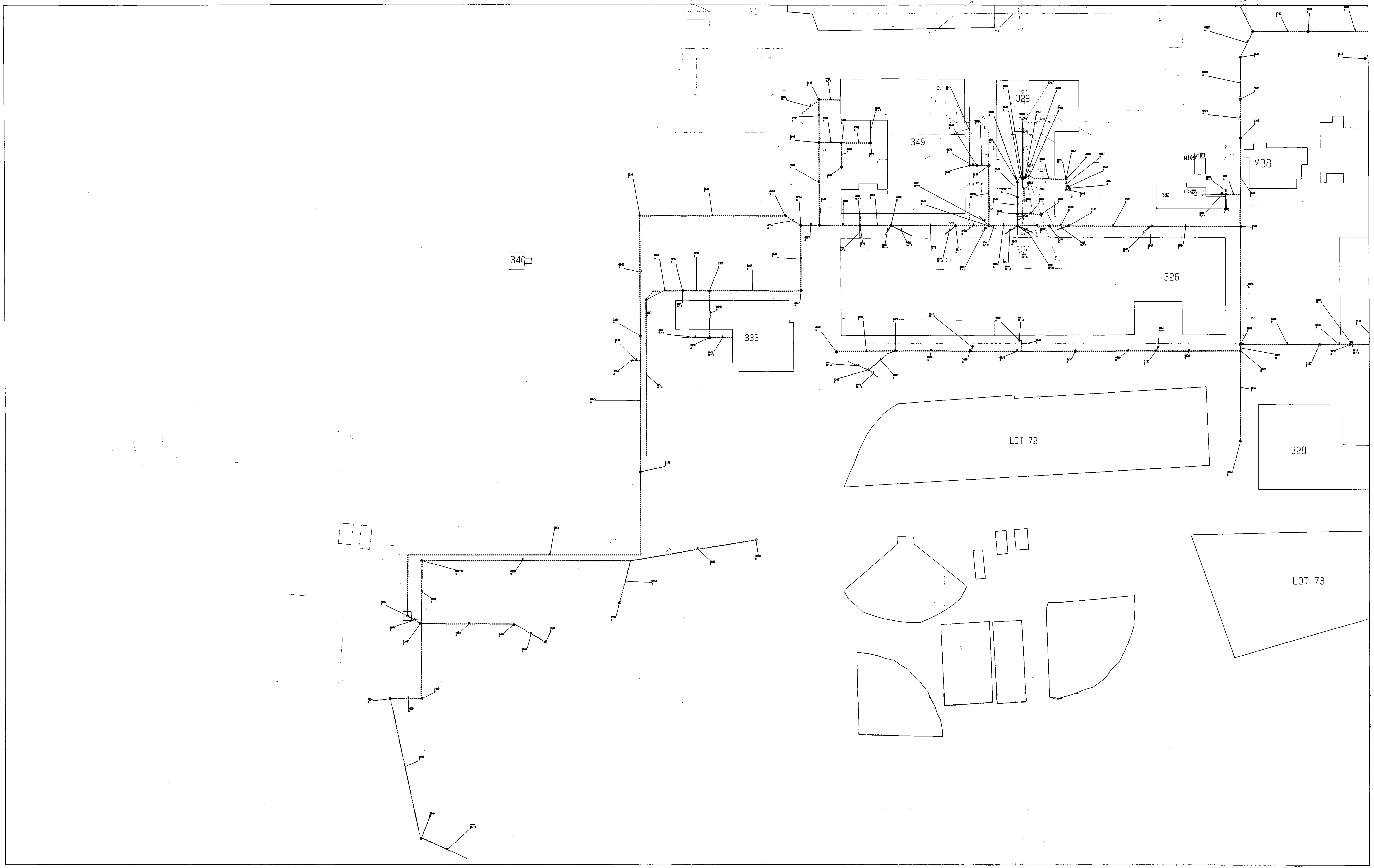


Note: Hydraulic conductivity along borders of area shown in figure extends to model boundaries.

DRAWN BY — DATE S.S. PAPADOPULOS & ASSOC., 1992	Kodak — EASTMAN KODAK COMPANY GROUNDWATER QUALITY SECTION	TITLE GQ ZONE HORITONAL HYDRAULIC CONDUCTIVITY DISTRIBUTION IN CALIBRATED KPW MODEL SOURCE: S.S. Papadopulos & Assoc., 1992
CHECKED BY — DATE		
APPROVED BY — DATE		DWG. NO. 11-5.15 — REV.

g:\frd_dgn\papa.dgn Oct. 26, 1993 09:09:57

APPENDIX I



IT CORPORATION
PROJECT NO. 343239.30
OCTOBER 27, 1993

- ● MANHOLES
- ○ OTHER STRUCTURES
- ---------- PIPE SEGMENTS

INDUSTRIAL SEWER SYSTEM:

9999 STRUCTURE IDENTIFICATION

A STRUCTURE ABOVE GROUNDWATER

B STRUCTURE BELOW GROUNDWATER

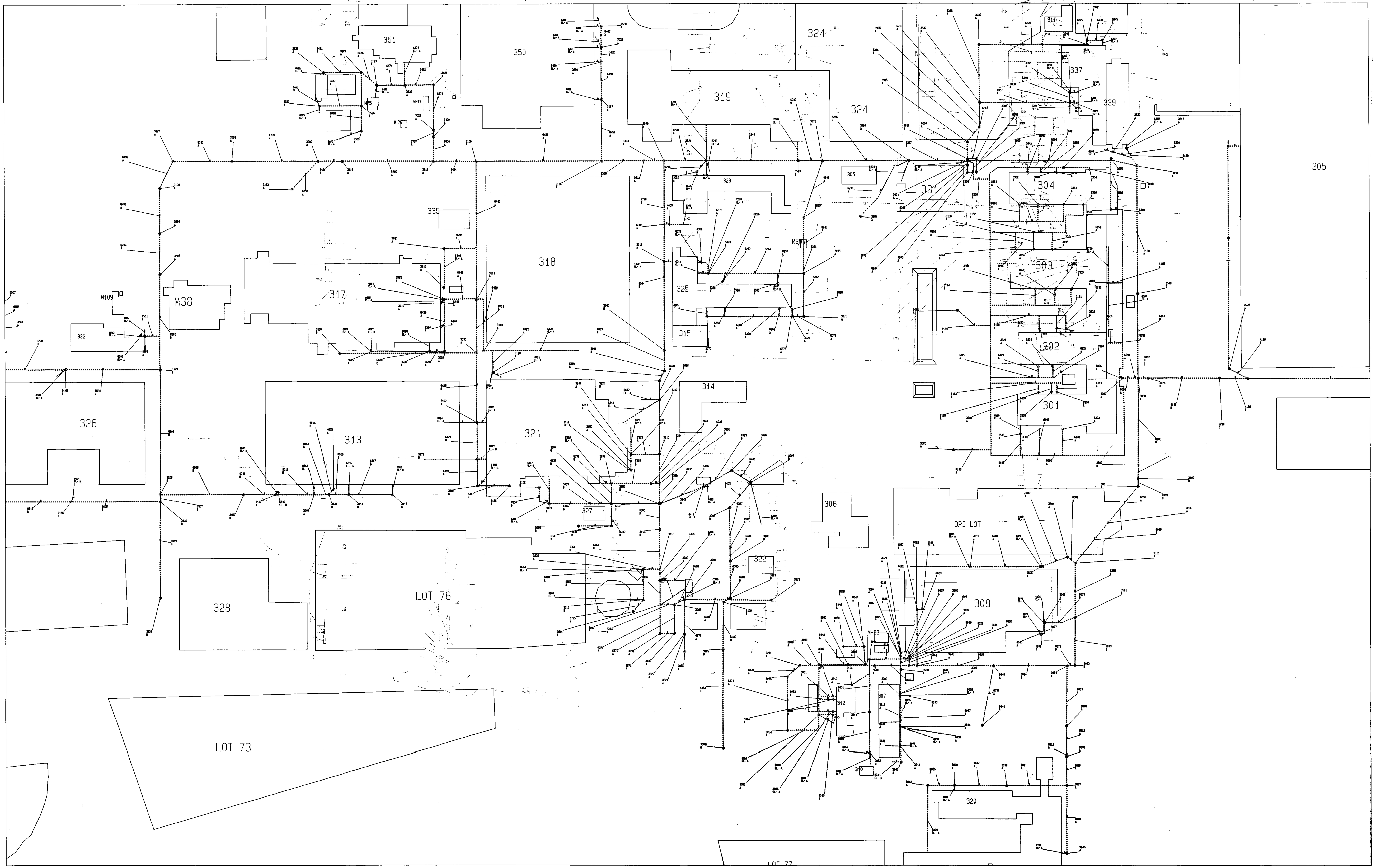
BUILDING WASTEWATER COLLECTION SYSTEM:

9999 EXIT LATERAL IDENTIFICATION

A EXIT LATERAL ABOVE GROUNDWATER

B EXIT LATERAL BELOW GROUNDWATER

EASTMAN KODAK COMPANY
KODAK PARK-KPM (WEST)
NOT TO SCALE



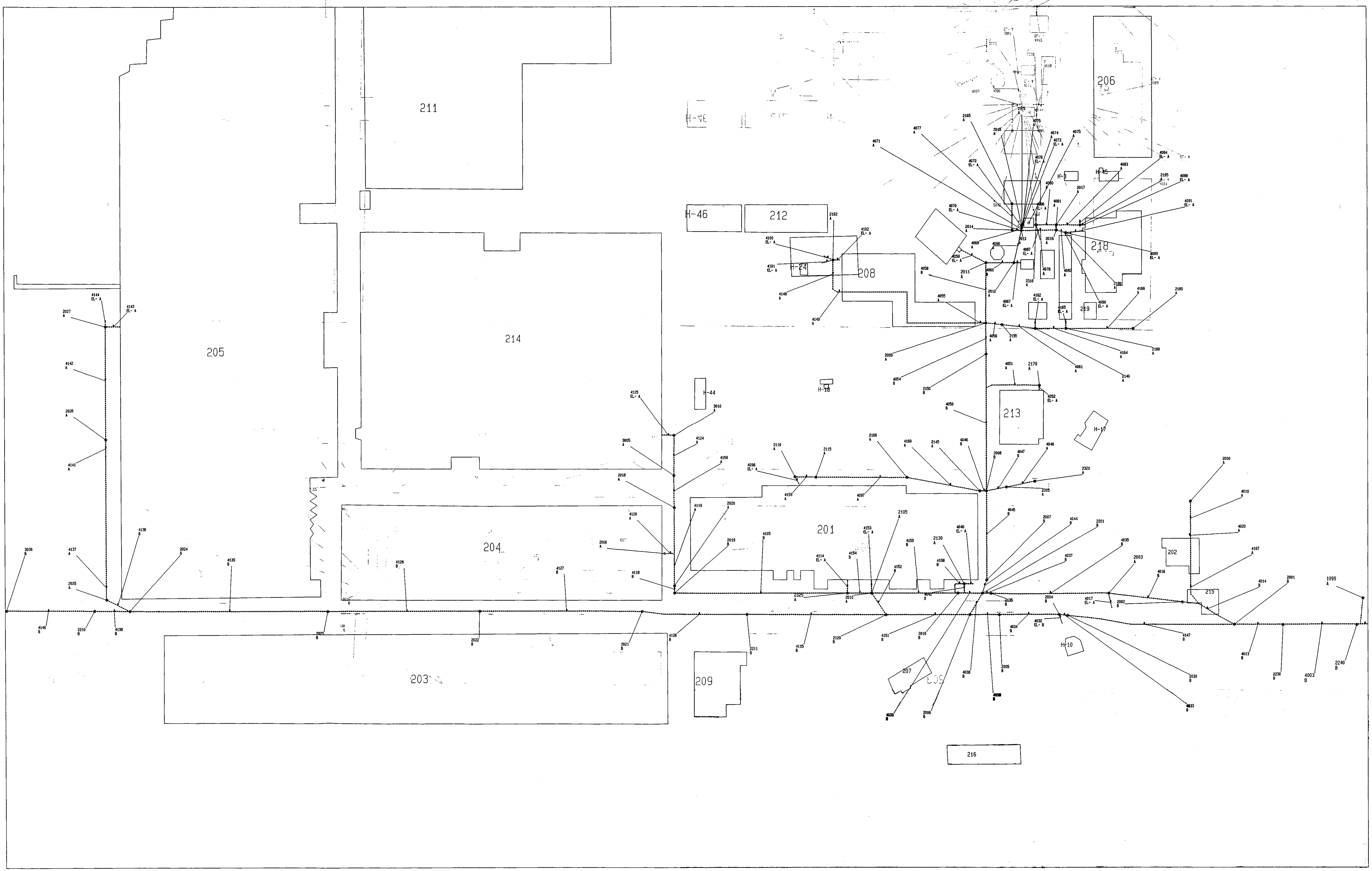
IT CORPORATION
PROJECT NO. 343239.30
OCTOBER 27, 1993

• MANHOLES
◦ OTHER STRUCTURES
-------- PIPE SEGMENTS

INDUSTRIAL SEWER SYSTEM:
9999 STRUCTURE IDENTIFICATION
A STRUCTURE ABOVE GROUNDWATER
B STRUCTURE BELOW GROUNDWATER

BUILDING WASTEWATER COLLECTION SYSTEM:
9999 EXIT LATERAL IDENTIFICATION
A EXIT LATERAL ABOVE GROUNDWATER
B EXIT LATERAL BELOW GROUNDWATER

EASTMAN KODAK COMPANY
KODAK PARK-KPM (EAST)
NOT TO SCALE



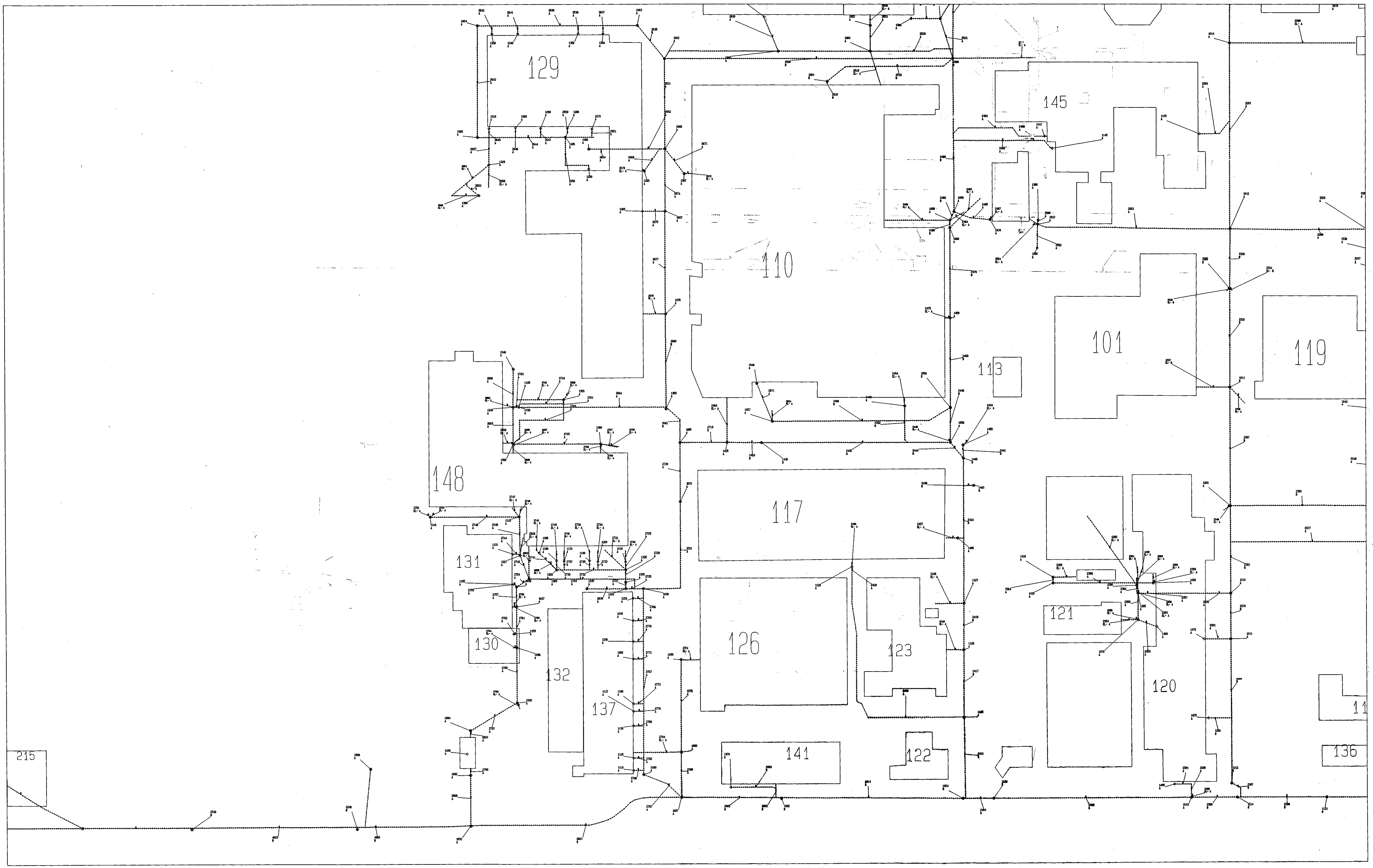
IT CORPORATION
PROJECT NO. 343239.30
OCTOBER 27, 1993

● MANHOLES
◦ OTHER STRUCTURES
------- PIPE SEGMENTS

INDUSTRIAL SEWER SYSTEM:
9999 STRUCTURE IDENTIFICATION
A STRUCTURE ABOVE GROUNDWATER
B STRUCTURE BELOW GROUNDWATER

BUILDING WASTEWATER COLLECTION SYSTEM:
9999 EXIT LATERAL IDENTIFICATION
A EXIT LATERAL ABOVE GROUNDWATER
B EXIT LATERAL BELOW GROUNDWATER

EASTMAN KODAK COMPANY
KODAK PARK-KPX
NOT TO SCALE



IT CORPORATION
PROJECT NO. 343239.30
OCTOBER 27, 1993

- ● MANHOLES
- ◦ OTHER STRUCTURES
- ---------- PIPE SEGMENTS

INDUSTRIAL SEWER SYSTEM:

9999 STRUCTURE IDENTIFICATION

A STRUCTURE ABOVE GROUNDWATER

B STRUCTURE BELOW GROUNDWATER

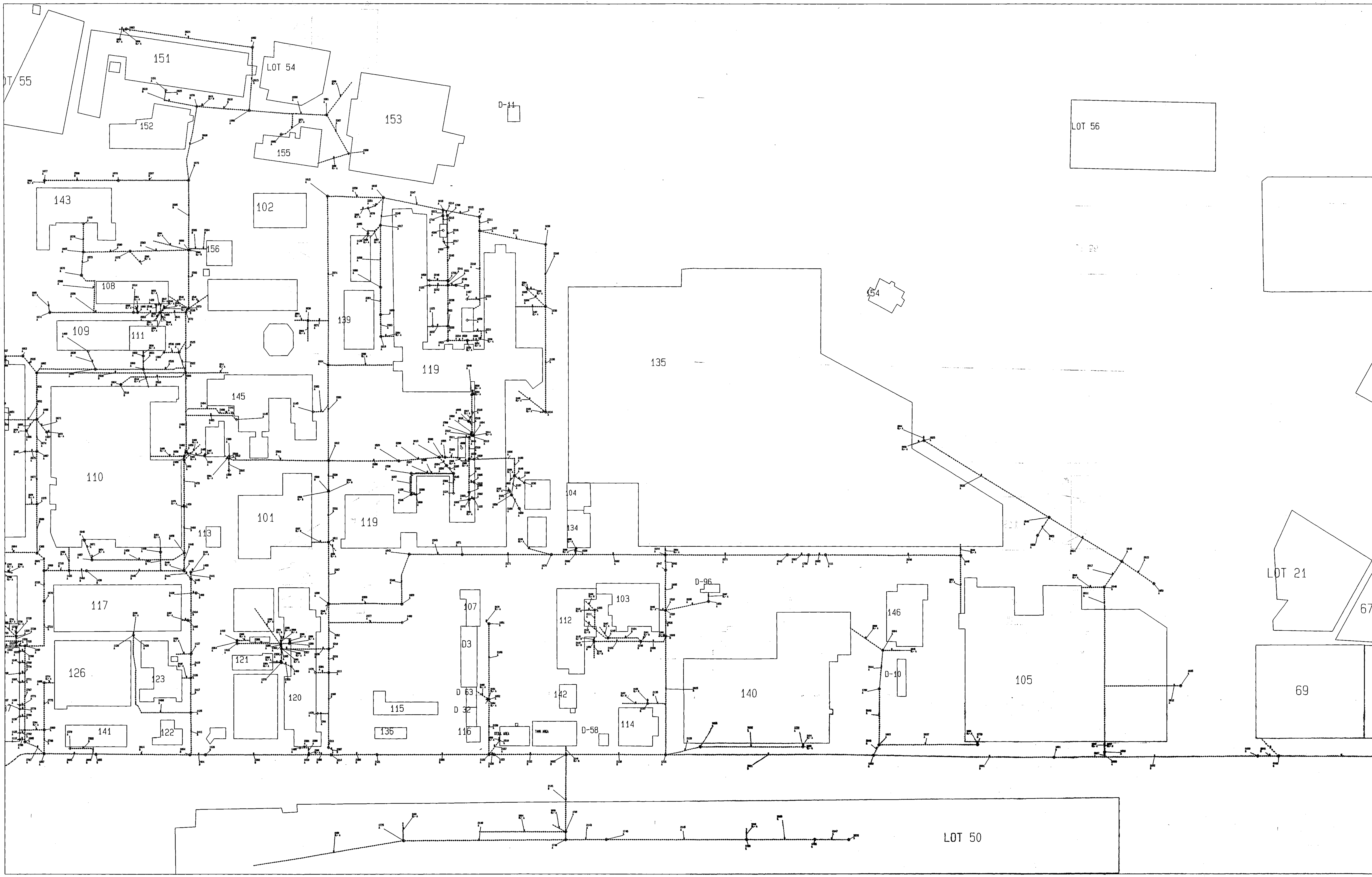
BUILDING WASTEWATER COLLECTION SYSTEM:

9999 EXIT LATERAL IDENTIFICATION

A EXIT LATERAL ABOVE GROUNDWATER

B EXIT LATERAL BELOW GROUNDWATER

EASTMAN KODAK COMPANY
KODAK PARK-KPW (WEST)
NOT TO SCALE



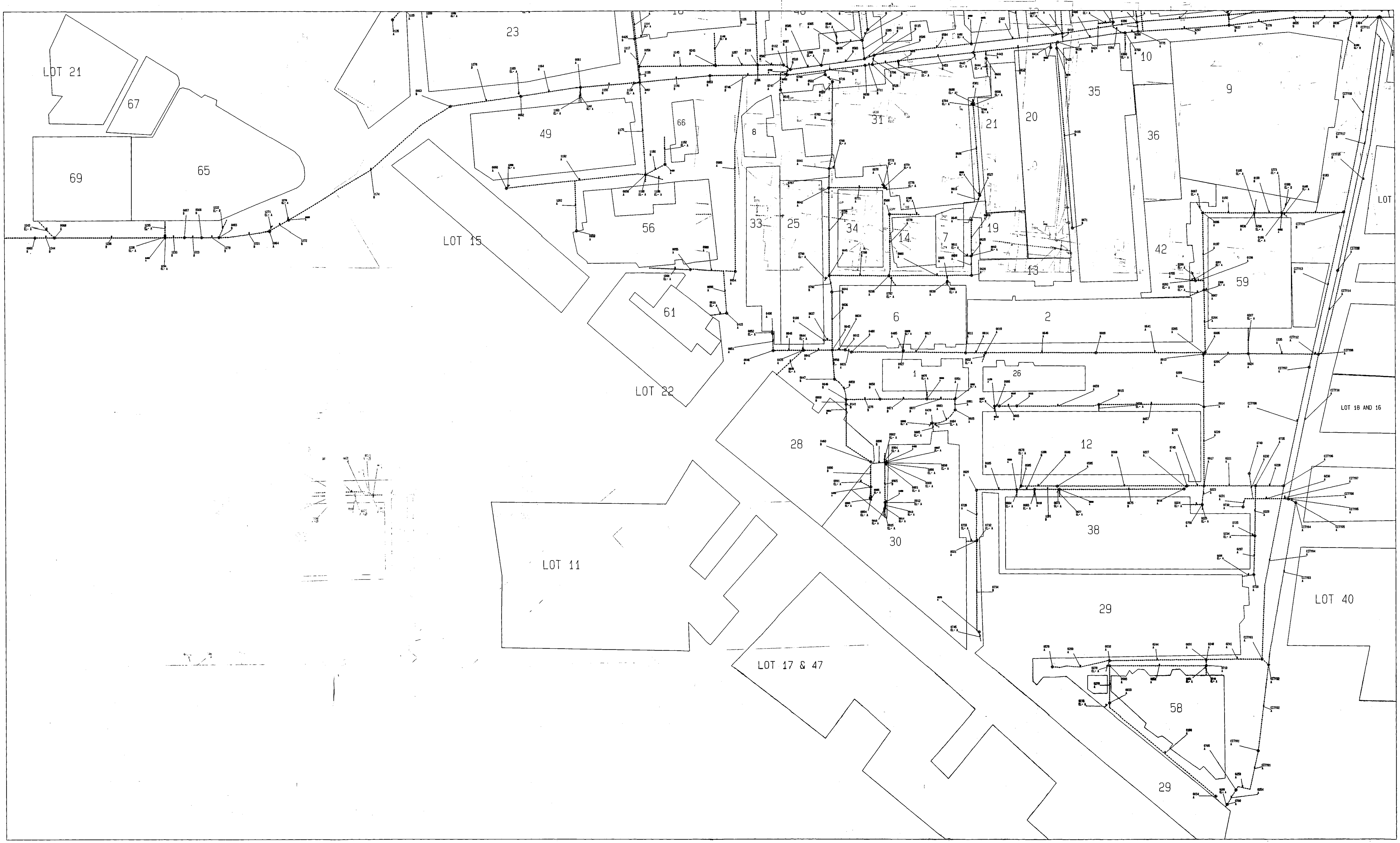
IT CORPORATION
PROJECT NO. 343239.30
OCTOBER 27, 1993

• MANHOLES
◦ OTHER STRUCTURES
------- PIPE SEGMENTS

INDUSTRIAL SEWER SYSTEM:
9999 STRUCTURE IDENTIFICATION
A STRUCTURE ABOVE GROUNDWATER
B STRUCTURE BELOW GROUNDWATER

BUILDING WASTEWATER COLLECTION SYSTEM:
9999 EXIT LATERAL IDENTIFICATION
A EXIT LATERAL ABOVE GROUNDWATER
B EXIT LATERAL BELOW GROUNDWATER

EASTMAN KODAK COMPANY
KODAK PARK-KPW (EAST)
NOT TO SCALE



IT CORPORATION
PROJECT NO. 343239.30
OCTOBER 27, 1993

- MANHOLES
- OTHER STRUCTURES
- PIPE SEGMENTS

INDUSTRIAL SEWER SYSTEM:
9999 STRUCTURE IDENTIFICATION
A STRUCTURE ABOVE GROUNDWATER
B STRUCTURE BELOW GROUNDWATER

BUILDING WASTEWATER COLLECTION SYSTEM:
9999 EXIT LATERAL IDENTIFICATION
A EXIT LATERAL ABOVE GROUNDWATER
B EXIT LATERAL BELOW GROUNDWATER

EASTMAN KODAK COMPANY
KODAK PARK-KPE (SOUTH)
NOT TO SCALE

IT CORPORATION
PROJECT NO. 343239.30
OCTOBER 27, 1993

● MANHOLES

○ OTHER STRUCTURES

------- PIPE SEGMENTS

INDUSTRIAL SEWER SYSTEM:

9999 STRUCTURE IDENTIFICATION

A STRUCTURE ABOVE GROUNDWATER

B STRUCTURE BELOW GROUNDWATER

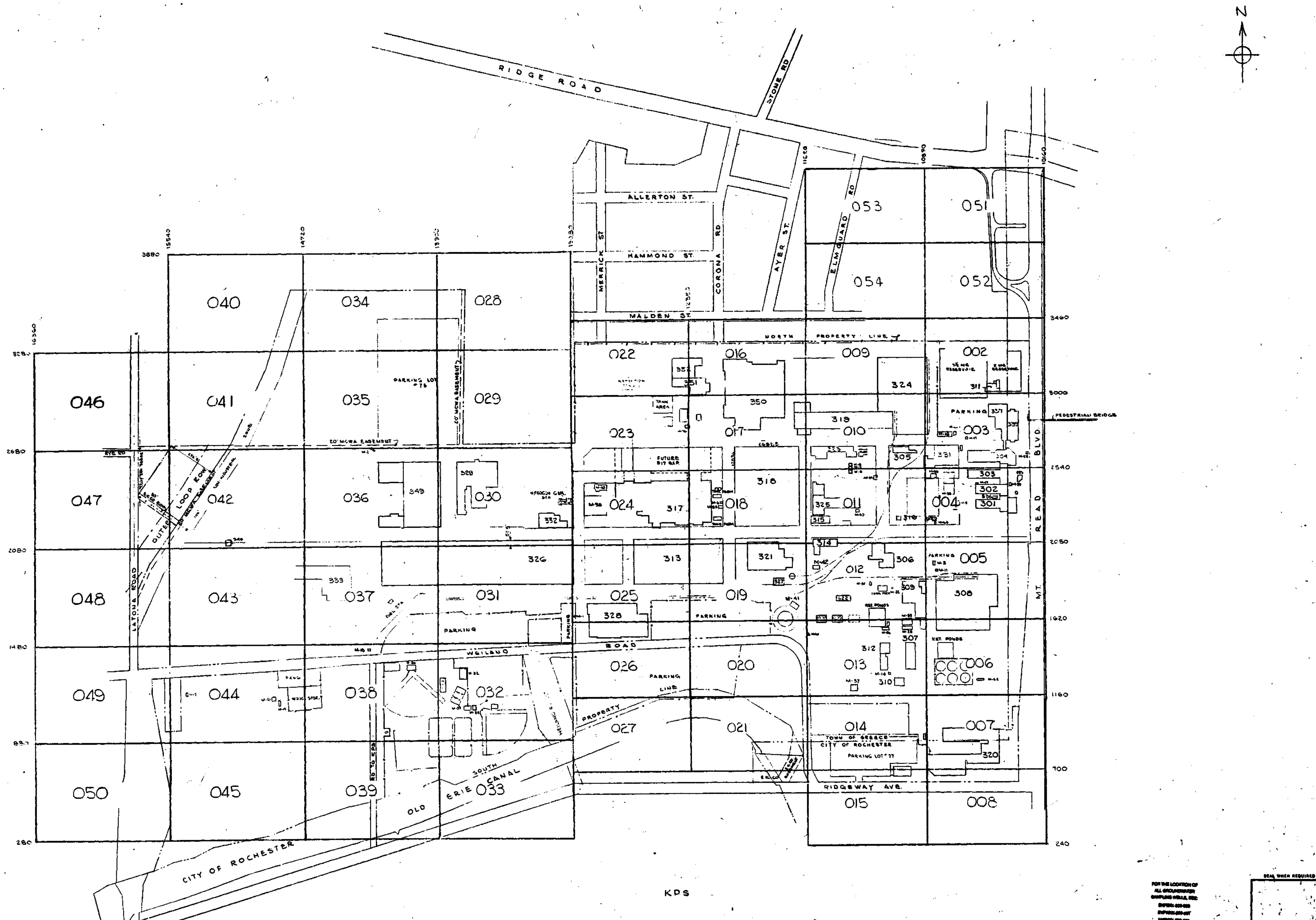
BUILDING WASTEWATER COLLECTION SYSTEM:

9999 EXIT LATERAL IDENTIFICATION

A EXIT LATERAL ABOVE GROUNDWATER

B EXIT LATERAL BELOW GROUNDWATER

EASTMAN KODAK COMPANY
KODAK PARK-KPE (NORTH)
NOT TO SCALE



PARTS LIST No. H

REFERENCE DWGS.

67534 FOR BURNER ROAD & BURNER AREA

REVISIONS	DATE	SYM.	REVISIONS	DATE	SYM.	REVISIONS	DATE
CHG. DWG. NUMBER	4-2-70 MAXWELL		REV. TO DATE	2-8-79 MAXWELL		ADDED STAULAT	10-10-90
REV. T. DATE	11-1-71		REV. TO DATE	6-16-81			
REVISED TO DATE	11-14-75 MAXWELL		REV. TO DATE				

DEPARTMENTAL APPROVALS: Div. Supt. / Ass't. Supt.

ENGINEERING APPROVALS: Director / Ass't. Director / Engineer — 1-30-58

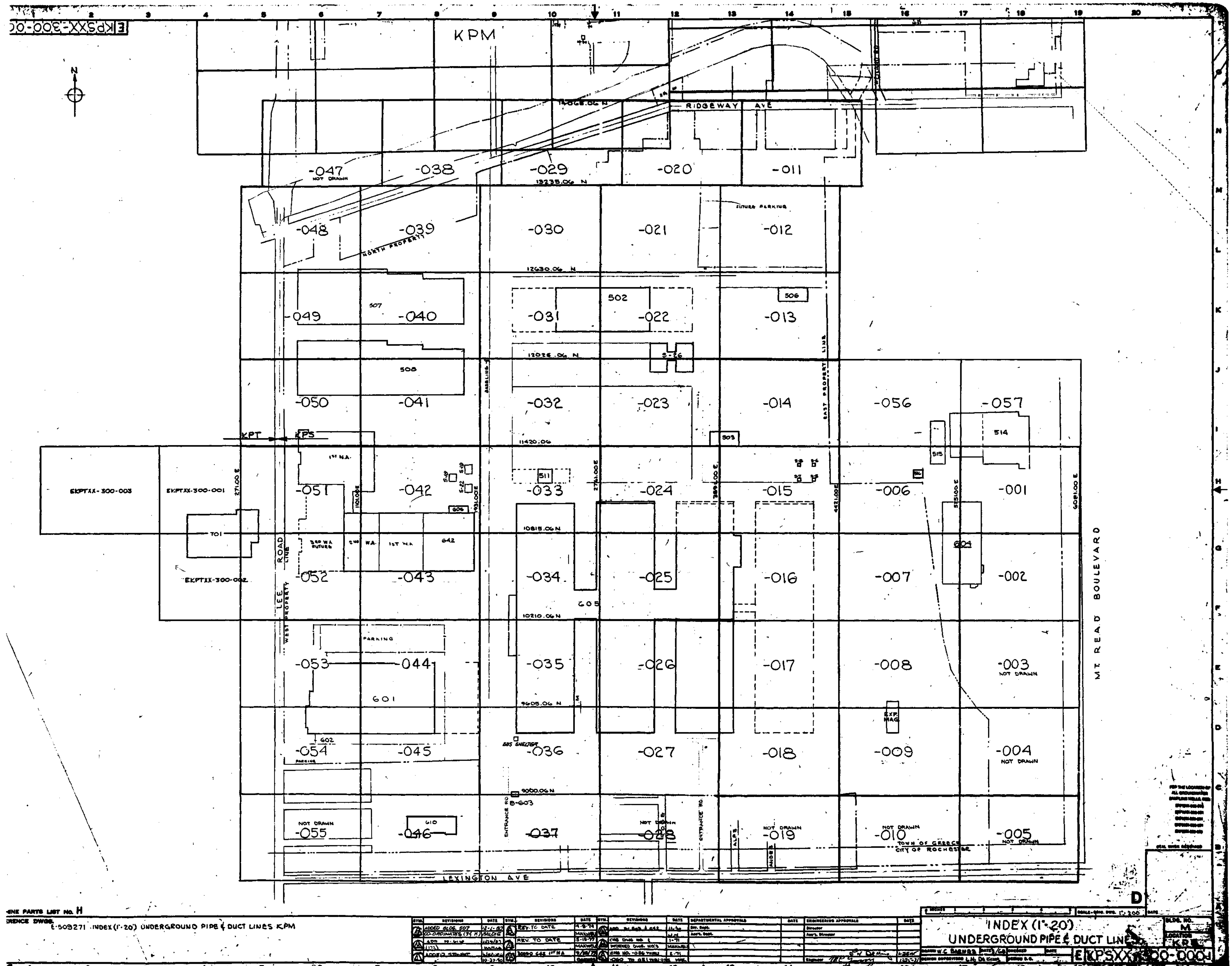
INDEX (1" = 20')
UNDERGROUND PIPE & DUCT LINES

SCALE—THIS DWG. 1" = 200

DRAWN W. C. BARNES DATE 5/56
DESIGN SUPERVISOR H. DE KING

BLDG. NO. M
LOCATION KPM

E KPMXX-300-0016



REFERENCE DWGS.

E-509271 INDEX (1"-20') UNDERGROUND PIPE & DUCT LINES KPM

SCALE-ORIG. DWG. 1"=200'

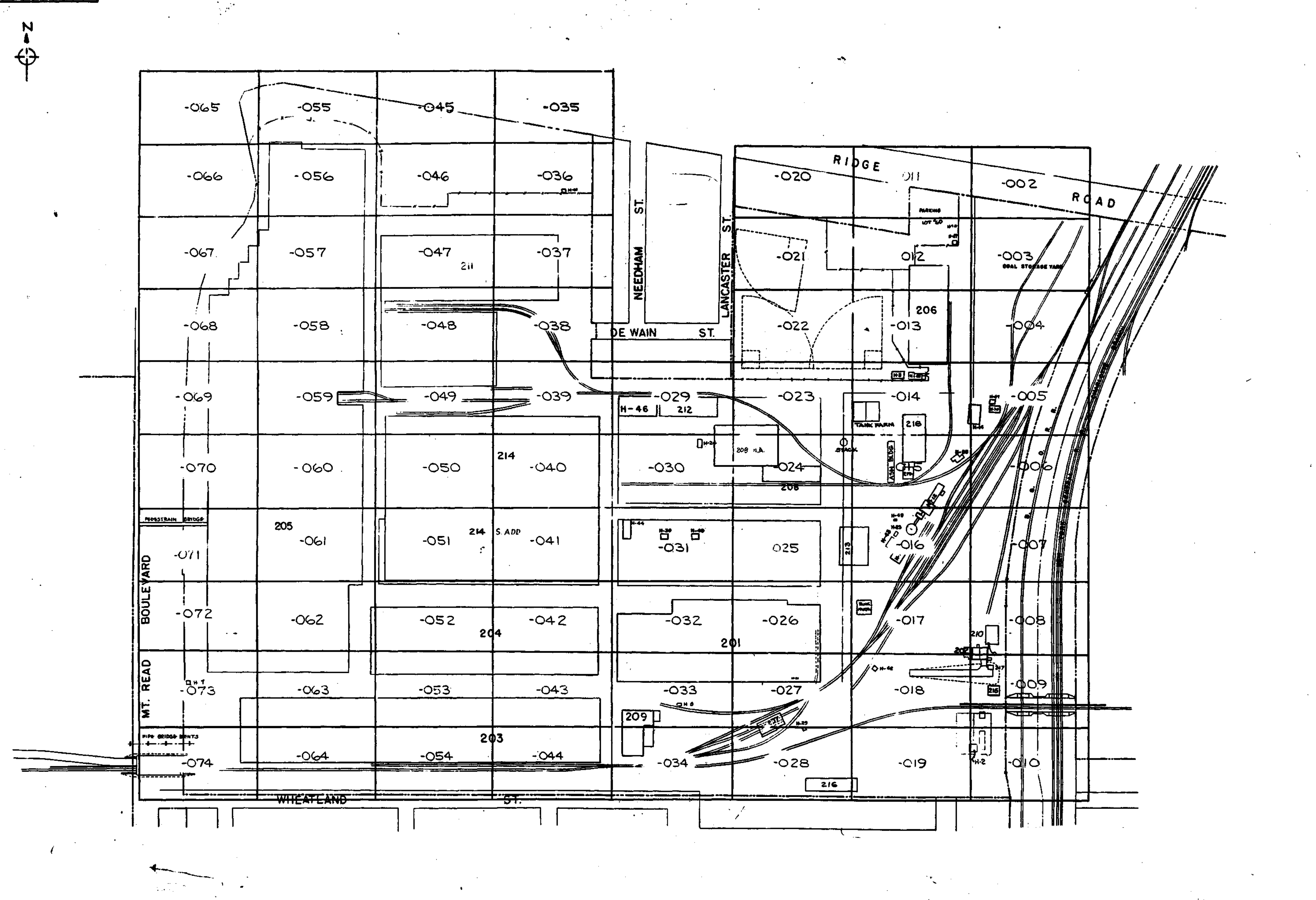
D

INDEX (1"-20')
UNDERGROUND PIPE & DUCT LINES

DRAWN W.C. BARNES
DESIGN SUPERVISOR L.H. DA KING

BLDG. NO. M
LOCATION KPR

E KPSXX-300-0001



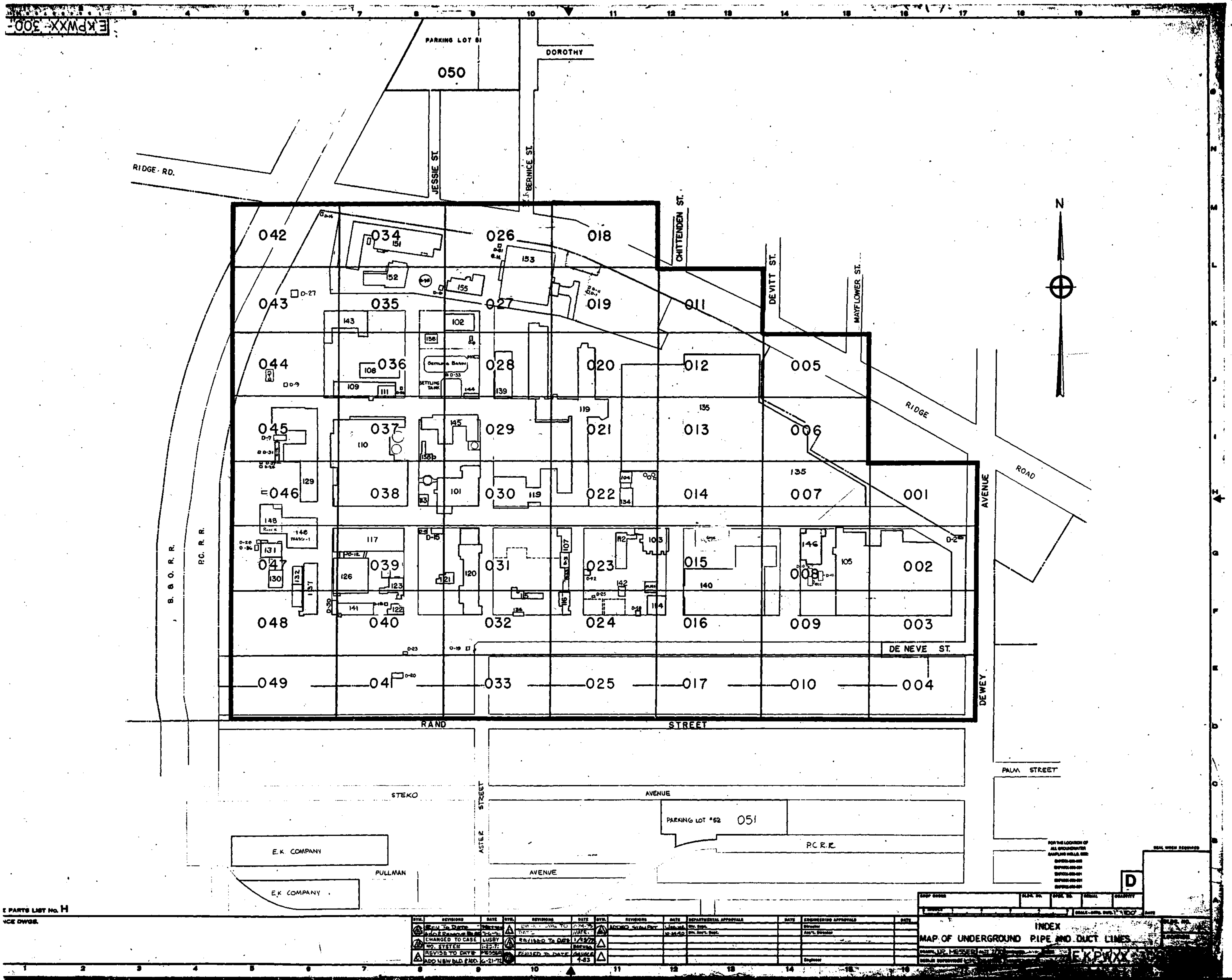
MAP OF UNDERGROUND PIPE AND DUCT LINES

R. MILES

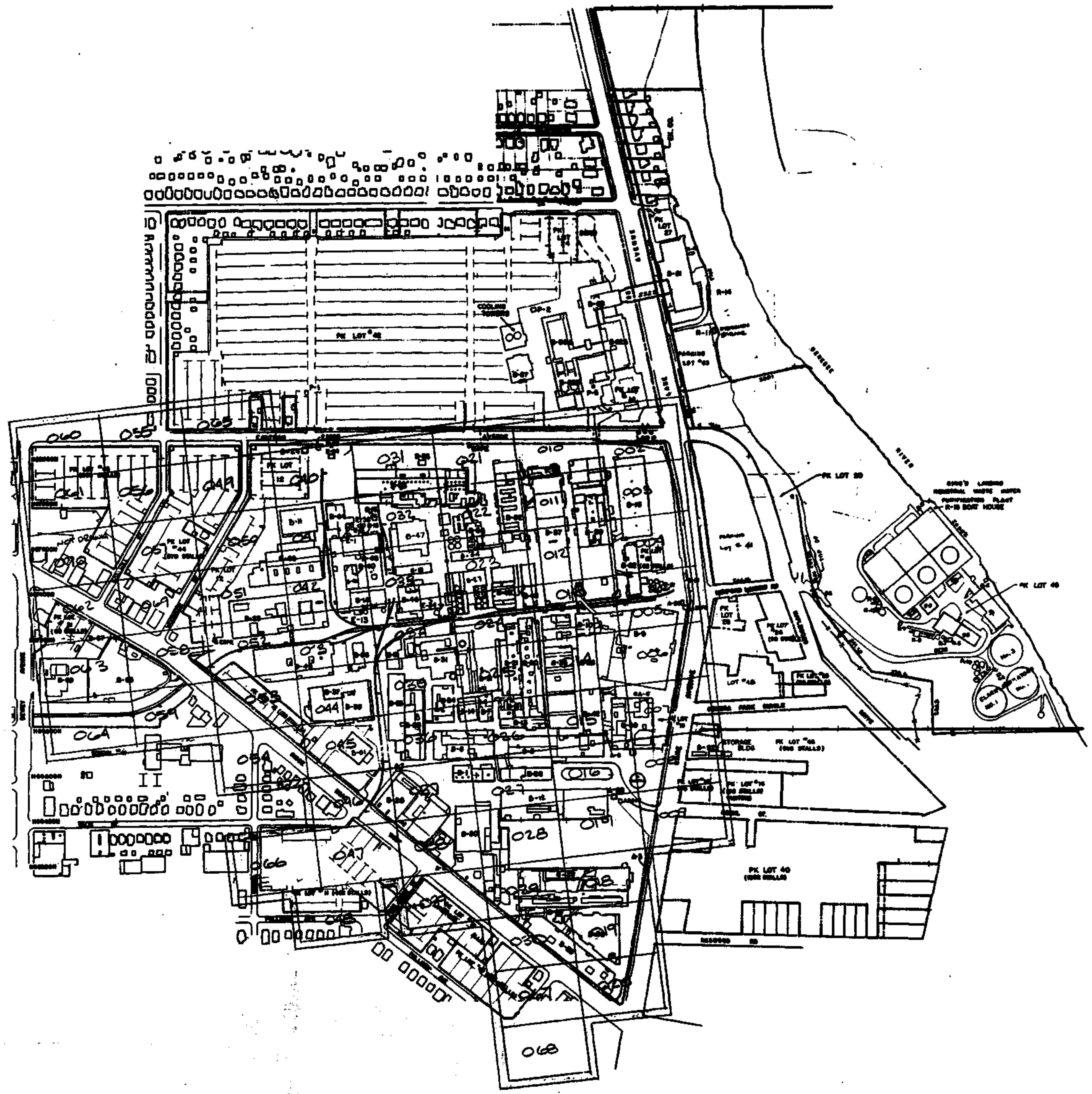
L. DEKING

D

EKPXXX-300-03


EKPWXX-300-
PARKING LOT 81
DOROTHY
050
RIDGE-RD.
JESSIE ST.
BERNICE ST.
CHITTENDEN ST.
DEVITT ST.
MAYFLOWER ST.
N
042
034
026
018
043
035
027
019
011
044
036
028
020
012
005
045
037
029
021
013
006
046
038
030
022
014
007
001
047
039
031
023
015
008
002
048
040
032
024
016
009
003
049
041
033
025
017
010
004
RIDGE
ROAD
AVENUE
DEWEY
DE NEVE ST.
RAND
STREET
B. & O. R. R.
P.C. R. R.
STEKO
AVENUE
ASTER STREET
PALM STREET
PARKING LOT #52
051
P.C.R.R.
E.K. COMPANY
PULLMAN
AVENUE
E.K. COMPANY
D
INDEX
MAP OF UNDERGROUND PIPE AND DUCT LINES
EKPWXX

EKPEPI-300-00C



SYM.	REVISIONS	DATE
1	ORIG. REVISED & RE-DRAWN	12-15-87
2	ADDED ...	12-20-90
	ADDED BLDG. 47 ...	1-7-91
3	61 @ ...	

FOR THE LOCATION OF ALL GROUNDWATER SAMPLING WELLS, SEE:

D

SCALE: 1" = 200'-0"

EASTMAN KODAK COMPANY
KODAK PARK DIVISION

DRAWN: P. Lewicz
DATE: 12-15-87

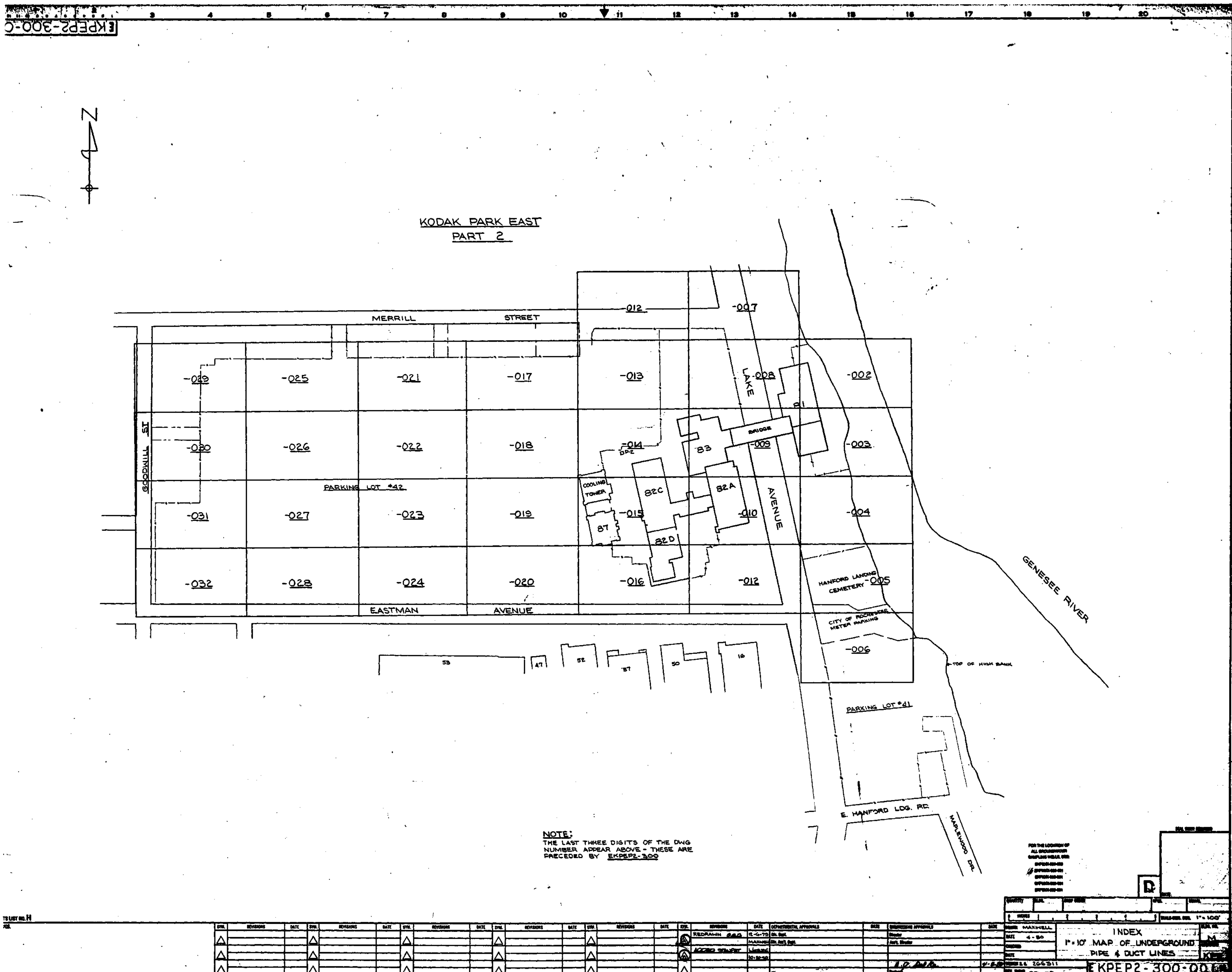
INDEX MAP OF UNDERGROUND PIPE AND DUCT KPEPI

MAP

KPE

EKPEPI-300-001C

WASHOFF-WA-2



KODAK PARK EAST
PART 2
MERRILL STREET
EASTMAN AVENUE
GOODWILL ST
LAKE AVENUE
PARKING LOT #42
PARKING LOT #41
GENESEE RIVER
BRIDGE
COOLING TOWER
HANFORD LANDING CEMETERY
CITY OF ROCHESTER METER PARKING
TOP OF HIGH BANK
E. HANFORD LDG. RD.
MAPLEWOOD DR.
-002
-003
-004
-005
-006
-007
-008
-009
-010
-012
-012
-013
-014
-015
-016
-017
-018
-019
-020
-021
-022
-023
-024
-025
-026
-027
-028
-029
-030
-031
-032
B1
B2A
B2C
B2D
B3
B7
53
47
52
57
50
16
NOTE:
THE LAST THREE DIGITS OF THE DWG NUMBER APPEAR ABOVE - THESE ARE PRECEDED BY EKPEP2-300
MAXWELL
4-80
INDEX
1" = 10' MAP OF UNDERGROUND PIPE & DUCT LINES
1" = 100'
266311
EKPEP2-300-00