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PERMITCO
PETROLEUM PERMITTING COMPANY

14421 Weld County Rd.10 • Ft. Lupton, Colorado 80621 • (303) 857-9999 • FAX (303) 857-0577 • E-MAIL Permitco 1@aol.com

December 3, 1999

Division of Oil, Gas & Mining
1594 W. North Temple, Suite 1210
Box 145801
Salt Lake City, UT 84114-5801

Attn: Lesha Cordova

Re: Petroleum Development Corporation
Middle Mountain #21-16
1309' FSL and 834' FEL
SE SE Sec. 21, T16S - R6E
Emery County, Utah

Dear Lesha,

This letter is to serve as our request for an exception to spacing on the above mentioned location.

The above location was staked at non-standard footages in accordance with the rules and regulations of the Division of Oil, Gas & Mining based on a request by the Forest Service to move the location further from the Joe's Valley Road. Please be advised, however, that Petroleum Development Corporation is the lease holder of all acreage within a 460 foot radius of the subject location. Therefore, we request administrative approval for this exception location.

Thank you for your cooperation.

Sincerely,

PERMITCO INC.

Lisa L. Smith
Consultant for:
Petroleum Development Corporation

cc: Petroleum Development Corporation

003

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December 3, 1999

Division of Oil, Gas & Mining
1594 West North Temple
Suite 1210
Salt Lake City, UT 84114-5801

Attn: John Baza

Re: Petroleum Development Corp.
Middle Mountian #21-16
1309' FSL and 834' FEL
SE SE Sec. 21, T16S - R6E
Emery County, Utah

Dear John,

Enclosed please find three copies of the A.P.D. along with one copy of the Onshore Order No. 1 which has been forwarded to the BLM and U.S. Forest Service.

Please be advised that due to winter weather conditions and road improvements required by the Forest Service, drilling will not commence on this location until early summer, 2000. In addition, Petroleum Development Corporation (PDC) plans to utilize either the Joe's Valley Reservoir or the Miller Flat Reservoir as a water source for drilling purposes. All appropriate permits will be filed with the Utah Division of Water Rights, prior to utilizing this water source.

Please forward approved copies of the A.P.D. to the address shown above. If you should need additional information, please feel free to contact me.

Sincerely,

PERMITCO INC.

Lisa L. Smith
Consultant for:
Petroleum Development Corporation

RECEIVED
DEC - 6 1999
DIVISION OF OIL, GAS & MINING

Enc.

cc: Petroleum Development Corp. - Bridgeport, WV

FORM 3160-3
(December 1990)

SUBMIT IN TRIPLICATE*
(Other instructions on reverse side)

Form approved.
Budget Bureau No. 1004-0136
Expires December 31, 1991

001

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

5. LEASE DESIGNATION AND SERIAL NO.: UTU-77263

6. N/A

7. UNIT AGREEMENT NAME: N/A

1a. TYPE OF WORK: DRILL [X] DEEPEN [ ]

b. TYPE OF WELL: OIL WELL [ ] GAS WELL [X] OTHER — SINGLE ZONE [X] MULTIPLE ZONE [ ]

8. FARM OR LEASE NAME, WELL NO.: Middle Mountain #21-16

2. NAME OF OPERATOR: Petroleum Development Corp. — Phone: 304/842-3597 Fax: 304/842-0913 — 103 East Main Street, Bridgeport, WV 26330

9. API WELL NO.:

3. ADDRESS AND TELEPHONE NO.: Permitco Inc. — Phone: 303/857-9999 Fax: 303/857-0577 — 14421 County Road 10, Ft. Lupton, CO 80621

10. FIELD AND POOL, OR WILDCAT: Wildcat

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*)

RECEIVED
DEC - 6 1999
DIVISION OF OIL, GAS & MINING

At Surface: 1309' FSL and 834' FEL — 418,564E 4,362,337N

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: Sec. 21, T16S - R6E

At proposed prod. zone: SE SE Sec. 21, T16S - R6E

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*: Approximately 21.9 Miles northeast of Orangeville, Utah

12. COUNTY OR PARISH: Emery — 13. STATE: Utah

15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any)	16. NO. OF ACRES IN LEASE	17. NO. OF ACRES ASSIGNED TO THIS WELL
834'	7189.23	40 Acres
18. DISTANCE FROM PROPOSED LOCATION * TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.	**19. PROPOSED DEPTH**	**20. ROTARY OR CABLE TOOLS**
None	8,400'	Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.): 8656'

22. APPROX. DATE WORK WILL START*: July 15, 2000

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	GRADE, SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
17-1/2"	13-3/8"	48#	120'	167 sxs - circulated to surface
12-1/4"	9-5/8"	36#	2,700'	531 sxs - circulated to surface
8-3/4"	4-1/2"	11.6#	8,400'	647 sx - top of cement @ 6641'

Petroleum Development Corporation proposes to drill a well to 8,400' to test the Ferron and Dakota Formations. If productive, casing will be run and the well completed. If dry, the well will be plugged and abandoned as per BLM and State of Utah requirements.

See Onshore Order No. 1 attached. CONFIDENTIAL - TIGHT HOLE

Please be advised that Petroleum Development Corporation is considered to be the Operator of the above mentioned well Petroleum Development Corporation agrees to be responsible under the terms and conditions of the lease for the operations conducted upon the leased lands.

Bond coverage for this well is provided by Petroleum Development Corporation. The bond will be submitted under separate cover by Petroleum Development Corporation. Blm Bond UT-1166 # 25,000 Statewide fc

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

24.

SIGNED [signature] TITLE Consultant For: Petroleum Devlopment Corp Date 12/3/99

(This space for Federal or State office use)

PERMIT NO. 43-015-30426 APPROVAL DATE

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

CONDITIONS OF APPROVAL, IF ANY:

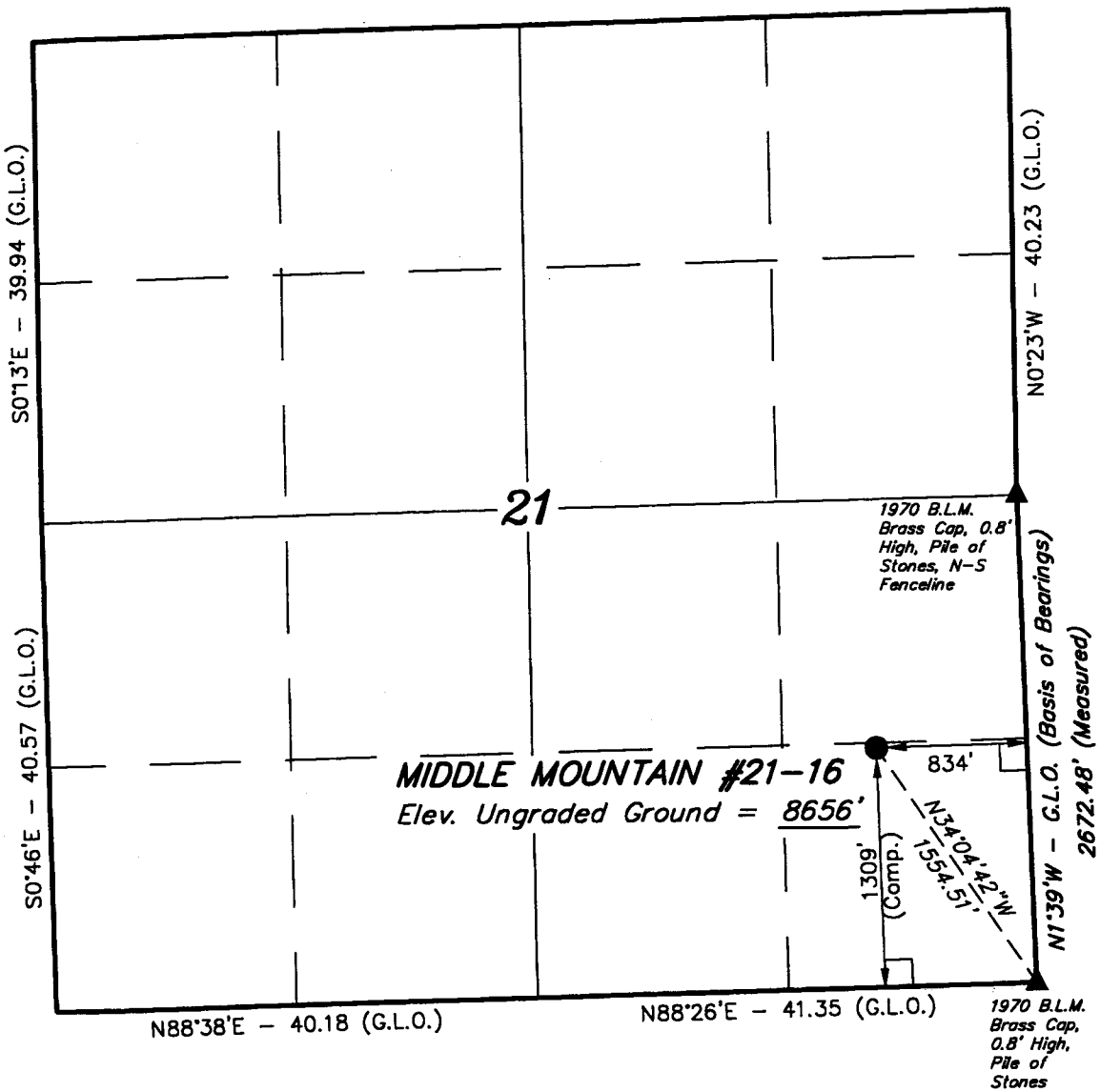
APPROVED BY [signature] TITLE BRADLEY G. HILL RECLAMATION SPECIALIST III DATE 09-04-02

*See Instructions On Reverse Side

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

570'
680'

T16S, R6E, S.L.B.&M.



LEGEND:

- ∟ = 90° SYMBOL
- ● = PROPOSED WELL HEAD.
- ▲ = SECTION CORNERS LOCATED.

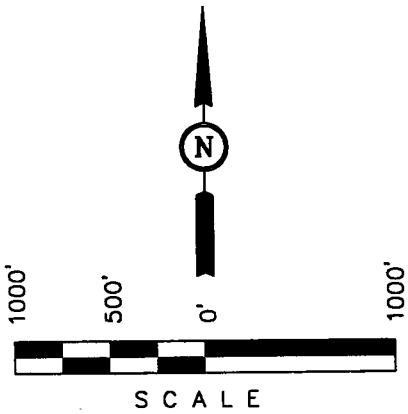
LATITUDE = 39°24'45"
LONGITUDE = 111°14'56"

PETROLEUM DEVELOPMENT CORP.

Well location, MIDDLE MOUNTAIN #21-16, located as shown in the SE 1/4 SE 1/4 of Section 21, T16S, R6E, S.L.B.&M. Emery County Utah.

BASIS OF ELEVATION

SPOT ELEVATION LOCATED AT THE SOUTHEAST CORNER OF SECTION 21, T16S, R6E, S.L.B.&M. TAKEN FROM THE RILDA CANYON. QUADRANGLE, UTAH, EMERY COUNTY, 7.5 MINUTE QUAD. (TOPOGRAPHIC MAP) PUBLISHED BY THE UNITED STATES DEPARTMENT OF THE INTERIOR, GEOLOGICAL SURVEY. SAID ELEVATION IS MARKED AS BEING 8525 FEET.



CERTIFICATE

THIS IS TO CERTIFY THAT THE ABOVE PLAT WAS PREPARED FROM FIELD NOTES OF ACTUAL SURVEYS MADE BY ME OR UNDER MY SUPERVISION AND THAT THE SAME ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

REGISTERED LAND SURVEYOR
REGISTRATION NO. 161319
STATE OF UTAH

Revised: 10-14-99 C.B.T.

UINTAH ENGINEERING & LAND SURVEYING
85 SOUTH 200 EAST - VERNAL, UTAH 84078
(435) 789-1017

SCALE	DATE SURVEYED:	DATE DRAWN:
1" = 1000'	6-17-99	6-24-99
PARTY: D.A. D.R. D.COX	REFERENCES: G.L.O. PLAT	
WEATHER: WARM	FILE: PETROLEUM DEVELOPMENT CORP.	

CONFIDENTIAL - TIGHT HOLE

ONSHORE OIL & GAS ORDER NO. 1

Approval of Operations on Onshore
Federal and Indian Oil & Gas Leases

Middle Mountain #21-16
1309' FSL and 834' FEL
SE SE Sec. 21, T16S - R6E
Emery County, Utah

Prepared For:

PETROLEUM DEVELOPMENT CORPORATION

By:

PERMITCO INC.
14421 County Road 10
Fort Lupton, CO 80621
303/857-9999

Copies Sent To:

3 - Bureau of Land Management - Moab, UT
1 - Bureau of Land Management - Price, UT
1 - U.S. Forest Service - Price, UT
1 - Utah Division of Oil, Gas & Mining - SLC, UT
1- Emery County Planning - CastleDale, UT
3- Petroleum Development Corporation - Bridgeport, WV

Petroleum Development Corporation

103 East Main Street
P. O. Box 26
Bridgeport, West Virginia 26330

Phone: (304) 842-3597

October 12, 1999

Bureau of Land Management
Price Field Office
125 South 600 West
Price, UT 84501

Attn: Minerals

Re: Middle Mountain #21-16
Emery County, Utah

Gentlemen:

This letter is to inform you that Permitco Inc. is authorized to act as Agent and to sign documents on behalf of Petroleum Development Corporation when necessary for filing county, state and federal permits including Onshore Order No. 1, Right of Way applications, etc., for the above mentioned well.

It should be understood that Permitco is acting as Agent only in those matters stated above and is not responsible for drilling, completion, production or compliance with regulations.

Petroleum Development Corporation agrees to accept full responsibility for operations conducted in order to drill, complete and produce the above-mentioned well.

Sincerely,

Eric R. Stearns
Vice President

TABLE OF CONTENTS
Middle Mountain #21-16

DRILLING PROGRAM

SURFACE USE PLAN

PETROLEUM PERMITTING
PERMITCO
COMPANY

ONSHORE OIL & GAS ORDER NO. 1
Approval of Operations on Onshore
Federal and Indian Oil and Gas Leases

All lease and/or unit operations will be conducted in such a manner that full compliance is made with applicable laws, regulations (43 CFR 3100), Onshore Oil and Gas Order No. 1, and the approved plan of operations. The operator is fully responsible for the actions of his subcontractors. A copy of these conditions will be furnished the field representative to insure compliance.

1. FORMATION TOPS

The estimated tops of important geologic markers are as follows:

Formation	Depth	Subsea
North Horn	Surface	+8,641'
Price River	251'	+8,390'
Castlegate Sandstone	941'	+7,700'
Blackhawk Sandstone	1,241'	+7,400'
Star Point Sandstone	2,266'	+6,375'
Mancos Shale	2,641'	+6,000'
Emery Sandstone	3,811'	+4,830'
Blue Gate Shale	4,911'	+3,730'
Ferron Sandstone Upper Bench	7,141'	+1,500'
Ferron Sandstone Lower Bench	7,501'	+1,140'
Tununk Shale	7,606'	+1,035'
Dakota Sandstone	8,121'	+ 520'
Morrison Sandstone	8,246'	+ 395'
T.D.	8,400'	+ 241'

2. ANTICIPATED DEPTH OF OIL, GAS WATER AND OTHER MINERAL BEARING ZONES

The estimated depths at which the top and bottom of the anticipated water, oil, gas or other mineral bearing formations are expected to be encountered are as follows:

Substance	Formation	Depth
Water	Blackhawk Sandstone	1,241'-2,266'
Coal	Blackhawk Sandstone	1,241' to 2,266'
Water	Star Point Sandstone	2,266' to 2641'
Water	Emery Sandstone	3,811' to 4,911'
Gas	Ferron Sandstone	7,141' to 7,241' and 7501'-7601'
Gas	Dakota Sandstone	8,121'-8,221'

All fresh water and prospectively valuable minerals encountered during drilling, will be recorded by depth and adequately protected. All oil and gas shows will be tested to determine commercial potential.

All water shows and water-bearing sands will be reported to the BLM in Moab, Utah. Copies of State of Utah form OGC-8-X are acceptable. If noticeable water flows are detected, samples will be submitted to the BLM along with any water analyses conducted.

3. BOP EQUIPMENT/REQUIREMENTS

Petroleum Development Corporation's minimum specifications for pressure control equipment are as follows:

Ram Type: 11" Hydraulic double, 3000 psi w.p.

Ram type preventers and associated equipment shall be tested to approved stack working pressure if isolated by test plug or to 70 percent of internal yield pressure of casing. Pressure shall be maintained for at least 10 minutes or until requirements of test are met, whichever is longer. If a test plug is utilized, no bleed-off pressure is acceptable. For a test not utilizing a test plug, if a decline in pressure of more than 10 percent in 30 minutes occurs, the test shall be considered to have failed.

Valve on casing head below test plug shall be open during test of BOP stack.

Annular type preventers (if used) shall be tested to 50 percent of rated working pressure. Pressure shall be maintained at least 10 minutes or until provisions of test are met, whichever is longer.

As a minimum, the above test shall be performed:

a. when initially installed;
b. whenever any seal subject to test pressure is broken
c. following related repairs; and
d. at 30-day intervals

Valves shall be tested from working pressure side during BOPE tests with all down stream valves open.
When testing the kill line valve(s) the check valve shall be held open or the ball removed.

Annular preventers (if used) shall be functionally operated at least weekly.

Pipe and blind rams shall be activated each trip, however, this function need not be performed more than once a day.

A BOPE pit level drill shall be conducted weekly for each drilling crew.

The BOP and related equipment shall meet the minimum requirements of Onshore Oil and Gas Order No. 2 for equipment and testing requirements, procedures, etc., and individual components shall be operable as designed. Chart recorders shall be used for all pressure tests.

Pressure tests shall apply to all related well control equipment.

All of the above described tests and/or drills shall be recorded in the drilling log. Test charts, with individual test results identified, shall be maintained on location while drilling and shall be made available to a BLM representative upon request.
Pressure tests shall apply to all related well control equipment.

BOP systems shall be consistent with API RP53. Pressure tests will be conducted before drilling out from under casing strings which have been set and cemented in place. Blowout preventer controls will be installed prior to drilling the surface casing plug and will remain in use until the well is completed or abandoned. Preventers will be inspected and operated at least daily to ensure good mechanical

working order, and this inspection will be recorded on the daily drilling report. Preventers will be pressure tested before drilling casing cement plugs.

The Price River Field Office shall be notified, at least 24 hours prior to initiating the pressure test, in order to have a BLM representative on location during pressure testing.

a. The size and rating of the BOP stack is shown on the attached diagram. Although a rig has not been chosen to drill this well, most of the equipment for this depth of hole in the area use a 11", 3000 psi working pressure blowout preventor.

b. A choke line and a kill line are to be properly installed. The kill line is not to be used as a fill-up line.

c. The accumulator system shall have a pressure capacity to provide for repeated operation of hydraulic preventers.

d. Drill string safety valve(s), to fit all tools in the drill string, are to be maintained on the rig floor while drilling operations are in progress.

4. CASING AND CEMENTING PROGRAMS

a. The Price River Field Office shall be notified at least 24 hours prior to the running and cementing of all casing strings, in order to have a BLM representative on location while running and cementing all casing strings.

b. The proposed casing and cementing program shall be conducted as approved to protect and/or isolate all usable water zones, potentially productive zones, lost circulation zones, abnormally pressured zones, and any prospectively valuable deposits of minerals. Any isolating medium other than cement shall receive approval prior to use. The casing setting depth shall be calculated to position the casing seat opposite a competent formation which will contain the maximum pressure to which it will be exposed during normal drilling operations. Determination of casing setting depth shall be based on all relevant factors, including; presence/absence of hydrocarbons; fracture gradients; usable water zones; formation pressures; lost circulation zones; other minerals; or other unusual characteristics. All indications of usable water shall be reported.

c. Casing design shall assume formation pressure gradients of 0.44 to 0.50 psi per foot for exploratory wells (lacking better data).

d. Casing design shall assume fracture gradients from 0.70 to 1.00 psi per foot for exploratory wells (lacking better data)

e. Casing collars shall have a minimum clearance of 0.422 inches of all sides in the hole/casing annulus, with recognition that variances can be granted for justified exceptions.

f. All waiting on cement times shall be adequate to achieve a minimum of 500 psi compressive strength at the casing shoe prior to drilling out.

g. All casing except the conductor casing, shall be new or reconditioned and tested used casing that meets or exceeds API standards for new casing.

h. The surface casing shall be cemented back to surface either during the primary cement job or by remedial cementing.

i. All indications of usable water shall be reported to the authorized officer prior to running the next string of casing or before plugging orders are requested, whichever occurs first.

j. Three centralizers will be run on the bottom three joints of surface casing (minimum of one centralizer per joint starting with the shoe joint.)

k. Top plugs shall be used to reduce contamination of cement by displacement fluid. A bottom plug or other acceptable technique, such as a suitable preflush fluid, inner string cement method, etc. shall be utilized to help isolate the cement from contamination by the mud fluid being displaced ahead of the cement slurry.

l. All casing strings below the conductor shall be pressure tested to 0.22 psi per foot of casing string length or 1500 psi, whichever is greater, but not to exceed 70 percent of the minimum internal yield. If pressure declines more than 10 percent in 30 minutes, corrective action shall be taken.

m. On all exploratory wells, and on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.

n. The proposed casing program will be as follows:

Purpose	Depth	Hole Size	O.D.	Weight	Grade	Type	New or Used
Surface	0-120'	17-1/2"	13-3/8"	48#	H-40	ST&C	New
Intermediate	0-2700'	12-1/4"	9-5/8"	36#	J-55	LT&C	New
Production	0-8400'	8-3/4"	4-1/2"	11.6#	N-80	LT&C	New

o. Casing design subject to revision based on geologic conditions encountered.

p. The cement program will be as follows:

Surface	Type and Amount
0-120'	167 sx Class "G" with 2% bwoc $CaCL_2$, 0.25#/sx flake or sufficient to circulate to surface.
Production	**Type and Amount**
0-2700'	**Lead**: 343sx (35:65) Poz Class "C" with 6% bwoc Bentonite plus 2% bwoc CaCL2 and 0.5% bwoc Sodium Metasilicate + 0.25#/sk Flake. **Tail:** 188 sxs Class "G" cement + 2% bwoc CaCL2, 0.25#/sx Flake, or sufficient to circulate to surface.
6641'-8400'	647 sxs Class "G" with 3% KCl and 0.6% Fluid loss additive plus 0.1% dispersant + 0.2% Sodium Metasilicate and 0.1% Retarder plus 0.25#/sx Cello flakes. Top of cement will be at 6641'. Actual cement volumes will be calculated for caliper logs.

q. The Price River Field Office should be notified, with sufficient lead time, in order to have a BLM representative on location while running all casing strings and cementing.

r. After cementing but before commencing any test, the casing string shall stand cemented until the cement has reached a compressive strength of at least 500 psi at the shoe. WOC time shall be recorded in the driller's log.

s. The following reports shall be filed with the District Manager within 30 days after the work is completed.

1. Progress reports, Form 3160-5 (formerly 9-331) "Sundry Notices and Reports on Wells", must include complete information concerning:

a. Setting of each string of casing, showing the size, grade, weight of casing set, hole size, setting depth, amounts and type of cement used, whether cement circulated or the top of the cement behind the casing, depth of cementing tools used, casing test method and results, and the date work was done. Show the spud date on the first reports submitted.

b. Temperature or bond logs must be submitted for each well where the casing cement was not circulated to the surface.

t. Auxiliary equipment to be used is as follows:

1. Kelly cock

2. No bit float is deemed necessary.

3. A sub with a full opening valve.

5. MUD PROGRAM

a. The proposed circulating mediums to be employed in drilling are as follows:

Interval	Mud Type	Mud Wt.	Visc.	F/L	PH
0-200'	Native Mud	9.0	35	NC	9
200-T.D.	Air/Mist/Foam	N/A	N/A	N/A	N/A

There will be sufficient mud on location to control a blowout should one occur.

A mud test shall be performed every 24 hours after mudding up to determine, as applicable: density, viscosity, gel strength, static filtration loss, and Ph.

b. Mud monitoring equipment to be used is as follows:

1. Periodic checks will be made each tour of the mud system. The mud level will be checked visually.

c. Hazardous substances specifically listed by the EPA as a hazardous waste or demonstrating a characteristic of a hazardous waste will not be used in drilling, testing or completion operations.

6. EVALUATION PROGRAM - TESTING, LOGGING AND CORING

The anticipated type and amount of testing, logging and coring are as follows:

a. No drill stem tests are anticipated however, if a DST is run, the following requirements will be adhered to:

Initial opening of drill stem test tools shall be restricted to daylight hours unless specific approval to start during other hours is obtained from the authorized officer. However, DST's may be allowed to continue at night if the test was initiated during daylight hours and the rate of flow is stabilized and if adequate lighting is available (i.e. lighting which is adequate for visibility and vapor-proof for safe operations). Packers can be released, but tripping shall not begin before daylight, unless prior approval is obtained from the authorized officer. Closed chamber DSTs may be accomplished day or night.

A DST that flows to the surface with evidence of hydrocarbons shall be either reversed out of the testing string under controlled surface conditions or displaced into the formation prior to pulling the test tool. This would involve providing some means for reverse circulation.

Separation equipment required for the anticipated recovery shall be properly installed before a test starts.

All engines within 100 feet of the wellbore that are required to "run" during the test shall have spark arresters or water cooled exhausts.

b. The logging program will consist of a Gamma Ray from surface to T.D., a Caliper, dual induction, litho-density, photo-electron, compensated neutron, temperature, and audio from 120' to 2700' and from 2700' to T.D. A cement bond log will be run from 120 to T.D.

c. No cores are anticipated.

d. Whether the well is completed as a dry hole or as a producer, "Well Completion and Recompletion Report and Log" (Form 3160-4) will be submitted not later than 30 days after completion of the well or after completion of operations being performed, in accordance with 43 CFR 3164. Two copies of all logs, core descriptions, core analyses, well-test data, geologic summaries, sample description, and all other surveys or data obtained and compiled during the drilling, workover, and/or completion operations, will be filed with form 3160-4. Samples (cuttings, fluids, and/or gases) will be submitted when requested by the authorized officer (AO).

e. The anticipated completion program is as follows:

Drill to total depth of approximately 8400'. Run 4 ½" casing through deepest pay as indicated on well logs; perforate 10 feet of any prospective pay zones with 3 3/8" Owens Raptor expendable carrier gun; 4 shots per foot; 120 degree phasing; 32 gram HMX; 0.4" diameter holes; 34" penetration. Anticipate 70% nitrogen-foam stimulation using 100,000# to 150,000# of 20/40 mesh white sand per stage; 30# Purgel III HT fluid system; 18,000 to 20,000 gallon Fluid; 500,000 to 600,000 SCF of nitrogen gas.

7. ANTICIPATED PRESSURES AND H_2S

a. The expected maximum bottom hole pressure is 1700 psi. Under pressuring is anticipated.

b. No hydrogen sulfide gas is anticipated.

8. OTHER INFORMATION AND NOTIFICATION REQUIREMENTS

a. The anticipated number of days to reach T.D. is approximately 14. Completion operations will begin within 60 days following completion of drilling operations.

b. Should the well be successfully completed for production, the AO will be notified when the well is placed in a producing status. Such notification will be sent by telegram or other written communications, not later than 5 days following the date on which the well is placed on production.

c. Production data shall be reported to the MMS pursuant to 30 CFR 216.5 using form MMS/3160.

d. The date on which production is commenced or resumed will be construed for oil wells as the date on which liquid hydrocarbons are first sold or shipped from a temporary storage facility, such as a test tank, and for which a run ticket is required to be generated or, the date on which liquid hydrocarbons are first produced into a permanent storage facility, whichever first occurs; and, for gas wells as the date on which associated liquid hydrocarbons are first sold or shipped from a temporary storage facility, such as a test tank, and for which a run ticket is required to be generated or the date on which gas is first measured through permanent metering facilities, whichever first occurs.

e. Pursuant to NTL-4A, lessees or operators are authorized to vent/flare gas during initial well evaluation tests, not exceeding a period of 30 days or the production of 50 MMCF of gas, whichever occurs first. An application must be filed with the District Engineer and approval received, for any venting/flaring of gas beyond the initial 30 day or authorized test period.

f. Gas produced from this well may not be vented or flared beyond an initial authorized test period of 30 days or 50 MMCF following its completion, whichever occurs first, without the prior written approval of the Authorized Officer. Should gas be vented or flared without approval beyond the authorized test period, the operator may be directed to shut-in the well until the gas can be captured or the operator shall be required to compensate the lessor for that portion of the gas vented or flared without approval which is determined to have been avoidably lost.

g. A schematic facilities diagram as required by 43 CFR 3162.7-2, 3162.7-3 and 3162.7-4 shall be submitted to the appropriate District Office within 30 days of installation or first production, whichever occurs first. All site security regulations as specified in 43 CFR 3162.7 and Onshore Order No. 3 shall be adhered to. All product lines entering and leaving hydrocarbon storage tanks will be effectively sealed in accordance with 43 CFR 3162.7-4.

h. Section 102(b)(3) of the Federal Oil and Gas Royalty Management Act of 1982, as implemented by the applicable provisions of the operating regulations at Title 43 CFR 3162.4-1(c), requires that "not later than the 5th business day after any well begins production on which royalty is due anywhere on a lease site or allocated to a lease site, or resumes production in the case of a well which has been off production for more than 90 days, the operator shall notify the authorized officer by letter or sundry notice, Form 3160-5, or orally to be followed by a letter or sundry notice, of the date on which such production has begun or resumed."

If you fail to comply with this requirement in the manner and time allowed, you shall be liable for a civil penalty of up to $10,000 per violation for each day such violation continues, not to exceed a maximum of 20 days. See Section 109(c)(3) of the Federal Oil and Gas Royalty Management Act of 1982 and the implementing regulations at Title 43 CFR 3162.4-1(b)(5)(ii).

i. Operations are planned to commence on July 15, 2000.

j. It is anticipated that the drilling of this well will take approximately 14 days.

k. No location will be constructed or moved, no well will be plugged, and no drilling or workover equipment will be removed from a well to be placed in a suspended status without prior approval of the AO. If operations are to be suspended, prior approval of the AO will be obtained and notification given before resumption of operations.

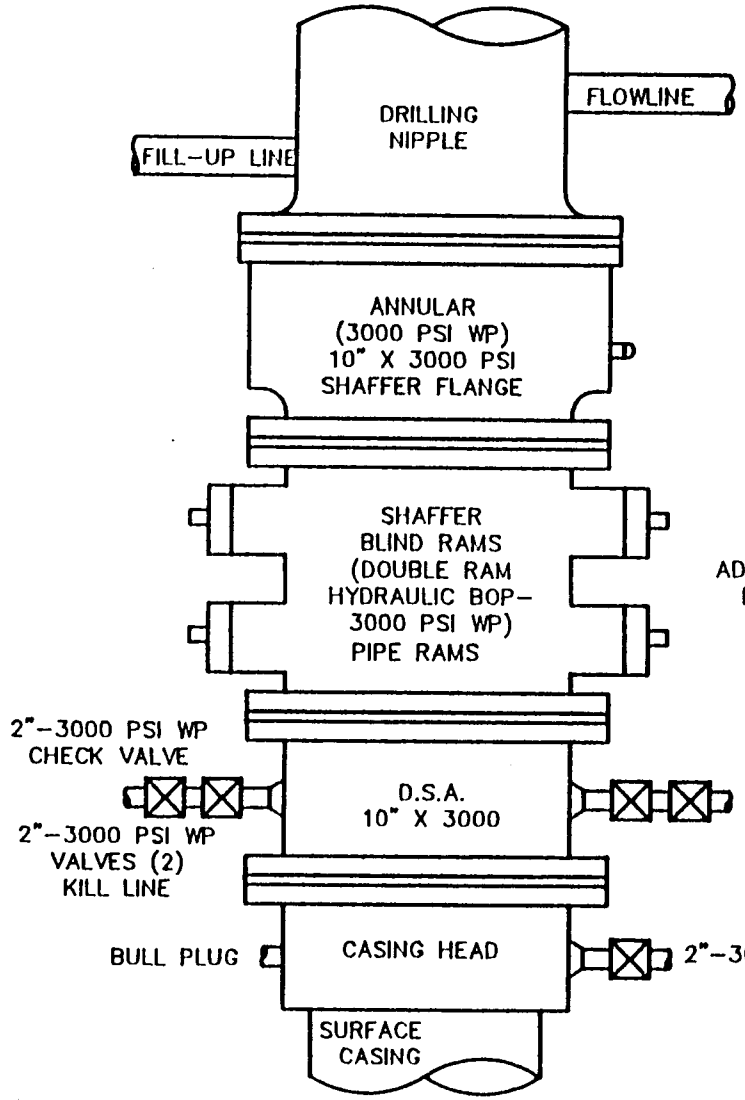
l. Immediate Report: Spills, blowouts, fires, leaks, accidents, or any other unusual occurrences shall be promptly reported in accordance with the requirements of NTL-3A or its revision.

m. If a replacement rig is contemplated for completion operations, a "Sundry Notice" Form 3160-5 to that effect will be filed, for prior approval of the AO, and all conditions of this approved plan are applicable during all operations conducted with the replacement rig.

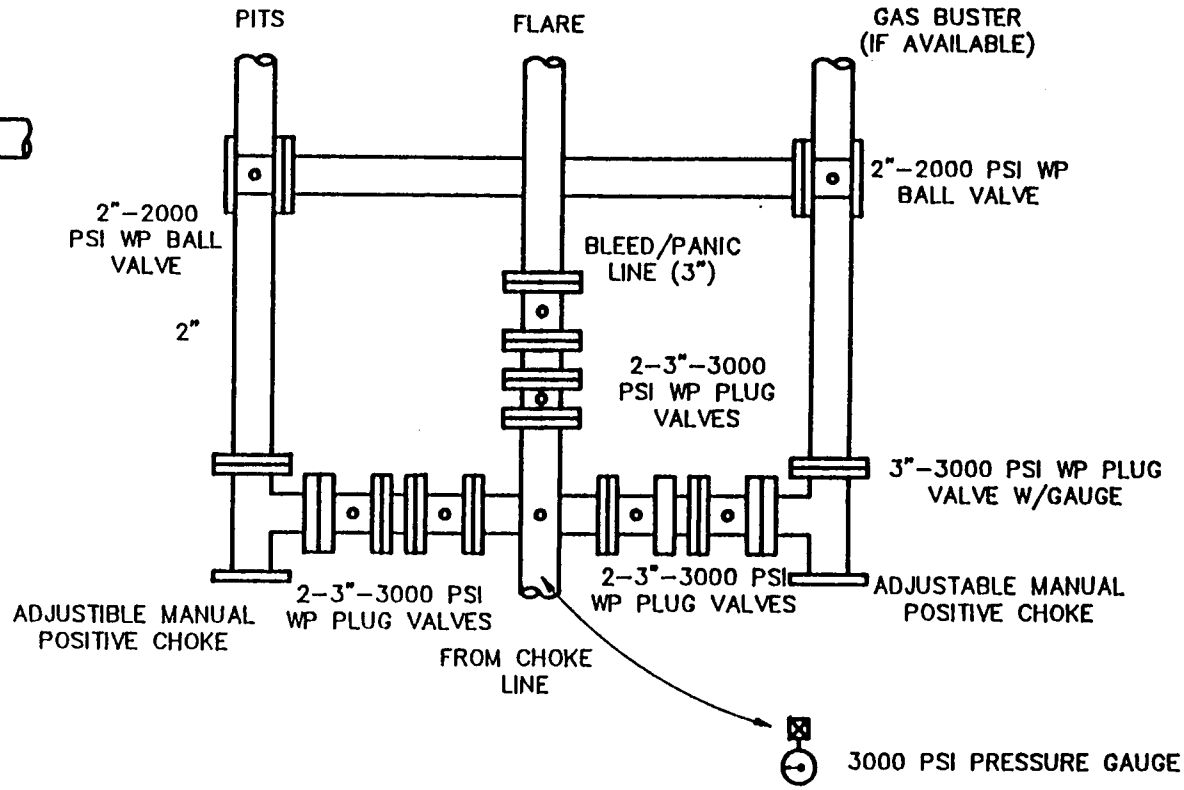
n. Pursuant to Onshore Order No. 7, with the approval of the District Engineer, produced water may be temporarily disposed of into unlined pits for a period of up to 90 days. During the period so authorized, an application for approval of the permanent disposal method, along with the required water analysis and other information, must be submitted to the District Engineer.

o. No well abandonment operations will be commenced without the prior approval of the AO. In the case of newly drilled dry holes or failures, and in emergency situations, oral approval will be obtained from the SO. A "Subsequent Report of Abandonment" Form 3160-5, will be filed with the AO within 30 days following completion of the well for abandonment. This report will indicate where plugs were placed and the current status of surface restoration. Final abandonment will not be approved until the surface reclamation work required by the approved APD or approved abandonment notice has been completed to the satisfaction of the AO or his representative. or the appropriate Surface Managing Agency.

BOP SCHEMATIC
3000 PSI WORKING PRESSURE



PLAN VIEW CHOKE MANIFOLD



THE HYDRAULIC CLOSING UNIT WILL BE LOCATED MORE THAN 30' FROM THE WELLHEAD. CHOKE AND BLEED/PANIC LINES WILL GO TO THE PIT AND FLARE. ALL CONNECTIONS IN CHOKE LINES AND MANIFOLD WILL BE FLANGED OR WELDED. ALL FLANGES SHOULD BE RING JOINT GASKET TYPE. ALL TURNS IN LINES SHALL BE CONSTRUCTED USING TARGETING 90° TEES OR ELLS. ALL LINES SHALL BE ANCHORED.

ONSHORE OIL & GAS ORDER NO. 1

Thirteen Point Surface Use Plan

The onsite inspection for the subject well was conducted on Tuesday, August 26, 1999 at approximately 4:20 p.m. Weather conditions were cool and cloudy. In attendance at the onsite inspection were the following individuals:

Robert Kay	Land Surveyor	Uintah Eng. & Land Surveying
Lisa Smith	Permitting Agent	Permitco Inc.
Tom Carpenter	Geologist	Petroleum Development Corporation
Jeff DeFreest	District Geologist	U.S. Forest Service
Brent Barney	Transportation Engineer	U.S. Forest Service
Carter Reed	Geologist	U.S. Forest Service
Will Wilson	Geologist	U.S. Forest Service
Stan Anderson	Wildlife Biologist	U.S. Forest Service
Sandra Kaminski	Range Conservationist	U.S. Forest Service
Leland Matheson	Land & Special Uses	U.S. Forest Service
Katherine Foster	Hydrologist	U.S. Forest Service
Rob Davies	Soils/Fisheries	U.S. Forest Service
Mike Kaminski	Petro. Engineering Tech.	Bureau of Land Management - Price
Michael Jackson	Geologist	Bureau of Land Management - Richfield

1. EXISTING ROADS

a. The proposed well site is located approximately 21.9 miles northwest of Orangeville, Utah.

b. Directions to the location from Orangeville, Utah are as follows:

Proceed west on Highway 29 for 15.4 miles. Turn right and proceed northerly on the Joe's Valley Road for 6.5 miles. Turn left onto the new access. The proposed well pad sits adjacent to the Joe's Valley Road on the west side.

c. For location of access roads within a 2-Mile radius, see Maps "A" & "B".

d. The Joe's Valley Road is an improved road. No further improvements will be needed.

e. All existing roads will be maintained and kept in good repair during all drilling and completion operations associated with this well.

f. Existing roads and newly constructed roads on surface under the jurisdiction of any Surface Managing Agency shall be maintained in accordance with the standards of the SMA.

g. Vehicle operators will obey posted speed restrictions and observe safe speeds commensurate with road and weather conditions.

2. PLANNED ACCESS ROADS

a. The new access is approximately 500 feet in length. Due to the short distance of the new access, a road design will not be necessary. The new access will be crowned and ditched prior to drilling of the well.

b. The maximum grade will be approximately 3 percent.

c. Due to the short length of the new access, no turnouts will be needed.

d. One 18" culvert will be installed along where the new access leaves the Joe's Valley Road.

e. The new access road was centerline flagged at the time of staking.

f. No cattle guards will be necessary.

g. Surface disturbance and vehicular travel will be limited to the approved location and approved access route. Any additional area needed will be approved in advance. Unauthorized off-road vehicular travel is prohibited.

h. Adequate signs will be posted along Forest Development Roads to warn the public of project related traffic.

3. **LOCATION OF EXISTING WELLS WITHIN A 1-MILE RADIUS OF THE PROPOSED LOCATION.**
See Attached Map.

a. Water wells -none

b. Injection wells -none

c. Producing wells - none

d. Drilling wells - none

4. **LOCATION OF TANK BATTERIES AND PRODUCTION FACILITIES.**

a. All permanent structures (onsite for six months or longer) constructed or installed (including oil well pump jacks) will be painted a neutral color to blend with the surrounding environment. The proposed color for this site is Carlsbad Canyon unless otherwise stipulated by the Forest Service. Facilities required to comply with the Occupational Safety and Health Act (OSHA) will be excluded.

b. If storage facilities/tank batteries are constructed on this lease, the facility/battery or the well pad will be surrounded by a containment dike of sufficient capacity to contain at a minimum, the entire content of the largest tank within the facility/battery, unless more stringent protective requirements are deemed necessary by the authorized officer.

c. All loading lines will be placed inside the berm surrounding the tank battery.

d. Gas meter runs for each well will be located within 500 feet of the wellhead. The gas flow line will be buried or anchored down from the wellhead to the meter and 500 feet downstream of the meter run or any production facilities. Meter runs will be housed and/or fenced.

e. The oil and gas measurement facilities will be installed on the well location. The oil and gas meters will be calibrated in place prior to any deliveries. Tests for meter accuracy will be conducted monthly for the first three months on new meter installations and at least quarterly thereafter. The AO will be provided with a date and time for the initial meter calibration and all future meter proving schedules. A copy of the meter calibration reports will be submitted to the BLM in Price, Utah. All meter measurement facilities will conform with Onshore Oil and Gas Order No. 4 for liquid hydrocarbons and Onshore Oil and Gas Order No. 5 for natural gas measurement.

f. A production facility diagram is attached showing placement of all proposed production facilities. If the facilities should change from that submitted, a revised production diagram will be submitted. Production facilities will be subject to further environmental analyses and approval by the Forest Service.

g. Installation of any oil or gas flow lines will be done along the proposed access routes.

h. Any necessary pits will be properly fenced to prevent any wildlife entry.

i. All site security guidelines identified in 43 CFR 3162.7 regulations will be adhered to.

j. All off-lease storage, off-lease measurement, or commingling on-lease or off-lease will have prior written approval from the Authorized Officer.

k. All access roads will be maintained as necessary to prevent erosion and accommodate year-round traffic. The road will be maintained in a safe useable condition.

l. The site will require periodic maintenance to ensure that drainages are kept open and free of debris, ice, and snow, and that surfaces are properly treated to reduce erosion, fugitive dust, and impacts to adjacent areas.

m. All gasoline, diesel and steam-powered equipment will be equipped with effective spark arresters or mufflers. Spark arresters will meet Forest Service specifications discussed in the USDA Forest Service Spark Arrester Guide. In addition, all electrical equipment must be properly insulated to prevent sparks.

n. A gas pipeline will be constructed along the Miller Flat Road and then turn easterly to a tie in point located in Section 22, T16S - R6E. See Map C attached and pipeline attachment for additional details.

5. LOCATION AND TYPE OF WATER SUPPLY

a. All water needed for drilling purposes will be obtained from Joe's Valley Reservoir or Miller Flat Reservoir . The point of diversion will be determined by the Irrigation District prior to use of this water source.

b. A copy of the approved water permit will be submitted under separate cover.

c. Water needed for operations will be properly and legally obtained according to State water laws. The location of diversion, if on National Forest System lands, is subject to Forest Service approval.

6. SOURCE OF CONSTRUCTION MATERIAL

a. Surface and subsoil materials in the immediate area will be utilized.

b. Any gravel used will be obtained from a private or commercial source unless other arrangements are made with the forest service.

c. The use of materials under BLM jurisdiction will conform with 43 CFR 3610.2.3. Construction material will not be located on lease.

d. No construction materials will be removed from Federal land.

7. METHODS OF HANDLING WASTE DISPOSAL

a. The reserve pit will be constructed so as not to leak, break, or allow discharge. The reserve pit will be lined with a minimum 10 mil plastic liner.

b. The reserve pit will be constructed of sufficient size and capacity for the necessary fluids for drilling and to contain any runoff from the drill site. Pits will not be constructed within intermittent or perennial stream channels.

c. No trash, scrap pipe, etc., that could puncture the liner will be disposed of in the pit.

d. The reserve pit will be constructed in undisturbed material and below the natural ground level.

e. All drilling fluids will be contained in the reserve pit. All appropriate measures will be taken to assure that leakage through the reserve pit does not occur and that fluids are not allowed to overflow. A minimum 2-foot freeboard will be maintained in the pit at all times during the drilling operation and the pit will be fenced during drilling and completion operations.

f. Burning of garbage and debris is prohibited. All trash will be contained in a trash cage and its contents periodically disposed of off the Forest at an approved refuse facility.

g. After first production, produced waste water will be confined to a unlined pit or storage tank for a period not to exceed ninety (90) days. During the 90-day period, in accordance with Onshore Order No. 7, an application for approval of a permanent disposal method and location, along with the required water analysis, will be submitted for the AO's approval. Failure to file an application within the time allowed will be considered an incident of noncompliance.

h. Drill cuttings are to be contained and buried in the reserve pit.

i. Any salts and/or chemicals which are an integral part of the drilling system will be disposed of in the same manner as the drilling fluid.

j. Sanitary facilities are required on site at all times during operations. Sewage will be placed in a portable chemical toilet or holding tank and disposed of in accordance with state and county regulations. The installation of facilities, other than self contained chemical toilets, is subject to State and Forest Service approval.

k. The produced fluids (other than water) will be produced into a test tank until such time as construction of production facilities is completed. Any spills of oil, gas salt water or other produced fluids will be cleaned up and removed.

8. ANCILLARY FACILITIES

There are no airstrips, camps, or other facilities planned during the drilling of the proposed well.

9. WELL SITE LAYOUT

a. Section corners, survey markers and claim corners in the project area will be located and flagged by Petroleum Development Corporation prior to operations. The removal or disturbance of identified markers will be approved by the proper authority.

b. The pad and road designs will be consistent with Forest Service specifications as outlined in the Region 4 Oil and Gas Roading Guidelines (Attachment 1) and the Manti-La Sal National

Forest Oil and Gas Well Site Guidelines (Attachment 2) and are subject to Forest Service approval. No construction operations may begin prior to approval. any modifications to approved plans are also subject to review and approval.

c. A pre-construction meeting including the responsible company representative(s), contractors, and the Forest Service must be conducted at the project site prior to commencement of surface-disturbing activities. The pad and road work must be construction-staked prior to this meeting. Site-specific requirements will be discussed at that time.

d. The well pad has been staked at it's maximum size, however it will be constructed smaller if possible, depending upon rig availability.

e. The operator shall submit for approval,(within 90 days following completion of the well), a maintenance plan for the site, the project road and that portion of nay Forest Development Road to be used for project access. A road use permit must be obtained from the Forest Service authorizing commercial use of Forest Development Roads. Requirements listed in the road-use permit must be followed. In the event of a discovery, an undated maintenance plan will be required.

f. The operator will acquire appropriate permission to use non-Forest Service Roads.

g. The project engineer and surveyors are certified by the State in which they reside or maintain their business.

h. All surface disturbing activities, including reclamation, will be supervised by a qualified, responsible official or representative of Petroleum Development Corp. who is aware of the terms and conditions of the APD and specifications in the approved plans.

i. All cut and fill slopes will be such that stability can be maintained for the life of the activity. Cut and fill slopes will be constructed as follows:

Height of Slope	Slope
0-5 feet	3:1
6-10 feet	2:1
over 10 feet	1-1/2:1

PETROLEUM PERMITTING PERMITCO COMPANY

j. All fills will be free from vegetative materials and will be compacted in lifts no greater than 12 inches in thickness to a minimum of 90 percent Proctor dry density sufficient to prevent excessive settlement.

k. If the well is productive, the working surface of the drill site will be surfaced with crushed gravel to a depth sufficient to support anticipated loads throughout the life of the well. Usually a depth of 12 inches of gravel is anticipated.

l. A diversion ditch having the minimum dimensions of 3 feet horizontal to 1 foot vertical (3:1 ditch), will be constructed around the site to divert surface waters from flowing onto the site. The ditch will be located at the base of the cut slope and around the toe of the fill slopes (see Drawing No. 1 - Construction Requirements for Typical Well Sites). A straw dike will be constructed in the ditch outflow to trap any sediment produced from the raw slopes. A culvert will be necessary where the access road enters the site.

m. A berm will be constructed around the perimeter of the site to contain all precipitation, spills, and other fluids from leaving the site. The berm will be a minimum of 18 inches high, 12 inches wide at the top, and having 1-1/2:1 side slopes. The site surface will be graded to drain to the reserve pit. The drainage pattern to be constructed will be modified for each site, depending on the site specific conditions.

n. The reserve pit will be located on the southwest side of the location.

o. The stockpiled topsoil (first 12 inches or maximum available) will be stored along the southeast side of the location as shown on the rig layout. All topsoil must be stripped from areas to be disturbed and stockpiled for reclamation in such a way as to prevent soil loss and contamination.

p. See Location Layout for orientation of rig, cross section of drill pad and cuts and fills.

q. The location of mud tanks; reserve pit, trash cage; pipe racks; living facilities and soil stockpiles will be shown on the Location Layout.

r. All pits will be fenced to prevent wildlife entry.

s. The reserve pit fencing (5 strand barbed wire) will be on three sides during drilling operations and on the fourth side when the rig moves off the location. Pits will be fenced and maintained until cleanup.

t. Quality Permits as required by the Utah Air Quality Division of the EPA (Ursala Kramer) for the Colorado River Air Quality Basin will be obtained by Petroleum Development Corporation and submitted under separate cover.

10. PLANS FOR RESTORATION OF SURFACE

Dry Hole

a. Rehabilitation of the entire site will be required and will commence immediately after the drilling is complete. The site will be restored as nearly practical to its original condition. Cut and fill slopes will be reduced and graded to conform to the adjacent terrain.

b. Fluids in the reserve pit will be siphoned off and hauled to an approved disposal source, or re-used at another drill site. Petroleum Development Corp. will attempt to reclaim the reserve pit prior to winter, or the following summer.

c. Drainages will be reestablished and temporary measures will be required to prevent erosion to the site until vegetation is established.

d. Generally speaking, the standpipe for well identifications will be removed on National Forest lands. A final determination will be made on a case-by-case basis.

e. After final grading and before the replacement of topsoil, the entire surface of the site shall be scarified to eliminate slippage surfaces and to promote root penetration. Topsoil will then be spread over the site to achieve an approximate uniform, stable thickness consistent with the established contours.

f. A temporary fence (let down fence) will be constructed around the site to prevent continued use until the required reclamation standards are successfully achieved. The fence will then be removed.

g. In general, the disturbed areas will be considered adequately revegetated when at least 90 percent of the original ground over is re-established over 90 percent of the seeded area, within three years of planting, consisting of seeded and desirable species. Maximum allowable non-noxious weeds is 10 percent of the total ground cover at any time. No noxious weeds will be allowed on the site; they must be treated as they occur. The operator is responsible for maintenance of reclamation facilities such as fences, barricades and

temporary drainage structures until the desired reclaimed conditions are achieved. If the desired ground cover is not established at the end of each 3 year period, an analysis of why the areas has not recovered will be performed by the operator and additional treatment and seeding will be required based on the results of the analysis.

h. Straw, hay, feed, or pellets used on the National Forests of Utah must be certified weed-free by the State of Utah.

i. At such time as the well is plugged and abandoned, the operator shall submit a subsequent report of abandonment.

j. The well pad and access road will be reclaimed as per Forest Service standards (within normal oilfield operations). The operator will be informed of Forest Service requirements within 2 weeks following completion of the well to determine if the Forest Service can utilize the access road and/or well pad for recreational purposes. If the Forest Service agrees to take over the access and/or well pad, they also agree to take full responsibility for continued use and maintenance of the area and all liability associated with same.

Producing Location

k. Site reclamation for producing wells will be accomplished for portions of the site not required for the continued operation of the well. All disturbed surface will be treated to prevent erosion and to complement the esthetics of the area. A new site plan will be required encompassing the facilities required for operation and interim reclamation measures.

l. Immediately upon well completion, the location and surrounding area will be cleared of all unused tubing, equipment, debris, materials, trash and junk not required for production.

m. Immediately upon well completion, any hydrocarbons on the pit shall be removed in accordance with 43 CFR 3162.7-1.

n. The plastic nylon reinforced liner shall be torn and perforated before backfilling of the reserve pit.

o. At the end of drilling operations, drilling fluids will be hauled to an approved disposal site. All polluting substances or contaminated materials, such as oil, oil-saturated soils, and gravel, will be buried with a minimum of 2 feet of clean soil as cover or be removed from the Forest.

p. The reserve pit must be dry before it is backfilled and reclaimed. Once the reserve pit is dry, the reserve pit and that portion of the location not needed for production facilities/operations will be recontoured to the approximate natural contours. Methods for drying the pit, other than natural evaporation, are subject to prior Forest Service approval.

q. The cut and fill slopes and all other disturbed areas not needed for the production operation will be top soiled and revegetated. The berm will be removed and the site graded to drain.

r. Stockpiled topsoil will be redistributed evenly over the disturbed area upon reclamation.

s. The site will be seeded and/or planted as prescribed by the Forest Service. Nutrients and soil amendments will be applied to the redistributed surface soil later as necessary to meet the revegetation requirements. The seed mix is as follows:

Species	***#'s PLS/Acre***
Slender Wheatgrass	2
Intermediate Wheatgrass	2
Timothy	2
Orchard Grass	2
Perennial Rye	2
Alfalfa (Ladak)	1

11. SURFACE OWNERSHIP

Access Roads - All roads are located within the Manti-La Sal National Forest, or are maintained by the County or State Highway Departments.

Well pad - The well pad is located on lands managed by the Manti-La Sal National Forest.

12. OTHER INFORMATION

a. Move-in and move-out of the drill rig will not be allowed during major national holiday weekends and will be restricted during the big game hunting seasons as specified by the Forest Service as conditions for approval of the Surface-Use Plan of Operations.

b. A Class III archeological survey was conducted by Senco-Phenix. No significant cultural resources were found and clearance has been recommended. A copy of this report will be submitted to the appropriate agencies by Senco-Phenix.

c. The operator is responsible for informing all persons in the areas who are associated with this project that they will be subject to prosecution for knowingly disturbing historic or archaeological sites, or for collecting artifacts. If historic or archaeological materials are uncovered during construction, the operator is to immediately stop work that might further disturb such materials, and contact the authorized officer (AO). Within five working days the AO will inform the operator as to:

-whether the materials appear eligible for the National Register of Historic Places;

-the mitigation measures the operator will likely have to undertake before the site can be used (assuming in situ preservation is not necessary); and

-a time frame for the AO to complete and expedited review under 36 CFR 800.11 to confirm, through the State Historic Preservation Officer, that the findings of the AO are correct and that mitigation is appropriate. If the operator wishes, at any time, to relocate activities to avoid the expense of mitigation and/or the delays associated with this process, the AO will assume responsibility for whatever recordation and stabilization of the exposed materials may be required. Otherwise, the operator will be responsible for mitigation costs. The AO will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the AO that required mitigation has been completed, the operator will then be allowed to resume construction.

d. All lease and/or unit operations will be conducted in such a manner that full compliance is made with all applicable laws, regulations, Onshore Oil and Gas Orders, the approved plan of operations, and any applicable Notice to Lessees. The operator is fully responsible for the actions of his subcontractors. A copy of these conditions will be furnished the field representative to insure compliance.

e. A complete copy of the approved APD shall be on location during construction of the location and drilling activities.

f. There will be no deviation from the proposed drilling and/or workover program without prior approval from the AO. Safe drilling and operating practices must be observed. All wells, whether drilling, producing, suspended, or abandoned will be identified in accordance with 43 CFR 3162.h.

g. "Sundry Notice and Report on Wells" (From 3160-5) will be filed for approval for all changes of plans and other operations in accordance with 43 CFR 3162.3-2.

h. This permit will be valid for a period of one year from the date of approval. An extension period may be granted, if requested, prior to the expiration of the original approval period.

i. The operator or his contractor shall contact the U.S. Forest Service at 801/637-2817 48 hours prior to construction activities.

j. Fire suppression equipment must be available to all personnel on the project site. Equipment will include a minimum of one hand tool per crew member consisting of shovels, pulaskis, and chainsaws and one properly rated fire extinguisher per vehicle and/or internal combustion engine.

k. Petroleum Development Corporation will be held responsible for damage and suppression costs for fires started as a result of operations. Fires must be reported to the Forest Service as soon as possible.

l. All accidents or mishaps resulting in resource damage and/or serious personal injury must be reported to the Forest Service as soon as possible.

m. Harassment of wildlife and livestock is prohibited.

n. All merchantable timber removed or destroyed by construction or other project related activities will be purchased by the operator at fair market value. The Forest Service will conduct a timber cruise and appraisal after the final clearing limits have been staked. Slash burning will be conducted only at locations approved by the Forest Service under authorization or a burning permit.

o. A Spill Prevention Control and Countermeasure Plan (SPCC) will be submitted under separate cover by Environmental Industrial Services of Helper, Utah (Mel Coonrod).

13. LESSEE'S OR OPERATOR'S REPRESENTATIVE AND CERTIFICATION

Permit Matters

PERMITCO INC.
Lisa L. Smith
14421 Weld County Road 10
Ft. Lupton, CO 80621
303/857-9999 (W)
413/812-1691 (E-Fax)

Drilling & Completion Matters

PETROLEUM DEVELOPMENT CORP.
103 E. Main Street
Bridgeport, WV 26330
Tom Carpenter - Geologist
800/624-3821- (W)
304/824-0913 - (F)
304/842-4277 - (H)
Gary Fridley - Landman
304/745-3120

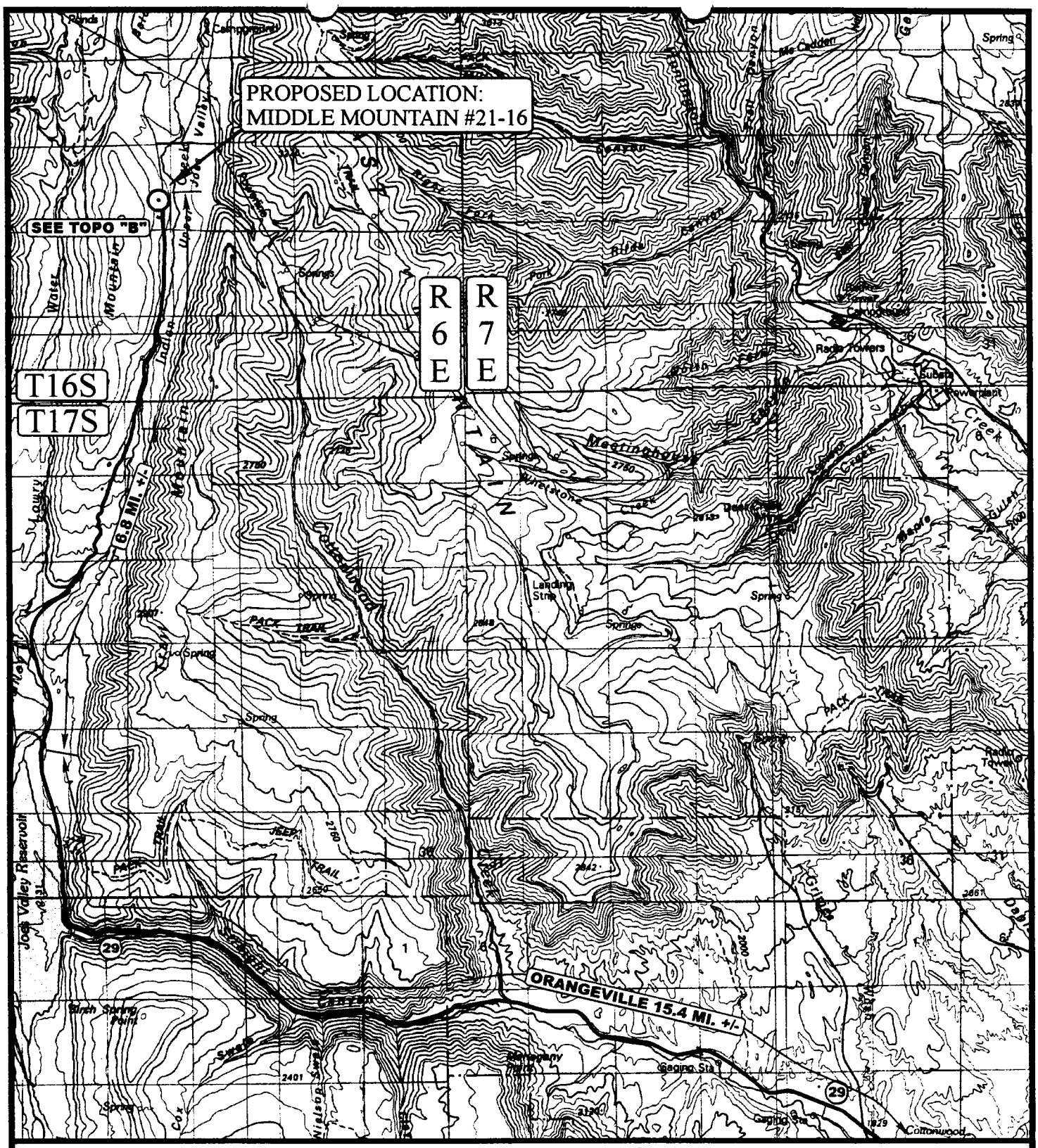
Certification

I hereby certify that I, or persons under my direct supervision, have inspected the proposed drill site and access route; that I am familiar with the conditions which presently exist; that the statements made in this plan are, to the best of my knowledge, true and correct; and, that the work associated with the operations proposed herein will be performed by Petroleum Development Corp. and its contractors and subcontractors in conformity with the plan and the terms and conditions under which it is approved.

This statement is subject to the provisions of 18.U.S.C. 1001 for the filing of a false statement.

December 3, 1999
Date:

Lisa L. Smith - PERMITCO INC.
Authorized Agent for:
Petroleum Development Corporation



LEGEND:

⊙ PROPOSED LOCATION

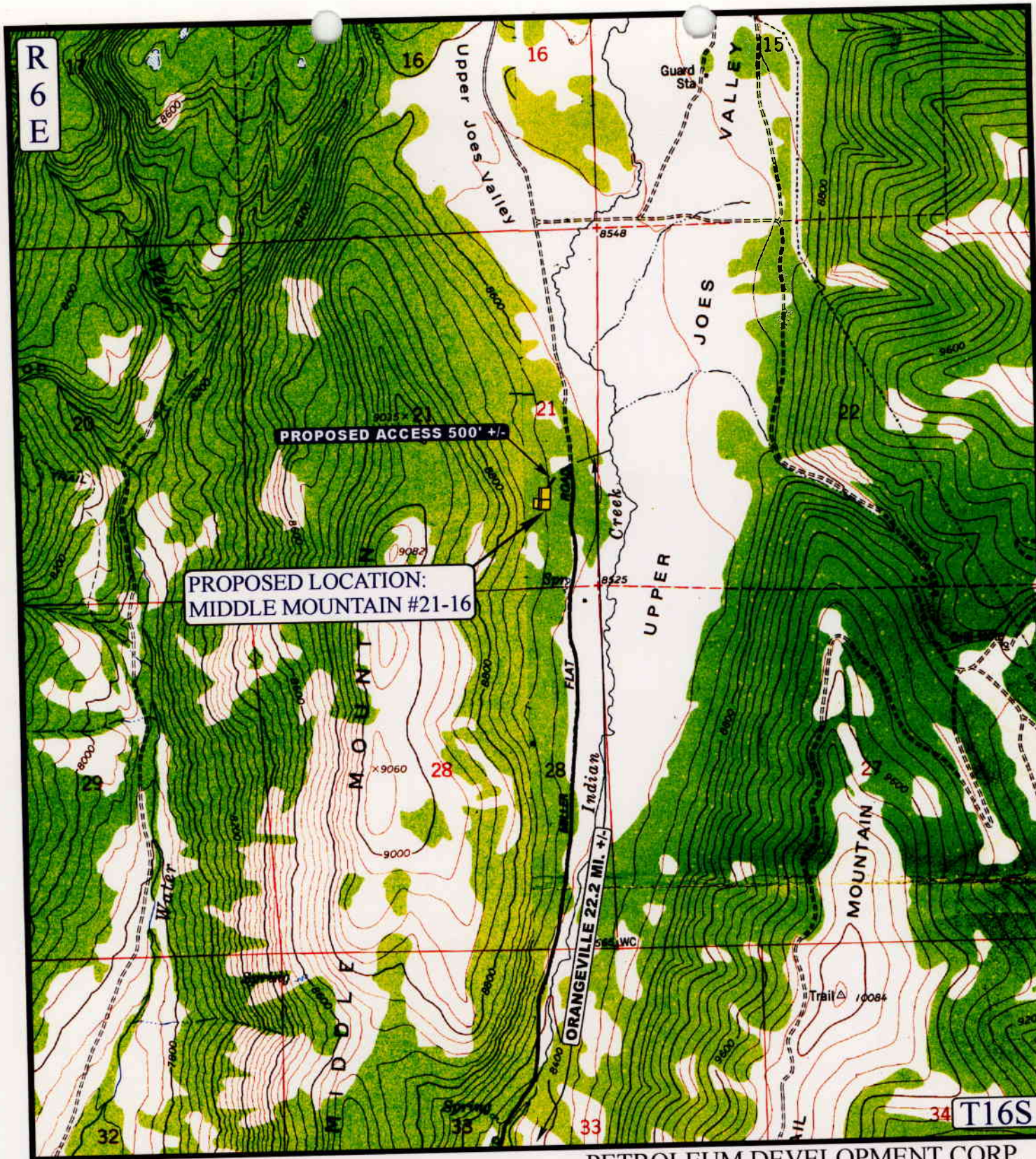
N

PETROLEUM DEVELOPMENT CORP.

MIDDLE MOUNTAIN #21-16
SECTION 21, T16S, R6E, S.L.B.&M.
1309' FSL 834' FEL

Uintah Engineering & Land Surveying
85 South 200 East Vernal, Utah 84078
(435) 789-1017 * FAX (435) 789-1813

TOPOGRAPHIC MAP	6 MONTH	22 DAY	99 YEAR	A TOPO
SCALE: 1 : 100,000	DRAWN BY: J.L.G.	REVISED: 10-13-99		



LEGEND:

PROPOSED ACCESS ROAD

EXISTING ROAD

N

PETROLEUM DEVELOPMENT CORP.

MIDDLE MOUNTAIN #21-16
SECTION 21, T16S, R6E, S.L.B.&M.
1309' FSL 834' FEL

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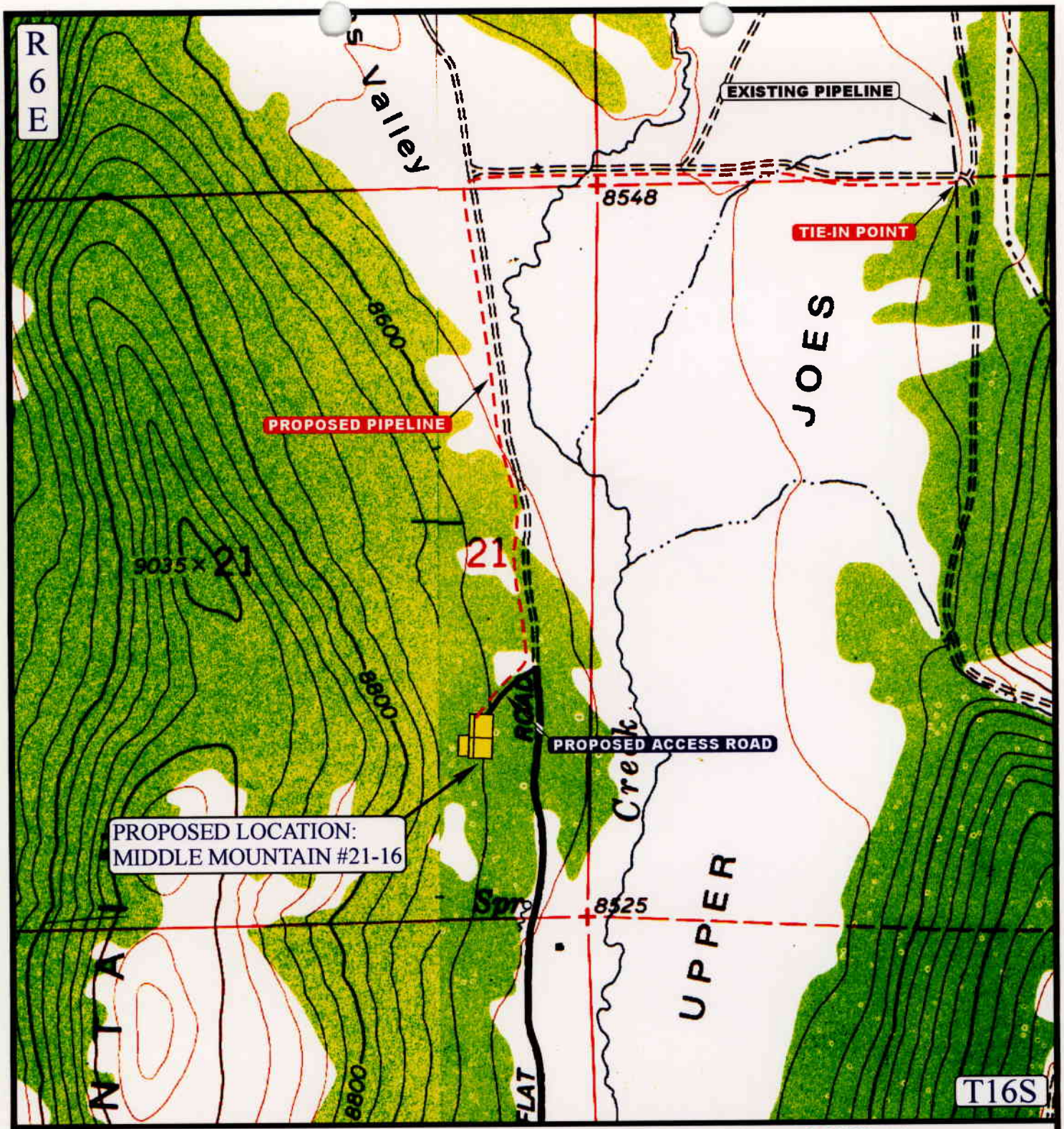
TOPOGRAPHIC MAP	6 MONTH	22 DAY	99 YEAR	B TOPO
SCALE: 1" = 2000'	DRAWN BY: J.L.G.	REVISED: 10-13-99		



APPROXIMATE TOTAL PIPELINE DISTANCE = 8400' +/-

LEGEND:

EXISTING PIPELINE

PROPOSED PIPELINE

PROPOSED ACCESS

N

PETROLEUM DEVELOPMENT CORP.

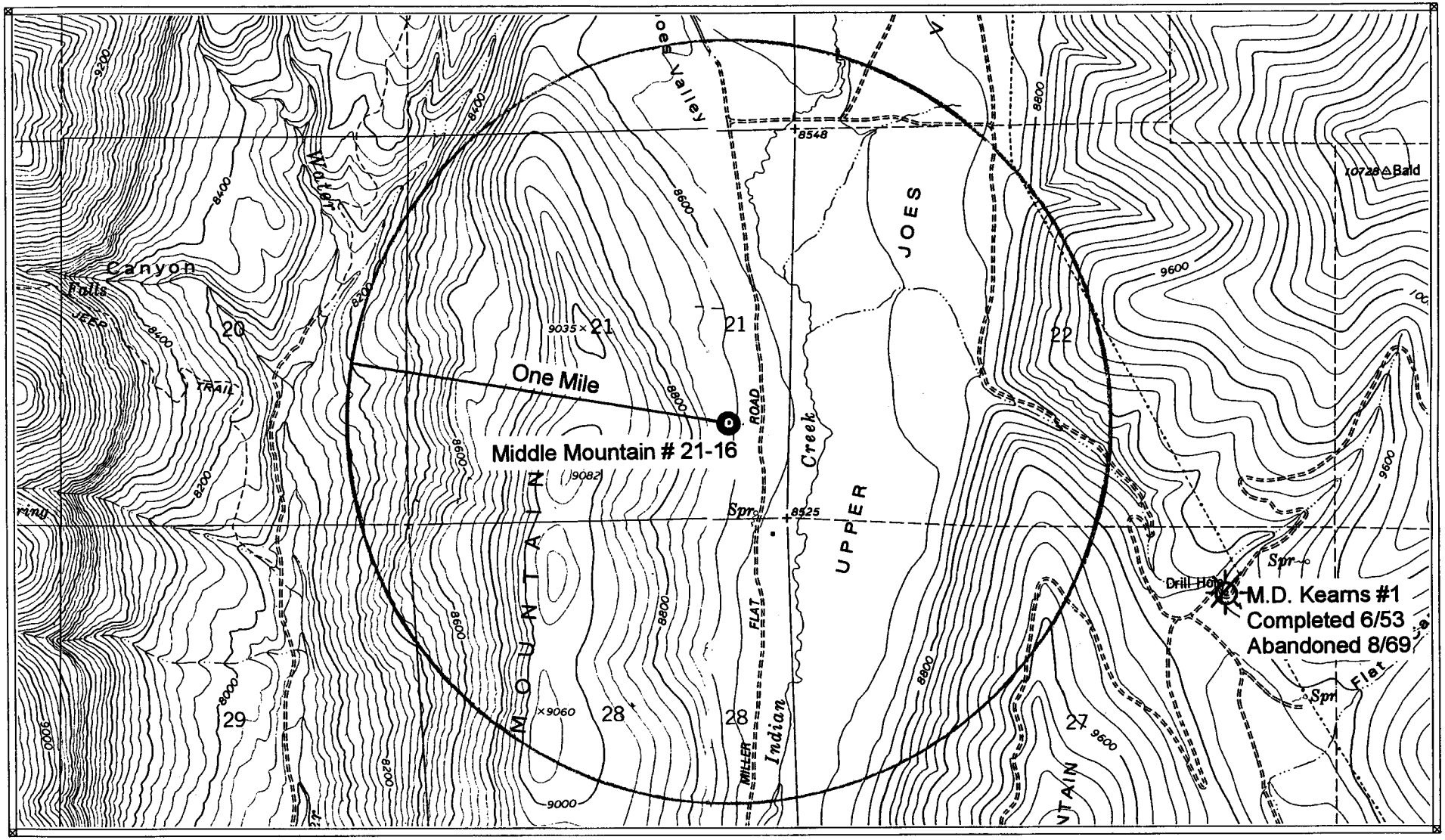
MIDDLE MOUNTAIN #21-16

SECTION 21, T16S, R6E, S.L.B.&M.

1309' FSL 834' FEL

Uintah Engineering & Land Surveying
85 South 200 East Vernal, Utah 84078
(435) 789-1017 * FAX (435) 789-1813

TOPOGRAPHIC MAP	10 MONTH	18 DAY	99 YEAR	C TOPO
SCALE: 1" = 1000'	DRAWN BY: J.L.G.	REVISED: 00-00-00		



Scale 1:24000.

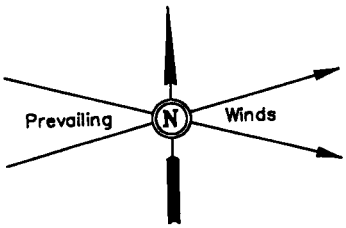
1000. 0. 1000. 2000. 3000. 4000. 5000. feet

Petroleum Development Corporation		
Wells Within a One Mile Radius of Middle Mountain #21-16 Drillsite Emery County, Utah		
Sec 21-T16S-R6E		11/10/99
	Scale 1:24000.	carpenter

PETROLEUM DEVELOPMENT CORP.

LOCATION LAYOUT FOR

MIDDLE MOUNTAIN #21-16
SECTION 21, T16S, R6E, S.L.B.&M.
1309' FSL 834' FEL



SCALE: 1" = 50'
DATE: 10-14-99
Drawn By: C.B.T.

Proposed Access Road

C-8.4' El. 63.6'
C-3.2' El. 58.4'
F-7.4' El. 47.8'
Sta. 3+25

Round Corners as needed

REGISTERED LAND SURVEYOR
No. 161319
ROBERT L. KAY
STATE OF UTAH

Subsoil Stockpile

175'

CATWALK

PIPE RACKS

El. 69.7'
C-24.5' (btm. pit)
Flare Pit
C-4.4' El. 59.6'

C-0.6' El. 55.8'

FUEL

75'
15'
35'
135'
Sta. 1+50
F-11.2' El. 44.0'

RIG
DOG HOUSE
WATER
C-4.3' El. 59.5'

Pit Capacity With 2' of Freeboard is ± 10,790 Bbls.

10' WIDE BENCH
150'
1:1 1/2 SLOPE

MUD TANKS
PUMP
MUD SHED
150'
HOPPER
POWER
TOOLS
FUEL
TRAILER
TOILET
STORAGE TANK

RESERVE PITS 10' Deep)

Sta. 0+30
C-5.5' El. 60.7'

TRASH
15'

Sta. 0+00
F-12.5' El. 42.7'

El. 73.8'
C-28.6' (btm. pit)

Reserve Pit Backfill & Spoils Stockpile
C-5.7' El. 60.9'
C-0.6' El. 55.8'
Topsoil Stockpile

FIGURE #1

Elev. Ungraded Ground at Location Stake = 8655.8'
Elev. Graded Ground at Location Stake = 8655.2'

UINTAH ENGINEERING & LAND SURVEYING
85 So. 200 East • Vernal, Utah 84078 • (435) 789-1017

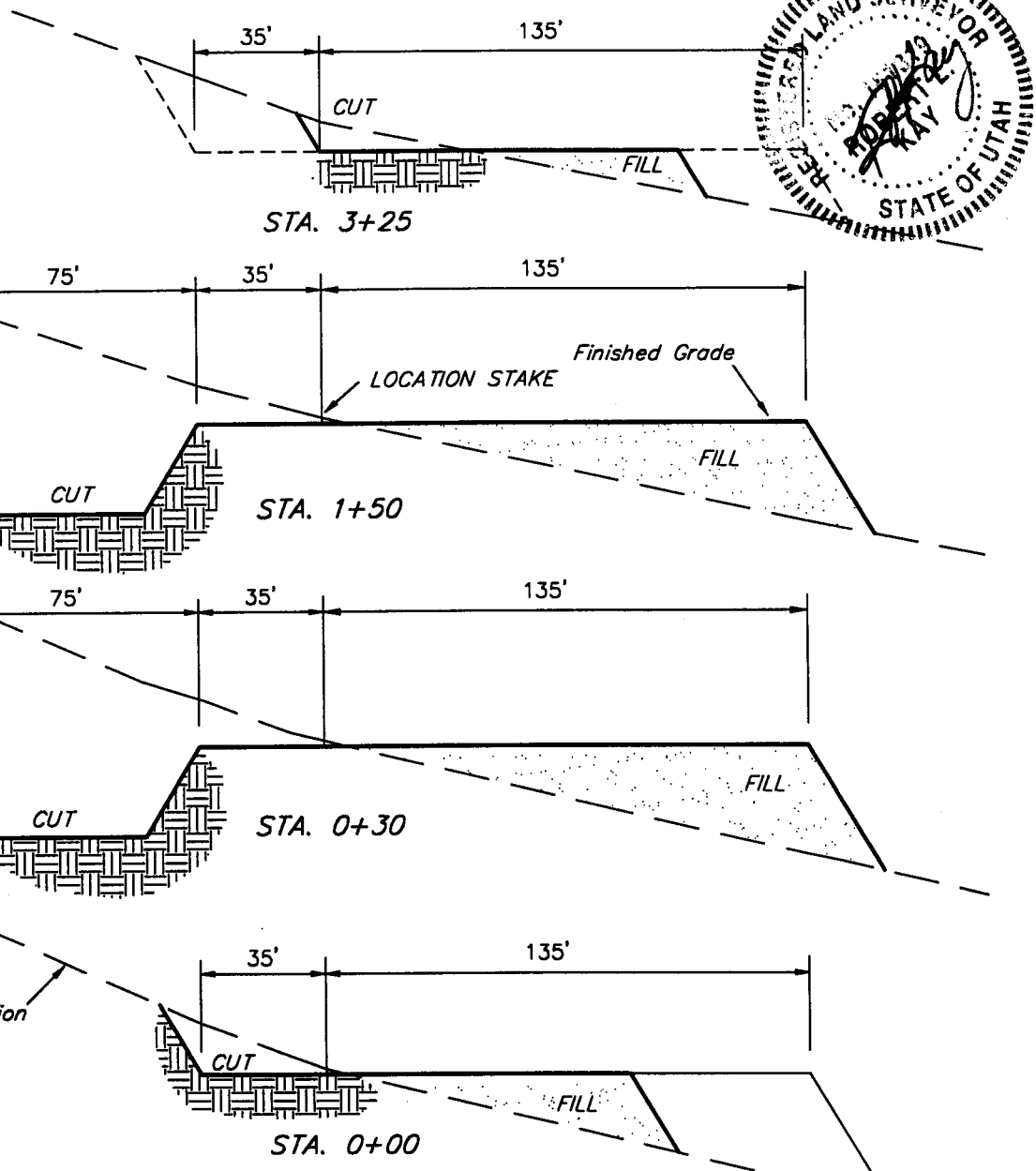
PETROLEUM DEVELOPMENT CORP.

TYPICAL CROSS SECTIONS FOR

MIDDLE MOUNTAIN #21-16
SECTION 21, T16S, R6E, S.L.B.&M.
1309' FSL 834' FEL

1" = 20'
X-Section Scale
1" = 50'

DATE: 10-14-99
Drawn By: C.B.T.



REGISTERED LAND SURVEYOR
ROBERT L. KAY
STATE OF UTAH

FIGURE #2

APPROXIMATE YARDAGES

CUT
(6") Topsoil Stripping = 1,230 Cu. Yds.
Remaining Location = 11,560 Cu. Yds.

TOTAL CUT = 12,790 CU.YDS.
FILL = 9,530 CU.YDS.

EXCESS MATERIAL AFTER 5% COMPACTION = 2,760 Cu. Yds.
Topsoil & Pit Backfill (1/2 Pit Vol.) = 2,750 Cu. Yds.
EXCESS UNBALANCE (After Rehabilitation) = 10 Cu. Yds.

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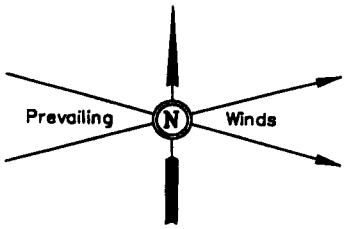
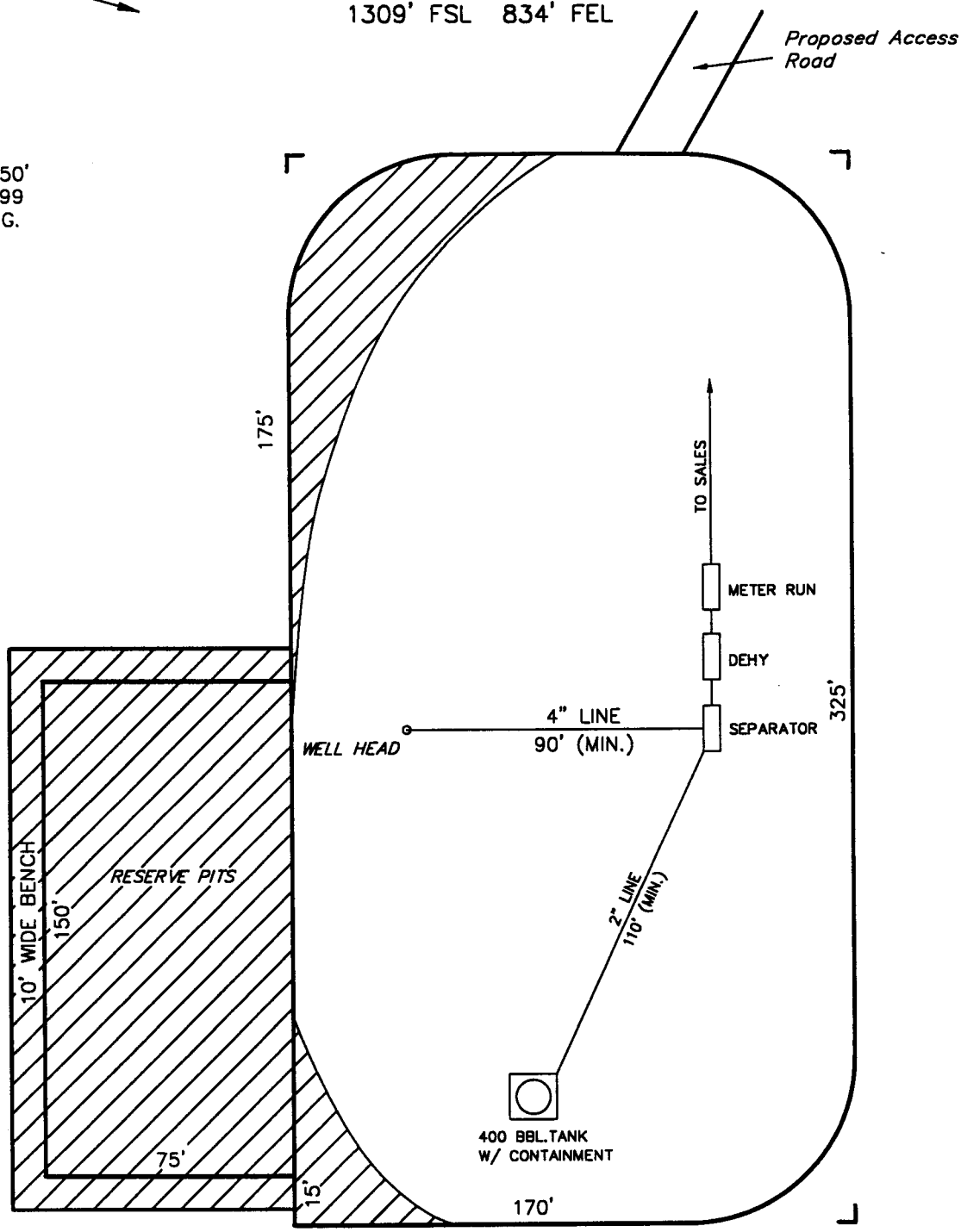
PETROLEUM DEVELOPMENT CORP.

PRODUCTION FACILITY LAYOUT FOR

MIDDLE MOUNTAIN #21-16
SECTION 21, T16S, R6E, S.L.B.&M.
1309' FSL 834' FEL



SCALE: 1" = 50'
DATE: 12-1-99
Drawn By: C.G.



AREA TO BE RE-CLAIMED

UINTAH ENGINEERING & LAND SURVEYING
85 So. 200 East • Vernal, Utah 84078 • (435) 789-1017

Serial No. UTU-77263
Parcel No. ML-16S6E002 thru 006

LEASE NOTICE

Coal Lands

This lease lies within the Wasatch Plateau Coal Field and contains mined or unmined coal reserves in the Cretaceous Blackhawk Formation. Before undertaking any activities within the lease, the lessee must coordinate with the Bureau of Land Management to determine if the area of proposed operations is leased for coal and if proposed operations have potential to interfere with existing or proposed coal mining operations. If it is determined that there could be conflicts, the lessee will be required to take all measures necessary to provide for the safety of coal mining operations and to prevent interfering with the rights of coal lessees/operators. The lessee may be required to enter into an agreement with the coal lessee/operator to ensure that operations can safely co-exist and to show proof that such an agreement has been executed.

The lessee should contact the Bureau of Land Management, Moab District, P.O. Box 970, Moab, Utah 84532, Telephone No. (801) 259-6111.

Serial No. UTU-77263
Parcel No. ML-~~14S6E~~-002 thru 006
16S06E

NO SURFACE OCCUPANCY STIPULATION

No surface occupancy or use is allowed on the lands described below (legal subdivision or other description).

A. Slopes greater that 35% and areas determined to be unstable or hazardous. Actual ground conditions will be used to determine surface occupancy restrictions. Based on currently available information, the following lands are included:

T. 14 S., R. 6 E., SLM, Utah
Secs. 6 & 7, portions of entire sections;
Sec. 15, portions of the W2E2;
Sec. 16, portions of the W2;
Sec. 17, portions of the E2;
Sec. 18, portions of the E2E2, W2;
Sec. 19, portions of the E2E2;
Sec. 20, portions of the E2;
Sec. 21, portions of the SWNE, W2, W2SE, SESE;
Sec. 28, portions of lots 2-9, W2NE, NW;
Sec. 29, portions of lots 1-6, NE, W2W2, W2SE;
Sec. 30, portions of entire section;
Sec. 32, portions of lots 1, 2, W2NE, NW, W2SW, SE;
Sec. 33, portions of lots 1-8, 11, SW.

B. Within 200 feet of RPN (Riparian) Management Units or other riparian areas. (Riparian areas will be identified on a site-specific basis.)

C. Within 200 feet of arterial and collector roads as identified on the Forest Transportation Inventory System.

D. SPR (Semiprimitive Recreation) Management Unit - Black Canyon Semiprimitive Recreation Area. The following lands are included:

T. 14 S., R. 6 E., SLM, Utah
Sec. 18, portions of the E2E2, W2;
Sec. 19, portions of the E2E2;
Sec. 30, portions of the entire section.

For the purpose of:

A. To minimize erosion, soil loss, unstable or hazardous conditions, and visibility. Assure surface disturbance can be effectively reclaimed and revegetated consistent with management goals.

B. Minimize disturbance of riparian vegetation and wildlife habitat. Prevent an irreversible loss of riparian areas. Provide a 200 foot buffer zone between surface disturbances and perennial water bodies to prevent degradation of surface water quality.

C. Provide for public safety and preventing impacts to the Forest Transportation System.

D. Provide a high quality semiprimitive recreation experience in SPR Management Units and minimize disturbance to semiprimitive recreation values.

A request for a waiver, exemption, or modification (WEM) to the above lease stipulation may be requested along with the submission of a Surface Use Plan of Operations (36 CFR 228.104). The objective and justification for the above stipulation, along with guidance on when a WEM would potentially be considered, are described in Appendix A-4 of the Manti-La Sal Oil and Gas Leasing FEIS.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820.)

The lessee/operator may, unless notified by the FS that the examination is not necessary, conduct the examination on the leased lands at his discretion and cost. This examination must be done by or under the supervision of a qualified resource specialist approved by the FS. An acceptable report must be provided to the FS identifying the anticipated effects of a proposed action on endangered or threatened species or their habitats.

FLOODPLAIN AND WETLAND - The lessee is hereby notified that this lease may contain land within a riparian or wetland ecosystem.

All activities within this area may be precluded or highly restricted in order to comply with Executive Order 11988 - Floodplain Management and Executive Order 11990 - Protection of Wetlands, in order to preserve and restore or enhance the natural and beneficial values served by floodplains and wetlands.

Occupancy and use of lands within riparian or wetland areas, as proposed in a Surface Use Plan of Operations, will be considered in an environmental analysis and mitigation measures deemed necessary to protect these areas identified. These areas are to be avoided to the extent possible, or special measures such as road design, well pad size and location or directional drilling, may be made part of the permit authorizing the activity.

A Class III Archeological Study was completed by Senco-Phenix. No significant cultural resources were found and clearance has been recommended. A copy of this report will be submitted directly to the appropriate agencies by Senco-Phenix.

PETROLEUM PERMITTING
PERMITCO
COMPANY

PIPELINE RIGHT OF WAY INFORMATION
Middle Mountain #21-16

1. The type of pipeline is a gathering system.

2. The outside diameters (O.D.) of all pipe will be 4.5".

3. The anticipated production through the line (MCF per day) is 4694 mcf at 710 #'s.

4. The anticipated maximum test pressure is 1065# (1.5 x operating pressure)

5. The anticipated operating pressure is 710 #'s.

6. The type of pipe is coated steel.

7. The method of coupling will be welded.

8. There are no other pipelines to be associated in same trench.

9. Other objects to be associated in same trench will be locating tape and 17# magnesium anodes @ 500" spacing.

10. The total length of the pipeline will be 8400 feet.

11. The maximum depth of the line will be 36# or as ground conditions permit. The width will be +/- 24".

12. The depth of cover of pipeline will be the same as the depth of the trench.

13. The method of entrenchment will be with a backhoe or track hoe and hand labor.

14. The construction width needed for all surface disturbing activities is approximately 40 feet.

15. The estimate of total acreage involving all surface disturbing activities is 7.75 acres

16. Line markers will be placed every 200 feet or as required. This location will require a total of four gate valves to be installed. One will be located approximately 100 feet off the drill site location. A valve will be located on either side of the Forest Service road that the pipeline crosses through. The remaining valve will be installed at the junction with the Questar Line.

    Two horizontal drips, with manual blow downs, will be required. One will be installed on location between the outlet of the meter and the first gate valve. The other drip will be installed prior to the valve at the Questar Junction.

17. Reclamation procedures will be as specified for the drill site, unless required otherwise by the Forest Service.

Uintah Engineering & Land Surveying

— SINCE 1964 —

NELSON J. MARSHALL
LAWRENCE C. KAY
ROBERT L. KAY

85 South 200 East
Vernal, Utah 84078
Phone (435) 789-1017
Fax (435) 789-1813

November 11, 1999

United States Forest Service
Manti-La Sal National Forest
599 West Price River Drive
Price, Utah 84501

Attn: Mr. Brent Barney

Re: Submittal of the Petroleum Development Corp. Middle Mountain #21-16 Proposed Road Design

Dear Brent;

I have enclosed five copies of the Petroleum Development Corp. Middle Mountain #21-16 road design. The road is located in Section 21, T16S, R6E, S.L.B.&M.

Please keep us informed of your review process.

If you have any questions or comments, feel free to reach me at (435) 789-1017.

Sincerely,

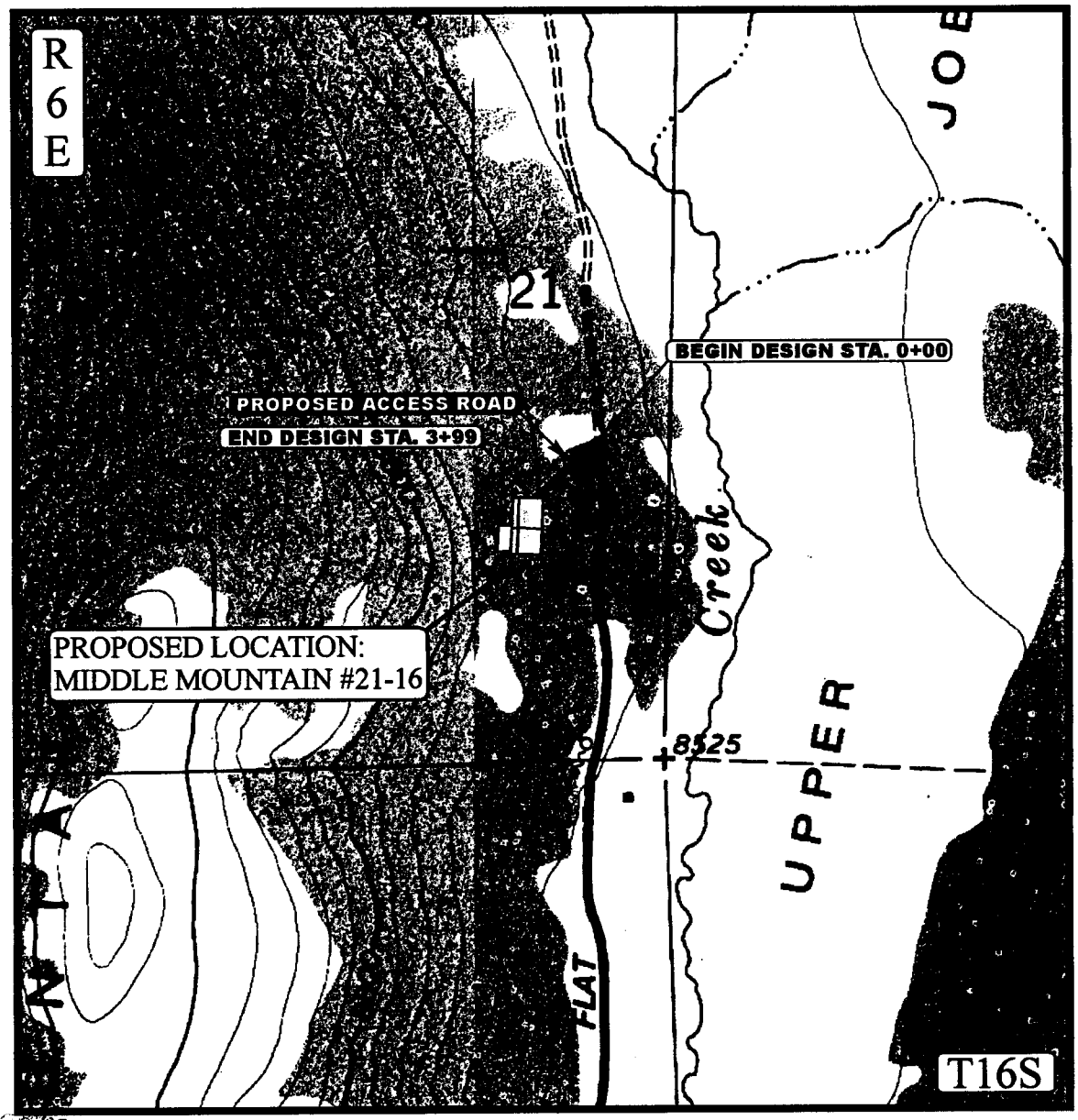
David G. Weston

David G. Weston

DGW/hnm
enclosures
cc: Gary Fridley
Lisa Smith

PETROLEUM DEVELOPMENT CORP.
MIDDLE MOUNTAIN #21-16
PROPOSED ACCESS ROAD

LOCATED IN EMERY COUNTY, UTAH
SECTION 21, T16S, R6E, S.L.B.&M.



REGISTERED PROFESSIONAL ENGINEER
No. 138394
STATE OF UTAH
RESPONSIBLE ENGINEER
11-11-99

N

Uintah Engineering & Land Surveying
85 South 200 East Vernal, Utah 84078
(435) 789-1017 * FAX (435) 789-1813

TOPOGRAPHIC MAP	11 MONTH	11 DAY	99 YEAR	1 TOPO
SCALE: 1" = 1000'	DRAWN BY: J.L.G.	REVISED: 00-00-00		

PETROLEUM DEVELOPMENT CORP.

MIDDLE MOUNTAIN #21-16

TABLE OF CONTENTS

11-11-99

RESPONSIBLE ENGINEER

REGISTERED PROFESSIONAL ENGINEER
MARSHALL

UINTAH ENGINEERING & LAND SURVEYING
85 So. 200 East Vernal, Utah

GENERAL NOTES:

All construction practices must conform to the current Forest Service standards. All materials for construction of the complete project including but not limited to rip-rap, hay/straw bails, silt fences, water for dust control and compaction, culverts, bedding material for culverts, surface gravel, signs, etc. are to be provided by the contractor at his bid price unless other pre-arrangements are made.

Construction practices and quality control shall conform with Forest Service Specifications for Construction of Roads and Bridges (EM-7720-100, August 1996). Special attention and modifications shall be made to the following sections.

Section 160 Quality Control and Quantity Measurements.
- Delete: section 160.04(b)
- Modify: Method of payment to as agreed upon with Petroleum Development Corp

Section 173.08
- Clarify: Clearing limit will be 3' beyond slope stakes.

Section 201 Clearing and Grubbing

Section 203 Excavation and Embankment and Haul
- 203.16(b) Placement (Tolerance E)

Section 204 Soil Erosion & Water Pollution Control

Section 304 Aggregate Base or Surface Course
- 304.10(c) compaction A.

Section 603 Metal Pipe

Section 251 Rip Rap

Section 633 Signs

Section 703 Aggregates
- Table 703-2 Grading Designation C

Section 707 Metal Pipe

Uintah Engineering and Land Surveying assumes no liability written or implied as to the location of pipelines or cable lines in the vicinity of this road design. Blue stakes (Public lines) and or the owner of the transportation line (Private/Corporate lines) must be contacted for identification and location before construction begins. Transportation lines that may be identified on these plans may not be the only transportation lines in the vicinity of the road. These plans are not intended to be used to identify the location of transportation lines. Extreme caution shall be used when constructing road near or over transportation lines. Line companies will dictate crossing methods.

EXPLANATIONS:

PLAN & PROFILE SHEETS

Plan & Profile sheets show the horizontal and vertical alignment of the road, sign placement if any, turnout placement if any, estimated culvert placements and sizes, estimated wing ditches, horizontal and vertical curve data, and the percent super for construction of horizontal curves.

CROSS SECTION SHEETS

C/L Stakes - These stakes have been set on the ground with stake numbers written thereon. The cut "C" or fill "F" shown on the cross section sheets show one of the following:

A. Where the road centerline has not been shifted left or right during design, the cut "C" or fill "F" is from the preconstruction ground at the C/L stake - to the finished road C/L at the top of the sub-grade.

B. Where the road C/L is to be shifted left or right from the original C/L stake, The cut "C" or fill "F" shown on the plans is from the preconstruction ground at the new road C/L*, which is offset left or right from the original C/L stake by the distance shown - to the finished road C/L at the top of the sub-grade.

Finished Cross Section Elevations & Catch Points - The finished sub-grade C/L elevation is shown at the C/L on each Cross Section. Catch points are shown at each side of the Finished Cross Section. They are marked with a distance left or right of the C/L with their elevation. Other elevations such as the bottom of ditch or the edge of fill subgrades are also shown.

Road Widths - Where Curve-Widening, Fill-Widening, & Turnouts are required approximate widths have been indicated. These widths supersede the Typical Cross Section.

* - In certain areas the finished road has been moved left or right after the C/L Stakes were set. This was done during the design of the road to maintain smooth horizontal curves or to avoid an existing obstacle. The distance shown at the stake symbol indicates the amount the road is to be moved. The new C/L may or may not be staked on the ground.

SCOPE OF WORK:

SHAPING THE ROADWAY

The roadway is to be shaped to the dimensions shown on the typical cross sections included in this document. Care shall be given to insure that the travelway width is not less or significantly more than the dimensions given on the typical cross section. Where turnouts are indicated, the typical section widths shown on the typical cross section will need to be modified by the amounts shown on the typical turn-out.

Top soil will be handled in the manner agreed upon and stated within the conditions of approval. If top soil is to be moved; Top soil will be peeled back during construction. Some over-excavation of cut slopes and bar ditches will provide needed material for road construction. Top soil will then be spread back over the cut and fill slopes and bar ditches.

Clearing and grubbing as stated within the Forest Service standards must include a 3' buffer from the construction slope stakes.

Rip rap will be placed at all culvert inlet and outlets. Quantities have not been tallied within these plans. Contractor shall estimate the number of yards of rip rap necessary but should break out this item from the lump sum and provide a bid by-the-yard. Sources for rip rap must be identified by the contractor.

Slope re-seeding will be according to Forest Service standards.

Sediment control will be accomplished with hay/straw and silt fences. This item should be included within the contractor bid.

Some other non-standard silt control may be necessary and will be addressed during construction. Additional non-stated silt control will be an additional pay item and should not be estimated for the lump sum.

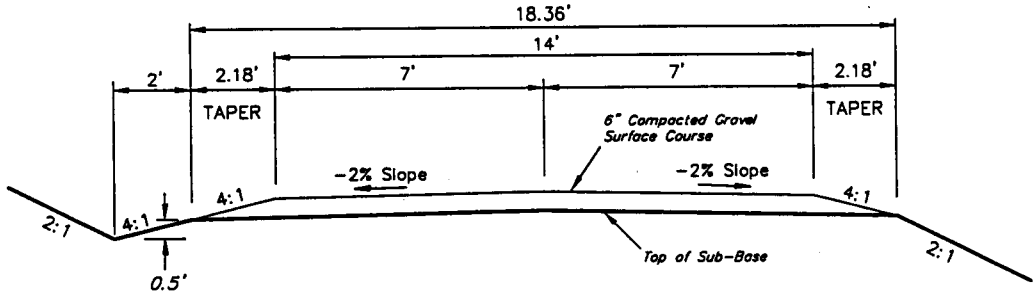
GRAVEL NOTES:

Do not place gravel on road until inspector/Engineer has approved the sub-grade.

Place gravel to full widened width on turnouts, curve widening, and intersection flares.

TYPICAL CROSS SECTION

(for Proposed Access Road)

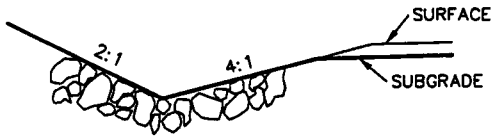


CUT SECTION

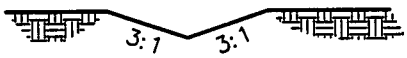
(Sec. "A")

FILL SECTION

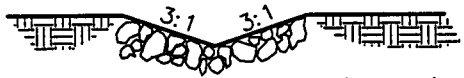
DITCH DETAILS



RIP RAP IN BAR DITCH
(Only Where Specified)

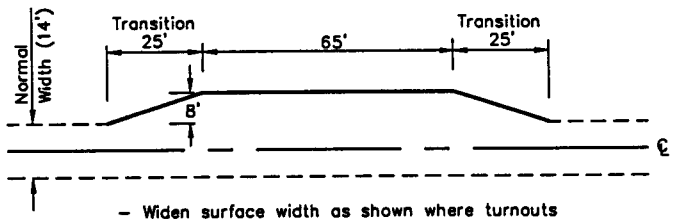


WING DITCH (DETAIL)



RIP RAP IN WING DITCH (DETAIL)
(Only Where Specified)

TYPICAL TURNOUT DETAIL



– Widen surface width as shown where turnouts are required.

PLAN

TURNOUT–WIDENING ON ONE SIDE (DETAIL)

UINTAH ENGINEERING & LAND SURVEYING
85 So. 200 East Vernal, Utah

CULVERT CONSTRUCTION DETAILS

THE PLANS SHOW AN ESTIMATE OF THE NUMBER AND THE SIZE OF THE CULVERTS TO BE PLACED ON THE ROAD. THERE MAY NEED TO BE SOME FIELD ADJUSTMENTS MADE BY THE CONTRACTOR, BLM, AND/OR INSPECTOR/ENGINEER TO THE PLACEMENT AND LENGTH OF THE CULVERTS AND WING DITCHES.

CULVERT INGRESS AND EGRESS DITCH LENGTHS ARE TO BE DETERMINED DURING CONSTRUCTION. ALL DITCHES ARE TO BE CONSTRUCTED WITH SUFFICIENT SLOPE SO THAT WATER WILL EXIT THE DOWNSTREAM SIDE AND NOT POND IN THE DITCH.

ALL CULVERTS SHALL BE OF SUFFICIENT STRENGTH TO SUPPORT AN HS-20 LOADING OR HEAVIER. CHECK WITH MANUFACTURER FOR INFORMATION ABOUT MINIMUM COVER AND LOAD RATINGS. IN NO CASE SHALL COVER OVER CULVERTS BE LESS THAN 1'. CULVERT LENGTHS ARE ESTIMATED ON THE PLANS BUT THERE MAY NEED TO BE SOME ADJUSTMENTS MADE TO THE LENGTHS OF THE CULVERTS DURING CONSTRUCTION.

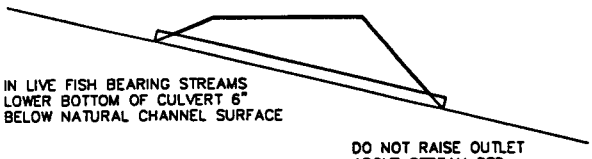
RIP-RAP WILL BE PLACED AT ALL CULVERT INLETS AND OUTLETS AND ALSO, WHERE SPECIFIED ON THE PLAN AND PROFILE SHEETS. RIP-RAP WILL BE SIZED DEPENDANT UPON PIPE DIAMETER AS SHOWN.

PIPE DIA. (Inches)	RIP-RAP SIZE
18-24	60% of stones shall be 8 inch diameter or larger
30-60	60% of stones shall be 1 foot in diamter or larger

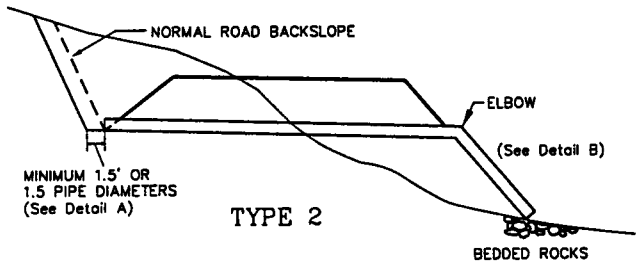
WHERE MULTIPLE CULVERTS ARE SPECIFIED ON THE PLANS, THERE SHALL BE NO LESS THAN THE FOLLOWING CLEARANCE BETWEEN THE CULVERTS.

PIPE DIA. (Inches)	CLEARANCE
UP TO 24	12 Inch
24 TO 72	1/2 PIPE DIA.
72 AND OVER	36 Inch

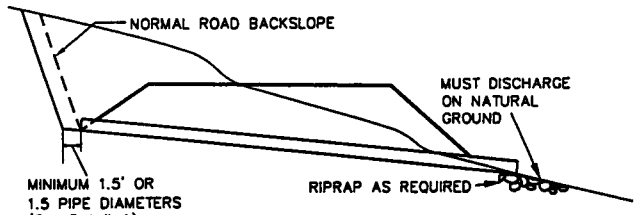
RIP RAP SHALL BE WELL GRADED WITH A SUFFICIENT AMOUNT OF SMALLER STONES UNIFORMLY DISTRIBUTED THOUGHOUT.



TYPE 1



TYPE 2



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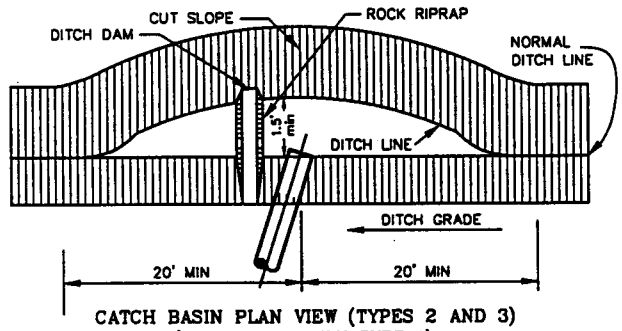
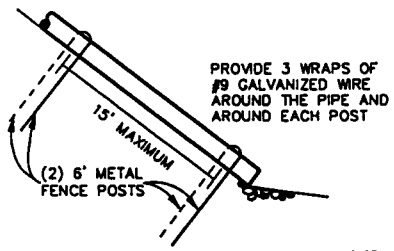


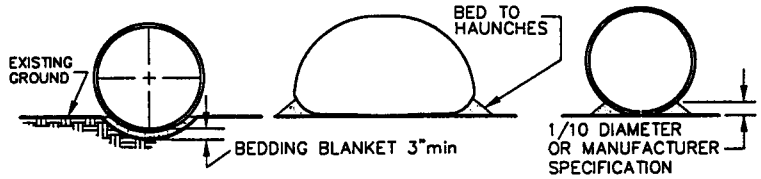
CATCH BASIN PLAN VIEW (TYPES 2 AND 3)
(DITCH DAM ONLY TYPE 1)

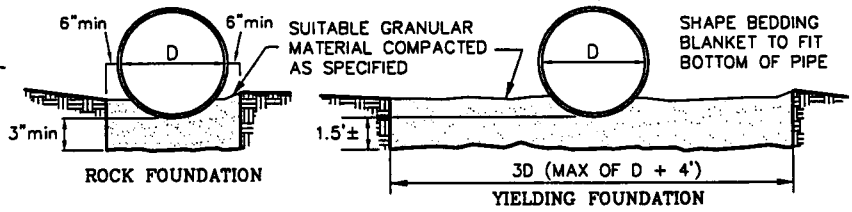
DETAIL A



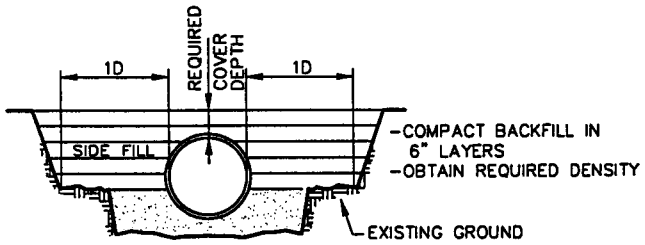
SPECIAL ANCHORING TYPE 2 DOWNDRAINS

DETAIL B

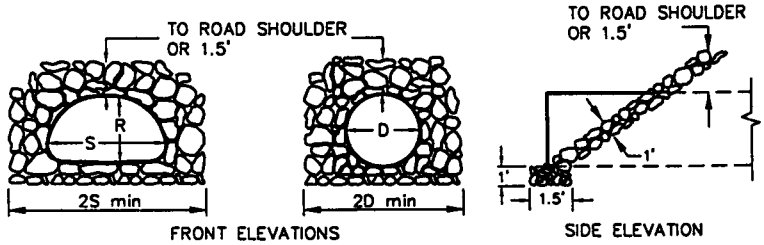




BEDDING DETAILS



BACKFILL DETAIL



FRONT ELEVATIONS

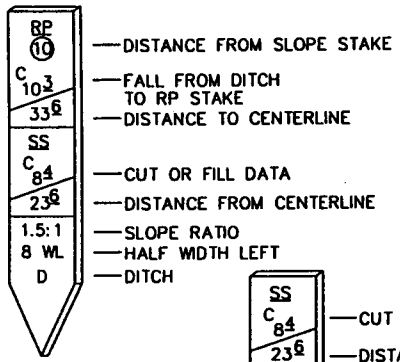
SIDE ELEVATION

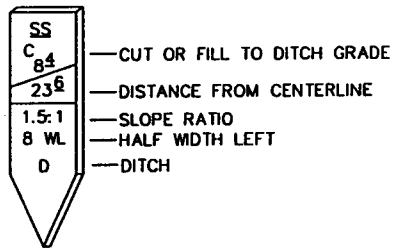
IN NARROW CHANNELS ADJUST RIPRAP TO FIT ORIGINAL STREAM BANKS.

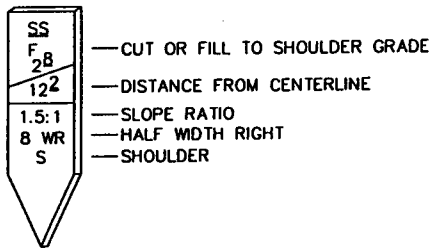
RIP RAP DETAIL

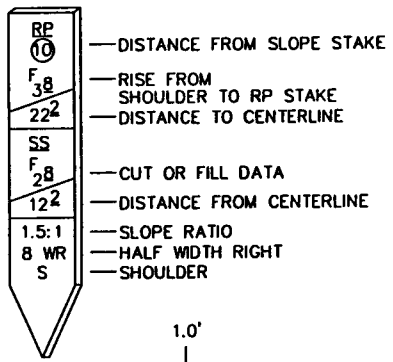
UINTAH ENGINEERING & LAND SURVEYING
85 So. 200 East Vernal, Utah

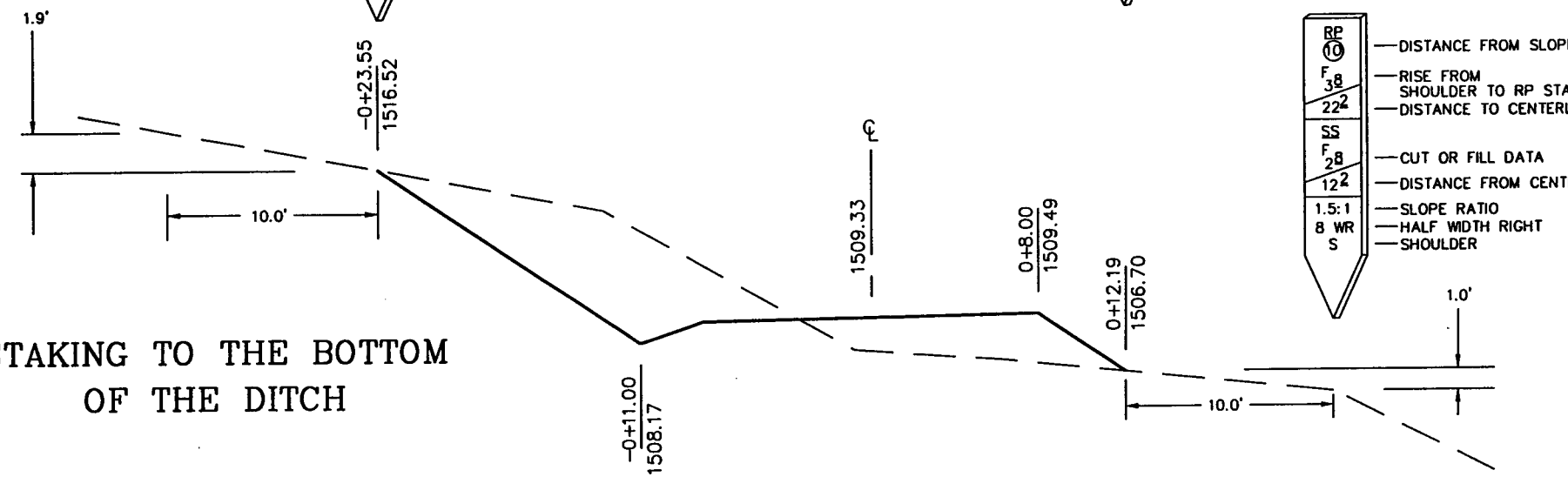
STANDARD STAKING DETAIL











STAKING TO THE BOTTOM OF THE DITCH

STAKING TO SHOULDER

TYPICAL CONSTRUCTION STAKES
NO SCALE

FLAGGING COLOR TABLE

RED – CENTERLINE STAKE
FLOURSCENT PINK – SLOPE STAKE
FLOURSCENT ORANGE – REFERENCE STAKE
BLUE – PIPE STAKE AND
– PIPE REFERENCE STAKE
YELLOW – CLEARING LIMITS

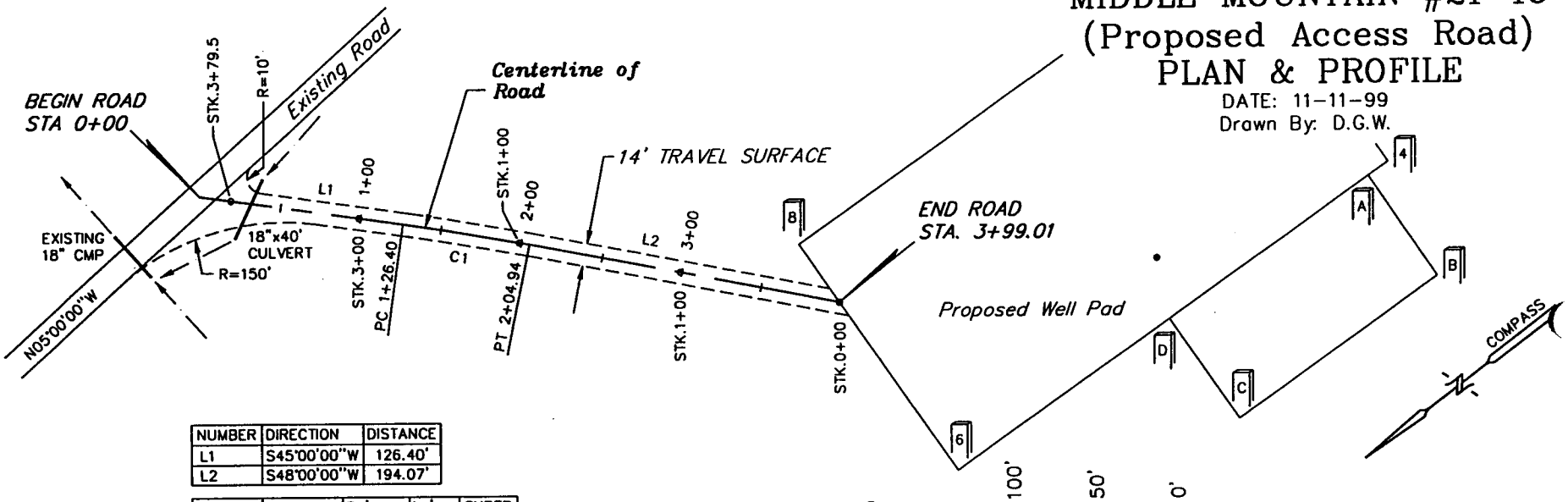
DATE: 11-30-98
Drawn By: D.G.W.

UINTAH ENGINEERING & LAND SURVEYING
85 So. 200 East Vernal, Utah

SHEET 9

PETROLEUM DEVELOPMENT CORP.
MIDDLE MOUNTAIN #21-16
(Proposed Access Road)
PLAN & PROFILE

DATE: 11-11-99
Drawn By: D.G.W.



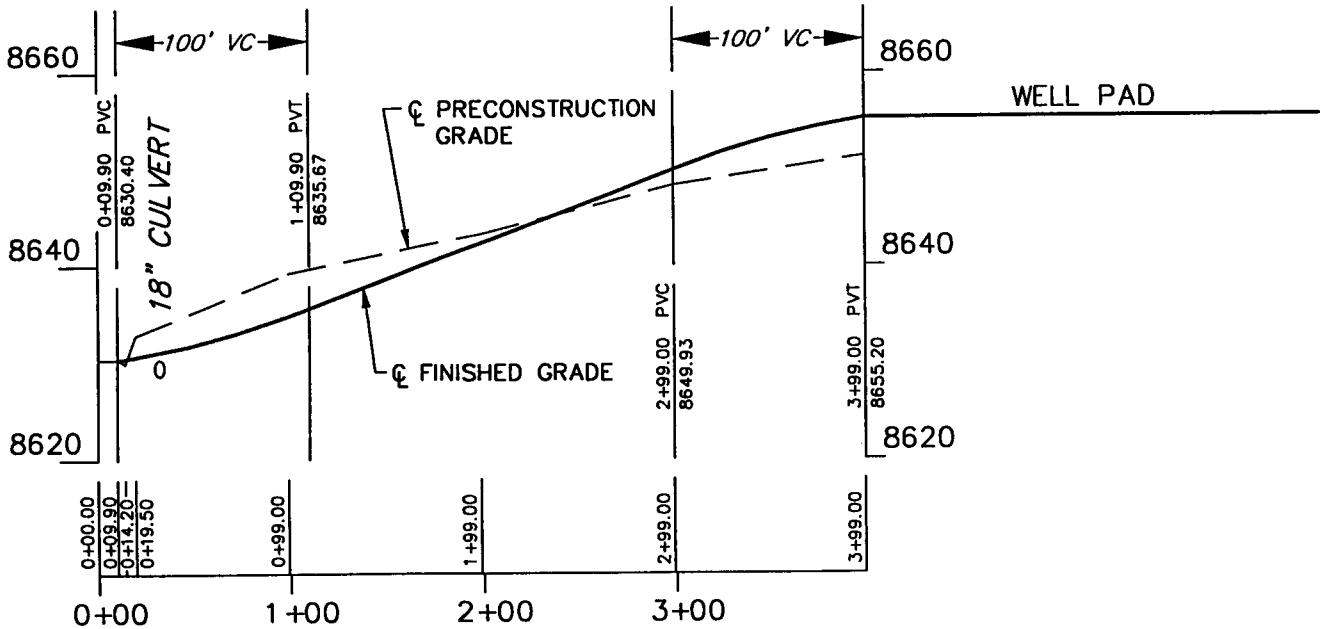
NUMBER	DIRECTION	DISTANCE
L1	S45°00'00"W	126.40'
L2	S48°00'00"W	194.07'

NUMBER	Delta	R '	L '	SUPER
C1	03°00'00"	1500.00	78.54	NONE

o = ℄ Stake
— — = Side Drainage

UINTAH ENGINEERING & LAND SURVEYING
85 So. 200 East Vernal, Utah

GRADE %	+3.0	+7.5	+3.0	
TYP. SECTION	"A"			WELL PAD



SHEET P-1

PETROLEUM DEVELOPMENT CORP.

SHEET C-1

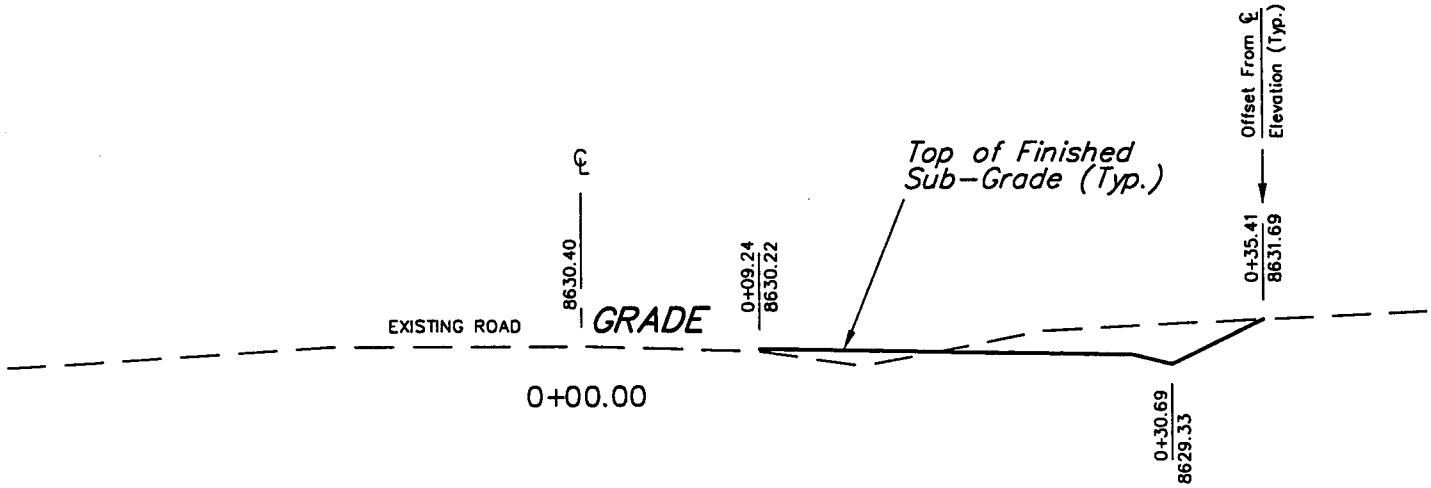
MIDDLE MOUNTAIN #21-16
CROSS SECTIONS

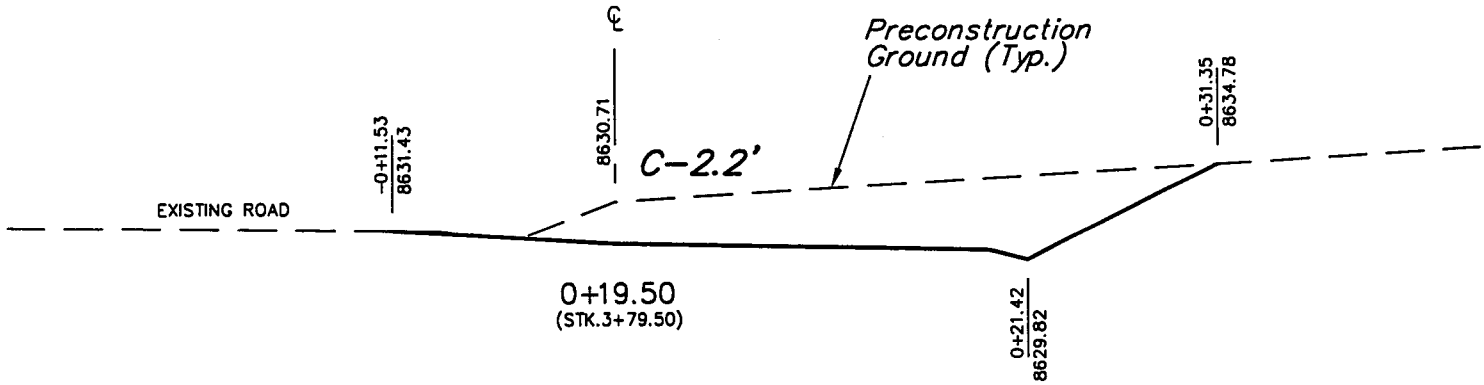
10' 5' 0'

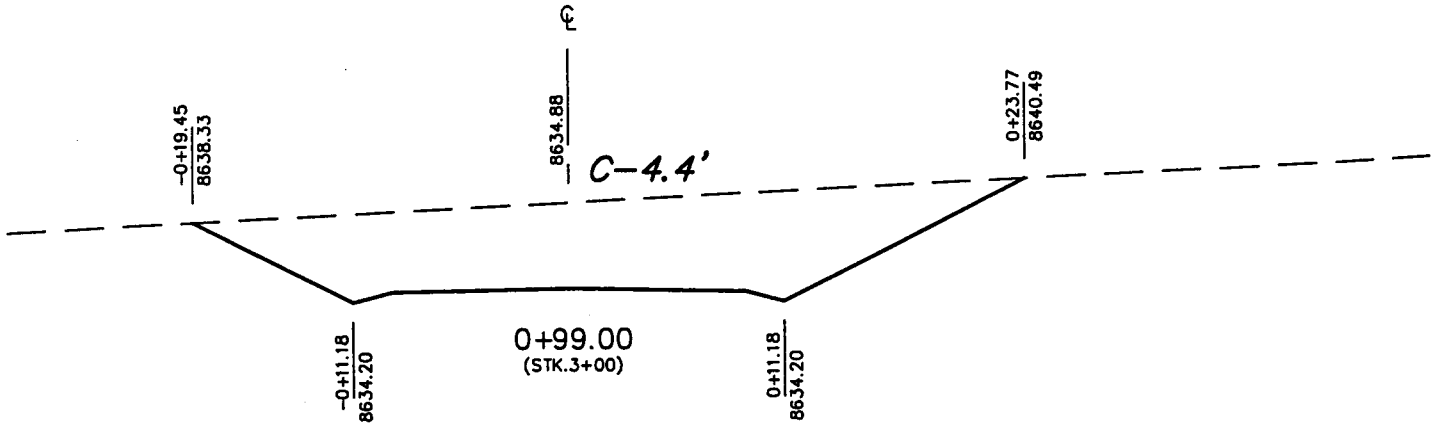
SCALE: HORIZONTAL & VERTICAL

DATE: 11-11-99

Drawn By: D.G.W.







UINTAH ENGINEERING & LAND SURVEYING
85 So. 200 East Vernal, Utah

PETROLEUM DEVELOPMENT CORP.

SHEET C-2

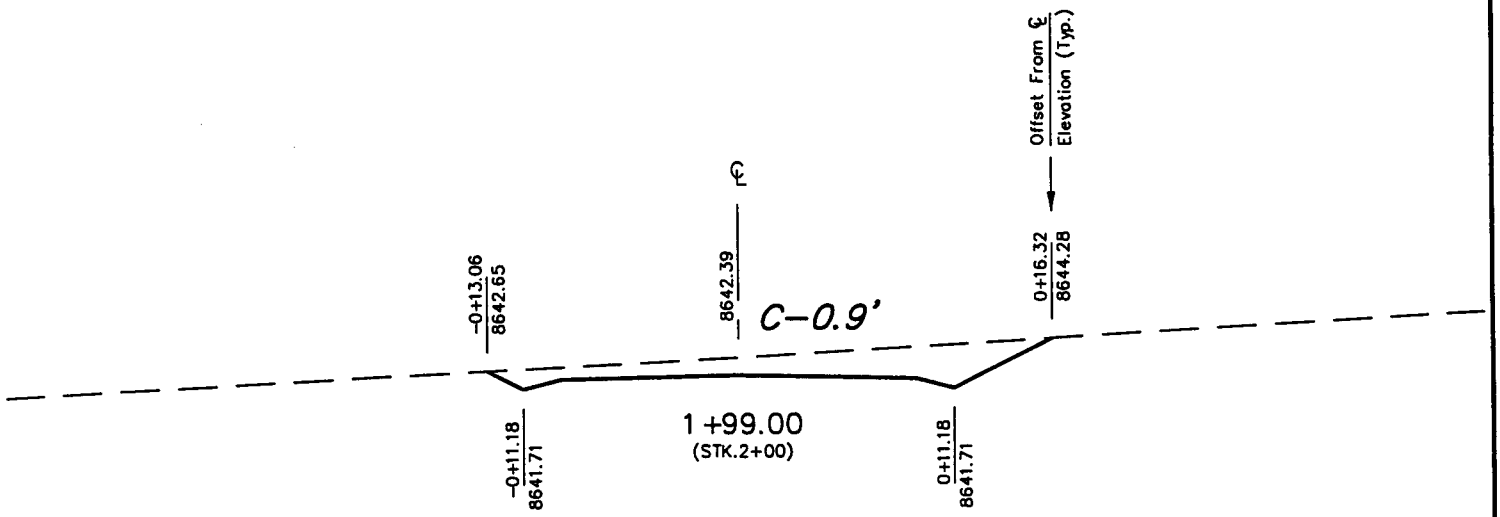
MIDDLE MOUNTAIN #21-16
CROSS SECTIONS

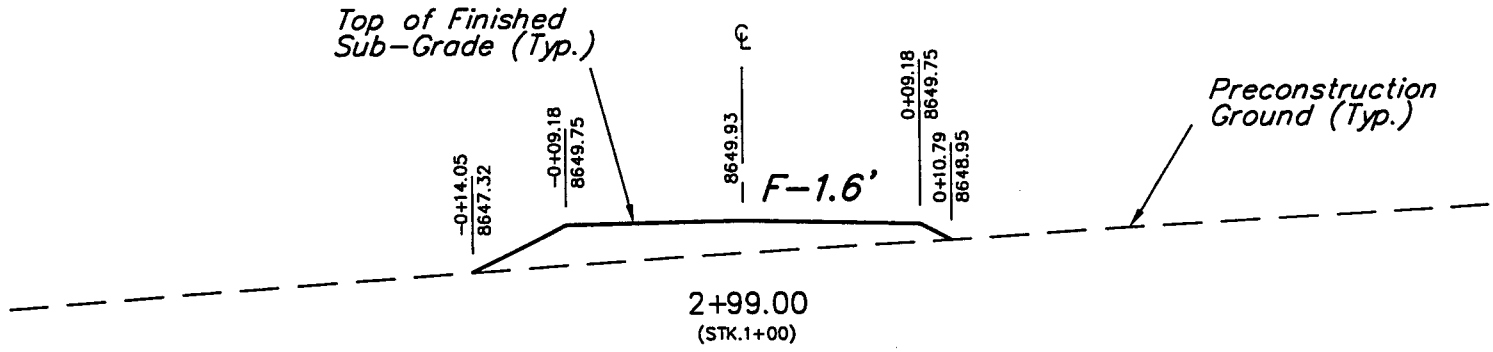
10' 5' 0'

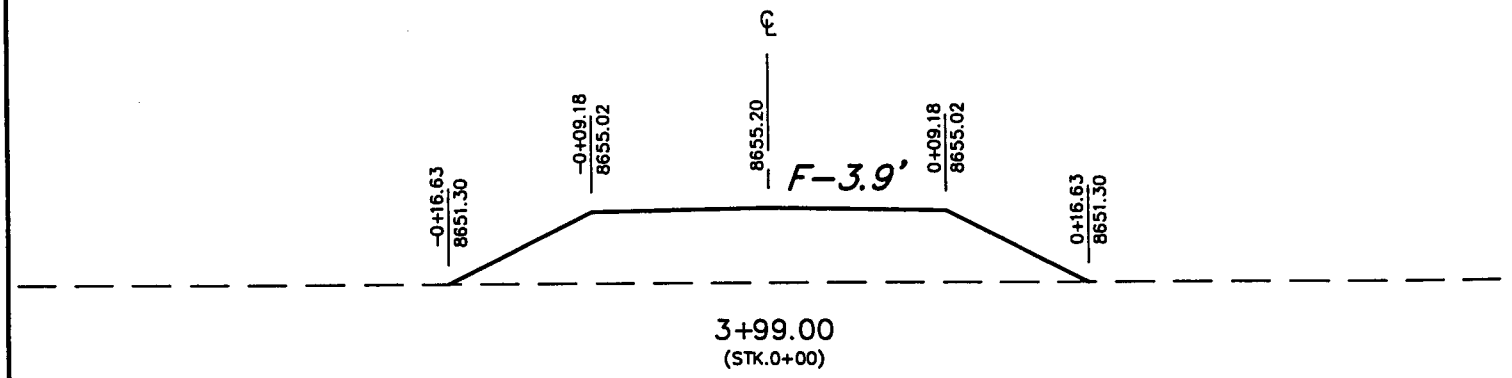
SCALE: HORIZONTAL & VERTICAL

DATE: 11-11-99

Drawn By: D.G.W.







UINTAH ENGINEERING & LAND SURVEYING
85 So. 200 East Vernal, Utah

DETAIL EARTHWORK FROM STATION 0+ 0.00 TO STATION 3+99.00

VERTICAL SHIFT 0.00 ft HORIZONTAL SHIFT 0.00 ft
SHRINK FACTOR 90.00 % SWELL FACTOR 110.00 %

X-SECTION STATION	---AREA--- sq yd--- CUT	FILL	---VOLUME cu yd--- CUT	FILL	TOTAL	---ADJUSTED cu yd--- ACCUM
0+ 0.00	2.3	-0.5				
			5.6	-0.9	4.6	4.6
0+ 9.90	1.1	0.0				
			0.8	-0.9	-0.1	4.5
0+14.20	0.1	-1.2				
			9.7	-1.1	8.5	13.0
0+19.50	10.9	0.0				
			375.8	0.0	375.8	388.7
0+99.00	17.4	0.0				
			347.8	0.0	347.8	736.5
1+99.00	3.5	0.0				
			57.6	-63.9	-12.0	723.2
2+99.00	0.0	-3.8				
			0.0	-244.7	-244.7	451.2
3+99.00	0.0	-10.8				

TOTAL EARTHWORK FROM STATION 0+ 0.00 TO STATION 3+99.00

VERTICAL SHIFT 0.00 ft HORIZONTAL SHIFT 0.00 ft
SHRINK FACTOR 90.00 % SWELL FACTOR 110.00 %

VOLUMETRIC CUT 797.3
VOLUMETRIC FILL -311.5
TOTAL HAUL 42.5 yd-mi

ADJUSTED TOTAL 451.2 (451.2 cu yd EXCESS)

UINTAH ENGINEERING & LAND SURVEYING
85 So. 200 East Vernal, Utah

014

WORKSHEET
APPLICATION FOR PERMIT TO DRILL

APD RECEIVED: 12/06/1999

API NO. ASSIGNED: 43-015-30426

WELL NAME: MIDDLE MOUNTAIN 21-16
OPERATOR: FORTUNA (U. S.) INC (N2160)
CONTACT: TOM CARPENTER
PHONE NUMBER: 800-624-3821

PROPOSED LOCATION:
SESE 21 160S 060E
SURFACE: 1309 FSL 0834 FEL
BOTTOM: 1309 FSL 0834 FEL
EMERY
WILDCAT (1)

LEASE TYPE: 1 - Federal
LEASE NUMBER: UTU-77263
SURFACE OWNER: 1 - Federal

PROPOSED FORMATION: DKTA

INSPECT LOCATN BY: / /

Tech Review	Initials	Date
Engineering		
Geology		
Surface		

LATITUDE: 39.41216
LONGITUDE: -111.2490

RECEIVED AND/OR REVIEWED:

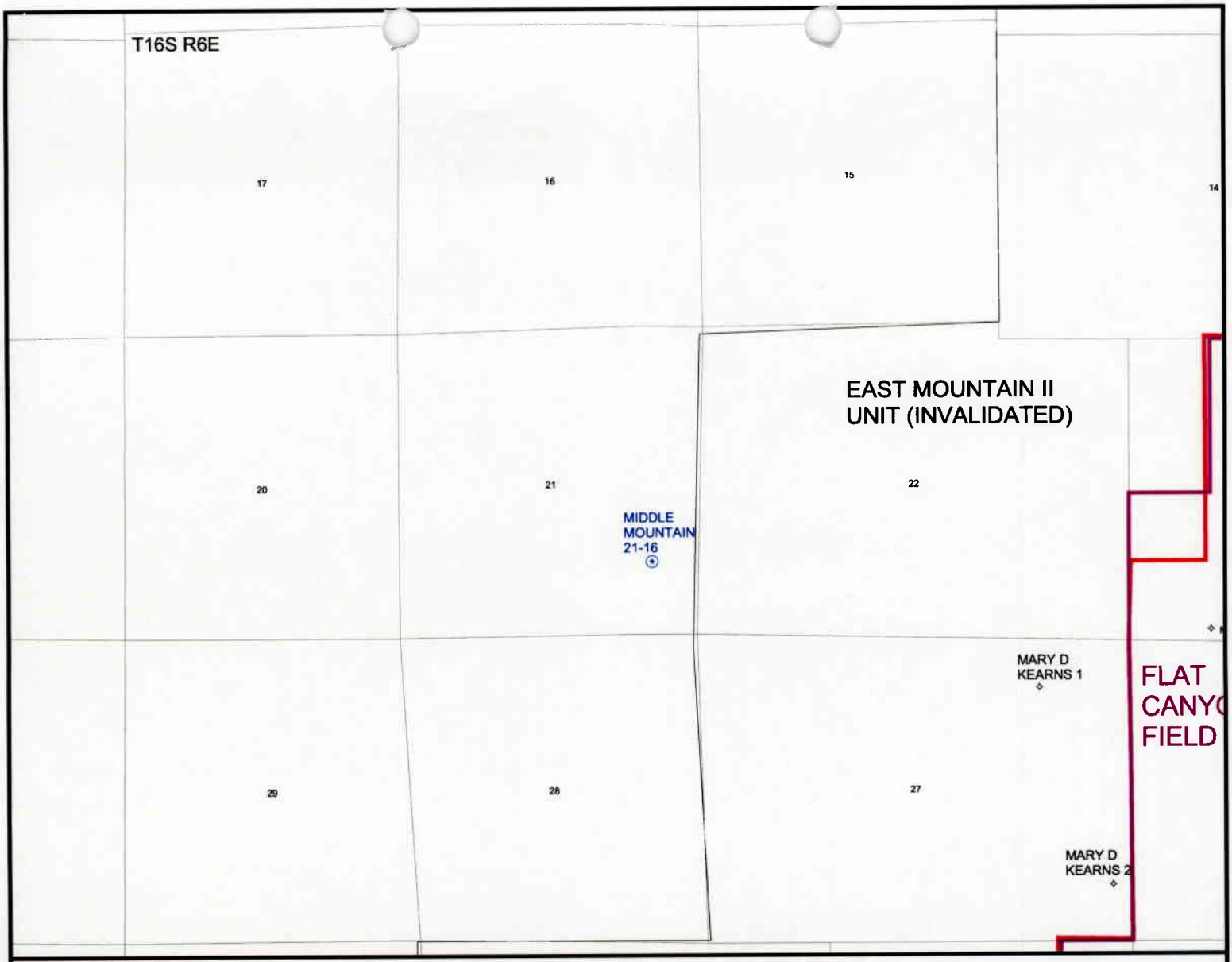
✓ Plat
✓ Bond: Fed[1] Ind[] Sta[] Fee[]
(No. 33632617)
Potash (Y/N)
N Oil Shale 190-5 (B) or 190-3 or 190-13
✓ Water Permit
(No. Municipal)
N RDCC Review (Y/N)
(Date:)
NA Fee Surf Agreement (Y/N)

LOCATION AND SITING:

___ R649-2-3.
Unit ___
___ R649-3-2. General
Siting: 460 From Qtr/Qtr & 920' Between Wells
✓ R649-3-3. **Exception**
___ Drilling Unit
Board Cause No: ___
Eff Date: ___
Siting: ___
___ R649-3-11. Directional Drill

COMMENTS: ___

STIPULATIONS: 1-Federal Approval
2. Spacing Slip



OPERATOR: FURTUNA (U.S) INC (N2160)

SEC: 21 T16S R6E

FIELD: WILDCAT (002)

COUNTY: EMERY SPACING: R649-3-3

Utah Oil Gas and Mining

Well Status
- GAS INJECTION
- GAS STORAGE
- LOCATION ABANDONED
- NEW LOCATION
- PLUGGED & ABANDONED
- PRODUCING GAS
- PRODUCING OIL
- SHUT-IN GAS
- SHUT-IN OIL
- TEMP. ABANDONED
- TEST WELL
- WATER INJECTION
- WATER SUPPLY
- WATER DISPOSAL

Units Status
- EXPLORATORY
- GAS STORAGE
- NF PP OIL
- NF SECONDARY
- PENDING
- PI OIL
- PP GAS
- PP GEOTHERML
- PP OIL
- SECONDARY
- TERMINATED

Field Status
- ABANDONED
- ACTIVE
- COMBINED
- INACTIVE
- PROPOSED
- STORAGE
- TERMINATED
- Sections.shp
- Township.shp
- Counties.shp

N
W E
S

Prepared By: D. Mason
Date: 13 AUGUST-2002

042

WORKSHEET
APPLICATION FOR PERMIT TO DRILL

APD RECEIVED: 12/06/1999

API NO. ASSIGNED: 43-015-30426

WELL NAME: MIDDLE MOUNTAIN 21-16
OPERATOR: PETROLEUM DVLPMNT CORP (N1260)
CONTACT: LISA SMITH

PHONE NUMBER: 303-857-9999

PROPOSED LOCATION:
SESE 21 160S 060E
SURFACE: 1309 FSL 0834 FEL
BOTTOM: 1309 FSL 0834 FEL
EMERY
WILDCAT (1)

INSPECT LOCATN BY: / /

Tech Review	Initials	Date
Engineering		
Geology		
Surface		

LEASE TYPE: 1 - Fed.
LEASE NUMBER: UTU-77263
SURFACE OWNER: 1 - Fed. (mant.-La Sal National Forest)

PROPOSED FORMATION: DKTA

RECEIVED AND/OR REVIEWED:

✓ Plat
✓ Bond: Fed[1] Ind[] Sta[] Fee[]
(No. UT-1160)
N Potash (Y/N)
N Oil Shale (Y/N) *190 - 5 (B)
___ Water Permit
(No. ___)
N/A RDCC Review (Y/N)
(Date: ___)
N/A Fee Surf Agreement (Y/N)

LOCATION AND SITING:

___ R649-2-3. Unit ___
___ R649-3-2. General
Siting: ___
✓ R649-3-3. **Exception**
___ Drilling Unit
Board Cause No: ___
Eff Date: ___
Siting: ___
___ R649-3-11. Directional Drill

COMMENTS: BLM aprv. 6-15-01

STIPULATIONS: 1-Fed. Approval
2-Spacing Stip.

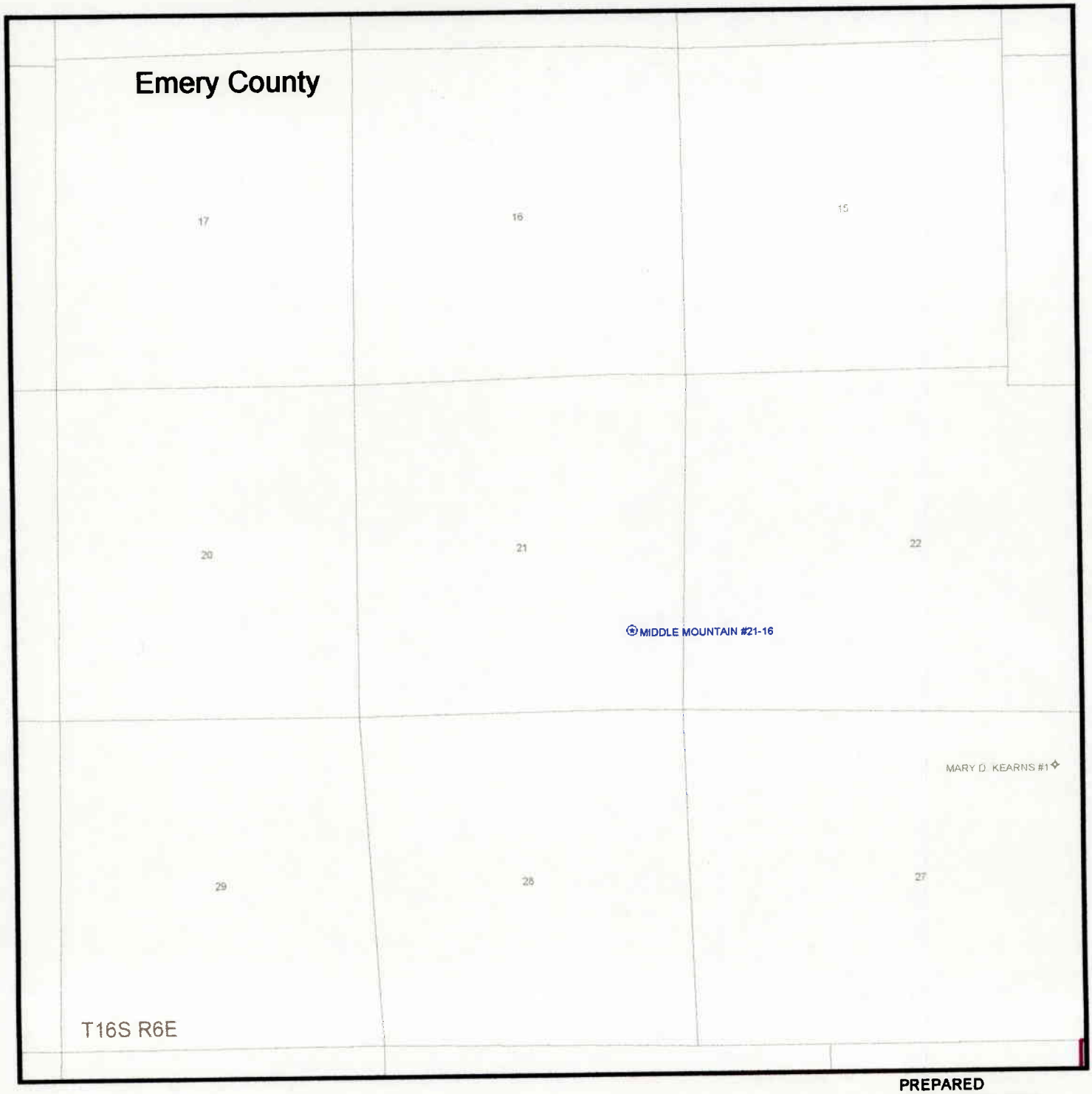
Division of Oil, Gas & Mining

OPERATOR: PETROLEUM DEVELOPMENT (N1260)

FIELD: WILDCAT (001)

SEC. 21, TWP 16 S, RNG 6 E

COUNTY: EMERY



PREPARED
DATE: 8-DEC-1999

FORM 3160-3
(December 1990)

SUBMIT TRIPLICATE*
(Other instructions on reverse side)

Form approved.
Budget Bureau No. 1004-0136
Expires December 31, 1991

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

004

RECEIVED
FIELD OFFICE

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1999 DEC -6 P 3:20

5. LEASE DESIGNATION AND SERIAL NO.: UTU-77263

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: N/A

7. UNIT AGREEMENT NAME: N/A

1a. TYPE OF WORK: DRILL [X] DEEPEN [ ]

b. TYPE OF WELL: OIL WELL [ ] GAS WELL [X] OTHER — SINGLE ZONE [X] MULTIPLE ZONE [ ]

8. FARM OR LEASE NAME, WELL NO.: Middle Mountain #21-16

2. NAME OF OPERATOR: Petroleum Development Corp. — Phone: 304/842-3597 Fax: 304/842-0913 — 103 East Main Street, Bridgeport, WV 26330

9. API WELL NO.: 4301530426

3. ADDRESS AND TELEPHONE NO.: Permitco Inc. — Phone: 303/857-9999 Fax: 303/857-0577 — 14421 County Road 10, Ft. Lupton, CO 80621

10. FIELD AND POOL, OR WILDCAT: Wildcat

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*)

At Surface: 1309' FSL and 834' FEL

At proposed prod. zone: SE SE Sec. 21, T16S - R6E

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: Sec. 21, T16S - R6E

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*: Approximately 21.9 Miles northeast of Orangeville, Utah

12. COUNTY OR PARISH: Emery — 13. STATE: Utah

15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any): 834'

16. NO. OF ACRES IN LEASE: 7189.23

17. NO. OF ACRES ASSIGNED TO THIS WELL: 40 Acres

18. DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.: None

19. PROPOSED DEPTH: 8,400'

20. ROTARY OR CABLE TOOLS: Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.): 8656'

22. APPROX. DATE WORK WILL START*: July 15, 2000

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	GRADE, SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
17-1/2"	13-3/8"	48#	120'	167 sxs - circulated to surface
12-1/4"	9-5/8"	36#	2,700'	531 sxs - circulated to surface
8-3/4"	4-1/2"	11.6#	8,400'	647 sx - top of cement @ 6641'

Petroleum Development Corporation proposes to drill a well to 8,400' to test the Ferron and Dakota Formations. If productive, casing will be run and the well completed. If dry, the well will be plugged and abandoned as per BLM and State of Utah requirements.

See Onshore Order No. 1 attached.

CONFIDENTIAL - TIGHT HOLE

Please be advised that Petroleum Development Corporation is considered to be the Operator of the above mentioned well. Petroleum Development Corporation agrees to be responsible under the terms and conditions of the lease for the operations conducted upon the leased lands.

Bond coverage for this well is provided by Petroleum Development Corporation. The bond will be submitted under separate cover by Petroleum Development Corporation. BLM Bond UT1166 #25,000 statewide

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

24. SIGNED: Lisa L Smith — TITLE: Consultant For: Petroleum Devlopment Corp — Date: 12/3/99

(This space for Federal or State office use)

PERMIT NO. _____ APPROVAL DATE _____

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

CONDITIONS OF APPROVAL, IF ANY:

APPROVED BY /S/ WILLIAM C. STRINGER — TITLE: Assistant Field Manager, Division of Resources — JUN 15 2001

RECEIVED
CONDITIONS OF APPROVAL ATTACHED
JUN 20 2001
DIVISION OF OIL, GAS AND MINING

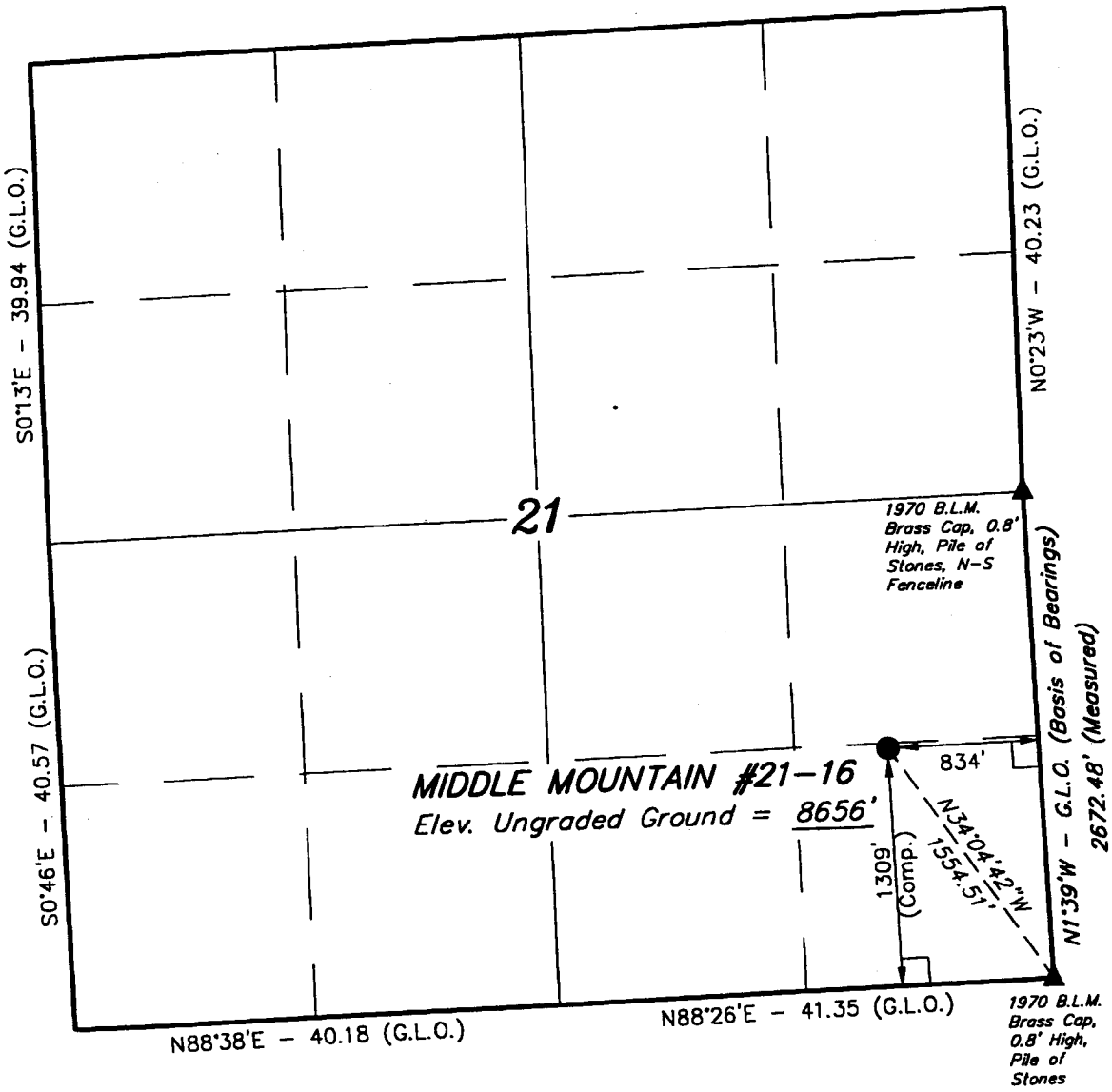
FLARING OR VENTING OF GAS IS SUBJECT TO NTL 4-A

*See Instructions On Reverse Side

Dated 1/1/80

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

T16S, R6E, S.L.B.&M.



LEGEND:

└ = 90° SYMBOL

● = PROPOSED WELL HEAD.

▲ = SECTION CORNERS LOCATED.

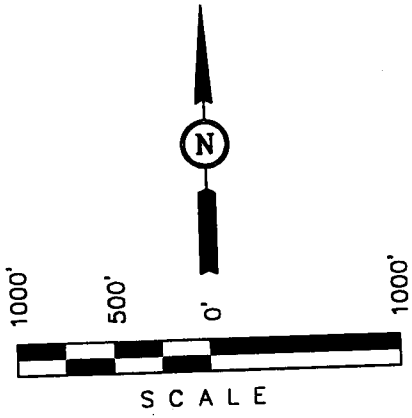
LATITUDE = 39°24'45"
LONGITUDE = 111°14'56"

PETROLEUM DEVELOPMENT CORP.

Well location, MIDDLE MOUNTAIN #21-16, located as shown in the SE 1/4 SE 1/4 of Section 21, T16S, R6E, S.L.B.&M. Emery County Utah.

BASIS OF ELEVATION

SPOT ELEVATION LOCATED AT THE SOUTHEAST CORNER OF SECTION 21, T16S, R6E, S.L.B.&M. TAKEN FROM THE RILDA CANYON. QUADRANGLE, UTAH, EMERY COUNTY, 7.5 MINUTE QUAD. (TOPOGRAPHIC MAP) PUBLISHED BY THE UNITED STATES DEPARTMENT OF THE INTERIOR, GEOLOGICAL SURVEY. SAID ELEVATION IS MARKED AS BEING 8525 FEET.



CERTIFICATE

THIS IS TO CERTIFY THAT THE ABOVE PLAT WAS PREPARED FROM FIELD NOTES OF ACTUAL SURVEYS MADE BY ME OR UNDER MY SUPERVISION AND THAT THE SAME ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

REGISTERED LAND SURVEYOR
REGISTRATION NO. 161319
STATE OF UTAH

Revised: 10-14-99 C.B.T.

UINTAH ENGINEERING & LAND SURVEYING
85 SOUTH 200 EAST - VERNAL, UTAH 84078
(435) 789-1017

SCALE 1" = 1000'	DATE SURVEYED: 6-17-99	DATE DRAWN: 6-24-99
PARTY D.A. D.R. D.COX	REFERENCES G.L.O. PLAT	
WEATHER WARM	FILE PETROLEUM DEVELOPMENT CORP.	

Petroleum Development Corporation
Middle Mountain No. 21-16
Lease U-77263
SESE Section 21, T16S, R6E
Emery County, Utah

A COMPLETE COPY OF THIS PERMIT SHALL BE KEPT ON LOCATION, from the beginning of site construction through well completion, and shall be available to contractors to ensure compliance.

CONDITIONS OF APPROVAL

Approval of this application does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Be advised that Petroleum Development Corporation is considered to be the operator of the above well and is responsible under the terms and conditions of the lease for the operations conducted on the leased lands.

Bond coverage for this well is provided by UT 1166 (Principal - Petroleum Development Corporation) via surety consent as provided for in 43 CFR § 3104.2.

This office will hold the aforementioned operator and bond liable until the provisions of 43 CFR § 3106.7-2 continuing responsibility are met.

This permit will be valid for a period of one year from the date of approval. After permit termination, a new application must be filed for approval.

All lease operations will be conducted in full compliance with applicable regulations (43 CFR § 3100), Onshore Oil and Gas Orders, lease terms, notices to lessees, and the approved plan of operations. The operator is fully responsible for the actions of his subcontractors.

A. DRILLING PROGRAM

1. The proposed 3M BOP system is adequate for the depths and formations to be penetrated.

2. The requirements for air drilling, found in Onshore Oil and Gas Order No. 2, part III, E (Special Drilling Operations), shall be followed. This section requires, at a minimum, the use of the following equipment not mentioned in the application:

   Spark arresters
   Blooie line discharge at least 100 feet from wellbore
   Straight blooie line
   Deduster equipment
   Float valve above bit
   Automatic igniter on the blooie line

3. Concurrent approval from the State of Utah, Division of Oil, Gas & Mining is required before conducting any surface disturbing activities. This would include approval of the proposed "exception" location.

B. SURFACE

General Manti-La Sal National Forest Requirements For Oil and Gas Drilling

The following are general requirements to be applied by the operator as conditions for approval to the Surface-Use Plan of Operations as part of the Application for a Permit to Drill (APD). They are further refined by stipulations 34-44 based on the environmental analysis conducted (project file).

1) The pad and road designs must be consistent with Forest Service specifications as outlined in the Region 4 Oil and Gas Roading Guidelines and the Manti-La Sal National Forest Oil and Gas Well Site Guidelines and are subject to Forest Service approval. No construction operations may begin prior to approval. Any modifications to approved plans are also subject to review and approval. Road use permit will be required to authorize commercial use of Forest Roads. Routes authorized for use must have a minimum of 4" aggregate surfacing unless an engineering evaluation substantiates native roadbed material will support the intended traffic. Dust control will be necessary.

2) A pre-construction meeting including the responsible company representative(s), contractors, and the Forest Service must be conducted at the project site prior to commencement of surface-disturbing activities. The pad and roadwork must be construction-staked prior to this meeting. Site-specific requirements will be discussed at this time.

3) The operator shall submit for approval, a maintenance plan for the site, the project road and that portion of any Forest Road to be used for project access. A road-use permit must be obtained from the Forest Service authorizing commercial use of Forest Roads. Requirements listed in the road-use permit must be followed. In the event of a discovery, an updated maintenance plan will be required.

4) The operator must acquire appropriate permission to use non-Forest Service Roads.

5) The project engineer and surveyors must be certified by the State in which they reside or maintain their business.

6) All surface-disturbing activities, including reclamation, must be supervised by a qualified, responsible official or representative of the designated operator who is aware of the terms and conditions of the APD and specifications in the approved plans.

7) Adequate signs must be posted along Forest Roads to warn the public of project related traffic.

8) Mobilization of the drill rig will not be allowed during holiday weekends and opening weekends of the general season deer and elk hunts, including the Friday before holiday and opening weekends, and will be restricted during the big game hunting seasons as specified by the Forest Service as conditions for approval of the Surface-Use Plan of Operations.

9) In the event of a discovery, a revised surface-use plan must be submitted to the Forest Service showing all needed production facilities. Production facilities may be subject to further environmental analyses and approval by the Forest Service.

10) Establishment of campsites on the pad or at other locations on National Forest System lands by the operator or his contractors is subject to Forest Service approval.

11) A cultural resources survey and clearance by a qualified archeologist is required under a Forest Service special-use permit prior to approval of the Surface-Use Plan of Operations. If cultural or paleontological resources are discovered during operations, all operations which may result in disturbance to the resource must cease and the Forest Service must be notified of the discovery as soon as possible.

12) The Forest Service will conduct a survey of the project area for Threatened, Endangered and Sensitive plant and animal species. The operator will be notified of the results of the survey with any special requirements for protecting them, if any are present.

13) Unauthorized off-road vehicular travel is prohibited.

14) Section corners, survey markers and claim corners in the project area must be located and flagged by the operator prior to operations. The removal or disturbance of identified markers must be approved by the proper authority.

15) Water needed for operations must be properly and legally obtained according to State water laws. The location of diversion, if on National Forest System lands, is subject to Forest Service approval.

16) Fire suppression equipment must be available to all personnel on the project site. Equipment must include a minimum of one hand tool per crew member consisting of shovels, pulaskis, and chainsaws and one properly rated fire extinguisher per vehicle and/or internal combustion engine.

17) All gasoline, diesel and steam-powered equipment must be equipped with effective spark arresters or mufflers. Spark arresters must meet Forest Service specifications discussed in the USDA Forest Service Spark Arrester Guide. In additions, all electrical equipment must be properly insulated to prevent sparks.

18) The operator will be held responsible for damage and suppression costs for fires started as a result of operations. Fires must be reported to the Forest Service as soon as possible.

19) All accidents or mishaps resulting in resource damage and/or serious personal injury must be reported to the Forest Service as soon as possible.

20) Vehicle operators must obey posted speed restrictions and observe safe speeds commensurate with road and weather conditions.

21) All drilling fluids must be contained in the reserve pit. All appropriate measures must be taken to assure that leakage through the reserve pit does not occur and that fluids are not allowed to overflow. A minimum of 2 feet of freeboard is required.

22) Sanitary facilities are required on site at all times during operations. The installation of facilities other than self-contained chemical toilets is subject to State and Forest Service approval.

23) Harassment of wildlife and livestock is prohibited; any dogs on site will be leashed at all times.

24) All merchantable timber removed or destroyed by construction or other project related activities will be purchased by the operator at fair market value. The Forest Service will conduct a timber cruise and appraisal after the final clearing limits have been staked. Slash burning will be conducted only at locations approved by

the Forest Service under authorization or a burning permit. Burning of garbage and debris is prohibited.

25) All Topsoil must be stripped from areas to be disturbed and stockpiled for reclamation in such a way as to prevent soil loss and contamination.

26) Following completion of the project, the pad and project area must be replaced to the approximate original contour unless otherwise specified in the Forest Service conditions for approval of the Surface-Use Plan of Operations.

27) The reserve pit must be dry before it is backfilled and reclaimed. The pit must be fenced (5 strand barbed wire) at all times until it is reclaimed. Methods for drying the pit, other than natural evaporation, are subject to prior Forest Service approval.

28) Unless otherwise specified in the Forest Service conditions for approval the Surface-Use Plan of Operations, contaminated soils and gravel in the project area and the contents of the reserve pit and/or closed mud system will be removed from the National Forest and disposed of at an approved facility. Exceptions may be granted if the operator can demonstrate non-toxicity through testing or isolation through encapsulation.

29) Stockpiled topsoil must be redistributed evenly over the disturbed area upon reclamation.

30) The seed mix and other planting requirements will be specified in the Forest Service conditions for approval of the Surface-Use Plan of Operations. The pad area must be fenced (let-down fence) and the project road must be adequately closed off to prevent continued use until the required reclamation standards are successfully achieved, refer to Stipulation #32.

31) All trash, garbage and other refuse must be properly contained on the site during operations and periodically disposed of off-Forest at an approved refuse facility. Following completion of operations, all unnecessary equipment, materials and refuse must be removed from the Forest as soon as possible.

32) In general, the disturbed areas will be considered adequately revegetated when at least 90 percent of the original ground cover is re-established over 90 percent of the seeded area, within three years of planting, consisting of seeded and desirable species. Maximum allowable non-noxious weeds is 10 percent of the total ground cover at any time. No noxious weeds will be allowed on the site; they must be treated as they occur. The operator is responsible for maintenance of reclamation facilities such as fences, barricades and temporary drainage structures until the desired reclaimed conditions are achieved. If the desired ground cover is not established at the end of each 3 year period, an analysis of why the area has not recovered will be performed by the operator and additional treatment and seeding will be required based on the results of the analysis.

33) Straw, hay, feed, or pellets used on the National Forest's of Utah must be certified weed-free by the State of Utah.

Additional Stipulations Specific to the Project

These stipulations further clarify and refine the general stipulations 1-33 provided above based on the environmental analysis (project file).

34) All fluids and wastewater will be contained in a lined reserve pit and/or tanks. Containment dikes or berms will be built around the drilling pads to contain any run-off and spills.

35) If the well is a dry hole, rehabilitation will begin right after drilling is complete with appropriate drainage structures constructed and recontouring of the terrain to approximate original condition.

36) If the well produces gas, rehabilitation will begin immediately after drilling to the extent possible for that portion of the pad not needed for production. Production pad designs are subject to FS approval.

37) Revegetation will be accomplished after scarification and topsoiling with approved weed free seed mixtures consistent with the Utah Seed Act.

Seed Mix for Middle Mountain Well #21-16

Common Name	*Scientific Name*	*Lbs/Acre*
Western wheatgrass	Agropyron smithii	2
Intermediate wheatgrass	Agropyron intermedium	2
Slender wheatgrass	Agropyron trachycaulum	2
Mtn. Brome grass	Bromes carinatus	1
Perennial ryegrass	Lolium perenne	2
Great Basin ryegrass	Elymus cinereus	1
Alfalfa-Ladak	Medicago sativa var. ladak	1
Blue aster	Aster glaucodes	0.25
Cicer milkvetch	Astragalus cicer	1
	Total	12.25 Lbs/ac

Remarks: The area will reclaim better if the mix is seeded using a rangeland drill.

38) A fence will be placed around the reclaimed site to allow for successful revegetation and stabilization.

39) Drillers will be housed off Forest.

40) Operations other than normal maintenance of producing wells is not allowed from May 15th to July 15th to protect elk calving and deer fawning habitat.

41) Maintenance of the site and production facilities will be by over-snow vehicle in winter.

42) In the event that the well becomes a producer, a screen of trees will be planted by the operator to minimize visibility of the pad and production facilities from adjacent dispersed recreation sites and the Millers Flat Road.

43) If the well does not produce, uncontaminated gravel/road base installed for drilling operations will be salvaged and stockpiled as designated by the Forest Service representative. Appropriate barriers will be installed as necessary to keep vehicles on the graveled surface.

44) A gate must be constructed on the project access road for each site to exclude public access. The locking mechanism must be capable of using multiple locks, including a Forest Service lock to be provided by the Forest Service. The location, design, and signing of the gates must meet Forest Service specifications are subject to Forest Service approval.

45) All equipment will be cleaned before entering the National Forest to ensure it is free of noxious weed seed.

C. REQUIRED APPROVALS, REPORTS AND NOTIFICATIONS

Required verbal notifications are summarized in Table 1, attached.

Building Location- Contact the BLM Natural Resource Protection Specialist at least 48-hours prior to commencing construction of location.

Spud- The spud date will be reported to BLM 24-hours prior to spudding. Written notification in the form of a Sundry Notice (Form 3160-5) will be submitted to the Moab Field Office within 24-hours after spudding, regardless of whether spud was made with a dry hole digger or big rig.

Daily Drilling Reports- Daily drilling reports shall detail the progress and status of the well and shall be submitted to the Moab Field Office on a weekly basis.

Monthly Reports of Operations- In accordance with Onshore Oil and Gas Order No. 1, this well shall be reported on Minerals Management Service (MMS) Form 3160, "Monthly Report of Operations," starting the month in which operations commence and continuing each month until the well is physically plugged and abandoned. This report will be filed directly with MMS.

Sundry Notices- There will be no deviation from the proposed drilling and/or workover program without prior approval. "Sundry Notices and Reports on Wells" (Form 3160-5) will be filed, with the Moab Field Office, for approval of all changes of plans and subsequent operations in accordance with 43 CFR § 3162.3-2. Safe drilling and operating practices must be observed.

Drilling Suspensions- Operations authorized by this permit shall not be suspended for more than 30 days without prior approval of the Moab Field Office. All conditions of this approval shall be applicable during any operations conducted with a replacement rig.

Undesirable Events- Spills, blowouts, fires, leaks, accidents, or any other unusual occurrences shall be immediately reported to the BLM in accordance with requirements of NTL-3A.

Cultural Resources- If cultural resources are discovered during construction, work that might disturb the resources is to stop, and the Price Field Office is to be notified.

First Production- Should the well be successfully completed for production, the Moab Field Office will be notified when the well is placed in producing status. Such notification may be made by phone, but must be followed by a sundry notice or letter not later than five business days following the date on which the well is placed into production.

A first production conference will be scheduled as soon as the productivity of the well is apparent. This conference should be coordinated through the Price Field Office. The Price Field Office shall be notified prior to the first sale.

Well Completion Report- Whether the well is completed as a dry hole or as a producer, "Well Completion and Recompletion Report and Log" (Form 3160-4) will be submitted to the Moab Field Office not later than thirty-days after completion of the well or after completion of operations being performed, in accordance with 43 CFR § 3162.4-1. Two copies of all logs, core descriptions, core analyses, well test data, geologic summaries, sample description, and all other surveys or data obtained and compiled during the drilling, workover, and/or completion operations, will be filed with Form 3160-4. When requested, samples (cuttings and/or samples) will be submitted to the Moab Field Office.

Venting/Flaring of Gas- Gas produced from this well may not be vented/flared beyond an initial, authorized test period of 30 days or 50 MMcf, whichever first occurs, without the prior, written approval of the Moab Field Office. Should gas be vented or flared without approval beyond the authorized test period, the well may be ordered shut-in until the gas can be captured or approval to continue the venting/flaring as uneconomic is granted. In such case, compensation to the lessor shall be required for that portion of the gas that is vented/flared without approval and which is determined to have been avoidably lost.

Produced Water- An application for approval of a permanent disposal method and location will be submitted to the Moab Field Office for approval pursuant to Onshore Oil and Gas Order 7.

Off-Lease Measurement, Storage, Commingling- Prior approval must be obtained from the Moab Field Office for off-lease measurement, off-lease storage and/or commingling (either down-hole or at the surface).

Plugging and Abandonment- If the well is completed as a dry hole, plugging instructions must be obtained from the Moab Field Office prior to initiating plugging operations.

A "Subsequent Report of Abandonment" (Form 3160-5) will be filed with the Moab Field Office within thirty-days following completion of the well for abandonment. This report will indicate where plugs were placed and the current status of surface restoration. Upon completion of approved plugging, a regulation marker will be erected in accordance with 43 CFR § 3162.6. Final abandonment will not be approved until the surface reclamation work required by the approved APD or approved abandonment notice has been completed to the satisfaction of the Price Field Office or the appropriate surface managing agency.

TABLE 1

NOTIFICATIONS

Notify Mike Kaminski (work: 435-636-3640, home: 435-637-2518)
or Don Stephens (work: 435-636-3608, home: 435-637-7967)
of the BLM, Price Field Office for the following:

2 days prior to commencement of dirt work, construction and reclamation;

1 day prior to spudding;

50 feet prior to reaching the surface casing (13⅜") and intermediate casing (9⅝") setting depths.

If the people above cannot be reached, notify the Moab Field Office at (435) 259-2100. If unsuccessful, contact the person listed below.

Well abandonment operations require 24 hour advance notice and prior approval. In the case of newly drilled dry holes, verbal approval can be obtained by calling the Moab Field Office at (435) 259-2100. If approval is needed after work hours, you may contact the following:

Eric Jones, Petroleum Engineer	Office: (435) 259-2117
	Home: (435) 259-2214

006

Division of Oil, Gas and Mining
PHONE CONVERSATION DOCUMENTATION FORM

Route original/copy to:

☒ Well File middle mtn. 21-16
Joe's Valley 20-1
(Loc.) Sec ____ Twp ____ Rng. ____
(API No.) ____

☐ Suspense
(Return Date) ____
(To-Initials) ____

☐ Other
____
____
____

1. Date of Phone Call: 3-15-02 Time: 1:00

2. DOGM Employee (name) L. Cordova (☒ Initiated Call)
Talked to:
Name Tom Carpenter (☐ Initiated Call) - Phone No. (800) 624-3821
of (Company/Organization) ____

3. Topic of Conversation: Return permits or intent drill?

4. Highlights of Conversation:
Sold to Talisman Energy: Mike Marsen (403) 237-1163 Fall 2001.

3-18-02 Mike Marsen
Cont. hold, emailed info. on way ε. Wtr. permit ε Ex Loc. info. (21-16)
* Fortuna will officially operate wells.
Joe's Valley may require another EA (per Blm)

FORTUNA

FORTUNA (U.S.) INC.
SUITE 3400, 888 3RD STREET S.W.
CALGARY, ALBERTA T2P 5C5
FAX (403) 237-1902
TEL (403) 237-1234
www.talisman-energy.com

June 6, 2002

Leicia Cordoba
State of Utah
Division of Oil, Gas & Mining
1594 West North Temple
Suite 1210
Box 145801
Salt Lake City, Utah
84114

Dear Ms. Cordoba:

RE: Middle Mountain #21-16 Change of Operatorship

Enclosed is a Sundry Notice stating that Fortuna (U.S.) Inc has assumed operatorship of the Middle Mountain #21-16 well effective July 1, 2001.

Should you require further information, please contact me at (403) 237-1011.

Sincerely,

FORTUNA (U.S.) INC.

A. Hamarsnes

Arne Hamarsnes, P. Eng.
Drilling Engineer

FORM 9

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

5. LEASE DESIGNATION AND SERIAL NUMBER: UTU77263

SUNDRY NOTICES AND REPORTS ON WELLS

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

7. UNIT or CA AGREEMENT NAME:

Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.

1. TYPE OF WELL: OIL WELL ☐ GAS WELL ☑ OTHER

8. WELL NAME and NUMBER: MIDDLE MOUNTAIN #21-16

2. NAME OF OPERATOR: FORTUNA (U.S.) INC.

9. API NUMBER:

3. ADDRESS OF OPERATOR: 3400, 888-3RD ST. S.W. CITY CALGARY STATE AB. ZIP T2P1C5

PHONE NUMBER: (403)237-1011

10. FIELD AND POOL, OR WILDCAT: WILDCAT

4. LOCATION OF WELL

FOOTAGES AT SURFACE: 1309' SOUTH, 834' EAST

COUNTY: EMERY

QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: SE/SE, SECTION 21, TOWNSHIP 16S, RANGE 6E

STATE: UTAH

11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION		
☑ NOTICE OF INTENT (Submit in Duplicate)	☐ ACIDIZE	☐ DEEPEN	☐ REPERFORATE CURRENT FORMATION
Approximate date work will start: _____	☐ ALTER CASING	☐ FRACTURE TREAT	☐ SIDETRACK TO REPAIR WELL
	☐ CASING REPAIR	☐ NEW CONSTRUCTION	☐ TEMPORARILY ABANDON
	☐ CHANGE TO PREVIOUS PLANS	☐ OPERATOR CHANGE	☐ TUBING REPAIR
	☐ CHANGE TUBING	☐ PLUG AND ABANDON	☐ VENT OR FLARE
☐ SUBSEQUENT REPORT (Submit Original Form Only)	☐ CHANGE WELL NAME	☐ PLUG BACK	☐ WATER DISPOSAL
Date of work completion: _____	☐ CHANGE WELL STATUS	☐ PRODUCTION (START/RESUME)	☐ WATER SHUT-OFF
	☐ COMMINGLE PRODUCING FORMATIONS	☐ RECLAMATION OF WELL SITE	☑ OTHER: CHANGE OF OPERATORSHIP
	☐ CONVERT WELL TYPE	☐ RECOMPLETE - DIFFERENT FORMATION	

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

FORTUNA (U.S.) INC. HAS TAKEN OVER OPERATORSHIP OF THE MIDDLEMOUNTAIN #21-16 WELL EFFECTIVE JULY 1, 2001.

NAME (PLEASE PRINT) ARNE HAMARSNES TITLE DRILLING ENGINEER

SIGNATURE A. Hamarsnes P. Eng. DATE June 6, 2002

(This space for State use only)

RECEIVED
JUN 13 2002
DIVISION OF
OIL, GAS AND MINING

(5/2000) (See Instructions on Reverse Side)

Petroleum Development Corporation

103 East Main Street
P. O. Box 26
Bridgeport, West Virginia 26330

Phone: (304) 842-3597

June 19, 2002

Jim Thompson
State of Utah, Division of Oil, Gas and Mining
1594 West North Temple, Suite 1210
Box 145801
Salt Lake City, UT 84114

Dear Mr. Thompson:

RE: **Middle Mountain #21-16 Change of Operator**

Enclosed is a Sundry Notice advising you that Petroleum Development Corporation, Inc. has sold its interest in the properties associated with the above pending well to Fortuna (U.S.), Inc. effective July 1, 2001. Please make the appropriate changes in your records.

Should you require additional information, please contact me at (304) 842-3597.

Sincerely,

Tom Carpenter
Geologist

Xc: A. Hamarsnes, Fortuna

FORM 9

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

5. LEASE DESIGNATION AND SERIAL NUMBER: UTU-77263

SUNDRY NOTICES AND REPORTS ON WELLS

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

7. UNIT or CA AGREEMENT NAME:

Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.

1. TYPE OF WELL: OIL WELL ☐ GAS WELL ☒ OTHER

8. WELL NAME and NUMBER: Middle Mountain #21-16

2. NAME OF OPERATOR: Petroleum Development Corporation

9. API NUMBER:

3. ADDRESS OF OPERATOR: 103 E. Main Street CITY Bridgeport STATE WV ZIP 26330

PHONE NUMBER: (304) 842-6256

10. FIELD AND POOL, OR WILDCAT: Wildcat

4. LOCATION OF WELL

FOOTAGES AT SURFACE: 659' FEL & 722' FSL

COUNTY: Emery

QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: SESE Section 21 T16S R6E

STATE: UTAH

11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION		
☒ NOTICE OF INTENT (Submit in Duplicate)	☐ ACIDIZE	☐ DEEPEN	☐ REPERFORATE CURRENT FORMATION
Approximate date work will start:	☐ ALTER CASING	☐ FRACTURE TREAT	☐ SIDETRACK TO REPAIR WELL
	☐ CASING REPAIR	☐ NEW CONSTRUCTION	☐ TEMPORARILY ABANDON
	☐ CHANGE TO PREVIOUS PLANS	☒ OPERATOR CHANGE	☐ TUBING REPAIR
	☐ CHANGE TUBING	☐ PLUG AND ABANDON	☐ VENT OR FLARE
☐ SUBSEQUENT REPORT (Submit Original Form Only)	☐ CHANGE WELL NAME	☐ PLUG BACK	☐ WATER DISPOSAL
Date of work completion:	☐ CHANGE WELL STATUS	☐ PRODUCTION (START/RESUME)	☐ WATER SHUT-OFF
	☐ COMMINGLE PRODUCING FORMATIONS	☐ RECLAMATION OF WELL SITE	☐ OTHER:
	☐ CONVERT WELL TYPE	☐ RECOMPLETE - DIFFERENT FORMATION	

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

Fortuna (U.S.) has taken over operatorship of the Middle Mountain #21-16 well effective July 21, 2001.

Fortuna (U.S.) Inc.
Suite 3400 888 3rd Street SW
Calgary, Alberta Canada T2P 5C5
(403) 237-1234

NAME (PLEASE PRINT) Tom Carpenter TITLE Geologist

SIGNATURE Tom Carpenter DATE June 19, 2002

(This space for State use only)

RECEIVED
JUN 24 2002
DIVISION OF
OIL, GAS AND MINING

(5/2000) (See Instructions on Reverse Side)

Form 3160-5
(August 1999)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB No. 1004-0135
Expires November 30, 2000

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE - Other instructions on reverse side

5. Lease Serial No. UTU77263
6. If Indian, Allottee or Tribe Name
7. If Unit or CA/Agreement, Name and/or No.
8. Well Name and No. MIDDLE MOUNTAIN #21-16
9. API Well No.
10. Field and Pool, or Exploratory Area WILDCAT
11. County or Parish, State EMERY, UTAH

1. Type of Well: ☐ Oil Well ☑ Gas Well ☐ Other
2. Name of Operator: FORTUNA (U.S.) INC.
3a. Address: SUITE 2400, 888 - 3RD ST. S.W. CALGARY, AB
3b. Phone No. (include area code): (403) 237-1011
4. Location of Well (Footage, Sec., T., R., M., or Survey Description): 1309' S, 834' E, SE/SE, SECTION 21, TOWNSHIP 16S, RANGE 6E

12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION				
☑ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off	
☐ Subsequent Report	☐ Alter Casing	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity	
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☑ Other CHANGE OF OPERATORSHIP	
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon		
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal		

13. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

FORTUNA (U.S.) INC. HAS TAKEN OVER OPERATORSHIP OF THE MIDDLEMOUNTAIN #21-16 WELL EFFECTIVE JULY 1, 2001.

BOND COVERAGE IS PROVIDED BY BOND UT1263

RECEIVED
AUG 07 2002
DIVISION OF
OIL, GAS AND MINING

RECEIVED
2002 JUN 14 P 2:45
DEPT OF THE INTERIOR
BLM FIELD OFFICE

14. I hereby certify that the foregoing is true and correct
Name (Printed/Typed) ARNE HAMARSNES
Title DRILLING ENGINEER
Signature A. Hamarsnes, P.Eng.
Date June 6, 2002

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by ACCEPTED
Title Division of Resources
Office Moab Field Office
Date JUN 14 2002

Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

Conditions of Acceptance Attached

Fortuna (U.S.) Inc.
Well No. Middle Mountain 21-16
SESE Sec. 21, T. 16 S., R. 6 E.
Lease UTU77263
Emery County, Utah

CONDITIONS OF ACCEPTANCE

Acceptance of this application does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Be advised that Fortuna (U.S.) Inc. is considered to be the operator of the above well effective July 1, 2001, and is responsible under the terms and conditions of the lease for the operations conducted on the leased lands.

Bond coverage for this well is provided by UT1263 (Principal -Fortuna (U.S.) Inc.) via surety consent as provided for in 43 CFR 3104.2.

This office will hold the aforementioned operator and bond liable until the provisions of 43 CFR 3106.7-2 continuing responsibility are met.

United States Department of Agriculture
Forest Service
Manti-La Sal National Forest
Supervisor's Office
599 West Price River Drive
Price, UT 84501
Phone # (435) 637-2817
Fax # (435) 637-4940

File Code: 2820-2
Date: July 22, 2002

Daryl Trotter
Bureau of Land Management
Moab Field Office
82 East Dogwood
Moab, UT 84532

Dear Daryl:

In response to your letter of June 19, 2002 we have no objection to a one-year extension of the Application for Permit to Drill (APD) for the Middle Mountain Federal No. 21-16 well.

The APD was submitted and permitted under the name of Petroleum Development Company (PDC). Our understanding is that PDC has transferred operations to Fortuna. Please provide us with official documentation regarding the transfer and current permittee/operator of record.

already done. mm 7/29/02

If you have any questions, contact Carter Reed at the Forest Supervisor's Office.

Sincerely,

for ELAINE J. ZIEROTH
Forest Supervisor

cc: D-2/3

MOAB OFFICE

X	INIT/DATE
FOM	
Res. Advisors	
AFM. Resources	7/29
AFM. Sup Serv	
Ops	
Bus Prac	
Fire	
SUFOA	
Action	
Info	
Discuss	

007

Extension of Application for Permit to Drill
Fortuna (U.S.) Inc.
Middle Mountain No. 21-16
Lease U-77263
Sec 21. T16S, R6E
Emery County, Utah

CONDITIONS OF APPROVAL

1. The valid term of this APD is hereby extended by one-year, through June 15, 2003.

2. All conditions of the original approval, and its subsequent amendments, remain in effect.

Division of Oil, Gas and Mining

ROUTING
1. GLH
2. CDW✓
3. FILE

OPERATOR CHANGE WORKSHEET

005

X Change of Operator (Well Sold) Designation of Agent

Operator Name Change Merger

The operator of the well(s) listed below has changed, effective: **07-01-2001**

FROM: (Old Operator):		**TO:** (New Operator):
PETROLEUM DEVELOPMENT CORPORATION		FORTUNA (US) INC
Address: 103 E. MAIN STREET		Address: 3RD STREET SOUTHWEST, STE 3400-888
BRIDGEPORT, WV 26330		CALGARY, AB T2P1C5
Phone: 1-(304)-842-6256		Phone: 1-(403)-237-1011
Account No. N1260		Account No. N2160

CA NO. **Unit:**

WELL(S)

NAME	SEC TWN RNG	API NO	ENTITY NO	LEASE TYPE	WELL TYPE	WELL STATUS
MIDDLE MOUNTAIN 21-16	21-16S-06E	43-015-30426	99999	FEDERAL	GW	APD

OPERATOR CHANGES DOCUMENTATION

Enter date after each listed item is completed

1. (R649-8-10) Sundry or legal documentation was received from the **FORMER** operator on: 06/24/2002
2. (R649-8-10) Sundry or legal documentation was received from the **NEW** operator on: 06/13/2002
3. The new company has been checked through the **Department of Commerce, Division of Corporations Database on:** 08/08/2002
4. Is the new operator registered in the State of Utah: YES Business Number: 5105943-0143
5. If **NO**, the operator was contacted contacted on: N/A
6. (R649-9-2) Waste Management Plan received on: IN PLACE

6. **Federal and Indian Lease Wells:** The BLM and or the BIA has approved the merger, name change, or operator change for all wells listed on Federal or Indian leases on: 06/14/2002

7. **Federal and Indian Units:**
The BLM or BIA has approved the successor of unit operator for wells listed on: N/A

8. **Federal and Indian Communization Agreements ("CA"):**
The BLM or BIA has approved the operator for all wells listed within a CA on: N/A

9. **Underground Injection Control ("UIC")** The Division has approved UIC Form 5, **Transfer of Authority to Inject,** for the enhanced/secondary recovery unit/project for the water disposal well(s) listed on: N/A

DATA ENTRY:

1. Changes entered in the **Oil and Gas Database on:** 08/08/2002
2. Changes have been entered on the **Monthly Operator Change Spread Sheet on:** 08/08/2002
3. Bond information entered in RBDMS on: N/A
4. Fee wells attached to bond in RBDMS on: N/A

STATE WELL(S) BOND VERIFICATION:

1. State well(s) covered by Bond Number: N/A

FEDERAL WELL(S) BOND VERIFICATION:

1. Federal well(s) covered by Bond Number: UT 1263

INDIAN WELL(S) BOND VERIFICATION:

1. Indian well(s) covered by Bond Number: N/A

FEE WELL(S) BOND VERIFICATION:

1. (R649-3-1) The **NEW** operator of any fee well(s) listed covered by Bond Number N/A
2. The **FORMER** operator has requested a release of liability from their bond on: N/A
   The Division sent response by letter on: N/A

LEASE INTEREST OWNER NOTIFICATION:

3. (R649-2-10) The **FORMER** operator of the fee wells has been contacted and informed by a letter from the Division of their responsibility to notify all interest owners of this change on: N/A

COMMENTS:

008

Talon Resources, Inc.

Service, Quality and Accuracy

P.O. Box 1230
195 North 100 West
Huntington, Utah 84528
Phone: 435-687-5310

Cell: 435-650-1886
Fax: 435-637-5311
Email: talon@castlenet.com

August 13, 2002

Mr. Aaron Howe—Forest Engineer
US Forest Service
Supervisors Office
599 Price River Drive
Price, Utah 84501

RE: Road Reconstruction Detail FDR 50040 — Forest Access to Middle Mountain #21-16 for Fortuna US

Dear Mr. Howe:

On behalf of Fortuna US, Talon Resources, Inc. respectfully submits the following information to supplement the previously submitted *Application for Permit—Non-Federal Commercial Use of Roads Restricted By Order* to access the proposed well site Middle Mountain #21-16.

Fortuna US will adopt the previously prepared Road Reconstruction Design Plans and Special Project Specifications package that was previously prepared by your office for Forest Development Road 50040. Fortuna US intents to begin reconstruction of the road consistent with the adopted plans and specifications, pending permit stipulations and published Roading Guidelines as soon as the permit is received. Furthermore, the reconstructed road and the remainder of the road previously upgraded will be maintained to Forest Specifications and material added where needed, or specified by you and your staff. Following well development activities the road will be repaired as needed and left in an acceptable condition prior to it being released back to Forest maintenance.

Thank you for your timely consideration of this information and our previously submitted applications. Please feel free to contact myself or Mr. Mark Moennich with Fortuna US, at 403-237-1785 if you should have any questions or need additional information prior to the permit being issued.

Sincerely,

Don Hamilton

Don Hamilton
Environmental Manager / Project Coordinator

Enclosures

cc: Mr. Jeff Alexander, Forest Service, Supervisors Office
Mr. Carter Reed, Forest Service, Supervisors Office
Mr. Tom Lloyd, Forest Service, Ferron District Office
Mr. Mike Morrison, Fortuna US
Mrs. Leslie Zilm, Fortuna US
Mr. Arne Hamarsnes, Fortuna US
Mr. Mark Moennich, Fortuna US

Form 3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
Budget Bureau No. 1004-0135
Expires: March 31, 1993

009

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to deepen or reentry to a different reservoir.

SUBMIT IN TRIPLICATE

5. Lease Designation and Serial No.: UTU-77263
6. If Indian, Allottee or Tribe Name: N/A
7. If Unit or CA, Agreement Designation: N/A
8. Well Name and No.: Middle Mountain #21-16
9. API Well No.: 43-015-30426
10. Field and Pool, or Exploratory Area: Wildcat
11. County or Parish, State: Emery County, Utah

1. Type of Well: ☐ Oil ☒ Gas ☐
2. Name of Operator: Fortuna US
3. Address and Telephone No.: Suite 3400, 888 3rd Street SW, Calgary, Alberta T2P5C5 403-237-1163
4. Location of Well (Footage, Sec.,T., R:, M., or Survey Description): 1309' FSL, 834' FEL SE/4 SE/4, Section 21, T16S, R6E, SLB&M

12. **CHECK APPROPRIATE BOX(s) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA**

TYPE OF SUBMISSION	TYPE OF ACTION	
☐ Notice of Intent	☐ Change of Name	Pipeline,Powerline, Maintenance Corridor Construction
☒ Subsequent Report	☐ Recompletion	☐ Change of Plans
☐ Final Abandonment Notice	☐ Plugging Back	☐ New Construction
	☐ Casing Repair	☐ Non-Routine Fracturing
	☐ Altering Casing	☐ Water Shut-Off
	☒ Relocation of access approach	☐ Conversion to Injection
		☐ Dispose Water

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

The access approach off of the Millers Flat Road (FDR 50014) leading to the proposed well site Middle Mountain #21-16 has been relocated to enter and exit the forest road at a tee.

The relocation was proposed during the July 31, 2002 onsite visit to the well site with representatives from the Forest Service and Fortuna US.

The relocation will provide for safer ingress and egress to and from the proposed well site.

An updated plan view has been attached for inclusion in the previously approved permit to drill.

FILE COPY

14. I hereby certify that the foregoing is true and correct

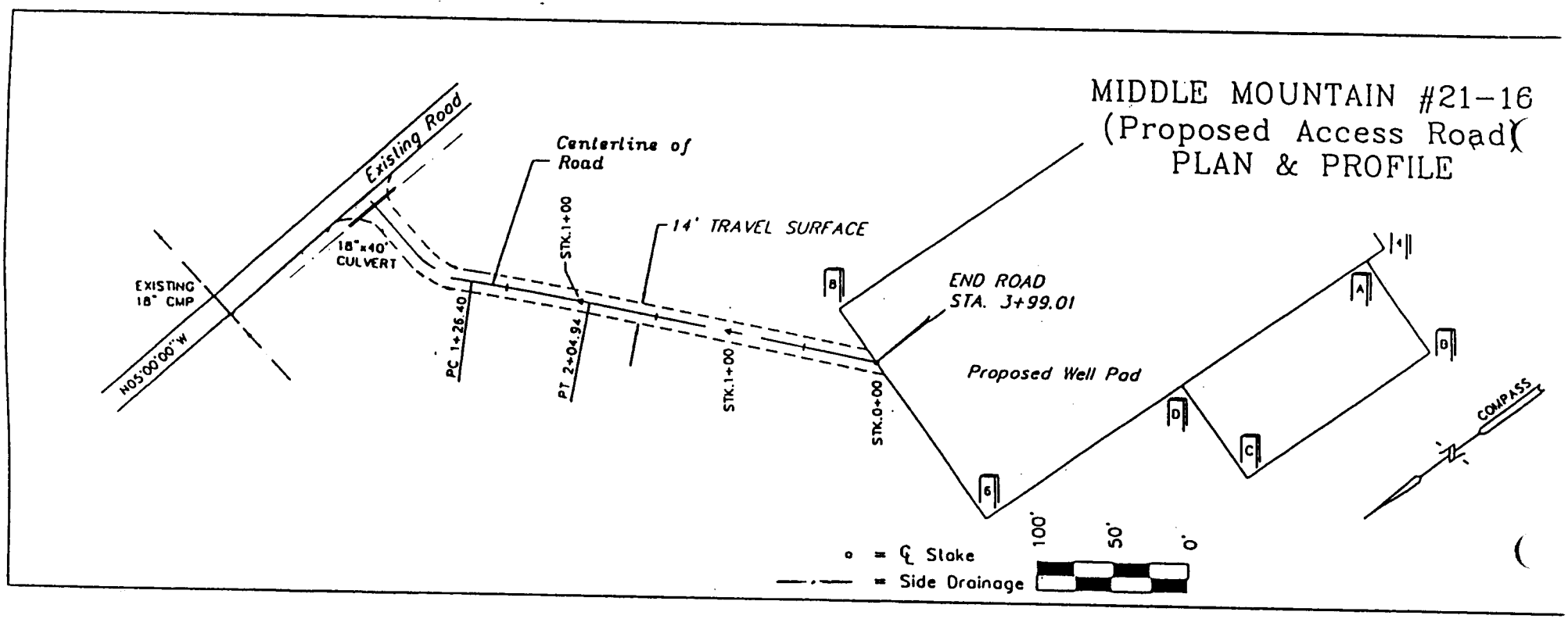
Signed Don Hamilton Don Hamilton Title Agent for Fortuna US Date August 13, 2002

(This space for Federal or State office use)

Approved by _____ Title _____ Date _____
Conditions of approval, if any:

RECEIVED
AUG 16 2002
DIVISION OF
OIL, GAS AND MINING

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.


MIDDLE MOUNTAIN #21-16
(Proposed Access Road)
PLAN & PROFILE
Existing Road
Centerline of Road
STK.1+00
14' TRAVEL SURFACE
18"x40' CULVERT
EXISTING 18" CMP
N05°00'00"W
PC 1+26.40
PT 2+04.94
STK.1+00
STK.0+00
END ROAD
STA. 3+99.01
Proposed Well Pad
B
A
1
D
C
6
COMPASS
100'
50'
0'
o = ℄ Stake
— · — = Side Drainage

010

From: "Don Hamilton" <talon@castlenet.com>
To: "Diana Mason" <Dianamason@utah.gov>
Date: 8/28/02 10:11AM
Subject: Fortuna Middle Mountain #21-16 well

Diana:

Because of the drought we have really struggled finding water for the drilling of this well (Middle Mountain #21-16 43-015-30426). I am generating a sundry at this time stating that we will simply be purchasing water from town. If you have a moment please review your files and let me know if you need any additional information at this time. Over the past month I believe that Fortuna has completed the bond and change of operator that was needed. Fortuna is looking at beginning pad construction and drilling activities in the next couple of weeks and we want to insure that our state permit is in place prior to having our contractors submit bids.

Thank you in advance for your work on this.

Don

TALON RESOURCES, INC.

375 S. Carbon Ave. (A-10), Suite 101, Price, Utah 84501
Phone: (435) 637-8781 (435) 650-1886 Fax: (435) 636- 8603

Fax Transmittal Cover Sheet

Date: 8/28/02 **Number of pages: 2**

Message To: Diana– Division of Oil, Gas, and Mining

Telephone Number: 1-801-538-5312 **Fax Number: 1-801-359-3940**

Diana:

Following is a sundry notice for the source of water on the Middle Mountain well. Please review and let me know if any changes need to be made.

A hard copy will follow by mail.

Please feel free to contact me if you have any questions or need additional information.

Don

Form 3160-5
(June 1990)

TED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
Budget Bureau No. 1004-0135
Expires: March 31, 1993

012

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to deepen or reentry to a different reservoir.
Use "APPLICATION FOR PERMIT—" for such proposals

SUBMIT IN TRIPLICATE

5. Lease Designation and Serial No.: UTU-77263
6. If Indian, Allottee or Tribe Name: N/A
7. If Unit or CA, Agreement Designation: N/A
8. Well Name and No.: Middle Mountain #21-16
9. API Well No.: 43-015-30426
10. Field and Pool, or Exploratory Area: Wildcat
11. County or Parish, State: Emery County, Utah

1. Type of Well: ☐ Oil ☒ Gas ☐
2. Name of Operator: Fortuna US
3. Address and Telephone No.: Suite 3400, 888 3rd Street SW, Calgary, Alberta T2P5C5 403-237-1163
4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

1309' FSL, 834' FEL
SE/4 SE/4, Section 21, T16S, R6E, SLB&M

12. CHECK APPROPRIATE BOX(s) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION	
☐ Notice of Intent	☐ Change of Name	Pipeline,Powerline, Maintenance Corridor Construction
☒ Subsequent Report	☐ Recompletion	☐ Change of Plans
☐ Final Abandonment Notice	☐ Plugging Back	☐ New Construction
	☐ Casing Repair	☐ Non-Routine Fracturing
	☐ Altering Casing	☐ Water Shut-Off
	☒ Water Source Information	☐ Conversion to Injection
		☐ Dispose Water

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

Because of the drought situation this year Fortuna US intends to purchase water in Orangeville town for the construction and drilling of this well.

The water will be purchased on a quantity basis from the municipal water supply through Castle Valley Special Service District (a supplier of municipal water in Emery County)

Other sources of water are being pursued at this time. If a more economical source becomes available amending paperwork will be forwarded prior to utilization of the alternate water source.

RECEIVED
AUG 28 2002
DIV OF OIL, GAS & MINING

14. I hereby certify that the foregoing is true and correct

Signed Don Hamilton Don Hamilton Title Agent for Fortuna US Date August 28, 2002

(This space for Federal or State office use)

Approved by _____ Title _____ Date _____
Conditions of approval, if any:

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

Form 3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
Budget Bureau No. 1004-0135
Expires: March 31, 1993

011

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to deepen or reentry to a different reservoir.
Use "APPLICATION FOR PERMIT--" for such proposals

SUBMIT IN TRIPLICATE

5. Lease Designation and Serial No.: UTU-77263

6. If Indian, Allottee or Tribe Name: N/A

7. If Unit or CA, Agreement Designation: N/A

1. Type of Well: ☐ Oil ☒ Gas ☐

8. Well Name and No.: Middle Mountain #21-16

2. Name of Operator: Fortuna US

9. API Well No.: 43-015-30426

3. Address and Telephone No.: Suite 3400, 888 3rd Street SW, Calgary, Alberta T2P5C5 403-237-1163

10. Field and Pool, or Exploratory Area: Wildcat

4. Location of Well (Footage, Sec.,T., R:, M., or Survey Description)
1309' FSL, 834' FEL
SE/4 SE/4, Section 21, T16S, R6E, SLB&M

11. County or Parish, State: Emery County, Utah

12. **CHECK APPROPRIATE BOX(s) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA**

TYPE OF SUBMISSION	TYPE OF ACTION	
☐ Notice of Intent	☐ Change of Name	Pipeline,Powerline, Maintenance Corridor Construction
☒ Subsequent Report	☐ Recompletion	☐ Change of Plans
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	☐ Casing Repair	☐ Non-Routine Fracturing
	☐ Altering Casing	☐ Water Shut-Off
	☒ Water Source Information	☐ Conversion to Injection
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The water will be purchased on a quantity basis from the municipal water supply through Castle Valley Special Service District (a supplier of municipal water in Emery County)

Other sources of water are being pursued at this time. If a more economical source becomes available amending paperwork will be forwarded prior to utilization of the alternate water source.

RECEIVED
AUG 30 2002
DIVISION OF
OIL, GAS AND MINING

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Signed Don Hamilton Don Hamilton Title Agent for Fortuna US Date August 28, 2002

(This space for Federal or State office use)

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Talon Resources, Inc.

Service, Quality and Accuracy

P.O. Box 1230
195 North 100 West
Huntington, Utah 84528
Phone: 435-687-5310

Cell: 435-650-1886
Fax: 435-637-5311
Email: talon@castlenet.com

August 28, 2002

Mr. Eric Jones—Petroleum Engineer
Bureau of Land Management
82 East Dogwood
Moab, Utah 84532

RE: Water Source Information Sundry Notice —Fortuna US
Middle Mountain #21-16 (43-015-30426) SE/4 SE/4, Section 21, T16S, R6E, SLB&M

Dear Mr. Jones:

On behalf of Fortuna US , Talon Resources, Inc. respectfully submits the enclosed original of the *Sundry Notice and Reports on Wells* for the above named well. The sundry is needed to supplement the existing federal authorizations and required by the Division of Oil, Gas and Mining for approval of the state authorization for permit to drill.

Please feel free to contact me if you have any questions or need additional information.

Sincerely,

Don Hamilton
Don Hamilton
Agent for Fortuna US

cc: Mr. Mike Kaminski, BLM – Price Field Office
Mr. Carter Reed, USDA Forest Service – Price SO
Mr. Tom Lloyd, USDA Forest Service—Ferron DO
Mrs. Diana Mason, Division of Oil, Gas and Mining
Mr. Mark Moennich, Fortuna, US
Mr. Arne Hamarsnes, Fortuan, US

013

FORTUNA

FORTUNA (U.S.) INC.
SUITE 3400, 888 3RD STREET S.W.
CALGARY, ALBERTA T2P 5C5
FAX (403) 237-1902
TEL (403) 237-1234
www.talisman-energy.com

August 28, 2002

Division of Oil, Gas & Mining
1594 W, North Temple, Suite 1210
Box 145801
Salt Lake City, UT 84114-5801

Attn: Lesha Cordova

Re: Fortuna Energy Inc.
Middle Mountain #21-16
1309' FSL and 834' FEL
SE SE Sec. 21, T16S-R6E
Emery County, Utah

Dear Lesha,

This letter is to serve as our request for an exception to spacing on the above referenced location.

The referenced location was staked at non-standard footages in accordance with the rules and regulations of the Division of Oil, Gas and Mining based on a request by the US Forest Service to move the location further from the Joe's Valley Road. Please be advised, however, that Fortuna Energy Inc. is the lease holder of all the acreage within a 460 foot radius of the subject location. Therefore, we request administrative approval for this exception location.

Thank you for your cooperation.

Sincerely,

Michael L. Morrison
Senior Geologist
Fortuna Energy Inc.

015

State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

1594 West North Temple, Suite 1210
PO Box 145801
Salt Lake City, Utah 84114-5801
(801) 538-5340 telephone
(801) 359-3940 fax
(801) 538-7223 TTY
www.nr.utah.gov

Michael O. Leavitt
Governor
Robert L. Morgan
Executive Director
Lowell P. Braxton
Division Director

September 4, 2002

Fortuna (U.S.) Inc.
888 3rd Street S.W., Suite 3400
Calgary. Alberta T2P 5C5

Re: Middle Mountain 21-16 Well, 1309' FSL, 834' FEL, SE SE, Sec. 21, T. 16 South, R. 6 East, Emery County, Utah

Gentlemen:

Pursuant to the provisions and requirements of Utah Code Ann.§ 40-6-1 *et seq.*, Utah Administrative Code R649-3-1 *et seq.*, and the attached Conditions of Approval, approval to drill the referenced well is granted.

Appropriate information has been submitted to DOGM and administrative approval of the requested exception location is hereby granted.

This approval shall expire one year from the above date unless substantial and continuous operation is underway, or a request for extension is made prior to the expiration date. The API identification number assigned to this well is 43-015-30426.

Sincerely,

John R. Baza
Associate Director

pb
Enclosures
cc: Emery County Assessor
Bureau of Land Management, Moab District Office

Operator: Fortuna (U.S.) Inc.

Well Name & Number Middle Mountain 21-16

API Number: 43-015-30426

Lease: UTU-77263

Location: SE SE **Sec.** 21 **T.** 16 South **R.** 6 East

Conditions of Approval

1. General

   Compliance with the requirements of Utah Admin. R. 649-1 *et seq.*, the Oil and Gas Conservation General Rules, and the applicable terms and provisions of the approved Application for permit to drill.

2. Notification Requirements

   Notify the Division within 24 hours of spudding the well.

   - Contact Carol Daniels at (801) 538-5284.

   Notify the Division prior to commencing operations to plug and abandon the well.

   - Contact Dan Jarvis at (801) 538-5338

3. Reporting Requirements

   All required reports, forms and submittals will be promptly filed with the Division, including but not limited to the Entity Action Form (Form 6), Report of Water Encountered During Drilling (Form 7), Weekly Progress Reports for drilling and completion operations, and Sundry Notices and Reports on Wells requesting approval of change of plans or other operational actions.

4. State approval of this well does not supersede the required federal approval, which must be obtained prior to drilling.

5. This proposed well is located in an area for which drilling units (well spacing patterns) have not been established through an order of the Board of Oil, Gas and Mining (the "Board"). In order to avoid the possibility of waste or injury to correlative rights, the operator is requested, once the well has been drilled, completed, and has produced, to analyze geological and engineering data generated therefrom, as well as any similar data from surrounding areas if available. As soon as is practicable after completion of its analysis, and if the analysis suggests an area larger than the quarter-quarter section upon which the well is located is being drained, the operator is requested to seek an appropriate order from the Board establishing drilling and spacing units in conformance with such analysis by filing a Request for Agency Action with the Board.

Talon Resources, Inc.

Service, Quality and Accuracy

P.O. Box 1230
195 North 100 West
Huntington, Utah 84528
Phone: 435-687-5310

Cell: 435-650-1886
Fax: 435-637-5311
Email: talon@castlenet.com

September 23, 2002

Mr. Eric Jones—Petroleum Engineer
Bureau of Land Management
82 East Dogwood
Moab, Utah 84532

RE: Change of Water Source Information Sundry Notice —Fortuna (US), Inc.
Middle Mountain #21-16 (43-015-30426) SE/4 SE/4, Section 21, T16S, R6E, SLB&M

Dear Mr. Jones:

On behalf of Fortuna (US), Inc. , Talon Resources, Inc. respectfully submits the enclosed original of the *Sundry Notice and Reports on Wells* for the above referenced well. The sundry is needed to update water source information for the existing federal and state authorizations in place at this time.

Please feel free to contact me if you have any questions or need additional information.

Sincerely,

Don Hamilton

Don Hamilton
Agent for Fortuna US

cc: Mr. Mike Kaminski, BLM – Price Field Office
Mr. Carter Reed, USDA Forest Service – Price SO
Mr. Tom Lloyd, USDA Forest Service—Ferron DO
Mrs. Diana Mason, Division of Oil, Gas and Mining
Mr. Mark Moennich, Fortuna, (US), Inc.
Mr. Arne Hamarsnes, Fortuna, (US), Inc.

Form 3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
Budget Bureau No. 1004-0135
Expires: March 31, 1993

SUNDRY NOTICES AND REPORTS ON WELLS

016

Do not use this form for proposals to drill or to deepen or reentry to a different reservoir.
Use "APPLICATION FOR PERMIT–" for such proposals

SUBMIT IN TRIPLICATE

1. Type of Well
☐ Oil ☒ Gas ☐

2. Name of Operator
Fortuna (US) Inc.

3. Address and Telephone No.
Suite 3400, 888 3rd Street SW, Calgary, Alberta T2P5C5 403-237-1163

4. Location of Well (Footage, Sec.,T., R:, M., or Survey Description)
1309' FSL, 834' FEL
SE/4 SE/4, Section 21, T16S, R6E, SLB&M

5. Lease Designation and Serial No.
UTU-77263

6. If Indian, Allottee or Tribe Name
N/A

7. If Unit or CA, Agreement Designation
N/A

8. Well Name and No.
Middle Mountain #21-16

9. API Well No.
43-015-30426

10. Field and Pool, or Exploratory Area
Wildcat

11. County or Parish, State
Emery County, Utah

12. **CHECK APPROPRIATE BOX(s) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA**

TYPE OF SUBMISSION	TYPE OF ACTION	
☐ Notice of Intent	☐ Change of Name	☐ Change of Plans
☒ Subsequent Report	☐ Recompletion	☐ New Construction
☐ Final Abandonment Notice	☐ Plugging Back	☐ Non-Routine Fracturing
	☐ Casing Repair	☐ Water Shut-Off
	☐ Altering Casing	☐ Conversion to Injection
	☒ Change of Water Source Information	☐ Dispose Water

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

Water for construction and drilling of the Middle Mountain #21-16 well will be provided by *Application for Temporary Change of Water* #t27043 evidenced by *Water Right* # 93-2175 that was approved on August 30, 2002.

This approved application allows for the withdrawal of water from Cottonwood Creek for use in oil and gas related activities.

Should this water source not be adequate, water will be purchased on a quantity basis from the municipal water supply through Castle Valley Special Service District (a supplier of municipal water in Emery County).

14. I hereby certify that the foregoing is true and correct

Signed Don Hamilton Don Hamilton Title Agent for Fortuna (US), Inc. Date September 23, 2002

RECEIVED

(This space for Federal or State office use)

Approved by _____ Title _____ Date _____

SEP 2 6 2002

Conditions of approval, if any:

DIVISION OF
OIL, GAS AND MINING

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

CONFIDENTIAL

FORTUNA

FORTUNA (U.S.) INC.
SUITE 3400, 888 3RD STREET S.W.
CALGARY, ALBERTA T2P 5C5
FAX (403) 237-1902
TEL (403) 237-1234
www.talisman-energy.com

October 2, 2002

Dustin Doucet
State of Utah
Division of Oil, Gas & Mining
1594 West North Temple
Suite 1210
Box 145801
Salt Lake City, Utah
84114

Dear Mr. Doucet:

RE: Middle Mountain #21-16 Sundry Notice Casing Change

Enclosed is a Sundry Notice stating the Casing Changes that Fortuna (U.S.) Inc proposes for the subject well.

Should you require further information, please contact me at (403) 237-1011.

Sincerely,

FORTUNA (U.S.) INC.

A. Hamarsnes

Arne Hamarsnes, P. Eng.
Drilling Engineer

cc. Eric Cole, Bureau of Land Management

017

CONFIDENTIAL

Form 3160-5
(August 1999)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB No. 1004-0135
Expires November 30, 2000

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE - Other instructions on reverse side

5. Lease Serial No.: UTU-77263
6. If Indian, Allottee or Tribe Name: N/A
7. If Unit or CA/Agreement, Name and/or No.: N/A
8. Well Name and No.: MIDDLE MOUNTAIN #21-16
9. API Well No.: 43-015-30426
10. Field and Pool, or Exploratory Area: WILDCAT
11. County or Parish, State: EMERY COUNTY, UTAH

1. Type of Well: ☐ Oil Well ☒ Gas Well ☐ Other
2. Name of Operator: FORTUNA (US) INC.
3a. Address: SUITE 3400, 888 3RD ST. S.W. CALGARY, ALBERTA T2P 5C5
3b. Phone No. (include area code): 403-237-1011
4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
1309' FSL, 834' FEL
SE/4 SE/4, SECTION 21, T16S, R6E, SLB&M

12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☐ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☒ Subsequent Report	☒ Alter Casing	☐ Fracture Treat	☐ Reclamation.	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☐ Other
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

13. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

BELOW IS A REVISED CASING PLAN FOR MIDDLE MOUNTAIN #21-16:

SURFACE CASING: 13 3/8", 48#, H-40 TO 500'

INTERMEDIATE CASING #1: 9 5/8", 36#, J-55 TO 3100' [100' INTO EVERGREEN]

INTERMEDIATE CASING #2: 7", 26#, J-55 TO 5800' [TOP OF FERRON]

LINER: 4 1/2, 11.6# FROM 5600' TO TD (APPROX. 6300')

Federal Approval Of This Action Is Necessary

Accepted by the Utah Division of Oil, Gas and Mining

Date: 10/11/2002

By: D CHD

RECEIVED

OCT 09 2002

DIVISION OF OIL, GAS AND MINING

14. I hereby certify that the foregoing is true and correct

Name (Printed/Typed): ARNE HAMARSNES — Title: DRILLING ENGINEER

Signature: A. Hamarsnes — Date: OCT. 2, 2002

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by — Title — Date

Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon. — Office: 10-15-02 CHD

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

Talon Resources, Inc.

Service, Quality and Accuracy

P.O. Box 1230
195 North 100 West
Huntington, Utah 84528
Phone: 435-637-5310

Cell: 435-650-1886
Fax: 435-687-5311
Email: talon@castlenet.com

October 21, 2002

Mr. Eric Jones
Petroleum Engineer
Bureau of Land Management
82 East Dogwood
Moab, Utah 84532

RE: Sundry Notices (Request for Crew Camp)—Fortuna (US), Inc.
Middle Mountain #21-16— 1,309' FSL, 834' FEL
Section 21, T16S, R6E, SLB&M, Emery County, Utah

Dear Mr. Jones:

On behalf of Fortuna (US), Inc. Talon Resources, Inc. respectfully submits the enclosed original and two copies of the *Sundry Notices* for the Middle Mountain #21-16 well on lands managed by the Manti La-Sal Forest Service.

Thank you for your timely consideration of the enclosed application. Please feel free to contact myself or Mr. Don Jackson of Fortuna (US), Inc. at 1-780-621-6900 if you have any questions or need additional information.

Sincerely,

Don Hamilton

Don Hamilton
Agent for Fortuna (US), Inc.

Enclosures

cc: Mr. Mike Kaminski, BLM—Price Field Office
Mr. Carter Reed, USDA Forest Service—Price SO
Mr. Tom Lloyd, USDA Forest Service—Ferron DO
Mrs. Diana Mason, Division of Oil, Gas and Mining
Mr. Don Jackson, Fortuna (US), Inc.
Mr. Mark Moenich, Fortuna (US), Inc.

Form 3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
Budget Bureau No. 1004-0135
Expires: March 31, 1993

018

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to deepen or reentry to a different reservoir.
Use "APPLICATION FOR PERMIT–" for such proposals

SUBMIT IN TRIPLICATE

1. Type of Well
☐ Oil ☒ Gas ☐

2. Name of Operator
Fortuna (US), Inc.

3. Address and Telephone No.
Suite 3400, 888 3rd Street SW, Calgary, Alberta T2P5C5 403-237-1163

4. Location of Well (Footage, Sec.,T., R:, M., or Survey Description)
1309' FSL, 834' FEL
SE/4 SE/4, Section 21, T16S, R6E, SLB&M

5. Lease Designation and Serial No.
UTU-77263

6. If Indian, Allottee or Tribe Name
N/A

7. If Unit or CA, Agreement Designation
N/A

8. Well Name and No.
Middle Mountain #21-16

9. API Well No.
43-015-30426

10. Field and Pool, or Exploratory Area
Wildcat

11. County or Parish, State
Emery County, Utah

12. **CHECK APPROPRIATE BOX(s) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA**

TYPE OF SUBMISSION	TYPE OF ACTION	
☐ Notice of Intent	☐ Change of Name	Pipeline,Powerline, Maintenance Corridor Construction
☒ Subsequent Report	☐ Recompletion	☐ Change of Plans
☐ Final Abandonment Notice	☐ Plugging Back	☐ New Construction
	☐ Casing Repair	☐ Non-Routine Fracturing
	☐ Altering Casing	☐ Water Shut-Off
	☒ Water Source Information	☐ Conversion to Injection
		☐ Dispose Water

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

Fortuna (US), Inc. intends to utilize an on-location self-contained single-unit Crew Camp on the location for the drilling and completion of the Middle Mountain #21-16 well.

No additional disturbance will be required, all waste products associated with this crew camp will be trucked off of Forest Service Lands as specified in the previously approved surface use plan and subsequent federal authorizations.

Accepted by the
Utah Division of
Oil, Gas and Mining
FOR RECORD ONLY

RECEIVED
OCT 23 2002
DIV OF OIL, GAS & MINING

14. I hereby certify that the foregoing is true and correct

Signed Don Hamilton Don Hamilton Title Agent for Fortuna US Date October 21, 2002

(This space for Federal or State office use)

Approved by _____ Title _____ Date _____
Conditions of approval, if any:

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

019

CONFIDENTIAL

DIVISION OF OIL, GAS AND MINING

SPUDDING INFORMATION

Name of Company: **FORTUNA (U.S.) INC**

Well Name: **MIDDLE MTN 21-16**

Api No: **43-015-30426** Lease Type: **FEDERAL**

Section **21** Township **16S** Range **06E** County **EMERY**

Drilling Contractor _____ **RIG #** _____

SPUDDED:

Date **10/29/02**

Time _____

How _____

Drilling will commence: _____

Reported by **DON HAMILTON**

Telephone # _____

Date **11/04/2002** Signed: **CHD**

Form 3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
Budget Bureau No. 1004-0135
Expires: March 31, 1993

SUNDRY NOTICES AND REPORTS ON WELLS

020

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SUBMIT IN TRIPLICATE

CONFIDENTIAL

1. Type of Well
☐ Oil ☒ Gas ☐

2. Name of Operator
Fortuna (US), Inc.

3. Address and Telephone No.
Suite 3400, 888 3rd Street SW, Calgary, Alberta T2P5C5 403-237-1163

4. Location of Well (Footage, Sec.,T., R:, M., or Survey Description)
1309' FSL, 834' FEL
SE/4 SE/4, Section 21, T16S, R6E, SLB&M

5. Lease Designation and Serial No.
UTU-77263

6. If Indian, Allottee or Tribe Name
N/A

7. If Unit or CA, Agreement Designation
N/A

8. Well Name and No.
Middle Mountain #21-16

9. API Well No.
43-015-30426

10. Field and Pool, or Exploratory Area
Wildcat

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☐ Final Abandonment Notice	☐ Plugging Back	☐ Non-Routine Fracturing
	☐ Casing Repair	☐ Water Shut-Off
	☐ Altering Casing	☐ Conversion to Injection
	☒ Surface Casing and Cement Reports	☐ Dispose Water

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

Attached are the Surface Casing and Cement Reports for the Middle Mountain #21-16 well

RECEIVED
NOV 12 2002
DIVISION OF
OIL, GAS AND MINING

FILE COPY

14. I hereby certify that the foregoing is true and correct

Signed Don Hamilton Don Hamilton Title Agent for Fortuna US Date November 4, 2002

(This space for Federal or State office use)

Approved by _____ Title _____ Date _____
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Well Name: FORTUNA MIDDLE MOUNTAIN #21-16

Surface Legal Location	Bottomhole Legal Location	Field Name	Operation Group	License No.	State/Province
SE SE Sec. 21, T16S-R6E	SE SE Sec. 21, T16S - R6E	Middle Mountain	Western	43-015-30426	Utah
KB Elevation (ft)	**Ground Elevation (ft)**	**Casing Flange Elevation (ft)**	**Spud Date**	**Rig Release Date**	**Current Well Status**
8655.00	8655.00		10/28/2002		Potential Gas

Casing: Surface Casing, 1,063.7ftKB

Casing Shoe Set Depth (ftKB)	Set Tension (lbf)	String Max Nominal OD (in)	String Drift Min (in)	Centralizers	Scratchers
1,063.7		13 3/8	12.559	10 ft above shoe, 10 ft above float collar, 600 ft, 500 ft, 400 ft and top 2 joints.	None

Jts	Item Des	OD (in)	ID (in)	Wt (lbs/ft)	Grade	Top Thread	Top (ftKB)	Btm (ftKB)	Len (ft)	Burst Pres. (psi)	Collapse Pres. (psi)
	Casing Joints	13 3/8	12.717	48.00	H-40	ST&C	0.0	1,018.0	1018.03	1,725.9	740.0
	Float Collar	13 3/8	12.717	48.00	H-40	13 3/8	1,018.0	1,019.2	1.15		
1	Casing Joints	13 3/8	12.717	48.00	H-40	ST&C	1,019.2	1,062.1	42.95	1,725.9	740.0
	Float Shoe	13 3/8	12.717	48.00	H-40	13 3/8	1,062.1	1,063.7	1.57		

Talisman Energy Canada - Casing Tally Report

Well Name: FORTUNA MIDDLE M JNTAIN #21-16

Casing: Surface Casing, 1,063.7ftKB

Item Description	OD Nominal (in)	Weight/Length (lbs/ft)	Grade	Length (ft)
Casing Joints	13 3/8	48.00	H-40	1018.03
Float Collar	13 3/8	48.00	H-40	1.15
Casing Joints	13 3/8	48.00	H-40	42.95
Float Shoe	13 3/8	48.00	H-40	1.57

Tally

Ref No.	Run?	Len (ft)	Cum (ft)
25	Yes	42.25	1063.67
24	Yes	41.95	1021.42
23	Yes	42.25	979.47
22	Yes	42.20	937.22
21	Yes	42.20	895.02
20	Yes	42.20	852.82
19	Yes	42.20	810.62
18	Yes	42.05	768.42
17	Yes	42.05	726.37
16	Yes	42.25	684.32
15	Yes	42.20	642.07
14	Yes	41.45	599.87
13	Yes	42.20	558.42
12	Yes	43.40	516.22
11	Yes	42.15	472.82
10	Yes	43.40	430.67
9	Yes	43.45	387.27
8	Yes	41.35	343.82
7	Yes	43.40	302.47
6	Yes	43.40	259.07
5	Yes	42.20	215.67
4	Yes	42.20	173.47
3	Yes	42.20	131.27
2	Yes	43.40	89.07
31	Yes	1.15	45.67
1	Yes	42.95	44.52
30	Yes	1.57	1.57

Report Printed: 11/3/2002

Talisman Energy Canada - Casing Report

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16

CONFIDENTIAL

KB Elevation (ft)	Ground Elevation (ft)	Casing Flange Elevation (ft)	KB-Ground Distance (ft)	KB-Casing Flange Distance (ft)	Spud Date	Rig Release Date
8655.00	8655.00	8655.00	0.00	0.00	10/28/2002	

Well Head

Wellbores: Main Hole

Casing Details

Casing Description	Casing Run Date	Casing Shoe Set Depth (ftKB)	Wellbore Name
Surface Casing	11/2/2002	1,063.7	Main Hole

Item Des	OD (in)	Wt (lbs/ft)	Grade	Drift (in)	Top Thread	Jts	Len (ft)	Top (ftKB)	Mk-up Tq (ft-lbs)	Make	Model	Max OD (in)	ID (in)
Casing Joints	13 3/8	48.00	H-40	12.559	ST&C		1018.03	0.0	3220				12.717
Float Collar	13 3/8	48.00	H-40	12.559	13 3/8		1.15	1,018.0	3220				12.717
Casing Joints	13 3/8	48.00	H-40	12.559	ST&C	1	42.95	1,019.2	3220				12.717
Float Shoe	13 3/8	48.00	H-40	12.559	13 3/8		1.57	1,062.1	3220				12.717

Talisman Energy Canada - Cement Report

CONFIDENTIAL

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16

KB Elevation (ft)	Ground Elevation (ft)	Casing Flange Elevation (ft)	KB-Ground Distance (ft)	KB-CF (ft)	Spud Date	Rig Release Date
8655.00	8655.00	8655.00	0.00	0.00	10/28/2002	

Cement Details

Cementing Start Date	Cementing End Date	String	Wellbore Name
11/3/2002 00:00	11/3/2002 02:15	Surface Casing, 1,063.7ftKB	Main Hole

Comment: No returns to surface.

Cement Stages: 1, 0.0-1,063.7ftKB

Description	Objective/Purpose	Cement Top Interval (ftKB)	Cement Bottom Interval (ftK
Surface Casing	Surface Casing	0.0	1,063.7

Top Plug?	Bottom Plug?	Q(start) (bbl/min)	Q(end) (bbl/min)	Q(avg) (bbl/min)	P(final) (psi)	P(bump) (psi)	Cmnt Rtrn (bbl)
Yes	No	6	2		600.0	300.0	0.0

Pipe Reciprocated?	Reciprocation Stroke Length (ft)	Pipe Rotated?	Pipe RPM (rpm)

Depth Tagged (ftKB)	Tag Method	Depth Plug Drilled Out To (ftKB)	Drill out diameter (in)

Cement Fluids: 1, Tail

Fluid Type	Fluid Description	Cement Amount (sacks)	Cement Class	Volume Pumped (bbl)	Yield (ft³/sack)
Tail		1,300	G	285.0	1.18

Mix H20 Ratio (gal/sack)	Free Water (%)	Density (lb/gal)	Plastic Viscosity (cp)	Thickening Time (hrs)	1st Compressive Strength (psi)
5.22		15.6			

Cement Fluid Additives

Add	Type	Amt	Amt Unit	Conc	Conc Unit
CaCl2	Accelerator	2,444.0	lb	2.0	%
Celoflake	Loss circ	325.0	lb	0.25	lb/sx

Talisman Energy Canada - Cement Report

Well Name: FORTUNA MIDDLE M JNTAIN #21-16

KB Elevation (ft)	Ground Elevation (ft)	Casing Flange Elevation (ft)	KB-Ground Distance (ft)	KB-CF (ft)	Spud Date	Rig Release Date
8655.00	8655.00	8655.00	0.00	0.00	10/28/2002	

Cement Details

Cementing Start Date	Cementing End Date	String	Wellbore Name
11/3/2002 13:00	11/3/2002 13:45	Surface Casing, 1,063.7ftKB	Main Hole

Comment: Cement to surface and fell back

Cement Stages: 1, 0.0-0.0ftKB

Description	Objective/Purpose	Cement Top Interval (ftKB)	Cement Bottom Interval (ftK
Remedial Casing Cement	Remedial Casing Cement	0.0	0.0

Top Plug?	Bottom Plug?	Q(start) (bbl/min)	Q(end) (bbl/min)	Q(avg) (bbl/min)	P(final) (psi)	P(bump) (psi)	Cmnt Rtrn (bbl)
No	No	2	2	2	400.0		

Pipe Reciprocated?	Reciprocation Stroke Length (ft)	Pipe Rotated?	Pipe RPM (rpm)

Depth Tagged (ftKB)	Tag Method	Depth Plug Drilled Out To (ftKB)	Drill out diameter (in)

Cement Fluids: 1, Tail

Fluid Type	Fluid Description	Cement Amount (sacks)	Cement Class	Volume Pumped (bbl)	Yield (ft³/sack)
Tail		430	G	91.0	1.18

Mix H20 Ratio (gal/sack)	Free Water (%)	Density (lb/gal)	Plastic Viscosity (cp)	Thickening Time (hrs)	1st Compressive Strength (psi)
5.22		15.6			

Cement Fluid Additives

Add	Type	Amt	Amt Unit	Conc	Conc Unit
CaCl2	Accelerator	808.0	lb	2.0	%
Celoflake	Loss circ Additive	108.0	lb	0.25	lb/sx

Talisman Energy Canada - Cement Report

CONFIDENTIAL

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16

KB Elevation (ft)	Ground Elevation (ft)	Casing Flange Elevation (ft)	KB-Ground Distance (ft)	KB-CF (ft)	Spud Date	Rig Release Date
8655.00	8655.00	8655.00	0.00	0.00	10/28/2002	

Cement Details

Cementing Start Date	Cementing End Date	String	Wellbore Name
11/3/2002 17:00	11/3/2002 17:30	Surface Casing, 1,063.7ftKB	Main Hole

Comment: Cement to surface.

Cement Stages: 1, 0.0-136.0ftKB

Description	Objective/Purpose	Cement Top Interval (ftKB)	Cement Bottom Interval (ftK
Remedial Casing Cement	Remedial Casing Cement	0.0	136.0

Top Plug?	Bottom Plug?	Q(start) (bbl/min)	Q(end) (bbl/min)	Q(avg) (bbl/min)	P(final) (psi)	P(bump) (psi)	Cmnt Rtrn (bbl)
No	No	2	2	2	200.0		

Pipe Reciprocated?	Reciprocation Stroke Length (ft)	Pipe Rotated?	Pipe RPM (rpm)

Depth Tagged (ftKB)	Tag Method	Depth Plug Drilled Out To (ftKB)	Drill out diameter (in)

Cement Fluids: 1, Tail

Fluid Type	Fluid Description	Cement Amount (sacks)	Cement Class	Volume Pumped (bbl)	Yield (ft³/sack)
Tail		80	G	16.8	1.18

Mix H20 Ratio (gal/sack)	Free Water (%)	Density (lb/gal)	Plastic Viscosity (cp)	Thickening Time (hrs)	1st Compressive Strength (psi)
5.22		15.6			

Cement Fluid Additives

Add	Type	Amt	Amt Unit	Conc	Conc Unit
CaCl2	Accelerator	150.0	lb	2.0	%
Celoflake	Loss circ additive	20.0	lb	0.25	lb/sx

1810 total

Form 3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
Budget Bureau No. 1004-0135
Expires: March 31, 1993

021

SUNDRY NOTICES AND REPORTS ON WELLS

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SUBMIT IN TRIPLICATE

CONFIDENTIAL

1. Type of Well: ☐ Oil ☒ Gas ☐
2. Name of Operator: Fortuna (US), Inc.
3. Address and Telephone No.: Suite 3400, 888 3rd Street SW, Calgary, Alberta T2P5C5 403-237-1163
4. Location of Well (Footage, Sec.,T., R:, M., or Survey Description)
   1309' FSL, 834' FEL
   SE/4 SE/4, Section 21, T16S, R6E, SLB&M
5. Lease Designation and Serial No.: UTU-77263
6. If Indian, Allottee or Tribe Name: N/A
7. If Unit or CA, Agreement Designation: N/A
8. Well Name and No.: Middle Mountain #21-16
9. API Well No.: 43-015-30426
10. Field and Pool, or Exploratory Area: Wildcat
11. County or Parish, State: Emery County, Utah

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	☐ Altering Casing	☐ Water Shut-Off
	☒ Weekly Drilling Reports	☐ Conversion to Injection
		☐ Dispose Water

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

Attached are the weekly drilling reports for the Middle Mountain #21-16 well

RECEIVED
NOV 12 2002
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OIL, GAS AND MINING

FILE COPY

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Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Date: 10/28/2002, Report: 1.0, DFS: 1.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8655.00	8655.00	0.00

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	Cum. Cost To Date
[redacted]	[redacted]
Daily Mud Cost	Mud Additive Cost To Date
[redacted]	[redacted]
Depth Start (ftKB)	Depth End (ftKB)
[redacted]	235.0
Depth Progress (ftKB)	Drilling Time (hrs)
235.0	5.00

Daily Summary

Weather	Road Condition	Hole Condition
Cloudy	Icey	Good

Operations at Report Time
Wait on Daylight

Operations This Report Period
Move Bill Martin Jr. onto location and drill 444.5mm hole to set 339.7mm surface casing. Hold safety meeting and rig up to drill surface hole with Bill Martin Jr. Drill 444.5mm hole with Bill Martin Jr. Cost will be one day behind until the Patterson Rig is on location.

Operations Next Report Period
Drill with Bill Martin Jr.

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	08:00	8.00	00	Undefined Status	Wait for day light.
12:00	14:00	2.00	01	Rig Up & Tear Down	Rig up Bill Martin Jr. water well rig, rotating head and booie line.
12:00	12:30	0.50	21	Safety Meeting	Safety meeting with Bill Martin Jr. crew.
14:00	19:00	5.00	02	Drilling	Drill with Hammer and 17.5" bit. Two 900 x 350 compressors running at this time. Drill to 235 ft with the hole making no noticable water. Misting at 5 gallons per minute of water and surfractant. Pull up to 100 ft to sit the night. No hole trouble at dark which is quitting time. There will be other compressors delivered to location to drill passed the 500 ft depth.
19:00	00:00	5.00	00	Undefined Status	Wait for Daylight

Drill Strings: BHA #1, Slick

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
1	17 1/2in, Q4, BMJ	-------		23.8	

Len (ft)	Max OD (in)	String Components
1000.49	9.016	Ingersol Q4, Hammer, Drill Rod, XO, Drill Rod

Drilling Parameters: 235.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr)	Int ROP (ft/hr)	Flow Rate (gpm)
1	0.0	235.0	235.0	5.00	5.00	47.0	

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
2	30						

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole		

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Mel Knezevich, Drilling Foreman
Mark Moennich, Drilling Sup't

Rigs: Bill Martin Jr., 3

Rig Supervisor
John Day, Tool Pusher

Formation Pick Groups: Drilling Sam...

Formation Picks Group
Drilling Sample

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Date: 10/29/2002, Report: 2.0, DFS: 2.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8655.00	8655.00	0.00

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	**Cum. Cost To Date**
[redacted]	[redacted]
Daily Mud Cost	**Mud Additive Cost To Date**
[redacted]	0.00
Depth Start (ftKB)	**Depth End (ftKB)**
235.0	500.0
Depth Progress (ftKB)	**Drilling Time (hrs)**
265.0	11.00

Daily Summary

Weather	Road Condition	Hole Condition
Cloudy	Icey	Good

Operations at Report Time

Wait on Daylight

Operations This Report Period

Travel to location. Warm up equipment. Trip in to 235 ft. No hole problems. Start drilling at 0730 hrs. Drill to 500 ft at 1730 hrs. Blow hole clean to 1815 hrs. Pull to 375 ft to sit for the night.

Operations Next Report Period

Travel to location in the AM, start and warm the equipment. Trip in to 500 ft and mist drill.

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	07:00	7.00	00	Undefined Status	Wait on Daylight.
07:00	18:00	11.00	02	Drilling	Start and warm rig up. Trip in to 235 ft from 100 ft. No hole problems. Start drilling and drill to 500 ft with air mist. The hole is cleaning well with 10 gallons per minute of mist fluid. The hole is not making noticable water. The pressure is not increasing as it would if the hole was loading up with water. Blow the hole dry and trip up to 375 ft for the night.
18:00	00:00	6.00	00	Undefined Status	Wait on Daylight.

Drill Strings: BHA #1, Slick

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
1	17 1/2in, Q4, BMJ	-------		23.8	

Len (ft)	Max OD (in)	String Components
1000.49	9.016	Ingersol Q4, Hammer, Drill Rod, XO, Drill Rod

Drilling Parameters: 265.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr	Int ROP (ft/hr)	Flow Rate (gpm)
1	235.0	500.0	500.0	11.00	16.00	24.1	

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
2	30						

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole		

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Mel Knezevich, Drilling Foreman
Mark Moennich, Drilling Sup't

Rigs: Bill Martin Jr., 3

Rig Supervisor: John Day, Tool Pusher

Formation Pick Groups: Drilling Sam...

Formation Picks Group: Drilling Sample

Name	Top (ftKB)
Price River	470.0

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Date: 10/30/2002, Report: 3.0, DFS: 3.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8655.00	8655.00	0.00

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	Cum. Cost To Date
[redacted]	[redacted]
Daily Mud Cost	Mud Additive Cost To Date
[redacted]	200.00
Depth Start (ftKB)	Depth End (ftKB)
500.0	600.0
Depth Progress (ftKB)	Drilling Time (hrs)
100.0	8.50

Daily Summary

Weather	Road Condition	Hole Condition
Clear	Sanded	Good

Operations at Report Time

Wait on Daylight

Operations This Report Period

Travel to location. Warm up equipment. Trip in to 500 ft. No hole problems. Start drilling at 0730 hrs. Drill to 600 ft at 1530 hrs. Blow hole clean to 1615 hrs. Pull to the bit to check the hole condition. Sit for the night.

Operations Next Report Period

Make up hammer and trip in to drill.

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	07:00	7.00	00	Undefined Status	Wait on Day light.
07:00	15:30	8.50	02	Drilling	Drill ahead with air hammer. Small amount of water encountered at 500 ft. Pressure came up 20 psi. Drill ahead to 600m. Need to change choke in the hammer to reduce pressure.
15:30	19:00	3.50	06	Tripping	Wiper trip out to the hammer. Lay down hammer for one with a bigger choke. Start Energy air package to location to help lift cuttings. Bill jr. cannot pump enough pressure with this rig to go to 1100 ft. We require a booster.
19:00	00:00	5.00	00	Undefined Status	Wait on daylight.

Mud Checks: 550.0ftKB, 10/30/2002 09:00

Type	Date	Depth (ftKB)	T(fl) (°F)	Density (lb/gal)	Vis (s/qt)	Plas Vis (cp)
Air/Mist	10/30/2002 09:00	550.0	44.0	8.3		
Yield Point (cp)	**gel 10 sec (cp)**	**gel 10 min (cp)**	**Filtrate (mL/30min)**	**HTHP Filt (mL/30min)**	**Filter Cake (in)**	**MBT (lb/bbl)**
Lime (lb/bbl)	**pH**	**Pm (mL/mL)**	**Pf (mL/mL)**	**Calcium (mg/L)**	**Potassium (mg/L)**	**Polymer (lb/gal)**
	8.2	0.000				
Chlorides (mg/L)	**Sand (%)**	**Solids (%)**	**Percent Oil (%)**	**Percent Water (%)**	**LG Solids (%)**	**Electric Stab (V)**

Drill Strings: BHA #1, Slick

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
1	17 1/2in, Q4, BMJ	-------		23.8	

Len (ft)	Max OD (in)	String Components
1000.49	9.016	Ingersol Q4, Hammer, Drill Rod, XO, Drill Rod

Drilling Parameters: 100.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr)	Int ROP (ft/hr)	Flow Rate (gpm)
1	500.0	600.0	600.0	8.50	24.50	11.8	

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
2	30	280.0					

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole		

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Mel Knezevich, Drilling Foreman
Mark Moennich, Drilling Sup't

Rigs: Bill Martin Jr., 3

Rig Supervisor: John Day, Tool Pusher

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
UTAH MUD CHECK	1.0	200

Formation Pick Groups: Drilling Sam...

Formation Picks Group: Drilling Sample

Name	Top (ftKB)
Price River	470.0

Well Name: FORTUNA MIDDLE M 'NTAIN #21-16 **[illegible]: 10/31/2002, Report: 4.0, DFS: 4.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8655.00	8655.00	0.00

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	Cum. Cost To Date
[redacted]	[redacted]
Daily Mud Cost	Mud Additive Cost To Date
[redacted]	[redacted]
Depth Start (ftKB)	Depth End (ftKB)
600.0	775.0
Depth Progress (ftKB)	Drilling Time (hrs)
175.0	9.00

Daily Summary

Weather	Road Condition	Hole Condition
Overcast	Sanded	Good

Operations at Report Time

Wait on Daylight

Operations This Report Period

Travel to location. Warm up equipment. Trip in to 600 ft. No hole problems. Start drilling at 0730 hrs. Drill to 775 ft at 1530 hrs. Blow hole clean to 1615 hrs. Pull up 200 ft to check the hole condition. Sit for the night.

Operations Next Report Period

Trip in to 775 ft and drill ahead.

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	07:00	7.00	00	Undefined Status	Wait on day light.
07:00	18:00	11.00	02	Drilling	Hammer drill from 600 to 775 ft. Hole is in good condition. There is about 10 ft of fill each morning. Rig in Energy Air, fuel tank and have fuel brought to location. The Energy Air people are quite prompt. The fuel was a little different. Thanks for the help Arnie, Anouska and Cleve. Nielson Construction is extremely helpfull.
17:30	23:30	6.00	00	Undefined Status	Wait on day light.

Drill Strings: BHA #1, Slick

Bit Ru	Bit	IADC Bit Dull	TFA (incl Noz) (in²	ROP (ft/hr	Nozzles (/32")
1	17 1/2in, Q4, BMJ	-------		23.8	

Len (ft)	Max OD (in)	String Components
1000.49	9.016	Ingersol Q4, Hammer, Drill Rod, XO, Drill Rod

Drilling Parameters: 175.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr	Int ROP (ft/hr)	Flow Rate (gpm)
1	600.0	775.0	775.0	9.00	33.50	19.4	

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
2	30	280.0					

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole		

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Mel Knezevich, Drilling Foreman
Mark Moennich, Drilling Sup't
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3

Rig Supervisor: John Day, Tool Pusher

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
UTAH MUD CHECK	1.0	200

Formation Pick Groups: Drilling Sam...

Formation Picks Group: Drilling Sample

Name	Top (ftKB)
Price River	470.0

CONFIDENTIAL

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Date: 11/1/2002, Report: 5.0, DFS: 5.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8655.00	8655.00	0.00

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	Cum. Cost To Date
[redacted]	[redacted]
Daily Mud Cost	Mud Additive Cost To Date
[redacted]	[redacted]
Depth Start (ftKB)	Depth End (ftKB)
775.0	1,000.0
Depth Progress (ftKB)	Drilling Time (hrs)
225.0	9.25

Daily Summary

Weather	Road Condition	Hole Condition
Clear	Sanded	Good

Operations at Report Time

Wait on Daylight

Operations This Report Period

Travel to location. Warm up equipment. Trip in to 775 ft. No hole problems. Start drilling at 0730 hrs. Drill to 1000 ft at 1730 hrs. Blow hole clean to 1615 hrs. Pull up 700 ft to check the hole condition. Sit for the night.

Operations Next Report Period

Trip in to 1000 ft and drill ahead to T.D. into the Blackhawk.

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	07:00	7.00	00	Undefined Status	Wait on daylight
07:00	18:15	11.25	02	Drilling	Trip in to 775 ft and drill to 1000 ft. Blow hole clean. Trip to 700 ft and sit for the night.
18:15	00:00	5.75	00	Undefined Status	Wait on day light.

Drill Strings: BHA #1, Slick

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
1	17 1/2in, Q4, BMJ	-------		23.8	

Len (ft)	Max OD (in)	String Components
1000.49	9.016	Ingersol Q4, Hammer, Drill Rod, XO, Drill Rod

Drilling Parameters: 225.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr)	Int ROP (ft/hr)	Flow Rate (gpm)
1	775.0	1,000.0	1,000.0	9.25	42.75	24.3	

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
2	30	300.0					

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole		

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Mel Knezevich, Drilling Foreman
Mark Moennich, Drilling Sup't
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3

Rig Supervisor: John Day, Tool Pusher

Formation Pick Groups: Drilling Sam...

Formation Picks Group: Drilling Sample

Name	Top (ftKB)
Castlegate	955.0
Price River	470.0

CONFIDENTIAL

Well Name: FORTUNA MIDDLE M[illegible]NTAIN #21-16 **[illegible]te: 11/2/2002, Report: 6.0, DFS: 6.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8655.00	8655.00	0.00

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	**Cum. Cost To Date**
[redacted]	[redacted]
Daily Mud Cost	**Mud Additive Cost To Date**
[redacted]	[redacted]
Depth Start (ftKB)	**Depth End (ftKB)**
1,000.0	1,125.0
Depth Progress (ftKB)	**Drilling Time (hrs)**
125.0	4.50

Daily Summary

Weather	Road Condition	Hole Condition
Clear	Sanded	Good

Operations at Report Time
Cement casing

Operations This Report Period
Drill to T.D. Condition hole. Trip out and case.

Operations Next Report Period
Cement casing. Install cellar.

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	07:00	7.00	00	Undefined Status	Wait on day light. Minor cold problems starting up today. temp was low 20's this A.M. On the way in Bill jr. and Nielson Construction people had come across a vehicle in the canyon up side down with two unhurt men inside. The vehicle had Colorado plates on it. Bill jr's men called the Sherriff for them. When the Sherriff arrived the men were arressted for one thing or another.
07:00	10:00	3.00	06	Tripping	Warm up equipment, Trip in. Water was at 750 ft. 250 ft or 75 bbls in the hole. There was a bridge at 960 ft and there was 10 ft of fill on bottom. The water most likely came from the sand that was drilled at 975 ft.
10:00	14:30	4.50	02	Drilling	Drill ahead with air/mist.
14:30	15:30	1.00	05	Condition and/or Circulate mud	Blow hole clean. Add polymer and clean hole. Hole is making water of an undetermined amount. The depth of the well will not allow for a water sample. We will get it at bottoms up circulating casing.
15:30	17:00	1.50	06	Tripping	Trip out to run casing.
17:00	00:00	7.00	12	Run Casing & Cement	Rig up tongs, spider, slips and elevators. Run casing to 600 ft. Switch to crane from rig line and run casing to 1061 ft. Hole has fill at this depth. No way to circulate joints of casing down. No 50 ft hoses. Casing seat at this depth is 36 ft into the Blackhawk formation.

Drill Strings: BHA #1, Slick

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
1	17 1/2in, Q4, BMJ	-------		23.8	

Len (ft)	Max OD (in)	String Components
1000.49	9.016	Ingersol Q4, Hammer, Drill Rod, XO, Drill Rod

Drilling Parameters: 125.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr)	Int ROP (ft/hr)	Flow Rate (gpm)
1	1,000.0	1,125.0	1,125.0	4.50	47.25	27.8	

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
2	30	300.0					

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole		

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Mel Knezevich, Drilling Foreman
Mark Moennich, Drilling Sup't
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3

Rig Supervisor
John Day, Tool Pusher

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
UTAH SAPP	1.0	96
UTAH BARACAT	1.0	80
UTAH MUD TRANSPORT	8.0	600
UTAH QUICK FOAM	8.0	904

Formation Pick Groups: Drilling Sam...

Formation Picks Group
Drilling Sample

Name	Top (ftKB)
Blackhawk	1,025.0
Castlegate	955.0
Price River	470.0

Surface Casing, 1,063.7ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
11/2/2002	13 3/8	H-40	48.00

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 — **Report Date: 11/3/2002, Report: 7.0, DFS: 7.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8655.00	8655.00	0.00

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	**Cum. Cost To Date**
[redacted]	[redacted]
Daily Mud Cost	**Mud Additive Cost To Date**
[redacted]	[redacted]
Depth Start (ftKB)	**Depth End (ftKB)**
1,125.0	1,125.0
Depth Progress (ftKB)	**Drilling Time (hrs)**
0.0	0.00

Daily Summary

Weather	Road Condition	Hole Condition
Clear	Sanded	Good

Operations at Report Time
Cement casing

Operations This Report Period
Cement Casing, top up casing annulas. Install cellar and blade lease for rig move.

Operations Next Report Period
Move in Patterson Rig 104

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	02:15	2.25	12	Run Casing & Cement	Pump hole volume of water, 20 bbls of gel slurry, 285 bbls of cement. Displace with 162 bbls. plug bumped. No returns.
02:15	13:00	10.75	13	Wait On Cement	Wait for cement to set. Call out more bulk to top up.
13:00	18:00	5.00	12	Run Casing & Cement	430 sx top up job cement fell back. 80 sx top up job to get cement to stay at surface. Mike Kaminski with BLM to witness second top up. He also steped off the lease to verify it is not to big.
18:00	00:00	6.00	13	Wait On Cement	Wait on cement.

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole		

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Mel Knezevich, Drilling Foreman
Mark Moennich, Drilling Sup't
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3

Rig Supervisor
John Day, Tool Pusher

Formation Pick Groups: Drilling Sam...

Formation Picks Group
Drilling Sample

Name	Top (ftKB)
Blackhawk	1,025.0
Castlegate	955.0
Price River	470.0

Surface Casing, 1,063.7ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
11/2/2002	13 3/8	H-40	48.00

Form 3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
Budget Bureau No. 1004-0135
Expires: March 31, 1993

SUNDRY NOTICES AND REPORTS ON WELLS

022

Do not use this form for proposals to drill or to deepen or reentry to a different reservoir.
Use "APPLICATION FOR PERMIT--" for such proposals

SUBMIT IN TRIPLICATE

CONFIDENTIAL

1. Type of Well
☐ Oil ☒ Gas ☐

2. Name of Operator
Fortuna (US), Inc.

3. Address and Telephone No.
Suite 3400, 888 3rd Street SW, Calgary, Alberta T2P5C5 403-237-1163

4. Location of Well (Footage, Sec.,T., R:, M., or Survey Description)
1309' FSL, 834' FEL
SE/4 SE/4, Section 21, T16S, R6E, SLB&M

5. Lease Designation and Serial No.
UTU-77263

6. If Indian, Allottee or Tribe Name
N/A

7. If Unit or CA, Agreement Designation
N/A

8. Well Name and No.
Middle Mountain #21-16

9. API Well No.
43-015-30426

10. Field and Pool, or Exploratory Area
Wildcat

11. County or Parish, State
Emery County, Utah

12. **CHECK APPROPRIATE BOX(s) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA**

TYPE OF SUBMISSION	TYPE OF ACTION	
☐ Notice of Intent	☐ Change of Name	Pipeline,Powerline, Maintenance Corridor Construction
☒ Subsequent Report	☐ Recompletion	☐ Change of Plans
☐ Final Abandonment Notice	☐ Plugging Back	☐ New Construction
	☐ Casing Repair	☐ Non-Routine Fracturing
	☐ Altering Casing	☐ Water Shut-Off
	☒ Spud Notice	☐ Conversion to Injection
		☐ Dispose Water

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

The Middle Mountain #21-16 well was spud at 2:00 pm on October 28, 2002 by Bill Martin Jr. Water Well Drilling.

Drilling reports will follow under a separate sundry notice

RECEIVED
NOV 04 2002
DIVISION OF
OIL, GAS AND MINING

ORIGINAL

14. I hereby certify that the foregoing is true and correct

Signed Don Hamilton Don Hamilton Title Agent for Fortuna US Date November 1, 2002

(This space for Federal or State office use)

Approved by _____ Title _____ Date _____
Conditions of approval, if any:

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

023

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

FORM 6

ENTITY ACTION FORM

Operator: Fortuna (US) Inc.

Operator Account Number: N 2160

Address: Suite 3400, 888 3rd Street SW

city Calgary, Alberta, Canada

state zip T2P5C5

Phone Number: (403) 237-1163

Well 1

API Number	Well Name		QQ	Sec	Twp	Rng	County
4301530426	Middle Mountain #21-16		SESE	21	16S	6E	Emery
Action Code	**Current Entity Number**	**New Entity Number**	**Spud Date**			**Entity Assignment Effective Date**	
A	99999	13659	10/28/2002			11-12-02	
Comments: Well spud by Bill Martin Jr. Water Well Drilling CONFIDENTIAL							

Well 2

API Number	Well Name		QQ	Sec	Twp	Rng	County
Action Code	**Current Entity Number**	**New Entity Number**	**Spud Date**			**Entity Assignment Effective Date**	
Comments:							

Well 3

API Number	Well Name		QQ	Sec	Twp	Rng	County
Action Code	**Current Entity Number**	**New Entity Number**	**Spud Date**			**Entity Assignment Effective Date**	
Comments:							

ORIGINAL

ACTION CODES:

- **A** - Establish new entity for new well (single well only)
- **B** - Add new well to existing entity (group or unit well)
- **C** - Re-assign well from one existing entity to another existing entity
- **D** - Re-assign well from one existing entity to a new entity
- **E** - Other (Explain in 'comments' section)

Don Hamilton
Name (Please Print)

Don Hamilton
Signature

Agent for Fortuna
Title

11/1/2002
Date

RECEIVED

(5/2000)

024

Talon Resources, Inc.

Service, Quality and Accuracy

P.O. Box 1230
195 North 100 West
Huntington, Utah 84528
Phone: 435-687-5310

Cell: 435-650-1886
Fax: 435-687-5311
Email: talon@etv.net

CONFIDENTIAL

November 11 2002

Mr. Al McKee
Petroleum Engineer
Bureau of Land Management—State Office
P.O. Box 45155
Salt Lake City, Utah 84145-0155

RE: Sundry Notices (Weekly Drilling Reports)—Fortuna (US), Inc.
Middle Mountain #21-16— 1,309' FSL, 834' FEL 43-015-30426
Section 21, T16S, R6E, SLB&M, Emery County, Utah

Dear Mr. Jones:

On behalf of Fortuna (US), Inc. Talon Resources, Inc. respectfully submits the enclosed original and two copies of the *Sundry Notices* for the Middle Mountain #21-16 well on lands managed by the Manti La-Sal Forest Service.

Thank you for your timely consideration of the enclosed notice. Please feel free to contact myself or Mr. Mel Knezevich of Fortuna (US), Inc. at 1-780-402-1296 if you have any questions or need additional information.

Sincerely,

Don Hamilton
Don Hamilton
Agent for Fortuna (US), Inc.

Enclosures

cc: Mrs. Marie McGann, BLM—Moab Field Office
Mr. Mike Kaminski, BLM—Price Field Office
Mr. Carter Reed, USDA Forest Service—Price SO
Mr. Tom Lloyd, USDA Forest Service—Ferron DO
Mrs. Carol Daniels, Division of Oil, Gas and Mining
Mr. Don Jackson, Fortuna (US), Inc.
Mr. Mark Moenich, Fortuna (US), Inc.

Form 3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
Budget Bureau No. 1004-0135
Expires: March 31, 1993

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to deepen or reentry to a different reservoir.
Use "APPLICATION FOR PERMIT--" for such proposals

SUBMIT IN TRIPLICATE

CONFIDENTIAL

1. Type of Well: ☐ Oil ☒ Gas ☐
2. Name of Operator: Fortuna (US), Inc.
3. Address and Telephone No.: Suite 3400, 888 3rd Street SW, Calgary, Alberta T2P5C5 403-237-1163
4. Location of Well (Footage, Sec.,T., R:, M., or Survey Description)
   1309' FSL, 834' FEL
   SE/4 SE/4, Section 21, T16S, R6E, SLB&M
5. Lease Designation and Serial No.: UTU-77263
6. If Indian, Allottee or Tribe Name: N/A
7. If Unit or CA, Agreement Designation: N/A
8. Well Name and No.: Middle Mountain #21-16
9. API Well No.: 43-015-30426
10. Field and Pool, or Exploratory Area: Wildcat
11. County or Parish, State: Emery County, Utah

12. **CHECK APPROPRIATE BOX(s) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA**

TYPE OF SUBMISSION	TYPE OF ACTION	
☐ Notice of Intent	☐ Change of Name	Pipeline,Powerline, Maintenance Corridor Construction ☐ Change of Plans
☒ Subsequent Report	☐ Recompletion	☐ New Construction
☐ Final Abandonment Notice	☐ Plugging Back	☐ Non-Routine Fracturing
	☐ Casing Repair	☐ Water Shut-Off
	☐ Altering Casing	☐ Conversion to Injection
	☒ Weekly Drilling Reports	☐ Dispose Water

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

Attached are the weekly drilling reports for the Middle Mountain #21-16 well

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14. I hereby certify that the foregoing is true and correct

Signed Don Hamilton Don Hamilton Title Agent for Fortuna US Date November 11, 2002

(This space for Federal or State office use)

Approved by _____ Title _____ Date _____
Conditions of approval, if any:

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

Talisman Energy Canada - Daily Drilling Report

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 — **Date: 11/5/2002, Report: 9.0, DFS: 9.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Weather	Road Condition	Hole Condition
Clear	Sanded/Dusty	Good

Operations at Report Time

06:00 Nov 06, 2002 Rig up Patterson 104.

Operations This Report Period

Move Patterson 104 onto location. The subs are stacked and spotted over hole centre, the spreaders are installed. The Draworks is on the sub. The derrick is pinned on the sub and on the crown stand. The blocks are strung. The a-legs are pinned. The mud tanks are spotted, the centrifuge is on the stand and one pump is in place.

Operations Next Report Period

Complete the truck portion of rigging up Patterson 104.

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	08:00	8.00	00	Undefined Status	Wait on day light.
08:00	18:00	10.00	01	Rig Up & Tear Down	Move in and rig up Patterson 104.
18:00	00:00	6.00	00	Undefined Status	Wait on day light.

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

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AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	**Cum. Cost To Date**
[redacted]	[redacted]
Daily Mud Cost	**Mud Additive Cost To Date**
[redacted]	[redacted]
Depth Start (ftKB)	**Depth End (ftKB)**
1,125.0	1,125.0
Depth Progress (ftKB)	**Drilling Time (hrs)**
0.0	0.00

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Mel Knezevich, Drilling Foreman
Mark Moennich, Drilling Sup't
Randy Hackford, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3

Rig Supervisor: John Day, Tool Pusher

Rigs: Patterson U.T.I, 104

Rig Supervisor: Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	13 5/8	1,500.0

Formation Pick Groups: Drilling Sam...

Formation Picks Group: Drilling Sample

Name	Top (ftKB)
Blackhawk	1,025.0
Castlegate	955.0
Price River	470.0

Surface Casing, 1,063.7ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
11/2/2002	13 3/8	H-40	48.00

Talisman Energy Canada - Daily Drilling Report

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Date: 11/6/2002, Report: 10.0, DFS: 10.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Weather	Road Condition	Hole Condition
Clear	Very good	Cased to 1064 ft

Operations at Report Time

06:00 Nov 07, 2002 Rig up Patterson 104.

Operations This Report Period

Move Patterson 104 onto location. The subs are stacked and spotted over hole centre, the spreaders are installed. The Draworks is on the sub. The derrick is standing. The rig is being winterized, (boiler being fired, steam and water lines being hooked up, prefabs and cold weather rigging installed). Start rigging up rig floor.

Operations Next Report Period

Complete rigging up floor. Remove top casing collar, install flange, nipple up BOP and test BOP.

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	08:00	8.00	00	Undefined Status	Wait on day light.
08:00	16:00	8.00	01	Rig Up & Tear Down	Move Patterson 104 with Urie Trucking.
16:00	00:00	8.00	01	Rig Up & Tear Down	String lines, raise derrick, Rig up to drill.The rig is being winterized, (boiler being fired, steam and water lines being hooked up, prefabs and cold weather rigging installed). Start rigging up rig floor.

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	**Cum. Cost To Date**
[redacted]	[redacted]
Daily Mud Cost	**Mud Additive Cost To Date**
[redacted]	[redacted]
Depth Start (ftKB)	**Depth End (ftKB)**
1,125.0	1,125.0
Depth Progress (ftKB)	**Drilling Time (hrs)**
0.0	0.00

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Mel Knezevich, Drilling Foreman
Mark Moennich, Drilling Sup't
Randy Hackford, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3

Rig Supervisor: John Day, Tool Pusher

Rigs: Patterson U.T.I, 104

Rig Supervisor: Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	13 5/8	1,500.0

Formation Pick Groups: Drilling Sam...

Formation Picks Group: Drilling Sample

Name	Top (ftKB)
Blackhawk	1,025.0
Castlegate	955.0
Price River	470.0

Surface Casing, 1,063.7ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
11/2/2002	13 3/8	H-40	48.00

Talisman Energy Canada - Daily Drilling Report

Well Name: FORTUNA MIDDLE M[illegible]NTAIN #21-16 **Da[illegible] 11/7/2002, Report: 11.0, DFS: 11.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Weather	Road Condition	Hole Condition
Cloudy/light snow	Very good	Cased to 1064 ft

Operations at Report Time
06:00 Nov 08, 2002 Pick up BHA to drill out.

Operations This Report Period
Winterize rig, nipple up BOP and rig up air drilling equipment.

Operations Next Report Period
Rig up rig floor, complete air drilling rig up. Test BOP and drill out.

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	08:00	8.00	01	Rig Up & Tear Down	Rig up steam and water lines.
08:00	00:00	16.00	14	Nipple Up /Nipple Down BOP Stack	Winterizer rig and fire boiler. Run steam and water around rig. Cut down the conductor pipe. Remove top casing collar. Install thread on flange. Nipple up 13 5/8 x 3000# BOP. Install rotating head and flow line. Start to rig up booie line.

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

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AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	**Cum. Cost To Date**
[redacted]	[redacted]
Daily Mud Cost	**Mud Additive Cost To Date**
[redacted]	[redacted]
Depth Start (ftKB)	**Depth End (ftKB)**
1,125.0	1,125.0
Depth Progress (ftKB)	**Drilling Time (hrs)**
0.0	0.00

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Mel Knezevich, Drilling Foreman
Mark Moennich, Drilling Sup't
Randy Hackford, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3

Rig Supervisor: John Day, Tool Pusher

Rigs: Patterson U.T.I, 104

Rig Supervisor: Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	13 5/8	1,500.0

Formation Pick Groups: Drilling Sam...

Formation Picks Group: Drilling Sample

Name	Top (ftKB)
Blackhawk	1,025.0
Castlegate	955.0
Price River	470.0

Surface Casing, 1,063.7ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
11/2/2002	13 3/8	H-40	48.00

Talisman Energy Canada - Daily Drilling Report

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Date: 11/8/2002, Report: 12.0, DFS: 12.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Weather	Road Condition	Hole Condition
Cloudy/heavy snow	Icey	Cased to 1064 ft

Operations at Report Time

06:00 Nov 09, 2002 Complete Air rig up.

Operations This Report Period

Pick up bha, test BOP/ casing. Repair accumulator precharge.

Operations Next Report Period

Complete air rig up. Leak off test and drill.

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	04:00	4.00	01	Rig Up & Tear Down	Rig up floor to pick up tubulars.
04:00	10:00	6.00	06	Tripping	Pick up tubulars.
10:00	17:00	7.00	15	Test BOP	Test BOP and casing to 200 psi low and 1200 psi high for 30 min against casing. Function test Accumulator. Order N2 and charge up precharge sphere. Mike Kamenski was here to witness the test.
17:00	20:30	3.50	06	Tripping	Trip in, pick up pipe. Tag cement at 1013 ft.
20:30	00:00	3.50	02	Drilling	Tag cement at 1013 and drill out. Float at 1022 ft and shoe at 1065 ft.

Drill Strings: BHA #2, Slick

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
2	12 1/4in, FDSS+2 , ML4284	1-1-NO-A-0-0-NO-BHA	0.75		18/18/18

Len (ft)	Max OD (in)	String Components
275.17	8.000	Smith FDSS+2 , Drill Collar, Drilling Jars - Hydraulic, Drill Collar, XO Sub, Drill Collar, Bit Sub

Drilling Parameters: 0.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr)	Int ROP (ft/hr)	Flow Rate (gpm)
2	1,125.0	1,125.0	0.0		0.00		220

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
10	45	250.0					

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Directional Surveys: Totco Mechanical Drift

Description	Survey Company
Totco Mechanical Drift	Patterson Crew

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AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	**Cum. Cost To Date**
[redacted]	[redacted]
Daily Mud Cost	**Mud Additive Cost To Date**
[redacted]	[redacted]
Depth Start (ftKB)	**Depth End (ftKB)**
1,125.0	1,125.0
Depth Progress (ftKB)	**Drilling Time (hrs)**
0.0	0.00

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Mel Knezevich, Drilling Foreman
Mark Moennich, Drilling Sup't
Randy Hackford, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3

Rig Supervisor: John Day, Tool Pusher

Rigs: Patterson U.T.I, 104

Rig Supervisor: Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	13 5/8	1,500.0

Formation Pick Groups: Drilling Sam...

Formation Picks Group: Drilling Sample

Name	Top (ftKB)
Blackhawk	1,025.0
Castlegate	955.0
Price River	470.0

Surface Casing, 1,063.7ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
11/2/2002	13 3/8	H-40	48.00

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Talisman Energy Canada - Daily Drilling Report

Well Name: FORTUNA MIDDLE M[illegible]NTAIN #21-16 **D[illegible] 11/9/2002, Report: 13.0, DFS: 13.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Weather	Road Condition	Hole Condition
Cloudy/light snow	Icey	Cased to 1064 ft

Operations at Report Time
06:00 Nov 10, 2002 Lay down hammer at 1152 ft.

Operations This Report Period
Coplete the air drilling rig up.

Operations Next Report Period
Trip in with tri-cone and drill with aerated water.

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	01:30	1.50	02	Drilling	Complete drill out operation and clean to bottom @ 1125. Hole was full of cement. Welders gone for the night.
01:30	02:30	1.00	05	Condition and/or Circulate mud	Circulate hole clean.
02:30	07:00	4.50	01	Rig Up & Tear Down	Rig up Survey line. Pick up on lease snowing very heavy.
07:00	14:00	7.00	01	Rig Up & Tear Down	Rigging in air drilling system. Inadequate: heat in manifold, Sub prefabs not in good condition at all. BOP not really heated good enough due to poor sub prefabs. Power cords that are not off of the ground (but legal here because they are rubber coated). The lease is way to small to even get the escape line pinned properly. We will have to negotiate with the forestry on this matter. Things we just did not realize. Air drilling companies are really just air compressor companies. They don't have booie lines. They don't have Bambi for sensitve areas, all these things have to be found in pieces and assembled on location. They don't even have floor manifolds, for air divertion on connections, it had to be assembled. These things take an unbelievable amount of time. It was a real chore to find a fuel tank to rent we know now that the fuel agents that have tanks are the ones to hire.
14:00	16:00	2.00	00	Undefined Status	Run leak off test. 387 psi applied surface pressure, plus hydrostatic of water at 8.38 ppg is .8 psi/ft gradient or 18.1 kpa/m. The formation broke at 120 psi applied surface pressure or .55 psi/ft. After that the hole would not stay full. The well was taking 5 bbl/hr to keep it full.
16:00	00:00	8.00	01	Rig Up & Tear Down	Rigging in air drilling system.

Drill Strings: BHA #2, Slick

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
2	12 1/4in, FDSS+2 , ML4284	1-1-NO-A-0-0-NO-BHA	0.75		18/18/18

Len (ft)	Max OD (in)	String Components
275.17	8.000	Smith FDSS+2 , Drill Collar, Drilling Jars - Hydraulic, Drill Collar, XO Sub, Drill Collar, Bit Sub

Drilling Parameters: 0.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr)	Int ROP (ft/hr)	Flow Rate (gpm)
2	1,125.0	1,125.0	0.0		0.00		220

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
10	45	250.0					

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	**Cum. Cost To Date**
[redacted]	[redacted]
Daily Mud Cost	**Mud Additive Cost To Date**
[redacted]	[redacted]
Depth Start (ftKB)	**Depth End (ftKB)**
1,125.0	1,160.0
Depth Progress (ftKB)	**Drilling Time (hrs)**
35.0	1.00

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Mel Knezevich, Drilling Foreman
Mark Moennich, Drilling Sup't
Roger Bromley, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3
Rig Supervisor: John Day, Tool Pusher

Rigs: Patterson U.T.I, 104
Rig Supervisor: Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	13 5/8	1,500.0

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA MUD TRANSPORT	10.0	750
BAROID USA SODA ASH	20.0	148
BAROID USA DIAMONIAM PHOSPHATE	65.0	1,802

Formation Pick Groups: Drilling Sam...
Formation Picks Group: Drilling Sample

Name	Top (ftKB)
Blackhawk	1,025.0
Castlegate	955.0
Price River	470.0

Surface Casing, 1,063.7ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
11/2/2002	13 3/8	H-40	48.00

Well Name: FORTUNA MIDDLE M NTAIN #21-16 D 11/9/2002, Report: 13.0, DFS: 13.00

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Drill Strings: BHA #3, Slick

Bit Ru	Bit	IADC Bit Dull	TFA (incl Noz) (in²	ROP (ft/hr	Nozzles (/32")
3	12 1/4in, H42K2K3PD, KL9397	1-1-NO-A-0-0-NO-BHA		35.0	

Len (ft)	Max OD (in)	String Components
281.07	11.000	Smith H42K2K3PD, Drill Collar, Drilling Jars - Hydraulic, Drill Collar, XO Sub, Drill Collar, Bit Sub, Hammer

Drilling Parameters: 35.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr	Int ROP (ft/hr)	Flow Rate (gpm)
3	1,125.0	1,160.0	35.0	1.00	1.00	35.0	

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
5,000	50	225.0	60	60	60		

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Directional Surveys: Totco Mechanical Drift

Description	Survey Company
Totco Mechanical Drift	Patterson Crew

Survey Data

MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)
300.00	0.50	90.00	300.00	0.00	0.00	0.00	0.00
600.00	0.50	90.00	599.99	0.00	2.62	2.62	0.00
900.00	0.50	90.00	899.98	0.00	5.24	5.24	0.00
1,124.00	0.50	90.00	1,123.97	0.00	7.19	7.19	0.00

Talisman Energy Canada - Daily Drilling Report

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Date: 11/10/2002, Report: 14.0, DFS: 14.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Weather	Road Condition	Hole Condition
Heavy snow	Icey	Good

Operations at Report Time
06:00 Nov 10, 2002 Drill ahead @ 1720 ft

Operations This Report Period
Drill with hammer. Water out. Change assembly to tri-cone rotary. Drill ahead with aerated water. Attempt to find the right combo of air and water to maintain volume and recover samples for geology.

Operations Next Report Period
Drill ahead with aerated water and monitor drift with Totco drift indicator.

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	01:00	1.00	01	Rig Up & Tear Down	Finish Air drill rig up.
01:00	02:30	1.50	05	Condition and/or Circulate mud	Blow the hole dry.
02:30	03:00	0.50	03	Reaming	Clean from the shoe to bottom.
03:00	04:00	1.00	02	Drilling	Drill ahead with the hammer. 1150 ft the hammer slowed down. The next 2 ft took 20 minutes to drill and the hammer quit firing due to the vast amount of water the hole is making. 400 bbls in 20 minutes.
04:00	05:30	1.50	06	Tripping	Trip out and lay down hammer
05:30	08:00	2.50	00	Undefined Status	Change pancake to drill with aerated fluid. Pump out flare tank (mud boat) to a Ute.
08:00	10:00	2.00	06	Tripping	Trip in with tri-cone bit. 10 ft of fill.
10:00	23:30	13.50	02	Drilling	Drill ahead with rotary assembly.
23:30	00:00	0.50	10	Rig Survey	Total survey time.

Mud Checks: 1,200.0ftKB, 11/10/2002 00:00

Type	Date	Depth (ftKB)	T(ft) (°F)	Density (lb/gal)	Vis (s/qt)	Plas Vis (cp)
Floc Water	11/10/2002 00:00	1,200.0				

Yield Point (cp)	gel 10 sec (cp)	gel 10 min (cp)	Filtrate (mL/30min)	HTHP Filt (mL/30min)	Filter Cake (in)	MBT (lb/bbl)

Lime (lb/bbl)	pH	Pm (mL/mL)	Pf (mL/mL)	Calcium (mg/L)	Potassium (mg/L)	Polymer (lb/gal)

Chlorides (mg/L)	Sand (%)	Solids (%)	Percent Oil (%)	Percent Water (%)	LG Solids (%)	Electric Stab (V)

Drill Strings: BHA #4, Slick

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
4	12 1/4in, GT-S28C, 6000317	-------	2.36	23.8	32/32/32

Len (ft)	Max OD (in)	String Components
275.17	8.000	Hughes GT-S28C, Drill Collar, Drilling Jars - Hydraulic, Drill Collar, XO Sub, Drill Collar, Bit Sub

Drilling Parameters: 399.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr)	Int ROP (ft/hr)	Flow Rate (gpm)
4	1,160.0	1,559.0	399.0	13.50	13.50	29.6	155

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
23	60	70.0	65,000	65,000	65,000		

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Directional Surveys: Totco Mechanical Drift

Description	Survey Company
Totco Mechanical Drift	Patterson Crew

Survey Data

MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)
1,226.00	0.50	90.00	1,225.96	0.00	8.08	8.08	0.00
1,404.00	0.75	90.00	1,403.95	0.00	10.02	10.02	0.14

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AFE No.	Total AFE Amt ($)
37511	[redacted]

Daily Cost Total	Cum. Cost To Date
[redacted]	[redacted]

Daily Mud Cost	Mud Additive Cost To Date
[redacted]	[redacted]

Depth Start (ftKB)	Depth End (ftKB)
1,160.0	1,559.0

Depth Progress (ftKB)	Drilling Time (hrs)
399.0	13.50

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Mel Knezevich, Drilling Foreman
Mark Moennich, Drilling Sup't
Roger Bromley, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3
Rig Supervisor: John Day, Tool Pusher

Rigs: Patterson U.T.I, 104
Rig Supervisor: Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

Pump Checks

P (psi)	Slow Spd	Strokes (strokes/min)	Eff (%)
70.0	No	35	90
0.0	No	68	90

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	13 5/8	1,500.0

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA BARACOR 700	1.0	883
BAROID USA MUD ENG LIVING ALLOWANCE	3.0	105
BAROID USA QUICK FOAM	4.0	452
BARIOD USA MUD CHECK	8.0	1,600
BAROID USA BARACAT	15.0	1,200
BAROID USA FUMARIC ACID	17.0	1,087
BAROID USA DIAMONIAM PHOSPHATE	47.0	1,303

Formation Pick Groups: Drilling Sam...

Formation Picks Group: Drilling Sample

Name	Top (ftKB)
Blackhawk	1,025.0
Castlegate	955.0

Well Name: FORTUNA MIDDLE M JNTAIN #21-16 **Da 11/10/2002, Report: 14.0, DFS: 14.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Name	Top (ftKB)
Price River	470.0

Surface Casing, 1,063.7ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
11/2/2002	13 3/8	H-40	48.00

Talisman Energy Canada - Daily Drilling Report

Well Name: FORTUNA MIDDLE [redacted]UNTAIN #21-16 **D[redacted] 11/11/2002, Report: 15.0, DFS: 15.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	**Cum. Cost To Date**
[redacted]	[redacted]
Daily Mud Cost	**Mud Additive Cost To Date**
[redacted]	[redacted]
Depth Start (ftKB)	**Depth End (ftKB)**
1,559.0	1,993.0
Depth Progress (ftKB)	**Drilling Time (hrs)**
434.0	21.50

Daily Summary

Weather	Road Condition	Hole Condition
Clear	Icey	Good

Operations at Report Time
06:00 Nov 12, 2002 Drill ahead @ 2000 ft

Operations This Report Period
Drill ahead with aerated inhibited water. Trip out for wiper and install shocksub. Pick up 6 additional DC's.

Operations Next Report Period
Complete trip and drill ahead.

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	02:00	2.00	02	Drilling	Drill ahead with aerated water or air with 155 gal/min of mist water.
02:00	02:30	0.50	10	Rig Survey	Survey at 1592 ft
02:30	13:30	11.00	02	Drilling	Drill ahead with aerated water or air with 155 gal/min of mist water.
13:30	14:00	0.50	10	Rig Survey	Survey at 1792 ft
14:00	21:30	7.50	02	Drilling	Drill ahead with aerated water or air with 155 gal/min of mist water.
21:30	22:00	0.50	10	Rig Survey	Survey at 1924. AZ of 90 is worst case all drift to the east. It is not a directional survey.
22:00	23:00	1.00	02	Drilling	Drill ahead with aerated water or air with 155 gal/min of mist water.
23:00	00:00	1.00	06	Tripping	Trip out to check bit, pick up shock sub and 6 dc's. Bit is at the shoe by 24:00 hrs. Hole showed no fill on the survey and no drag or tight spots on the trip out.

Drill Strings: BHA #4, Slick

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
4	12 1/4in, GT-S28C, 6000317	------	2.36	23.8	32/32/32

Len (ft)	Max OD (in)	String Components
275.17	8.000	Hughes GT-S28C, Drill Collar, Drilling Jars - Hydraulic, Drill Collar, XO Sub, Drill Collar, Bit Sub

Drilling Parameters: 434.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr	Int ROP (ft/hr)	Flow Rate (gpm)
4	1,559.0	1,993.0	833.0	21.50	35.00	20.2	155

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
23	60	70.0	70	70	70		

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Directional Surveys: Totco Mechanical Drift

Description	Survey Company
Totco Mechanical Drift	Patterson Crew

Survey Data

MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)
1,592.00	1.25	90.00	1,591.92	0.00	13.30	13.30	0.27
1,792.00	1.50	90.00	1,791.87	0.00	18.10	18.10	0.13
1,810.00	1.50	90.00	1,809.86	0.00	18.57	18.57	0.00
1,924.00	1.50	90.00	1,923.82	0.00	21.56	21.56	0.00

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Rod Cuthill, Drilling Foreman
Mel Knezevich, Drilling Foreman
Mark Moennich, Drilling Sup't
Roger Bromley, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3

Rig Supervisor: John Day, Tool Pusher

Rigs: Patterson U.T.I, 104

Rig Supervisor: Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	13 5/8	1,500.0

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA MUD TRANSPORT	10.0	750

Formation Pick Groups: Drilling Sam...

Formation Picks Group: Drilling Sample

Name	Top (ftKB)
Blackhawk	1,025.0
Castlegate	955.0
Price River	470.0

Surface Casing, 1,063.7ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
11/2/2002	13 3/8	H-40	48.00

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Report Printed: 11/12/2002

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STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

FORM 7

REPORT OF WATER ENCOUNTERED DURING DRILLING

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Well name and number: Middle Mountain #21-16

API number: 4301530426

Well Location: QQ SESE Section 21 Township 16S Range 6E County Emery

Well operator: Fortuna (US), Inc.

Address: Suite 3400, 888 3rd Street SW

city Calgary state AB zip T2P5C5 Phone: (403) 237-1163

Drilling contractor: Patterson Rig 104

Address: _____

city _____ state _____ zip _____ Phone: _____

Water encountered (attach additional pages as needed):

DEPTH		VOLUME	QUALITY
FROM	TO	(FLOW RATE OR HEAD)	(FRESH OR SALTY)
1,150	1,152	1,200 bbls/hour with a	Fresh with 200ppm Ca
		3,000 cfm air lift – no	
		flow to surface without	
		air lift operating	

Formation tops: (Top to Bottom)

1	Northhorn 0'	2	Price River 450'	3	Castlegate 955'
4	Blackhawk 1,025'	5	Star Point 2,012'	6	Mancos 2,323'
7		8		9	
10		11		12	

If an analysis has been made of the water encountered, please attach a copy of the report to this form.

ORIGINAL

I hereby certify that this report is true and complete to the best of my knowledge.

NAME (PLEASE PRINT) Don Hamilton TITLE Agent for Fortuna

SIGNATURE Don Hamilton DATE 11-18-02

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(5/2000)

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Talon Resources, Inc.

Service, Quality and Accuracy

P.O. Box 1230
195 North 100 West
Huntington, Utah 84528
Phone: 435-687-5310

Cell: 435-650-1886
Fax: 435-687-5311
Email: talon@etv.net

CONFIDENTIAL

November 18 2002

Mr. Al McKee
Petroleum Engineer
Bureau of Land Management—State Office
P.O. Box 45155
Salt Lake City, Utah 84145-0155

RE: Well Reports (Water Encountered During Drilling, As-built Drawing, Weekly Drilling Reports)—
Fortuna (US), Inc.
Middle Mountain #21-16— 1,309' FSL, 834' FEL
Section 21, T16S, R6E, SLB&M, Emery County, Utah

Dear Mr. McKee:

On behalf of Fortuna (US), Inc. Talon Resources, Inc. respectfully submits the enclosed original and two copies of the above referenced *Sundry Notices* for the Middle Mountain #21-16 well on lands managed by the Manti La-Sal Forest Service.

Thank you for your timely consideration of the enclosed notice. Please feel free to contact myself or Mr. Mel Knezevich of Fortuna (US), Inc. at 1-780-402-1296 if you have any questions or need additional information.

Sincerely,

Don Hamilton
Don Hamilton
Agent for Fortuna (US), Inc.

Enclosures

cc: Mrs. Marie McGann, BLM—Moab Field Office
Mr. Mike Kaminski, BLM—Price Field Office
Mr. Carter Reed, USDA Forest Service—Price SO
Mr. Tom Lloyd, USDA Forest Service—Ferron DO
Mrs. Carol Daniels, Division of Oil, Gas and Mining
Mr. Don Jackson, Fortuna (US), Inc.
Mr. Mark Moenich, Fortuna (US), Inc.

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Form 3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
Budget Bureau No. 1004-0135
Expires: March 31, 1993

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to deepen or reentry to a different reservoir.
Use "APPLICATION FOR PERMIT--" for such proposals

SUBMIT IN TRIPLICATE

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1. Type of Well
☐ Oil ☒ Gas ☐

2. Name of Operator
Fortuna (US), Inc.

3. Address and Telephone No.
Suite 3400, 888 3rd Street SW, Calgary, Alberta T2P5C5 403-237-1163

4. Location of Well (Footage, Sec.,T., R:, M., or Survey Description)
1309' FSL, 834' FEL
SE/4 SE/4, Section 21, T16S, R6E, SLB&M

5. Lease Designation and Serial No.
UTU-77263

6. If Indian, Allottee or Tribe Name
N/A

7. If Unit or CA, Agreement Designation
N/A

8. Well Name and No.
Middle Mountain #21-16

9. API Well No.
43-015-30426

10. Field and Pool, or Exploratory Area
Wildcat

11. County or Parish, State
Emery County, Utah

12. **CHECK APPROPRIATE BOX(s) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA**

TYPE OF SUBMISSION	TYPE OF ACTION	
☐ Notice of Intent	☐ Change of Name	☐ Change of Plans
☒ Subsequent Report	☐ Recompletion	☐ New Construction
☐ Final Abandonment Notice	☐ Plugging Back	☐ Non-Routine Fracturing
	☐ Casing Repair	☐ Water Shut-Off
	☐ Altering Casing	☐ Conversion to Injection
	☒ Weekly Drilling Reports	☐ Dispose Water

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

Attached are the weekly drilling reports for the Middle Mountain #21-16 well

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FILE COPY

14. I hereby certify that the foregoing is true and correct

Signed Don Hamilton Don Hamilton Title Agent for Fortuna US Date November 18, 2002

(This space for Federal or State office use)

Approved by _____ Title _____ Date _____
Conditions of approval, if any:

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

Talisman Energy Canada - Daily Drilling Report

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Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 — **Date: 11/12/2002, Report: 16.0, DFS: 16.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Weather	Road Condition	Hole Condition
Clear	Icey	Good

Operations at Report Time

06:00 Nov 13, drill ahead at 2355 ft fanning dev.

Operations This Report Period

Drill ahead with aerated. Regulate air and water to control pit volume. Tight hole when drilling blind between 2262 and 2290 ft. Deviation at 3 degrees.

Operations Next Report Period

Drill ahead fanning hole for deviation. Monel and single shot on the way to location. Will trip.

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	00:30	0.50	00	Undefined Status	Thaw out hole fill line.
00:30	01:30	1.00	06	Tripping	Trip out / laydown 6 joints drill pipe / break bit.
01:30	04:30	3.00	06	Tripping	Make up BHA as follows & RIH: bit, 3-8" DC, XO, shock sub, 3-6" DC, drilling jars, 8-6" DC, drill pipe. No fill on bttm.
04:30	05:00	0.50	05	Break Circ.	Make up kelly & unload hole w/ air
05:00	11:45	6.75	02	Drilling	Drilling 12 1/4" hole from 1974'KB to 2152'KB using 1200 cfm air & 155 GPM fluid.
11:45	12:15	0.50	10	Rig Survey	Deviation survey @ 2121'KB / 2.0 deg inclination.
12:15	17:15	5.00	02	Drilling	Drilling 12 1/4" hole from 2152'KB to 2247'KB.
17:15	17:45	0.50	07	Rig Service	Rig service / BOP check.
17:45	19:45	2.00	02	Drilling	Drilling 12 1/4" hole from 2247'KB to 2278'KB using aereated fluid.
19:45	20:15	0.50	10	Rig Survey	Deviation survey @ 2238'KB / 3.0 deg inclination.
20:15	00:00	3.75	02	Drilling	Drilling 12 1/4" hole from 2278"KB Hole was tight from 2260-2290 ft. The tight hole was directly due to the fact the pits were full and we were drilling blind to reduce the pit volume. Once the pit volume was reduced, the air was brought back up, and returns established the hole condition improved to the same condition as previous.

Drill Strings: BHA #5, Slick

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
4RR	12 1/4in, GT-S28C, 6000317	-------	0.75	18.8	18/18/18

Len (ft)	Max OD (in)	String Components
2000.28	8.000	Hughes GT-S28C, Bit Sub, Drill Collar, XO Sub, Shock Sub, Drill Collar, Drilling Jars - Hydraulic, Drill Collar, Drill Pipe

Drilling Parameters: 329.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr)	Int ROP (ft/hr)	Flow Rate (gpm)
5	1,974.0	2,303.0	329.0	17.50	17.50	18.8	155

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
10	120	170.0	86	86	86		

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Directional Surveys: Totco Mechanical Drift

Description	Survey Company
Totco Mechanical Drift	Patterson Crew

Survey Data

MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)
2,121.00	2.00	90.00	2,120.73	0.00	27.57	27.57	0.25
2,238.00	3.00	90.00	2,237.62	0.00	32.68	32.68	0.85

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	**Cum. Cost To Date**
[redacted]	[redacted]
Daily Mud Cost	**Mud Additive Cost To Date**
[redacted]	[redacted]
Depth Start (ftKB)	**Depth End (ftKB)**
1,974.0	2,303.0
Depth Progress (ftKB)	**Drilling Time (hrs)**
329.0	17.50

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Mel Knezevich, Drilling Foreman
Rod Cuthill, Drilling Foreman
Mark Moennich, Drilling Sup't
Roger Bromley, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3

Rig Supervisor: John Day, Tool Pusher

Rigs: Patterson U.T.I, 104

Rig Supervisor: Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

Pump Checks

P (psi)	Slow Spd	Strokes (strokes/min)	Eff (%)
110.0	No	35	90
170.0	No	50	90

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	13 5/8	1,500.0

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA MUD ENG LIVING ALLOWANCE	1.0	35
BAROID USA BARACOR 700	1.0	883
BARIOD USA MUD CHECK	1.0	200
BAROID USA FUMARIC ACID	7.0	448
BAROID USA QUICK GEL	8.0	23
BAROID USA SODA ASH	13.0	96
BAROID USA BARACAT	14.0	1,120
BAROID USA DIAMONIAM PHOSPHATE	68.0	1,885

Formation Pick Groups: Drilling Sam...

Formation Picks Group: Drilling Sample

Report Printed: 11/13/2002

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Date: 11/12/2002, Report: 16.0, DFS: 16.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Name	Top (ftKB)
Star Point	2,012.0
Blackhawk	1,025.0
Castlegate	955.0
Price River	470.0

Surface Casing, 1,063.7ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
11/2/2002	13 3/8	H-40	48.00

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 Da... **11/13/2002, Report: 17.0, DFS: 17.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	Cum. Cost To Date
[redacted]	[redacted]
Daily Mud Cost	Mud Additive Cost To Date
[redacted]	[redacted]
Depth Start (ftKB)	Depth End (ftKB)
2,303.0	2,425.0
Depth Progress (ftKB)	Drilling Time (hrs)
122.0	15.75

Daily Summary

Weather	Road Condition	Hole Condition
	Icey	Good

Operations at Report Time
06:00 Nov 14, 2476'KB, DRILLING AHEAD

Operations This Report Period
Drill ahead w/ aerated fluid / xo BHA to drop angle & run single shot tools.

Operations Next Report Period
Drill ahead fanning hole for deviation

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	09:00	9.00	02	Drilling	DRILLING 12 1/4" HOLE FROM 2303'KB TO 2412'KB USING 1200 CFM & 150 GPM FLUID.
09:00	09:30	0.50	10	Rig Survey	DEVIATION SURVEY @ 2335'KB / 3 DEG INCLINATION.
09:30	11:15	1.75	02	Drilling	DRILLING 12 1/4" HOLE FROM 2375'KB TO 2391'KB USING AERATED FLUID.
11:15	13:15	2.00	06	Tripping	HOIST BIT F/ 2391'KB TO CHANGE OUT BHA FOR SINGLE SURVEY.
13:15	18:15	5.00	06	Tripping	MAKE UP NEW BHA AS FOLLOWS AND RIH: 12 1/4" TOOTH BIT, 1-8" MONEL DC, 2-8" DC, 3 POINT ROLLER REAMER, 1-8" DC, SHOCK SUB, 3-6" DC, DRILLING JARS, 8-6"DC, 4 1/2" DP TO SURFACE. RAN SINGLE SHOT SURVEYS ON WAY IN HOLE @ 1339'KB, 1806'KB & 2363'KB. FUNCTION BLIND RAMS.
18:15	19:00	0.75	05	Condition and/or Circulate Mud	BREAK CIRCULATION WITH AIR & FLUID.
19:00	00:00	5.00	02	Drilling	DRILLING 12 1/4" HOLE FROM 2391'KB USING AERATED FLUID, 10K WT ON BIT 120 RPM TO 2425'KB

Drill Strings: BHA #5, Slick

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
4RR	12 1/4in, GT-S28C, 6000317	3-3-FC-A-3-2-NO-BHA	0.75	14.8	18/18/18

Len (ft)	Max OD (in)	String Components
2000.28	8.000	Hughes GT-S28C, Bit Sub, Drill Collar, XO Sub, Shock Sub, Drill Collar, Drilling Jars - Hydraulic, Drill Collar, Drill Pipe

Drilling Parameters: 88.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr)	Int ROP (ft/hr)	Flow Rate (gpm)
5	2,303.0	2,391.0	417.0	10.75	28.25	8.2	155

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
10	120	170.0	94	100	90		

Drill Strings: BHA #6, Rotary Drop

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
2RR	12 1/4in, FDSS+2 , ML4284	--------	0.75	6.8	18/18/18

Len (ft)	Max OD (in)	String Components
2425.00	8.000	Smith FDSS+2 , Bit Sub, NMDC, Drill Collar, Reamer - 3 Pt, Drill Collar, XO Sub, Shock Sub, Drill Collar, Drilling Jars - Hydraulic, Drill Collar, Drill Pipe

Drilling Parameters: 34.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr)	Int ROP (ft/hr)	Flow Rate (gpm)
6	2,391.0	2,425.0	34.0	5.00	5.00	6.8	155

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
10	115	300.0	95	100	90		

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Directional Surveys: SINGLE SHOT

Description	Survey Company
SINGLE SHOT	Patterson Crew

Survey Data

MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,339.00	1.00	0.00	1,338.93	11.68	0.00	0.00	0.07

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Mel Knezevich, Drilling Foreman
Rod Cuthill, Drilling Foreman
Mark Moennich, Drilling Sup't
Roger Bromley, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3
Rig Supervisor
John Day, Tool Pusher

Rigs: Patterson U.T.I, 104
Rig Supervisor
Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

Pump Checks

P (psi)	Slow Spd	Strokes (strokes/min)	Eff (%)
170.0	No	50	90

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	13 5/8	1,500.0

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA MUD ENG LIVING ALLOWANCE	1.0	35
BAROID USA BARACOR 700	1.0	883
BARIOD USA MUD CHECK	1.0	200
BAROID USA QUICK FOAM	1.0	113
BAROID USA BARA DEFOAM	2.0	229
BAROID USA FUMARIC ACID	4.0	256
BAROID USA REGULAR BARITE	5.0	18
BAROID USA SODA ASH	10.0	74
BAROID USA BARACAT	15.0	1,200
BAROID USA DIAMONIAM PHOSPHATE	63.0	1,746

Well Name: FORTUNA MIDDLE M NTAIN #21-16 **Da. 11/13/2002, Report: 17.0, DFS: 17.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Survey Data

MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)
1,806.00	1.70	344.00	1,805.80	22.42	-1.91	-1.91	0.17
2,363.00	3.00	319.00	2,362.33	41.36	-13.75	-13.75	0.29

Formation Pick Groups: Drilling Sam...

Formation Picks Group: Drilling Sample

Name	Top (ftKB)
Mancos	2,323.0
Star Point	2,012.0
Blackhawk	1,025.0
Castlegate	955.0
Price River	470.0

Surface Casing, 1,063.7ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
11/2/2002	13 3/8	H-40	48.00

Talisman Energy Canada - Daily Drilling Report

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Da 11/14/2002, Report: 18.0, DFS: 18.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	**Cum. Cost To Date**
[redacted]	[redacted]
Daily Mud Cost	**Mud Additive Cost To Date**
[redacted]	[redacted]
Depth Start (ftKB)	**Depth End (ftKB)**
2,425.0	2,657.0
Depth Progress (ftKB)	**Drilling Time (hrs)**
232.0	33.75

Daily Summary

Weather	Road Condition	Hole Condition
OVERCAST	Icey	Good

Operations at Report Time
@0600, 2710'KB DRILLING AHEAD

Operations This Report Period
DRLG & SS SURVEY 12 1/4" HOLE F/ 2425'KB TO 2657'KB WITH AERATED FLUID.

Operations Next Report Period
DRILL AHEAD FANNING HOLE FOR DEVIATION.

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	09:30	9.50	02	Drilling	DRILLING 12 1/4" HOLE FROM 2425'KB TO 2497'KB USING AERATED FLUID / WEIGHT ON BIT 10K / RPM 115.
09:30	10:00	0.50	10	Rig Survey	DEVIATION SURVEY WITH SINGLE SHOT @ 2455'KB / INCLINATION 2 DEG
10:00	17:00	7.00	02	Drilling	DRILLING 12 1/4" HOLE FROM 2497'KB TO 2591'KB USING AERATED FLUID. COAL @ 2508'KB TO 2514'KB.
17:00	17:45	0.75	10	Rig Survey	DEVIATION SURVEY N@ 2550'KB / 2.75 DEG INCLINATION
17:45	19:45	2.00	02	Drilling	DRILLING 12 1/4" HOLE FROM 2591'KB TO 2621'KB USING 1500 CFM AIR & 155 GPM FLUID.
19:45	20:15	0.50	10	Rig Survey	SINGLE SHOT SURVEY @ 2580'KB / 3.0 DEG INCLINATION
20:15	00:00	3.75	02	Drilling	DRILLING 12 1/4" HOLE FROM 2621'KB TO 2657'KB USING AERATED FLUID.

Drill Strings: BHA #6, Rotary Drop

Bit Ru	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
2RR	12 1/4in, FDSS+2 , ML4284	-------	0.75	9.9	18/18/18

Len (ft)	Max OD (in)	String Components
2776.00	8.000	Smith FDSS+2 , Bit Sub, NMDC, Drill Collar, Reamer - 3 Pt, Drill Collar, XO Sub, Shock Sub, Drill Collar, Drilling Jars - Hydraulic, Drill Collar, Drill Pipe

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Directional Surveys: SINGLE SHOT

Description	Survey Company
SINGLE SHOT	Patterson Crew

Survey Data

MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)
2,455.00	2.00	331.00	2,454.24	47.33	-9.55	-9.55	1.09
2,550.00	2.75	325.00	2,549.16	50.65	-11.66	-11.66	0.83
2,580.00	3.00	332.00	2,579.12	51.93	-12.44	-12.44	1.44

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Mel Knezevich, Drilling Foreman
Rod Cuthill, Drilling Foreman
Mark Moennich, Drilling Sup't
Roger Bromley, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3
Rig Supervisor: John Day, Tool Pusher

Rigs: Patterson U.T.I, 104
Rig Supervisor: Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

Pump Checks

P (psi)	Slow Spd	Strokes (strokes/min)	Eff (%)
170.0	No	50	90

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	13 5/8	1,500.0

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA MUD ENG LIVING ALLOWANCE	1.0	35
BARIOD USA MUD CHECK	1.0	200
BAROID USA EZ-MUD	2.0	93
BAROID USA FUMARIC ACID	3.0	192
BAROID USA BARA DEFOAM	4.0	458
BAROID USA BARACAT	6.0	480
BAROID USA DIAMONIAM PHOSPHATE	42.0	1,164

Formation Pick Groups: Drilling Sam...

Formation Picks Group: Drilling Sample

Name	Top (ftKB)
Blackhawk	1,700.0
Castlegate	1,467.0

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Da 11/14/2002, Report: 18.0, DFS: 18.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Name	Top (ftKB)
Price River	831.0

Surface Casing, 1,063.7ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
11/2/2002	13 3/8	H-40	48.00

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Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 CONFIDENTIAL **Da 11/15/2002, Report: 19.0, DFS: 19.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	**Cum. Cost To Date**
[redacted]	[redacted]
Daily Mud Cost	**Mud Additive Cost To Date**
[redacted]	[redacted]
Depth Start (ftKB)	**Depth End (ftKB)**
2,657.0	2,775.0
Depth Progress (ftKB)	**Drilling Time (hrs)**
118.0	11.50

Daily Summary

Weather	Road Condition	Hole Condition
COOL	Icey	Good

Operations at Report Time

@0600hrs, 2775'KB, LOGGING OPEN HOLE.

Operations This Report Period

DRLG 12 1/4" HOLE F/ 2675'KB TO 2775'KB (TD) INTERMIDIATE. WIPER TRIP / WAIT ON LOGGERS / HOIST BIT.

Operations Next Report Period

LOGGING / WIPER TRIP / RIH & CMT 9 5/8" CSG

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	08:45	8.75	02	Drilling	DRILLING 12 1/4" HOLE FROM 2657'KB TO 2749'KB, USING 1500 CFM AIR & 155 GPM FLUID. DRILL BREAKS @ 2692 TO 2699 / 2705 TO 2714 & 2718 TO 2722'KB. SAMPLE RETURNS SHOWED COAL. INCREASE IN WATER @ 2662'KB.
08:45	09:15	0.50	10	Rig Survey	DEVIATION SURVEY WITH SIN GLE SHOT@ 2709'KB / 2.75 DEG INCLINATION. AZM 341
09:15	11:30	2.25	02	Drilling	DRILLING 12 1/4" HOLE FROM 2749'KB TO 2775'KB (TD) INTERMIDATE HOLE.
11:30	14:30	3.00	06	Tripping	TRIP OUT 12 1/4" BIT. LAYDOWN 3-POINT REAMER, SHOCK SUB & 8" MONEL DRILL COLLAR.
14:30	17:15	2.75	06	Tripping	MAKE UP 12 1/4" BIT AND RUN IN HOLE 3-8" DC, 6-6" DC, DRILLING JARS, 5-6" DC & DRILL PIPE TO SURFACE. HOLE CONDITION GOOD, APP 2' OF FILL
17:15	23:00	5.75	05	CIRCULATE	CIRCULATE & CONDITION HOLE FOR LOGGING. WAIT ON LOGGERS.
23:00	00:00	1.00	06	Tripping	TRIP OUT OF HOLE TO LOG. HOLE CONDITION GOOD.

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Directional Surveys: SINGLE SHOT

Description	Survey Company
SINGLE SHOT	Patterson Crew

Survey Data

MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)
2,709.00	2.75	341.00	2,707.96	57.83	-15.03	-15.03	0.40

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Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Mel Knezevich, Drilling Foreman
Rod Cuthill, Drilling Foreman
Mark Moennich, Drilling Sup't
Roger Bromley, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3

Rig Supervisor: John Day, Tool Pusher

Rigs: Patterson U.T.I, 104

Rig Supervisor: Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	13 5/8	1,500.0

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA MUD ENG LIVING ALLOWANCE	1.0	35
BARIOD USA MUD CHECK	1.0	200
BAROID USA EZ-MUD	1.0	46
BAROID USA FUMARIC ACID	4.0	256
BAROID USA BARACAT	4.0	320
BAROID USA SODA ASH	8.0	59
BAROID USA DIAMONIAM PHOSPHATE	96.0	2,661

Formation Pick Groups: Drilling Sam...

Formation Picks Group: Drilling Sample

Name	Top (ftKB)
Star Point	2,700.0
Blackhawk	1,700.0
Castlegate	1,467.0
Price River	831.0

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Da 11/15/2002, Report: 19.0, DFS: 19.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Surface Casing, 1,063.7ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
11/2/2002	13 3/8	H-40	48.00

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Talisman Energy Canada - Daily Drilling Report

Well Name: FORTUNA MIDDLE M[illegible]NTAIN #21-16 **Da[illegible] 11/16/2002, Report: 20.0, DFS: 20.00**

Job Type: Drilling - original

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Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	**Cum. Cost To Date**
[redacted]	[redacted]
Daily Mud Cost	**Mud Additive Cost To Date**
[redacted]	[redacted]
Depth Start (ftKB)	**Depth End (ftKB)**
2,775.0	2,831.0
Depth Progress (ftKB)	**Drilling Time (hrs)**
56.0	3.50

Daily Summary

Weather	Road Condition	Hole Condition
CLEAR	WET	Good

Operations at Report Time
@0600 hrs- 2903'KB, DRILLING 12 1/4" HOLE

Operations This Report Period
TRIP OUT / LOG OH, / RIH & DRILL AHEAD F/ 2775'KB TO 2831'KB

Operations Next Report Period
DRILL & SURVEY FROM 2831'KB

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	00:30	0.50	06	Tripping	TRIP OUT TO LOG.
00:30	16:30	16.00	11	Wireline Logs	LOG WITH SCHLUMBERGER. LOGGERS TD 2772'KB, SURFACE CSG @ 1080'KB. LOG OPEN HOLE FROM 2772'KB TO 1080'KB RUN #1- AITH-TLD-PEFZ-CNL-GR-BHC. RUN #2- AITH, REPEAT FROM MISRUN #1 RUN #3- FMI RUN #4- AIT- TOOL WAS HOT SHOTED IN TO REPLACE TOOL USED ON FIRST 2 RUNS
16:30	20:30	4.00	06	Tripping	MAKE UP BHA AS FOLLOWS AND RIH: NEW GT-18 BIT, 1-8" MONEL DC, 2-8" DC, 3-POINT ROLLER REAMER, 1-8" DC, SHOCK SUB, 3-6" DC, DRILLING JARS, 8-6" DC, 4.5 DRILL PIPE.
20:30	00:00	3.50	02	Drilling	DRILLING 12 1/4" HOLE USING AERATED FLUID FROM 2775'KB TO 2831'KB.

Drill Strings: BHA #7, ROTARY DROP

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
5	12 1/4in, GT-18 , 6000931	-------	1.33	10.6	24/24/24

Len (ft)	Max OD (in)	String Components
3054.00	8.000	Hughes GT-18 , Bit Sub, NMDC, Drill Collar, Reamer - 3 Pt, Drill Collar, XO Sub, Shock Sub, Drill Collar, Drilling Jars - Hydraulic, Drill Collar, Drill Pipe

Drilling Parameters: 56.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr	Int ROP (ft/hr)	Flow Rate (gpm)
7	2,775.0	2,831.0	56.0	3.50	3.50	16.0	155

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
10	100	450.0	94	99	94		

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Directional Surveys: SINGLE SHOT

Description	Survey Company
SINGLE SHOT	Patterson Crew

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Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Mel Knezevich, Drilling Foreman
Rod Cuthill, Drilling Foreman
Mark Moennich, Drilling Sup't
Roger Bromley, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3
Rig Supervisor
John Day, Tool Pusher

Rigs: Patterson U.T.I, 104
Rig Supervisor
Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

Pump Checks

P (psi)	Slow Spd	Strokes (strokes/min)	Eff (%)
450.0	No	58	90

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	13 5/8	1,500.0

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA MUD ENG LIVING ALLOWANCE	1.0	35
BAROID USA BARACOR 700	1.0	883
BARIOD USA MUD CHECK	1.0	200
BAROID USA EZ-MUD	1.0	46
BAROID USA BARACAT	4.0	320
BAROID USA SODA ASH	7.0	52
BAROID USA DIAMONIAM PHOSPHATE	35.0	970

Formation Pick Groups: Drilling Sam...

Formation Picks Group
Drilling Sample

Name	Top (ftKB)
Star Point	2,700.0
Blackhawk	1,700.0

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Da 11/16/2002, Report: 20.0, DFS: 20.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Name	Top (ftKB)
Castlegate	1,467.0
Price River	831.0

Surface Casing, 1,063.7ftKB

Casing Rtn Date	Max OD (in)	Grade	Wt (lbs/ft)
11/2/2002	13 3/8	H-40	48.00

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Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 Da 11/17/2002, Report: 21.0, DFS: 21.00

Job Type: Drilling - original

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Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	Cum. Cost To Date
[redacted]	[redacted]
Daily Mud Cost	Mud Additive Cost To Date
[redacted]	[redacted]
Depth Start (ftKB)	Depth End (ftKB)
2,831.0	3,054.0
Depth Progress (ftKB)	Drilling Time (hrs)
223.0	22.75

Daily Summary

Weather	Road Condition	Hole Condition
CLEAR	WET	Good

Operations at Report Time
@0600hrs- 3094'KB, DRILLING 12 1/4" HOLE

Operations This Report Period
DRILL AHEAD FROM 2657'KB TO 3054'KB

Operations Next Report Period
DRILL AHEAD FROM 3054'KB

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	00:45	0.75	02	Drilling	DRILLING 12 1/4" INTERMIDATE HOLE FROM 2831'KB TO 2842, USING AERATED FLUID.
00:45	01:15	0.50	10	Rig Survey	SINGLE SHOT SURVEY @ 2803'KB, 2.0 DEG INCLINATION, AZM 340
01:15	11:30	10.25	02	Drilling	DRILLING 12 1/4" INTERMIDATE HOLE FROM 2842'KB TO 2966'KB USING 1500 CFM AIR & 250 GPM FLUID
11:30	12:15	0.75	10	Rig Survey	SINGLE SHOT SURVEY @ 2926'KB, 2.0 DEG INCLINATION, AZM 339
12:15	00:00	11.75	02	Drilling	DRILLING 12 1/4" INTERMIDATE HOLE FROM 2966'KB TO 3054'KB USING AERATED FLUID.

Mud Checks: 2,950.0ftKB, 11/17/2002 10:15

Type	Date	Depth (ftKB)	T(fl) (°F)	Density (lb/gal)	Vis (s/qt)	Plas Vis (cp)
Water Base	11/17/2002 10:15	2,950.0	58.0	8.4		
Yield Point (cp)	**gel 10 sec (cp)**	**gel 10 min (cp)**	**Filtrate (mL/30min)**	**HTHP Filt (mL/30min)**	**Filter Cake (in)**	**MBT (lb/bbl)**
Lime (lb/bbl)	**pH**	**Pm (mL/mL)**	**Pf (mL/mL)**	**Calcium (mg/L)**	**Potassium (mg/L)**	**Polymer (lb/gal)**
Chlorides (mg/L)	**Sand (%)**	**Solids (%)**	**Percent Oil (%)**	**Percent Water (%)**	**LG Solids (%)**	**Electric Stab (V)**
				100.0		

Drill Strings: BHA #7, ROTARY DROP

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
5	12 1/4in, GT-18 , 6000931	-------	1.33	10.6	24/24/24

Len (ft)	Max OD (in)	String Components
3054.00	8.000	Hughes GT-18 , Bit Sub, NMDC, Drill Collar, Reamer - 3 Pt, Drill Collar, XO Sub, Shock Sub, Drill Collar, Drilling Jars - Hydraulic, Drill Collar, Drill Pipe

Drilling Parameters: 223.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr)	Int ROP (ft/hr)	Flow Rate (gpm)
7	2,831.0	3,054.0	279.0	22.75	26.25	9.8	250

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
12	100	450.0	95	100	95		

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Directional Surveys: SINGLE SHOT

Description	Survey Company
SINGLE SHOT	Patterson Crew

Survey Data

MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)
2,803.00	2.00	340.00	2,801.88	61.51	-16.33	-16.33	0.80
2,926.00	2.00	326.00	2,924.81	65.30	-18.26	-18.26	0.40

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Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Mel Knezevich, Drilling Foreman
Rod Cuthill, Drilling Foreman
Mark Moennich, Drilling Sup't
Roger Bromley, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3
Rig Supervisor
John Day, Tool Pusher

Rigs: Patterson U.T.I, 104
Rig Supervisor
Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

Pump Checks

P (psi)	Slow Spd	Strokes (strokes/min)	Eff (%)
450.0	No	58	90

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	13 5/8	1,500.0

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA MUD ENG LIVING ALLOWANCE	1.0	35
BARIOD USA MUD CHECK	1.0	200
BAROID USA EZ-MUD	2.0	93
BAROID USA SODA ASH	5.0	37
BAROID USA DIAMONIAM PHOSPHATE	35.0	970

Formation Pick Groups: Drilling Sam...

Formation Picks Group
Drilling Sample

Name	Top (ftKB)
Star Point	2,700.0
Blackhawk	1,700.0
Castlegate	1,467.0
Price River	831.0

Well Name: FORTUNA MIDDLE M INTAIN #21-16 **Da 11/17/2002, Report: 21.0, DFS: 21.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Surface Casing, 1,063.7ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
11/2/2002	13 3/8	H-40	48.00

CON

Form 3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
Budget Bureau No. 1004-0135
Expires: March 31, 1993

SUNDRY NOTICES AND REPORTS ON WELLS

027

Do not use this form for proposals to drill or to deepen or reentry to a different reservoir.
Use "APPLICATION FOR PERMIT--" for such proposals

SUBMIT IN TRIPLICATE

CONFIDENTIAL

1. Type of Well
☐ Oil ☒ Gas ☐

2. Name of Operator
Fortuna (US), Inc.

3. Address and Telephone No.
Suite 3400, 888 3rd Street SW, Calgary, Alberta T2P5C5 403-237-1163

4. Location of Well (Footage, Sec.,T., R:, M., or Survey Description)
1309' FSL, 834' FEL
SE/4 SE/4, Section 21, T16S, R6E, SLB&M

5. Lease Designation and Serial No.
UTU-77263

6. If Indian, Allottee or Tribe Name
N/A

7. If Unit or CA, Agreement Designation
N/A

8. Well Name and No.
Middle Mountain #21-16

9. API Well No.
43-015-30426

10. Field and Pool, or Exploratory Area
Wildcat

11. County or Parish, State
Emery County, Utah

12. **CHECK APPROPRIATE BOX(s) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA**

TYPE OF SUBMISSION	TYPE OF ACTION	
☐ Notice of Intent	☐ Change of Name	☐ Change of Plans
☒ Subsequent Report	☐ Recompletion	☐ New Construction
☐ Final Abandonment Notice	☐ Plugging Back	☐ Non-Routine Fracturing
	☐ Casing Repair	☐ Water Shut-Off
	☐ Altering Casing	☐ Conversion to Injection
	☒ Location Layout as-built drawing	☐ Dispose Water

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

Attached is the requested stamped as-built drawing for the Middle Mountain #21-16 well site.

The drawing reflects the constructed dimensions of the pad and pit that were constructed smaller in every regard than proposed. Additionally, the drawing reflects the location of the log deck, slash pile, topsoil and subsoil stockpiles.

Accepted by the
Utah Division of
Oil, Gas and Mining
FOR RECORD ONLY

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NOV 22 2002
DIVISION OF
OIL, GAS AND MINING

FILE COPY

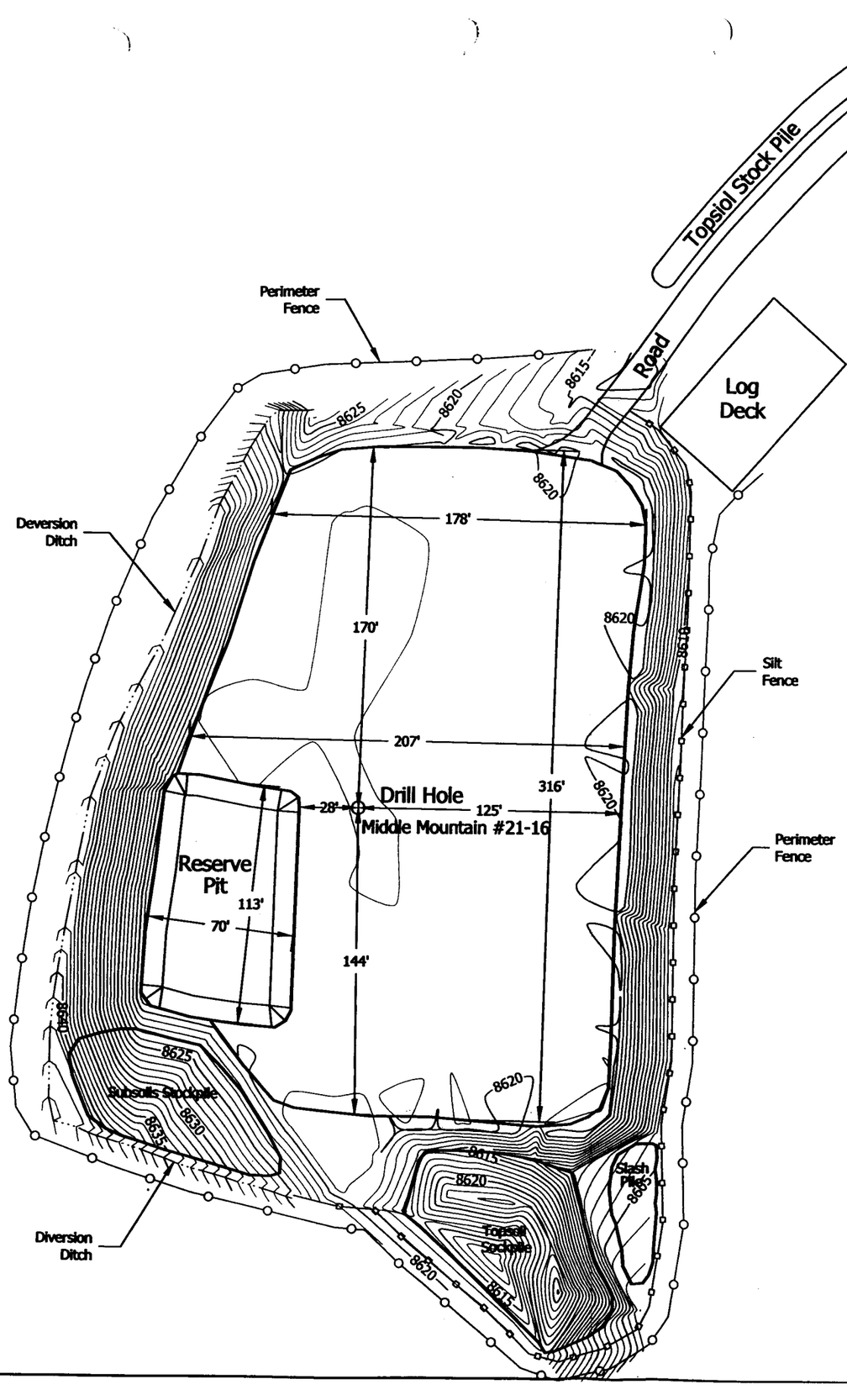
14. I hereby certify that the foregoing is true and correct

Signed Don Hamilton Don Hamilton Title Agent for Fortuna US Date November 18, 2002

(This space for Federal or State office use)

Approved by _____ Title _____ Date _____
Conditions of approval, if any:

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.



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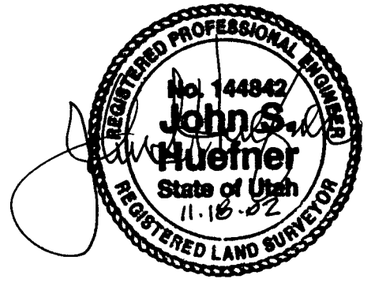

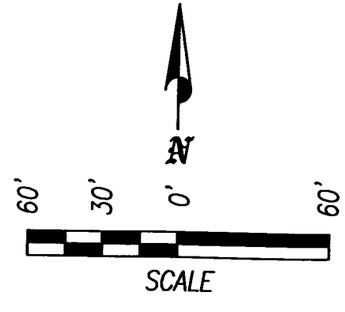

TALON RESOURCES, INC.
195 North, 100 West
P.O. Box 1230
Huntington, Utah 84528
Phone (435)637-8781
Fax (435)687-5311

REVISIONS	
DATE:	BY:

FORTUNA (US), INC.

MIDDLE MOUNTAIN #21-16
AS-BUILT LOCATION
SECTION 21, T16S, R6E, S.L.B.&M.

DRAWN BY: J. STANSFIELD	CHECKED BY: LWJ / AJS
DRAWING: A-1	DATE: 11/05/02
	SCALE: 1" = 60'
JOB NUMBER: 809	SHEET 1 OF 1

LEGEND

SECTION LINE	———
1/4 SECTION LINE	———
40 ACRE LINE	———
GLO BEARING	(N00°00'E - 5280.00')
GPS BEARING	[N00°00'00"E - 5280.00']

028

Talon Resources, Inc.

Service, Quality and Accuracy

P.O. Box 1230
195 North 100 West
Huntington, Utah 84528
Phone: 435-687-5310

Cell: 435-650-1886
Fax: 435-687-5311
Email: talon@etv.net

CONFIDENTIAL

November 25, 2002

Mr. Eric Jones
Petroleum Engineer
Bureau of Land Management
82 East Dogwood
Moab, Utah 84532

RE: Sundry Notice (Weekly Drilling Reports)—Fortuna (US), Inc.
Middle Mountain #21-16— 1,309' FSL, 834' FEL
Section 21, T16S, R6E, SLB&M, Emery County, Utah 43-015-30426

Dear Mr. Jones:

On behalf of Fortuna (US), Inc. Talon Resources, Inc. respectfully submits the enclosed original and two copies of the *Sundry Notices* for the Middle Mountain #21-16 well on lands managed by the Manti La-Sal Forest Service.

Thank you for your timely consideration of the enclosed application. Please feel free to contact myself or Mr. Mel Knezevich of Fortuna (US), Inc. at 1-780-402-1296 if you have any questions or need additional information.

Sincerely,

Don Hamilton

Don Hamilton
Agent for Fortuna (US), Inc.

Enclosures

cc: Mr. Mike Kaminski, BLM—Price Field Office
Mr. Carter Reed, USDA Forest Service—Price SO
Mr. Tom Lloyd, USDA Forest Service—Ferron DO
Mrs. Diana Mason, Division of Oil, Gas and Mining
Mr. Arne Hamarsnes, Fortuna (US), Inc.
Mr. Mark Moenich, Fortuna (US), Inc.

Form 3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
Budget Bureau No. 1004-0135
Expires: March 31, 1993

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to deepen or reentry to a different reservoir.
Use "APPLICATION FOR PERMIT–" for such proposals

SUBMIT IN TRIPLICATE

CONFIDENTIAL

1. Type of Well
☐ Oil ☒ Gas ☐

2. Name of Operator
Fortuna (US), Inc.

3. Address and Telephone No.
Suite 3400, 888 3rd Street SW, Calgary, Alberta T2P5C5 403-237-1163

4. Location of Well (Footage, Sec.,T., R:, M., or Survey Description)
1309' FSL, 834' FEL
SE/4 SE/4, Section 21, T16S, R6E, SLB&M

5. Lease Designation and Serial No.
UTU-77263

6. If Indian, Allottee or Tribe Name
N/A

7. If Unit or CA, Agreement Designation
N/A

8. Well Name and No.
Middle Mountain #21-16

9. API Well No.
43-015-30426

10. Field and Pool, or Exploratory Area
Wildcat

11. County or Parish, State
Emery County, Utah

12. **CHECK APPROPRIATE BOX(s) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA**

TYPE OF SUBMISSION	TYPE OF ACTION	
☐ Notice of Intent	☐ Change of Name	☐ Change of Plans
☒ Subsequent Report	☐ Recompletion	☐ New Construction
☐ Final Abandonment Notice	☐ Plugging Back	☐ Non-Routine Fracturing
	☐ Casing Repair	☐ Water Shut-Off
	☐ Altering Casing	☐ Conversion to Injection
	☒ Weekly Drilling Reports	☐ Dispose Water

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

Attached are the weekly drilling reports for the Middle Mountain #21-16 well

RECEIVED
DEC
DIV. OF OIL, GAS & MINING

14. I hereby certify that the foregoing is true and correct

Signed Don Hamilton Don Hamilton Title Agent for Fortuna US Date November 25, 2002

(This space for Federal or State office use)

Approved by _____ Title _____ Date _____
Conditions of approval, if any:

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

Talisman Energy Canada - Daily Drilling Report

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16
Job Type: Drilling - original
Date: 11/18/2002, Report: 22.0, DFS: 22.0

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Weather	Road Condition	Hole Condition
CLEAR	WET	LOST CIRCULATION

Operations at Report Time
DRILLING 12 1/4" HOLE WITH AERATED FLUID

Operations This Report Period
DRILL 12 1/4" HOLE FROM 3054'KB TO 3292'KB / DRILL BREAK F/ 3261 - 3276'KB, UNABLE TO MAINTAIN CIRC / CHANGE OVER TO MIST & SOAP.

Operations Next Report Period
REGAIN CIRC / DRILL AHEAD

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	**Cum. Cost To Date**
[redacted]	[redacted]
Daily Mud Cost	**Mud Additive Cost To Date**
[redacted]	[redacted]
Depth Start (ftKB)	**Depth End (ftKB)**
3,054.0	3,292.0
Depth Progress (ftKB)	**Drilling Time (hrs)**
238.0	23.00

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	05:45	5.75	02	Drilling	DRILLING 12 1/4" HOLE FROM 3054'KB TO 3093'KB USING 2250 CFM AIR & 5 BBL/MIN FLUID.
05:45	06:15	0.50	10	Rig Survey	SINGLE SHOT SURVEY @ 3053'KB, 1.8 DEG INCLINATION, AZM 346
06:15	15:00	8.75	02	Drilling	DRILLING 12 1/4" HOLE FROM 3093'KB TO 3187'KB, USING AERATED FLUID
15:00	15:30	0.50	10	Rig Survey	SINGLE SHOT SERVEY @ 3147'KB, 1 3/4 DEG INCLINATION, AZM 337
15:30	00:00	8.50	02	Drilling	DRILLING 12 1/4" HOLE FROM 3187'KB TO 3292'KB. DRILLING BREAK FROM 3261'KB TO 3276'KB.

Drill Strings: BHA #7, ROTARY DROP

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
5	12 1/4in, GT-18 , 6000931	-------	1.33	10.5	24/24/24

Len (ft)	Max OD (in)	String Components
3292.00	8.000	Hughes GT-18 , Bit Sub, NMDC, Drill Collar, Reamer - 3 Pt, Drill Collar, XO Sub, Shock Sub, Drill Collar, Drilling Jars - Hydraulic, Drill Collar, Drill Pipe

Drilling Parameters: 238.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr)	Int ROP (ft/hr)	Flow Rate (gpm)
7	3,054.0	3,292.0	517.0	23.00	49.25	10.3	250

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
18	100	500.0	95	100	95		

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Directional Surveys: SINGLE SHOT

Description: SINGLE SHOT
Survey Company: Patterson Crew

Survey Data

MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)
3,053.00	1.80	346.00	3,051.74	69.08	-19.98	-19.98	0.54
3,147.00	1.75	337.00	3,145.69	71.83	-20.90	-20.90	0.30

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Mel Knezevich, Drilling Foreman
Rod Cuthill, Drilling Foreman
Mark Moennich, Drilling Sup't
Roger Bromley, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3

Rig Supervisor: John Day, Tool Pusher

Rigs: Patterson U.T.I, 104

Rig Supervisor: Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	13 5/8	1,500.0

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA MUD ENG LIVING ALLOWANCE	1.0	35
BAROID USA BARACOR 700	1.0	883
BARIOD USA MUD CHECK	1.0	200
BAROID USA BARACAT	4.0	320
BAROID USA SODA ASH	12.0	89
BAROID USA DIAMONIAM PHOSPHATE	19.0	527

Formation Pick Groups: Drilling Sam...

Formation Picks Group: Drilling Sample

Name	Top (ftKB)
Mancos	3,073.0
Star Point	2,700.0
Blackhawk	1,700.0
Castlegate	1,467.0
Price River	831.0

Surface Casing, 1,080.0ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
11/2/2002	13 3/8	H-40	48.00

Talisman Energy Canada - Daily Drilling Report

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 — **Date: 11/19/2002, Report: 23.0, DFS: 23.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Weather	Road Condition	Hole Condition
CLEAR 3413'KB	WET	LOST CIRCULATION

Operations at Report Time

@0600hrs MAKE UP FISHING TOOLS / RIH

Operations This Report Period

DRILL 12 1/4" HOLE FROM 3292'KB TO 3413'KB, BHA FAILED / HOIST STRING / TWIST OFF PIN BELOW 3-POINT ROLLER REAMER / WAIT ON FISHER MAN.

Operations Next Report Period

RETREIVE FISH / DRILL AHEAD.

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	04:00	4.00	05	Circulate	DEPTH 3293'KB, UNABLE TO OBTAIN CIRCULATION. STOP DRILLING, INCREASE AIR, DECREASE FLUID RATE & WORK DRILL STRING. START INJECTING SOAP @ 5 GAL/HR AND THEN INCREASED TO 8 GAL/HR. WORK STRING UNTILL CIRCULATION, BUILD VOLUME IN MUD SYSTEM.
04:00	05:30	1.50	02	Drilling	DRILL AHEAD FROM 3293'KB TO 3310'KB, UNABLE TO UNLOAD HOLE WITH AIR & SOAP MIST. RAN OUT OF WATER.
05:30	06:30	1.00	05	Circulate	PUMP OUT SUMP, CIRCULATE WITH AIR & SOAP & ATTEMPT TO REGAIN CIRCULATION.
06:30	07:00	0.50	06	Tripping	TRIP OUT 900' TO 2470'KB. HOLE CONDITION "OK", NO TIGHT SPOTS.
07:00	12:15	5.25	00	Undefined Status	WAIT ON WATER TRUCKS / PUMP OUT WATER FROM RESERVE PIT LINER / FILL WATER STORAGE TANKS AND RELINE RESERVE PIT.
12:15	12:45	0.50	06	Tripping	TRIP IN HOLE. HOLE CONDITION GOOD.
12:45	13:00	0.25	05	Circulate	ATTEMPT TO UNLOAD HOLE @ 3310'KB. USING 2250 CFM AIR & 3 BBL/ MIN WATER WITH 10 GAL/HR SOAP INJECTION
13:00	15:00	2.00	02	Drilling	DRILLING BLIND FROM 3310'KB TO 3342'KB (NO CIRCULATION)
15:00	15:30	0.50	10	Rig Survey	SINGLE SHOT SURVEY @ 3302'KB / 2 DEG INCLINATION, AZM 347
15:30	19:00	3.50	02	Drilling	DRILLING 12 1/4" HOLE FROM 3342'KB TO 3413'KB USING 2240 CFM AIR, 10 GAL/HR SOAP INJECTION & 150 GPM FLUID FOR CIRCULATION. BIT STOPPED DRILLING, RIG TO TRIP OUT.
19:00	22:00	3.00	06	Tripping	HOIST BHA F/ 3413'KB. FOUND 3-POINT ROLLER REAMER TWISTED OFF PIN. LEAVING BIT, BIT SUB, MONEL DRILL COLLAR & 2 -8" DRILL COLLARS IN HOLE.
22:00	00:00	2.00	06	Tripping	LAYDOWN ROLLER REAMER / RUN IN HOLE DRILL COLLARS / INSTALL AIR HEAD RUBBER. WAIT ON DRILL COLAR INSPECTOR & FISHERMAN.

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	**Cum. Cost To Date**
[redacted]	[redacted]
Daily Mud Cost	**Mud Additive Cost To Date**
[redacted]	[redacted]
Depth Start (ftKB)	**Depth End (ftKB)**
3,292.0	3,413.0
Depth Progress (ftKB)	**Drilling Time (hrs)**
121.0	7.00

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Rod Cuthill, Drilling Foreman
Mel Knezevich, Drilling Foreman
Mark Moennich, Drilling Sup't
Roger Bromley, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3

Rig Supervisor: John Day, Tool Pusher

Rigs: Patterson U.T.I, 104

Rig Supervisor: Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

Pump Checks

P (psi)	Slow Spd	Strokes (strokes/min)	Eff (%)
470.0	No	29	90

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	13 5/8	1,500.0

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA MUD ENG LIVING ALLOWANCE	1.0	35
BARIOD USA MUD CHECK	1.0	200
BAROID USA BARACAT	1.0	80
BAROID USA BARA DEFOAM	2.0	229
BAROID USA QUICK FOAM	15.0	1,695
BAROID USA SODA ASH	18.0	133
BAROID USA QUICK GEL	83.0	237
BAROID USA DIAMONIAM PHOSPHATE	118.0	3,271

Formation Pick Groups: Drilling Sam...

Formation Picks Group: Drilling Sample

Talisman Energy Canada - Daily Drilling Report

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Date: 11/19/2002 Report: 23.0, DFS: 23.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Mud Checks: 3,310.0ftKB, 11/19/2002 12:00

Type	Date	Depth (ftKB)	T(fl) (°F)	Density (lb/gal)	Vis (s/qt)	Plas Vis (cp)
Water Base	11/19/2002 12:00	3,310.0		8.4	27	
Yield Point (cp)	**gel 10 sec (cp)**	**gel 10 min (cp)**	**Filtrate (mL/30min)**	**HTHP Filt (mL/30min)**	**Filter Cake (in)**	**MBT (lb/bbl)**
Lime (lb/bbl)	**pH**	**Pm (mL/mL)**	**Pf (mL/mL)**	**Calcium (mg/L)**	**Potassium (mg/L)**	**Polymer (lb/gal)**
	8.0					
Chlorides (mg/L)	**Sand (%)**	**Solids (%)**	**Percent Oil (%)**	**Percent Water (%)**	**LG Solids (%)**	**Electric Stab (V)**
				98.6		

Drill Strings: BHA #7, ROTARY DROP

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
5	12 1/4in, GT-18 , 6000931	-------	1.33	11.3	24/24/24

Len (ft)	Max OD (in)	String Components
3413.00	8.000	Hughes GT-18 , Bit Sub, NMDC, Drill Collar, Reamer - 3 Pt, Drill Collar, XO Sub, Shock Sub, Drill Collar, Drilling Jars - Hydraulic, Drill Collar, Drill Pipe

Drilling Parameters: 121.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr)	Int ROP (ft/hr)	Flow Rate (gpm)
7	3,292.0	3,413.0	638.0	7.00	56.25	17.3	150

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
25	100	470.0	105	109	101		

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Directional Surveys: SINGLE SHOT

Description	Survey Company
SINGLE SHOT	Patterson Crew

Survey Data

MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)
3,302.00	2.00	347.00	3,300.61	76.65	-22.43	-22.43	0.26

Name	Top (ftKB)
Mancos	3,073.0
Star Point	2,700.0
Blackhawk	1,700.0
Castlegate	1,467.0
Price River	831.0

Surface Casing, 1,080.0ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
11/2/2002	13 3/8	H-40	48.00

Talisman Energy Canada - Daily Drilling Report

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Date: 11/20/2002, Report: 24.0, DFS: 24.00**

Job Type: Drilling - original

CONFIDENTIAL

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Weather	Road Condition	Hole Condition
	WET	LOST CIRCULATION

Operations at Report Time

Operations This Report Period

Operations Next Report Period

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	02:30	2.50	19	Fishing	WAIT ON COLLAR INSPECTION & FISHERMAN
02:30	05:00	2.50	19	Fishing	MAGNA FLUX INSPECT DRILL COLLARS / FOUND 1 CRACKED 5 3/4" DRILL COLLAR PIN & 2 -5 3/4" DC CRACKED BOXES.
05:00	08:15	3.25	06	Tripping	MAKE UP FISHING BHA WITH 7 5/8" GRABBLE, BUMPER SUB, HYDRALIC JARS & EXCELARATOR. RUN IN HOLE & TAG TOP OF FISH.
08:15	09:45	1.50	19	Fishing	WORK FISHING TOOLS OVER FISH. UNABLE TO HOLD FISH.
09:45	12:00	2.25	19	Fishing	TRIP OUT WITH FISHING TOOLS, BREAK DOWN OVERSHOT & CHANGE OUT GRABBAL TO 7 3/8".
12:00	13:30	1.50	19	Fishing	TRIP IN WITH FISHING BHA.
13:30	13:45	0.25	07	Rig Service	RIG SERVICE
13:45	14:00	0.25	19	Fishing	RUN IN HOLE & KELLY UP
14:00	14:45	0.75	19	Fishing	WORK FISHING TOOLS OVER FISH. UNABLE TO GET ONTO DRILL COLLAR.
14:45	15:45	1.00	06	Tripping	TRIP OUT FISHING TOOLS.
15:45	16:30	0.75	19	Fishing	BREAK DOWN OVERSHOT / CHANGE BASKET FROM 7 3/8" TO 7 1/2"
16:30	17:45	1.25	06	Tripping	RUN IN HOLE WITH FISHING TOOLS / MAKE UP KELLY.
17:45	19:00	1.25	19	Fishing	LATCH ONTO FISH / JAR ON FISH WITH 40K.
19:00	21:00	2.00	06	Tripping	CHAIN OUT OF HOLE.
21:00	00:00	3.00	19	Fishing	BREAK DOWN FISHING TOOLS / LAYDOWN FISH / 100% RECOVERED.

Drill Strings: BHA #7, ROTARY DROP

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
5	12 1/4in, GT-18 , 6000931	3-7-BT-G-3-2--TW	1.33	11.3	24/24/24

Len (ft)	Max OD (in)	String Components
3413.00	8.000	Hughes GT-18 , Bit Sub, NMDC, Drill Collar, Reamer - 3 Pt, Drill Collar, XO Sub, Shock Sub, Drill Collar, Drilling Jars - Hydraulic, Drill Collar, Drill Pipe

Drilling Parameters: 121.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr	Int ROP (ft/hr)	Flow Rate (gpm)
7	3,292.0	3,413.0	638.0	7.00	56.25	17.3	150

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
25	100	470.0	105	109	101		

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Directional Surveys: SINGLE SHOT

Description	Survey Company
SINGLE SHOT	Patterson Crew

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	**Cum. Cost To Date**
[redacted]	[redacted]
Daily Mud Cost	**Mud Additive Cost To Date**
[redacted]	[redacted]
Depth Start (ftKB)	**Depth End (ftKB)**
3,413.0	3,413.0
Depth Progress (ftKB)	**Drilling Time (hrs)**
0.0	0.00

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Rod Cuthill, Drilling Foreman
Mel Knezevich, Drilling Foreman
Mark Moennich, Drilling Sup't
Roger Bromley, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3

Rig Supervisor: John Day, Tool Pusher

Rigs: Patterson U.T.I, 104

Rig Supervisor: Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	13 5/8	1,500.0

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA MUD ENG LIVING ALLOWANCE	1.0	35
BARIOD USA MUD CHECK	1.0	200
BAROID USA BARACAT	3.0	240
BAROID USA DIAMONIAM PHOSPHATE	10.0	277
BAROID USA BARA DEFOAM	16.0	1,834
BAROID USA MUD TRANSPORT	18.0	1,350
BAROID USA REGULAR BARITE	75.0	272

Formation Pick Groups: Drilling Sam...

Formation Picks Group: Drilling Sample

Name	Top (ftKB)
Mancos	3,073.0
Star Point	2,700.0
Blackhawk	1,700.0
Castlegate	1,467.0
Price River	831.0

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Da... 11/20/2002, Report: 24.0, DFS: 24.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Surface Casing, 1,080.0ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
11/2/2002	13 3/8	H-40	48.00

Talisman Energy Canada - Daily Drilling Report

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Date: 11/21/2002, Report: 25.0, DFS: 25.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	Cum. Cost To Date
[redacted]	[redacted]
Daily Mud Cost	Mud Additive Cost To Date
[redacted]	[redacted]
Depth Start (ftKB)	Depth End (ftKB)
3,413.0	3,584.0
Depth Progress (ftKB)	Drilling Time (hrs)
171.0	12.25

Daily Summary

Weather	Road Condition	Hole Condition
	WET	LOST CIRCULATION

Operations at Report Time

@0600hrs-3583'KB ATTEMPT TO REGAIN CIRCULATION

Operations This Report Period

DRLG AHEAD FROM 3413'KB TO 3583'KB / LOST CIRCULATION WITH AIR / WORK HOLE CLEAN, ATTEMPT TO REGAIN CIRCULATION

Operations Next Report Period

DRLG AHEAD FROM 3583'KB

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	02:30	2.50	00	Undefined Status	WAIT ON & INSPECT BOTTOM HOLE DRILL COLLARS. OK NO CRACKS
02:30	04:15	1.75	06	Tripping	MAKE UP BHA AS FOLLOWS & RIH, NEW 12 1/4" BIT, MONEL DRILL COLLAR, 2-8" DRILL COLLARS, SHOCK SUB, 6-5 3/4" DRILL COLLARS, DRILLING JARS, 6-5 3/4" DRILL COLLARS & 4 1/2" DRILL PIPE TO SURFACE.
04:15	04:30	0.25	10	Rig Survey	FILL PIPE / RUN SINGLE SHOT SURVEY, WIRE BROKE 30" FROM SURFACE.
04:30	07:00	2.50	06	Tripping	BLOW OUT KELLY / TRIP OUT TO RECOVER SURVEY BARREL. SURVEY EQUIPMENT "OK"
07:00	09:00	2.00	06	Tripping	MAKE UP BHA / RIH.
09:00	09:15	0.25	05	Condition and/or Circulate mud	MAKE UP KELLY / FILL PIPE & START UP AIR.
09:15	14:00	4.75	02	Drilling	DRILLING 12 1/4" HOLE FROM 3413'KB TO 3490'KB USING 2240 CFM AIR, 16 GAL PER HOUR SOAP INJECTION & 140 GPM FLUID. TOOK 1.5 HOURS TO GET CIRCULATION.
14:00	14:15	0.25	07	Rig Service	RIG SERVICE.
14:15	19:15	5.00	02	Drilling	DRILLING 12 1/4" HOLE WITH AREATED FLUID FROM 3490'KB TO 3530'KB. RESERVE PIT FULL, DRILL BLIND FROM 3530'KB TO 3552'KB, PUMP RATE @ 12.5 BBL/MIN.
19:15	19:45	0.50	10	Rig Survey	SINGLE SHOT SURVEY @ 3512'KB, 1.0 DEG INCLINATION, AZM 8
19:45	22:15	2.50	02	Drilling	DRILLING AHEAD WITH AREATED FLUID F/ 3552'KB TO 3584'KB. UNABLE TO ESTABLISH CIRCULATION, RESERVE PIT LOW.
22:15	00:00	1.75	05	Circulate	PUMP AERATED FLUID USING 2240 CFM AIR WITH 18 GPH SOAP INJECTION. TRIP OUT FOUR STANDS AND TRY TO CIRCULATE,NO GOOD, HOIST ANOTHER 4 STANDS AND ATTEMPT TO GET CIRCULATION @ 2800'

Mud Checks: 3,451.0ftKB, 11/21/2002 09:30

Type	Date	Depth (ftKB)	T(fl) (°F)	Density (lb/gal)	Vis (s/qt)	Plas Vis (cp)
Water Base	11/21/2002 09:30	3,451.0	55.0	8.4	27	
Yield Point (cp)	**gel 10 sec (cp)**	**gel 10 min (cp)**	**Filtrate (mL/30min)**	**HTHP Filt (mL/30min)**	**Filter Cake (in)**	**MBT (lb/bbl)**
Lime (lb/bbl)	**pH**	**Pm (mL/mL)**	**Pf (mL/mL)**	**Calcium (mg/L)**	**Potassium (mg/L)**	**Polymer (lb/gal)**
	8.0					
Chlorides (mg/L)	**Sand (%)**	**Solids (%)**	**Percent Oil (%)**	**Percent Water (%)**	**LG Solids (%)**	**Electric Stab (V)**
				99.6		

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Mel Knezevich, Drilling Foreman
Rod Cuthill, Drilling Foreman
Mark Moennich, Drilling Sup't
Roger Bromley, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3

Rig Supervisor: John Day, Tool Pusher

Rigs: Patterson U.T.I, 104

Rig Supervisor: Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197
Liner Size (in)	**Stroke (in)**	**V/Stk (bbl/stk)**
5	15.00	0.105

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197
Liner Size (in)	**Stroke (in)**	**V/Stk (bbl/stk)**
5	15.00	0.105

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	13 5/8	1,500.0

Formation Pick Groups: Drilling Sam...

Formation Picks Group: Drilling Sample

Name	Top (ftKB)
Mancos	3,073.0
Star Point	2,700.0
Blackhawk	1,700.0
Castlegate	1,467.0
Price River	831.0

Surface Casing, 1,080.0ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
11/2/2002	13 3/8	H-40	48.00

Well Name: FORTUNA MIDDLE M. NTAIN #21-16 — **Dat. 11/21/2002, Report: 25.0, DFS: 25.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Drill Strings: BHA #8, Slick

Bit Ru	Bit	IADC Bit Dull	TFA (incl Noz) (in²	ROP (ft/hr	Nozzles (/32")
	12 1/4in, GT-28C , ZW19DM	-------	1.80	14.0	28/28/28

Len (ft)	Max OD (in)	String Components
3544.16	8.000	Hughes GT-28C , Bit Sub, NMDC, Drill Collar, XO Sub, Shock Sub, Drill Collar, Drilling Jars - Hydraulic, Drill Collar, Drill Pipe

Drilling Parameters: 171.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr	Int ROP (ft/hr)	Flow Rate (gpm)
8	3,413.0	3,584.0	171.0	12.25	12.25	14.0	150

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
25	80	500.0	107	110	105		1.0

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Directional Surveys: SINGLE SHOT

Description	Survey Company
SINGLE SHOT	Patterson Crew

Survey Data

MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)
3,380.00	1.50	348.00	3,378.57	78.97	-22.95	-22.95	0.64
3,512.00	1.00	8.00	3,510.54	81.80	-23.15	-23.15	0.50

Talisman Energy Canada - Daily Drilling Report

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Date: 11/22/2002, Report: 26.0, DFS: 26.00**

Job Type: Drilling - original

CONFIDENTIAL

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Weather	Road Condition	Hole Condition
CLEAR	WET	LOST CIRCULATION

Operations at Report Time
@0600 hrs- 3810'KB, DRILLING AHEAD

Operations This Report Period
UNLOAD HOLE / BUILD RESERVE / DRLG AHEAD FROM 3584'KB TO 3729'KB.

Operations Next Report Period
DRLG AHEAD TO CSG POINT / WIPER TRIP

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	12:15	12.25	05	Circulate	CIRCULATE AIR, SOAP AND WATER TO FILL RESERVE PIT / UNLOAD WATER TRUCKS.
12:15	12:45	0.50	06	Tripping	RESERVE PIT FULL / RUN IN HOLE.
12:45	18:45	6.00	02	Drilling	DRILLING 12 1/4" HOLE WITH NO CIRCULATION USING 2400 CFM AIR, 5 1/4 BBL/MIN FLUID @ 15 GPM SOAP INJECTION. FROM 3584'KB TO 3673'KB.
18:45	19:15	0.50	10	Rig Survey	SINGLE SHOT SURVEY @ 3633'KB, 1.0 DEG INCLINATION, AZM 7
19:15	00:00	4.75	02	Drilling	DRILL 12 1/4" HOLE WITH AERATED FLUID FROM 3673'KB TO 3729'KB. GOT RETURNS EVERY 2 HRS.

Mud Checks: 3,584.0ftKB, 11/22/2002 09:30

Type	Date	Depth (ftKB)	T(fl) (°F)	Density (lb/gal)	Vis (s/qt)	Plas Vis (cp)
Water Base	11/22/2002 09:30	3,584.0	52.0	8.4	27	

Yield Point (cp)	gel 10 sec (cp)	gel 10 min (cp)	Filtrate (mL/30min)	HTHP Filt (mL/30min)	Filter Cake (in)	MBT (lb/bbl)

Lime (lb/bbl)	pH	Pm (mL/mL)	Pf (mL/mL)	Calcium (mg/L)	Potassium (mg/L)	Polymer (lb/gal)
	8.0					

Chlorides (mg/L)	Sand (%)	Solids (%)	Percent Oil (%)	Percent Water (%)	LG Solids (%)	Electric Stab (V)
				100.0		

Drill Strings: BHA #8, Slick

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
1	12 1/4in, GT-28C , ZW19DM	-------	1.80	13.7	28/28/28

Len (ft)	Max OD (in)	String Components
3698.40	8.000	Hughes GT-28C , Bit Sub, NMDC, Drill Collar, XO Sub, Shock Sub, Drill Collar, Drilling Jars - Hydraulic, Drill Collar, Drill Pipe

Drilling Parameters: 145.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr	Int ROP (ft/hr)	Flow Rate (gpm)
8	3,584.0	3,729.0	316.0	10.75	23.00	13.5	225

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
32	75	500.0	107	110	105		1.0

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Directional Surveys: SINGLE SHOT

Description	Survey Company
SINGLE SHOT	Patterson Crew

Survey Data

MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)
3,633.00	1.00	7.00	3,631.52	83.89	-22.88	-22.88	0.02

AFE No.	Total AFE Amt ($)
37511	[redacted]

Daily Cost Total	Cum. Cost To Date
[redacted]	[redacted]

Daily Mud Cost	Mud Additive Cost To Date
[redacted]	[redacted]

Depth Start (ftKB)	Depth End (ftKB)
3,584.0	3,729.0

Depth Progress (ftKB)	Drilling Time (hrs)
145.0	10.75

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Rod Cuthill, Drilling Foreman
Mel Knezevich, Drilling Foreman
Mark Moennich, Drilling Sup't
Roger Bromley, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3

Rig Supervisor: John Day, Tool Pusher

Rigs: Patterson U.T.I, 104

Rig Supervisor: Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

Pump Checks

P (psi)	Slow Spd	Strokes (strokes/min)	Eff (%)
170.0	No	50	90

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	13 5/8	1,500.0

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA MUD ENG LIVING ALLOWANCE	1.0	35
BARIOD USA MUD CHECK	1.0	200
BAROID USA BARA DEFOAM HP	1.0	153
BAROID USA QUICK FOAM	2.0	1,106
BAROID USA EZ-MUD	2.0	93
BAROID USA BARACAT	11.0	880
BAROID USA QUICK FOAM	22.0	2,487
BAROID USA DIAMONIAM PHOSPHATE	140.0	2,016

Formation Pick Groups: Drilling Sam...

Formation Picks Group: Drilling Sample

Well Name: FORTUNA MIDDLE M NTAIN #21-16 **Dat 11/22/2002, Report: 26.0, DFS: 26.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Name	Top (ftKB)
Mancos	3,073.0
Star Point	2,700.0
Blackhawk	1,700.0
Castlegate	1,467.0
Price River	831.0

Surface Casing, 1,080.0ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
11/2/2002	13 3/8	H-40	48.00

Talisman Energy Canada - Daily Drilling Report

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 — **Date: 11/23/2002, Report: 27.0, DFS: 27.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Weather	Road Condition	Hole Condition
CLEAR	WET	LOST CIRCULATION

Operations at Report Time

@0600hrs- 4023'KB, DRILLING 12 1/4"HOLE.

Operations This Report Period

DRLG 12 1/4" HOLE FROM 3728'KB TO 3956'KB USING AERATED FLUID. WIPER TRIP TO CHECK DRILL STRING & BHA. DRILL AHEAD WITH LOST CIRCULATION.

Operations Next Report Period

DRILL TO CSG POINT / WIPER TRIP / LOG

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	07:45	7.75	02	Drilling	DRILLING 12 1/4" HOLE FROM 3728'KB TO 3829'KB WITH AERATED FLUID. USING 2250 CFM AIR, 250 GPM WATER & 12 GPH SOAP INJECTION. CIRCULATION WILL COME AROUND EVERY COUPLE OF HRS.
07:45	08:15	0.50	10	Rig Survey	SINGLE SHOT SURVEY @ 3789'KB, 1.0 DEG INCLINATION, AZM 33 / RIG SERVICE.
08:15	09:15	1.00	08	Rig Repair	REPAIR ROTARTY TABLE DRIVE CHAIN.
09:15	16:15	7.00	02	Drilling	DRILLING 12 1/4" INTERMIDATE HOLE FROM 3829'KB TO 3918, UNABLE TO GET ANY STANDPIPE PRESSUREWHEN AIR WAS BLEED OFF. RUNNING PUMPS @ 12.6 BBL/MIN, NO PRESSURE.
16:15	18:00	1.75	06	Tripping	WIPER TRIP OUT TO INSPECT DRILL STRING AND BIT. ALL "OK", CHANGE OUT WORN OUT SHOCK SUB.
18:00	21:00	3.00	06	Tripping	RUN IN HOLE / HOLE CONDITION GOOD.
21:00	00:00	3.00	02	Drilling	DRILLING 12 1/4" HOLE FROM 3918'KB TO 3956'KB USING AERATED FLUID. RUNNING 3 COMP W/ 10 GPH SOAP INJECTION & 300 GPM FLUID. HOLE WILL BLOW AROUND EVERY 2 HOURS.

Mud Checks: 3,860.0ftKB, 11/23/2002 12:00

Type	Date	Depth (ftKB)	T(fl) (°F)	Density (lb/gal)	Vis (s/qt)	Plas Vis (cp)
Water Base	11/23/2002 12:00	3,860.0		8.3	26	
Yield Point (cp)	**gel 10 sec (cp)**	**gel 10 min (cp)**	**Filtrate (mL/30min)**	**HTHP Filt (mL/30min)**	**Filter Cake (in)**	**MBT (lb/bbl)**
Lime (lb/bbl)	**pH**	**Pm (mL/mL)**	**Pf (mL/mL)**	**Calcium (mg/L)**	**Potassium (mg/L)**	**Polymer (lb/gal)**
	7.6					
Chlorides (mg/L)	**Sand (%)**	**Solids (%)**	**Percent Oil (%)**	**Percent Water (%)**	**LG Solids (%)**	**Electric Stab (V)**
500.000						

Drill Strings: BHA #8, Slick

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
1	12 1/4in, GT-28C , ZW19DM	-------	1.80	13.3	28/28/28

Len (ft)	Max OD (in)	String Components
3944.05	8.000	Hughes GT-28C , Bit Sub, NMDC, Drill Collar, XO Sub, Shock Sub, Drill Collar, Drilling Jars - Hydraulic, Drill Collar, Drill Pipe

Drilling Parameters: 227.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr)	Int ROP (ft/hr)	Flow Rate (gpm)
8	3,729.0	3,956.0	543.0	17.75	40.75	12.8	200

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
33	75	460.0	117	122	112		1.0

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Directional Surveys: SINGLE SHOT

Description	Survey Company
SINGLE SHOT	Patterson Crew

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	**Cum. Cost To Date**
[redacted]	[redacted]
Daily Mud Cost	**Mud Additive Cost To Date**
[redacted]	47,005.65
Depth Start (ftKB)	**Depth End (ftKB)**
3,729.0	3,956.0
Depth Progress (ftKB)	**Drilling Time (hrs)**
227.0	17.75

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Mel Knezevich, Drilling Foreman
Rod Cuthill, Drilling Foreman
Mark Moennich, Drilling Sup't
Roger Bromley, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3

Rig Supervisor: John Day, Tool Pusher

Rigs: Patterson U.T.I, 104

Rig Supervisor: Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	13 5/8	1,500.0

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA MUD ENG LIVING ALLOWANCE	1.0	35
BARIOD USA MUD CHECK	1.0	200
BAROID USA QUICK FOAM	4.0	2,212
BAROID USA DIAMONIAM PHOSPHATE	7.0	101
BAROID USA SODA ASH	10.0	74

Formation Pick Groups: Drilling Sam...

Formation Picks Group: Drilling Sample

Name	Top (ftKB)
Mancos	3,073.0
Star Point	2,700.0
Blackhawk	1,700.0
Castlegate	1,467.0
Price River	831.0

Surface Casing, 1,080.0ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
11/2/2002	13 3/8	H-40	48.00

Well Name: FORTUNA MIDDLE M NTAIN #21-16 **Da 11/23/2002, Report: 27.0, DFS: 27.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Survey Data

MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)
3,789.00	1.00	33.00	3,787.50	86.39	-21.97	-21.97	0.29

Talisman Energy Canada - Daily Drilling Report

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Date: 11/24/2002, Report: 28.0, DFS: 28.00**

Job Type: Drilling - original

CONFIDENTIAL

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	Cum. Cost To Date
[redacted]	[redacted]
Daily Mud Cost	Mud Additive Cost To Date
[redacted]	[redacted]
Depth Start (ftKB)	Depth End (ftKB)
3,956.0	4,265.0
Depth Progress (ftKB)	Drilling Time (hrs)
309.0	23.25

Daily Summary

Weather	Road Condition	Hole Condition
LIGHT SNOW	WET	LOST CIRCULATION

Operations at Report Time
@0600 hrs- 4391'KB (TD), CIRC & CONDITION HOLE

Operations This Report Period
DRLG 12 1/4" HOLE FROM 3956'KB TO 4265'KB USING AERATED FLUID FOR CIRCULATION.

Operations Next Report Period
TD INTERMIDATE #1 / LOG & CSG.

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	08:45	8.75	02	Drilling	DRILLING 12 1/4" HOLE FROM 3956'KB TO 4046'KB USING 3 COMP, 12 GPH SOAP INJECTION & 200 GPM FLUID. HOLE WOULD UNLOAD ONCE EVERY 4 TO 5 HOURS.
08:45	09:15	0.50	10	Rig Survey	SINGLE SHOT SURVEY @ 4006'KB, 1.0 DEG INCLINATION, DIRECTION 33 AZM.
09:15	09:30	0.25	07	Rig Service	RIG SERVICE.
09:30	00:00	14.50	02	Drilling	DRILLING 12 1/4" HOLE FROM 4046'KB WITH 35K WEIGHT & 75 RPM, ROP 14'/HR TO 4065'KB. INCREASED AIR TO 3000 CFM & INCREASED PUMP RATE TO 525GPM, STOP SOAP INJECTION AND USE BARACAT TO CLEAN HOLE. ABLE TO MAINTAIN A MORE CONSTENT CIRCULATION FROM 4065'KB TO 4265'KB.

Mud Checks: 4,108.0ftKB, 11/24/2002 14:00

Type	Date	Depth (ftKB)	T(fl) (°F)	Density (lb/gal)	Vis (s/qt)	Plas Vis (cp)
DAP	11/24/2002 14:00	4,108.0		8.4	27	

Yield Point (cp)	gel 10 sec (cp)	gel 10 min (cp)	Filtrate (mL/30min)	HTHP Filt (mL/30min)	Filter Cake (in)	MBT (lb/bbl)

Lime (lb/bbl)	pH	Pm (mL/mL)	Pf (mL/mL)	Calcium (mg/L)	Potassium (mg/L)	Polymer (lb/gal)
	7.6					

Chlorides (mg/L)	Sand (%)	Solids (%)	Percent Oil (%)	Percent Water (%)	LG Solids (%)	Electric Stab (V)
500.000						

Drill Strings: BHA #8, Slick

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
1	12 1/4in, GT-28C , ZW19DM	-------	1.80	13.3	28/28/28

Len (ft)	Max OD (in)	String Components
4257.75	8.000	Hughes GT-28C , Bit Sub, NMDC, Drill Collar, XO Sub, Shock Sub, Drill Collar, Drilling Jars - Hydraulic, Drill Collar, Drill Pipe

Drilling Parameters: 309.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr	Int ROP (ft/hr)	Flow Rate (gpm)
8	3,956.0	4,265.0	852.0	23.25	64.00	13.3	525

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
40	75	800.0	120	125	115		1.0

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Directional Surveys: SINGLE SHOT

Description	Survey Company
SINGLE SHOT	Patterson Crew

Survey Data

MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)
4,006.00	1.00	33.00	4,004.47	89.56	-19.91	-19.91	0.00

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Mel Knezevich, Drilling Foreman
Rod Cuthill, Drilling Foreman
Mark Moennich, Drilling Sup't
Roger Bromley, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3
Rig Supervisor: John Day, Tool Pusher

Rigs: Patterson U.T.I, 104
Rig Supervisor: Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	13 5/8	1,500.0

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA MUD ENG LIVING ALLOWANCE	1.0	35
BAROID USA SODA ASH	1.0	7
BARIOD USA MUD CHECK	1.0	200
BAROID USA EZ-MUD	1.0	46
BAROID USA QUICK FOAM	3.0	1,659
BAROID USA BARA DEFOAM	7.0	805
BAROID USA BARACAT	24.0	1,920
BAROID USA DIAMONIAM PHOSPHATE	349.0	5,026

Formation Pick Groups: Drilling Sam...

Formation Picks Group: Drilling Sample

Name	Top (ftKB)
Mancos	3,073.0
Star Point	2,700.0
Blackhawk	1,700.0
Castlegate	1,467.0

Well Name: FORTUNA MIDDLE M[illegible]JNTAIN #21-16 **Da[illegible] 11/24/2002, Report: 28.0, DFS: 28.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Name	Top (ftKB)
Price River	831.0

Surface Casing, 1,080.0ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
11/2/2002	13 3/8	H-40	48.00

029

Talon Resources, Inc.

Service, Quality and Accuracy

P.O. Box 1230
195 North 100 West
Huntington, Utah 84528
Phone: 435-687-5310

Cell: 435-650-1886
Fax: 435-687-5311
Email: talon@etv.net

CONFIDENTIAL

December 3, 2002

Mr. Eric Jones
Petroleum Engineer
Bureau of Land Management
82 East Dogwood
Moab, Utah 84532

RE: Sundry Notice (Weekly Drilling Reports)—Fortuna (US), Inc.
Middle Mountain #21-16— 1,309' FSL, 834' FEL
Section 21, T16S, R6E, SLB&M, Emery County, Utah 43-015-30426

Dear Mr. Jones:

On behalf of Fortuna (US), Inc. Talon Resources, Inc. respectfully submits the enclosed original and two copies of the *Sundry Notices* for the Middle Mountain #21-16 well on lands managed by the Manti La-Sal Forest Service.

Thank you for your timely consideration of the enclosed application. Please feel free to contact myself or Mr. Mel Knezevich of Fortuna (US), Inc. at 1-780-402-1296 if you have any questions or need additional information.

Sincerely,

Don Hamilton

Don Hamilton
Agent for Fortuna (US), Inc.

Enclosures

cc: Mr. Mike Kaminski, BLM—Price Field Office
Mr. Carter Reed, USDA Forest Service—Price SO
Mr. Tom Lloyd, USDA Forest Service—Ferron DO
Mrs. Diana Mason, Division of Oil, Gas and Mining
Mr. Arne Hamarsnes, Fortuna (US), Inc.
Mr. Mark Moenich, Fortuna (US), Inc.

Form 3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
Budget Bureau No. 1004-0135
Expires: March 31, 1993

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to deepen or reentry to a different reservoir.
Use "APPLICATION FOR PERMIT–" for such proposals

SUBMIT IN TRIPLICATE

CONFIDENTIAL

1. Type of Well: ☐ Oil ☒ Gas ☐
2. Name of Operator: Fortuna (US), Inc.
3. Address and Telephone No.: Suite 3400, 888 3rd Street SW, Calgary, Alberta T2P5C5 403-237-1163
4. Location of Well (Footage, Sec.,T., R:, M., or Survey Description)
   1309' FSL, 834' FEL
   SE/4 SE/4, Section 21, T16S, R6E, SLB&M
5. Lease Designation and Serial No.: UTU-77263
6. If Indian, Allottee or Tribe Name: N/A
7. If Unit or CA, Agreement Designation: N/A
8. Well Name and No.: Middle Mountain #21-16
9. API Well No.: 43-015-30426
10. Field and Pool, or Exploratory Area: Wildcat
11. County or Parish, State: Emery County, Utah

12. **CHECK APPROPRIATE BOX(s) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA**

TYPE OF SUBMISSION	TYPE OF ACTION	
☐ Notice of Intent	☐ Change of Name	☐ Change of Plans
☒ Subsequent Report	☐ Recompletion	☐ New Construction
☐ Final Abandonment Notice	☐ Plugging Back	☐ Non-Routine Fracturing
	☐ Casing Repair	☐ Water Shut-Off
	☐ Altering Casing	☐ Conversion to Injection
	☒ Weekly Drilling Reports	☐ Dispose Water

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

Attached are the weekly drilling reports for the Middle Mountain #21-16 well

RECEIVED
DEC - 9 2002
DIV OF OIL, GAS & MINING

14. I hereby certify that the foregoing is true and correct

Signed Don Hamilton Don Hamilton Title Agent for Fortuna US Date December 3, 2002

(This space for Federal or State office use)

Approved by _____ Title _____ Date _____
Conditions of approval, if any:

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

Talisman Energy Canada - Daily Drilling Report

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Date: 11/25/2002, Report: 29.0, DFS: 29.00**

Job Type: Drilling - original

CONFIDENTIAL

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Weather	Road Condition	Hole Condition
Clear	WET	LOST CIRCULATION

Operations at Report Time
@06:00 hrs 4421 run logs to bottom

Operations This Report Period
TD 12 1/4 " hole. Wiper trip. Circ hole clean. Trip out to log. Wait on loggers.

Operations Next Report Period
Log, run casing and cement.

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	04:00	4.00	02	Drilling	DRILLING 12 1/4" HOLE FROM 4265'KB TO 4370'KB USING 12.5 BBL/MIN FLUID & 3000 CFM AIR TO MAINTAIN CIRCULATION.
04:00	04:45	0.75	05	Condition and/or Circulate mud	CIRCULATE UP SAMPLE / WORK HOLE CLEAN.
04:45	05:15	0.50	02	Drilling	DRILL 12 1/4" HOLE FROM 4371'KB TO 4390'KB / POSSIBLE EMERY TOP @ 4281'KB.
05:15	06:30	1.25	05	Condition and/or Circulate mud	CIRCULATE UP SAMPLE / WORK HOLE CLEAN.
06:30	08:00	1.50	02	Drilling	DRILL 12 1/4" HOLE FROM 4391'KB TO 4421'KB (TD) INTERMIDATE HOLE.
08:00	09:45	1.75	05	Condition and/or Circulate mud	CIRCULATE AND CONDITION HOLE FOR LOGGING @ 4421'KB
09:45	11:45	2.00	06	Tripping	WIPER TRIP TO 1200'KB, HOLE CONDITION GOOD. RUN BACK IN HOLE TO 3100'KB AND KELLY UP.
11:45	12:45	1.00	05	Condition and/or Circulate mud	UNLOAD HOLE TO FILL RESERVE PIT.
12:45	13:30	0.75	06	Tripping	FINISH WIPER RUN, TRIP INTO TD @ 4321, HOLE CONDITION GOOD.
13:30	15:30	2.00	05	Condition and/or Circulate mud	CIRCULATE & CONDITION HOLE FOR LOGGING.
15:30	16:00	0.50	10	Rig Survey	SINGLE SHOT SURVEY @ 4381'KB, 1.0 DEG INCLINATION, AZM 21
16:00	19:00	3.00	06	Tripping	TRIP OUT TO LOG. STRAP 4417.46 FT. NO CORRECTION MADE TO TALLY.
19:00	00:00	5.00	11	Wireline Logs	WAIT ON WIRELINE TRUCK. TRANSMISSION WENT OUT 10 MILES FROM THE LEASE.

Mud Checks: 4,421.0ftKB, 11/25/2002 11:45

Type	Date	Depth (ftKB)	T(fl) (°F)	Density (lb/gal)	Vis (s/qt)	Pias Vis (cp)
Water Base	11/25/2002 11:45	4,421.0		8.4	27	
Yield Point (cp)	**gel 10 sec (cp)**	**gel 10 min (cp)**	**Filtrate (mL/30min)**	**HTHP Filt (mL/30min)**	**Filter Cake (in)**	**MBT (lb/bbl)**
Lime (lb/bbl)	**pH**	**Pm (mL/mL)**	**Pf (mL/mL)**	**Calcium (mg/L)**	**Potassium (mg/L)**	**Polymer (lb/gal)**
	7.7					
Chlorides (mg/L)	**Sand (%)**	**Solids (%)**	**Percent Oil (%)**	**Percent Water (%)**	**LG Solids (%)**	**Electric Stab (V)**
500.000						

Drill Strings: BHA #8, Slick

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
6	12 1/4in, GT-28C , ZW19DM	3-5-FC-A-2-0-NO-TD	1.80	14.4	28/28/28

Len (ft)	Max OD (in)	String Components
4384.37	8.000	Hughes GT-28C , Bit Sub, NMDC, Drill Collar, XO Sub, Shock Sub, Drill Collar, Drilling Jars - Hydraulic, Drill Collar, Drill Pipe

Drilling Parameters: 156.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr	Int ROP (ft/hr)	Flow Rate (gpm)
8	4,265.0	4,421.0	1,008.0	6.00	70.00	26.0	525
WOB (1000lbf)	**RPM (rpm)**	**SPP (psi)**	**Rot HL (1000lbf)**	**PU HL (1000lbf)**	**SO HL (1000lbf)**	**Drilling Torque**	**Off Btm Tq**
40	75	800.0	120	125	115		1.0

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	**Cum. Cost To Date**
[redacted]	[redacted]
Daily Mud Cost	**Mud Additive Cost To Date**
[redacted]	[redacted]
Depth Start (ftKB)	**Depth End (ftKB)**
4,265.0	4,421.0
Depth Progress (ftKB)	**Drilling Time (hrs)**
156.0	6.00

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Rod Cuthill, Drilling Foreman
Mel Knezevich, Drilling Foreman
Mark Moennich, Drilling Sup't
Roger Bromley, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3
Rig Supervisor: John Day, Tool Pusher

Rigs: Patterson U.T.I, 104
Rig Supervisor: Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197
Liner Size (in)	**Stroke (in)**	**V/Stk (bbl/stk)**
5	15.00	0.105

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197
Liner Size (in)	**Stroke (in)**	**V/Stk (bbl/stk)**
5	15.00	0.105

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	13 5/8	1,500.0
Annular Preventers	11	1,500.0

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA MUD ENG LIVING ALLOWANCE	1.0	35
BARIOD USA MUD CHECK	1.0	200
BAROID USA EZ-MUD	1.0	46
BAROID USA BARACAT	1.0	80
BAROID USA PAC-R	2.0	218
BAROID USA SODA ASH	9.0	67
BAROID USA DIAMONIAM PHOSPHATE	67.0	965

Formation Pick Groups: Drilling Sam...

Formation Picks Group: Drilling Sample

Name	Top (ftKB)
Emery	4,280.0
Mancos	3,073.0
Star Point	2,700.0
Blackhawk	1,700.0
Castlegate	1,467.0

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Date: 11/25/2002, Report: 29.0, DFS: 29.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Directional Surveys: SINGLE SHOT

Description	Survey Company
SINGLE SHOT	Patterson Crew

Survey Data

MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)
4,381.00	1.00	21.00	4,379.41	95.36	-16.95	-16.95	0.06

Surface Casing, 1,080.0ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
11/2/2002	13 3/8	H-40	48.00

Talisman Energy Canada - Daily Drilling Report

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Date: 11/26/2002, Report: 30.0, DFS: 30.00**

Job Type: Drilling - original

CONFIDENTIAL

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Weather	Road Condition	Hole Condition
CLEAR	WET	LOST CIRCULATION

Operations at Report Time
@0600hrs- CSG LANDED, WAIT ON ANOTHER CEMENT TRUCK

Operations This Report Period
LOG OPEN HOLE, RIH 9 5/8" CSG, RIG IN CEMENTERS, PUMP TRUCK PRECHARGE PUMP FAILED.

Operations Next Report Period
CEMENT 9 5/8" CSG.

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	03:00	3.00	11	Wireline Logs	WAIT ON LOGGERS / SLIP & CUT DRILLING LINE.
03:00	15:30	12.50	11	Wireline Logs	RIG IN SCHLUMBERGER / LOG OPEN HOLE FROM LOGGERS (TD) 4414' TO SURFACE CASING @ 1080'KB. MADE 1 RUN WITH SET-M-ND, PEX-SUB-A, BHC, CAL-C. HOLE CONDITION WAS GOOD.
15:30	21:00	5.50	12	Run Casing & Cement	RIG IN CASING CREW & RIH 100 JOINTS 9 5/8", 36#, J-55, ST&C, RANGE 3 CASING. TOTAL LENGTH OF CASING 4417.44', LANDED @ 4414'KB. RAN WEATHERFORD ECP @990'KB WITH TWO STAGE COLLAR @ 974.02, TAGGED BOTTOM "OK"
21:00	22:00	1.00	12	Run Casing & Cement	WAIT ON SCHLUMBERGER CEMENTERS.
22:00	00:00	2.00	12	Run Casing & Cement	CIRCULATE CASING. (PUMP WATER INTO CASING.) RIG IN CEMENT SILO & LOAD, SPOT CEMENT BULK TRUCKS & PUMP UNIT.

Drill Strings: BHA #8, Slick

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
6	12 1/4in, GT-28C , ZW19DM	3-5-FC-A-2-0-NO-TD	1.80	14.4	28/28/28

Len (ft)	Max OD (in)	String Components
4384.37	8.000	Hughes GT-28C , Bit Sub, NMDC, Drill Collar, XO Sub, Shock Sub, Drill Collar, Drilling Jars - Hydraulic, Drill Collar, Drill Pipe

Drilling Parameters: 156.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr)	Int ROP (ft/hr)	Flow Rate (gpm)
8	4,265.0	4,421.0	1,008.0	6.00	70.00	26.0	525

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
40	75	800.0	120	125	115		1.0

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Directional Surveys: SINGLE SHOT

Description	Survey Company
SINGLE SHOT	Patterson Crew

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	**Cum. Cost To Date**
[redacted]	[redacted]
Daily Mud Cost	**Mud Additive Cost To Date**
[redacted]	[redacted]
Depth Start (ftKB)	**Depth End (ftKB)**
4,421.0	4,421.0
Depth Progress (ftKB)	**Drilling Time (hrs)**
0.0	0.00

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Rod Cuthill, Drilling Foreman
Mel Knezevich, Drilling Foreman
Mark Moennich, Drilling Sup't
Roger Bromley, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3

Rig Supervisor: John Day, Tool Pusher

Rigs: Patterson U.T.I, 104

Rig Supervisor: Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	13 5/8	1,500.0
Annular Preventers	11	1,500.0

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA MUD ENG LIVING ALLOWANCE	1.0	35
BARIOD USA MUD CHECK	1.0	200
BAROID USA BARA DEFOAM	2.0	230
BAROID USA DIAMONIAM PHOSPHATE	6.0	86

Formation Pick Groups: Drilling Sam...

Formation Picks Group: Drilling Sample

Name	Top (ftKB)
Emery	4,280.0
Mancos	3,073.0
Star Point	2,700.0
Blackhawk	1,700.0
Castlegate	1,467.0

Intermediate Casing, 4,413.0ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
11/26/2002	9 5/8	J-55	36.00

Talisman Energy Canada - Daily Drilling Report

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Date: 11/27/2002, Report: 31.0, DFS: 31.00**

Job Type: Drilling - original

CONFIDENTIAL

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Weather	Road Condition	Hole Condition
Clear	Dry	Cased and cemented

Operations at Report Time
06:00 hrs 11/28/02 nipple down 13 5/8 stack

Operations This Report Period
Wait on Schlumberger, cement casing and wait on cement.

Operations Next Report Period
WOC change to 11"x 3000# stack

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	12:00	12.00	00	Undefined Status	Wait on Schlumberger to arrive with a operational pumping unit. To replace the failed unit.
12:00	17:30	5.50	12	Run Casing & Cement	Cement first stage. 1514 sx of cement pumped at 11.2 ppg, tailed in with 186 sx pumped at 14.2 ppg. Displaced with 339 bbls of water. The plug was bumped and the floats held. Ther was no pressure on the pump gauge prior to bumping the plug. The pumping unit injector system caught fire while displacing, was shut down and put out. No major damage. Inflate packer with 800 psi. Open Stage Collar with 1500 psi. Circulate with rig pump. Some contamination and ammonia smell in the water at bottoms up. Possible cement raised the ph and caused the smell. Cement the second stage with 275 sx at 14.2 ppg. Cement to surface. Close stage collar and cement stayed at surface. Flush BOP.
17:30	00:00	6.50	13	Wait On Cement	Prepare to change BOP while waiting on cement.

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Directional Surveys: SINGLE SHOT

Description	Survey Company
SINGLE SHOT	Patterson Crew

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	**Cum. Cost To Date**
[redacted]	[redacted]
Daily Mud Cost	**Mud Additive Cost To Date**
[redacted]	[redacted]
Depth Start (ftKB)	**Depth End (ftKB)**
4,421.0	4,421.0
Depth Progress (ftKB)	**Drilling Time (hrs)**
0.0	0.00

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Mel Knezevich, Drilling Foreman
Rod Cuthill, Drilling Foreman
Mark Moennich, Drilling Sup't
Randy Hackford, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3

Rig Supervisor: John Day, Tool Pusher

Rigs: Patterson U.T.I, 104

Rig Supervisor: Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	13 5/8	1,500.0
Annular Preventers	11	1,500.0

Formation Pick Groups: Drilling Sam...

Formation Picks Group: Drilling Sample

Name	Top (ftKB)
Emery	4,280.0
Mancos	3,073.0
Star Point	2,700.0
Blackhawk	1,700.0
Castlegate	1,467.0

Intermediate Casing, 4,413.0ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
11/26/2002	9 5/8	J-55	36.00

Talisman Energy Canada - Daily Drilling Report

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Date: 11/28/2002, Report: 32.0, DFS: 32.00**

Job Type: Drilling - original

CONFIDENTIAL

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Weather	Road Condition	Hole Condition
Clear	Dry	Cased and cemented

Operations at Report Time
06:00 hrs-Complete nipple up operations.

Operations This Report Period
Wait on cement. Nipple down. Weld bowl and nipple up.

Operations Next Report Period
Nipple up. Test BOP. Drill out

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	06:00	6.00	13	Wait On Cement	Wait for cement to set to slack off of casing. No slips for first intermeadiate.
06:00	16:00	10.00	14	Nipple Up /Nipple Down BOP Stack	Cut off casing. Nipple down 13 5/8 3000# BOP. Prep cellar.
16:00	22:00	6.00	14	Nipple Up /Nipple Down BOP Stack	Final cut casing. Preheat 11"3000# casing bowl, weld on bowl and cool down casing bowl for 1 hr to 150 degrees.
22:00	00:00	2.00	14	Nipple Up /Nipple Down BOP Stack	Nipple up 11" 3000# BOP.

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Directional Surveys: SINGLE SHOT

Description	Survey Company
SINGLE SHOT	Patterson Crew

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	**Cum. Cost To Date**
[redacted]	[redacted]
Daily Mud Cost	**Mud Additive Cost To Date**
[redacted]	[redacted]
Depth Start (ftKB)	**Depth End (ftKB)**
4,421.0	4,421.0
Depth Progress (ftKB)	**Drilling Time (hrs)**
0.0	0.00

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Rod Cuthill, Drilling Foreman
Mel Knezevich, Drilling Foreman
Mark Moennich, Drilling Sup't
Randy Hackford, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3

Rig Supervisor: John Day, Tool Pusher

Rigs: Patterson U.T.I, 104

Rig Supervisor: Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	13 5/8	1,500.0
Annular Preventers	11	1,500.0

Formation Pick Groups: Drilling Sam...

Formation Picks Group: Drilling Sample

Name	Top (ftKB)
Emery	4,280.0
Mancos	3,073.0
Star Point	2,700.0
Blackhawk	1,700.0
Castlegate	1,467.0

Intermediate Casing, 4,413.0ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
11/26/2002	9 5/8	J-55	36.00

Talisman Energy Canada - Daily Drilling Report

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 CONFIDENTIAL **Date: 11/29/2002, Report: 33.0, DFS: 33.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Weather	Road Condition	Hole Condition
Clear	Dry	Cased and cemented

Operations at Report Time
06:00 hrs Drill ahead raotary air

Operations This Report Period
Nipple up 11x3000# stack. Test BOP, Drill out and attempt to dry hole.

Operations Next Report Period
Drill ahead rotary air.

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	10:00	10.00	14	Nipple Up /Nipple Down BOP Stack	Nipple up BOP.
10:00	18:00	8.00	15	Test BOP	Test casing, BOP and surface equipment to 1750 psi.
18:00	00:00	6.00	02	Drilling	Drill out stage collar, trip in and drill out shoe. Pot metal plugs are causing problems.

Drill Strings: BHA #9, Slick

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
7	8 3/4in, L136 , L57ZY	6-7-FC-A-6-0-NO-Deviation	0.59	26.2	16/16/16

Len (ft)	Max OD (in)	String Components
4458.47	6.500	Varel L136 , Bit Sub, NMDC, Drill Collar, Drilling Jars - Hydraulic, Drill Collar, Drill Pipe

Drilling Parameters: 210.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr	Int ROP (ft/hr)	Flow Rate (gpm)
9	4,421.0	4,631.0	210.0	8.00	8.00	26.2	

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
36	70		120	120	120		

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Directional Surveys: SINGLE SHOT

Description	Survey Company
SINGLE SHOT	Patterson Crew

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	**Cum. Cost To Date**
[redacted]	[redacted]
Daily Mud Cost	**Mud Additive Cost To Date**
[redacted]	[redacted]
Depth Start (ftKB)	**Depth End (ftKB)**
4,421.0	4,421.0
Depth Progress (ftKB)	**Drilling Time (hrs)**
0.0	8.00

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Mel Knezevich, Drilling Foreman
Rod Cuthill, Drilling Foreman
Mark Moennich, Drilling Sup't
Randy Hackford, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3

Rig Supervisor: John Day, Tool Pusher

Rigs: Patterson U.T.I, 104

Rig Supervisor: Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	13 5/8	1,500.0
Annular Preventers	11	1,500.0

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA QUICK FOAM	6.0	678
BAROID USA REGULAR BARITE	116.0	421

Formation Pick Groups: Drilling Sam...

Formation Picks Group: Drilling Sample

Name	Top (ftKB)
Emery	4,280.0
Mancos	3,073.0
Star Point	2,700.0
Blackhawk	1,700.0
Castlegate	1,467.0

Intermediate Casing, 4,413.0ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
11/26/2002	9 5/8	J-55	36.00

Talisman Energy Canada - Daily Drilling Report

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Date: 11/30/2002, Report: 34.0, DFS: 34.00**

Job Type: Drilling - original

CONFIDENTIAL

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Weather	Road Condition	Hole Condition
Clear	Dry	Good

Operations at Report Time
06:00 hrs Dec 01, drill ahead @4840

Operations This Report Period
Drill out, dry hole, drill ahead, aerated water drill, Trip for assembly due to deviation, drill ahead.

Operations Next Report Period
Drill ahead with aerated water.

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	03:30	3.50	05	Condition and/or Circulate mud	Unload hole, dry it up.
03:30	11:30	8.00	02	Drilling	Drill ahead. Watered out at 4473. Switch to aerated water.
11:30	12:00	0.50	10	Rig Survey	Survey at 4585
12:00	12:30	0.50	02	Drilling	Drill ahead.
12:30	19:00	6.50	06	Tripping	Trip to change assembly.
19:00	22:45	3.75	03	Reaming	Ream packed assembly from the shoe to bottom.
22:45	00:00	1.25	02	Drilling	Drill ahead.

Drill Strings: BHA #9, Slick

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
7	8 3/4in, L136 , L57ZY	6-7-FC-A-6-0-NO-Deviation	0.59	26.2	16/16/16

Len (ft)	Max OD (in)	String Components
4458.47	6.500	Varel L136 , Bit Sub, NMDC, Drill Collar, Drilling Jars - Hydraulic, Drill Collar, Drill Pipe

Drilling Parameters: 210.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr)	Int ROP (ft/hr)	Flow Rate (gpm)
9	4,421.0	4,631.0	210.0	8.00	8.00	26.2	

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
36	70		120	120	120		

Drill Strings: BHA #10, Packed Hole

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
8	8 3/4in, F35, MJ3100	5-6-FC-A-2-0-NO-PR	0.59	18.7	16/16/16

Len (ft)	Max OD (in)	String Components
5324.80	6.750	Smith F35, Reamer - 3 Pt, Stabilizer, Short Drill Collar, Stabilizer, NMDC, Stabilizer, Drill Collar, Drilling Jars - Hydraulic, Drill Collar, Drill Pipe

Drilling Parameters: 44.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr)	Int ROP (ft/hr)	Flow Rate (gpm)
10	4,631.0	4,675.0	44.0	8.50	8.50	5.2	

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
35	60	240.0					

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Directional Surveys: SINGLE SHOT

Description	Survey Company
SINGLE SHOT	Patterson Crew

Survey Data

MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)
4,585.00	2.75	345.00	4,583.30	101.75	-17.58	-17.58	0.99

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	Cum. Cost To Date
[redacted]	[redacted]
Daily Mud Cost	Mud Additive Cost To Date
[redacted]	[redacted]
Depth Start (ftKB)	Depth End (ftKB)
4,421.0	4,675.0
Depth Progress (ftKB)	Drilling Time (hrs)
254.0	8.50

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Mel Knezevich, Drilling Foreman
Rod Cuthill, Drilling Foreman
Mark Moennich, Drilling Sup't
Randy Hackford, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3

Rig Supervisor
John Day, Tool Pusher

Rigs: Patterson U.T.I, 104

Rig Supervisor
Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	13 5/8	1,500.0
Annular Preventers	11	1,500.0

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA EZ-MUD	2.0	93
BAROID USA MUD ENG LIVING ALLOWANCE	4.0	140
BARIOD USA MUD CHECK	4.0	800
BAROID USA BARACAT	5.0	400
BAROID USA FUMARIC ACID	15.0	959
BAROID USA QUICK FOAM	15.0	1,695
BAROID USA SAWDUST	50.0	238

Formation Pick Groups: Drilling Sam...

Formation Picks Group
Drilling Sample

Name	Top (ftKB)
Emery	4,280.0
Mancos	3,073.0
Star Point	2,700.0
Blackhawk	1,700.0
Castlegate	1,467.0

Well Name: FORTUNA MIDDLE M. .JNTAIN #21-16 **Dat.. 11/30/2002, Report: 34.0, DFS: 34.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Intermediate Casing, 4,413.0ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
11/26/2002	9 5/8	J-55	36.00

Talisman Energy Canada - Daily Drilling Report

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Date: 12/1/2002, Report: 35.0, DFS: 35.00**

Job Type: Drilling - original

CONFIDENTIAL

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Weather	Road Condition	Hole Condition
Clear	Dry	Good

Operations at Report Time
06:00 hrs Dec 02, drill ahead @ 5425

Operations This Report Period
Drill ahead with aerated water.

Operations Next Report Period
Drill ahead with aerated water.

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	04:45	4.75	02	Drilling	Drill ahead. Pit slowly filling up.
04:45	05:15	0.50	10	Rig Survey	Survey
05:15	16:15	11.00	02	Drilling	Drill ahead. Drop to 2 compressors for a while to pump water away.
16:15	16:45	0.50	10	Rig Survey	Survey at 5077
16:45	17:15	0.50	07	Rig Service	Rig service. Function annular.
17:15	00:00	6.75	02	Drilling	Drill ahead.

Mud Checks: 5,023.0ftKB, 12/1/2002 00:00

Type	Date	Depth (ftKB)	T(fl) (°F)	Density (lb/gal)	Vis (s/qt)	Plas Vis (cp)
Aerated floc water	12/1/2002 00:00	5,023.0		8.4		

Yield Point (cp)	gel 10 sec (cp)	gel 10 min (cp)	Filtrate (mL/30min)	HTHP Filt (mL/30min)	Filter Cake (in)	MBT (lb/bbl)

Lime (lb/bbl)	pH	Pm (mL/mL)	Pf (mL/mL)	Calcium (mg/L)	Potassium (mg/L)	Polymer (lb/gal)
	7.8					

Chlorides (mg/L)	Sand (%)	Solids (%)	Percent Oil (%)	Percent Water (%)	LG Solids (%)	Electric Stab (V)

Drill Strings: BHA #10, Packed Hole

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
8	8 3/4in, F35, MJ3100	5-6-FC-A-2-0-NO-PR	0.59	18.7	16/16/16

Len (ft)	Max OD (in)	String Components
5324.80	6.750	Smith F35, Reamer - 3 Pt, Stabilizer, Short Drill Collar, Stabilizer, NMDC, Stabilizer, Drill Collar, Drilling Jars - Hydraulic, Drill Collar, Drill Pipe

Drilling Parameters: 650.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr	Int ROP (ft/hr)	Flow Rate (gpm)
10	4,675.0	5,325.0	694.0	22.00	30.50	29.5	

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
35	60	240.0					

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Directional Surveys: SINGLE SHOT

Description	Survey Company
SINGLE SHOT	Patterson Crew

Survey Data

MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)
4,795.00	2.75	336.00	4,793.06	111.22	-20.93	-20.93	0.21
5,077.00	2.50	333.00	5,074.76	122.88	-26.48	-26.48	0.10

AFE No.	Total AFE Amt ($)
37511	[redacted]

Daily Cost Total	Cum. Cost To Date
[redacted]	[redacted]

Daily Mud Cost	Mud Additive Cost To Date
[redacted]	[redacted]

Depth Start (ftKB)	Depth End (ftKB)
4,675.0	5,325.0

Depth Progress (ftKB)	Drilling Time (hrs)
650.0	22.00

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Mel Knezevich, Drilling Foreman
Rod Cuthill, Drilling Foreman
Mark Moennich, Drilling Sup't
Randy Hackford, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3

Rig Supervisor: John Day, Tool Pusher

Rigs: Patterson U.T.I, 104

Rig Supervisor: Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	13 5/8	1,500.0
Annular Preventers	11	1,500.0

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA MUD ENG LIVING ALLOWANCE	1.0	35
BARIOD USA MUD CHECK	1.0	200
BAROID USA EZ-MUD	3.0	139
BAROID USA BARACAT	19.0	1,520
BAROID USA DIAMONIAM PHOSPHATE	138.0	1,987

Formation Pick Groups: Drilling Sam...

Formation Picks Group: Drilling Sample

Name	Top (ftKB)
Emery	4,280.0
Mancos	3,073.0
Star Point	2,700.0
Blackhawk	1,700.0
Castlegate	1,467.0

Intermediate Casing, 4,413.0ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
11/26/2002	9 5/8	J-55	36.00

Talisman Energy Canada - Daily Drilling Report

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 — **Date: 12/2/2002, Report: 36.0, DFS: 36.00**

Job Type: Drilling - original

CONFIDENTIAL

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Weather	Road Condition	Hole Condition
Clear	Dry	Good

Operations at Report Time
06:00 hrs Dec 03, Drill ahead @ 5765

Operations This Report Period
Drill ahead in the Emery formation.

Operations Next Report Period
Drill ahead to 2nd intermeadiate.

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	15:30	15.50	02	Drilling	Drill ahead. Pit making water. Stop compresseors to pump fluid away. Put both pumps on the hole. Circulation was attained at about half returns for 30 minutes then disapeared again.
15:30	16:00	0.50	07	Rig Service	Service rig and function annular.
16:00	16:30	0.50	10	Rig Survey	Survey at 5546.
16:30	00:00	7.50	02	Drilling	Drilling ahead.

Drill Strings: BHA #10, Packed Hole

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
8	8 3/4in, F35, MJ3100	5-6-FC-A-2-0-NO-PR	0.59	18.7	16/16/16

Len (ft)	Max OD (in)	String Components
5324.80	6.750	Smith F35, Reamer - 3 Pt, Stabilizer, Short Drill Collar, Stabilizer, NMDC, Stabilizer, Drill Collar, Drilling Jars - Hydraulic, Drill Collar, Drill Pipe

Drilling Parameters: 375.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr)	Int ROP (ft/hr)	Flow Rate (gpm)
10	5,325.0	5,700.0	1,069.0	23.00	53.50	16.3	

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
35	60	240.0	144	148	144		

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Directional Surveys: SINGLE SHOT

Description	Survey Company
SINGLE SHOT	Patterson Crew

Survey Data

MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)
5,546.00	2.75	331.00	5,543.27	141.83	-36.57	-36.57	0.06

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	**Cum. Cost To Date**
[redacted]	[redacted]
Daily Mud Cost	**Mud Additive Cost To Date**
[redacted]	[redacted]
Depth Start (ftKB)	**Depth End (ftKB)**
[redacted]	5,700.0
Depth Progress (ftKB)	**Drilling Time (hrs)**
375.0	23.00

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Rod Cuthill, Drilling Foreman
Mel Knezevich, Drilling Foreman
Mark Moennich, Drilling Sup't
Randy Hackford, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3

Rig Supervisor: John Day, Tool Pusher

Rigs: Patterson U.T.I, 104

Rig Supervisor: Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	13 5/8	1,500.0
Annular Preventers	11	1,500.0

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA MUD ENG LIVING ALLOWANCE	1.0	35
BAROID USA PAC-R	1.0	109
BARIOD USA MUD CHECK	1.0	200
BAROID USA DESCO CHROME FREE	2.0	87
BAROID USA EZ-MUD	3.0	139
BAROID USA DIAMONIAM PHOSPHATE	42.0	605
BAROID USA BARACAT	3.0	240

Formation Pick Groups: Drilling Sam...

Formation Picks Group: Drilling Sample

Name	Top (ftKB)
Bluegate	5,672.0
Emery	4,280.0
Mancos	3,073.0
Star Point	2,700.0

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Date: 12/2/2002, Report: 36.0, DFS: 36.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Name	Top (ftKB)
Blackhawk	1,700.0

Intermediate Casing, 4,413.0ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
11/26/2002	9 5/8	J-55	36.00

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Date: 12/3/2002, Report: 37.0, DFS: 37.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Weather	Road Condition	Hole Condition
Clear	Dry	Good

Operations at Report Time
06:00 hrs Dec 04, drill ahead @ 6300 ft.

Operations This Report Period
Drill ahead. Trip bit. Drill ahead.

Operations Next Report Period
Drill ahead.

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	07:30	7.50	02	Drilling	Drill ahead. Formation change to Bluegate. Shale is too soft for F35.
07:30	12:45	5.25	06	Tripping	Trip bit. Function blind rams. Trip in.
12:45	20:00	7.25	02	Drilling	Drill ahead with GT-S20
20:00	21:45	1.75	05	Condition and/or Circulate mud	Pit was full. Pump down pit starting at 16:15 hrs. No returns to 20:00 hrs. Hole became tight. Work hole, increase air, and add soap to unload hole. Hole unloaded and was no longer tight. Install 24 mesh screens and we are getting some fair samples.
21:45	00:00	2.25	02	Drilling	Drill ahead. Small drilling rate increase at 5996 ft. Coal until 6016 ft. Possibly faulted into the Ferron.

Drill Strings: BHA #10, Packed Hole

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
8	8 3/4in, F35, MJ3100	5-6-FC-A-2-0-NO-PR	0.59	18.7	16/16/16

Len (ft)	Max OD (in)	String Components
5324.80	6.750	Smith F35, Reamer - 3 Pt, Stabilizer, Short Drill Collar, Stabilizer, NMDC, Stabilizer, Drill Collar, Drilling Jars - Hydraulic, Drill Collar, Drill Pipe

Drilling Parameters: 65.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr	Int ROP (ft/hr)	Flow Rate (gpm)
10	5,700.0	5,765.0	1,134.0	7.25	60.75	9.0	

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
35	60	240.0	145	150	145		

Drill Strings: BHA #11, Packed Hole

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
9	8 3/4in, GT-20S , 5021367	-------	0.59	18.8	16/16/16

Len (ft)	Max OD (in)	String Components
5324.80	6.750	Hughes GT-20S , Reamer - 3 Pt, Stabilizer, Short Drill Collar, Stabilizer, NMDC, Stabilizer, Drill Collar, Drilling Jars - Hydraulic, Drill Collar, Drill Pipe

Drilling Parameters: 320.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr	Int ROP (ft/hr)	Flow Rate (gpm)
11	5,765.0	6,085.0	320.0	17.00	17.00	18.8	

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
40	80		147	152	145		

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Directional Surveys: SINGLE SHOT

Description	Survey Company
SINGLE SHOT	Patterson Crew

Survey Data

MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)
6,030.00	2.50	343.00	6,026.77	162.08	-45.29	-45.29	0.12

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	**Cum. Cost To Date**
[redacted]	[redacted]
Daily Mud Cost	**Mud Additive Cost To Date**
[redacted]	[redacted]
Depth Start (ftKB)	**Depth End (ftKB)**
5,700.0	6,085.0
Depth Progress (ftKB)	**Drilling Time (hrs)**
385.0	24.25

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Mel Knezevich, Drilling Foreman
Rod Cuthill, Drilling Foreman
Mark Moennich, Drilling Sup't
Randy Hackford, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3
Rig Supervisor: John Day, Tool Pusher

Rigs: Patterson U.T.I, 104
Rig Supervisor: Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	13 5/8	1,500.0
Annular Preventers	11	1,500.0

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA MUD ENG LIVING ALLOWANCE	1.0	35
BARIOD USA MUD CHECK	1.0	200
BAROID USA BARA DEFOAM	1.0	115
BAROID USA EZ-MUD	4.0	186
BAROID USA BARACAT	4.0	320
BAROID USA DIAMONIAM PHOSPHATE	150.0	2,160

Formation Pick Groups: Drilling Sam...

Formation Picks Group: Drilling Sample

Name	Top (ftKB)
Bluegate	5,672.0
Emery	4,280.0
Mancos	3,073.0
Star Point	2,700.0
Blackhawk	1,700.0

Talisman Energy Canada - Daily Drilling Report

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Date: 11/30/2002, Report: 34.0, DFS: 34.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Intermediate Casing, 4,413.0ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
11/26/2002	9 5/8	J-55	36.00

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CONFIDENTIAL

Talon Resources, Inc.

Service, Quality and Accuracy

P.O. Box 1230
195 North 100 West
Huntington, Utah 84528
Phone: 435-687-5310

Cell: 435-650-1886
Fax: 435-687-5311
Email: talon@etv.net

RECEIVED

DIV. OF OIL, GAS & MINING

December 13, 2002

Mr. Eric Jones
Petroleum Engineer
Bureau of Land Management
82 East Dogwood
Moab, Utah 84532

RE: Sundry Notice (Weekly Drilling Reports)—Fortuna (US), Inc.
Middle Mountain #21-16— 1,309' FSL, 834' FEL
Section 21, T16S, R6E, SLB&M, Emery County, Utah 43-015-30436

Dear Mr. Jones:

On behalf of Fortuna (US), Inc. Talon Resources, Inc. respectfully submits the enclosed original and two copies of the *Sundry Notices* for the Middle Mountain #21-16 well on lands managed by the Manti La-Sal Forest Service.

Thank you for your timely consideration of the enclosed application. Please feel free to contact myself or Mr. Mel Knezevich of Fortuna (US), Inc. at 1-780-402-1296 if you have any questions or need additional information.

Sincerely,

Don Hamilton
Don Hamilton
Agent for Fortuna (US), Inc.

Enclosures

cc: Mr. Mike Kaminski, BLM—Price Field Office
Mr. Carter Reed, USDA Forest Service—Price SO
Mr. Tom Lloyd, USDA Forest Service—Ferron DO
Mrs. Diana Mason, Division of Oil, Gas and Mining
Mr. Arne Hamarsnes, Fortuna (US), Inc.
Mr. Mark Moenich, Fortuna (US), Inc.

FILE COPY

Form 3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
Budget Bureau No. 1004-0135
Expires: March 31, 1993

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to deepen or reentry to a different reservoir.
Use "APPLICATION FOR PERMIT–" for such proposals

SUBMIT IN TRIPLICATE

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1. Type of Well
☐ Oil ☒ Gas ☐

2. Name of Operator
Fortuna (US), Inc.

3. Address and Telephone No.
Suite 3400, 888 3rd Street SW, Calgary, Alberta T2P5C5 403-237-1163

4. Location of Well (Footage, Sec.,T., R:, M., or Survey Description)
1309' FSL, 834' FEL
SE/4 SE/4, Section 21, T16S, R6E, SLB&M

5. Lease Designation and Serial No.
UTU-77263

6. If Indian, Allottee or Tribe Name
N/A

7. If Unit or CA, Agreement Designation
N/A

8. Well Name and No.
Middle Mountain #21-16

9. API Well No.
43-015-30426

10. Field and Pool, or Exploratory Area
Wildcat

11. County or Parish, State
Emery County, Utah

12. **CHECK APPROPRIATE BOX(s) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA**

TYPE OF SUBMISSION	TYPE OF ACTION	
☐ Notice of Intent	☐ Change of Name	☐ Change of Plans
☒ Subsequent Report	☐ Recompletion	☐ New Construction
☐ Final Abandonment Notice	☐ Plugging Back	☐ Non-Routine Fracturing
	☐ Casing Repair	☐ Water Shut-Off
	☐ Altering Casing	☐ Conversion to Injection
	☒ Weekly Drilling Reports	☐ Dispose Water

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

Attached are the weekly drilling reports for the Middle Mountain #21-16 well

RECEIVED
DEC 16 2002
DIV. OF OIL, GAS & MINING

14. I hereby certify that the foregoing is true and correct

Signed Don Hamilton Don Hamilton Title Agent for Fortuna US Date December 13, 2002

(This space for Federal or State office use)

Approved by _____ Title _____ Date _____
Conditions of approval, if any:

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

Talisman Energy Canada - Daily Drilling Report

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Date: 12/4/2002, Report: 38.0, DFS: 38.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Weather	Road Condition	Hole Condition
Clear	Dry	Water floods/loss circ

Operations at Report Time
06:00 hrs Dec 05, drill ahead at 6950

Operations This Report Period
Drill ahead. Pump water away. Drill ahead.

Operations Next Report Period
Drill ahead. Fight water.

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Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	01:00	1.00	10	Rig Survey	Survey. Start with this report to Don Hamilton for week of Dec 09, 2002.
01:00	12:00	11.00	02	Drilling	Drill ahead.
12:00	13:00	1.00	05	Condition and/or Circulate mud	No returns, hole tight, stop drilling and unload hole. Lots of coal. Water everywhere.
13:00	14:45	1.75	02	Drilling	Drilling ahead. hole unloading . Hole is not tight.
14:45	15:15	0.50	10	Rig Survey	Survey at 6545
15:15	15:45	0.50	07	Rig Service	Rig service, set brakes.
15:45	20:00	4.25	02	Drilling	Drill ahead. Circulate 5 minutes prior to making connections. work pipe to check tight hole on each connection.
20:00	23:30	3.50	05	Condition and/or Circulate mud	Pit is full stop drilling, flood the hole and pump water away.
23:30	00:00	0.50	02	Drilling	Drill ahead and unload the hole. Water everywhere.

Drill Strings: BHA #11, Packed Hole

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
9	8 3/4in, GT-20S , 5021367	1-1-NO-A-1-0-NO-HP	0.59	31.7	16/16/16

Len (ft)	Max OD (in)	String Components
7082.85	6.750	Hughes GT-20S , Reamer - 3 Pt, Stabilizer, Short Drill Collar, Stabilizer, NMDC, Stabilizer, Drill Collar, Drilling Jars - Hydraulic, Drill Collar, Drill Pipe, Kelly

Drilling Parameters: 705.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr	Int ROP (ft/hr)	Flow Rate (gpm)
11	6,085.0	6,790.0	1,025.0	17.50	34.50	40.3	

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
40	80	350.0	147	152	145		

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Directional Surveys: SINGLE SHOT

Description	Survey Company
SINGLE SHOT	Patterson Crew

Survey Data

MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)
6,545.00	1.75	328.00	6,541.41	179.49	-52.74	-52.74	0.18

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	Cum. Cost To Date
[redacted]	[redacted]
Daily Mud Cost	Mud Additive Cost To Date
[redacted]	[redacted]
Depth Start (ftKB)	Depth End (ftKB)
6,085.0	6,790.0
Depth Progress (ftKB)	Drilling Time (hrs)
705.0	17.50

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Rod Cuthill, Drilling Foreman
Mel Knezevich, Drilling Foreman
Mark Moennich, Drilling Sup't
Randy Hackford, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3

Rig Supervisor
John Day, Tool Pusher

Rigs: Patterson U.T.I, 104

Rig Supervisor
Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	13 5/8	1,500.0
Annular Preventers	11	1,500.0

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA ALUMINIUM STEARATE	1.0	51
BAROID USA MUD ENG LIVING ALLOWANCE	1.0	35
BARIOD USA MUD CHECK	1.0	200
BAROID USA BARA DEFOAM	3.0	345
BAROID USA SODA ASH	4.0	30
BAROID USA EZ-MUD	4.0	186
BAROID USA BARACAT	7.0	560
BAROID USA DIAMONIAM PHOSPHATE	236.0	3,398

Formation Pick Groups: Drilling Sam...

Formation Picks Group
Drilling Sample

Name	Top (ftKB)
Bluegate	5,672.0
Emery	4,280.0

Well Name: FORTUNA MIDDLE M JNTAIN #21-16 D : 12/4/2002, Report: 38.0, DFS: 38.00

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Name	Top (ftKB)
Mancos	3,073.0
Star Point	2,700.0
Blackhawk	1,700.0

Intermediate Casing, 4,413.0ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
11/26/2002	9 5/8	J-55	36.00

Talisman Energy Canada - Daily Drilling Report

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Date: 12/5/2002, Report: 39.0, DFS: 39.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	**Cum. Cost To Date**
[redacted]	[redacted]
Daily Mud Cost	**Mud Additive Cost To Date**
[redacted]	[redacted]
Depth Start (ftKB)	**Depth End (ftKB)**
6,790.0	7,073.0
Depth Progress (ftKB)	**Drilling Time (hrs)**
283.0	6.75

Daily Summary

Weather	Road Condition	Hole Condition
Clear	Dry	Water floods/loss circ/tight

Operations at Report Time

06:00 hrs Dec 06, ream to bottom @ 6800 ft.

Operations This Report Period

Pump pit down. Regain circ. Drill ahead. Back ream 300 ft. Trip out and lay down packed assembly. Run in to the shoe open ended. Mix and pump LCM slugs.

Operations Next Report Period

Heal losses. Tip for assembly and drill ahead.

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Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	02:45	2.75	05	Condition and/or Circulate mud	Pump reserve pit down. work pipe. Drilling blind causes tight hole. Unload hole to start drilling.
02:45	09:30	6.75	02	Drilling	Drill ahead. Pit is full. Information is poor due to aerated water circulating. Hole condition is not very good either. Mud up decision made.
09:30	11:30	2.00	03	Reaming	Back ream 300 ft of tight hole.
11:30	15:30	4.00	06	Tripping	Trip out and lay down packed assembly.
15:30	16:30	1.00	06	Tripping	Trip in open ended to the shoe.
16:30	00:00	7.50	05	Condition and/or Circulate mud	Mix and pump LCM slugs to fill the hole. Hole filled up with 500 bbls of fluid. It should take 540 bbls if it were empty. Pressured up to 200 psi on the annulas. It bled off slowly. LCM content 25%.

Drill Strings: BHA #11, Packed Hole

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
9	8 3/4in, GT-20S , 5021367	1-1-NO-A-1-0-NO-HP	0.59	31.7	16/16/16

Len (ft)	Max OD (in)	String Components
7082.85	6.750	Hughes GT-20S , Reamer - 3 Pt, Stabilizer, Short Drill Collar, Stabilizer, NMDC, Stabilizer, Drill Collar, Drilling Jars - Hydraulic, Drill Collar, Drill Pipe, Kelly

Drilling Parameters: 283.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr	Int ROP (ft/hr)	Flow Rate (gpm)
11	6,790.0	7,073.0	1,308.0	6.75	41.25	41.9	

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
40	80	350.0	147	152	145		

Drill Strings: BHA #12, Packed Hole

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
9RR	8 3/4in, GT-20S , 5021367	-------	0.59	14.5	16/16/16

Len (ft)	Max OD (in)	String Components
7300.03	6.750	Hughes GT-20S , Reamer - 3 Pt, Stabilizer, Short Drill Collar, Stabilizer, NMDC, Stabilizer, Drill Collar, Drilling Jars - Hydraulic, Drill Collar, Drill Pipe, Kelly

Drilling Parameters: 0.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr	Int ROP (ft/hr)	Flow Rate (gpm)
12	7,073.0	7,073.0	0.0	0.00	0.00		

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Directional Surveys: SINGLE SHOT

Description	Survey Company
SINGLE SHOT	Patterson Crew

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Rod Cuthill, Drilling Foreman
Mel Knezevich, Drilling Foreman
Mark Moennich, Drilling Sup't
Don Helms, Mud Engineer
Roger Bromley, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3

Rig Supervisor: John Day, Tool Pusher

Rigs: Patterson U.T.I, 104

Rig Supervisor: Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

Pump Checks

P (psi)	Slow Spd	Strokes (strokes/min)	Eff (%)
1,200.0	No	50	90
290.0	No	26	90

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

Pump Checks

P (psi)	Slow Spd	Strokes (strokes/min)	Eff (%)
1,200.0	No	50	90
260.0	Yes	50	31

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	13 5/8	1,500.0
Annular Preventers	11	1,500.0

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA QUICK GEL	-8.0	-23
BAROID USA FUMARIC ACID	-7.0	-448
BAROID USA SODA ASH	-1.0	-7
BAROID USA BARACOR 700	-1.0	-883
BAROID USA MUD ENG LIVING ALLOWANCE	1.0	35
BARIOD USA MUD CHECK	1.0	200

Talisman Energy Canada - Daily Drilling Report

Well Name: FORTUNA MIDDLE M. ...NTAIN #21-16 **D. . 12/5/2002, Report: 39.0, DFS: 39.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA MUD TRANSPORT	24.0	1,800
BAROID USA MICA FINE	48.0	528
BAROID USA MICA COURSE	48.0	528
BAROID USA WALNUT MEDIUM	48.0	487
BAROID USA WALNUT COURSE	48.0	487
BAROID USA JELFLAKE	50.0	1,640
BAROID USA BARO SEAL COURSE	50.0	700
BAROID USA BARO SEAL MEDIUM	50.0	700
BAROID USA COTTONSEED HULLS	80.0	1,276
BAROID USA SAWDUST	100.0	475
BAROID USA QUICK FOAM	150.0	16,955
BAROID USA QUICK GEL	429.0	1,223
BAROID USA DIAMONIAM PHOSPHATE	597.0	8,597

Formation Pick Groups: Drilling Sam...

Formation Picks Group
Drilling Sample

Name	Top (ftKB)
Bluegate	5,672.0
Emery	4,280.0
Mancos	3,073.0
Star Point	2,700.0
Blackhawk	1,700.0

Intermediate Casing, 4,413.0ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
11/26/2002	9 5/8	J-55	36.00

Talisman Energy Canada - Daily Drilling Report

Well Name: FORTUNA MIDDLE M[illegible]NTAIN #21-16 **D[illegible] 12/6/2002, Report: 40.0, DFS: 40.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Weather	Road Condition	Hole Condition
Clear	Dry	Good

Operations at Report Time
06:00 hrs Dec 07, Drill ahead @ 7310 ft

Operations This Report Period
6750. Ream to bottom. Drill ahead screening out LCM.

Operations Next Report Period
Drill ahead.

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	02:15	2.25	05	Condition and/or Circulate mud	Mix and pump LCM @ the shoe 4413 ft. Bottom hole @ 7073 ft. Aquire circulation.
02:15	05:30	3.25	06	Tripping	Trip out. Make up BHA and trip in to 6750 ft.
05:30	06:45	1.25	03	Reaming	Ream to bottom. No tight hole.
06:45	12:30	5.75	02	Drilling	Drill ahead. 7073 ft to 7145 ft.
12:30	13:00	0.50	10	Rig Survey	Survey
13:00	00:00	11.00	02	Drilling	Drill ahead. 7145 ft to 7288 ft.

Mud Checks: 7,112.0ftKB, 12/5/2002 10:15

Type	Date	Depth (ftKB)	T(fl) (°F)	Density (lb/gal)	Vis (s/qt)	Plas Vis (cp)
Gel-Chem	12/5/2002 10:15	7,112.0	66.0	8.5	42	11.0

Yield Point (cp)	gel 10 sec (cp)	gel 10 min (cp)	Filtrate (mL/30min)	HTHP Filt (mL/30min)	Filter Cake (in)	MBT (lb/bbl)
11.0	6.0	11.0	16.2		2.000	18.5

Lime (lb/bbl)	pH	Pm (mL/mL)	Pf (mL/mL)	Calcium (mg/L)	Potassium (mg/L)	Polymer (lb/gal)
	8.5			20.000		

Chlorides (mg/L)	Sand (%)	Solids (%)	Percent Oil (%)	Percent Water (%)	LG Solids (%)	Electric Stab (V)
400.000					1.2	

Drill Strings: BHA #12, Packed Hole

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
9RR	8 3/4in, GT-20S , 5021367	-------	0.59	14.5	16/16/16

Len (ft)	Max OD (in)	String Components
7300.03	6.750	Hughes GT-20S , Reamer - 3 Pt, Stabilizer, Short Drill Collar, Stabilizer, NMDC, Stabilizer, Drill Collar, Drilling Jars - Hydraulic, Drill Collar, Drill Pipe, Kelly

Drilling Parameters: 215.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr	Int ROP (ft/hr)	Flow Rate (gpm)
12	7,073.0	7,288.0	215.0	16.75	16.75	12.8	440

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
40	80	1,500.0	165	180	162		

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Directional Surveys: SINGLE SHOT

Description	Survey Company
SINGLE SHOT	Patterson Crew

Survey Data

MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)
7,105.00	0.75	13.00	7,101.28	190.32	-56.45	-56.45	0.24

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	**Cum. Cost To Date**
[redacted]	[redacted]
Daily Mud Cost	**Mud Additive Cost To Date**
[redacted]	[redacted]
Depth Start (ftKB)	**Depth End (ftKB)**
7,073.0	7,288.0
Depth Progress (ftKB)	**Drilling Time (hrs)**
215.0	16.75

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Mel Knezevich, Drilling Foreman
Rod Cuthill, Drilling Foreman
Mark Moennich, Drilling Sup't
Don Helms, Mud Engineer
Roger Bromley, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3
Rig Supervisor
John Day, Tool Pusher

Rigs: Patterson U.T.I, 104
Rig Supervisor
Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	13 5/8	1,500.0
Annular Preventers	11	1,500.0

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA MUD ENG LIVING ALLOWANCE	1.0	35
BARIOD USA MUD CHECK	1.0	200

Formation Pick Groups: Drilling Sam...

Formation Picks Group
Drilling Sample

Name	Top (ftKB)
Bluegate	5,672.0
Emery	4,280.0
Mancos	3,073.0
Star Point	2,700.0
Blackhawk	1,700.0

Intermediate Casing, 4,413.0ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
11/26/2002	9 5/8	J-55	36.00

Talisman Energy Canada - Daily Drilling Report

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Date: 12/7/2002, Report: 41.0, DFS: 41.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Weather	Road Condition	Hole Condition
Clear	Dry	Good

Operations at Report Time
06:00 hrs Dec 08, drill ahead @ 7550 ft

Operations This Report Period
Drill ahead. Cure lost circulation. Drill ahead. Cure lost circulation.

Operations Next Report Period
Cure lost circulation and drill ahead.

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	01:00	1.00	02	Drilling	Drill ahead 7288 ft to 7303 ft..
01:00	05:00	4.00	05	Condition and/or Circulate mud	Lost circulation @ 7303 ft. Mix and pump lcm pills to regain circulation.
05:00	14:30	9.50	02	Drilling	Regained circulation with 800 bbls @ 25% plus LCM. Drill ahead 7303 ft to 7455 ft. screening out excess LCM. Hole became tight.
14:30	17:45	3.25	06	Tripping	Wiper trip due to tight hole. Trip up to the top of the Bluegate at 5672 ft.
17:45	18:45	1.00	02	Drilling	Drill ahead 7455 ft to 7473 ft.
18:45	00:00	5.25	05	Condition and/or Circulate mud	Complete losses @ 7473 ft. Build volume and slug with 800 bbls @ 25% LCM. We were healing the losses with pills and screening out the lcm to catch good samples. We will now drill ahead with LCM present and try to get enough sample for the Geologist. Drill ahead Lost circ

Mud Checks: 7,400.0ftKB, 12/7/2002 00:00

Type	Date	Depth (ftKB)	T(fl) (°F)	Density (lb/gal)	Vis (s/qt)	Plas Vis (cp)
Gel-Chem	12/7/2002 00:00	7,400.0	80.0	8.8		

Yield Point (cp)	gel 10 sec (cp)	gel 10 min (cp)	Filtrate (mL/30min)	HTHP Filt (mL/30min)	Filter Cake (in)	MBT (lb/bbl)

Lime (lb/bbl)	pH	Pm (mL/mL)	Pf (mL/mL)	Calcium (mg/L)	Potassium (mg/L)	Polymer (lb/gal)
	8.0	0.000				

Chlorides (mg/L)	Sand (%)	Solids (%)	Percent Oil (%)	Percent Water (%)	LG Solids (%)	Electric Stab (V)

Drill Strings: BHA #12, Packed Hole

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
9RR	8 3/4in, GT-20S , 5021367	-------	0.59	14.5	16/16/16

Len (ft)	Max OD (in)	String Components
7300.03	6.750	Hughes GT-20S , Reamer - 3 Pt, Stabilizer, Short Drill Collar, Stabilizer, NMDC, Stabilizer, Drill Collar, Drilling Jars - Hydraulic, Drill Collar, Drill Pipe, Kelly

Drilling Parameters: 185.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr	Int ROP (ft/hr)	Flow Rate (gpm)
12	7,288.0	7,473.0	400.0	11.50	28.25	16.1	440

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
40	80	1,500.0	165	180	162		

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Directional Surveys: SINGLE SHOT

Description	Survey Company
SINGLE SHOT	Patterson Crew

AFE No.	Total AFE Amt ($)
37511	[redacted]

Daily Cost Total	Cum. Cost To Date
[redacted]	[redacted]

Daily Mud Cost	Mud Additive Cost To Date
[redacted]	[redacted]

Depth Start (ftKB)	Depth End (ftKB)
7,288.0	7,473.0

Depth Progress (ftKB)	Drilling Time (hrs)
185.0	11.50

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Mel Knezevich, Drilling Foreman
Rod Cuthill, Drilling Foreman
Mark Moennich, Drilling Sup't
Don Helms, Mud Engineer
Roger Bromley, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3

Rig Supervisor
John Day, Tool Pusher

Rigs: Patterson U.T.I, 104

Rig Supervisor
Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	13 5/8	1,500.0
Annular Preventers	11	1,500.0

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA DESCO CHROME FREE	8.0	349
BAROID USA SODA ASH	9.0	67
BAROID USA MUD TRANSPORT	10.0	750
BAROID USA CAUSTIC SODA	13.0	500
BAROID USA BARO SEAL COURSE	40.0	560
BAROID USA PLUG-GIT	48.0	901
BAROID USA JELFLAKE	150.0	4,920
BAROID USA COTTONSEED HULLS	153.0	2,440
BAROID USA QUICK GEL	203.0	579

Formation Pick Groups: Drilling Sam...

Formation Picks Group
Drilling Sample

Well Name: FORTUNA MIDDLE M NTAIN #21-16 D 12/7/2002, Report: 41.0, DFS: 41.00

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Name	Top (ftKB)
Bluegate	5,672.0
Emery	4,280.0
Mancos	3,073.0
Star Point	2,700.0
Blackhawk	1,700.0

Intermediate Casing, 4,413.0ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
11/26/2002	9 5/8	J-55	36.00

Talisman Energy Canada - Daily Drilling Report

Well Name: FORTUNA MIDDLE M[illegible]NTAIN #21-16 **D[illegible] 12/8/2002, Report: 42.0, DFS: 42.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Weather	Road Condition	Hole Condition
Clear	Dry	Good

Operations at Report Time
06:00 hrs Dec 09, loss circ @ 7709 ft.

Operations This Report Period
Drill ahead. Circulate sample. Drill ahead. Mix and pump LCM.

Operations Next Report Period
Cure losses and drill ahead.

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	01:30	1.50	05	Condition and/or Circulate mud	Mix mud and LCM. Pump and regain circulation @ 7473 ft. 800 bbls @ 25% LCM.
01:30	14:00	12.50	02	Drilling	Drill ahead with LCM in the system. Bypass shakers and set up a sample recovery barrel water flood system to get samples.Flood shaker box with only a small amount going over the shaker to allow for some gas readings.
14:00	16:00	2.00	05	Condition and/or Circulate mud	Circulate sample @ 7660 ft.
16:00	19:00	3.00	02	Drilling	False alarm, drill ahead from 7660 to 7709 ft.
19:00	00:00	5.00	05	Condition and/or Circulate mud	Lost circulation @ 7709 ft. Mix and pump LCM to heal losses, 750 bbls to midnight.

Drill Strings: BHA #12, Packed Hole

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
9RR	8 3/4in, GT-20S , 5021367	-------	0.59	14.5	16/16/16

Len (ft)	Max OD (in)	String Components
7300.03	6.750	Hughes GT-20S , Reamer - 3 Pt, Stabilizer, Short Drill Collar, Stabilizer, NMDC, Stabilizer, Drill Collar, Drilling Jars - Hydraulic, Drill Collar, Drill Pipe, Kelly

Drilling Parameters: 236.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr	Int ROP (ft/hr)	Flow Rate (gpm)
12	7,473.0	7,709.0	636.0	15.50	43.75	15.2	440

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
40	80	1,600.0	170	185	168		

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Directional Surveys: SINGLE SHOT

Description	Survey Company
SINGLE SHOT	Patterson Crew

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	Cum. Cost To Date
[redacted]	[redacted]
Daily Mud Cost	Mud Additive Cost To Date
[redacted]	[redacted]
Depth Start (ftKB)	Depth End (ftKB)
7,473.0	7,709.0
Depth Progress (ftKB)	Drilling Time (hrs)
236.0	15.50

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Rod Cuthill, Drilling Foreman
Mel Knezevich, Drilling Foreman
Mark Moennich, Drilling Sup't
Don Helms, Mud Engineer
Roger Bromley, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3

Rig Supervisor
John Day, Tool Pusher

Rigs: Patterson U.T.I, 104

Rig Supervisor
Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

Pump Checks

P (psi)	Slow Spd	Strokes (strokes/min)	Eff (%)
1,600.0	No	50	90

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

Pump Checks

P (psi)	Slow Spd	Strokes (strokes/min)	Eff (%)
1,600.0	No	50	90

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	13 5/8	1,500.0
Annular Preventers	11	1,500.0

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA QUICK FOAM	-36.0	-4,069
BARIOD USA MUD CHECK	1.0	200
BAROID USA CAUSTIC SODA	8.0	308
BAROID USA SAPP	9.0	865
BAROID USA MUD TRANSPORT	10.0	750
BAROID USA HC2	31.0	2,311
BAROID USA MICA COURSE	48.0	528
BAROID USA PLUG-GIT	48.0	901

Well Name: FORTUNA MIDDLE M .NTAIN #21-16 **D. 12/8/2002, Report: 42.0, DFS: 42.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA BARO SEAL COURSE	200.0	2,800
BAROID USA QUICK GEL	271.0	772
BAROID USA MUD ENG LIVING ALLOWANCE	2.0	70
BAROID USA SAWDUST	100.0	475

Formation Pick Groups: Drilling Sam...

Formation Picks Group: Drilling Sample

Name	Top (ftKB)
Bluegate	5,672.0
Emery	4,280.0
Mancos	3,073.0
Star Point	2,700.0
Blackhawk	1,700.0

Intermediate Casing, 4,413.0ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
11/26/2002	9 5/8	J-55	36.00

Talisman Energy Canada - Daily Drilling Report

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Dol: 12/9/2002, Report: 43.0, DFS: 43.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Weather	Road Condition	Hole Condition
Clear	Dry	Loss circ and tight.

Operations at Report Time
06:00 hrs Dec 10, Circ and cond for logs.

Operations This Report Period
Cure losses. Work tight hole. Trip assembly. Cure losses. Trip in to drill.

Operations Next Report Period
Clean to bottom and drill ahead.

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	03:45	3.75	05	Condition and/or Circulate mud	Mix and pump 250 bbls of LCM @ 25%.
03:45	07:15	3.50	06	Tripping	Wiper trip. Hole very tight. Pull from 7709 to 7425 ft. Hole was very tight form 7425 to 7267 ft.
07:15	12:00	4.75	06	Tripping	Trip out to lay down packed assembly. Run to the shoe with open nozzel bit. Mix and pump LCM to cure losses.
12:00	14:30	2.50	06	Tripping	Trip in to the shoe to regain circulation.
14:30	19:30	5.00	05	Condition and/or Circulate mud	Mix and pump LCM. Mud is 45% LCM by volume and circulation has been regained.
19:30	21:00	1.50	09	Cut/Slip Drilling Line	Slip and cut line.
21:00	23:00	2.00	06	Tripping	Trip in to drill ahead.
23:00	00:00	1.00	03	Reaming	Bridge at 7480 ft. Not a serious bridge, it remed easily. Wash to bottom.

Mud Checks: 7,709.0ftKB, 12/9/2002 00:00

Type	Date	Depth (ftKB)	T(fl) (°F)	Density (lb/gal)	Vis (s/qt)	Plas Vis (cp)
Gel-Chem	12/9/2002 00:00	7,709.0		8.5	43	10.0

Yield Point (cp)	gel 10 sec (cp)	gel 10 min (cp)	Filtrate (mL/30min)	HTHP Filt (mL/30min)	Filter Cake (in)	MBT (lb/bbl)
10.0	4.0	9.0				

Lime (lb/bbl)	pH	Pm (mL/mL)	Pf (mL/mL)	Calcium (mg/L)	Potassium (mg/L)	Polymer (lb/gal)
	8.2					

Chlorides (mg/L)	Sand (%)	Solids (%)	Percent Oil (%)	Percent Water (%)	LG Solids (%)	Electric Stab (V)

Drill Strings: BHA #12, Packed Hole

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
9RR	8 3/4in, GT-20S , 5021367	2-2-NO-A-1-0-NO-HP	0.59	14.5	16/16/16

Len (ft)	Max OD (in)	String Components
7300.03	6.750	Hughes GT-20S , Reamer - 3 Pt, Stabilizer, Short Drill Collar, Stabilizer, NMDC, Stabilizer, Drill Collar, Drilling Jars - Hydraulic, Drill Collar, Drill Pipe, Kelly

Drilling Parameters: 0.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr	Int ROP (ft/hr)	Flow Rate (gpm)
12	7,709.0	7,709.0	636.0	0.00	43.75		440

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
40	80	1,600.0	170	185	168		

Drill Strings: BHA #13, Slick

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
9RR	8 3/4in, GT-20S , 5021367	2-2-NO-A-1-0-NO-TD	2.36	10.0	32/32/32

Len (ft)	Max OD (in)	String Components
7719.15	6.750	Hughes GT-20S , Bit Sub, Drill Collar, Drilling Jars - Hydraulic, Drill Collar, Drill Pipe, Kelly

Drilling Parameters: 0.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr	Int ROP (ft/hr)	Flow Rate (gpm)
13	7,709.0	7,709.0	0.0	0.00	0.00		252

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
40	60	200.0	172	176	168		

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Directional Surveys: SINGLE SHOT

Description	Survey Company
SINGLE SHOT	Patterson Crew

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	**Cum. Cost To Date**
[redacted]	[redacted]
Daily Mud Cost	**Mud Additive Cost To Date**
[redacted]	[redacted]
Depth Start (ftKB)	**Depth End (ftKB)**
7,709.0	7,709.0
Depth Progress (ftKB)	**Drilling Time (hrs)**
0.0	0.00

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Mel Knezevich, Drilling Foreman
Rod Cuthill, Drilling Foreman
Mark Moennich, Drilling Sup't
Don Helms, Mud Engineer
Roger Bromley, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3

Rig Supervisor
John Day, Tool Pusher

Rigs: Patterson U.T.I, 104

Rig Supervisor
Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	13 5/8	1,500.0
Annular Preventers	11	1,500.0

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA PAC-R	1.0	109
BAROID USA SODA ASH	3.0	22
BAROID USA CAUSTIC SODA	3.0	115
BAROID USA MUD TRANSPORT	20.0	1,500
BAROID USA QUICK GEL	72.0	205
BAROID USA PLUG-GIT	110.0	2,066
BAROID USA COTTONSEED HULLS	145.0	2,313
BAROID USA BARO SEAL MEDIUM	175.0	2,450

Formation Pick Groups: Drilling Sam...

Formation Picks Group
Drilling Sample

Name	Top (ftKB)
Ferron	7,667.0
Bluegate	5,672.0

Well Name: FORTUNA MIDDLE M JNTAIN #21-16 D : 12/9/2002, Report: 43.0, DFS: 43.00

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Name	Top (ftKB)
Emery	4,280.0
Mancos	3,073.0
Star Point	2,700.0

Intermediate Casing, 4,413.0ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
11/26/2002	9 5/8	J-55	36.00

Talisman Energy Canada - Daily Drilling Report

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Date: 12/10/2002, Report: 44.0, DFS: 44.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	**Cum. Cost To Date**
[redacted]	[redacted]
Daily Mud Cost	**Mud Additive Cost To Date**
[redacted]	[redacted]
Depth Start (ftKB)	**Depth End (ftKB)**
7,709.0	7,719.0
Depth Progress (ftKB)	**Drilling Time (hrs)**
10.0	1.00

Daily Summary

Weather	Road Condition	Hole Condition
Clear	Dry	Loss circ and tight.

Operations at Report Time
06:00 hrs Dec 11, log bridge at 7256 ft.

Operations This Report Period
Wash to bottom . Drill ahead. Circ sample. Condition hole trip out and log.

Operations Next Report Period
Log hole, strap in, condition and trip to VSP.

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	02:45	2.75	03	Reaming	Wash to bottom.
02:45	03:45	1.00	02	Drilling	Drill to 7719
03:45	13:00	9.25	05	Condition and/or Circulate mud	Circulate and condition hole.
13:00	20:00	7.00	06	Tripping	Trip out to log.
20:00	00:00	4.00	11	Wireline Logs	Rig in loggers and log.

Drill Strings: BHA #13, Slick

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
9RR	8 3/4in, GT-20S , 5021367	2-2-NO-A-1-0-NO-TD	2.36	10.0	32/32/32

Len (ft)	Max OD (in)	String Components
7719.15	6.750	Hughes GT-20S , Bit Sub, Drill Collar, Drilling Jars - Hydraulic, Drill Collar, Drill Pipe, Kelly

Drilling Parameters: 10.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr)	Int ROP (ft/hr)	Flow Rate (gpm)
13	7,709.0	7,719.0	10.0	1.00	1.00	10.0	252

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
40	60	280.0	172	176	168		

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Directional Surveys: SINGLE SHOT

Description	Survey Company
SINGLE SHOT	Patterson Crew

Survey Data

MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)
7,670.00	1.00	103.00	7,666.24	192.81	-50.81	-50.81	0.22

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Mel Knezevich, Drilling Foreman
Rod Cuthill, Drilling Foreman
Mark Moennich, Drilling Sup't
Don Helms, Mud Engineer
Roger Bromley, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3
Rig Supervisor: John Day, Tool Pusher

Rigs: Patterson U.T.I, 104
Rig Supervisor: Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

Pump Checks

P (psi)	Slow Spd	Strokes (strokes/min)	Eff (%)
0.0	No	0	90

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

Pump Checks

P (psi)	Slow Spd	Strokes (strokes/min)	Eff (%)
280.0	No	60	90

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	13 5/8	1,500.0
Annular Preventers	11	1,500.0

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA PAC-R	2.0	218
BAROID USA PLUG-GIT	30.0	563
BAROID USA REGULAR BARITE	50.0	182
BAROID USA BARO SEAL COURSE	80.0	1,120

Formation Pick Groups: Drilling Sam...

Formation Picks Group: Drilling Sample

Name	Top (ftKB)
Ferron	7,667.0
Bluegate	5,672.0
Emery	4,280.0

Well Name: FORTUNA MIDDLE M NTAIN #21-16 Da 12/10/2002, Report: 44.0, DFS: 44.00

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Name	Top (ftKB)
Mancos	3,073.0
Star Point	2,700.0

Intermediate Casing, 4,413.0ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
11/26/2002	9 5/8	J-55	36.00

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Da 12/11/2002, Report: 45.0, DFS: 45.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Weather	Road Condition	Hole Condition
Cloudy	Dry	Good

Operations at Report Time

06:00 hrs Dec 12, Circ and cond hole to log.

Operations This Report Period

Log from Bridge at 7256 ft to 4413 ft. Trip in to clean out. Plugged bit with LCM. Trip and unplug jets. Trip in and clean out. Ream and wash from 7256 ft to 7500ft.

Operations Next Report Period

Ream wash to bottom from 7500 ft. Circ,wiper trip,circ, trip to log, log.

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	07:00	7.00	11	Wireline Logs	Run FMI to bridge at 7256 ft and log out. Lay down tools for clean out.
07:00	21:00	14.00	06	Tripping	Trip in to 4500 ft. Bit plugged with LCM. Trip out wet. Clean out BHA. Trip in to 7256 ft and tag bridge.
21:00	00:00	3.00	03	Reaming	Ream and wash to bottom. Pushing something ahead of the bit. Reaming at 7500 ft at 24:00 hrs.

Drill Strings: BHA #14, Slick

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
9RR	8 3/4in, GT-20S , 5021367	-------	2.36		32/32/32

Len (ft)	Max OD (in)	String Components
7689.57	6.750	Hughes GT-20S , Bit Sub, Drill Collar, Drilling Jars - Hydraulic, Drill Collar, Drill Pipe, Kelly

Drilling Parameters: 0.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr)	Int ROP (ft/hr)	Flow Rate (gpm)
14	7,690.0	7,690.0	0.0	0.00	0.00		252

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
0	50	500.0	168	172	164		

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Directional Surveys: SINGLE SHOT

Description	Survey Company
SINGLE SHOT	Patterson Crew

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	**Cum. Cost To Date**
[redacted]	[redacted]
Daily Mud Cost	**Mud Additive Cost To Date**
[redacted]	[redacted]
Depth Start (ftKB)	**Depth End (ftKB)**
7,719.0	7,690.0
Depth Progress (ftKB)	**Drilling Time (hrs)**
29.0	0.00

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Mel Knezevich, Drilling Foreman
Rod Cuthill, Drilling Foreman
Mark Moennich, Drilling Sup't
Don Helms, Mud Engineer
Randy Hackford, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3

Rig Supervisor: John Day, Tool Pusher

Rigs: Patterson U.T.I, 104

Rig Supervisor: Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	13 5/8	1,500.0
Annular Preventers	11	1,500.0

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA PAC-R	1.0	109
BAROID USA EZ-MUD	2.0	93
BAROID USA MUD ENG LIVING ALLOWANCE	3.0	105
BAROID USA ALDACIDE G	3.0	927
BARIOD USA MUD CHECK	3.0	600
BAROID USA CAUSTIC SODA	4.0	154
BAROID USA COTTONSEED HULLS	14.0	223
BAROID USA BARO SEAL COURSE	20.0	280
BAROID USA REGULAR BARITE	30.0	109
BAROID USA PLUG-GIT	75.0	1,409

Well Name: FORTUNA MIDDLE M JNTAIN #21-16 Da 12/11/2002, Report: 45.0, DFS: 45.00

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA BARO SEAL MEDIUM	115.0	1,610
BAROID USA QUICK GEL	122.0	348

Formation Pick Groups: Drilling Sam...

Formation Picks Group: Drilling Sample

Name	Top (ftKB)
Ferron	7,667.0
Bluegate	5,672.0
Emery	4,280.0
Mancos	3,073.0
Star Point	2,700.0

Intermediate Casing, 4,413.0ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
11/26/2002	9 5/8	J-55	36.00

CONFIDENTIAL

Talon Resources, Inc.

Service, Quality and Accuracy

P.O. Box 1230
195 North 100 West
Huntington, Utah 84528
Phone: 435-687-5310

Cell: 435-650-1886
Fax: 435-687-5311
Email: talon@etv.net

December 27, 2002

Mr. Eric Jones
Petroleum Engineer
Bureau of Land Management
82 East Dogwood
Moab, Utah 84532

RE: Sundry Notice (Weekly Drilling Reports)—Fortuna (US), Inc.
Middle Mountain #21-16— 1,309' FSL, 834' FEL
Section 21, T16S, R6E, SLB&M, Emery County, Utah 43-015-30426

Dear Mr. Jones:

On behalf of Fortuna (US), Inc. Talon Resources, Inc. respectfully submits the enclosed original and two copies of the *Sundry Notices* for the Middle Mountain #21-16 well on lands managed by the Manti La-Sal Forest Service.

Thank you for your timely consideration of the enclosed application. Please feel free to contact myself or Mr. Mel Knezevich of Fortuna (US), Inc. at 1-780-402-1296 if you have any questions or need additional information.

Sincerely,

Don Hamilton

Don Hamilton
Agent for Fortuna (US), Inc.

Enclosures

cc: Mr. Mike Kaminski, BLM—Price Field Office
Mr. Carter Reed, USDA Forest Service—Price SO
Mr. Tom Lloyd, USDA Forest Service—Ferron DO
Mrs. Carol Daniels, Division of Oil, Gas and Mining
Mr. Arne Hamarsnes, Fortuna (US), Inc.
Mr. Mark Moenich, Fortuna (US), Inc.

Form 3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
Budget Bureau No. 1004-0135
Expires: March 31, 1993

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to deepen or reentry to a different reservoir.
Use "APPLICATION FOR PERMIT--" for such proposals

SUBMIT IN TRIPLICATE

CONFIDENTIAL

1. Type of Well
☐ Oil ☒ Gas ☐

2. Name of Operator
Fortuna (US), Inc.

3. Address and Telephone No.
Suite 3400, 888 3rd Street SW, Calgary, Alberta T2P5C5 403-237-1163

4. Location of Well (Footage, Sec.,T., R:, M., or Survey Description)
1309' FSL, 834' FEL
SE/4 SE/4, Section 21, T16S, R6E, SLB&M

5. Lease Designation and Serial No.
UTU-77263

6. If Indian, Allottee or Tribe Name
N/A

7. If Unit or CA, Agreement Designation
N/A

8. Well Name and No.
Middle Mountain #21-16

9. API Well No.
43-015-30426

10. Field and Pool, or Exploratory Area
Wildcat

11. County or Parish, State
Emery County, Utah

12. **CHECK APPROPRIATE BOX(s) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA**

TYPE OF SUBMISSION	TYPE OF ACTION	
☐ Notice of Intent	☐ Change of Name	☐ Change of Plans
☒ Subsequent Report	☐ Recompletion	☐ New Construction
☐ Final Abandonment Notice	☐ Plugging Back	☐ Non-Routine Fracturing
	☐ Casing Repair	☐ Water Shut-Off
	☐ Altering Casing	☐ Conversion to Injection
	☒ Weekly Drilling Reports	☐ Dispose Water

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

Attached are the weekly drilling reports for the Middle Mountain #21-16 well

RECEIVED
JAN 0 2 2003
DIV. OF OIL, GAS & MINING

14. I hereby certify that the foregoing is true and correct

Signed Don Hamilton Don Hamilton Title Agent for Fortuna US Date December 27, 2002

(This space for Federal or State office use)

Approved by _____ Title _____ Date _____
Conditions of approval, if any:

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

Talisman Energy Canada - Daily Drilling Report

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Date: 12/9/2002, Report: 43.0, DFS: 43.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Weather	Road Condition	Hole Condition
Clear	Dry	Loss circ and tight.

Operations at Report Time
06:00 hrs Dec 10, Circ and cond for logs.

Operations This Report Period
Cure losses. Work tight hole. Trip assembly. Cure losses. Trip in to drill.

Operations Next Report Period
Clean to bottom and drill ahead.

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	03:45	3.75	05	Condition and/or Circulate mud	Mix and pump 250 bbls of LCM @ 25%.
03:45	07:15	3.50	06	Tripping	Wiper trip. Hole very tight. Pull from 7709 to 7425 ft. Hole was very tight form 7425 to 7267 ft.
07:15	12:00	4.75	06	Tripping	Trip out to lay down packed assembly. Run to the shoe with open nozzel bit. Mix and pump LCM to cure losses.
12:00	14:30	2.50	06	Tripping	Trip in to the shoe to regain circulation.
14:30	19:30	5.00	05	Condition and/or Circulate mud	Mix and pump LCM. Mud is 45% LCM by volume and circulation has been regained.
19:30	21:00	1.50	09	Cut/Slip Drilling Line	Slip and cut line.
21:00	23:00	2.00	06	Tripping	Trip in to drill ahead.
23:00	00:00	1.00	03	Reaming	Bridge at 7480 ft. Not a serious bridge, it remed easily. Wash to bottom.

Mud Checks: 7,709.0ftKB, 12/9/2002 00:00

Type	Date	Depth (ftKB)	T(fl) (°F)	Density (lb/gal)	Vis (s/qt)	Plas Vis (cp)
Gel-Chem	12/9/2002 00:00	7,709.0		8.5	43	10.0

Yield Point (cp)	gel 10 sec (cp)	gel 10 min (cp)	Filtrate (mL/30min)	HTHP Filt (mL/30min)	Filter Cake (in)	MBT (lb/bbl)
10.0	4.0	9.0				

Lime (lb/bbl)	pH	Pm (mL/mL)	Pf (mL/mL)	Calcium (mg/L)	Potassium (mg/L)	Polymer (lb/gal)
	8.2					

Chlorides (mg/L)	Sand (%)	Solids (%)	Percent Oil (%)	Percent Water (%)	LG Solids (%)	Electric Stab (V)

Drill Strings: BHA #12, Packed Hole

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
9RR	8 3/4in, GT-20S , 5021367	2-2-NO-A-1-0-NO-HP	0.59	14.5	16/16/16

Len (ft)	Max OD (in)	String Components
7300.03	6.750	Hughes GT-20S , Reamer - 3 Pt, Stabilizer, Short Drill Collar, Stabilizer, NMDC, Stabilizer, Drill Collar, Drilling Jars - Hydraulic, Drill Collar, Drill Pipe, Kelly

Drilling Parameters: 0.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr	Int ROP (ft/hr)	Flow Rate (gpm)
12	7,709.0	7,709.0	636.0	0.00	43.75		440

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
40	80	1,600.0	170	185	168		

Drill Strings: BHA #13, Slick

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
9RR	8 3/4in, GT-20S , 5021367	2-2-NO-A-1-0-NO-TD	2.36	10.0	32/32/32

Len (ft)	Max OD (in)	String Components
7719.15	6.750	Hughes GT-20S , Bit Sub, Drill Collar, Drilling Jars - Hydraulic, Drill Collar, Drill Pipe, Kelly

Drilling Parameters: 0.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr	Int ROP (ft/hr)	Flow Rate (gpm)
13	7,709.0	7,709.0	0.0	0.00	0.00		252

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
40	60	200.0	172	176	168		

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Directional Surveys: SINGLE SHOT

Description	Survey Company
SINGLE SHOT	Patterson Crew

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	**Cum. Cost To Date**
[redacted]	[redacted]
Daily Mud Cost	**Mud Additive Cost To Date**
[redacted]	[redacted]
Depth Start (ftKB)	**Depth End (ftKB)**
7,709.0	7,709.0
Depth Progress (ftKB)	**Drilling Time (hrs)**
0.0	0.00

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Rod Cuthill, Drilling Foreman
Mel Knezevich, Drilling Foreman
Mark Moennich, Drilling Sup't
Don Helms, Mud Engineer
Roger Bromley, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3

Rig Supervisor: John Day, Tool Pusher

Rigs: Patterson U.T.I, 104

Rig Supervisor: Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	11	1,500.0

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA PAC-R	1.0	109
BAROID USA SODA ASH	3.0	22
BAROID USA CAUSTIC SODA	3.0	115
BAROID USA MUD TRANSPORT	20.0	1,500
BAROID USA QUICK GEL	72.0	205
BAROID USA PLUG-GIT	110.0	2,066
BAROID USA COTTONSEED HULLS	145.0	2,313
BAROID USA BARO SEAL MEDIUM	175.0	2,450

Formation Pick Groups: Drilling Sam...

Formation Picks Group: Drilling Sample

Name	Top (ftKB)
Bluegate	5,672.0
Emery	4,280.0
Mancos	3,073.0

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Date: 12/9/2002, Report: 43.0, DFS: 43.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Name	Top (ftKB)
Star Point	2,700.0
Blackhawk	1,700.0

Intermediate Casing, 4,413.0ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
11/26/2002	9 5/8	J-55	36.00

Talisman Energy Canada - Daily Drilling Report

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 Date: 12/10/2002, Report: 44.0, DFS: 44.00

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Weather	Road Condition	Hole Condition
Clear	Dry	Loss circ and tight.

Operations at Report Time
06:00 hrs Dec 11, log bridge at 7256 ft.

Operations This Report Period
Wash to bottom . Drill ahead. Circ sample. Condition hole trip out and log.

Operations Next Report Period
Log hole, strap in, condition and trip to VSP.

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	02:45	2.75	03	Reaming	Wash to bottom.
02:45	03:45	1.00	02	Drilling	Drill to 7719
03:45	13:00	9.25	05	Condition and/or Circulate mud	Circulate and condition hole.
13:00	20:00	7.00	06	Tripping	Trip out to log.
20:00	00:00	4.00	11	Wireline Logs	Rig in loggers and log.

Drill Strings: BHA #13, Slick

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
9RR	8 3/4in, GT-20S , 5021367	2-2-NO-A-1-0-NO-TD	2.36	10.0	32/32/32

Len (ft)	Max OD (in)	String Components
7719.15	6.750	Hughes GT-20S , Bit Sub, Drill Collar, Drilling Jars - Hydraulic, Drill Collar, Drill Pipe, Kelly

Drilling Parameters: 10.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr)	Int ROP (ft/hr)	Flow Rate (gpm)
13	7,709.0	7,719.0	10.0	1.00	1.00	10.0	252

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
40	60	280.0	172	176	168		

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Directional Surveys: SINGLE SHOT

Description	Survey Company
SINGLE SHOT	Patterson Crew

Survey Data

MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)
7,670.00	1.00	103.00	7,666.24	192.81	-50.81	-50.81	0.22

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	**Cum. Cost To Date**
[redacted]	[redacted]
Daily Mud Cost	**Mud Additive Cost To Date**
[redacted]	[redacted]
Depth Start (ftKB)	**Depth End (ftKB)**
7,709.0	7,719.0
Depth Progress (ftKB)	**Drilling Time (hrs)**
10.0	1.00

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Mel Knezevich, Drilling Foreman
Rod Cuthill, Drilling Foreman
Mark Moennich, Drilling Sup't
Don Helms, Mud Engineer
Roger Bromley, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3

Rig Supervisor
John Day, Tool Pusher

Rigs: Patterson U.T.I, 104

Rig Supervisor
Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

Pump Checks

P (psi)	Slow Spd	Strokes (strokes/min)	Eff (%)
0.0	No	0	90

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

Pump Checks

P (psi)	Slow Spd	Strokes (strokes/min)	Eff (%)
280.0	No	60	90

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	11	1,500.0

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA PAC-R	2.0	218
BAROID USA PLUG-GIT	30.0	563
BAROID USA REGULAR BARITE	50.0	182
BAROID USA BARO SEAL COURSE	80.0	1,120

Formation Pick Groups: Drilling Sam...

Formation Picks Group
Drilling Sample

Name	Top (ftKB)
Bluegate	5,672.0
Emery	4,280.0
Mancos	3,073.0
Star Point	2,700.0

Tali[illegible]an Energy Canada - Daily Drillir Report

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Dat[illegible] 12/10/2002, Report: 44.0, DFS: 44.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Name	Top (ftKB)
Blackhawk	1,700.0

Intermediate Casing, 4,413.0ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
11/26/2002	9 5/8	J-55	36.00

Talisman Energy Canada - Daily Drilling Report

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Date: 12/11/2002, Report: 45.0, DFS: 45.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Weather	Road Condition	Hole Condition
Cloudy	Dry	Good

Operations at Report Time

06:00 hrs Dec 12, Circ and cond hole to log.

Operations This Report Period

Log from Bridge at 7256 ft to 4413 ft. Trip in to clean out. Plugged bit with LCM. Trip and unplug jets. Trip in and clean out. Ream and wash from 7256 ft to 7500ft.

Operations Next Report Period

Ream wash to bottom from 7500 ft. Circ,wiper trip,circ, trip to log, log.

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	07:00	7.00	11	Wireline Logs	Run FMI to bridge at 7256 ft and log out. Lay down tools for clean out.
07:00	21:00	14.00	06	Tripping	Trip in to 4500 ft. Bit plugged with LCM. Trip out wet. Clean out BHA. Trip in to 7256 ft and tag bridge.
21:00	00:00	3.00	03	Reaming	Ream and wash to bottom. Pushing something ahead of the bit. Reaming at 7500 ft at 24:00 hrs.

Drill Strings: BHA #14, Slick

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
9RR	8 3/4in, GT-20S , 5021367	2-2-NO-A-1-0-NO-TD	2.36		32/32/32

Len (ft)	Max OD (in)	String Components
7689.57	6.750	Hughes GT-20S , Bit Sub, Drill Collar, Drilling Jars - Hydraulic, Drill Collar, Drill Pipe, Kelly

Drilling Parameters: 0.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr)	Int ROP (ft/hr)	Flow Rate (gpm)
14	7,690.0	7,690.0	0.0	0.00	0.00		252

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
0	50	500.0	168	172	164		

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Directional Surveys: SINGLE SHOT

Description	Survey Company
SINGLE SHOT	Patterson Crew

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	**Cum. Cost To Date**
[redacted]	[redacted]
Daily Mud Cost	**Mud Additive Cost To Date**
[redacted]	[redacted]
Depth Start (ftKB)	**Depth End (ftKB)**
7,719.0	7,690.0
Depth Progress (ftKB)	**Drilling Time (hrs)**
29.0	0.00

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Mel Knezevich, Drilling Foreman
Rod Cuthill, Drilling Foreman
Mark Moennich, Drilling Sup't
Don Helms, Mud Engineer
Randy Hackford, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3

Rig Supervisor

John Day, Tool Pusher

Rigs: Patterson U.T.I, 104

Rig Supervisor

Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	11	1,500.0

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA PAC-R	1.0	109
BAROID USA EZ-MUD	2.0	93
BAROID USA MUD ENG LIVING ALLOWANCE	3.0	105
BAROID USA ALDACIDE G	3.0	927
BARIOD USA MUD CHECK	3.0	600
BAROID USA CAUSTIC SODA	4.0	154
BAROID USA COTTONSEED HULLS	14.0	223
BAROID USA BARO SEAL COURSE	20.0	280
BAROID USA REGULAR BARITE	30.0	109
BAROID USA PLUG-GIT	75.0	1,409

Talisman Energy Canada - Daily Drilling Report

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Date: 12/11/2002, Report: 45.0, DFS: 45.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA BARO SEAL MEDIUM	115.0	1,610
BAROID USA QUICK GEL	122.0	348

Formation Pick Groups: Drilling Sam...

Formation Picks Group: Drilling Sample

Name	Top (ftKB)
Bluegate	5,672.0
Emery	4,280.0
Mancos	3,073.0
Star Point	2,700.0
Blackhawk	1,700.0

Intermediate Casing, 4,413.0ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
11/26/2002	9 5/8	J-55	36.00

Talisman Energy Canada - Daily Drilling Report

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Date: 12/12/2002, Report: 46.0, DFS: 46.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	**Cum. Cost To Date**
[redacted]	[redacted]
Daily Mud Cost	**Mud Additive Cost To Date**
[redacted]	[redacted]
Depth Start (ftKB)	**Depth End (ftKB)**
7,690.0	7,690.0
Depth Progress (ftKB)	**Drilling Time (hrs)**
0.0	0.00

Daily Summary

Weather	Road Condition	Hole Condition
Clear	Dry	Good

Operations at Report Time
06:00 hrs Dec 13, VSP

Operations This Report Period
Ream/wash from 7500 to bottom. Circulate and condition hole. Wiper trip 900 ft. Circulate and condition. Pump slug, trip to log and log.

Operations Next Report Period
VSP, clean out and case.

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	02:15	2.25	03	Reaming	Wash / ream from 7500 ft to 7690 ft.
02:15	05:15	3.00	06	Tripping	Wiper trip 900 ft to 6800 ft.
05:15	08:30	3.25	05	Condition and/or Circulate mud	Circulate and condition hole. Mix and Pump weighted slug.
08:30	12:30	4.00	06	Tripping	Trip out to log. Chain out the first 900 ft.
12:30	12:30		11	Wireline Logs	Log with Schlumberger.

Mud Checks: 7,690.0ftKB, 12/12/2002 00:00

Type	Date	Depth (ftKB)	T(fl) (°F)	Density (lb/gal)	Vis (s/qt)	Plas Vis (cp)
Gel-Chem	12/12/2002 00:00	7,690.0		8.5	88	23.0
Yield Point (cp)	**gel 10 sec (cp)**	**gel 10 min (cp)**	**Filtrate (mL/30min)**	**HTHP Filt (mL/30min)**	**Filter Cake (in)**	**MBT (lb/bbl)**
19.0	6.0	30.0	10.0		2.000	
Lime (lb/bbl)	**pH**	**Pm (mL/mL)**	**Pf (mL/mL)**	**Calcium (mg/L)**	**Potassium (mg/L)**	**Polymer (lb/gal)**
	8.0		0.000	20.000		
Chlorides (mg/L)	**Sand (%)**	**Solids (%)**	**Percent Oil (%)**	**Percent Water (%)**	**LG Solids (%)**	**Electric Stab (V)**
600.000						

Drill Strings: BHA #14, Slick

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
9RR	8 3/4in, GT-20S , 5021367	2-2-NO-A-1-0-NO-TD	2.36		32/32/32

Len (ft)	Max OD (in)	String Components
7689.57	6.750	Hughes GT-20S , Bit Sub, Drill Collar, Drilling Jars - Hydraulic, Drill Collar, Drill Pipe, Kelly

Drilling Parameters: 0.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr)	Int ROP (ft/hr)	Flow Rate (gpm)
14	7,690.0	7,690.0	0.0		0.00		252
WOB (1000lbf)	**RPM (rpm)**	**SPP (psi)**	**Rot HL (1000lbf)**	**PU HL (1000lbf)**	**SO HL (1000lbf)**	**Drilling Torque**	**Off Btm Tq**
0	50	500.0	168	172	164		

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Directional Surveys: SINGLE SHOT

Description	Survey Company
SINGLE SHOT	Patterson Crew

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Mel Knezevich, Drilling Foreman
Mark Moennich, Drilling Sup't
Don Helms, Mud Engineer
Randy Hackford, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3

Rig Supervisor: John Day, Tool Pusher

Rigs: Patterson U.T.I, 104

Rig Supervisor: Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197
Liner Size (in)	**Stroke (in)**	**V/Stk (bbl/stk)**
5	15.00	0.105

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197
Liner Size (in)	**Stroke (in)**	**V/Stk (bbl/stk)**
5	15.00	0.105

Pump Checks

P (psi)	Slow Spd	Strokes (strokes/min)	Eff (%)
500.0	No	60	90

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	11	1,500.0

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA MUD ENG LIVING ALLOWANCE	1.0	35
BARIOD USA MUD CHECK	1.0	200
BAROID USA ALDACIDE G	2.0	618
BAROID USA EZ-MUD	2.0	93
BAROID USA CAUSTIC SODA	4.0	154
BAROID USA QUICK GEL	8.0	23
BAROID USA REGULAR BARITE	44.0	160

Formation Pick Groups: Drilling Sam...

Formation Picks Group: Drilling Sample

Name	Top (ftKB)
Bluegate	5,672.0
Emery	4,280.0
Mancos	3,073.0

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Date: 12/12/2002, Report: 46.0, DFS: 46.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Name	Top (ftKB)
Star Point	2,700.0
Blackhawk	1,700.0

Intermediate Casing, 4,413.0ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
11/26/2002	9 5/8	J-55	36.00

Talisman Energy Canada - Daily Drilling Report

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Date: 12/13/2002, Report: 47.0, DFS: 47.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Weather	Road Condition	Hole Condition
Clear	Dry	Good

Operations at Report Time
06:00 hrs Dec 14, Circ and cond to case.

Operations This Report Period
Complete logging with Schlumberger. Rig in Baker Atlas and run VSP. Rig down VSP equipment and start in the hole.

Operations Next Report Period
Clean out trip and run casing.

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	02:00	2.00	11	Wireline Logs	Complete logging operations with Schlumberger.
02:00	22:30	20.50	11	Wireline Logs	Rig in Atlas and run VSP.
22:30	00:00	1.50	06	Tripping	Clean out trip.

Drill Strings: BHA #15, Slick

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
9RR	8 3/4in, GT-20S , 5021367	2-2-NO-A-1-0-NO-TD	2.36		32/32/32

Len (ft)	Max OD (in)	String Components
7689.57	6.750	Hughes GT-20S , Bit Sub, Drill Collar, Drilling Jars - Hydraulic, Drill Collar, Drill Pipe, Kelly

Drilling Parameters: 0.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr)	Int ROP (ft/hr)	Flow Rate (gpm)
15	7,690.0	7,690.0	0.0		0.00		252

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
0	35	500.0	170	175	168		

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Directional Surveys: SINGLE SHOT

Description	Survey Company
SINGLE SHOT	Patterson Crew

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	**Cum. Cost To Date**
[redacted]	[redacted]
Daily Mud Cost	**Mud Additive Cost To Date**
[redacted]	[redacted]
Depth Start (ftKB)	**Depth End (ftKB)**
7,690.0	7,690.0
Depth Progress (ftKB)	**Drilling Time (hrs)**
0.0	0.00

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Mel Knezevich, Drilling Foreman
Mark Moennich, Drilling Sup't
Don Helms, Mud Engineer
Randy Hackford, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3

Rig Supervisor: John Day, Tool Pusher

Rigs: Patterson U.T.I, 104

Rig Supervisor: Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

Pump Checks

P (psi)	Slow Spd	Strokes (strokes/min)	Eff (%)
500.0	No	60	90

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	11	1,500.0

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA MUD ENG LIVING ALLOWANCE	1.0	35
BARIOD USA MUD CHECK	1.0	200
BAROID USA QUICK GEL	22.0	63

Formation Pick Groups: Drilling Sam...

Formation Picks Group: Drilling Sample

Name	Top (ftKB)
Bluegate	5,672.0
Emery	4,280.0
Mancos	3,073.0
Star Point	2,700.0
Blackhawk	1,700.0

Intermediate Casing, 4,413.0ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
11/26/2002	9 5/8	J-55	36.00

Talisman Energy Canada - Daily Drilling Report

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 — **Date: 12/14/2002, Report: 48.0, DFS: 48.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Weather	Road Condition	Hole Condition
Cloudy	Dry	Good

Operations at Report Time
06:00 hrs Dec 15, Run casing.

Operations This Report Period
Trip in, condition hole, lay down pipe, run casing.

Operations Next Report Period
Run casing and cement. Nipple up on 7".

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	03:30	3.50	06	Tripping	Trip in, break circ every 11 stands.
03:30	08:45	5.25	05	Condition and/or Circulate mud	Circulate and condition hole. Pump pill.
08:45	16:45	8.00	06	Tripping	Safety meeting, lay down drill pipe and collars.
16:45	00:00	7.25	12	Run Casing & Cement	Safety meeting, rig up and run casing.

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Directional Surveys: SINGLE SHOT

Description	Survey Company
SINGLE SHOT	Patterson Crew

CONFIDENTIAL

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	**Cum. Cost To Date**
[redacted]	[redacted]
Daily Mud Cost	**Mud Additive Cost To Date**
[redacted]	[redacted]
Depth Start (ftKB)	**Depth End (ftKB)**
7,690.0	7,690.0
Depth Progress (ftKB)	**Drilling Time (hrs)**
0.0	0.00

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Mel Knezevich, Drilling Foreman
Mark Moennich, Drilling Sup't
Don Helms, Mud Engineer
Randy Hackford, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3

Rig Supervisor: John Day, Tool Pusher

Rigs: Patterson U.T.I, 104

Rig Supervisor: Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	11	1,500.0

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA MUD ENG LIVING ALLOWANCE	1.0	35
BARIOD USA MUD CHECK	1.0	200

Formation Pick Groups: Drilling Sam...

Formation Picks Group: Drilling Sample

Name	Top (ftKB)
Bluegate	5,672.0
Emery	4,280.0
Mancos	3,073.0
Star Point	2,700.0
Blackhawk	1,700.0

Intermediate Casing, 4,413.0ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
11/26/2002	9 5/8	J-55	36.00

Tali[illegible]an Energy Canada - Daily Drillin[illegible] Report

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Da[illegible] 12/15/2002, Report: 49.0, DFS: 49.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Weather	Road Condition	Hole Condition
Clear	Dry	Cased

Operations at Report Time
06:00 hrs Dec 16, Pick up 3 1/2 string.

Operations This Report Period
Run casing. Circ casing. Cement casing. Set slips and WOC, floats failed. Nipple up on 7" casing.

Operations Next Report Period
Test BOP, pick up 3 1/2 string.

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	07:30	7.50	12	Run Casing & Cement	Run casing and tag bottom.
07:30	10:30	3.00	12	Run Casing & Cement	Circulate casing
10:30	13:30	3.00	12	Run Casing & Cement	Cement casing. Good returns throughout. Plug bumped and floats failed. Hold pressure on casing.
13:30	21:30	8.00	13	Wait On Cement	Wait on cement due to floats failing. Set casing slips.
21:30	00:00	2.50	14	Nipple Up /Nipple Down BOP Stack	Bleed off casing. Remove cement head. Cut casing and nipple up BOP to 7" casing. 25 days and $1,000,000.00 over the curve and 1900 ft deeper than prog.

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Directional Surveys: SINGLE SHOT

Description	Survey Company
SINGLE SHOT	Patterson Crew

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	**Cum. Cost To Date**
[redacted]	[redacted]
Daily Mud Cost	**Mud Additive Cost To Date**
[redacted]	[redacted]
Depth Start (ftKB)	**Depth End (ftKB)**
7,690.0	7,690.0
Depth Progress (ftKB)	**Drilling Time (hrs)**
0.0	0.00

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Mel Knezevich, Drilling Foreman
Ernie Natte, Drilling Foreman
Mark Moennich, Drilling Sup't
Don Helms, Mud Engineer
Randy Hackford, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3

Rig Supervisor: John Day, Tool Pusher

Rigs: Patterson U.T.I, 104

Rig Supervisor: Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	11	1,500.0

Formation Pick Groups: Drilling Sam...

Formation Picks Group: Drilling Sample

Name	Top (ftKB)
Bluegate	5,672.0
Emery	4,280.0
Mancos	3,073.0
Star Point	2,700.0
Blackhawk	1,700.0

Intermediate Casing, 4,413.0ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
11/26/2002	9 5/8	J-55	36.00

Talisman Energy Canada - Daily Drilling Report

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 — **Date: 12/16/2002, Report: 50.0, DFS: 50.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	**Cum. Cost To Date**
[redacted]	[redacted]
Daily Mud Cost	**Mud Additive Cost To Date**
[redacted]	[redacted]
Depth Start (ftKB)	**Depth End (ftKB)**
7,690.0	7,690.0
Depth Progress (ftKB)	**Drilling Time (hrs)**
0.0	0.00

Daily Summary

Weather	Road Condition	Hole Condition
Snowing	Snow covered	Cased

Operations at Report Time
06:00 hrs Dec 17, Dry up hole

Operations This Report Period
Nipple up, test BOP, wait for rams.

Operations Next Report Period
Test BOP. Dry up hole and drill ahead.

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	02:30	2.50	14	Nipple Up /Nipple Down BOP Stack	Nipple up BOP.
02:30	02:45	0.25	15	Test BOP	Test Blind ram against casing to 1500 psi for 10 min.
02:45	17:00	14.25	06	Tripping	Pick up 3 1/2 string.
17:00	22:00	5.00	15	Test BOP	Test BOP against casing to 1500 psi.
22:00	00:00	2.00	00	Undefined Status	Wait for rams. The rams stamped 3 1/2 are not 3 1/2 they are 4".

Drill Strings: BHA #16, Slick

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
10	6 1/4in, GT-1 , ZA12JM	4-5-FC-A-4-0-NO-CP	2.36	12.9	32/32/32

Len (ft)	Max OD (in)	String Components
580.99	4.750	Hughes GT-1 , Bit Sub, Shock Sub, Drill Collar, Drilling Jars - Hydraulic Down, Drilling Jars - Hydraulic Up, Drill Collar

Drilling Parameters: 0.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr	Int ROP (ft/hr)	Flow Rate (gpm)
16	7,690.0	7,690.0	0.0		0.00		

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
			107	107	107		

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Directional Surveys: SINGLE SHOT

Description	Survey Company
SINGLE SHOT	Patterson Crew

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Ernie Natte, Drilling Foreman
Mel Knezevich, Drilling Foreman
Mark Moennich, Drilling Sup't
Don Helms, Mud Engineer
Randy Hackford, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3

Rig Supervisor: John Day, Tool Pusher

Rigs: Patterson U.T.I, 104

Rig Supervisor: Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	11	1,500.0

Formation Pick Groups: Drilling Sam...

Formation Picks Group: Drilling Sample

Name	Top (ftKB)
Bluegate	5,672.0
Emery	4,280.0
Mancos	3,073.0
Star Point	2,700.0
Blackhawk	1,700.0

Intermediate Casing, 4,413.0ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
11/26/2002	9 5/8	J-55	36.00

Talisman Energy Canada - Daily Drilling Report

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Date: 12/17/2002, Report: 51.0, DFS: 51.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	Cum. Cost To Date
[redacted]	[redacted]
Daily Mud Cost	Mud Additive Cost To Date
[redacted]	[redacted]
Depth Start (ftKB)	Depth End (ftKB)
7,690.0	7,745.0
Depth Progress (ftKB)	Drilling Time (hrs)
55.0	4.25

Daily Summary

Weather	Road Condition	Hole Condition
Clear	Snow covered	Cased

Operations at Report Time

06:00 hrs Dec 18, Break circ to core.

Operations This Report Period

Wait on rams. Test BOP. Drill out. Dry hole. Mist ahead to Ferron top at 7735. Drill to 7745. Trip out and make up core bbl. Start in the hole to core.

Operations Next Report Period

Trip in core barrel and cut core.

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	03:30	3.50	00	Undefined Status	Wait on rams. See incident report.
03:30	04:00	0.50	15	Test BOP	Test BOP.
04:00	06:00	2.00	02	Drilling	Drill out float and shoe.
06:00	11:00	5.00	05	Condition and/or Circulate mud	Dry up the hole.
11:00	15:15	4.25	02	Drilling	Drill ahead in 10 ft intervals checking samples. Ferron at 7735 ft.
15:15	16:45	1.50	05	Condition and/or Circulate mud	Clean hole prior to tripping for core barrel.
16:45	20:00	3.25	06	Tripping	Trip out to pick up core bbl.
20:00	23:30	3.50	06	Tripping	Make up core barrel.
23:30	00:00	0.50	06	Tripping	Trip in with core barrel

Drill Strings: BHA #16, Slick

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
10	6 1/4in, GT-1 , ZA12JM	4-5-FC-A-4-0-NO-CP	2.36	12.9	32/32/32

Len (ft)	Max OD (in)	String Components
580.99	4.750	Hughes GT-1 , Bit Sub, Shock Sub, Drill Collar, Drilling Jars - Hydraulic Down, Drilling Jars - Hydraulic Up, Drill Collar

Drilling Parameters: 55.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr	Int ROP (ft/hr)	Flow Rate (gpm)
16	7,690.0	7,745.0	55.0	4.25	4.25	12.9	

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
15	55	280.0	140	140	140		

Drill Strings: BHA #17, Slick

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
11	6 1/8in, CMD233, 0911250	-------			

Len (ft)	Max OD (in)	String Components
630.89	4.750	GeoDiamond CMD233, Core Barrel, Drill Collar, Drilling Jars - Hydraulic Down, Drilling Jars - Hydraulic Up, Drill Collar

Drilling Parameters: 0.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr	Int ROP (ft/hr)	Flow Rate (gpm)
17	7,745.0	7,745.0	0.0		0.00		

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Directional Surveys: SINGLE SHOT

Description	Survey Company
SINGLE SHOT	Patterson Crew

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Mel Knezevich, Drilling Foreman
Ernie Natte, Drilling Foreman
Mark Moennich, Drilling Sup't
Don Helms, Mud Engineer
Randy Hackford, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3

Rig Supervisor: John Day, Tool Pusher

Rigs: Patterson U.T.I, 104

Rig Supervisor: Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	11	1,500.0

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA PLUG-GIT	-86.0	-1,615
BAROID USA MICA COURSE	-46.0	-506
BAROID USA SODA ASH	-7.0	-52
BAROID USA QUICK FOAM	1.0	553
BAROID USA HC2	1.0	75
BAROID USA MUD ENG LIVING ALLOWANCE	5.0	175
BAROID USA EZ-MUD	6.0	279
BAROID USA PAC-R	7.0	763
BAROID USA QUICK GEL	36.0	103
BAROID USA QUICK FOAM	36.0	4,069
BAROID USA DIAMONIAM PHOSPHATE	40.0	576
BAROID USA MICA FINE	48.0	528

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Da. . 12/17/2002, Report: 51.0, DFS: 51.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA REGULAR BARITE	86.0	312
BAROID USA SAWDUST	115.0	546

Formation Pick Groups: Drilling Sam...

Formation Picks Group

Drilling Sample

Name	Top (ftKB)
Ferron	7,735.0
Bluegate	5,672.0
Emery	4,280.0
Mancos	3,073.0
Star Point	2,700.0

Intermediate Casing, 4,413.0ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
11/26/2002	9 5/8	J-55	36.00

Talisman Energy Canada - Daily Drilling Report

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Date: 12/18/2002, Report: 52.0, DFS: 52.00**

Job Type: Drilling - original

CONFIDENTIAL

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Weather	Road Condition	Hole Condition
Clear	Snow covered	Sloughing shale

Operations at Report Time

06:00 hrs Dec 19 Ream to bottom.

Operations This Report Period

Trip in to the shoe with the core bbl. Could not get passed 7715 ft. Circulate with air/mist and ream to bottom. 7733 ft core bbl became stuck. Work tight hole. Mud up. Free core bbl. Attempt to clean to bottom with mud. Hole packing off and pressuring up. Trip to change to bit to clean hole. Run in with bit to clean to bottom.

Operations Next Report Period

Clean to bottom. Trip for core bbl.

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	01:00	1.00	06	Tripping	Make up core barrel.
01:00	05:15	4.25	06	Tripping	Trip in to 7715 ft.
05:15	09:15	4.00	03	Reaming	Attemp to wash to botom.
09:15	11:30	2.25	00	Undefined Status	Circulate to mud. Work stuck pipe free. Pull up to casing.
11:30	14:15	2.75	03	Reaming	Attempt to ream to bottom. Hole packing off and pressuring up.
14:15	15:45	1.50	06	Tripping	Trip to change to bit and clean hole.
15:45	17:45	2.00	08	Rig Repair	Repair hoisting chain in draworks.
17:45	19:45	2.00	06	Tripping	Trip out.
19:45	20:15	0.50	06	Tripping	Service core bbl and rack it back.
20:15	00:00	3.75	06	Tripping	Make up bit and trip in.

Mud Checks: 7,745.0ftKB, 12/18/2002 13:00

Type	Date	Depth (ftKB)	T(fl) (°F)	Density (lb/gal)	Vis (s/qt)	Plas Vis (cp)
Water Base	12/18/2002 13:00	7,745.0		8.4	45	13.0

Yield Point (cp)	gel 10 sec (cp)	gel 10 min (cp)	Filtrate (mL/30min)	HTHP Filt (mL/30min)	Filter Cake (in)	MBT (lb/bbl)
21.0	1.0	3.0	12.0			

Lime (lb/bbl)	pH	Pm (mL/mL)	Pf (mL/mL)	Calcium (mg/L)	Potassium (mg/L)	Polymer (lb/gal)
	7.0			40.000		0.0

Chlorides (mg/L)	Sand (%)	Solids (%)	Percent Oil (%)	Percent Water (%)	LG Solids (%)	Electric Stab (V)
400.000						

Drill Strings: BHA #17, Slick

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
11	6 1/8in, CMD233, 0911250	-------			

Len (ft)	Max OD (in)	String Components
630.89	4.750	GeoDiamond CMD233, Core Barrel, Drill Collar, Drilling Jars - Hydraulic Down, Drilling Jars - Hydraulic Up, Drill Collar

Drilling Parameters: 0.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr)	Int ROP (ft/hr)	Flow Rate (gpm)
17	7,745.0	7,745.0	0.0		0.00		

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq

Drill Strings: BHA #18, Slick

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
12	6 1/8in, STX-20, ZT37JT	-------	2.36	6.8	32/32/32

Len (ft)	Max OD (in)	String Components
569.62	4.750	Hughes STX-20, Bit Sub, Drill Collar, Drilling Jars - Hydraulic Down, Drilling Jars - Hydraulic Up, Drill Collar

Drilling Parameters: 0.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr)	Int ROP (ft/hr)	Flow Rate (gpm)
18	7,745.0	7,745.0	0.0		0.00		

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Directional Surveys: SINGLE SHOT

Description	Survey Company
SINGLE SHOT	Patterson Crew

AFE No.	Total AFE Amt ($)
37511	[redacted]

Daily Cost Total	Cum. Cost To Date
[redacted]	[redacted]

Daily Mud Cost	Mud Additive Cost To Date
[redacted]	[redacted]

Depth Start (ftKB)	Depth End (ftKB)
7,745.0	7,745.0

Depth Progress (ftKB)	Drilling Time (hrs)
0.0	0.00

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Ernie Natte, Drilling Foreman
Mel Knezevich, Drilling Foreman
Mark Moennich, Drilling Sup't
Don Helms, Mud Engineer
Randy Hackford, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3

Rig Supervisor: John Day, Tool Pusher

Rigs: Patterson U.T.I, 104

Rig Supervisor: Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

Pump Checks

P (psi)	Slow Spd	Strokes (strokes/min)	Eff (%)
-870.0	No	60	90

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	11	1,500.0

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA BARACARB 150	0.0	0
BAROID USA BARA DEFOAM HP	4.0	613
BAROID USA BARA DEFOAM	6.0	690
BAROID USA QUICK GEL	20.0	57
BAROID USA BARACARB 50	182.0	5,828

Formation Pick Groups: Drilling Sam...

Formation Picks Group: Drilling Sample

Name	Top (ftKB)
Ferron	7,735.0
Bluegate	5,672.0
Emery	4,280.0
Mancos	3,073.0
Star Point	2,700.0

Tal[illegible]ian Energy Canada - Daily Drilli[illegible] Report

Well Name: FORTUNA MIDDLE M[illegible]UNTAIN #21-16 **Da[illegible] 12/18/2002, Report: 52.0, DFS: 52.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Intermediate Casing, 4,413.0ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
11/26/2002	9 5/8	J-55	36.00

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Date: 12/19/2002, Report: 53.0, DFS: 53.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	Cum. Cost To Date
[redacted]	[redacted]
Daily Mud Cost	Mud Additive Cost To Date
[redacted]	[redacted]
Depth Start (ftKB)	Depth End (ftKB)
7,745.0	7,778.0
Depth Progress (ftKB)	Drilling Time (hrs)
33.0	3.25

Daily Summary

Weather	Road Condition	Hole Condition
Clear	Snow covered	Sloughing shale

Operations at Report Time
06:00 hrs Dec 20, Trip to investigate.

Operations This Report Period
Clean to Bottom from 7715 ft. Drill ahead. Ream 7733 to 7763 ft. Drill ahead.

Operations Next Report Period
Drill ahead.

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	14:30	14.50	03	Reaming	Ream from 7715 ft to 7745 ft.
14:30	16:00	1.50	02	Drilling	Drill from 7745 to 7763.
16:00	17:15	1.25	06	Tripping	Wiper trip to the shoe and lay down core bbl. Trip back in to 7733 ft. Bridge at 7733 ft.
17:15	21:45	4.50	03	Reaming	Ream back to 7763 ft.
21:45	23:30	1.75	02	Drilling	Drill ahead. Continue to mix barite to hold shale back. Pressure increased losses started. Drilled to 7778.
23:30	00:00	0.50	03	Reaming	Pull up to 7725 ft to ream out hole due to packing off. Reamed to 7750 ft, no more progress.

Drill Strings: BHA #18, Slick

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
12	6 1/8in, STX-20, ZT37JT	-------	2.36	6.8	32/32/32

Len (ft)	Max OD (in)	String Components
569.62	4.750	Hughes STX-20, Bit Sub, Drill Collar, Drilling Jars - Hydraulic Down, Drilling Jars - Hydraulic Up, Drill Collar

Drilling Parameters: 33.0ftKB

BHA No	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr	Int ROP (ft/hr)	Flow Rate (gpm)
18	7,745.0	7,778.0	33.0	3.25	3.25	10.2	252

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
25	80	1,350.0	112	132	102		

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Directional Surveys: SINGLE SHOT

Description	Survey Company
SINGLE SHOT	Patterson Crew

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Mel Knezevich, Drilling Foreman
Ernie Natte, Drilling Foreman
Mark Moennich, Drilling Sup't
Don Helms, Mud Engineer
Randy Hackford, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3

Rig Supervisor: John Day, Tool Pusher

Rigs: Patterson U.T.I, 104

Rig Supervisor: Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	11	1,500.0

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA MUD ENG LIVING ALLOWANCE	1.0	35
BARIOD USA MUD CHECK	1.0	200
BAROID USA BARA DEFOAM HP	1.0	153
BAROID USA CAUSTIC SODA	2.0	77
BAROID USA MUD MAN	4.0	1,800
BAROID USA BARAZAN D PLUS	29.0	11,909
BAROID USA QUICK GEL	38.0	108
BAROID USA REGULAR BARITE	510.0	1,851

Formation Pick Groups: Drilling Sam...

Formation Picks Group: Drilling Sample

Name	Top (ftKB)
Ferron	7,735.0
Bluegate	5,672.0
Emery	4,280.0
Mancos	3,073.0

Well Name: FORTUNA MIDDLE M◡UNTAIN #21-16 **Da. 12/19/2002, Report: 53.0, DFS: 53.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Name	Top (ftKB)
Star Point	2,700.0

Intermediate Casing, 4,413.0ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
11/26/2002	9 5/8	J-55	36.00

Talisman Energy Canada - Daily Drilling Report

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 — **Date: 12/20/2002, Report: 54.0, DFS: 54.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	**Cum. Cost To Date**
[redacted]	[redacted]
Daily Mud Cost	**Mud Additive Cost To Date**
[redacted]	[redacted]
Depth Start (ftKB)	**Depth End (ftKB)**
7,778.0	7,790.0
Depth Progress (ftKB)	**Drilling Time (hrs)**
12.0	1.25

Daily Summary

Weather	Road Condition	Hole Condition
Clear	Snow covered	Sloughing shale

Operations at Report Time
Celebrating Mel's Birthday by drilling at 7815 ft.

Operations This Report Period
Clean to bottom. Drill ahead.

Operations Next Report Period
Drill ahead.

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	02:45	2.75	03	Reaming	Reaming back to bottom from 7725 ft.
02:45	06:00	3.25	06	Tripping	Trip out and check bit. Not reaming well.
06:00	10:00	4.00	06	Tripping	Trip in to clean out hole and drill ahead.
10:00	22:45	12.75	03	Reaming	Reaming from 7725 to 7763 ft. Working tight and stuck pipe as required. Raising weight to 10 ppg.
22:45	00:00	1.25	02	Drilling	Drill ahead.

Mud Checks: 7,778.0ftKB, 12/20/2002 00:00

Type	Date	Depth (ftKB)	T(fl) (°F)	Density (lb/gal)	Vis (s/qt)	Plas Vis (cp)
Gel-Chem	12/20/2002 00:00	7,778.0		9.5	51	22.0
Yield Point (cp)	**gel 10 sec (cp)**	**gel 10 min (cp)**	**Filtrate (mL/30min)**	**HTHP Filt (mL/30min)**	**Filter Cake (in)**	**MBT (lb/bbl)**
21.0	7.0	13.0	8.4		2.000	
Lime (lb/bbl)	**pH**	**Pm (mL/mL)**	**Pf (mL/mL)**	**Calcium (mg/L)**	**Potassium (mg/L)**	**Polymer (lb/gal)**
	9.0					0.0
Chlorides (mg/L)	**Sand (%)**	**Solids (%)**	**Percent Oil (%)**	**Percent Water (%)**	**LG Solids (%)**	**Electric Stab (V)**
	0.1	5.1			0.9	

Drill Strings: BHA #18, Slick

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
12	6 1/8in, STX-20, ZT37JT	-------	2.36	6.8	32/32/32

Len (ft)	Max OD (in)	String Components
569.62	4.750	Hughes STX-20, Bit Sub, Drill Collar, Drilling Jars - Hydraulic Down, Drilling Jars - Hydraulic Up, Drill Collar

Drilling Parameters: 12.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr)	Int ROP (ft/hr)	Flow Rate (gpm)
18	7,778.0	7,790.0	45.0	1.25	4.50	9.6	252

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
25	80	1,350.0	112	132	102		

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Directional Surveys: SINGLE SHOT

Description	Survey Company
SINGLE SHOT	Patterson Crew

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Mel Knezevich, Drilling Foreman
Ernie Natte, Drilling Foreman
Mark Moennich, Drilling Sup't
Don Helms, Mud Engineer
Randy Hackford, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3

Rig Supervisor: John Day, Tool Pusher

Rigs: Patterson U.T.I, 104

Rig Supervisor: Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

Pump Checks

P (psi)	Slow Spd	Strokes (strokes/min)	Eff (%)
1,550.0	No	60	90

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	11	1,500.0

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA MUD TRANSPORT	40.0	3,000
BAROID USA REGULAR BARITE	1,100.0	3,993

Formation Pick Groups: Drilling Sam...

Formation Picks Group: Drilling Sample

Name	Top (ftKB)
Ferron	7,735.0
Bluegate	5,672.0
Emery	4,280.0
Mancos	3,073.0
Star Point	2,700.0

Intermediate Casing, 4,413.0ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
11/26/2002	9 5/8	J-55	36.00

Talisman Energy Canada - Daily Drilling Report

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Date: 12/21/2002, Report: 55.0, DFS: 55.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Weather	Road Condition	Hole Condition
Clear	Snow covered	Sloughing shale improving

Operations at Report Time
Drilling ahead @ 7955 ft.

Operations This Report Period
Drill ahead. Cure losses. Drill ahead.

Operations Next Report Period
Drilling ahead. Possible bit trip.

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	03:45	3.75	02	Drilling	Drill ahead with 10.4 ppg mud.
03:45	06:00	2.25	05	Condition and/or Circulate mud	Mix and pump calcium carbonate loss circ pill. Regain circulation. Lost 100 bbls.
06:00	00:00	18.00	02	Drilling	Drill ahead. Mix mud and build volume. Maintain mud weight at 10 ppg. Hole condition improving.

Mud Checks: 7,850.0ftKB, 12/21/2002 00:00

Type	Date	Depth (ftKB)	T(fl) (°F)	Density (lb/gal)	Vis (s/qt)	Plas Vis (cp)
Gel-Chem	12/21/2002 00:00	7,850.0	70.0	10.0	51	16.0

Yield Point (cp)	gel 10 sec (cp)	gel 10 min (cp)	Filtrate (mL/30min)	HTHP Filt (mL/30min)	Filter Cake (in)	MBT (lb/bbl)
14.0	6.0	10.0	8.4		2.000	

Lime (lb/bbl)	pH	Pm (mL/mL)	Pf (mL/mL)	Calcium (mg/L)	Potassium (mg/L)	Polymer (lb/gal)
	8.5	0.150	0.080	60.000		1.2

Chlorides (mg/L)	Sand (%)	Solids (%)	Percent Oil (%)	Percent Water (%)	LG Solids (%)	Electric Stab (V)
400.000	0.1	6.0			0.3	

Drill Strings: BHA #18, Slick

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
12	6 1/8in, STX-20, ZT37JT	-------	2.36	6.8	32/32/32

Len (ft)	Max OD (in)	String Components
569.62	4.750	Hughes STX-20, Bit Sub, Drill Collar, Drilling Jars - Hydraulic Down, Drilling Jars - Hydraulic Up, Drill Collar

Drilling Parameters: 134.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr	Int ROP (ft/hr)	Flow Rate (gpm)
18	7,790.0	7,924.0	179.0	21.75	26.25	6.2	252

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
25	80	1,650.0	112	132	102		

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Directional Surveys: SINGLE SHOT

Description	Survey Company
SINGLE SHOT	Patterson Crew

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	**Cum. Cost To Date**
[redacted]	[redacted]
Daily Mud Cost	**Mud Additive Cost To Date**
[redacted]	[redacted]
Depth Start (ftKB)	**Depth End (ftKB)**
7,790.0	7,924.0
Depth Progress (ftKB)	**Drilling Time (hrs)**
134.0	21.75

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Mel Knezevich, Drilling Foreman
Ernie Natte, Drilling Foreman
Mark Moennich, Drilling Sup't
Don Helms, Mud Engineer
Randy Hackford, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3

Rig Supervisor: John Day, Tool Pusher

Rigs: Patterson U.T.I, 104

Rig Supervisor: Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

Pump Checks

P (psi)	Slow Spd	Strokes (strokes/min)	Eff (%)
1,650.0	No	60	90

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

Pump Checks

P (psi)	Slow Spd	Strokes (strokes/min)	Eff (%)
1,650.0	No	60	90

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	11	1,500.0

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA MUD ENG LIVING ALLOWANCE	2.0	70
BARIOD USA MUD CHECK	2.0	400
BAROID USA BARAZAN D PLUS	6.0	2,464
BAROID USA QUICK GEL	20.0	57
BAROID USA MUD TRANSPORT	40.0	3,000
BAROID USA BARACARB 150	140.0	4,483
BAROID USA BARACARB 600	140.0	4,151
BAROID USA BARACARB 50	182.0	5,828

Talisman Energy Canada - Daily Drilling Report

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Dat 12/21/2002, Report: 55.0, DFS: 55.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA	690.0	2,505
REGULAR BARITE		

Formation Pick Groups: Drilling Sam...

Formation Picks Group

Drilling Sample

Name	Top (ftKB)
Ferron	7,735.0
Bluegate	5,672.0
Emery	4,280.0
Mancos	3,073.0
Star Point	2,700.0

Intermediate Casing, 4,413.0ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
11/26/2002	9 5/8	J-55	36.00

032

Talon Resources, Inc.

Service, Quality and Accuracy

P.O. Box 1230
195 North 100 West
Huntington, Utah 84528
Phone: 435-687-5310

Cell: 435-650-1886
Fax: 435-687-5311
Email: talon@etv.net

January 2, 2003

Mr. Eric Jones
Petroleum Engineer
Bureau of Land Management
82 East Dogwood
Moab, Utah 84532

RE: Sundry Notices (Weekly Drilling Reports, Production Casing and Cement Reports)
—Fortuna (US), Inc.
Middle Mountain #21-16— 1,309' FSL, 834' FEL
Section 21, T16S, R6E, SLB&M, Emery County, Utah 43-015-30426

Dear Mr. Jones:

On behalf of Fortuna (US), Inc. Talon Resources, Inc. respectfully submits the enclosed original and two copies of the *Sundry Notices* for the Middle Mountain #21-16 well on lands managed by the Manti La-Sal Forest Service.

Thank you for your timely consideration of the enclosed application. Please feel free to contact myself or Mr. Mel Knezevich of Fortuna (US), Inc. at 1-780-402-1296 if you have any questions or need additional information.

Sincerely,

Don Hamilton

Don Hamilton
Agent for Fortuna (US), Inc.

Enclosures

cc: Mr. Don Stephens, BLM—Price Field Office
Mr. Carter Reed, USDA Forest Service—Price SO
Mr. Tom Lloyd, USDA Forest Service—Ferron DO
Mrs. Carol Daniels, Division of Oil, Gas and Mining
Mr. Arne Hamarsnes, Fortuna (US), Inc.
Mr. Mark Moenich, Fortuna (US), Inc.

No. 3005890

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mountain	21-16			11-4-02

OPERATOR	CONTRACTOR	RIG NO.
Fortuna	Patterson U.T.I Drlg	

SIGNATURE OF OPERATOR'S REPRESENTATIVE	SIGNATURE OF CONTRACTOR'S TOOL PUSHER
	Randy Hackford

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.

PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH

TIME DISTRIBUTION – HOURS

CODE NO. – OPERATION	NIGHT	DAY
1. RIG UP AND TEAR DOWN		
2. DRILL ACTUAL		
3. REAMING		
4. CORING		
5. CONDITION MUD & CIRCULATE		
6. TRIPS		
7. LUBRICATE RIG		
8. REPAIR RIG		
9. CUT OFF DRILLING LINE		
10. DEVIATION SURVEY		
11. WIRE LINE LOGS		
12. RUN CASING & CEMENT		
13. WAIT ON CEMENT		
14. NIPPLE UP B.O.P.		
15. TEST B.O.P.		
16. DRILL STEM TEST		
17. PLUG BACK		
18. SQUEEZE CEMENT		
19. FISHING		
20. DIR. WORK		
21.		
22.		
23.		
COMPLETION A. PERFORATING		
B. TUBING TRIPS		
C. TREATING		
D. SWABBING		
E. TESTING		
F.		
G.		
H.		
TOTALS		

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.		
HOURS W/ OPR. D.P.		
HOURS WITHOUT D.P.		
HOURS STANDBY		
TOTAL DAYWORK		
NO. OF DAYS FROM SPUD		
CUMULATIVE ROTATING HOURS		
DAILY MUD COST		
TOTAL MUD COST		

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
	BIT	
	OD	
	OD	
	OD	
	OD	
	OD	
	STANDS ___ D.P.	
	SINGLES ___ D.P.	
	KELLY DOWN	
	TOTAL	
WT. OF STRING		

BIT RECORD

BIT NO.		
SIZE		
IADC CODE		
MANUFACTURER		
TYPE		
SERIAL NO.		
JETS		
TFA		
DEPTH OUT		
DEPTH IN		
TOTAL DRILLED		
TOTAL HOURS		

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT

REMARKS

CONFIDENTIAL

DRILLER

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
	BIT	
	OD	
	OD	
	OD	
	OD	
	OD	
	STANDS ___ D.P.	
	SINGLES ___ D.P.	
	KELLY DOWN	
	TOTAL	
WT. OF STRING		

BIT RECORD

BIT NO.		
SIZE		
IADC CODE		
MANUFACTURER		
TYPE		
SERIAL NO.		
JETS		
TFA		
DEPTH OUT		
DEPTH IN		
TOTAL DRILLED		
TOTAL HOURS		

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT

REMARKS

DRILLER Brad Ludlow

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED

PRINTED IN U.S.A.

APPROVED

FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
	Emery	Utah

WIRE LINE RECORD ~~REEL NO.~~

SIZE	NO. LINES	LENGTH SLIPPED

LENGTH CUT OFF | PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

LAST CASING TUBING OR LINER

SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
6:00	18:00	12	1	Move Rig, Rig Up

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
6:00	18:00	12	1	Move Rig, Rig up

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED APPROVED

No. 3005890

No. 3005891

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mountain	21-16			11-5-02

OPERATOR	CONTRACTOR	RIG NO.
Fortuna	Patterson UTI Drlg	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE	SIGNATURE OF CONTRACTOR'S TOOL PUSHER
	Randy Hackford

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.	PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH

TIME DISTRIBUTION – HOURS

CODE NO. – OPERATION	NIGHT	DAY
1. RIG UP AND TEAR DOWN		
2. DRILL ACTUAL		
3. REAMING		
4. CORING		
5. CONDITION MUD & CIRCULATE		
6. TRIPS		
7. LUBRICATE RIG		
8. REPAIR RIG		
9. CUT OFF DRILLING LINE		
10. DEVIATION SURVEY		
11. WIRE LINE LOGS		
12. RUN CASING & CEMENT		
13. WAIT ON CEMENT		
14. NIPPLE UP B.O.P.		
15. TEST B.O.P.		
16. DRILL STEM TEST		
17. PLUG BACK		
18. SQUEEZE CEMENT		
19. FISHING		
20. DIR. WORK		
21.		
22.		
23.		
COMPLETION A. PERFORATING		
B. TUBING TRIPS		
C. TREATING		
D. SWABBING		
E. TESTING		
F.		
G.		
H.		
TOTALS		

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.		
HOURS W/ OPR. D.P.		
HOURS WITHOUT D.P.		
HOURS STANDBY		
TOTAL DAYWORK		

NO. OF DAYS FROM SPUD	
CUMULATIVE ROTATING HOURS	
DAILY MUD COST	
TOTAL MUD COST	

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
	BIT	
	OD	
	OD	
	OD	
	OD	
	OD	
	STANDS ___ D.P.	
	SINGLES ___ D.P.	
	KELLY DOWN	
	TOTAL	
WT. OF STRING		

BIT RECORD

BIT NO.		
SIZE		
IADC CODE		
MANUFACTURER		
TYPE		
SERIAL NO.		
JETS		
TFA		
DEPTH OUT		
DEPTH IN		
TOTAL DRILLED		
TOTAL HOURS		

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT

REMARKS

CONFIDENTIAL

DRILLER

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
	BIT	
	OD	
	OD	
	OD	
	OD	
	OD	
	STANDS ___ D.P.	
	SINGLES ___ D.P.	
	KELLY DOWN	
	TOTAL	
WT. OF STRING		

BIT RECORD

BIT NO.		
SIZE		
IADC CODE		
MANUFACTURER		
TYPE		
SERIAL NO.		
JETS		
TFA		
DEPTH OUT		
DEPTH IN		
TOTAL DRILLED		
TOTAL HOURS		

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT

REMARKS

DRILLER Brad Ladner

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FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
	Emery	Utah

WIRE LINE RECORD REEL NO.

SIZE	NO. LINES	LENGTH SLIPPED

LENGTH CUT OFF	PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

LAST CASING TUBING OR LINER

SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
6:00	18:00	12	1	Rig Up d Slow small Location Had to move Air Pack out off Way to Set Draw Works on Sub

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
6:00	18:00	12	1	Rig up

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No. 3005891

No. 3006516

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mountain	21-16			11-6-02

OPERATOR	CONTRACTOR	RIG NO.
Fortuna	Patterson UTI Drlg	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE	SIGNATURE OF CONTRACTOR'S TOOL PUSHER
[signature]	Roger Bromley

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.
4 1/2	16.60	E	6 1/4	XH	1

PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH
1	Ideco	550	15
2	Ideco	550	15

TIME DISTRIBUTION – HOURS

CODE NO. – OPERATION	NIGHT	DAY
1. RIG UP AND TEAR DOWN	12	12
2. DRILL ACTUAL		
3. REAMING		
4. CORING		
5. CONDITION MUD & CIRCULATE		
6. TRIPS		
7. LUBRICATE RIG		
8. REPAIR RIG		
9. CUT OFF DRILLING LINE		
10. DEVIATION SURVEY		
11. WIRE LINE LOGS		
12. RUN CASING & CEMENT		
13. WAIT ON CEMENT		
14. NIPPLE UP B.O.P.		
15. TEST B.O.P.		
16. DRILL STEM TEST		
17. PLUG BACK		
18. SQUEEZE CEMENT		
19. FISHING		
20. DIR. WORK		
21.		
22.		
23.		
COMPLETION A. PERFORATING		
B. TUBING TRIPS		
C. TREATING		
D. SWABBING		
E. TESTING		
F.		
G.		
H.		
TOTALS	12	12

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.		
HOURS W/ OPR. D.P.		
HOURS WITHOUT D.P.		
HOURS STANDBY		
TOTAL DAYWORK		
NO. OF DAYS FROM SPUD		
CUMULATIVE ROTATING HOURS		
DAILY MUD COST		
TOTAL MUD COST		

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
	BIT	
	OD	
	OD	
	OD	
	OD	
	OD	
	STANDS ___ D.P.	
	SINGLES ___ D.P.	
	KELLY DOWN	
	TOTAL	

WT. OF STRING

BIT RECORD

BIT NO.		
SIZE		
IADC CODE		
MANUFACTURER		
TYPE		
SERIAL NO.		
JETS		
TFA		
DEPTH OUT		
DEPTH IN		
TOTAL DRILLED		
TOTAL HOURS		

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION
BEARINGS/SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT

REMARKS

CONFIDENTIAL

DRILLER [signature]

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
	BIT	
	OD	
	OD	
	OD	
	OD	
	OD	
	STANDS ___ D.P.	
	SINGLES ___ D.P.	
	KELLY DOWN	
	TOTAL	

WT. OF STRING

BIT RECORD

BIT NO.		
SIZE		
IADC CODE		
MANUFACTURER		
TYPE		
SERIAL NO.		
JETS		
TFA		
DEPTH OUT		
DEPTH IN		
TOTAL DRILLED		
TOTAL HOURS		

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION
BEARINGS/SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT

REMARKS Diesel 47" 3877gal Forklift Kirk Miller

DRILLER Brad Pedersen

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FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
	EMERY	UTAH

WIRE LINE RECORD REEL NO.

SIZE	NO. LINES	LENGTH SLIPPED
1 1/8	10	

LENGTH CUT OFF | PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

LAST CASING TUBING OR LINER

SIZE	WEIGHT & GRADE	NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
6:00	1800	12	1	Rig Up

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
18:00	6:00	12	1	Rig up

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No. 3006516

No. 3006517

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mountain	21-16			11-7-02

OPERATOR	CONTRACTOR	RIG NO.
Fortuna	Patterson UTI Drlg.	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE

SIGNATURE OF CONTRACTOR'S TOOL PUSHER: Roger Brumley

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.
4 1/2	16.60	E	6 1/4	4 1/2 XH	1

PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH
1	Ideco	550	15
2	Ideco	550	15

TIME DISTRIBUTION – HOURS

CODE NO. – OPERATION	NIGHT	DAY
1. RIG UP AND TEAR DOWN	7	5
2. DRILL ACTUAL		
3. REAMING		
4. CORING		
5. CONDITION MUD & CIRCULATE		
6. TRIPS	2	
7. LUBRICATE RIG		
8. REPAIR RIG		
9. CUT OFF DRILLING LINE		
10. DEVIATION SURVEY		
11. WIRE LINE LOGS		
12. RUN CASING & CEMENT		
13. WAIT ON CEMENT		
14. NIPPLE UP B.O.P.	3	7
15. TEST B.O.P.		
16. DRILL STEM TEST		
17. PLUG BACK		
18. SQUEEZE CEMENT		
19. FISHING		
20. DIR. WORK		
21.		
22.		
23.		
COMPLETION A. PERFORATING		
B. TUBING TRIPS		
C. TREATING		
D. SWABBING		
E. TESTING		
F.		
G.		
H.		
TOTALS	12	12

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.		
HOURS W/ OPR. D.P.		
HOURS WITHOUT D.P.		
HOURS STANDBY		
TOTAL DAYWORK		
NO. OF DAYS FROM SPUD		
CUMULATIVE ROTATING HOURS		
DAILY MUD COST		
TOTAL MUD COST		

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
	BIT	
	OD	
	OD	
	OD	
	OD	
	OD	
	STANDS ___ D.P.	
	SINGLES ___ D.P.	
	KELLY DOWN	
	TOTAL	
WT. OF STRING		

BIT RECORD

BIT NO.	
SIZE	
IADC CODE	
MANUFACTURER	
TYPE	
SERIAL NO.	
JETS	
TFA	
DEPTH OUT	
DEPTH IN	
TOTAL DRILLED	
TOTAL HOURS	

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT

REMARKS

CONFIDENTIAL

DRILLER

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
	BIT	
	OD	
	OD	
	OD	
	OD	
	OD	
	STANDS ___ D.P.	
	SINGLES ___ D.P.	
	KELLY DOWN	
	TOTAL	
WT. OF STRING		

BIT RECORD

BIT NO.	STC
SIZE	12 1/4
IADC CODE	1 1 6
MANUFACTURER	STC
TYPE	FDGS+C
SERIAL NO.	ML 4284
JETS	3X18
TFA	
DEPTH OUT	
DEPTH IN	
TOTAL DRILLED	
TOTAL HOURS	

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT

REMARKS Diesel 6311 5193 gal Forklift Kirk miller
Acc 2450
mark 1500
Acc 700
Kenney Oil 12"

DRILLER Brad Pedersen

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FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
	Emery	Utah

LAST CASING TUBING OR LINER	SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT

WIRE LINE RECORD REEL NO.

SIZE	NO. LINES	LENGTH SLIPPED
1 1/8	10	

LENGTH CUT OFF	PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT

DEVIATION RECORD	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
600	1000	4	1	Rig Up Boiler Test & Repair Hoses
1000	[redacted]	7	14	Nipple up BOP, Remove HCR Valve Rotate to Fit Sub Structure, Reinstall, Install Rot. Head,
	1700	7	14	Tee For Blooey line & Shaker Gas buster Etc.
1700	1800	1	1	Rig Up Floor, Install rot. table Floorplates Etc.

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT

DEVIATION RECORD	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
6:00	9:00	3	14	Nipple up Choke line, + Accumulator lines (Function test)
9:00	4:00	7	1	Rig up Floor, P/u Kelly, P/u 8" Handling TOOLS
4:00	6:00	2	6	P/u BHA

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

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No. 3006517

No. 3006518

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mountain	21-16			11-8-02

OPERATOR	CONTRACTOR	RIG NO.
Fortuna	Patterson UTI Drlg.	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE	SIGNATURE OF CONTRACTOR'S TOOL PUSHER
	Roger Bromley

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.	PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH
4½	20.0	E	6¼	4½XH	1	1	Ideco	550	15
						2	Ideco	550	15

TIME DISTRIBUTION – HOURS

CODE NO. – OPERATION	NIGHT	DAY
1. RIG UP AND TEAR DOWN		
2. DRILL ACTUAL		
3. REAMING		
4. CORING		
5. CONDITION MUD & CIRCULATE	1	
6. TRIPS	3½	
7. LUBRICATE RIG		
8. REPAIR RIG	½	
9. CUT OFF DRILLING LINE		
10. DEVIATION SURVEY		
11. WIRE LINE LOGS		
12. RUN CASING & CEMENT		
13. WAIT ON CEMENT		
14. NIPPLE UP B.O.P.		
15. TEST B.O.P.		7
16. DRILL STEM TEST		
17. PLUG BACK		
18. SQUEEZE CEMENT		
19. FISHING		
20. DIR. WORK		
21. BHA		4
22. Choke lines		
23. Rig Repair	2	
COMPLETION A. PERFORATING		
B. TUBING TRIPS		
C. TREATING		
D. SWABBING		
E. TESTING		
F.		
G.		
H.		
TOTALS	12	12

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.		
HOURS W/ OPR. D.P.		
HOURS WITHOUT D.P.		
HOURS STANDBY		
TOTAL DAYWORK		
NO. OF DAYS FROM SPUD		
CUMULATIVE ROTATING HOURS		
DAILY MUD COST		
TOTAL MUD COST		

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 12¼	1.00
1	BH Sub	2.33
3	8" DC's	90.71
1	X O OD	2.29
1	6" DC OD	30.11
1	JARS OD	29.02
4	6" DC's	119.71
	BHA	275.17
4	STANDS ___ D.P.	
	SINGLES ___ D.P.	
	KELLY DOWN	
	TOTAL	
WT. OF STRING		

BIT RECORD

BIT NO.	1	
SIZE	12¼	
IADC CODE	116	
MANUFACTURER	STC	
TYPE	FDSS+C	
SERIAL NO.	mL 4284	
JETS	3X18	
TFA		
DEPTH OUT		
DEPTH IN		
TOTAL DRILLED		
TOTAL HOURS		

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME				
WEIGHT				
PRESSURE GRADIENT				
FUNNEL VISCOSITY				
PV/YP	/	/	/	
GEL STRENGTH	/	/	/	
FLUID LOSS				
pH				
SOLIDS				

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
Soda Ash	20		
DAP	65		

REMARKS Boiler 12 hrs

CONFIDENTIAL

DRILLER Jerry N. [illegible]

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 12¼	1.00
1	B.H Sub	2.33
3	8" DC's OD	90.71
1	X/O OD	2.29
1	6" DC OD	30.11
1	Jars OD	29.02
4	6" DC's OD	119.71
	BHA	275.17
8	STANDS ___ D.P.	749.32
2	SINGLES ___ D.P.	61.41
	KELLY DOWN	39.10
	TOTAL	1125
WT. OF STRING		53,000

BIT RECORD

BIT NO.	1	
SIZE	12¼	
IADC CODE	116	
MANUFACTURER	STC	
TYPE	FDSS+C	
SERIAL NO.	mL 4284	
JETS	3X18	
TFA		
DEPTH OUT		
DEPTH IN	1064	
TOTAL DRILLED		
TOTAL HOURS		

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME				
WEIGHT				
PRESSURE GRADIENT				
FUNNEL VISCOSITY	Water			
PV/YP	/	/	/	
GEL STRENGTH	/	/	/	
FLUID LOSS				
pH				
SOLIDS				

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT

REMARKS Diesel 55 4599 Forklift Kirk Miller
ACC 2400 Boiler 12 hrs
Mann 1300
And 99
Kearney Oil 16

DRILLER Brad Pedersen

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FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
	EMERY	Utah

LAST CASING TUBING OR LINER	SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT

WIRE LINE RECORD REEL NO.

SIZE	NO. LINES	LENGTH SLIPPED
1 1/8	10	

LENGTH CUT OFF	PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT

DEVIATION RECORD	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
6:00	10:00	4	21	P/u BHA & 12 Joints D.P
10:00			15	Test BOP's Test #4 Annular 1200 PSI 10 min #1,2&3 Pipe rams 1200 10 min #6 Blind Rams 1200 10 min #4 Kill line Valve 1200 10 min #3 check 1200 10 min #3 Choke line #1 1200 10 min #2 1200 10 min #1 & 2 manifold Valves 1200 10 min #5 U Kelly Valve 1200 10 min. #1,2,3 Safety Valve 1200 10 min, #1,2,3 Csg. 1200 30+ min. Note: Csg. #1,2,3 Ran Without Bleeding Down
	1700		15	Csg. PSI. Acc Test Nit. Needs Charged. BLM - BOP checks out - Notify Mike Kenneki
1700	1800			WORK ON Bloopey line & Choke lines

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
1064	1125	D		Sand + Shale	55	15	400			5"	65					240

DEVIATION RECORD	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
1800	1900	1	6	TIH to 688'
1900	1930	1/2	8	Work on #2 pump
19:30	2100	1 1/2	6	TIH picking up Drill pipe Tag @ 1013'
2100	2300	2	23	Drill out Cement & Float Equipment 1013' - 1064'
2300	130	2 1/2	2	Drilling formation f/ 1064 - 1125
130	2:30	1	5	Circ Hole Clean.
2:30	3:00	1/2	6	Pull to 1053 (Blow out Kelly and Mud line)
3:00	6:00	3		Wait on Welders, Pickup Location

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

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No. 3006518

No. 3006519

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mountain	21-16			11-9-02

OPERATOR	CONTRACTOR	RIG NO.
Fortuna	Patterson UTI Drlg.	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE	SIGNATURE OF CONTRACTOR'S TOOL PUSHER
[signature]	

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.
4 1/2	20.0	E	6 1/4	4 1/2 XH	1

PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH
1	Ideco	550	15
2	Ideco	550	15

TIME DISTRIBUTION – HOURS

CODE NO. – OPERATION	NIGHT	DAY
1. RIG UP AND TEAR DOWN		
2. DRILL ACTUAL	1	
3. REAMING	1/2	
4. CORING		
5. CONDITION MUD & CIRCULATE	1 1/2	
6. TRIPS	1 1/2	
7. LUBRICATE RIG		
8. REPAIR RIG		
9. CUT OFF DRILLING LINE		
10. DEVIATION SURVEY		
11. WIRE LINE LOGS		
12. RUN CASING & CEMENT		
13. WAIT ON CEMENT		
14. NIPPLE UP B.O.P.		
15. TEST B.O.P.		
16. DRILL STEM TEST		
17. PLUG BACK		
18. SQUEEZE CEMENT		
19. FISHING		
20. DIR. WORK		
21. Welding	7	
22. Pancake	1/2	
23.		
COMPLETION A. PERFORATING		
B. TUBING TRIPS		
C. TREATING		
D. SWABBING		
E. TESTING		
F.		
G.		
H.		
TOTALS	12	12

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.	
HOURS W/ OPR. D.P.	
HOURS WITHOUT D.P.	
HOURS STANDBY	
TOTAL DAYWORK	
NO. OF DAYS FROM SPUD	
CUMULATIVE ROTATING HOURS	
DAILY MUD COST	
TOTAL MUD COST	

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 12 1/4	.45
1	Hammer	6.45
1	B/Sub OD	2.33
3	8" DC's OD	90.71
1	XO OD	2.29
1	6" DC's OD	30.11
1	Jars OD	29.02
4	6" DC's	119.71
/	BHA	281.07
	STANDS ___ D.P.	
	SINGLES ___ D.P.	
	KELLY DOWN	
	TOTAL	
	WT. OF STRING	

BIT RECORD

BIT NO.	2
SIZE	12 1/4
IADC CODE	
MANUFACTURER	STC
TYPE	H 42R2R3PD
SERIAL NO.	KL-9397
JETS	Choke solid
TFA	
DEPTH OUT	
DEPTH IN	
TOTAL DRILLED	
TOTAL HOURS	

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION
BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT

REMARKS Forklift = Jason Harrison
Boiler 12 hrs

CONFIDENTIAL

DRILLER [signature]

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 12 1/4	.45
1	Hammer	6.45
1	Bitsub OD	2.33
3	8" DC's OD	90.71
1	X/O OD	2.29
1	6" DC OD	30.11
1	Jars OD	29.02
4	6" DC's	119.71
	BHA	281.07
	STANDS ___ D.P.	
	SINGLES ___ D.P.	
	KELLY DOWN	
	TOTAL	
	WT. OF STRING	

BIT RECORD

BIT NO.	2
SIZE	12 1/4
IADC CODE	
MANUFACTURER	STC
TYPE	H42K2K3PD
SERIAL NO.	KL 9397
JETS	choke solid
TFA	
DEPTH OUT	1160
DEPTH IN	1125
TOTAL DRILLED	35
TOTAL HOURS	1

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION
BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
Baracor	1bbl	55gal	
BaraLAH	10LMS	50gal	

REMARKS Diesel 46" 3[illegible] gal
Forklift Kirk Miller
Boiler 12 hrs
Acc 2450
Mann 1300
Ann 850
Koomey Oil

DRILLER Brad Rideout

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FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
	Emery	Utah

LAST CASING TUBING OR LINER

SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	RKB TO CSG. HD.	SET AT

WIRE LINE RECORD REEL NO.

SIZE	NO. LINES	LENGTH SLIPPED
1 1/8	10	

LENGTH CUT OFF | PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
6:00	8:00	2	21	Work on Blooey line
8:00	10:00	2	6	TOOH F/BH f/n Bit #2 & Hammer Test Hammer (OK)
10:00	12:00	2	6	TIH w/Bit #2 & Hammer
12:00	13:00	1	7	Rig Service (Work on Blooey line)
13:00	13:30	1/2	10	Run Survey 1/2° Degree
13:30	15:30	1 1/2	22	(Formation Test) Formation has No Integrity
15:30	1800	2 1/2	21	Rig up Choke manifold weld on Blooey line

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
1125	1160	D		Sand - Shale	35	5	Air									

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
1800	1:00	7	21	Weld Choke Manifold and Gas Busters lines
1:00	2:30	1 1/2	5	Blow Hole Dry, pull pancake out of Blooey line, Install in Flowline
2:30	3:00	1/2	3	Ream f/1080 - 1125
300	400	1	2	Drlg f/1125 - 1160 w/Air Hammer, Watered Out
400	5:30	1 1/2	6	TOH L/D Hammer
5:30	6:00	1/2	22	Change pancake f/Flowline to Blooey line

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

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No. 3006519

No. 3006520

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mountain	21-16			11-10-02

OPERATOR	CONTRACTOR	RIG NO.
Fortuna	Patterson Drlg UTI	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE	SIGNATURE OF CONTRACTOR'S TOOL PUSHER
[signature]	Roger Bromley

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.	PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH
4½	20	E	6¼	4½ XH		1	IDECO	550	15
						2	IDECO	550	15

TIME DISTRIBUTION – HOURS

CODE NO. – OPERATION	NIGHT	DAY
1. RIG UP AND TEAR DOWN		
2. DRILL ACTUAL		8
3. REAMING		
4. CORING		
5. CONDITION MUD & CIRCULATE		
6. TRIPS		1
7. LUBRICATE RIG		
8. REPAIR RIG		
9. CUT OFF DRILLING LINE		
10. DEVIATION SURVEY		½
11. WIRE LINE LOGS		
12. RUN CASING & CEMENT		
13. WAIT ON CEMENT		
14. NIPPLE UP B.O.P.		
15. TEST B.O.P.		
16. DRILL STEM TEST		
17. PLUG BACK		
18. SQUEEZE CEMENT		
19. FISHING		
20. DIR. WORK		
21.		
22. Pancake		1
23. Res. Pup.		1½
COMPLETION A. PERFORATING		
B. TUBING TRIPS		
C. TREATING		
D. SWABBING		
E. TESTING		
F.		
G.		
H.		
TOTALS		12

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.	
HOURS W/ OPR. D.P.	
HOURS WITHOUT D.P.	
HOURS STANDBY	
TOTAL DAYWORK	
NO. OF DAYS FROM SPUD	
CUMULATIVE ROTATING HOURS	
DAILY MUD COST	
TOTAL MUD COST	

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 12¼	1.00
1	Bit Sub	2.33
3	8" DC OD	90.71
1	XO OD	2.29
1	6" DC OD	30.11
1	Jars OD	29.02
4	6" DC OD	119.71
	BHA	275.17
11	STANDS ___ D.P.	
X	SINGLES ___ D.P.	
	KELLY DOWN	
	TOTAL	

WT. OF STRING 62000

BIT RECORD

BIT NO.	3	
SIZE	12¼	
IADC CODE		
MANUFACTURER	HTC	
TYPE	GT 28C	
SERIAL NO.	6000317	
JETS	open	
TFA		
DEPTH OUT		
DEPTH IN	1160	
TOTAL DRILLED		
TOTAL HOURS	8	

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
Fumaric acid	11 sx		
Baracor	15 gal		
DAP	6 sx		
HC-2	10 gal		

REMARKS Boiler 0 HRS

CONFIDENTIAL

D/FD Lex BumGardner DRILLER [signature]

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 12¼	1.00
1	B/SUB	2.33
3	8" DCs OD	90.71
1	XO OD	2.29
1	6" DCs OD	30.11
1	Jars OD	29.02
4	6" DCs OD	119.71
	BHA	275.17
15	STANDS ___ D.P.	
Ø	SINGLES ___ D.P.	1402
	KELLY DOWN	40
	TOTAL	1717

WT. OF STRING 64000

BIT RECORD

BIT NO.	3	
SIZE	12¼	
IADC CODE		
MANUFACTURER	HTC	
TYPE	GT28C	
SERIAL NO.	6000317	
JETS	Open	
TFA		
DEPTH OUT		
DEPTH IN	1160	
TOTAL DRILLED		
TOTAL HOURS	19¾	

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
Acid	6 sx	Stearate	1 sx
DAP	6 sx		
HC-2	3 cans		
Zaracet	3 cans		

REMARKS Forklift M. Lindsay Boiler 12 HRS
Acc-2500 Fuel-41"
Man 1500
Ann 700
Fluid 15"

DRILLER [signature]

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FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
	Emery	Utah

WIRE LINE RECORD REEL NO.

SIZE	NO. LINES	LENGTH SLIPPED
1/8	10	

LENGTH CUT OFF | PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

LAST CASING TUBING OR LINER

SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	RKB TO CSG. HD.	SET AT
					16	

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
1160	1381				45/60	20/24		5"	0	5"	35					

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.
1216	1/2													

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
0600	0700	1	22	INSTALL GASKET CHANGE PANCAKE
0700	0830	1 1/2	23	HOOK UP PUMP TO PUMP TO RESERVE PIT WITH WATER
0830	0930	1	6	G.I.H.
0930	1345	4 1/4	2	AIRIATE WATER DRLG FROM 1160 TO 1256
1345	1415	1/2	10	SVR
1415	1800	3 3/4	2	DRLG 1256 TO 1381

5 3/4 9 1/4 10

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
1381	1720	D			45/60	20/25	800									

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
18:00	20:15	2 1/4	2	Drlg F/1381 to 1444
20:15	20:30	1/4	10	Run Survey 3/4 Degrees
20:30	6:00	9 1/2	2	Drlg F/1444 to 1720

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

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No. 3006520

No. 3006521

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mountain	21-16			11-11-02

OPERATOR	CONTRACTOR	RIG NO.
Fortuna	Patterson Drlg LTI	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE	SIGNATURE OF CONTRACTOR'S TOOL PUSHER
	Roger Bromley

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.
4½	20	E	6¼	4½XH	226

PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH
1	IDECO	550	15
2	IDECO	550	15

TIME DISTRIBUTION – HOURS

CODE NO. – OPERATION	NIGHT	DAY
1. RIG UP AND TEAR DOWN		
2. DRILL ACTUAL	5 3/4	11
3. REAMING		
4. CORING		
5. CONDITION MUD & CIRCULATE		
6. TRIPS	5	
7. LUBRICATE RIG		½
8. REPAIR RIG		
9. CUT OFF DRILLING LINE		
10. DEVIATION SURVEY	1/4	½
11. WIRE LINE LOGS		
12. RUN CASING & CEMENT		
13. WAIT ON CEMENT		
14. NIPPLE UP B.O.P.		
15. TEST B.O.P.		
16. DRILL STEM TEST		
17. PLUG BACK		
18. SQUEEZE CEMENT		
19. FISHING		
20. DIR. WORK		
21. F/U Line	1/2	
22. unload	1/2	
23.		
COMPLETION A. PERFORATING		
B. TUBING TRIPS		
C. TREATING		
D. SWABBING		
E. TESTING		
F.		
G.		
H.		
TOTALS	12	12

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.		
HOURS W/ OPR. D.P.		
HOURS WITHOUT D.P.		
HOURS STANDBY		
TOTAL DAYWORK		
NO. OF DAYS FROM SPUD		
CUMULATIVE ROTATING HOURS		
DAILY MUD COST		
TOTAL MUD COST		

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 12¼	1.00
1	Bit Sub	2.33
3	8" DC OD	90.71
1	XO OD	2.29
1	6" DC OD	30.11
1	JARS OD	29.02
4	6" DC OD	119.71
	BHA	275.17
17	STANDS ___ D.P.	1587
X	SINGLES ___ D.P.	31
	KELLY DOWN	22
	TOTAL	
WT. OF STRING		68,000

BIT RECORD

BIT NO.	3
SIZE	12 1/4
IADC CODE	
MANUFACTURER	HTC
TYPE	GT28C
SERIAL NO.	6000317
JETS	open
TFA	
DEPTH OUT	
DEPTH IN	1160
TOTAL DRILLED	
TOTAL HOURS	13¾ 30¾

CUTTING STRUCTURE			
INNER	OUTER	DULL CHAR.	LOCATION
BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
DZP	10 SX		
Bzcide	7 CNS		
HC-2	3 CNS		
Quic Foam	1 CN		

REMARKS Forklift Lex Bumgardner Boiler 4 Hrs

CONFIDENTIAL

DRILLER B. R. [illegible]

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 12 1/4	1.00
1	BSUB	2.33
3	8" DC OD	90.71
1	XO OD	2.29
1	Shock Sub	9.87
3	6" DC OD	88.71
1	Jars OD	29.02
8	6" DC	237.75
	BHA	461.68
116	STANDS ___ D.P.	14199
	SINGLES ___ D.P.	
	KELLY DOWN	40
	TOTAL	2000
WT. OF STRING		84,000

BIT RECORD

BIT NO.	3
SIZE	12 1/4
IADC CODE	
MANUFACTURER	HTC
TYPE	GT28C
SERIAL NO.	6000317
JETS	open
TFA	
DEPTH OUT	
DEPTH IN	11160
TOTAL DRILLED	
TOTAL HOURS	37 1/2

CUTTING STRUCTURE			
INNER	OUTER	DULL CHAR.	LOCATION
BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME		9:00	
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH		7.5-8.0	
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
Bzcide	2 CANS		
HC-2	2 CANS		
DAP	5 SX		
B-700	10 gal		

REMARKS Forklift M. Lindsay Boiler 7 hrs

Acc. 2500 Fuel 35" 2684

Man. 1400

Ann. 600

Fluid 15"

DRILLER Jason Mann

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

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FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
	Emery	Utah

WIRE LINE RECORD REEL NO.

SIZE	NO. LINES	LENGTH SLIPPED
1/4	10	

LENGTH CUT OFF | PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

LAST CASING TUBING OR LINER

SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	PKR. TO CSG. HD.	SETAT
					16	

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
1720	1915				50/60	20/21	70	5"	35							

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.
1810	1 1/2													

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
0600	1300	7	2	Drlg 1720 to 1839
1300	1330	1/2	10	Surv
1330	1630	3	2	Drlg 1839 to 1902
1630	1700	1/2	7	Rig Service - Funtion pipe RAms
1700	1800	1	2	Drlg 1902 to 1915

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
1915	2000	0			50/60	20/21	70	5"	35							

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.
1924	1 1/2													

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
18:00	21:30	3 1/2	2	Drlg F/1915 to 1964
21:30	21:45	1/4	10	Run Survey @ 1924 1 1/2°
21:45	23:00	1 1/4	2	Drlg F/1964 to 1974
23:00	24:00	1	6	POOH L/D 6 jts D.P.
24:00	24:30	1/2	21	Thaw out Fill-up line
24:30	1:30	1	6	POOH Brk Bit
1:30	4:30	3	6	TIH P/U 6 6" DCs & Shock Sub (NO FILL)
4:30	5:00	1/2	22	P/U Kelly, Unload Hole
5:00	6:00	1	2	Drlg F/1974 to 2000'

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

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No. 3006521

No. 3006522

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mountain	21-16			11-12-02

OPERATOR	CONTRACTOR	RIG NO.
For Tumac	Patterson Delg UTI	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE

SIGNATURE OF CONTRACTOR'S TOOL PUSHER: Rogers Bromley

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.
4½	16.60	E	6¼	4½ XH	226

PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH
1	IDECO	550	15
2	IDECO	550	15

TIME DISTRIBUTION – HOURS

CODE NO. – OPERATION	NIGHT	DAY
1. RIG UP AND TEAR DOWN		
2. DRILL ACTUAL	11½	11
3. REAMING		
4. CORING		
5. CONDITION MUD & CIRCULATE		
6. TRIPS		
7. LUBRICATE RIG		½
8. REPAIR RIG		
9. CUT OFF DRILLING LINE		
10. DEVIATION SURVEY	1/2	½
11. WIRE LINE LOGS		
12. RUN CASING & CEMENT		
13. WAIT ON CEMENT		
14. NIPPLE UP B.O.P.		
15. TEST B.O.P.		
16. DRILL STEM TEST		
17. PLUG BACK		
18. SQUEEZE CEMENT		
19. FISHING		
20. DIR. WORK		
21.		
22.		
23.		
COMPLETION A. PERFORATING		
B. TUBING TRIPS		
C. TREATING		
D. SWABBING		
E. TESTING		
F.		
G.		
H.		
TOTALS	12	12

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.		
HOURS W/ OPR. D.P.		
HOURS WITHOUT D.P.		
HOURS STANDBY		
TOTAL DAYWORK		
NO. OF DAYS FROM SPUD		
CUMULATIVE ROTATING HOURS		
DAILY MUD COST		
TOTAL MUD COST		

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 12¼	1.00
1	BitSub	2.33
3	8" DC OD	90.71
1	XO OD	2.29
1	SHock Sub	9.87
3	6" DC OD	88.71
1	JARS OD	29.02
8	6" DC	238.99
	BHA	461.68
19	STANDS ___ D.P.	1775
	SINGLES ___ D.P.	
	KELLY DOWN	13
	TOTAL	

WT. OF STRING 80,000

BIT RECORD

BIT NO.	3
SIZE	12¼
IADC CODE	
MANUFACTURER	HTC
TYPE	GT28C
SERIAL NO.	6000317
JETS	3X18
TFA	
DEPTH OUT	
DEPTH IN	1160
TOTAL DRILLED	
TOTAL HOURS	47½

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
BARITE	8 CKS	Gel	6 SK
HC-2	6 CNS	BARROID	20 99
DAP	42 SK	Fumaric Acid	4 SK
SODA ASH	10 SK		

REMARKS Forklift Lex Burncardner Boiler 12 Hrs

CONFIDENTIAL

DRILLER

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 12¼	1.00
1	B/SUB	2.33
3	8" DC OD	90.71
1	XO OD	2.29
1	Shock Sub	9.87
3	6" DC OD	88.71
1	Jars OD	29.02
8	6" DC	238.99
	BHA	461.68
20	STANDS ___ D.P.	1869.17
	SINGLES ___ D.P.	
	KELLY DOWN	
	TOTAL	

WT. OF STRING 89,000

BIT RECORD

BIT NO.	3
SIZE	12¼
IADC CODE	
MANUFACTURER	HTC
TYPE	GT28C
SERIAL NO.	6000317
JETS	3x18
TFA	
DEPTH OUT	
DEPTH IN	1160
TOTAL DRILLED	
TOTAL HOURS	

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
DAP	24	ACID	3
Barcarb	6	Barafos	20 bal
AHC 2	6		
Soda-A	3		

REMARKS Forklift: M. Lindsay Boiler-12 hrs

Acc. 2500 Fuel-477 3877

Man. 1400

Arm. 600

Fluid 15[11]

DRILLER

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

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FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
	Emery	Utah

WIRE LINE RECORD REEL NO.

SIZE 7/16 | NO. LINES 10 | LENGTH SLIPPED

LENGTH CUT OFF | PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

LAST CASING TUBING OR LINER

SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
2000	2252				70/75	24/30	110	5	38	5"		5"				

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.
2121	2°													

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
0600	1145	5 3/4	2	Drlg 2000' to 2152
1145	1215	1/2	10	Svc
1215	1715	5	2	Drlg 2152 to 2247
1715	1745	1/2	7	Rig Service & BOP
1745	1800	1/4	2	Drlg 2247 to 2252

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
2252		D			90/110	10/20	0-1600	5"	61	5"	61					

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.
2238	3°													

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
18:00	19:30	1 1/2	2	Drlg F/2252 to 2278
19:30	20:00	1/2	10	Wireline Survey at 2238 3°
20:00	6:00	10	2	Drlg F/2278 to
↑	90 K			
Rot	89 K			
↓	87 K			

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

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No. 3006522

No. 3006523

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mountain	21-16			11-13-02

OPERATOR	CONTRACTOR	RIG NO.
FORTUNA	Patterson Delg UTI	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE	SIGNATURE OF CONTRACTOR'S TOOL PUSHER
	Randy Hackford

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.
4½	20	E	6¼	4½ XH	226

PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH
1	IDECO	550	15
2	IDECO	560	15

TIME DISTRIBUTION – HOURS

CODE NO. – OPERATION	NIGHT	DAY
1. RIG UP AND TEAR DOWN		
2. DRILL ACTUAL	11½	4 3/4
3. REAMING		
4. CORING		
5. CONDITION MUD & CIRCULATE		
6. TRIPS		6 3/4
7. LUBRICATE RIG		
8. REPAIR RIG		
9. CUT OFF DRILLING LINE		
10. DEVIATION SURVEY		½
11. WIRE LINE LOGS		
12. RUN CASING & CEMENT		
13. WAIT ON CEMENT		
14. NIPPLE UP B.O.P.		
15. TEST B.O.P.		
16. DRILL STEM TEST		
17. PLUG BACK		
18. SQUEEZE CEMENT		
19. FISHING		
20. DIR. WORK		
21. Unload	½	
22.		
23.		
COMPLETION A. PERFORATING		
B. TUBING TRIPS		
C. TREATING		
D. SWABBING		
E. TESTING		
F.		
G.		
H.		
TOTALS	12	12

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.	
HOURS W/ OPR. D.P.	
HOURS WITHOUT D.P.	
HOURS STANDBY	
TOTAL DAYWORK	
NO. OF DAYS FROM SPUD	
CUMULATIVE ROTATING HOURS	
DAILY MUD COST	
TOTAL MUD COST	

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 12¼	1.00
1	Bit Sub	2.33
3	8" DC OD	90.71
1	XO OD	2.29
1	Shock Sub	9.87
3	6" DC OD	88.71
1	JARS OD	29.02
8	6" DC	238.99
	BHA	461.68
20	STANDS ___ D.P.	1881
	SINGLES ___ D.P.	
	KELLY DOWN	
	TOTAL	
WT. OF STRING		

BIT RECORD

BIT NO.	3	4
SIZE	12¼	12¼
IADC CODE		
MANUFACTURER	HTC	STC
TYPE	GT28C	FDS
SERIAL NO.	6000317	ML4284
JETS	3X18	3X18
TFA		
DEPTH OUT	2394	
DEPTH IN	1160	2394
TOTAL DRILLED	1234	
TOTAL HOURS	63¾	

CUTTING STRUCTURE			
INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH.			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
Fumaric Acid	2 SK	Soda Ash	1 SK
DAP	4 SK	HC-2	1 CN
Baracat	2 CNS		
Baracor	5 GAL		

REMARKS Boiler 12 Hrs

Forklift Lex Bumgarner

CONFIDENTIAL

DRILLER

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 12¼	1.00
1	Bit Sub	2.33
1	Monel OD	28.86
2	8" DC OD	2
1	3PT Reamer OD	5.34
1	8" DC OD	29.62
1/1	XO / SHOCK SUB	2.29 / 9.87
3/1	6" DC / SHOCK	88.71 / 29.02
8	6" DC	238.99
21	STANDS ___ D.P.	491.17
0	SINGLES ___ D.P.	196.56
	KELLY DOWN	15
	TOTAL	2473
WT. OF STRING		91,000

BIT RECORD

BIT NO.	4
SIZE	12¼
IADC CODE	
MANUFACTURER	STC
TYPE	FDS
SERIAL NO.	ML4284
JETS	3X18
TFA	
DEPTH OUT	
DEPTH IN	2394
TOTAL DRILLED	
TOTAL HOURS	75¼

CUTTING STRUCTURE			
INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME	
WEIGHT	
PRESSURE GRADIENT	Aerated
FUNNEL VISCOSITY	
PV/YP	Water /
GEL STRENGTH	
FLUID LOSS	
pH	
SOLIDS	

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
DAP	24	DE Foam	4
Baracat	4	Acid	1
Soda Ash	3		
Baracor	20 gal		

REMARKS Forklift M. Lindsay Boiler 12 hrs

Acc 2500 Fuel 38th 2987 gl

Man 1400

Ann 600

Fluid 1511

DRILLER

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FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
	EMERY	UTAH

LAST CASING TUBING OR LINER

SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT

WIRE LINE RECORD REEL NO.

SIZE	NO. LINES	LENGTH SLIPPED
1/8	10	

LENGTH CUT OFF | PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
2352	2394				90/110	10/20	0/180	5"		5"	35/60					

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.
2340	3°													

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
2600	0900	3	2	Drlg 2352 to 2372
0900	0930	1/2	10	SUR
0930	1115	1 3/4	2	Drlg 2372 to 2394
1115	1800	6 3/4	6	TOOH, Change BHA, GIH, SUR TRIP IN

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
2394	2473	D			110/120	10	0/1100	5"		5"	35/60					

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.
2354	3°													

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
18:00	18:30	1/2	10	Run Single Shot Survey 3°
18:30	19:00	1/2	21	Unload Hole
19:00	6:00	11	2	Drlg F/2394 to 2473 2400 @. 2405

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

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No. 3006523

No. 3006524

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
middle Mountain	21-16			11-14-02

OPERATOR	CONTRACTOR	RIG NO.
	Patterson Drlg UTI	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE	SIGNATURE OF CONTRACTOR'S TOOL PUSHER
[signature]	Randy Blackford

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.	PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH
4½	20	E	6¼	4½XH	226	1	IDECO	550	15
						2	IDECO	550	15

TIME DISTRIBUTION – HOURS

CODE NO.	OPERATION	NIGHT	DAY
1.	RIG UP AND TEAR DOWN		
2.	DRILL ACTUAL	11½	11
3.	REAMING		
4.	CORING		
5.	CONDITION MUD & CIRCULATE		
6.	TRIPS		
7.	LUBRICATE RIG		½
8.	REPAIR RIG		
9.	CUT OFF DRILLING LINE		
10.	DEVIATION SURVEY	½	½
11.	WIRE LINE LOGS		
12.	RUN CASING & CEMENT		
13.	WAIT ON CEMENT		
14.	NIPPLE UP B.O.P.		
15.	TEST B.O.P.		
16.	DRILL STEM TEST		
17.	PLUG BACK		
18.	SQUEEZE CEMENT		
19.	FISHING		
20.	DIR. WORK		
21.			
22.			
23.			
COMPLETION	A. PERFORATING		
	B. TUBING TRIPS		
	C. TREATING		
	D. SWABBING		
	E. TESTING		
	F.		
	G.		
	H.		
TOTALS		12	12

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.	
HOURS W/ OPR. D.P.	
HOURS WITHOUT D.P.	
HOURS STANDBY	
TOTAL DAYWORK	
NO. OF DAYS FROM SPUD	
CUMULATIVE ROTATING HOURS	
DAILY MUD COST	
TOTAL MUD COST	

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 12¼	1.00
1/1	Bit sub / NMDC	2.33 / 28.86
2	8" DC OD	61.09
1/1	Reamer / 8" DC OD	5.34 / 29.67
1/1	XO / Sh. sub OD	2.29 / 9.87
3	6" DC OD	88.71
1	JARS OD	29.02
8	6" DC	238.99
	BHA	497.12
22	STANDS ___ D.P.	2155
1	SINGLES ___ D.P.	31
	KELLY DOWN	
	TOTAL	
	WT. OF STRING	

BIT RECORD

BIT NO.	4	
SIZE	12¼	
IADC CODE		
MANUFACTURER	STC	
TYPE	FDS	
SERIAL NO.	ML4284	
JETS	3X18	
TFA		
DEPTH OUT		
DEPTH IN	2394	
TOTAL DRILLED		
TOTAL HOURS	11½ / 22½	

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION
BEARINGS/SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
DAP	48 sx	Fumaric Acid	3 sx
Soda Ash	4 sx	E-Mud	1 CAN
Baracat	10 gal		
Barcor	5 gal		

REMARKS FK Lift Lex Bumgardner

CONFIDENTIAL

D/FO Lex BumGardner DRILLER B.R. [signature]

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 12¼	1.00
1/1	B/Sub / NMDC	2.33 / 28.86
2	8" DC's OD	61.09
1/1	Reamer / 8" DC OD	5.34 / 29.67
1/1	XO / Shock sub OD	2.29 / 9.87
3	6" DC's OD	88.71
1	Jars OD	29.02
8	6" DC's	238.99
	BHA	497.12
23	STANDS ___ D.P.	
1	SINGLES ___ D.P.	2180
	KELLY DOWN	26
	TOTAL	
	WT. OF STRING	

BIT RECORD

BIT NO.	4	
SIZE	12¼	
IADC CODE		
MANUFACTURER	STC	
TYPE	FDS	
SERIAL NO.	ML4284	
JETS	3x18	
TFA		
DEPTH OUT		
DEPTH IN	2394	
TOTAL DRILLED		
TOTAL HOURS	34	

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION
BEARINGS/SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT	Aereated		
FUNNEL VISCOSITY			
PV/YP			
GEL STRENGTH	WATER		
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
DaP	18	Poly	2gl
Soda-A	4		
Barcor	15 Gal		
Acid	1		

REMARKS Forklift: M. Lindsay

DRILLER

FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
	Emery	Utah

WIRE LINE RECORD REEL NO.

SIZE 1/8 | NO. LINES 10 | LENGTH SLIPPED

LENGTH CUT OFF | PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

LAST CASING TUBING OR LINER

SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
2473	2594				110/115	12	250/450	5"		5"	38/60					

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.
2454	2°													
2551	2°													

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
0600	0930	3½	2	Drlg 2473 to 2498
0930	1000	½	10	Surv 2454'
1000	1715	7¼	2	Drlg 2498 to 2592
1715	1745	½	7	Rig Service + Surv W BOP
1745	1800	¼	2	Drlg 2592 to 2594

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
2594	2703	D		Emery	115	10	450			5"	61					

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.
2583	3°													

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
18:00	19:45	13/4	2	Drlg F/2594 to 2623
19:45	20:15	1/2	10	Single Shot Survey @2583 3°
20:15	6:00	93/4	2	Drlg F/2623 to 2703

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED APPROVED

No. 3006524

No. 3006525

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
middle Mountain	21-16			11-15-02

OPERATOR	CONTRACTOR	RIG NO.
Fortuna	Patterson UTI Dply	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE: [signature]

SIGNATURE OF CONTRACTOR'S TOOL PUSHER: Randy Nachford

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.
4½	20	J	6¼	4½ XH	226

PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH
1	IDECO	550	15
2	IDECO	550	15

TIME DISTRIBUTION – HOURS

CODE NO. – OPERATION	NIGHT	DAY
1. RIG UP AND TEAR DOWN		
2. DRILL ACTUAL		5½
3. REAMING		
4. CORING		
5. CONDITION MUD & CIRCULATE	5	1¾
6. TRIPS	1½	4¼
7. LUBRICATE RIG		
8. REPAIR RIG		
9. CUT OFF DRILLING LINE		
10. DEVIATION SURVEY		½
11. WIRE LINE LOGS	5½	
12. RUN CASING & CEMENT		
13. WAIT ON CEMENT		
14. NIPPLE UP B.O.P.		
15. TEST B.O.P.		
16. DRILL STEM TEST		
17. PLUG BACK		
18. SQUEEZE CEMENT		
19. FISHING		
20. DIR. WORK		
21.		
22.		
23.		
COMPLETION A. PERFORATING		
B. TUBING TRIPS		
C. TREATING		
D. SWABBING		
E. TESTING		
F.		
G.		
H.		
TOTALS	12	12

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.		
HOURS W/ OPR. D.P.		
HOURS WITHOUT D.P.		
HOURS STANDBY		
TOTAL DAYWORK		
NO. OF DAYS FROM SPUD		
CUMULATIVE ROTATING HOURS		
DAILY MUD COST		
TOTAL MUD COST		

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 12¼	1.00
1/1	Bit sub / [illegible]	2.33 / 28.86
2	8" DC OD	61.09
1/1	REAMER / 8" DC	5.34 / 29.62
1/1	XO / Shock sub	2.29 / 9.87
3	6" DC OD	88.71
1	JARS OD	29.02
8	6" DC	238.99
	BHA	497.12
	STANDS ___ D.P.	
	SINGLES ___ D.P.	
	KELLY DOWN	
	TOTAL	
	WT. OF STRING	

BIT RECORD

BIT NO.	4
SIZE	12¼
IADC CODE	
MANUFACTURER	STC
TYPE	FDS
SERIAL NO.	ML 4284
JETS	3 x 18
TFA	
DEPTH OUT	
DEPTH IN	2394
TOTAL DRILLED	
TOTAL HOURS	34 39½

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION	BEARINGS/SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
DAP	26 sx		
Barcarb	3 cans		
Barcor	15 bar		

REMARKS: Boiler 12 hrs

CONFIDENTIAL

D/FD Lex Bumgardner DRILLER [signature]

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 12¼	1.00
1	B/SUB	2.33
3	8" DCs OD	90.71
1	XO OD	2.29
3	6" DCs OD	88.71
1	Jars OD	29.02
8	6" DCs OD	238.99
	BHA	497.12
24	STANDS ___ D.P.	
2	SINGLES ___ D.P.	
	KELLY DOWN	20'
	TOTAL	
	WT. OF STRING	96,000

BIT RECORD

BIT NO.	4
SIZE	12¼
IADC CODE	
MANUFACTURER	STC
TYPE	FDS
SERIAL NO.	ML 4284
JETS	3x18
TFA	
DEPTH OUT	
DEPTH IN	2394
TOTAL DRILLED	
TOTAL HOURS	39½

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION	BEARINGS/SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
DAP	45sx		
barcat	20gl		

REMARKS: Forklift: Mike Lindsay Boiler 12 hrs
Acc 2500 Fuel 43" 3488"
Man 1700
Ann 1700
Fluid 15"

DRILLER [signature]

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED APPROVED

PRINTED IN U.S.A.

FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
	Emery	Utah

WIRE LINE RECORD REEL NO.

SIZE 1/8 | NO. LINES 10 | LENGTH SLIPPED

LENGTH CUT OFF | PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

LAST CASING TUBING OR LINER

SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT
					16	

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
2703	2770				110/115	10/	350/400	5"		5"	40/60					

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.
2709	2 3/4													

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
0600	0830	2 1/2	2	Drlg 2703 to 2748
0830	0900	1/2	10	Surv
0900	1200	3	2	Drlg 2748 to 2775'
1200	1245	3/4	5	Circ.
1245	1700	4 1/4	6	POOH. LD. Monel, 3pt Reamer, Stock Sub G.I.H.
1700	1800	1	5	Break Circ.
				P.U. 2 JTS. 24" Double Kelly in 20'

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
18:00	23:00	5	5	Circ and Cond
23:00	00:30	1 1/2	6	Stand Kelly Back (Blow Down) POOH L/D 1 jt 1 DC
00:30	6:00	5 1/2	11	R/U Loggers and Log w/Schlumberger
				Bop Drill: 62 Sec,
				Activate Pipes Blinds, Ann-HCR-Crown-O-matic

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED APPROVED

No. 3006525

No. 3006526

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mountain	21-16			11-16-02

OPERATOR	CONTRACTOR	RIG NO.
Fortuna	Patterson UTI. Drlg	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE	SIGNATURE OF CONTRACTOR'S TOOL PUSHER
	Randy Hackford

D.P. SIZE	WEIGHT	GRADE	TOOL J. O.D.	TYPE THREAD	STRING NO.
4½	20	E	6¼	4½XH	226

PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH
1	IDECO	550	15
2	IDECO	550	15

TIME DISTRIBUTION – HOURS

CODE NO. – OPERATION	NIGHT	DAY
1. RIG UP AND TEAR DOWN		
2. DRILL ACTUAL	9	
3. REAMING		
4. CORING		
5. CONDITION MUD & CIRCULATE		
6. TRIPS	2½	1½
7. LUBRICATE RIG		
8. REPAIR RIG		
9. CUT OFF DRILLING LINE		
10. DEVIATION SURVEY	1/2	
11. WIRE LINE LOGS		10½
12. RUN CASING & CEMENT		
13. WAIT ON CEMENT		
14. NIPPLE UP B.O.P.		
15. TEST B.O.P.		
16. DRILL STEM TEST		
17. PLUG BACK		
18. SQUEEZE CEMENT		
19. FISHING		
20. DIR. WORK		
21.		
22.		
23.		
COMPLETION A. PERFORATING		
B. TUBING TRIPS		
C. TREATING		
D. SWABBING		
E. TESTING		
F.		
G.		
H.		
TOTALS	12	12

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.		
HOURS W/ OPR. D.P.		
HOURS WITHOUT D.P.		
HOURS STANDBY		
TOTAL DAYWORK		
NO. OF DAYS FROM SPUD		
CUMULATIVE ROTATING HOURS		
DAILY MUD COST		
TOTAL MUD COST		

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 12¼	1.00
1	B. Sub	2.33
3	8" DC OD	90.71
1	XO OD	2.29
3	6" DC OD	88.71
1	JARS OD	29.02
8	6" DC OD	238.99
	BHA	453.12
24	STANDS ___ D.P.	
	SINGLES ___ D.P.	
	KELLY DOWN	
	TOTAL	

WT. OF STRING 96,000

BIT RECORD

BIT NO.	4	5
SIZE	12¼	12¼
IADC CODE		
MANUFACTURER	Smith	HTC
TYPE	FDS	GT18
SERIAL NO.	MC4284	6000931
JETS		3X24
TFA		
DEPTH OUT	2775	
DEPTH IN	2394	2775
TOTAL DRILLED	381	
TOTAL HOURS	39½	

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT

REMARKS Boiler

CONFIDENTIAL

DRILLER

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 12¼ ~~REAMER~~	1.00
1	B. Sub	2.33
2	8" DC OD	90.71
1	~~XO~~ Reamer OD	5.34 2.29
3	6" DC OD	88.71
1	JARS OD	29.02
8	6" D.C OD	
	BHA	497.12
25	STANDS ___ D.P.	
1	SINGLES ___ D.P.	23.67
	KELLY DOWN	31
	TOTAL	2900

WT. OF STRING 100,000

BIT RECORD

BIT NO.	5	
SIZE	12¼	
IADC CODE		
MANUFACTURER	HTC	
TYPE	FDS	GT18
SERIAL NO.	6000931	
JETS	3x24	
TFA		
DEPTH OUT		
DEPTH IN	2775	
TOTAL DRILLED		
TOTAL HOURS	9	

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY	Aerated		
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS	Wa		
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
38	Dap		
7	Soda		
4	Barat		

REMARKS Forklift M. Lindsay
Acc 2500 Fuel 50" 4158 gl
Man 1500
Ann 700
Fluid 15"

DRILLER

FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
	Emery	Utah

WIRE LINE RECORD REEL NO.

SIZE 1 1/8 | NO. LINES 10 | LENGTH SLIPPED

LENGTH CUT OFF | PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

LAST CASING TUBING OR LINER

SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
2775																

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
0600	1630	10 1/2	11	Logging
1630	1800	1 1/2	6	P.U. BHA. GIH.

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
2775	2900	0		Black Hawk	100	10/12	450	5"	58							

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.
2803	2°													

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
18:00	20:30	2 1/2	6	GIH, Install rotating head, P/U Kelly, Unload Hole
20:30	1:00	4 1/2	2	Drlg F/2775 to 2843
1:00	1:30	1/2	10	Wire line Survey @ 2803 2°
1:30	6:00	4 1/2	2	Drlg F/2843 to 2900

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED APPROVED

No. 3006526

No. 3006527

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mountain	21-16			11-17-02

OPERATOR	CONTRACTOR	RIG NO.
Fortuna	Patterson-UTI	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE: [signature]

SIGNATURE OF CONTRACTOR'S TOOL PUSHER: Randy Hackford

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.
4 1/2	20	E	6 1/4	XH	226

PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH
1	IDECO	550	15
2	IDECO	550	15

TIME DISTRIBUTION – HOURS

CODE NO. – OPERATION	NIGHT	DAY
1. RIG UP AND TEAR DOWN		
2. DRILL ACTUAL	11 3/4	11
3. REAMING		
4. CORING		
5. CONDITION MUD & CIRCULATE		
6. TRIPS		
7. LUBRICATE RIG		1/2
8. REPAIR RIG		
9. CUT OFF DRILLING LINE		
10. DEVIATION SURVEY	1/4	1/2
11. WIRE LINE LOGS		
12. RUN CASING & CEMENT		
13. WAIT ON CEMENT		
14. NIPPLE UP B.O.P.		
15. TEST B.O.P.		
16. DRILL STEM TEST		
17. PLUG BACK		
18. SQUEEZE CEMENT		
19. FISHING		
20. DIR. WORK		
21.		
22.		
23.		
COMPLETION A. PERFORATING		
B. TUBING TRIPS		
C. TREATING		
D. SWABBING		
E. TESTING		
F.		
G.		
H.		
TOTALS	12	12

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.		
HOURS W/ OPR. D.P.		
HOURS WITHOUT D.P.		
HOURS STANDBY		
TOTAL DAYWORK		

NO. OF DAYS FROM SPUD	
CUMULATIVE ROTATING HOURS	
DAILY MUD COST	
TOTAL MUD COST	

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 12 1/4	1.00
1/1	8" monel Bit Sub	2.33 28.86
2	8" DC's OD	61.09
1	3pt Reamer	5.34
1	8" DC OD	29.62
1	X/O OD	2.29
1	Shock Sub OD	9.87
3	6" DC's OD	88.71
1	Jars	29.02
8	6" DC's BHA	238.99 497.12
26	STANDS ___ D.P.	2430.09
2	SINGLES ___ D.P.	62.76
	KELLY DOWN	24 —
	TOTAL	3014
WT. OF STRING		101,000

BIT RECORD

BIT NO.	5		
SIZE	12 1/4		
IADC CODE			
MANUFACTURER	HTC		
TYPE	GT18		
SERIAL NO.	6000931		
JETS	3X24		
TFA			
DEPTH OUT			
DEPTH IN	2225		
TOTAL DRILLED	239		
TOTAL HOURS	20		

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME				
WEIGHT				
PRESSURE GRADIENT				
FUNNEL VISCOSITY	Aerated Water			
PV/YP	/		/	
GEL STRENGTH	/		/	
FLUID LOSS				
pH				
SOLIDS				

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
Baracat	15 gals		
Bar Cole 100	15 gal		
Dap	90 sks		
Soda Ash	12 sks		

REMARKS: CONFIDENTIAL

Forklift Kirk Miller
Boiler 12 Hrs

DRILLER: Brad Pedersen

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 12 1/4	1.00
1/1	8" monel Bit Sub	2.33 28.86
2	8" DC's OD	61.09
1	3pt Reamer	5.34
1	8" DC OD	29.62
1	X O OD	2.29
1	Shock Sub	9.87
3	6" DC's OD	88.71
1	Jars	29.02
8	6" DC's BHA	238.99 497.12
27	STANDS ___ D.P.	2524
X	SINGLES ___ D.P.	32.10
	KELLY DOWN	40.00
	TOTAL	3093
WT. OF STRING		101,000

BIT RECORD

BIT NO.	5		
SIZE	12 1/4		
IADC CODE			
MANUFACTURER	HTC		
TYPE	GT18		
SERIAL NO.	6000931		
JETS	3X24		
TFA			
DEPTH OUT			
DEPTH IN	2775		
TOTAL DRILLED	318		
TOTAL HOURS	23 1/4		

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME				
WEIGHT				
PRESSURE GRADIENT	Aerated Water			
FUNNEL VISCOSITY				
PV/YP	/		/	
GEL STRENGTH	/		/	
FLUID LOSS				
pH				
SOLIDS				

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
Baracat	15 gal		
Baracole	15 gal		
DAP	241		
Soda Ash			

REMARKS: Forklift = Jake Kelsey

Acc. 2500
Man. 1400
Ann. 800
Fluid 16"

Fuel 41" 3,289 Gal.
Boiler 12 hrs.

DRILLER: [signature]

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED

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PRINTED IN U.S.A.

FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
	Emery	Utah

LAST CASING TUBING OR LINER	SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT

WIRE LINE RECORD REEL NO.

SIZE	NO. LINES	LENGTH SLICED
1 1/8	10	

LENGTH CUT OFF | PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
2900	3014	D			100	10/12		5"	50							217

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.
2922	2°													

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
600	1130	5 1/2	2	Drlg f/ 2900 - 2967
1130	1200	1/2	10	Circ + Survey 2922' @ 2°
1200	1230	1/2	7	Service Rig
1230	1800	5 1/2	2	Drlg f/ 2967 - 3014

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
3014	3093	D			100	13	1470	5"	50							

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
1800	5:45	11 3/4	2	Drlg. f/ 3014 - 3093
5:45	6:00	1/4	10	Circulate for Survey
↑	104,000			
Rot	101,000			
↓	100,000			

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED APPROVED

No. 3006527

No. 3006528

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mountain	21-16			11-14-02

OPERATOR	CONTRACTOR	RIG NO.
Fortuna	Patterson UTI	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE	SIGNATURE OF CONTRACTOR'S TOOL PUSHER
[signature]	Randy Flachford

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.	PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH
4 1/2	20	E	6 1/4	XH	226	1	IDECO	550	15
						2	IDECO	550	15

TIME DISTRIBUTION – HOURS

CODE NO. – OPERATION	NIGHT	DAY
1. RIG UP AND TEAR DOWN		
2. DRILL ACTUAL	7	10 1/2
3. REAMING		
4. CORING		
5. CONDITION MUD & CIRCULATE		
6. TRIPS		
7. LUBRICATE RIG		1/2
8. REPAIR RIG		
9. CUT OFF DRILLING LINE		
10. DEVIATION SURVEY		1
11. WIRE LINE LOGS		
12. RUN CASING & CEMENT		
13. WAIT ON CEMENT		
14. NIPPLE UP B.O.P.		
15. TEST B.O.P.		
16. DRILL STEM TEST		
17. PLUG BACK		
18. SQUEEZE CEMENT		
19. FISHING		
20. DIR. WORK		
21. unload holes		
22.		
23.		
COMPLETION A. PERFORATING		
B. TUBING TRIPS		
C. TREATING		
D. SWABBING		
E. TESTING		
F.		
G.		
H.		
TOTALS		12

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.	
HOURS W/ OPR. D.P.	
HOURS WITHOUT D.P.	
HOURS STANDBY	
TOTAL DAYWORK	
NO. OF DAYS FROM SPUD	
CUMULATIVE ROTATING HOURS	
DAILY MUD COST	
TOTAL MUD COST	

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 12 1/4	1.00
1	Bit sub	2.33
1	8" Monel	28.86
2	8" DCs	61.09
1	3PT Ream	5.34
1	8" DC	29.62
1	X10 OD	2.29
1	Shock sub	9.87
3	6" DCs OD	88.71
1	Jars OD	29.02
8	6" DCs	238.99
	BHA	497.12
29	STANDS D.P.	2712.49
	SINGLES D.P.	
	KELLY DOWN	14
	TOTAL	322361

WT. OF STRING 103,000

BIT RECORD

BIT NO.	5	
SIZE	12 1/4	
IADC CODE		
MANUFACTURER	HTC	
TYPE	GT18	
SERIAL NO.	6000931	
JETS	3X24	
TFA		
DEPTH OUT		
DEPTH IN	2775	
TOTAL DRILLED	448	
TOTAL HOURS	42 1/4	

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT	Aerated Water		
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP			
GEL STRENGTH			
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
Baracat	15 gals		
Baracor 700	15 gals		
Dap	40 sks		
Soda Ash	10 sks		

REMARKS: Forklift Kirk miller
Boiler 12 Hrs

CONFIDENTIAL

DRILLER Brad Pedersen

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 12 1/4	1.00
1	Bit Sub	2.33
1	8" monel	28.86
2	8" DC's	61.09
1	3pt. Ream	5.34
1	8" DC	29.62
1	X O OD	2.29
1	Shock Sub	9.87
3	6" DC's OD	88.71
1	Jars OD	29.02
8	6" DC's	238.99
	BHA	497.12
29	STANDS D.P.	2712
XX	SINGLES D.P.	60.00
	KELLY DOWN	
	TOTAL	

WT. OF STRING 105,000

BIT RECORD

BIT NO.	5	
SIZE	12 1/4	
IADC CODE		
MANUFACTURER	HTC	
TYPE	GT18	
SERIAL NO.	6006931	
JETS	3X24	
TFA		
DEPTH OUT		
DEPTH IN	2775	
TOTAL DRILLED		
TOTAL HOURS	49 1/2	

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT	Aerated Water		
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP			
GEL STRENGTH			
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
Baracat	3	EZ mud	
Baracor	15 gal		
Dap	40		
Soda Ash	10		

REMARKS: Fuel 33" 2487 gal Forklift = Jake Kelsey
Acc. 1500
Man. 1500 Boiler 12 Hrs
Ann. 800
Fluid 16"

DRILLER [signature]

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

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FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
	Emery	Utah

WIRE LINE RECORD REEL NO.

SIZE 1 1/8 | NO. LINES 10 | LENGTH SLIPPED

LENGTH CUT OFF | PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

LAST CASING TUBING OR LINER

SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
3093	3223	D		Shale	100	18/20	1450/1520	5"	50							212

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.
3053	1 3/8													
3147	1 3/4													

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
600	630	1/2	10	Survey 3053' @ 1 3/8°
630	1500	8 1/2	2	Drlg f/ 3093 - 3187
1500	1530	1/2	10	Circ & Survey 3147 @ 1 3/4°
1530	1600	1/2	7	Rig Service
1600	1800	2	2	Drlg f/ 3187 - 3223

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
3223	3311	D		Sand & Shale	100	18/20	48	5"	50							

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
1800	2400	6	2	Drlg. F/ 3223 - 3293
2400	400	4	21	Put Soap on Hole, Try To build Volume
400	500	1	2	Drlg f/ 3293 - 3311
500	600	1	21	Try to unload hole
	↑	105		
	bot	105		
	↓	100		

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED APPROVED

No. 3006528

No. 3006529

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mountain	21-16			11-19-07

OPERATOR	CONTRACTOR	RIG NO.
Fortune	Patterson-UTI	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE: [signature]

SIGNATURE OF CONTRACTOR'S TOOL PUSHER: Randy Hachford

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.	PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH
4 1/2	20	E	6 1/4	XH	226	1	IDECO	550	15
						2	IDECO	550	15

TIME DISTRIBUTION – HOURS

CODE NO.	OPERATION	NIGHT	DAY
1.	RIG UP AND TEAR DOWN		
2.	DRILL ACTUAL	1 1/2	4 1/2
3.	REAMING		
4.	CORING		
5.	CONDITION MUD & CIRCULATE	1/2	
6.	TRIPS	3 1/2	1
7.	LUBRICATE RIG		1/2
8.	REPAIR RIG		
9.	CUT OFF DRILLING LINE		
10.	DEVIATION SURVEY		1/2
11.	WIRE LINE LOGS		
12.	RUN CASING & CEMENT		
13.	WAIT ON CEMENT		
14.	NIPPLE UP B.O.P.		
15.	TEST B.O.P.		
16.	DRILL STEM TEST		
17.	PLUG BACK		
18.	SQUEEZE CEMENT		
19.	FISHING	5	
20.	DIR. WORK		
21.	unload Hole		1/2
22.	Pit liner		5
23.	magna flux tool when fishing	1 1/2	
COMPLETION	A. PERFORATING		
	B. TUBING TRIPS		
	C. TREATING		
	D. SWABBING		
	E. TESTING		
	F.		
	G.		
	H.		
TOTALS		12	12

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.		
HOURS W/ OPR. D.P.		
HOURS WITHOUT D.P.		
HOURS STANDBY		
TOTAL DAYWORK		
NO. OF DAYS FROM SPUD		
CUMULATIVE ROTATING HOURS		
DAILY MUD COST		
TOTAL MUD COST		

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 12 1/4	1.00
1	Bit sub	2.33
1	8" monel	28.86
2	8" DCs	61.09
1	3 pt reamer	5.34
1	8" DC	29.62
1	X/O	2.29
1	Shock Sub	9.87
3	6" DCs	88.21
1	Jars	29.02
8	6" DCs	238.99
	BHA	497.12
30	STANDS D.P.	2805.39
2	SINGLES D.P.	61.89
	KELLY DOWN	34
	TOTAL	3398

WT. OF STRING: 105000

BIT RECORD

BIT NO.	5
SIZE	12 1/4
IADC CODE	
MANUFACTURER	HTC
TYPE	GT18
SERIAL NO.	6000931
JETS	3X24
TFA	
DEPTH OUT	
DEPTH IN	2775
TOTAL DRILLED	623
TOTAL HOURS	53 3/4

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION	BEARINGS/SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME	
WEIGHT	Aerated Water
PRESSURE GRADIENT	
FUNNEL VISCOSITY	
PV/YP	
GEL STRENGTH	
FLUID LOSS	
pH	
SOLIDS	

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
Dap	100 sks		
Baracor	15 gal		
Defoamer	25 gal		

REMARKS: CONFIDENTIAL

Forklift Kirk Miller

Boiler 12 Hrs

DRILLER: Brad Pederson

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 12 1/4	1.00
1	BS	2.33
1	8" monel	28.86
2	8" DCs	61.09
1	3 pt Reamer	5.34
1	8" DC	29.62
1	XO	2.29
1	Shock sub	9.87
3	6" DCs	88.71
1	Jars	29.02
8	6" DCs	238.99
	BHA	497.12
	STANDS D.P.	
	SINGLES D.P.	
	KELLY DOWN	
	TOTAL	

WT. OF STRING:

BIT RECORD

BIT NO.	5
SIZE	12 1/4
IADC CODE	
MANUFACTURER	HTC
TYPE	GT18
SERIAL NO.	6000931
JETS	3X24
TFA	
DEPTH OUT	
DEPTH IN	2775
TOTAL DRILLED	638
TOTAL HOURS	55 3/4

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION	BEARINGS/SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME	
WEIGHT	Aerated Water
PRESSURE GRADIENT	
FUNNEL VISCOSITY	
PV/YP	
GEL STRENGTH	
FLUID LOSS	
pH	
SOLIDS	

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT

REMARKS: Fuel - 37" 1836 gal F/L operator - Jake Kelsey

Acc. 2500

Man - 1300

Ann - 400

Fluid 16"

Boiler [illegible] hrs

DRILLER: Brian McDonald

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FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
	Emery	Utah

LAST CASING TUBING OR LINER

SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT

WIRE LINE RECORD REEL NO.

SIZE	NO. LINES	LENGTH SLIPPED
1/8	10	

LENGTH CUT OFF | PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
3311	3342	D		Shale	100	18/20	480	5	28							118
3342	3398	D		Shale	100	24	470	5	35							148

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.
3302	2°													

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
600	630	1/2	21	Try To unload Hole
630	700	1/2	6	Pull 10 STDS
700	730	1/2	7	Rig Service
730	1230	5	22	Pump away water in reserve pit and reline pit
1230	1300	1/2	6	TIH 4' Fill
1300	1500	2	2	Drlg f/ 3311-3342, No returns
1500	1530	1/2	10	Circ + Survey 3302' 2°
1530	1800	2 1/2	2	Drlg f/ 3342-3398
				2700 CFM

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
3398	3413	D		shale	100	24	480	5	40							178

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
6:00	7:30	1 1/2	2	Drlg f/ 3398 to 3413 Twisted off
7:30	8:00	1/2	5	circ - load Hole
8:00	9:30	1 1/2	6	T.O.H to Reamer Broke Pin on Reamer
				Left Bit & Bit sub 8" monel & 2-8" DCs in Hole
9:30	10:30	1	6	TIH to 690'
10:30	2:30	4	19	wait on Fishing Tools
2:30	5:00	2 1/2	22	Magna Flux Drlg collars w/ Stricker
5:00	6:00	1	19	P/U Fishing Tools

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED APPROVED

No. 3006529

No. 3006530

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mountain	21-16			11-20-02

OPERATOR	CONTRACTOR	RIG NO.
Fortuna	Patterson UTI	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE: [signature]

SIGNATURE OF CONTRACTOR'S TOOL PUSHER: Roger Bromley

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.
4 1/2	20	E	6 1/4	XH	226

PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH
1	IDeco	550	15
2	IDeco	550	15

TIME DISTRIBUTION – HOURS

CODE NO. – OPERATION	NIGHT	DAY
1. RIG UP AND TEAR DOWN		
2. DRILL ACTUAL		
3. REAMING		
4. CORING		
5. CONDITION MUD & CIRCULATE		
6. TRIPS		8 1/2
7. LUBRICATE RIG		
8. REPAIR RIG		
9. CUT OFF DRILLING LINE		
10. DEVIATION SURVEY		
11. WIRE LINE LOGS		
12. RUN CASING & CEMENT		
13. WAIT ON CEMENT		
14. NIPPLE UP B.O.P.		
15. TEST B.O.P.		
16. DRILL STEM TEST		
17. PLUG BACK		
18. SQUEEZE CEMENT		
19. FISHING		3 1/2
20. DIR. WORK		
21. check collars		
22.		
23.		
COMPLETION A. PERFORATING		
B. TUBING TRIPS		
C. TREATING		
D. SWABBING		
E. TESTING		
F.		
G.		
H.		
TOTALS	12	12

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.	
HOURS W/ OPR. D.P.	
HOURS WITHOUT D.P.	
HOURS STANDBY	
TOTAL DAYWORK	
NO. OF DAYS FROM SPUD	
CUMULATIVE ROTATING HOURS	
DAILY MUD COST	
TOTAL MUD COST	

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
	BIT	
	OD	
	OD	
	OD	
	OD	
	OD	
	STANDS ___ D.P.	
	SINGLES ___ D.P.	
	KELLY DOWN	
	TOTAL	

WT. OF STRING

BIT RECORD

BIT NO.		
SIZE		
IADC CODE		
MANUFACTURER		
TYPE		
SERIAL NO.		
JETS		
TFA		
DEPTH OUT		
DEPTH IN		
TOTAL DRILLED		
TOTAL HOURS		

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION
BEARINGS/SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

Airated Water

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT

REMARKS Forklift - Kirk Miller Boiler 12 Hrs

CONFIDENTIAL

DRILLER Brad Pedersen

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 12 1/4	1.00
1/1	B.S. / 8" monel	2.33 / 28.86
2/1	8" DCs / XO OD	60.00 / 2.29
1	Shocksub OD	9.87
6	6" Dc's OD	179.67
1	Jars OD	29.02
6	6" Dc's OD	176.80
	BHA	489.84
	STANDS ___ D.P.	
	SINGLES ___ D.P.	
	KELLY DOWN	
	TOTAL	

WT. OF STRING

BIT RECORD

BIT NO.	6	
SIZE	12 1/4	
IADC CODE		
MANUFACTURER	HTC	
TYPE	GT-28C	
SERIAL NO.	W19DM	
JETS	3X28	
TFA		
DEPTH OUT		
DEPTH IN	3413	
TOTAL DRILLED		
TOTAL HOURS		

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION
BEARINGS/SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

Airated Water

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT

REMARKS Fuel = 40" 3??? gal F/L operator - Jake Kelsey
Acc - 2460
man - 1300
Ann - 550
Fluid - 16"
Boiler 12 hrs

DRILLER Bryson McDonald

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED APPROVED

PRINTED IN U.S.A.

FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
	Emery	Utah

LAST CASING TUBING OR LINER

SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT

WIRE LINE RECORD REEL NO.

SIZE	NO. LINES	LENGTH SLIPPED
1 1/8	10	

LENGTH CUT OFF | PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
348				Shale												

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
600	830	2 1/2	6	TIH w/ 7 5/8 Grapple + overshot
830	930	1	19	Attempt to engage Fish Fish top @ 3318
9:30	1180	2 1/2	6	TOH No recovery
11:30	1230	1	19	Dress over shot
1230	1400	1 1/2	6	TIH w/ 7 3/8 Grapple + Over shot
1400	1430	1/2	19	Attempt to engage Fish
1430	1600	1 1/2	6	TOH No recovery
1600	1630	1/2	19	Dress over shot
1630	1830	1	6	TIH w/ 7 1/2 Grapple + Overshot
1830	1800	1/2	19	Engage Fish @ 3318, Jar on Fish

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
3413		0		Shale												

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
6:00	7:00	1	19	Jar on Fish
7:00	8:00	1	6	TOH w/ Fish
8:00	11:30	3 1/2	19	L/D Fishing Tools & Fish clean out 8" DCs (Plugged)
11:30	12:30	1	21	check Drlg collars w/ Stricker
12:30	4:30	4	6	P/U new BHA & TIH
4:30	5:00	1/2	10	Attempt to Run Survey (Survey Line Broke)
5:00	6:00	1	6	TOH

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED APPROVED

No. 3006530

No. 3006531

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mountain	21-16			11-21-02

OPERATOR	CONTRACTOR	RIG NO.
Fortuna	Patterson UTI	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE

SIGNATURE OF CONTRACTOR'S TOOL PUSHER Roger Bromley

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.
4½	20	E	6¼	XH	226

PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH
1	IDECO	550	15
2	IDECO	550	15

TIME DISTRIBUTION – HOURS

CODE NO. – OPERATION	NIGHT	DAY
1. RIG UP AND TEAR DOWN		
2. DRILL ACTUAL	4	8½
3. REAMING		½
4. CORING		
5. CONDITION MUD & CIRCULATE		
6. TRIPS		2½
7. LUBRICATE RIG		½
8. REPAIR RIG		
9. CUT OFF DRILLING LINE		
10. DEVIATION SURVEY		
11. WIRE LINE LOGS		
12. RUN CASING & CEMENT		
13. WAIT ON CEMENT		
14. NIPPLE UP B.O.P.		
15. TEST B.O.P.		
16. DRILL STEM TEST		
17. PLUG BACK		
18. SQUEEZE CEMENT		
19. FISHING		
20. DIR. WORK		
21. Welder Hose	8	
22.		
23.		
COMPLETION A. PERFORATING		
B. TUBING TRIPS		
C. TREATING		
D. SWABBING		
E. TESTING		
F.		
G.		
H.		
TOTALS	12	12

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.		
HOURS W/ OPR. D.P.		
HOURS WITHOUT D.P.		
HOURS STANDBY		
TOTAL DAYWORK		
NO. OF DAYS FROM SPUD		
CUMULATIVE ROTATING HOURS		
DAILY MUD COST		
TOTAL MUD COST		

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 12¼	1.00
1/1	Bit sub	2.33
	8" monel	28.86
2/1	8" DC	60.00
	X/O OD	2.29
1	Shocksub OD	9.87
6	6" DC's OD	178.95
1	Jars OD	29.02
6	6" DC's OD	177.05
	BHA	485.37
32	STANDS ___ D.P.	2992.44
1	SINGLES ___ D.P.	31.18
	KELLY DOWN	26 –
	TOTAL	3538.99
WT. OF STRING		

BIT RECORD

BIT NO.	6	
SIZE	12¼	
IADC CODE		
MANUFACTURER	HTC	
TYPE	GT 28C	
SERIAL NO.	W 19 DM	
JETS	3X28	
TFA		
DEPTH OUT		
DEPTH IN	3413	
TOTAL DRILLED	125	
TOTAL HOURS	8½	

CUTTING STRUCTURE			
INNER	OUTER	DULL CHAR.	LOCATION
BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY	Aerated water		
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED			
TYPE	AMOUNT	TYPE	AMOUNT
DAP	140 sks		
Barracat	20 gals		
Defoamer	15 gal		
Soda Ash	4 sks		

REMARKS Forklift Kirk Miller
Boiler 12 Hrs

CONFIDENTIAL

DRILLER Brad Rickerson

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 12¼	1.00
1/1	Bit sub	2.33
	monel	28.86
3/1	8" DC	60.00
	X O OD	2.29
1	Shocksub OD	9.87
6	6" DC's OD	178.95
1	Jars OD	29.02
6	6" DC's OD	177.05
	BHA	489.37
33	STANDS ___ D.P.	3085
	SINGLES ___ D.P.	
	KELLY DOWN	
	TOTAL	
WT. OF STRING	108,000	

BIT RECORD

BIT NO.	6	
SIZE	12¼	
IADC CODE		
MANUFACTURER	HTC	
TYPE	GT 28C	
SERIAL NO.	W 19 DM	
JETS	3X28	
TFA		
DEPTH OUT		
DEPTH IN	3413	
TOTAL DRILLED		
TOTAL HOURS	12	

CUTTING STRUCTURE			
INNER	OUTER	DULL CHAR.	LOCATION
BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT	aerated water		
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED			
TYPE	AMOUNT	TYPE	AMOUNT
DAP	25		
Baracat	2		
Soda Ash	4		

REMARKS Fuel 33" 1482 gal Forklift = Jake Kelsey
Boiler 12 hrs.
Acc. 2400
Max. 16600
Min. 800
Fluid 16"

DRILLER Jeremy R. H.

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED PRINTED IN U.S.A. APPROVED

FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
	Emery	Utah

LAST CASING TUBING OR LINER	SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT

WIRE LINE RECORD REEL NO.

SIZE	NO. LINES	LENGTH SLIPPED
1 1/8	10	

LENGTH CUT OFF	PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
3413	3530	D		Shale	80	25	480	5	28							118
3530	3538			Shale	80	25	480	5	60	5	60	NO	AIR			509

DEVIATION RECORD	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.
	3393	1 1/2													

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
600	700	1	6	TOH recover Survey, Check Float and Crowsfoot
700	830	1 1/2	6	TIH Change Drilling rubber
830	900	1/2	3	Ream 60' To bottom, 8' Fill
900	1400	5	2	Drlg f/ 3413 - 3490
1400	1430	1/2	7	Rig Service Greased Crown, Blocks, Swivel - Funtion Pipe RAM
1430	1700	2 1/2	2	Drlg f/ 3490 - 3530
1700	1800	1	2	Drlg f/ 3530 - 3538 Both pumps on Hole 60 STKS each No Air, Pumping reserve pit down

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
3538	3584	D		Shale	85	25	410	5"	30	5"						

DEVIATION RECORD	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.
	3511	1°													

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
1800	2230	3 1/2 1/2	2/10	Drlg. 3538 - 3584 - Survey @ 3511 Air on Hole @ 3552
2200	2300	1	21	Work pipe Try To Unload hole unsuccessfull
2300				Pull 4 stnds D.P. Try To unload hole unsuccessfull
	100	2	21	Pull 4 more Stnds Try To Unload hole Successfull
100	200	1	21	TIH Break circ. EVERY 400'
200	330	1 1/2	21	Try TO GET Returns unsuccessfull
330				Pull 6 STNDS Try To get Returns unsuccessfull pull 2 more STNDS, put 4 compressors on hole unload
	600	2 1/2	21	hole
↑	110,000			
Rot	108,000			
↓	105,000			

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED APPROVED

No. 3006531

No. 3006532

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mountain	21-16			11-22-02

OPERATOR	CONTRACTOR	RIG NO.
Fortuna	Patterson UTI	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE	SIGNATURE OF CONTRACTOR'S TOOL PUSHER
	Roger Bromley

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.
4 1/2	20	E	6 1/4	XH	226

PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH
1	IDECO	550	15
2	IDECO	550	15

TIME DISTRIBUTION – HOURS

CODE NO. – OPERATION	NIGHT	DAY
1. RIG UP AND TEAR DOWN		
2. DRILL ACTUAL	11	6
3. REAMING		
4. CORING		
5. CONDITION MUD & CIRCULATE		5 1/2
6. TRIPS		1/2
7. LUBRICATE RIG		
8. REPAIR RIG		
9. CUT OFF DRILLING LINE		
10. DEVIATION SURVEY	1	
11. WIRE LINE LOGS		
12. RUN CASING & CEMENT		
13. WAIT ON CEMENT		
14. NIPPLE UP B.O.P.		
15. TEST B.O.P.		
16. DRILL STEM TEST		
17. PLUG BACK		
18. SQUEEZE CEMENT		
19. FISHING		
20. DIR. WORK		
21.		
22.		
23.		
COMPLETION A. PERFORATING		
B. TUBING TRIPS		
C. TREATING		
D. SWABBING		
E. TESTING		
F.		
G.		
H.		
TOTALS	12	12

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.		
HOURS W/ OPR. D.P.		
HOURS WITHOUT D.P.		
HOURS STANDBY		
TOTAL DAYWORK		
NO. OF DAYS FROM SPUD		
CUMULATIVE ROTATING HOURS		
DAILY MUD COST		
TOTAL MUD COST		

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 12 1/4	1.00
1/1	Bit Sub 8" Monel	2.33 28.86
2/1	8" DCs XO OD	60.00 2.29
1	Shock Sub 6 OD	9.87
6	6" DCs OD	178.95
1	Jars OD	29.02
6	6" DCs OD	177.05
	BHA	489.33
33	STANDS ___ D.P.	3085.58
2	SINGLES ___ D.P.	59.28
	KELLY DOWN	28 —
	TOTAL	3662.23
WT. OF STRING		112,000

BIT RECORD

BIT NO.	6		
SIZE	12 1/4		
IADC CODE			
MANUFACTURER	HTC		
TYPE	GT28C		
SERIAL NO.	W190M		
JETS	3X28		
TFA			
DEPTH OUT			
DEPTH IN	3413		
TOTAL DRILLED	249		
TOTAL HOURS	12	18	

CUTTING STRUCTURE			
INNER	OUTER	DULL CHAR.	LOCATION
BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT	Aerated Water		
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
Dap	[illegible] sx	HC 2	10 gal
	220	Defoamer	5 gal
[illegible]	[illegible]		
Baracat	20 gal		

REMARKS

CONFIDENTIAL

Forklift Kirk Miller
Boiler 12 Hrs

DRILLER Brad Pedusa

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 12 1/4	1.00
1/1	Bit Sub 8" Monel	2.33 28.86
3/1	8" DC x6 OD	60.00 2.29
1	Shock Sub OD	9.87
6	6" DC's OD	178.95
1	Jars OD	29.02
6	6" DC OD	177.05
	BHA	489.37
35	STANDS ___ D.P.	3300
X	SINGLES ___ D.P.	29.35
	KELLY DOWN	14.00
	TOTAL	3802
WT. OF STRING		115,000

BIT RECORD

BIT NO.	6		
SIZE	12 1/4		
IADC CODE			
MANUFACTURER	HTC		
TYPE	GT 28C		
SERIAL NO.	W190M		
JETS	3X28		
TFA			
DEPTH OUT			
DEPTH IN	3413		
TOTAL DRILLED	389		
TOTAL HOURS	29		

CUTTING STRUCTURE			
INNER	OUTER	DULL CHAR.	LOCATION
BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT	Aerated water		
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
DAP	40 SX		
Baracat	4		
Soda Ash	4		
Defoam	2		

REMARKS Fuel 41 " Forklift = Jake Kelsey
Acc 2400
Main 1500
Ann 500
Fluid 16" Boiler 12 Hrs

DRILLER [signature]

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

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FIELD OR DISTRICT | COUNTY: Emery | STATE / COUNTRY: Utah

WIRE LINE RECORD REEL NO.

SIZE: 1 1/4 | NO. LINES: 10 | LENGTH SLIPPED

LENGTH CUT OFF | PRESENT LENGTH: 4835

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

LAST CASING TUBING OR LINER	SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
3584	3662	D		Shale	80	28	460	5	50							212

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
600	700	1	5	Attempt to get returns @ ± 3000' NO returns 3600 CFM
700	830	1 1/2	5	Pull 3 stands ± 2700' got returns
830	1000	1 1/2	5	TIH 4 STDS ± 3100 NO returns
1000	1130	1 1/2	5	Pull 2 STDS ± 2900' got returns
1130	1200	1/2	6	TIH to 3584'
1200	1530	3 1/2	2	Drlg f/ 3584 - 3633 2700 CFM
1530	1600	1/2	2	Drlg f/ 3633 - 3640 Both pumps 60 STKS each Air o ff
1600	1800	2	2	Drlg f/ 3640 - 3662 1800 CFM

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
3662	3802	D		Shale	70	32	480	5"	32	5"						

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.
3675	1°													

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
1400	1830	1/2	2	Drlg. 3662 - 3675
1830	1930	1	10	Survey
1930	600	10 1/2	2	Drlg. 3675 - 3802
↑	120			
Rot	115			
↓	112			

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED APPROVED

No. 3006532

No. 3006533

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mountain	21-16			11-23-02

OPERATOR	CONTRACTOR	RIG NO.
Fortuna	Patterson - UTI	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE: [signature]

SIGNATURE OF CONTRACTOR'S TOOL PUSHER: Roger Bromley

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.	PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH
4½	20	E	6¼	XH	226	1	IDECO	550	15
						2	IDECO	550	15

TIME DISTRIBUTION – HOURS

CODE NO. – OPERATION	NIGHT	DAY
1. RIG UP AND TEAR DOWN		
2. DRILL ACTUAL	9	8½
3. REAMING		
4. CORING		
5. CONDITION MUD & CIRCULATE		
6. TRIPS	3	1½
7. LUBRICATE RIG		½
8. REPAIR RIG		
9. CUT OFF DRILLING LINE		
10. DEVIATION SURVEY		½
11. WIRE LINE LOGS		
12. RUN CASING & CEMENT		
13. WAIT ON CEMENT		
14. NIPPLE UP B.O.P.		
15. TEST B.O.P.		
16. DRILL STEM TEST		
17. PLUG BACK		
18. SQUEEZE CEMENT		
19. FISHING		
20. DIR. WORK		
21.		
22.		
23.		
COMPLETION A. PERFORATING		
B. TUBING TRIPS		
C. TREATING		
D. SWABBING		
E. TESTING		
F.		
G.		
H.		
TOTALS	12	12

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.		
HOURS W/ OPR. D.P.		
HOURS WITHOUT D.P.		
HOURS STANDBY		
TOTAL DAYWORK		
NO. OF DAYS FROM SPUD		
CUMULATIVE ROTATING HOURS		
DAILY MUD COST		
TOTAL MUD COST		

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 12¼	1.00
1/1	Bit sub	2.33
	8" Monel	28.86
2/1	8" DCs	60.00
	X/O	2.29
1	Shock sub	9.87
6	6" DCs	178.95
1	Jars	29.02
6	6" DCs	177.05
	BHA	489.37
	STANDS ___ D.P.	
	SINGLES ___ D.P.	
	KELLY DOWN	
	TOTAL	
WT. OF STRING		

BIT RECORD

BIT NO.	6	
SIZE	12¼	
IADC CODE		
MANUFACTURER	HTC	
TYPE	GT 28C	
SERIAL NO.	W19DM	
JETS	3X28	
TFA		
DEPTH OUT		
DEPTH IN	3413	
TOTAL DRILLED	505	
TOTAL HOURS	29 37½	

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION
BEARINGS/SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME				
WEIGHT	Aerated Water			
PRESSURE GRADIENT				
FUNNEL VISCOSITY				
PV/YP	/	/	/	/
GEL STRENGTH	/	/	/	/
FLUID LOSS				
pH				
SOLIDS				

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
Dap	240 sks		
Baracat	15 gal		
Soda Ash	4 sks		
Defoamer	5 gal		

REMARKS: Forklift Kick Miller
Boiler 12 Hrs

CONFIDENTIAL

DRILLER: [signature]

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
	Woods	
1	BIT 12¼	1.00
1/1	Bit sub	2.33
	8" Monel	28.86
2/1	8" DCs	60.00
	XO	2.29
1	Shock sub	9.87
6	6" DCs	178.95
1	Jars	29.02
6	6" DCs	177.05
	BHA	489.37
37	STANDS ___ D.P.	3454
XX	SINGLES ___ D.P.	62.70
	KELLY DOWN	12.20
	TOTAL	4018
WT. OF STRING	117,000	

BIT RECORD

BIT NO.	6	
SIZE	12¼	
IADC CODE		
MANUFACTURER	HTC	
TYPE	GT 28C	
SERIAL NO.	W19DM	
JETS	3x28	
TFA		
DEPTH OUT		
DEPTH IN	3413	
TOTAL DRILLED		
TOTAL HOURS	46½	

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION
BEARINGS/SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME				
WEIGHT	Aerated water			
PRESSURE GRADIENT				
FUNNEL VISCOSITY				
PV/YP	/	/	/	/
GEL STRENGTH	/	/	/	/
FLUID LOSS				
pH				
SOLIDS				

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT

REMARKS: Fuel 62" 5128 gal Forklift = Jake Kelsey
Acc. 1500 Bailey 12 Hrs
man. 1600
Ann. 800
Fluid 116"

DRILLER: Jeremy D. [signature]

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED APPROVED

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FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
	Emery	Utah

WIRE LINE RECORD REEL NO.

SIZE	NO. LINES	LENGTH SLIPPED
1 1/8	10	

LENGTH CUT OFF | PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

LAST CASING TUBING OR LINER

SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
3802		D		Shale	70/75	32	480	5								

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.
3289	1°													

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
600	730	1 1/2	2	Drlg f/ 3802 - 3829
730	800	1/2	10	Survey 3789 1°
800	900	1	8	Repair Rotary Chain
900	1100	2	2	Drlg f/ 3829 - 3859
1100	1130	1/2	7	Rig Service Greased Crown, Blocks, Swivel
1130	1630	5	2	Drlg f/ 3859 - 3918 Both pumps on 60 STKS No pressure
1630	1800	1 1/2	6	TOH Looking for Hole

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
3914	4018	D		Shale	70	32	470	5"	38	5"						

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
1800	2000	2	6	TOOH Wiper Run, ✓ Bit Change ~~NO~~ Shock Sub
2000	2100	1	6	TIH 2' fill
2100	600	9	2	Drlg f/ 3918 - 4018
↑	122 K			
Rot	117 K			
↓	112 K			

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED APPROVED

No. 3006533

No. 3006534

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mtn.	21-16			11-24-02

OPERATOR	CONTRACTOR	RIG NO.
		104

SIGNATURE OF OPERATOR'S REPRESENTATIVE

SIGNATURE OF CONTRACTOR'S TOOL PUSHER Roger Bromley

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.	PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH
4 1/2	20#		6 1/4	XH	226	1	Idco	550	15"
						2	Idco	550	15"

TIME DISTRIBUTION – HOURS

CODE NO. – OPERATION	NIGHT	DAY
1. RIG UP AND TEAR DOWN		
2. DRILL ACTUAL	11	10 3/4
3. REAMING		
4. CORING		
5. CONDITION MUD & CIRCULATE		1 1/4
6. TRIPS		
7. LUBRICATE RIG		
8. REPAIR RIG		
9. CUT OFF DRILLING LINE		
10. DEVIATION SURVEY	1	
11. WIRE LINE LOGS		
12. RUN CASING & CEMENT		
13. WAIT ON CEMENT		
14. NIPPLE UP B.O.P.		
15. TEST B.O.P.		
16. DRILL STEM TEST		
17. PLUG BACK		
18. SQUEEZE CEMENT		
19. FISHING		
20. DIR. WORK		
21.		
22.		
23.		
COMPLETION A. PERFORATING		
B. TUBING TRIPS		
C. TREATING		
D. SWABBING		
E. TESTING		
F.		
G.		
H.		
TOTALS	12	12

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.	
HOURS W/ OPR. D.P.	
HOURS WITHOUT D.P.	
HOURS STANDBY	
TOTAL DAYWORK	
NO. OF DAYS FROM SPUD	
CUMULATIVE ROTATING HOURS	
DAILY MUD COST	
TOTAL MUD COST	

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 12 1/4	1.00
1/1	B.Sub Monel	2.33 / 28.86
2/1	8" DC XO OD	60.80 / 2.29
1	Shock Sub OD	9.87
6	6" DC's OD	178.95
1	Jars OD	29.02
6	6" DC's OD	177.05
	BHA	489.37
39	STANDS ___ D.P.	
	SINGLES ___ D.P.	3641
	KELLY DOWN	37
	TOTAL	
WT. OF STRING		

BIT RECORD

BIT NO.	6
SIZE	12 1/4
IADC CODE	
MANUFACTURER	HTC
TYPE	GT28C
SERIAL NO.	W19DM
JETS	3X28
TFA	
DEPTH OUT	
DEPTH IN	3413
TOTAL DRILLED	
TOTAL HOURS	16 1/4 575

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME	
WEIGHT	
PRESSURE GRADIENT	
FUNNEL VISCOSITY	AIR
PV/YP	AIR
GEL STRENGTH	AIR
FLUID LOSS	Water
pH	
SOLIDS	

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
DAP	90	Drxo	7
B-Cat	4		
Soda-Ash	4		
Pac-R	2		

REMARKS Fork lift: Mike Lindsay Boiler 12 hrs

CONFIDENTIAL

DRILLER Gary Hanson

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 12 1/4	1.00
1/1	B.Sub Monel	2.33 / 28.86
2/1	8" XO OD	60.80 / 2.29
1	SH. Sub OD	9.87
6	6" DC OD	178.95
1	JARS OD	29.02
6	6" DC OD	177.05
	BHA	489.37
41	STANDS ___ D.P.	
X	SINGLES ___ D.P.	
	KELLY DOWN	40
	TOTAL	
WT. OF STRING		

BIT RECORD

BIT NO.	6
SIZE	12 1/4
IADC CODE	
MANUFACTURER	GT28C
TYPE	
SERIAL NO.	W19DM
JETS	3X28
TFA	
DEPTH OUT	
DEPTH IN	3413
TOTAL DRILLED	
TOTAL HOURS	168 1/4

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME	
WEIGHT	
PRESSURE GRADIENT	
FUNNEL VISCOSITY	
PV/YP	/ / /
GEL STRENGTH	/ / /
FLUID LOSS	
pH	
SOLIDS	

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
Soda Ash	4 SKS		
DAP	1 PAIL		

REMARKS FL/O Lex Bumgardner Fuel 51

MP 124,000

DW 120,000

Rot 122,000

DRILLER

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED

PRINTED IN U.S.A.

APPROVED

FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
	Emery	Utah

WIRE LINE RECORD REEL NO.

SIZE 1 1/8 | NO. LINES 10 | LENGTH SLIPPED

LENGTH CUT OFF | PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

LAST CASING TUBING OR LINER

SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
4018	4168	D		SHALES	75	35	700	5"	65	5"	65					

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.
4006	1°													

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
6:00	8:45	2 3/4	2	Drlg F/4018 to 4046
8:45	9:45	1	10	Survey @ 4006 1° Rig Service Act. Pipes, Anything
9:45	18:00	8 1/4	2	Drlg F/4046 to 4168
	1	120		
	Rot	118		
	↓	115		BOP Drill 62 sec

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
4168	4391				75	39	600/700	5"	65	5"	65					

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
1800	0415	10 1/4	2	Drlg 4168 to 4373
0415	0445	1/2	5	Unload Hole Clean up
0445	0515	1/2	2	Drlg 4373 to 4391
0515	0600	3/4	5	Circ.

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED APPROVED

No. 3006534

No. 3006535

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mountain	21-16			11-25-02

OPERATOR	CONTRACTOR	RIG NO.
Fortuna	Patterson Drilling	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE	SIGNATURE OF CONTRACTOR'S TOOL PUSHER
[signature]	Roger Bumley

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.	PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH
4½	20#	X	6¼	XH	226	1	Ideco	550	15"
						2	Ideco	550	15"

TIME DISTRIBUTION – HOURS

CODE NO.	OPERATION	DAY	NIGHT
1.	RIG UP AND TEAR DOWN		
2.	DRILL ACTUAL	1½	
3.	REAMING		
4.	CORING		
5.	CONDITION MUD & CIRCULATE	4	
6.	TRIPS	5½	1
7.	LUBRICATE RIG	½	
8.	REPAIR RIG		
9.	CUT OFF DRILLING LINE		
10.	DEVIATION SURVEY	½	
11.	WIRE LINE LOGS		
12.	RUN CASING & CEMENT		
13.	WAIT ON CEMENT		
14.	NIPPLE UP B.O.P.		
15.	TEST B.O.P.		
16.	DRILL STEM TEST		
17.	PLUG BACK		
18.	SQUEEZE CEMENT		
19.	FISHING		
20.	DIR. WORK		
21.	W/O loggers		8
22.			
23.			
COMPLETION	A. PERFORATING		
	B. TUBING TRIPS		
	C. TREATING		
	D. SWABBING		
	E. TESTING		
	F.		
	G.		
	H.		
TOTALS		12	

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.		
HOURS W/ OPR. D.P.		
HOURS WITHOUT D.P.		
HOURS STANDBY		
TOTAL DAYWORK		
NO. OF DAYS FROM SPUD		
CUMULATIVE ROTATING HOURS		
DAILY MUD COST		
TOTAL MUD COST		

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 12¼	1.00
1/1	Bit sub / Monel	2.33 / 22.86
2/1	8" DC / XO OD	60.86 / 2.29
1	Shock OD	9.87
6	6" D.C. OD	178.95
1	Jars OD	29.02
6	6" d.c. OD	177.05
	BHA	489.37
41	STANDS D.P.	3831.48
2	SINGLES D.P.	62.54
	KELLY DOWN	40
	TOTAL	4423
	WT. OF STRING	

BIT RECORD

BIT NO.	6
SIZE	12¼
IADC CODE	
MANUFACTURER	HTC
TYPE	GT28C
SERIAL NO.	W19DM
JETS	3X28
TFA	
DEPTH OUT	
DEPTH IN	3413
TOTAL DRILLED	1010
TOTAL HOURS	70¼

CUTTING STRUCTURE INNER	OUTER	DULL CHAR.	LOCATION
BEARINGS/SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP			
GEL STRENGTH			
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
DAP	24		
Barcal	4		

REMARKS Forklift: M. Lindsay Boiler 12 hrs

CONFIDENTIAL

DRILLER [signature]

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 12¼	1.00
1/1	Bit sub/monel	2.33 / 22.86
2/1	8" DC / XO OD	60.86 / 2.29
1	Shock Sub OD	9.87
6	6" DC OD	178.95
1	JARS OD	29.02
6	6" DC OD	177.05
	BHA	489.37
41	STANDS D.P.	3831.48
2	SINGLES D.P.	62.54
	KELLY DOWN	40
	TOTAL	
	WT. OF STRING	

BIT RECORD

BIT NO.	6
SIZE	12¼
IADC CODE	
MANUFACTURER	HTC
TYPE	GT28C
SERIAL NO.	W19DM
JETS	3X28
TFA	
DEPTH OUT	4423
DEPTH IN	
TOTAL DRILLED	
TOTAL HOURS	70¼

CUTTING STRUCTURE INNER	OUTER	DULL CHAR.	LOCATION
BEARINGS/SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP			
GEL STRENGTH			
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT

REMARKS F/Rolex BumGardner Fuel 43 Boiler 12

DRILLER [signature]

FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
	Emery	Utah

LAST CASING TUBING OR LINER

SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	PKR. TO CSG. HD.	SET AT

WIRE LINE RECORD REEL NO.

SIZE	NO. LINES	LENGTH SLIPPED
1 1/8	10	85'

LENGTH CUT OFF | PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
4168	4423	D		Emery			950	5"	65	5"	65					

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
6:00	6:30	1/2	5	Circ and Condition
6:30	8:00	1 1/2	2	Drlg F/4391 to 4423
8:00	9:45	1 3/4	5	Circ and Condition
9:45	11:00	1 1/4	6	POOH F/ Wiper Run
11:00	13:15	2 1/4	6	TIH Break Circ @ 3000'
13:15	15:00	1 3/4	5	Circ and Condition
15:00	15:30	1/2	7	Rig Service - Function Pipe Rams
15:30	16:00	1/2	10	Survey @ 4380
16:00	18:00	2	6	POOH F/ Logs Strap out

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
4423																

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
1800	1830	1/2	6	POOH.
1830	1900	1/2	6	STRAP DC's
1900	0300	8	21	WO Loggers (Cut Drlg Line
0300	0230	2 1/2	11	Set in logging Truck Rigup Loggers 85')
0230	0600	1/2		Logging

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED APPROVED

No. 3006535

No. 3005892

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mountain	21-16			11-26-02

OPERATOR	CONTRACTOR	RIG NO.
Fortuna	Patterson Drilling	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE	SIGNATURE OF CONTRACTOR'S TOOL PUSHER
[signature]	Roger Bromley

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.	PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH
4 1/2	20#		6 1/4	XH		1	Idcco	550	15"
						2	Ideco	550	15"

TIME DISTRIBUTION – HOURS

CODE NO. – OPERATION	NIGHT	DAY
1. RIG UP AND TEAR DOWN		
2. DRILL ACTUAL		
3. REAMING		
4. CORING		
5. CONDITION MUD & CIRCULATE		
6. TRIPS		
7. LUBRICATE RIG		
8. REPAIR RIG		
9. CUT OFF DRILLING LINE		
10. DEVIATION SURVEY		
11. WIRE LINE LOGS	9	
12. RUN CASING & CEMENT	3	
13. WAIT ON CEMENT		
14. NIPPLE UP B.O.P.		
15. TEST B.O.P.		
16. DRILL STEM TEST		
17. PLUG BACK		
18. SQUEEZE CEMENT		
19. FISHING		
20. DIR. WORK		
21.		
22.		
23.		
COMPLETION A. PERFORATING		
B. TUBING TRIPS		
C. TREATING		
D. SWABBING		
E. TESTING		
F.		
G.		
H.		
TOTALS	12	

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.	
HOURS W/ OPR. D.P.	
HOURS WITHOUT D.P.	
HOURS STANDBY	
TOTAL DAYWORK	
NO. OF DAYS FROM SPUD	
CUMULATIVE ROTATING HOURS	
DAILY MUD COST	
TOTAL MUD COST	

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
	BIT	
1	shock	9.87
6	6" DC OD	178.95
1	Jars OD	29.02
6	6" DC OD	177.05
	BHA OD	394.89
	OD	
41	STANDS ___ D.P.	3831.48
2	SINGLES ___ D.P.	62.54
	KELLY DOWN	
	TOTAL	
	WT. OF STRING	

BIT RECORD

BIT NO.		
SIZE		
IADC CODE		
MANUFACTURER		
TYPE		
SERIAL NO.		
JETS		
TFA		
DEPTH OUT		
DEPTH IN		
TOTAL DRILLED		
TOTAL HOURS		

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION
BEARINGS/SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT

REMARKS Forklift M. Lindsay Boiler 12 hrs

CONFIDENTIAL

DRILLER [signature]

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
	BIT	
1	Shock	9.87
6	6" DC OD	178.95
1	JARS OD	29.02
6	6" DCs OD	177.05
	BHA OD	394.89
	OD	
	STANDS ___ D.P.	
	SINGLES ___ D.P.	
	KELLY DOWN	
	TOTAL	
	WT. OF STRING	

BIT RECORD

BIT NO.		
SIZE		
IADC CODE		
MANUFACTURER		
TYPE		
SERIAL NO.		
JETS		
TFA		
DEPTH OUT		
DEPTH IN		
TOTAL DRILLED		
TOTAL HOURS		

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION
BEARINGS/SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT

REMARKS DFO LAX Bo. Gardner Fuel 37

Boiler 12 HRS

DRILLER [signature]

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED APPROVED

PRINTED IN U.S.A.

FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
	Emery	Utah

	SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT
LAST CASING TUBING OR LINER							

WIRE LINE RECORD REEL NO.

SIZE	NO. LINES	LENGTH SLIPPED
1 1/8	16	

LENGTH CUT OFF	PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
6:00			11	Log w/Schlumberger Loggers T.D.-4412'
	15:00	9		R/D Loggers
15:00	18:00	3	12	R/U Casers and run Casing w/WestStates

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
1800	2100	3	12	Run Casing
2100	2200	1	12	Rig Down Csg Crew W00 Cementers
2200	0400	5		Start Filling Csg. Rig up Cementers
0400	0430	1/2		Test Lines
0430	0600	1 1/2		W.O. Cementers

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED APPROVED

No. 3005892

No. 3005893

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mountain	21-16			11-27-0

OPERATOR	CONTRACTOR	RIG NO.
Fortuna	Patterson Drilling	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE	SIGNATURE OF CONTRACTOR'S TOOL PUSHER
	Randy Blackford

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.
4 1/2	20#	X	6 1/4	XH	

PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH
1	Ideco	550	15"
2	Ideco	550	15"

TIME DISTRIBUTION – HOURS

CODE NO. – OPERATION	NIGHT	DAY
1. RIG UP AND TEAR DOWN		
2. DRILL ACTUAL		
3. REAMING		
4. CORING		
5. CONDITION MUD & CIRCULATE		
6. TRIPS		
7. LUBRICATE RIG		
8. REPAIR RIG		
9. CUT OFF DRILLING LINE		
10. DEVIATION SURVEY		
11. WIRE LINE LOGS		
12. RUN CASING & CEMENT	6	
13. WAIT ON CEMENT		
14. NIPPLE UP B.O.P.		
15. TEST B.O.P.		
16. DRILL STEM TEST		
17. PLUG BACK		
18. SQUEEZE CEMENT		
19. FISHING		
20. DIR. WORK		
21. W/O Cement	6	
22. Nipple Down		
23.		
COMPLETION A. PERFORATING		
B. TUBING TRIPS		
C. TREATING		
D. SWABBING		
E. TESTING		
F.		
G.		
H.		
TOTALS	12	

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.		
HOURS W/ OPR. D.P.		
HOURS WITHOUT D.P.		
HOURS STANDBY		
TOTAL DAYWORK		
NO. OF DAYS FROM SPUD		
CUMULATIVE ROTATING HOURS		
DAILY MUD COST		
TOTAL MUD COST		

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
	BIT	
	OD	
	OD	
	OD	
	OD	
	OD	
	STANDS ___ D.P.	
	SINGLES___ D.P.	
	KELLY DOWN	
	TOTAL	
WT. OF STRING		

BIT RECORD

BIT NO.		
SIZE		
IADC CODE		
MANUFACTURER		
TYPE		
SERIAL NO.		
JETS		
TFA		
DEPTH OUT		
DEPTH IN		
TOTAL DRILLED		
TOTAL HOURS		

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT

REMARKS Forklift: M. Lindsay

CONFIDENTIAL

DRILLER Jason Hanson

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
	BIT	
	OD	
	OD	
	OD	
	OD	
	OD	
	STANDS ___ D.P.	
	SINGLES___ D.P.	
	KELLY DOWN	
	TOTAL	
WT. OF STRING		

BIT RECORD

BIT NO.		
SIZE		
IADC CODE		
MANUFACTURER		
TYPE		
SERIAL NO.		
JETS		
TFA		
DEPTH OUT		
DEPTH IN		
TOTAL DRILLED		
TOTAL HOURS		

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT

REMARKS D/FO Lee Bumgardner Fuel 31

DRILLER [signature]

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

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FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
	Emery	Utah

WIRE LINE RECORD REEL NO.

SIZE 1 1/8 | NO. LINES 10 | LENGTH SLIPPED

LENGTH CUT OFF | PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

LAST CASING TUBING OR LINER

SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
6:00	12:00	6	21	Wait on Cementers
12:00	18:00	6	12	Cement w/Schlumberger R/D Cementers

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
1800	0600	12	22	Nipple Down, W.O. Cement

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

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No. 3005893

No. 3005894

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mountain	21-16			11-28-02

OPERATOR	CONTRACTOR	RIG NO.
Fab Fortuna	Patterson Drilling	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE

SIGNATURE OF CONTRACTOR'S TOOL PUSHER: Randy Hackford

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.
4 1/2	20#	X	6 1/4	XH	

PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH
1	Ideco	550	15"
2	Ideco	550	15"

TIME DISTRIBUTION – HOURS

CODE NO. – OPERATION	NIGHT	DAY
1. RIG UP AND TEAR DOWN		
2. DRILL ACTUAL		
3. REAMING		
4. CORING		
5. CONDITION MUD & CIRCULATE		
6. TRIPS		
7. LUBRICATE RIG		
8. REPAIR RIG		
9. CUT OFF DRILLING LINE		
10. DEVIATION SURVEY		
11. WIRE LINE LOGS		
12. RUN CASING & CEMENT		
13. WAIT ON CEMENT		
14. NIPPLE UP B.O.P.	18	8
15. TEST B.O.P.		
16. DRILL STEM TEST		
17. PLUG BACK		
18. SQUEEZE CEMENT		
19. FISHING		
20. DIR. WORK		
21. Weld Wellhead		2
22. Cool Head		2
23. WOW		
COMPLETION A. PERFORATING		
B. TUBING TRIPS		
C. TREATING		
D. SWABBING		
E. TESTING		
F.		
G.		
H.		
TOTALS	12	12

DAYWORK TIME SUMMARY (OFFICE USE ONLY)		
HOURS W/ CONTR. D.P.		
HOURS W/ OPR. D.P.		
HOURS WITHOUT D.P.		
HOURS STANDBY		
TOTAL DAYWORK		
NO. OF DAYS FROM SPUD		
CUMULATIVE ROTATING HOURS		
DAILY MUD COST		
TOTAL MUD COST		

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
	BIT	
	OD	
	OD	
	OD	
	OD	
	OD	
	STANDS ___ D.P.	
	SINGLES ___ D.P.	
	KELLY DOWN	
	TOTAL	
WT. OF STRING		

BIT RECORD

BIT NO.		
SIZE		
IADC CODE		
MANUFACTURER		
TYPE		
SERIAL NO.		
JETS		
TFA		
DEPTH OUT		
DEPTH IN		
TOTAL DRILLED		
TOTAL HOURS		

CUTTING STRUCTURE			
INNER	OUTER	DULL CHAR.	LOCATION
BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED			
TYPE	AMOUNT	TYPE	AMOUNT

REMARKS Forklift: A. David

CONFIDENTIAL

DRILLER Jason Hanson

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
	BIT	
	OD	
	OD	
	OD	
	OD	
	OD	
	STANDS ___ D.P.	
	SINGLES ___ D.P.	
	KELLY DOWN	
	TOTAL	
WT. OF STRING		

BIT RECORD

BIT NO.		
SIZE		
IADC CODE		
MANUFACTURER		
TYPE		
SERIAL NO.		
JETS		
TFA		
DEPTH OUT		
DEPTH IN		
TOTAL DRILLED		
TOTAL HOURS		

CUTTING STRUCTURE			
INNER	OUTER	DULL CHAR.	LOCATION
BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED			
TYPE	AMOUNT	TYPE	AMOUNT

REMARKS D/FO Lex Bumgardner Fuel 27"

DRILLER

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FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
	Emery	Utah

LAST CASING TUBING OR LINER

SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT

WIRE LINE RECORD REEL NO.

SIZE	NO. LINES	LENGTH SLIPPED
1 1/8	10	

LENGTH CUT OFF	PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
				Cut 9 5/8" Casing
[illegible]	[illegible]	[illegible]	[illegible]	Nipple Down, Set Stack out, [illegible]
6:00	14:00	8	14	one [illegible] [illegible] [illegible] one [illegible] [illegible] [illegible]
				[illegible] one [illegible] head
14:00	17:00	3	23	Wait on Welder
17:00	18:00	1	21	Weld Well head

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
1800	2200	2/2	21/22	Weld on Head Cool off Head
2200	0600	8	14	Nipple up

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

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No. 3005894

No. 3005895

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mtn	21-16			11-29

OPERATOR	CONTRACTOR	RIG NO.
Fortuna	Patterson Drilling	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE	SIGNATURE OF CONTRACTOR'S TOOL PUSHER
[signature]	Randy Stackford

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.	PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH
4 1/2	20#		6 1/4	XH		1			
						2			

TIME DISTRIBUTION – HOURS

CODE NO.	OPERATION	NIGHT	DAY
1.	RIG UP AND TEAR DOWN		
2.	DRILL ACTUAL		3
3.	REAMING		
4.	CORING		
5.	CONDITION MUD & CIRCULATE		
6.	TRIPS	2 1/2	1 1/4
7.	LUBRICATE RIG		
8.	REPAIR RIG		
9.	CUT OFF DRILLING LINE		
10.	DEVIATION SURVEY		
11.	WIRE LINE LOGS		
12.	RUN CASING & CEMENT		
13.	WAIT ON CEMENT		
14.	NIPPLE UP B.O.P.	1 1/2	
15.	TEST B.O.P.	4 1/2	
16.	DRILL STEM TEST		
17.	PLUG BACK		
18.	SQUEEZE CEMENT		
19.	FISHING		
20.	DIR. WORK		
21.	Mist up	2	4
22.	Float D Stook	1 1/2	3 3/4
23.			
COMPLETION	A. PERFORATING		
	B. TUBING TRIPS		
	C. TREATING		
	D. SWABBING		
	E. TESTING		
	F.		
	G.		
	H.		
TOTALS		12	12

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.		
HOURS W/ OPR. D.P.		
HOURS WITHOUT D.P.		
HOURS STANDBY		
TOTAL DAYWORK		
NO. OF DAYS FROM SPUD		
CUMULATIVE ROTATING HOURS		
DAILY MUD COST		
TOTAL MUD COST		

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 7 7/8	1.00
1	B/SUB	3.04
1	Monel OD	27.32
9	6" DCs OD	265.93
1	Jars OD	29.00
8	6" DCs OD	
	OD	
	BHA	563.67
	STANDS ___ D.P.	
	SINGLES___ D.P.	
	KELLY DOWN	
	TOTAL	
WT. OF STRING		

BIT RECORD

BIT NO.	7	
SIZE	8 3/4	
IADC CODE		
MANUFACTURER		
TYPE	CTI	
SERIAL NO.	L572Y	
JETS	3X16	
TFA		
DEPTH OUT		
DEPTH IN	4423	
TOTAL DRILLED		
TOTAL HOURS		

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION
BEARINGS/SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT

REMARKS Forklift A. David

CONFIDENTIAL

DRILLER Jason Hanson

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 8 3/4	1.00
1	B/sub	3.04
1	Monel OD	27.32
9	6" DCs OD	265.93
1	Jars OD	29.00
8	6" DC OD	237.38
	OD	
	BHA	563.67
41	STANDS ___ D.P.	
X	SINGLES___ D.P.	
	KELLY DOWN	
	TOTAL	
WT. OF STRING		

BIT RECORD

BIT NO.	7	
SIZE	8 3/4	
IADC CODE		
MANUFACTURER		
TYPE	CTI	
SERIAL NO.	L572Y	
JETS	3X16	
TFA		
DEPTH OUT		
DEPTH IN	4423	
TOTAL DRILLED		
TOTAL HOURS	3	

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION
BEARINGS/SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
Fumeric acid	10 sx		
DAP	35 sx		

REMARKS D/FO Lee Bumgardner Fuel. 38

DRILLER [signature]

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FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
	Emery	Utah

LAST CASING TUBING OR LINER	SIZE	MAKE	WEIGHT & GRADE		NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT
	9 5/8	STrC	36		100	4417	16	4413

WIRE LINE RECORD REEL NO.

SIZE	NO. LINES	LENGTH SLIPPED
1 1/8	10	

LENGTH CUT OFF | PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT

DEVIATION RECORD	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
6:00	7:30	1 1/2	14	Nipple Up
7:30	9:30	2	24	Reinstall Slide, Floorplates, Rotary Table
9:30	12:00	2 1/2	15	R/U BOP Tester and Test w/Double Jack
12:00				m/u Bit/Bit Sub and Monel
	14:00	2	6	T I H L/D 2 jts D.P P/U 5" DC's 650'
14:00	16:00	2	15	Test BOPE, R/D Tester
16:00	16:30	1/2	6	T I H to 860
16:30	18:00	1 1/2	22	Kelly Up Drlg Out DST Tool @ 860'

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
4423	4446															

DEVIATION RECORD	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
1800	1815	1 1/4	6	T.I.H.
1915	2300	3 3/4	22	Drlg Float & Cement Guide Shoe
2300	2330	1/2	2	Drlg 4423 to 4429 Lost Returns
2330	0330	4	21	Switch to [redacted] mist
				unload hole 3 Comp & Pump
				Blow Hole with Comp only 400# Air Pressure
				Approx 1000' of water
0330	0600	2 1/2	2	Drlg 4429 to 4446

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED APPROVED

No. 3005895

No. 3005896

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mtn.	21-16			11-30-0

OPERATOR	CONTRACTOR	RIG NO.
Fortuna	Patterson	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE

SIGNATURE OF CONTRACTOR'S TOOL PUSHER

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.
4 1/2	20#		6 1/4	XH	

PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH
1	Ideco	550	15
2	"	"	"

TIME DISTRIBUTION – HOURS

CODE NO. – OPERATION	NIGHT	DAY
1. RIG UP AND TEAR DOWN		
2. DRILL ACTUAL	6	5 3/4
3. REAMING		3 3/4
4. CORING		
5. CONDITION MUD & CIRCULATE		
6. TRIPS	5	
7. LUBRICATE RIG	1/2	
8. REPAIR RIG		
9. CUT OFF DRILLING LINE		
10. DEVIATION SURVEY	1/2	
11. WIRE LINE LOGS		
12. RUN CASING & CEMENT		
13. WAIT ON CEMENT		
14. NIPPLE UP B.O.P.		
15. TEST B.O.P.		
16. DRILL STEM TEST		
17. PLUG BACK		
18. SQUEEZE CEMENT		
19. FISHING		
20. DIR. WORK		
21. unload		1 3/4
22.		
23.		
COMPLETION A. PERFORATING		
B. TUBING TRIPS		
C. TREATING		
D. SWABBING		
E. TESTING		
F.		
G.		
H.		
TOTALS	12	12

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.		
HOURS W/ OPR. D.P.		
HOURS WITHOUT D.P.		
HOURS STANDBY		
TOTAL DAYWORK		
NO. OF DAYS FROM SPUD		
CUMULATIVE ROTATING HOURS		
DAILY MUD COST		
TOTAL MUD COST		

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT	1.00
1/1	RMr/IBS	5.29/3.84
1/1	DC Pony/IBS	9.47/3.75
9	Monel OD	265.93
1	IBS OD	29.00
9	OD	235.98
1	OD	29.00
8		237.38
	BHA	586.98
43	STANDS ___ D.P.	
3	SINGLES ___ D.P.	4400
	KELLY DOWN	
	TOTAL	4400

WT. OF STRING 125,000

BIT RECORD

BIT NO.	7	8
SIZE	8 3/4	8 3/4
IADC CODE		
MANUFACTURER		
TYPE	CTI	F35
SERIAL NO.	15724	J3100
JETS	3x16	3x16
TFA		
DEPTH OUT	4631	
DEPTH IN	4423	4631
TOTAL DRILLED		
TOTAL HOURS		

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION
BEARINGS/SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

Aereated Water

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
100	DAP		
Foam Aid	3		
Break Defoamer	3		

REMARKS Forklift: A. David   Boiler - 12 hrs

CONFIDENTIAL

DRILLER

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 8 3/4	1.00
1/1	RMR/IBS	5.29/4.28
1/1	Sh DC/IBS	9.47/3.75
1	Monel OD	27.32
1	IBS OD	3.56
9	6" DC OD	265.93
1	Jars OD	29.00
8	6" DC	237.38
	BHA	586.98
45	STANDS ___ D.P.	4208
	SINGLES ___ D.P.	
	KELLY DOWN	40
	TOTAL	

WT. OF STRING 140,000

BIT RECORD

BIT NO.	8
SIZE	8 3/4
IADC CODE	
MANUFACTURER	Smith
TYPE	F35
SERIAL NO.	J3100
JETS	3x16
TFA	
DEPTH OUT	
DEPTH IN	4631
TOTAL DRILLED	
TOTAL HOURS	6 3/4

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION
BEARINGS/SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
DAP	60 sx		

REMARKS D/FO Lex Bumgardner   Fuel 51
Up, 140,000   Boiler 12 Hrs
Dn, 138,000
Rt, 140,000

DRILLER

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FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
	Emery	Utah

WIRE LINE RECORD REEL NO.

SIZE	NO. LINES	LENGTH SLIPPED
1 1/8	10	

LENGTH CUT OFF | PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

LAST CASING TUBING OR LINER

SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT
9 5/8						

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
4444				Emery	65	40	2500			5"	35					

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
6:00	11:30	5 1/2	2	Drlg F/4444 to 4624
11:30	12:00	1/2	12	Survey @ 4584
12:00	12:30	1/2	2	Drlg F/4624 to 4631 3°
12:30	14:00	1 1/2	6	POOH F/Stabilizer LD 1 jt
14:00	14:30	1/2	7	Rig Service Activate ATI BOBE
14:30				P/U Stabilizer and Bit # 8 and Reamers
	17:30	3	6	TIH L/D 9 jts
17:30	18:00	1/2	6	Ream

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
4631	4835				65	35/40	400	5	35	5	37					

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.
4600	2 3/4													

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
1800	1900	1	21	unload Hole
1900	2245	3 3/4	3	Reaming 4427 to 4631
2245	0430	6 3/4	2	Drlg 4631 to 4835
0430	0515	3/4	10	Surv. 4800
515	0600	3/4	21	unload Hole

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

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No. 3005896

No. 3005897

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mtn.	21-16			12-1-02

OPERATOR	CONTRACTOR	RIG NO.
Fortuna	Patterson UTI	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE	SIGNATURE OF CONTRACTOR'S TOOL PUSHER
	Randy Hackford

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.
4 1/2	20.0	E	6 1/4	4 1/2 XH	1

PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH
1	Ideco	550	15"
2	Ideco	550	15"

TIME DISTRIBUTION – HOURS

CODE NO. – OPERATION	NIGHT	DAY
1. RIG UP AND TEAR DOWN		
2. DRILL ACTUAL	12	10 3/4
3. REAMING		
4. CORING		
5. CONDITION MUD & CIRCULATE		
6. TRIPS		
7. LUBRICATE RIG		1/2
8. REPAIR RIG		
9. CUT OFF DRILLING LINE		
10. DEVIATION SURVEY		3/4
11. WIRE LINE LOGS		
12. RUN CASING & CEMENT		
13. WAIT ON CEMENT		
14. NIPPLE UP B.O.P.		
15. TEST B.O.P.		
16. DRILL STEM TEST		
17. PLUG BACK		
18. SQUEEZE CEMENT		
19. FISHING		
20. DIR. WORK		
21.		
22.		
23.		
COMPLETION A. PERFORATING		
B. TUBING TRIPS		
C. TREATING		
D. SWABBING		
E. TESTING		
F.		
G.		
H.		
TOTALS	12	12

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.		
HOURS W/ OPR. D.P.		
HOURS WITHOUT D.P.		
HOURS STANDBY		
TOTAL DAYWORK		
NO. OF DAYS FROM SPUD		
CUMULATIVE ROTATING HOURS		
DAILY MUD COST		
TOTAL MUD COST		

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 8 3/4	1.00
1/1	Reamer IBS	5.29 / 4.28
1/1	Shock Sub IBS OD	9.47 / 3.35
1	Monel OD	27.32
1	IBS OD	3.56
9	6" DC's OD	265.93
1	Jars OD	29.00
6	6" DC's	237.38
48	STANDS ___ D.P.	4489
X	SINGLES ___ D.P.	31.26
	KELLY DOWN	40.00
	TOTAL	5148
WT. OF STRING		142,000

BIT RECORD

BIT NO.	8
SIZE	8 3/4
IADC CODE	
MANUFACTURER	Smith
TYPE	F35
SERIAL NO.	MJ3100
JETS	3X16
TFA	
DEPTH OUT	
DEPTH IN	4631
TOTAL DRILLED	
TOTAL HOURS	17 1/2

CUTTING STRUCTURE			
INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME				
WEIGHT				
PRESSURE GRADIENT	Aerated water			
FUNNEL VISCOSITY				
PV/YP	/	/	/	
GEL STRENGTH	/	/	/	
FLUID LOSS				
pH				
SOLIDS				

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
DAP	60		
DEFOAM	2		

REMARKS Forklift = Jake Kelsey

Boiler 12 hrs.

CONFIDENTIAL

DRILLER

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 8 3/4	1.00
1/1	Reamer IBS	5.29 / 4.28
1/1	Shock Sub IBS OD	9.47 / 3.35
1	Monel OD	27.32
1	IBS OD	3.56
9	6" DC's OD	265.93
1	Jars OD	29.00
8	6" DC's	237.38
	BHA	586.98
51	STANDS ___ D.P.	4770.22
1	SINGLES ___ D.P.	31.60
	KELLY DOWN	15 —
	TOTAL	5404.35
WT. OF STRING		145,000

BIT RECORD

BIT NO.	8
SIZE	8 3/4
IADC CODE	
MANUFACTURER	STC
TYPE	F35
SERIAL NO.	MJ3100
JETS	3X16
TFA	
DEPTH OUT	
DEPTH IN	4631
TOTAL DRILLED	773
TOTAL HOURS	29 1/2

CUTTING STRUCTURE			
INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME				
WEIGHT				
PRESSURE GRADIENT	Aerated Water			
FUNNEL VISCOSITY				
PV/YP	/	/	/	
GEL STRENGTH	/	/	/	
FLUID LOSS				
pH				
SOLIDS				

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
Dap	60sks		
Bacalat	15gal		

REMARKS Diesel 43" 3486gal Forklift Kirk Miller

ACC 2500 Boiler 12 Hrs

Mann 1400

Ann 900

Koomey 13"

DRILLER Brad Pedersen

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FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
	EMERY	Utah

LAST CASING TUBING OR LINER	SIZE	MAKE	WEIGHT & GRADE		NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT
	9 5/8	STrC	36		100	4417	18	4413

WIRE LINE RECORD REEL NO.

SIZE	NO. LINES	LENGTH SLIPPED
1 1/4	10	

LENGTH CUT OFF	PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
4835	5148	D		Shale	80	40	320	5"	47	5"						

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.
5076	2 1/2°													

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
600	1230	6 1/2	2	Drlg F/ 4835 - 5022
1230	1300	1/2	7	Rig Service A/T BOP's Grease Crown, Blocks, & Swivel
1300	1600	3	2	Drlg 5022 - 5116
1600	1645	3/4	10	Survey
1645	1800	1 1/4	2	Drlg 5116 - 5148
Held BOP Drill				70 Sec.

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
5148	5404	D		Shale	80	40	300	5"	47							199

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
1800	600	12	2	Drlg f/ 5148 - 5404
				↑ 150,000
				R 145,000
				↓ 145,000

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No. 3005897

No. 3005898

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mtn.	21-16			12-02-0

OPERATOR	CONTRACTOR	RIG NO.
Fortuna	Patterson UTI	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE	SIGNATURE OF CONTRACTOR'S TOOL PUSHER
	Randy Hackford

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.
4 1/2	20.0		6 1/4	4 1/2 XH	1

PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH
1	Ideco	550	15
2	Ideco	550	15

TIME DISTRIBUTION – HOURS

CODE NO. – OPERATION	NIGHT	DAY
1. RIG UP AND TEAR DOWN		
2. DRILL ACTUAL	12	10 3/4
3. REAMING		
4. CORING		
5. CONDITION MUD & CIRCULATE		
6. TRIPS		
7. LUBRICATE RIG		1/2
8. REPAIR RIG		
9. CUT OFF DRILLING LINE		
10. DEVIATION SURVEY		3/4
11. WIRE LINE LOGS		
12. RUN CASING & CEMENT		
13. WAIT ON CEMENT		
14. NIPPLE UP B.O.P.		
15. TEST B.O.P.		
16. DRILL STEM TEST		
17. PLUG BACK		
18. SQUEEZE CEMENT		
19. FISHING		
20. DIR. WORK		
21.		
22.		
23.		
COMPLETION A. PERFORATING		
B. TUBING TRIPS		
C. TREATING		
D. SWABBING		
E. TESTING		
F.		
G.		
H.		
TOTALS	12	12

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.		
HOURS W/ OPR. D.P.		
HOURS WITHOUT D.P.		
HOURS STANDBY		
TOTAL DAYWORK		
NO. OF DAYS FROM SPUD		
CUMULATIVE ROTATING HOURS		
DAILY MUD COST		
TOTAL MUD COST		

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 8 3/4	1.00
1/1	Reamer IBS	5.29 4.28
1/1	shock sub IBS OD	9.47 3.75
1	monel OD	27.32
1	IBS OD	3.56
9	6" DC's OD	265.93
1	Jar S OD	29.00
8	6" DC's	237.38
	BHA	586.98
53	STANDS ___ D.P.	4959
X	SINGLES ___ D.P.	30.49
	KELLY DOWN	34.00
	TOTAL	5610
WT. OF STRING		149,000

BIT RECORD

BIT NO.	8
SIZE	8 3/4
IADC CODE	
MANUFACTURER	STC
TYPE	F35
SERIAL NO.	MJ3100
JETS	3x16
TFA	.589
DEPTH OUT	
DEPTH IN	4631
TOTAL DRILLED	979
TOTAL HOURS	38 1/2 40 1/4

CUTTING STRUCTURE			
INNER	OUTER	DULL CHAR.	LOCATION
BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME	6.00	12:00	5:00
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY		Aerated Water	
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH	8	7	8
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
DAP	60		
Barcat	5 gal.		
Defoam	5 gal		
EZ MUD	15 gal		

REMARKS: Fork lift = Jake Kelsay
Boiler 12 hrs
Changed oil in, cent. pumps, Tugger, Lightning mixers

CONFIDENTIAL

DRILLER

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 8 3/4	1.00
1/1	Reamer IBS	5.29 4.28
1/1	shock sub IBS OD	9.47 3.75
1	monel OD	27.32
1	IBS OD	3.56
9	6" DC's OD	265.93
1	Jars OD	29.00
8	6" DC's	237.38
	BHA	586.98
53	STANDS ___ D.P.	5486.00
2	SINGLES ___ D.P.	
	KELLY DOWN	15
	TOTAL	5748.05
WT. OF STRING		150,000

BIT RECORD

BIT NO.	8
SIZE	8 3/4
IADC CODE	
MANUFACTURER	STC
TYPE	F35
SERIAL NO.	MJ3100
JETS	3X16
TFA	.589
DEPTH OUT	
DEPTH IN	4631
TOTAL DRILLED	1117
TOTAL HOURS	52 1/4

CUTTING STRUCTURE			
INNER	OUTER	DULL CHAR.	LOCATION
BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY		Aerated Water	
PV/YP			/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
Dap	75		

REMARKS: Diesel 31" 2281 gal Fork lift Kirk Miller
ACC 2500 Boiler 12 hrs
Mann 1300
Ann 600
Koomey 0/ 13"

DRILLER Brad Ladesic

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FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
	Emery	Utah

WIRE LINE RECORD REEL NO.

SIZE	NO. LINES	LENGTH SLIPPED
1 1/8	10	

LENGTH CUT OFF | PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

LAST CASING TUBING OR LINER

SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT
9 5/8	STAC	36	100	4417	16	4413

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
5404	5610	D		Shale	80	30/40	250	5"	48	5"						

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.
5546	2 3/4°													

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
600	1530	9 1/2	2	Drlg. F/ 5404 - 5586
1530	1615	3/4	10	Survey
1615	1730	1 1/4	2	Drlg. F/ 5586 - 5610
1730	1800	1/2	7	Rig Service. Acc Blind Rams & Annular

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
5610	5748	D		Shale	80	40	350	5	48							203

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
1800	6:00	12	2	Drlg f/ 5610 - 5748
				↑ 152,000
				R 150,000
				↓ 146,000

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED APPROVED

No. 3005898

No. 3005899

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mtn.	21-16			12-3-02

OPERATOR	CONTRACTOR	RIG NO.
Fortuna	Patterson UTI	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE	SIGNATURE OF CONTRACTOR'S TOOL PUSHER
	Randy Hackford

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.
4 1/2	20.0		6 1/4	4 1/2 XH	1

PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH
1	Ideco	550	15
2	Ideco	550	15

TIME DISTRIBUTION – HOURS

CODE NO. – OPERATION	NIGHT	DAY
1. RIG UP AND TEAR DOWN	9	
2. DRILL ACTUAL		6
3. REAMING		
4. CORING		
5. CONDITION MUD & CIRCULATE	2	
6. TRIPS		5 1/2
7. LUBRICATE RIG		1/2
8. REPAIR RIG		
9. CUT OFF DRILLING LINE		
10. DEVIATION SURVEY	1	
11. WIRE LINE LOGS		
12. RUN CASING & CEMENT		
13. WAIT ON CEMENT		
14. NIPPLE UP B.O.P.		
15. TEST B.O.P.		
16. DRILL STEM TEST		
17. PLUG BACK		
18. SQUEEZE CEMENT		
19. FISHING		
20. DIR. WORK		
21.		
22.		
23.		
COMPLETION A. PERFORATING		
B. TUBING TRIPS		
C. TREATING		
D. SWABBING		
E. TESTING		
F.		
G.		
H.		
TOTALS	12	12

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.		
HOURS W/ OPR. D.P.		
HOURS WITHOUT D.P.		
HOURS STANDBY		
TOTAL DAYWORK		
NO. OF DAYS FROM SPUD		
CUMULATIVE ROTATING HOURS		
DAILY MUD COST		
TOTAL MUD COST		

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 8 3/4	1.00
1/1	Reamer IBS	5.29 4.28
1/1	Shock Sub IBS OD	9.47 3.75
1	Monel OD	27.32
1	IBS OD	3.56
9	6" DC's OD	265.93
1	Jars OD	29.00
8	6" DC's	237.38
	BHA	586.98
56	STANDS ___ D.P.	5241
XX	SINGLES ___ D.P.	63.08
	KELLY DOWN	30.00
	TOTAL	5921
WT. OF STRING		152,000

BIT RECORD

BIT NO.	8	9
SIZE	8 3/4	8 3/4
IADC CODE		
MANUFACTURER	STC	Hughes
TYPE	F35	GTS20
SERIAL NO.	MJ3109	5021367
JETS	3X16	3X16
TFA	.589	.589
DEPTH OUT	5768	
DEPTH IN	4631	5768
TOTAL DRILLED	1137	153
TOTAL HOURS	52 1/4	5

CUTTING STRUCTURE			
INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME				
WEIGHT				
PRESSURE GRADIENT				
FUNNEL VISCOSITY				Aerated Water
PV/YP	/	/	/	
GEL STRENGTH	/	/	/	
FLUID LOSS				
pH				
SOLIDS				

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
DAP	75 sk x		
Baracat	4 bx+		
ez-Mud	1 bk+		

REMARKS Forklift = Frank Richins
Boiler 12 hrs

CONFIDENTIAL

DRILLER

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 8 3/4	1.00
1/1	Reamer IBS	5.29 4.28
1/1	Shock Sub IBS OD	9.47 3.75
1	Monel OD	27.32
1	IBS OD	3.56
9	6" DC's OD	265.93
1	Jars OD	29.00
8	6" DC's	237.38
	BHA	586.98
60	STANDS ___ D.P.	5616.04
1	SINGLES ___ D.P.	31.49
	KELLY DOWN	40 –
	TOTAL	6274.51
WT. OF STRING		156,000

BIT RECORD

BIT NO.	9	
SIZE	8 3/4	
IADC CODE		
MANUFACTURER	HTC	
TYPE	GTS20	
SERIAL NO.	5021367	
JETS	3X16	
TFA	.549	
DEPTH OUT		
DEPTH IN	5768	
TOTAL DRILLED	506	
TOTAL HOURS	14	

CUTTING STRUCTURE			
INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME				
WEIGHT				
PRESSURE GRADIENT				
FUNNEL VISCOSITY				Aerated Water
PV/YP	/	/	/	
GEL STRENGTH	/	/	/	
FLUID LOSS				
pH				
SOLIDS				

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
DAP	75 sks		
Defoamer	10 gal		
Baracat	30 gal		
EZ Mud	5 gal		

REMARKS Diesel 22" 1414 gal Forklift Kirk Miller
ACC 2560 Boiler 12 Hrs
Mann 1300
Ann 850
Kearney Oil 15"

DRILLER Brad Pedersen

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

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FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
	Emery	Utah

WIRE LINE RECORD REEL NO.

SIZE	NO. LINES	LENGTH SLIPPED
1 1/8	10	

LENGTH CUT OFF | PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

LAST CASING TUBING OR LINER

SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT
9 5/8	STAC	36	100	4417	16	4413

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
5748	5921	D		Shale	80	40	1300	5"	60	5"	60					

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
600	700	1	2	Drlg F/5748 - 5768
700	930	2 1/2	6	Tooh F/Bit Activate Blind Rams
930	1230	3	6	m/u Bit # 9 TIH Ream 30' To Bottom No Fill
1230	1445	2 1/4	2	Drlg F/5768 - 5827
1445	1515	1/2	7	Rig Service, F/T BOPS
1515	1800	2 3/4	2	Drlg F/5827 - 5921

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
5921	6274	D		Shale	80	40	800	5	60							

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.
6045	2 1/2°													

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
1800	2000	2	2	Drlg f/5921 - 5993
2000	2200	2	5	Get Hole to unload 3600 CFM
2200	2400	2	2	Drlg f/5993 - 6085
2400	1000	1/2	10	Circ + Survey 6045 2 1/2°
1000	600	5	2	Drlg f/6085 - 6274
				↑ 160,000
				R 156,000
				↓ 156,000

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED APPROVED

No. 3005899

No. 3005900

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mtn	21-16			12-4-0

OPERATOR	CONTRACTOR	RIG NO.
Fortuna	Patterson Drlg.	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE	SIGNATURE OF CONTRACTOR'S TOOL PUSHER
	Roger Bromley

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.
4 1/2	20.0		6 1/4	4 1/2 X H	1

PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH
1	Ideco	550	15
2	Ideco	550	15

TIME DISTRIBUTION – HOURS

CODE NO. – OPERATION	NIGHT	DAY
1. RIG UP AND TEAR DOWN		
2. DRILL ACTUAL	6	10
3. REAMING		
4. CORING		
5. CONDITION MUD & CIRCULATE	6	
6. TRIPS		
7. LUBRICATE RIG		1/2
8. REPAIR RIG		
9. CUT OFF DRILLING LINE		
10. DEVIATION SURVEY		1/2
11. WIRE LINE LOGS		
12. RUN CASING & CEMENT		
13. WAIT ON CEMENT		
14. NIPPLE UP B.O.P.		
15. TEST B.O.P.		
16. DRILL STEM TEST		
17. PLUG BACK		
18. SQUEEZE CEMENT		
19. FISHING		
20. DIR. WORK		
21. Unload Hole		1
22.		
23.		
COMPLETION A. PERFORATING		
B. TUBING TRIPS		
C. TREATING		
D. SWABBING		
E. TESTING		
F.		
G.		
H.		
TOTALS	12	12

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.		
HOURS W/ OPR. D.P.		
HOURS WITHOUT D.P.		
HOURS STANDBY		
TOTAL DAYWORK		
NO. OF DAYS FROM SPUD		
CUMULATIVE ROTATING HOURS		
DAILY MUD COST		
TOTAL MUD COST		

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 8 3/4	1.00
1/1	Reamer IBS	5.29 4.28
1	IBS OD	3.75
1	Monel OD	27.32
1	IBS OD	3.56
9	6" DC's OD	265.93
1	Jars OD	29.00
8	6" DC's	237.38
	BHA	577.51
65	STANDS ___ D.P.	6081
	SINGLES ___ D.P.	
	KELLY DOWN	19.00
	TOTAL	6677
WT. OF STRING		168,000

BIT RECORD

BIT NO.	9	
SIZE	8 3/4	
IADC CODE		
MANUFACTURER	HTC	
TYPE	GT S20	
SERIAL NO.	5021367	
JETS	3X16	
TFA	.589	
DEPTH OUT		
DEPTH IN	5768	
TOTAL DRILLED	909	
TOTAL HOURS	24	

CUTTING STRUCTURE			
INNER	OUTER	DULL CHAR.	LOCATION
BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY	AERATED WATER		
PV/YP	/		/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED			
TYPE	AMOUNT	TYPE	AMOUNT
DAP	75		
Baracat	15 gal		
EZ-MUD	15 gal		
Barafiber	10 gal		

REMARKS Forklift = Frank Richins
Boiler 12 hrs

CONFIDENTIAL

DRILLER

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 8 3/4	1.00
1/1	Reamer IBS	5.29 4.28
1/1	SUBEX OD	9.47 3.75
1	Monel OD	27.32
1	IBS OD	3.56
9	6" DC's OD	265.93
1	Jars OD	29.00
8	6" DC's	232.38
	BHA	586.98
67	STANDS ___ D.P.	6268.46
2	SINGLES ___ D.P.	62.87
	KELLY DOWN	24 —
	TOTAL	6942.31
WT. OF STRING		172,000

BIT RECORD

BIT NO.	9	
SIZE	8 3/4	
IADC CODE		
MANUFACTURER	HTC	
TYPE	GT S20	
SERIAL NO.	5021367	
JETS	3X16	
TFA	.589	
DEPTH OUT		
DEPTH IN	5768	
TOTAL DRILLED	1174	
TOTAL HOURS	30	

CUTTING STRUCTURE			
INNER	OUTER	DULL CHAR.	LOCATION
BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY	Aerated Water		
PV/YP	/		/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED			
TYPE	AMOUNT	TYPE	AMOUNT
DAP	75 SKS		
Baracat	15 gal		
EZ-Mud	5 gal		
Barafiber	5 gal		

REMARKS Diesel 46" - 3781 Forklift Kirk Miller
ACC 2500 Boiler 12HRS
mann 1300
Ann 500
Koomey Oil

DRILLER Brad Pedersen

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

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FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
	Emery	Utah

WIRE LINE RECORD REEL NO.

SIZE	NO. LINES	LENGTH SLIPPED
1 1/8	10	

LENGTH CUT OFF | PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

LAST CASING TUBING OR LINER

SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
6274	6677	D		Shale	80	40	500	5"	50	5"	50					

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.
6544	2 3/4	N 90 45												

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
600	1200	6	2	Drlg. F/6274-6521
1200	1300	1	21	Unload hole
1300	1445	1 3/4	2	Drlg. F/6521-6584
1445	1515	1/2	10	Survey
1515	1545	1/2	7	Rig Service F/T BOP Adjust Brakes
1545	1800	2 1/4	2	Drlg. F/ 6584-6677

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
6677	6942	D		Shale	80	40	430	5"	60	5"	60					509

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
1800	2000	2	2	Drlg f/6677 - 6761
2000	2330	3 1/2	5	Pump Down Reserve Pit, Had returns f/ 1 Hour
2330	2430	1	2	Drlg f/6761 - 6793
2430	300	2 1/2	5	Get Hole to unload 3600 CFM
300	600	3	2	Drlg f/6793 - 6942
				↑ 180,000
				R 172,000
				↓ 170,000

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED APPROVED

No. 3005900

No. 3005901

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mtn.	21-16			12-5-0

OPERATOR	CONTRACTOR	RIG NO.
Fortuna	Patterson UTI	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE	SIGNATURE OF CONTRACTOR'S TOOL PUSHER
	Roger Bromley

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.
4½	20.0		6¼	4½XH	1

PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH
1	Ideco	550	15
2	Ideco	550	15

TIME DISTRIBUTION – HOURS

CODE NO. – OPERATION	NIGHT	DAY
1. RIG UP AND TEAR DOWN		
2. DRILL ACTUAL		3½
3. REAMING	1	
4. CORING		
5. CONDITION MUD & CIRCULATE	5	
6. TRIPS	4½	5
7. LUBRICATE RIG		
8. REPAIR RIG		
9. CUT OFF DRILLING LINE		
10. DEVIATION SURVEY		
11. WIRE LINE LOGS		
12. RUN CASING & CEMENT		
13. WAIT ON CEMENT		
14. NIPPLE UP B.O.P.		
15. TEST B.O.P.		
16. DRILL STEM TEST		
17. PLUG BACK		
18. SQUEEZE CEMENT		
19. FISHING		
20. DIR. WORK		
21. Tight Hole		2
22. mud		1½
23. Change Valves	1½	
COMPLETION A. PERFORATING		
B. TUBING TRIPS		
C. TREATING		
D. SWABBING		
E. TESTING		
F.		
G.		
H.		
TOTALS	12	12

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.	
HOURS W/ OPR. D.P.	
HOURS WITHOUT D.P.	
HOURS STANDBY	
TOTAL DAYWORK	
NO. OF DAYS FROM SPUD	
CUMULATIVE ROTATING HOURS	
DAILY MUD COST	
TOTAL MUD COST	

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
	BIT	
	OD	
	OD	
	OD	
	OD	
	OD	
	STANDS ___ D.P.	
	SINGLES ___ D.P.	
	KELLY DOWN	
	TOTAL	
WT. OF STRING		

BIT RECORD

BIT NO.	9	
SIZE	8 3/4	
IADC CODE		
MANUFACTURER	HTC	
TYPE	GTS20	
SERIAL NO.	5021367	
JETS	3X16	
TFA	.589	
DEPTH OUT		
DEPTH IN	5768	
TOTAL DRILLED		
TOTAL HOURS	33½	

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT		Attempt	Mud
PRESSURE GRADIENT			
FUNNEL VISCOSITY	10	up	
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
Dap	35	Soda	4
Sand	35	B. Fiber	135
Gel	220	Walnut	90
Poly	3	Mica	10

REMARKS For Lift = Frank Richins
Boiler 12 hrs.

CONFIDENTIAL

DRILLER

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 8 3/4	1.00
1/1	Reamer IBS	4.74 4.28
1/1	SUBS DC IBS OD	9.43 3.75
1	Monel OD	27.32
1	IBS OD	3.50
9	6" DC OD	265.93
1	Jars OD	29.01
8	6" DC	232.38
	B+A	586.43
67	STANDS ___ D.P.	6268.46
1	SINGLES ___ D.P.	31.31
	KELLY DOWN	40 –
	TOTAL	6926.20
WT. OF STRING	163,000	

BIT RECORD

BIT NO.	9	
SIZE	8 3/4	
IADC CODE		
MANUFACTURER	HTC	
TYPE	GTS20	
SERIAL NO.	5021367	
JETS	3X16	
TFA	.589	
DEPTH OUT		
DEPTH IN	5768	
TOTAL DRILLED		
TOTAL HOURS		

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME		11:00	
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY		45/52	
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			
LCM			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
Bar Seal		Walnut	1 Pallet
Soda	65 lbs	Silafiber	1 Pallet
Gel	113	Cotton Hulls	2 Pallets
Mica	2 Pallets		

REMARKS Diesel 31" 2281 Fork lift Kirk miller
ACC 2500 Boiler 12 HRS
Main 1300
Ann 500
Kooney 0

DRILLER Brad Pederson

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED

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FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
	Emery	Utah

WIRE LINE RECORD REEL NO.

SIZE	NO. LINES	LENGTH SLIPPED
1 1/8	10	

LENGTH CUT OFF | PRESENT LENGTH 4750

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

LAST CASING TUBING OR LINER

SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
6942		D		Shale	80	8 3/4	35	5"	60	5"	60					

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
600	930	3 1/2	2	Drlg. F/ 6942-7083
930	1130	2	21	Hole Tight L/O 2 JNTS Pump 6 JNTS OUT
1130	1515	3 3/4	6	TOOH, L/O 3 IBS, Reamer & Short DC
1515	1630	1 1/4	6	T/H 4 STND'S TO bottom OF Csg
1630	1800	1 1/2	22	Mix & pump Hi Vis LCM pills

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
1800	2300	5	5	Mix & Pump Hi Vis LCM pills, Full returns, Blow out Kelly
2300	2430	1 1/2	6	T.O.H
2430	200	1 1/2	23	Change 1 Valve on Flowline to Gas Buster
200	500	3	6	P/u BHA, T.I.H
500	600	1	3	Fill pipe Wash + Ream F/ 6832-6926

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED APPROVED

No. 3005901

No. 3005902

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mtn.	21-16			12-6-02

OPERATOR	CONTRACTOR	RIG NO.
Fortuna	Patterson Utl	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE

SIGNATURE OF CONTRACTOR'S TOOL PUSHER: Roger Bromley

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.
4 1/2	20.0		6 1/4	4 1/2 XH	1

PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH
1	Ideco	550	15
2	Ideco	550	15

TIME DISTRIBUTION – HOURS

CODE NO. – OPERATION	NIGHT	DAY
1. RIG UP AND TEAR DOWN		
2. DRILL ACTUAL	8	9
3. REAMING		1
4. CORING		
5. CONDITION MUD & CIRCULATE	4	
6. TRIPS		
7. LUBRICATE RIG		1/2
8. REPAIR RIG		1
9. CUT OFF DRILLING LINE		
10. DEVIATION SURVEY		1/2
11. WIRE LINE LOGS		
12. RUN CASING & CEMENT		
13. WAIT ON CEMENT		
14. NIPPLE UP B.O.P.		
15. TEST B.O.P.		
16. DRILL STEM TEST		
17. PLUG BACK		
18. SQUEEZE CEMENT		
19. FISHING		
20. DIR. WORK		
21.		
22.		
23.		
COMPLETION A. PERFORATING		
B. TUBING TRIPS		
C. TREATING		
D. SWABBING		
E. TESTING		
F.		
G.		
H.		
TOTALS	12	12

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.		
HOURS W/ OPR. D.P.		
HOURS WITHOUT D.P.		
HOURS STANDBY		
TOTAL DAYWORK		
NO. OF DAYS FROM SPUD		
CUMULATIVE ROTATING HOURS		
DAILY MUD COST		
TOTAL MUD COST		

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 8 3/4	1.00
1/1	Reamer IBS	4.74 4.28
1/1	Shrt. DC IBS OD	9.45 3.75
1	Monel OD	27.32
1	IBS OD	3.50
9	6" DC's OD	265.93
1	Jars OD	29.00
8	6" DC's	237.38
	BHA	586.43
70	STANDS ___ D.P.	6549
X	SINGLES ___ D.P.	31.05
	KELLY DOWN	33.00
	TOTAL	7200
WT. OF STRING		167,000

BIT RECORD

BIT NO.	9	
SIZE	8 3/4	
IADC CODE		
MANUFACTURER	HTC	
TYPE	GT S20	
SERIAL NO.	502136T	
JETS	3X16	
TFA	.589	
DEPTH OUT		
DEPTH IN	5768	
TOTAL DRILLED	1432	
TOTAL HOURS	42 1/2	

CUTTING STRUCTURE			
INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME		10:15	
WEIGHT		8.5	
PRESSURE GRADIENT		.442	
FUNNEL VISCOSITY		42	
PV/YP	/	11/11	/
GEL STRENGTH	/	6/11 15	/
FLUID LOSS		16.2	
pH		8.5	
SOLIDS		1.2	

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
Caustic	2 SX		
Gel	15 SX		
Pac-R	2 SX		

REMARKS: Forklift = Frank Richins
Boiler 12 Hrs.

CONFIDENTIAL

DRILLER

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 8 3/4	1.00
1/1	Reamer IBS	4.74 4.28
1/1	Short DC IBS OD	9.45 3.75
1	Monel OD	27.32
1	IBS OD	3.50
9	6" DC's OD	265.93
1	Jars OD	29.00
8	6" DCs	232.38
	BHA	586.43
71	STANDS ___ D.P.	6641.71
2	SINGLES ___ D.P.	61.62
	KELLY DOWN	26
	TOTAL	7315.76
WT. OF STRING		165,000

BIT RECORD

BIT NO.	9	
SIZE	8 3/4	
IADC CODE		
MANUFACTURER	HTC	
TYPE	GT S20	
SERIAL NO.	502136T	
JETS	3X16	
TFA	.589	
DEPTH OUT		
DEPTH IN	5768	
TOTAL DRILLED	1547	
TOTAL HOURS	50 1/2	

CUTTING STRUCTURE			
INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME	7:00		
WEIGHT	8.5 8.7		
PRESSURE GRADIENT			
FUNNEL VISCOSITY	55/60		
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
Gel	123 SX	Cotton Hulls	3 Pallets
Caustic	6 SX	Bara Seal	1 Pallet
Pac-R	3 SX	Lcf Flake	1/2 Pallet
Ez-Mud	30 gal		

REMARKS: Diesel 404 3188 Gal. Forklift Kirk Miller
Boiler 12 Hrs
ACC 2500
Mann 1400
Ann 500
Koome/Oil 14"

DRILLER Brad Peterson

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FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
	Emery	Utah

LAST CASING TUBING OR LINER	SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT

WIRE LINE RECORD REEL NO.

SIZE	NO. LINES	LENGTH SLIPPED
1 1/8	10	

LENGTH CUT OFF	PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	S.P.M.	PUMP NO. 2 LINER SIZE	S.P.M.	PUMP NO. 3 LINER SIZE	S.P.M.	PUMP NO. 4 LINER SIZE	S.P.M.	TOTAL PUMP OUTPUT
7083	7200	D		Shale	80	40	680	5"	48	5"	48					

DEVIATION RECORD	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.
	7105	1/2°	N												

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
600	700	1	3	Ream F/6926-7083 (No Fill)
700	830	1 1/2	2	Drlg. F/7083-7107
830	930	1	8	Go Through #1 pump
930	1230	3	2	Drlg. F/7107-7145
1230	1300	1/2	10	Survey
1300	1530	2 1/2	2	Drlg. F/7145-7175
1530	1600	1/2	7	Rig Service F/T BOP's
1600	1800	2	2	Drlg. F/7175-7200

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	S.P.M.	PUMP NO. 2 LINER SIZE	S.P.M.	PUMP NO. 3 LINER SIZE	S.P.M.	PUMP NO. 4 LINER SIZE	S.P.M.	TOTAL PUMP OUTPUT
7200	7315	D		Shale	80	40	1400	5	48	5	48					407

DEVIATION RECORD	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
1800	100	7	2	Drlg f/7200-7304, Lost Circ @ 7303
100	500	4	5	Mix + Pump High Vis LCM Pills, Lost Approx. 430 bbls
500	6:00	1	2	Drlg f/7304-7315
				↑ 180,000 SPR @ 7268' #1 260 psi @ 31 STKS
				R 165,000 #2 290 psi @ 26 STKS
				↓ 168,000

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

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No. 3005902

No. 3005903

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mtn	21-16			12-7-02

OPERATOR	CONTRACTOR	RIG NO.
Fortuna	Patterson UTI	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE	SIGNATURE OF CONTRACTOR'S TOOL PUSHER
[signature]	Roger Bromley

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.
4 1/2	20.0		6 1/4	4 1/2 XH	266

PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH
1	Ideco	550	15
2	Ideco	550	15

TIME DISTRIBUTION – HOURS

CODE NO.	OPERATION	NIGHT	DAY
1.	RIG UP AND TEAR DOWN		
2.	DRILL ACTUAL		8 1/2
3.	REAMING		1/2
4.	CORING		
5.	CONDITION MUD & CIRCULATE	7	
6.	TRIPS		2 1/2
7.	LUBRICATE RIG		
8.	REPAIR RIG		
9.	CUT OFF DRILLING LINE		
10.	DEVIATION SURVEY		
11.	WIRE LINE LOGS		
12.	RUN CASING & CEMENT		
13.	WAIT ON CEMENT		
14.	NIPPLE UP B.O.P.		
15.	TEST B.O.P.		
16.	DRILL STEM TEST		
17.	PLUG BACK		
18.	SQUEEZE CEMENT		
19.	FISHING		
20.	DIR. WORK		
21.	Tight Hole		1/2
22.			
23.			
COMPLETION A.	PERFORATING		
B.	TUBING TRIPS		
C.	TREATING		
D.	SWABBING		
E.	TESTING		
F.			
G.			
H.			
	TOTALS	12	12

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.		
HOURS W/ OPR. D.P.		
HOURS WITHOUT D.P.		
HOURS STANDBY		
TOTAL DAYWORK		
NO. OF DAYS FROM SPUD		
CUMULATIVE ROTATING HOURS		
DAILY MUD COST		
TOTAL MUD COST		

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 8 3/4	1.00
1/1	Reamer / IBS	4.74 / 4.28
1/1	Short DC / IBS OD	9.45 / 3.75
1	monel OD	27.32
1	IBS OD	3.50
9	6" DC OD	265.93
1	Jars OD	29.00
8	6" DC	237.38
	BHA	586.43
73	STANDS ___ D.P.	6828
	SINGLES ___ D.P.	
	KELLY DOWN	40.00
	TOTAL	7455

WT. OF STRING 166,000

BIT RECORD

BIT NO.	9
SIZE	8 3/4
IADC CODE	
MANUFACTURER	HTC
TYPE	GTS20
SERIAL NO.	5021367
JETS	3X16
TFA	.589
DEPTH OUT	
DEPTH IN	5768
TOTAL DRILLED	
TOTAL HOURS	59

CUTTING STRUCTURE: INNER | OUTER | DULL CHAR. | LOCATION — BEARINGS/SEALS | GAGE | OTHER DULL CHAR. | REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
GEL	15		
Pac-R	2		
caustic	2		

REMARKS Forklift = Frank Richins
Boiler 12 Hrs

CONFIDENTIAL

DRILLER [signature]

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 8 3/4	1.00
1/1	Reamer / IBS	4.74 / 4.28
1/1	Short DC / IBS OD	9.45 / 3.75
1	Monel OD	27.32
1	IBS OD	3.50
9	6" DC's OD	265.93
1	Jars OD	29.00
8	6" DC's	237.38
	BHA	586.43
	STANDS ___ D.P.	
	SINGLES ___ D.P.	
	KELLY DOWN	
	TOTAL	

WT. OF STRING

BIT RECORD

BIT NO.	9
SIZE	8 3/4
IADC CODE	
MANUFACTURER	HTC
TYPE	GTS20
SERIAL NO.	5021367
JETS	3X16
TFA	.589
DEPTH OUT	
DEPTH IN	5768
TOTAL DRILLED	
TOTAL HOURS	

CUTTING STRUCTURE: INNER | OUTER | DULL CHAR. | LOCATION — BEARINGS/SEALS | GAGE | OTHER DULL CHAR. | REASON PULLED

MUD RECORD

TIME	0700	1200	0600
WEIGHT	8.6/8.8	8.7/8.8	
PRESSURE GRADIENT			
FUNNEL VISCOSITY	43/50	55/56	
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
Caustic	4	Cot.Sd	40
SodaAsh	9	BaroSeal	40
GEL	188	PlugGit	48
Jel Flake	1 pallet		

REMARKS Diesel 46" 3781 GAL Forklift Kirk Miller
Acc 2500 Boiler 12 hrs
Mann 1500
Ann 500
Kramer oil 14"

DRILLER Brad Pedersen

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FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
	Emery	Utah

LAST CASING TUBING OR LINER

SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT

WIRE LINE RECORD REEL NO.

SIZE	NO. LINES	LENGTH SLIPPED
1 1/8	10	

LENGTH CUT OFF

PRESENT LENGTH 4750

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
7315	7455	D		Shale	80	40	1350	5"	43	5"	43					

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
600	1430	8 1/2	2	Drlg F/ 7315 - 7455
1430	1500	1/2	21	Work Tight Hole
1500	1730	2 1/2	6	Short Trip 20 stnds
1730	1800	1/2	3	Ream 150' To Bottom

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
7455		D		Shale	80	40		5"	48	5"	48					

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
1800	1830	1/2	2	Drlg f/ 7455 - 7473, Lost Circ
1830	2230	4	5	Build Volume, Mix and pump lcm pills, Good Returns
2230	130	3	5	Drlg f/ 7473 - 7475, Lost Circ, Build Volume, Mix LCM
130	0600	4 1/2	2	Drlg f/ 7475 - 7543
				Lost Approx. 470 bbls
				↑ 180,000
				R 162,000
				W 170,000

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

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No. 3005903

No. 3005904

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mtn	21-16			12-8-02

OPERATOR	CONTRACTOR	RIG NO.
Fortuna	Patterson UTI	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE

SIGNATURE OF CONTRACTOR'S TOOL PUSHER: Roger Brumley

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.
4½	20	E	6¼	2½ XH	236
		CONFIDENTIAL			

PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH
1	IDECO	550	15
2	IDECO	550	15

TIME DISTRIBUTION – HOURS

CODE NO. – OPERATION	NIGHT	DAY
1. RIG UP AND TEAR DOWN		
2. DRILL ACTUAL	1	10 3/4
3. REAMING		
4. CORING		
5. CONDITION MUD & CIRCULATE	9	1 1/4
6. TRIPS	1/2	
7. LUBRICATE RIG		
8. REPAIR RIG		
9. CUT OFF DRILLING LINE		
10. DEVIATION SURVEY	1/2	
11. WIRE LINE LOGS		
12. RUN CASING & CEMENT		
13. WAIT ON CEMENT		
14. NIPPLE UP B.O.P.		
15. TEST B.O.P.		
16. DRILL STEM TEST		
17. PLUG BACK		
18. SQUEEZE CEMENT		
19. FISHING		
20. DIR. WORK		
21. WTH	2	
22.		
23.		
COMPLETION A. PERFORATING		
B. TUBING TRIPS		
C. TREATING		
D. SWABBING		
E. TESTING		
F.		
G.		
H.		
TOTALS	12	

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.		
HOURS W/ OPR. D.P.		
HOURS WITHOUT D.P.		
HOURS STANDBY		
TOTAL DAYWORK		
NO. OF DAYS FROM SPUD		
CUMULATIVE ROTATING HOURS		
DAILY MUD COST		
TOTAL MUD COST		

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 8 3/4	1.00
1/1	REAMER / IBS	4.74 / 4.28
1/1	SHORT DC / IBS	9.45 / 3.15
1	MONEL OD	29.32
1	IBS OD	3.50
9	6" DC OD	266.93
1	JARS OD	29.00
8	6" DC	237.38
	BHA	586.43
15	STANDS ___ D.P.	
XX	SINGLES ___ D.P.	
	KELLY DOWN	
	TOTAL	
WT. OF STRING		

BIT RECORD

BIT NO.	9
SIZE	8 3/4
IADC CODE	
MANUFACTURER	HTC
TYPE	GTS20
SERIAL NO.	5021367
JETS	3X16
TFA	
DEPTH OUT	
DEPTH IN	5768
TOTAL DRILLED	
TOTAL HOURS	14 7 3/4

CUTTING STRUCTURE			
INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME	7:00	13:00	17:00
WEIGHT	8.5	8.6	8.6
PRESSURE GRADIENT			
FUNNEL VISCOSITY	63	63	61
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED			
TYPE	AMOUNT	TYPE	AMOUNT
PAC R	3 SX		
Biocide	5 GAL		
Caustic Soda	3 SX		

REMARKS DFCO Lex Bum Gas Buster Boiler 12 Hrs.

182,000 UP
168,000 Dn.
172,000 Rot

DRILLER

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 8 3/4	1.00
1/1	RMR IBS	4.74 4.28
1/1	Short IBS	9.45 3.15
1	Monel	27.32
1	IBS OD	3.50
9	6" DC OD	265.93
1	JARS OD	29.00
8	6" DC	237.38
	BHA	586.43
23	STANDS ___ D.P.	6828
	SINGLES ___ D.P.	
	KELLY DOWN	
	TOTAL	7455
WT. OF STRING		

BIT RECORD

BIT NO.	9
SIZE	8 3/4
IADC CODE	
MANUFACTURER	HTC
TYPE	GTS20
SERIAL NO.	5021367
JETS	3X16
TFA	
DEPTH OUT	
DEPTH IN	5768
TOTAL DRILLED	
TOTAL HOURS	25 3/4

CUTTING STRUCTURE			
INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME	19:00	1:00	5:00
WEIGHT	8.6	8.6	8.6
PRESSURE GRADIENT			
FUNNEL VISCOSITY	38	39	40
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED			
TYPE	AMOUNT	TYPE	AMOUNT
2 plt Sawdust		2 plug Jet	
Baro Seal 2plt		3 plt Gel	
1 mica			
1 Cottonseed			

REMARKS Forklift: A. David
acc 2400 Fuel 3711 2886
Maint. 1600 Boiler 12 hrs
ann 800
Fluid 13"

DRILLER

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

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FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
Middle Mtn.	Emery	Utah

	SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT
LAST CASING TUBING OR LINER	9 5/8	Stec	36			16	

WIRE LINE RECORD REEL NO.

SIZE	NO. LINES	LENGTH SLIPPED
1/8	10	

LENGTH CUT OFF | PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
7543	7695				80	40	1600	5"	51	5"	51					

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
0600	1400	8	2	Drlg 7543 to 7660
1400	1515	1 1/4	5	Circ up Samples 20 min/apart
1515	1800	2 3/4	2	Drlg 7660 to 7695

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
7695	7709	D			70	45	1610	5"	50	5"	50					

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.
7700														

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
18:00	19:00	1	2	Drlg F/7695 to 7709
19:00	3:00	8	5	Condition Mud (Mix LCM) No Returns
3:00	3:30	1/2	10	POOH Run Survey
3:30	4:00	1/2	6	POOH Work Tight Hole @ 7335 L/D 2 jts
4:00	6:00	2	21	Kelly up / Work Tight Hole

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

IADC APPROVED API APPROVED

No. 3005904

No. 3005905

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mtn	21-16			12-9-02

OPERATOR	CONTRACTOR	RIG NO.
Fortuna	Patterson UTI Drlg	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE	SIGNATURE OF CONTRACTOR'S TOOL PUSHER
[signature]	Roger Bromley

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.
4 1/2	20	E	6 1/4	4 1/2 XH	266

PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH
1	IDECO	550	15
2	IDECO	550	15

TIME DISTRIBUTION – HOURS

CODE NO. – OPERATION	NIGHT	DAY
1. RIG UP AND TEAR DOWN		
2. DRILL ACTUAL	1	
3. REAMING	4	
4. CORING		
5. CONDITION MUD ~~& CIRCULATE~~	3 1/2	
6. TRIPS	2	
7. LUBRICATE RIG		
8. REPAIR RIG		
9. CUT OFF DRILLING LINE	1 1/2	
10. DEVIATION SURVEY		
11. WIRE LINE LOGS		
12. RUN CASING & CEMENT		
13. WAIT ON CEMENT		
14. NIPPLE UP B.O.P.		
15. TEST B.O.P.		
16. DRILL STEM TEST		
17. PLUG BACK		
18. SQUEEZE CEMENT		
19. FISHING		
20. DIR. WORK		
21.		
22.		
23.		
COMPLETION A. PERFORATING		
B. TUBING TRIPS		
C. TREATING		
D. SWABBING		
E. TESTING		
F.		
G.		
H.		
TOTALS	12	

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.		
HOURS W/ OPR. D.P.		
HOURS WITHOUT D.P.		
HOURS STANDBY		
TOTAL DAYWORK		
NO. OF DAYS FROM SPUD		
CUMULATIVE ROTATING HOURS		
DAILY MUD COST		
TOTAL MUD COST		

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 8 3/4	1.00
1	B. Sub	3.04
9	6" DC OD	265.93
1	Jars OD	29.00
8	6" DC OD	237.38
	OD	
	BHA OD	536.35
	STANDS ___ D.P.	
	SINGLES ___ D.P.	
	KELLY DOWN	
	TOTAL	
WT. OF STRING		

BIT RECORD

BIT NO.	9
SIZE	8 3/4
IADC CODE	
MANUFACTURER	GTS20
TYPE	
SERIAL NO.	5021367
JETS	open
TFA	
DEPTH OUT	
DEPTH IN	5768
TOTAL DRILLED	
TOTAL HOURS	75 3/4

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION	BEARINGS/SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			1700
WEIGHT			8.4
PRESSURE GRADIENT			
FUNNEL VISCOSITY			42
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			
LCM			38/50 in/out

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
Cotton Seed	105 sx	Gel	72 sx
Saw Dust	6 sx	Caustic Soda	2 sx
Baro Seal	55 sx	Soda Ash	2 sx
Plug Git	100 sx		

REMARKS D/F Olex Bumgardner Boiler 12 Hrs

CONFIDENTIAL

DRILLER [signature]

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 8 3/4	1.00
1	B/SUB	3.04
9	6" DC's OD	265.93
1	Jars OD	29.00
8	6" DC's OD	237.38
	OD	
	OD	
	BHA	536.35
73	STANDS ___ D.P.	
X	SINGLES ___ D.P.	7143
	KELLY DOWN	40
	TOTAL	7719
WT. OF STRING	172,000	

BIT RECORD

BIT NO.	9
SIZE	8 3/4
IADC CODE	
MANUFACTURER	GTC
TYPE	GTS20
SERIAL NO.	5021367
JETS	Open
TFA	
DEPTH OUT	
DEPTH IN	5768
TOTAL DRILLED	
TOTAL HOURS	76 3/4

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION	BEARINGS/SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME	18:00	12:00	5:00
WEIGHT	8.5	8.4	8.4
PRESSURE GRADIENT			
FUNNEL VISCOSITY	46	45	44
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
Baro Seal	120	Plug Git	16
Cotton Seed	40		
Pac R	1		
Caustic	1		

REMARKS Forklift A. David

acc 2500 Fuel 29" 2082

Man 1500

ann 800

Fluid 13"

DRILLER [signature]

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

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FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
Middle Mtn.	Emery	Utah

WIRE LINE RECORD REEL NO.

SIZE	NO. LINES	LENGTH SLIPPED
1/8	10	

LENGTH CUT OFF: 105 | PRESENT LENGTH: 4645

WEAR OR TRIPS SINCE LAST CUT:

CUMULATIVE WEAR OR TRIPS:

LAST CASING TUBING OR LINER

SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT
9 5/8	S+C	36		4429	16	4413

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
7709																

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
0600	0700	1	6	work pipe
0700	1030	3½	6	P.O.O.H.
1030	1130	1	4	L.D. IBS's, REAMER, Mowel. (50.08' L.D.)
1130	1430	3	6	G.I.H.
1430	1800	3½	5	mix MuD (Pump 100 BBL's NO Returns 20% LCM 40% LCM Good Returns

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
7709	7719				60	40	350			5"	61					

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
18:00	19:30	1½	5	Cond and Circ (Build 40%)
19:30	21:00	1½	9	Slip and Cut Drlg Line 105'
21:00	23:00	2	6	T I H
23:00	3:00	4	3	P/U Kelly - Ream to bottom
3:00	4:00	1	2	Drlg F/7709 to 7719
4:00	6:00	2	5	Cond and Circ

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED APPROVED

No. 3005905

No. 3005906

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mtn.	21-16			12-10-02

OPERATOR	CONTRACTOR	RIG NO.
Fortuna	Patterson UTI Drlg	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE	SIGNATURE OF CONTRACTOR'S TOOL PUSHER
	Roger Bromley

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.
4½	20	E	6¼ XH	4½ XH	264

PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH
1	IDECO	550	15
2	IDECO	550	15

TIME DISTRIBUTION – HOURS

CODE NO. – OPERATION	NIGHT	DAY
1. RIG UP AND TEAR DOWN		
2. DRILL ACTUAL		
3. REAMING		
4. CORING		
5. CONDITION MUD & CIRCULATE		7
6. TRIPS	2	5
7. LUBRICATE RIG		
8. REPAIR RIG		
9. CUT OFF DRILLING LINE		
10. DEVIATION SURVEY		
11. WIRE LINE LOGS	10	
12. RUN CASING & CEMENT		
13. WAIT ON CEMENT		
14. NIPPLE UP B.O.P.		
15. TEST B.O.P.		
16. DRILL STEM TEST		
17. PLUG BACK		
18. SQUEEZE CEMENT		
19. FISHING		
20. DIR. WORK		
21.		
22.		
23.		
COMPLETION A. PERFORATING		
B. TUBING TRIPS		
C. TREATING		
D. SWABBING		
E. TESTING		
F.		
G.		
H.		
TOTALS	12	12

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.		
HOURS W/ OPR. D.P.		
HOURS WITHOUT D.P.		
HOURS STANDBY		
TOTAL DAYWORK		
NO. OF DAYS FROM SPUD		
CUMULATIVE ROTATING HOURS		
DAILY MUD COST		
TOTAL MUD COST		

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 8 3/4	1.00
1	Bit Sub	3.04
9	6" DC OD	265.93
1	Jars OD	29.00
8	6" DC OD	237.38
	OD	
	BHA OD	536.35
76	STANDS ___ D.P.	
[redacted]	SINGLES ___ D.P.	7143
	KELLY DOWN	40
	TOTAL	
WT. OF STRING		

BIT RECORD

BIT NO.	9
SIZE	8 3/4
IADC CODE	
MANUFACTURER	HTC
TYPE	GTS20
SERIAL NO.	5021367
JETS	OPEN
TFA	
DEPTH OUT	
DEPTH IN	5768
TOTAL DRILLED	
TOTAL HOURS	76 3/4

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME	700		
WEIGHT	8.6		
PRESSURE GRADIENT			
FUNNEL VISCOSITY	43		
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			
LCM	40/35		

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
Plug Lit	30 sx	BAR	40
Bio Seal	80 sx		
PAC R	2 sx		
Caustic Soda			

REMARKS D/O Lex Bandanchor Boiler 12 Hrs

CONFIDENTIAL

DRILLER B K Adams

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 8 3/4	
1	B/SUB	
9	6" DC OD	
1	Jars OD	
9	6" DC OD	
	OD	
	OD	
	BHA	
76	STANDS ___ D.P.	
	SINGLES ___ D.P.	
	KELLY DOWN	
	TOTAL	
WT. OF STRING		

BIT RECORD

BIT NO.	9
SIZE	8 3/4
IADC CODE	
MANUFACTURER	HTC
TYPE	GTS20
SERIAL NO.	5021367
JETS	open
TFA	
DEPTH OUT	
DEPTH IN	5768
TOTAL DRILLED	
TOTAL HOURS	76 3/4

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT

REMARKS Forklift: A. David Boiler 12 hrs
Acc 2500 Fuel 32" 2381 gl
Man 1600
Ann 700
Fluid 13"

DRILLER Joan Adams

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FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
Miller Mtn.	Emery	Utah

WIRE LINE RECORD REEL NO.

SIZE	NO. LINES	LENGTH SLIPPED
1/8	10	

LENGTH CUT OFF | PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

LAST CASING TUBING OR LINER

SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT
9 5/8	ST&C	36		4429	16	4413

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
7719																

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
0600	1300	7	5	Circ. Samples
1300	1430	1½	6	Pull 10 STD Short TRP
1430	1800	3½	6	P.O.H.

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
18:00	20:00	2	6	POOH Brk Bit/Bit Sub
20:00	20:30	½	11	Rig up Schlumberger
20:30	1:00	4½	11	Wait on Schlumberger to fix tool
1:00			11	Run In w/Logs Hit Bridge @ 7256
	6:00	5	11	Out of Hole w/Logs Rig Down Loggers

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

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No. 3005906

No. 3005907

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
MIDDLE MTN	21-16			12-11-02

OPERATOR	CONTRACTOR	RIG NO.
FORTUNA	PATTERSON UTI Drlg	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE	SIGNATURE OF CONTRACTOR'S TOOL PUSHER
	Randy Packford

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.
4½	20	E	6¼	4½XH	266

PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH
1	IDECO	550	15
2	IDECO	550	15

TIME DISTRIBUTION – HOURS

CODE NO. – OPERATION	NIGHT	DAY
1. RIG UP AND TEAR DOWN		
2. DRILL ACTUAL		
3. REAMING	5	
4. CORING		
5. CONDITION MUD & CIRCULATE	3	
6. TRIPS	4	
7. LUBRICATE RIG		
8. REPAIR RIG		
9. CUT OFF DRILLING LINE		
10. DEVIATION SURVEY		
11. WIRE LINE LOGS		
12. RUN CASING & CEMENT		
13. WAIT ON CEMENT		
14. NIPPLE UP B.O.P.		
15. TEST B.O.P.		
16. DRILL STEM TEST		
17. PLUG BACK		
18. SQUEEZE CEMENT		
19. FISHING		
20. DIR. WORK		
21. CL. DC.		1
22.		
23.		
COMPLETION A. PERFORATING		
B. TUBING TRIPS		
C. TREATING		
D. SWABBING		
E. TESTING		
F.		
G.		
H.		
TOTALS	12	

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.		
HOURS W/ OPR. D.P.		
HOURS WITHOUT D.P.		
HOURS STANDBY		
TOTAL DAYWORK		
NO. OF DAYS FROM SPUD		
CUMULATIVE ROTATING HOURS		
DAILY MUD COST		
TOTAL MUD COST		

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 8¾	1.00
1	BIT SUB	3.04
9	6" DC OD	265.43
1	JARS OD	29.00
8	6" DC OD	237.35
	BHA OD	526.35
	OD	
	STANDS ___ D.P.	
	SINGLES ___ D.P.	
	KELLY DOWN	40
	TOTAL	

WT. OF STRING

BIT RECORD

BIT NO.	9	
SIZE	8¾	
IADC CODE		
MANUFACTURER	HTC	
TYPE	GT520	
SERIAL NO.	5021367	
JETS	OPEN	
TFA		
DEPTH OUT		
DEPTH IN	5768	
TOTAL DRILLED		
TOTAL HOURS	76¾	

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
GEL	80		

REMARKS D/FO CEX Bun-Gardner Boiler 12Hrs

CONFIDENTIAL

DRILLER Bob Pan

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 8¾	1.00
1	B/SUB	3.04
9	6" DC's OD	265.43
1	JARS OD	29.00
8	6" DC's OD	237.35
	OD	
	OD	
	BHA	534.35
76	STANDS ___ D.P.	
1	SINGLES ___ D.P.	7140.23
	KELLY DOWN	15.65
	TOTAL	7690.10

WT. OF STRING 168,000

BIT RECORD

BIT NO.	9	
SIZE	8¾	
IADC CODE		
MANUFACTURER	HTC	
TYPE	GT520	
SERIAL NO.	5021367	
JETS	open	
TFA		
DEPTH OUT		
DEPTH IN	5768	
TOTAL DRILLED		
TOTAL HOURS	76¾	

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME	1800	1900	0600
WEIGHT	8.4	8.4	8.5
PRESSURE GRADIENT			
FUNNEL VISCOSITY	80	85	92
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
GEL	42	BAR	30
E2MUD	2		
caustic	4		
CNSALD	3		

REMARKS Fork lift: A. David

Acc 2500 Fuel 44" 3586

Mcr 1600

Ann 900

Flvid 13"

DRILLER Jason Duncan

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PRINTED IN U.S.A.

FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
Middle Mtn	Emery	Utah

WIRE LINE RECORD REEL NO.

SIZE	NO. LINES	LENGTH SLIPPED
1/8	10	

LENGTH CUT OFF | PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

LAST CASING TUBING OR LINER

SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT
9 5/8	Star C	36				

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
0600	0700	1	11	Pull out Log's
0700	1000	3	6	G.I.H. B.H.A. 43 STD's
1000	1100	1	5	Try to Break Circ. Bit plugged
1100	1400	3	6	P.O.H. WET
1400	1500	1	21	Clean out 90' of Lcm out DC's
1500	1800	3	6	G.I.H. Stage IN

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
18:00	21:00	3	6	G I H Brk Circ Every 10 stnds Bridge @ 7252
21:00	2:00	5	3	Ream to Bottom 4,38'
2:00	4:00	2	5	Circulate and Condition
4:00	5:00	1	6	Pump Pill, Short trip 10 stnds
5:00	6:00	1	5	Kelly up, Circulate and Condition

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED APPROVED

No. 3005907

No. 3005908

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
MIDDLE MTN.	21-16			12-12-02

OPERATOR	CONTRACTOR	RIG NO.
Fortuna	PATTERSON UTI Drlg	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE

SIGNATURE OF CONTRACTOR'S TOOL PUSHER Randy Hackford

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.
4½	20	E	6¼	4½ XH	266

PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH
1	IDECO	550	15
2	IDECO	550	15

TIME DISTRIBUTION – HOURS

CODE NO. – OPERATION	NIGHT	DAY
1. RIG UP AND TEAR DOWN		
2. DRILL ACTUAL		
3. REAMING		
4. CORING		
5. CONDITION MUD & CIRCULATE		2¾
6. TRIPS		3¾
7. LUBRICATE RIG		
8. REPAIR RIG		
9. CUT OFF DRILLING LINE		
10. DEVIATION SURVEY		
11. WIRE LINE LOGS	12	5½
12. RUN CASING & CEMENT		
13. WAIT ON CEMENT		
14. NIPPLE UP B.O.P.		
15. TEST B.O.P.		
16. DRILL STEM TEST		
17. PLUG BACK		
18. SQUEEZE CEMENT		
19. FISHING		
20. DIR. WORK		
21.		
22.		
23.		
COMPLETION A. PERFORATING		
B. TUBING TRIPS		
C. TREATING		
D. SWABBING		
E. TESTING		
F.		
G.		
H.		
TOTALS	12	

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.		
HOURS W/ OPR. D.P.		
HOURS WITHOUT D.P.		
HOURS STANDBY		
TOTAL DAYWORK		
NO. OF DAYS FROM SPUD		
CUMULATIVE ROTATING HOURS		
DAILY MUD COST		
TOTAL MUD COST		

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 8¾	1.00
1	B. Sub	3.04
9	6" DC OD	265.43
1	Jars OD	29.00
8	6" DC OD	237.35
	BHA OD	534.35
	OD	
76	STANDS ___ D.P.	
1	SINGLES ___ D.P.	
	KELLY DOWN	
	TOTAL	
WT. OF STRING		

BIT RECORD

BIT NO.	9
SIZE	6¾
IADC CODE	
MANUFACTURER	HTC
TYPE	GT520
SERIAL NO.	5021367
JETS	OPEN
TFA	
DEPTH OUT	
DEPTH IN	5768
TOTAL DRILLED	
TOTAL HOURS	76¾

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME	700		
WEIGHT	8.7		
PRESSURE GRADIENT			
FUNNEL VISCOSITY	80		
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			
LCM	35 lb		

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
Gel	8 SX		
Bar	8 SX		
F-2 Mud	5 gal		

REMARKS D/FO Lex Bumgardner Boiler 12 Hrs

CONFIDENTIAL

DRILLER

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 8¾	1.00
1	B/SUB	3.04
9	6" DCS OD	265.43
1	Jars OD	29.00
8	6" DC OD	237.35
	OD	
	OD	
	BHA	
76	STANDS ___ D.P.	
	SINGLES ___ D.P.	
	KELLY DOWN	
	TOTAL	
WT. OF STRING		

BIT RECORD

BIT NO.	
SIZE	
IADC CODE	
MANUFACTURER	
TYPE	
SERIAL NO.	
JETS	
TFA	
DEPTH OUT	
DEPTH IN	
TOTAL DRILLED	
TOTAL HOURS	

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT

REMARKS Forklift: A. David

acc 2500 Fuel 36" 2785

man 1500

ann 900

Fluid 13"

DRILLER Jason Dawson

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

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APPROVED

FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
MIDDLE MTN	EMERY	UTAH

WIRE LINE RECORD REEL NO.

SIZE	NO. LINES	LENGTH SLIPPED

LENGTH CUT OFF | PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

LAST CASING TUBING OR LINER

SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT
9 5/8	S+C	36		4429	16	4413

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
7690																

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
0600	0845	2 3/4	5	Circ & P.T.J. Logger's DEPTH 7685'
0845	1230	3 3/4	6	Pooh.
1230	1800	5 1/2	11	Rig up Loggers & Log well.
				Layed Down 1 JT. on catwalk
				325 BBl. Start Logging

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
18:00	21:30	3 1/2	11	Log w/Schlumberger
21:30	2:30	5	11	Rig Down Schlumberger
2:30	6:00	3 1/2	11	Rig up Baker and run wireline
				320 bbls

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED APPROVED

No. 3005908

No. 3005909

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mtn	21-16			12-

OPERATOR	CONTRACTOR	RIG NO.
Fortuna	Patterson UTI Drlg	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE: [signature]

SIGNATURE OF CONTRACTOR'S TOOL PUSHER: Randy Hachford

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.
4 1/2	20	E	6 1/4	4 1/2 XH	266

PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH
1	IDECO	550	15
2	IDECO	550	15

TIME DISTRIBUTION – HOURS

CODE NO.	OPERATION	NIGHT	DAY
1.	RIG UP AND TEAR DOWN		
2.	DRILL ACTUAL		
3.	REAMING		
4.	CORING		
5.	CONDITION MUD & CIRCULATE	2 1/2	
6.	TRIPS	5	
7.	LUBRICATE RIG		
8.	REPAIR RIG		
9.	CUT OFF DRILLING LINE		
10.	DEVIATION SURVEY		
11.	WIRE LINE LOGS	4 1/2	
12.	RUN CASING & CEMENT		
13.	WAIT ON CEMENT		
14.	NIPPLE UP B.O.P.		
15.	TEST B.O.P.		
16.	DRILL STEM TEST		
17.	PLUG BACK		
18.	SQUEEZE CEMENT		
19.	FISHING		
20.	DIR. WORK		
21.			
22.			
23.			
COMPLETION	A. PERFORATING		
	B. TUBING TRIPS		
	C. TREATING		
	D. SWABBING		
	E. TESTING		
	F.		
	G.		
	H.		
TOTALS		12	

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.		
HOURS W/ OPR. D.P.		
HOURS WITHOUT D.P.		
HOURS STANDBY		
TOTAL DAYWORK		
NO. OF DAYS FROM SPUD		
CUMULATIVE ROTATING HOURS		
DAILY MUD COST		
TOTAL MUD COST		

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 8 3/4	1.00
1	B. Sub	3.04
9	6" DC OD	265.43
1	Jars OD	29.00
8	6" DC OD	237.35
	BHA OD	534.35
	OD	
76	STANDS ___ D.P.	
X	SINGLES ___ D.P.	
	KELLY DOWN	
	TOTAL	
WT. OF STRING		

BIT RECORD

BIT NO.	9
SIZE	8 3/4
IADC CODE	
MANUFACTURER	HTC
TYPE	GTS20
SERIAL NO.	5021367
JETS	open
TFA	
DEPTH OUT	
DEPTH IN	5768
TOTAL DRILLED	
TOTAL HOURS	76 3/4

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION	BEARINGS/SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME	800	1300	500
WEIGHT	8.7	8.7	8.7
PRESSURE GRADIENT			
FUNNEL VISCOSITY	60	83	89
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
Gel	20 sx		

REMARKS D/FO LKX BumGardner Boiler 12 Hrs

CONFIDENTIAL

DRILLER B. R. [signature]

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 8 3/4	1.00
1	B/SUB	3.04
9	6" DCs OD	265.43
1	Jars OD	29.00
8	6" DCs OD	237.35
	OD	
	OD	
	BHA	
76	STANDS ___ D.P.	
1	SINGLES ___ D.P.	
	KELLY DOWN	
	TOTAL	7690
WT. OF STRING	160,000	

BIT RECORD

BIT NO.	9
SIZE	8 3/4
IADC CODE	
MANUFACTURER	HTC
TYPE	GTS 20
SERIAL NO.	5021367
JETS	Open
TFA	
DEPTH OUT	
DEPTH IN	5768
TOTAL DRILLED	
TOTAL HOURS	76 3/4

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION	BEARINGS/SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME	18:00	12:00	5:00
WEIGHT	8.7	8.7	8.7
PRESSURE GRADIENT			
FUNNEL VISCOSITY	91	105+	100+
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
EZMUD	1		
ALDACIDE	1		

REMARKS Forklift A. David
Acc 2400 Fuel 29" 2082
man 1300
ann 900
FLUID 13"

DRILLER Jason [signature]

FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
Middle Mtn	Emery	Utah

WIRE LINE RECORD REEL NO.

SIZE	NO. LINES	LENGTH SLIPPED
1/4	10	

LENGTH CUT OFF	PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

LAST CASING TUBING OR LINER

SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT
9 5/8	S. Tac	36		4429	16	4413

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
7690																

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
0600	1800	12	11	Log's

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
18:00	22:30	4 1/2	11	Log
22:30	3:30	5	6	T I H Brk Circ Every 10 stnds
3:30	6:00	2 1/2	5	Cond and Circ - 365 bbls

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED APPROVED

No. 3005909

No. 3005910

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
MIDDLE MTN	21-16			12-14-02

OPERATOR	CONTRACTOR	RIG NO.
FOR TUNA	PATTERSON UTI Drlg	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE	SIGNATURE OF CONTRACTOR'S TOOL PUSHER
	Randy Hachford

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.
4½	20	E	6¼	4½ XH	246

PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH
1	IDECO	550	15
2	IDECO	550	15

TIME DISTRIBUTION – HOURS

CODE NO. – OPERATION	NIGHT	DAY
1. RIG UP AND TEAR DOWN		
2. DRILL ACTUAL		
3. REAMING		
4. CORING		
5. CONDITION MUD & CIRCULATE		2
6. TRIPS		7
7. LUBRICATE RIG		
8. REPAIR RIG		
9. CUT OFF DRILLING LINE		
10. DEVIATION SURVEY		
11. WIRE LINE LOGS		
12. RUN CASING & CEMENT		
13. WAIT ON CEMENT		
14. NIPPLE UP B.O.P.		
15. TEST B.O.P.		
16. DRILL STEM TEST		
17. PLUG BACK		
18. SQUEEZE CEMENT		
19. FISHING		
20. DIR. WORK		
21. L.D. Machine		1
22. Rig up Csg. Crew		2
23.		
COMPLETION A. PERFORATING		
B. TUBING TRIPS		
C. TREATING		
D. SWABBING		
E. TESTING		
F.		
G.		
H.		
TOTALS		12

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.		
HOURS W/ OPR. D.P.		
HOURS WITHOUT D.P.		
HOURS STANDBY		
TOTAL DAYWORK		
NO. OF DAYS FROM SPUD		
CUMULATIVE ROTATING HOURS		
DAILY MUD COST		
TOTAL MUD COST		

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 8¾	1.00
1	B. Sub	3.04
9	6" DC OD	265.43
1	JARS OD	29.00
8	6" DC OD	237.35
	BHA OD	534.35
	OD	
26	STANDS ___ D.P.	
X	SINGLES ___ D.P.	
	KELLY DOWN	
	TOTAL	

WT. OF STRING 169,000

BIT RECORD

BIT NO.	9
SIZE	8¾
IADC CODE	
MANUFACTURER	HTC
TYPE	GTS20
SERIAL NO.	5021367
JETS	OPEN
TFA	
DEPTH OUT	
DEPTH IN	5768
TOTAL DRILLED	
TOTAL HOURS	76¾

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME	700	1200	
WEIGHT	8.8	8.8	
PRESSURE GRADIENT			
FUNNEL VISCOSITY	80	80	
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			
LCM	6 ppb	5 ppb	

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
Bar	50 sx		

REMARKS D/FO Lex Burn Gardner Boiler 12 Hrs

CONFIDENTIAL

DRILLER B. Lex

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
	BIT	
	OD	
	OD	
	OD	
	OD	
	OD	
	STANDS ___ D.P.	
	SINGLES ___ D.P.	
	KELLY DOWN	
	TOTAL	

WT. OF STRING

BIT RECORD

BIT NO.	
SIZE	
IADC CODE	
MANUFACTURER	
TYPE	
SERIAL NO.	
JETS	
TFA	
DEPTH OUT	
DEPTH IN	
TOTAL DRILLED	
TOTAL HOURS	

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT

REMARKS Forklift; A. David

acc 2450 Fuel 57" 4762

Man 1300

ann 900

Fluid 13"

DRILLER Jason Dawson

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APPROVED

FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
Middle Mtn	Emery	Utah

WIRE LINE RECORD REEL NO.

SIZE	NO. LINES	LENGTH SLIPPED
1/8	10	

LENGTH CUT OFF	PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

LAST CASING TUBING OR LINER

SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT
9 5/8	St+C	36	106	4429	16	4413
7"	55 N80	24	160			

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
7690				Csg Point												

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
0600	0800	2	5	Circ. Hole
0800	0900	1	21	Rig up Lay Down Machine
0900	1600	7	6	Lay Down D.P. & D.C.s
1600	1800	2	22	Rig up Csg CREW

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
18:00	21:00	3	21	Wait on Drift Tool
21:00	6:00	9	12	Run casing w/ West States

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED APPROVED

No. 3005910

No. 3005911

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mountain	21-16			12-15-0

OPERATOR	CONTRACTOR	RIG NO.
Fortuna2	Patterson-UTI	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE	SIGNATURE OF CONTRACTOR'S TOOL PUSHER
	Randy Hackford

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.
4 1/2	~~16.60~~	E	6 1/4	XH	266
	20				

PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH
1	IDeco	550	15
2	IDeco	550	15

TIME DISTRIBUTION – HOURS

CODE NO. – OPERATION	NIGHT	DAY
1. RIG UP AND TEAR DOWN		
2. DRILL ACTUAL		
3. REAMING		
4. CORING		
5. CONDITION MUD & CIRCULATE		1 1/2
6. TRIPS		
7. LUBRICATE RIG		
8. REPAIR RIG		
9. CUT OFF DRILLING LINE		
10. DEVIATION SURVEY		
11. WIRE LINE LOGS		
12. RUN CASING & CEMENT		8
13. WAIT ON CEMENT	4	2 1/2
14. NIPPLE UP B.O.P.	3 1/2	
15. TEST B.O.P.	1/4	
16. DRILL STEM TEST		
17. PLUG BACK		
18. SQUEEZE CEMENT		
19. FISHING		
20. DIR. WORK		
21. C/O CSG	1	
22. P/U BHA	3 1/4	
23.		
COMPLETION A. PERFORATING		
B. TUBING TRIPS		
C. TREATING		
D. SWABBING		
E. TESTING		
F.		
G.		
H.		
TOTALS		12

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.		
HOURS W/ OPR. D.P.		
HOURS WITHOUT D.P.		
HOURS STANDBY		
TOTAL DAYWORK		

NO. OF DAYS FROM SPUD	
CUMULATIVE ROTATING HOURS	
DAILY MUD COST	
TOTAL MUD COST	

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
	BIT	
	OD	
	OD	
	OD	
	OD	
	OD	
	STANDS ___ D.P.	
	SINGLES ___ D.P.	
	KELLY DOWN	
	TOTAL	
WT. OF STRING		

BIT RECORD

BIT NO.			
SIZE			
IADC CODE			
MANUFACTURER			
TYPE			
SERIAL NO.			
JETS			
TFA			
DEPTH OUT			
DEPTH IN			
TOTAL DRILLED			
TOTAL HOURS			

CUTTING STRUCTURE			
INNER	OUTER	DULL CHAR.	LOCATION
BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED			
TYPE	AMOUNT	TYPE	AMOUNT

REMARKS Forklift Kickmiller
Boiler 12 Hrs

CONFIDENTIAL

DRILLER Brad Pedersen

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 6 1/4	1.00
1	Bit Sub	2.36
1	Shock Sub	11.37
9	4 3/4 DC's OD	265.78
	OD	
	OD	
	OD	
	STANDS ___ D.P.	
	SINGLES ___ D.P.	
	KELLY DOWN	
	TOTAL	
WT. OF STRING		

BIT RECORD

BIT NO.	10		
SIZE	6 1/4		
IADC CODE	116		
MANUFACTURER	HTC		
TYPE	GT-1		
SERIAL NO.	A12JM		
JETS	OPEN		
TFA			
DEPTH OUT			
DEPTH IN	7690		
TOTAL DRILLED			
TOTAL HOURS			

CUTTING STRUCTURE			
INNER	OUTER	DULL CHAR.	LOCATION
BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED			
TYPE	AMOUNT	TYPE	AMOUNT

REMARKS fuel 48" Forklift - Brian McDonald
gcc 2450 Boiler 12 hrs
Mud 1400 3977 gal
Ann 800
fluid 14"

DRILLER

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

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FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
Middle MTN	Emery	Utah

LAST CASING TUBING OR LINER	SIZE	MAKE	WEIGHT & GRADE		NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT
	7		26	J55 N80	180		16	7690

WIRE LINE RECORD REEL NO.

SIZE	NO. LINES	LENGTH SLIPPED
1 1/8	10	

LENGTH CUT OFF | PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT

DEVIATION RECORD	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
600	830	2 1/2	12	Run Casing, R/D WestStates
830	1000	1 1/2	5	Circ + Cond.
1000				Held Safety Meeting w/ Schlumberger, R/u Schlumberger
				Pumped 20 bbl Spacer, 200 SKS Hilift cement, 105 SKS
				of 50/50 Type G POZ., Displace w/ 291 bbls Fresh H^2O
	1330	3 1/2	12	Bump plug @ 13:06 1540 psi, R/D Schlumberger
1330	1530	2	12	Nipple Down, Set Slips, Casing Landed @ 7690, 185,000#
1530	1800	2 1/2	13	Wait on Cement

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT

DEVIATION RECORD	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
1800	2200	4	13	W.O.C. unload Slim hole equipment
2200	2300	1	21	C/o Csg. L/D Same
2300	2:30	3 1/2	14	Change out Spool, Install well head, Nipple up
2:30	2:45	1/4	15	P/T Blind Rams & HCR to 1500 PSI
2:45	6:00	3 1/4	22	R/D m/u Bit #10 p/u New BHA

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED APPROVED

No. 3005911

No. 3005912

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mountain	21-16			12-16-02

OPERATOR	CONTRACTOR	RIG NO.
For Tyna	Patterson - UTI	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE	SIGNATURE OF CONTRACTOR'S TOOL PUSHER
	Randy Hachford

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.
3 1/2	13.30			IF	270

PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH
1	IDECO	550	15
2	IDECO	550	15

TIME DISTRIBUTION – HOURS

CODE NO. – OPERATION	NIGHT	DAY
1. RIG UP AND TEAR DOWN		
2. DRILL ACTUAL Comp	2	
3. REAMING		
4. CORING		
5. CONDITION MUD & CIRCULATE		
6. TRIPS		8
7. LUBRICATE RIG		1/2
8. REPAIR RIG		
9. CUT OFF DRILLING LINE		
10. DEVIATION SURVEY		
11. WIRE LINE LOGS		
12. RUN CASING & CEMENT		
13. WAIT ON CEMENT	5 1/2	
14. NIPPLE UP B.O.P.		
15. TEST B.O.P.	4 1/2	
16. DRILL STEM TEST		
17. PLUG BACK		
18. SQUEEZE CEMENT		
19. FISHING		
20. DIR. WORK		
21. 2 1/2" Fly Kelly		3 1/2
22. Laydown Mach		1/2
23. Comp		
COMPLETION A. PERFORATING		
B. TUBING TRIPS		
C. TREATING		
D. SWABBING		
E. TESTING		
F.		
G.		
H.		
TOTALS		12

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.		
HOURS W/ OPR. D.P.		
HOURS WITHOUT D.P.		
HOURS STANDBY		
TOTAL DAYWORK		
NO. OF DAYS FROM SPUD		
CUMULATIVE ROTATING HOURS		
DAILY MUD COST		
TOTAL MUD COST		

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 6 1/4	1.00
1	Bit Sub	2.36
1	Shock Sub	11.37
9	4 3/4 DCs OD	265.78
1	Bottom Jars OD	15.71
1	Top Jars OD	18.34
9	4 3/4 DCs OD	266.63
	BHA	581.19
75	STANDS ___ D.P.	7030.93
	SINGLES ___ D.P.	
	KELLY DOWN	0
	TOTAL	7612
WT. OF STRING		

BIT RECORD

BIT NO.	10
SIZE	6 1/4
IADC CODE	116
MANUFACTURER	HTC
TYPE	GT-1
SERIAL NO.	A12JM
JETS	Open
TFA	
DEPTH OUT	
DEPTH IN	7690
TOTAL DRILLED	
TOTAL HOURS	

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME				
WEIGHT				
PRESSURE GRADIENT				
FUNNEL VISCOSITY				
PV/YP	/		/	
GEL STRENGTH	/		/	
FLUID LOSS				
pH				
SOLIDS				

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT

REMARKS

Forklift Kirk Miller
Boiler 12 Hrs

CONFIDENTIAL

DRILLER Brad Pedersen

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 6 1/4	1.00
1	Bit Sub	2.36
1	Shock Sub	11.37
9	4 3/4 DCs	265.78
1	Down Jars	15.71
1	Up Jars	18.34
9	4 3/4 DCs	266.63
	STANDS ___ D.P.	
	SINGLES ___ D.P.	
	KELLY DOWN	
	TOTAL	
WT. OF STRING		

BIT RECORD

BIT NO.	10
SIZE	6 1/4
IADC CODE	116
MANUFACTURER	HTC
TYPE	GT-1
SERIAL NO.	A12JM
JETS	OPEN
TFA	
DEPTH OUT	
DEPTH IN	7690
TOTAL DRILLED	
TOTAL HOURS	

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME				
WEIGHT				
PRESSURE GRADIENT				
FUNNEL VISCOSITY				
PV/YP	/		/	
GEL STRENGTH	/		/	
FLUID LOSS				
pH				
SOLIDS				

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT

REMARKS

Forklift Brian Mcbonald
Fuel
Boiler Hrs

DRILLER

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FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
Middle Mountain	Emery	Utah

WIRE LINE RECORD REEL NO.

SIZE	NO. LINES	LENGTH SLIPPED
1 1/8	10	

LENGTH CUT OFF | PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

LAST CASING TUBING OR LINER

SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT
7"		26 K55 N-80	180		16	7690

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
600	630	1/2	6	Pickup DCs
630	900	2 1/2	21	L/D 4 1/2 Kelly, P/u 3 1/2 Kelly, R/u West States
900	1630	7 1/2	6	P/u 3 1/2 Drill pipe to 7652
1630	1700	1/2	22	R/D West States
1700	1730	1/2	21	P/u Kelly, install Drlg rubber, and Drive Bushings
1730	1800	1/2	7	Rig Service

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
1800	~~0000~~ 2200	4 1/2	15	Fill Pipe R/u Double Jack & Test
2200	330	5 1/2	13	W.O. 3 1/2 Ram Blocks
330	400	1/2	15	Install 3 1/2 Ram Blocks & Test
400	600	2	2	Drill cmnt Float & Shoe

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No. 3005912

No. 3005913

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mountain	21-16			12-17-02

OPERATOR	CONTRACTOR	RIG NO.
Fortuna	Patterson-UTI	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE	SIGNATURE OF CONTRACTOR'S TOOL PUSHER
	Randy Hackford

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.
3 1/2	15.50			IF	270

PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH
1	IDECC	550	15
2	IDECO	550	15

TIME DISTRIBUTION – HOURS

CODE NO. – OPERATION	NIGHT	DAY
1. RIG UP AND TEAR DOWN		
2. DRILL ACTUAL		7 1/2
3. REAMING		
4. CORING		
5. CONDITION MUD & CIRCULATE		4 1/2
6. TRIPS	5	1 1/2
7. LUBRICATE RIG		
8. REPAIR RIG		
9. CUT OFF DRILLING LINE	2	
10. DEVIATION SURVEY		
11. WIRE LINE LOGS		
12. RUN CASING & CEMENT		
13. WAIT ON CEMENT		
14. NIPPLE UP B.O.P.		
15. TEST B.O.P.		
16. DRILL STEM TEST		
17. PLUG BACK		
18. SQUEEZE CEMENT		
19. FISHING		
20. DIR. WORK		
21. Blowline		1/2
22. Core Tools	4 1/2	
23.	1/2	
COMPLETION A. PERFORATING		
B. TUBING TRIPS		
C. TREATING		
D. SWABBING		
E. TESTING		
F.		
G.		
H.		
TOTALS	12	12

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.		
HOURS W/ OPR. D.P.		
HOURS WITHOUT D.P.		
HOURS STANDBY		
TOTAL DAYWORK		

NO. OF DAYS FROM SPUD	
CUMULATIVE ROTATING HOURS	
DAILY MUD COST	
TOTAL MUD COST	

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 6 1/4	1.00
1	Bit Sub	2.36
1	Shock Sub OD	11.32
9	4 3/4 DCs OD	265.78
1	Down Jars OD	15.21
1	up Jars OD	18.34
9	4 3/4 DCs OD	266.63
	BHA	581.19
76	STANDS ___ D.P.	
	SINGLES ___ D.P.	
	KELLY DOWN	
	TOTAL	
WT. OF STRING		

BIT RECORD

BIT NO.	10	
SIZE	6 1/4	
IADC CODE	116	
MANUFACTURER	HTC	
TYPE	GT-1	
SERIAL NO.	A123M	
JETS	open	
TFA		
DEPTH OUT		
DEPTH IN	7690	
TOTAL DRILLED	55	
TOTAL HOURS	1 1/2	

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP	/		/
GEL STRENGTH	/		/
FLUID LOSS			
pH			
SOLIDS			

Air Mist

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT

REMARKS

CONFIDENTIAL

Forklift Kirk Miller
Boiler 12 Hrs

DRILLER Brad Pedersen

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT Core	.80
2	Corebarrels	68.63
9	4 3/4 DCs OD	265.78
1	Down Jars OD	15.71
1	up Jars OD	18.34
9	4 3/4 DCs OD	266.63
	BHA OD	630.89
75	STANDS ___ D.P.	7030.93
2	SINGLES ___ D.P.	61.33
	KELLY DOWN	
	TOTAL	7723.15
WT. OF STRING	127,000	

BIT RECORD

BIT NO.	Core 1	
SIZE	6 1/8	
IADC CODE		
MANUFACTURER	DPI	
TYPE	CND 233	
SERIAL NO.	0911250	
JETS		
TFA		
DEPTH OUT		
DEPTH IN		
TOTAL DRILLED		
TOTAL HOURS		

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP	/		/
GEL STRENGTH	/		/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT

REMARKS

Fuel - 34"
2500
1400
1000
14"

Forklift - Brian McDonald
Fuel -
Boiler 12 hrs

DRILLER

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Middle Mountain	Emery	Utah

LAST CASING TUBING OR LINER	SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT
	7"		26 K55 N-80	180		16	7690

WIRE LINE RECORD REEL NO.

SIZE	NO. LINES	LENGTH SLIPPED
1 1/8	10	

LENGTH CUT OFF | PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
7690	7745	D			40	15	340/1000		Air Mist							

DEVIATION RECORD	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
600	1030	4 1/2	5	unload Hole, Blow Hole, Hole making Some Water
1030	1100	1/2	21	remove pancake f/ Blouie line
1100	1630	5 1/2	2	Drlg formation f/ 7690 - 7745, Drill 10ft at a time Wait for Samples tobe Annalized
1630	1800	1 1/2	6	TOH

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
7745																

DEVIATION RECORD	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
1800	1930	1 1/2	6	TOH
1930	2400	4 1/2	22	L/O Shock Sub, p/u Carring Tools
2400	2430	1/2	6	TIH w/ BHA
2430	230	2	9	Cut & Slip 95' Drlg line
230	530	3	6	TIH w/ Core Tools
530	600	1/2	23	p/u Kelly Put Air mist on Hole
↑	137			
ROT				
↓	180			

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No. 3005913

No. 3005914

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mountain	21-16			12-18-02

OPERATOR	CONTRACTOR	RIG NO.
Fortuna	Patterson-UTI	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE: [signature]

SIGNATURE OF CONTRACTOR'S TOOL PUSHER: Roger Bromley

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.	PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH
3 1/2	15.50			IF	270	1	IDECO	550	15
						2	IDECO	550	15

TIME DISTRIBUTION – HOURS

CODE NO. – OPERATION	NIGHT	DAY
1. RIG UP AND TEAR DOWN		
2. DRILL ACTUAL		
3. REAMING	6	2
4. CORING		
5. CONDITION MUD & CIRCULATE	1	6 1/2
6. TRIPS	4	1 1/2
7. LUBRICATE RIG		
8. REPAIR RIG		2
9. CUT OFF DRILLING LINE		
10. DEVIATION SURVEY		
11. WIRE LINE LOGS		
12. RUN CASING & CEMENT		
13. WAIT ON CEMENT		
14. NIPPLE UP B.O.P.		
15. TEST B.O.P.		
16. DRILL STEM TEST		
17. PLUG BACK		
18. SQUEEZE CEMENT		
19. FISHING		
20. DIR. WORK		
21. Core Barrel	1	
22.		
23.		
COMPLETION A. PERFORATING		
B. TUBING TRIPS		
C. TREATING		
D. SWABBING		
E. TESTING		
F.		
G.		
H.		
TOTALS	12	12

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.		
HOURS W/ OPR. D.P.		
HOURS WITHOUT D.P.		
HOURS STANDBY		
TOTAL DAYWORK		
NO. OF DAYS FROM SPUD		
CUMULATIVE ROTATING HOURS		
DAILY MUD COST		
TOTAL MUD COST		

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT Core	.80
2	Core Barrels	63.63
9	4 3/4 DC OD	265.78
1	Down Jar OD	15.71
1	Up Jar OD	18.34
9	4 3/4 DCs OD	266.63
	BHA OD	630.89
36	STANDS D.P.	3365.46
2	SINGLES D.P.	82.22
	KELLY DOWN	
	TOTAL	4058 —
	WT. OF STRING	

BIT RECORD

BIT NO. Core	1	
SIZE	6 1/8	
IADC CODE		
MANUFACTURER	DPI	
TYPE	CNO 233	
SERIAL NO.	0911250	
JETS		
TFA		
DEPTH OUT		
DEPTH IN	7745	
TOTAL DRILLED		
TOTAL HOURS		

CUTTING STRUCTURE: INNER | OUTER | DULL CHAR. | LOCATION | BEARINGS/SEALS | GAGE | OTHER DULL CHAR. | REASON PULLED

MUD RECORD

TIME				
WEIGHT				
PRESSURE GRADIENT				
FUNNEL VISCOSITY				
PV/YP	/	/	/	
GEL STRENGTH	/	/	/	
FLUID LOSS				
pH				
SOLIDS				

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
Barazan	21		
Defoam	5 gal		

REMARKS: Forklift Kirk Miller
Boiler 12 Hrs

CONFIDENTIAL

DRILLER: Brad Pedersen

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 6 1/4	1.00
1	Bit Sub	2.34
9	4 3/4 DC OD	265.78
1	Down Jar	15.71
1	Up Jar OD	18.34
9	4 3/4 DC	266.63
	OD	
76	STANDS D.P.	7154.70
X	SINGLES D.P.	30.82
	KELLY DOWN	
	TOTAL	
	WT. OF STRING	124,000

BIT RECORD

BIT NO.	11	
SIZE	6 1/8	
IADC CODE		
MANUFACTURER	HTC	
TYPE	STX-20	
SERIAL NO.	1 377T	
JETS	open	
TFA		
DEPTH OUT		
DEPTH IN		
TOTAL DRILLED		
TOTAL HOURS		

CUTTING STRUCTURE: INNER | OUTER | DULL CHAR. | LOCATION | BEARINGS/SEALS | GAGE | OTHER DULL CHAR. | REASON PULLED

MUD RECORD

TIME				
WEIGHT				
PRESSURE GRADIENT				
FUNNEL VISCOSITY				
PV/YP	/	/	/	
GEL STRENGTH	/	/	/	
FLUID LOSS				
pH				
SOLIDS				

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
Defoam	15 gal		
Quick Gel	20 sx		
Barocarb 50	168 sx		
Caustic	25 X		

REMARKS:
Forklift Brian McDonald
all 2500 Fuel = 45 3684 gal
man 1460 Boiler 12 hrs
Ann 1100
fluid 14"

DRILLER: [signature]

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FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
Middle Mountain	Emery	Utah

WIRE LINE RECORD REEL NO.

SIZE	NO. LINES	LENGTH SLIPPED
1 1/8	10	

LENGTH CUT OFF | PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

LAST CASING TUBING OR LINER

SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT
7"		26 #S5 N80	180		16'	7690

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
7703	7733	R			50	2000	2000/850			6 3/4						267

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
600	800	2	5	Unload Hole
800	900	1	3	Wash + Ream f/ 7707 - 7733, STUCK @ 7727
900	1200	3	5	Mud up. Fill Hole, work pipe free
1200	1300	1	3	Attempt to Clean out Fill w/ Core barrel unsuccessfully
1300	1430	1 1/2	5	Circ + Condition
1430	1600	1 1/2	6	TOH
1600	1800	2	8	Repair Main Drum Chain
				L/D 4 JTS D.P.

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
1800	1930	1 1/2	6	TOOH w/ Core barrels, Rack IN derrick
1930	2030	1	21	√ core barrel & Tools
2030	2300	2 1/2	6	m/u bit, bit sub Trip IN hole, Fill pipe @ Shoe
2300	500	6	3	Wash & Ream f/ 7690 - 7745
500	600	1	5	Circulate & cond. f/ CORRING
↑	135			
Rot	124			
↓	118			

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

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No. 3005914

No. 3005915

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mountain	21-11			12-19-02

OPERATOR	CONTRACTOR	RIG NO.
Fortuna	Patterson UTI	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE	SIGNATURE OF CONTRACTOR'S TOOL PUSHER
[signature]	Roger Bromley

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.
3 1/2	15.50			IF	270

PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH
1	IDECO	550	15
2	IDECO	550	15

TIME DISTRIBUTION – HOURS

CODE NO.	OPERATION	NIGHT	DAY
1.	RIG UP AND TEAR DOWN		
2.	DRILL ACTUAL	2	1
3.	REAMING	6	10
4.	CORING		
5.	CONDITION MUD & CIRCULATE		
6.	TRIPS	4	
7.	LUBRICATE RIG		
8.	REPAIR RIG		
9.	CUT OFF DRILLING LINE		
10.	DEVIATION SURVEY		
11.	WIRE LINE LOGS		
12.	RUN CASING & CEMENT		
13.	WAIT ON CEMENT		
14.	NIPPLE UP B.O.P.		
15.	TEST B.O.P.		
16.	DRILL STEM TEST		
17.	PLUG BACK		
18.	SQUEEZE CEMENT		
19.	FISHING		
20.	DIR. WORK		
21.	LD Casing Tools		1
22.			
23.			
COMPLETION A.	PERFORATING		
B.	TUBING TRIPS		
C.	TREATING		
D.	SWABBING		
E.	TESTING		
F.			
G.			
H.			
TOTALS		12	

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.	
HOURS W/ OPR. D.P.	
HOURS WITHOUT D.P.	
HOURS STANDBY	
TOTAL DAYWORK	
NO. OF DAYS FROM SPUD	
CUMULATIVE ROTATING HOURS	
DAILY MUD COST	
TOTAL MUD COST	

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 6 1/4	1.00
1	Bit Sub	2.34
9	4 3/4 DCs OD	265.78
1	Down Jar OD	15.71
1	Up Jar OD	18.34
9	4 3/4 DCs OD	266.63
	OD	
	BHA	569.80
76	STANDS ___ D.P.	7123.88
1	SINGLES ___ D.P.	30.82
	KELLY DOWN	38.50
	TOTAL	7763
WT. OF STRING		122,000

BIT RECORD

BIT NO.	11	
SIZE	6 1/4	
IADC CODE		
MANUFACTURER	HTC	
TYPE	STX-20	
SERIAL NO.	T37JT	
JETS	OPEN	
TFA	0	
DEPTH OUT		
DEPTH IN		
TOTAL DRILLED		
TOTAL HOURS		

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION
BEARINGS/SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME	6:00	12:00	5:30
WEIGHT	8.6	8.6	8.8
PRESSURE GRADIENT			
FUNNEL VISCOSITY	35	50	65
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
Gel	60		
Bar	104		

REMARKS Forklift Kick miller
Boiler 12 Hrs

CONFIDENTIAL

DRILLER Brad Pedersen

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 6 1/4	1.00
1	Bit Sub	2.34
9	4 3/4 DC's	265.78
1	Down Jar	15.71
1	Up Jar OD	18.34
9	4 3/4 DC OD	266.63
	OD	
	BHA	569.80
74	STANDS ___ D.P.	
XX	SINGLES ___ D.P.	
	KELLY DOWN	
	TOTAL	
WT. OF STRING		

BIT RECORD

BIT NO.	11	
SIZE	6 1/4	
IADC CODE		
MANUFACTURER	HTC	
TYPE	STX-20	
SERIAL NO.	T37JT	
JETS	OPEN	
TFA		
DEPTH OUT		
DEPTH IN	7745	
TOTAL DRILLED		
TOTAL HOURS		

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION
BEARINGS/SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME	1800	1:00	6:00
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS	\		
pH	\		
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
Bar	806		
EZ-mud	5 gal		
Barazan	3 sax		

REMARKS fuel -54 Forklift = Brian McDonald
Acc 2500 Boiler 12 hrs
man 1400
Amp 1000 4514 gal
Fluid 14"

DRILLER [signature]

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PRINTED IN U.S.A.

FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
Middle Mountain	Emery	UT

LAST CASING TUBING OR LINER	SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT
	7		26 R53 N-80	180		16	7690

WIRE LINE RECORD REEL NO.

SIZE	NO. LINES	LENGTH SLIPPED
1 1/8	10	

LENGTH CUT OFF | PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
7690	7745	R		Shale	55	10/20	650	5	55							233
7745	7763	D			67	25	450/1250			5	60					254

DEVIATION RECORD	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
600	1500	9	3	Wash + Ream f/ 7690 - 7745, Raise Mud WT 8.8
1500	1600	1	2	Drlg formation f/ 7745 - 7763
1600	1700	1	21	Set back Kelly, pull 1 STD, L/D Coring Tools
1700	1800	1	3	Wash + Ream f/ 7725 - 7763

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
7733	7763	R		Shale		10/20	1310			5"	60					
7763	7778	D			71	25	1310									

DEVIATION RECORD	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
1800	2130	3 1/2	3	Ream Shale
2130	2330	1 1/2	2	Drlg 7763 - 7778
2330			3	Hole started sluffing, PSI came up, pull up 50' Ream back
	200	2 1/2	3	To bottom, Lost 60 BBLS mud. Won't Ream
200	600	4	6	Pump pill, POOH ✓ Bit

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED APPROVED

No. 3005915

No. 3007590

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mountain	21-16			12-20-02

OPERATOR	CONTRACTOR	RIG NO.
Fortune	Patterson-UTI	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE: [signature]

SIGNATURE OF CONTRACTOR'S TOOL PUSHER: Roger Bromley

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.	PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH
3 1/2	15.50			IF	270	1	IDECO	550	15
						2	IDECO	550	15

TIME DISTRIBUTION – HOURS

CODE NO. – OPERATION	NIGHT	DAY
1. RIG UP AND TEAR DOWN		
2. DRILL ACTUAL	8 1/2	
3. REAMING	5 1/2	7 1/2
4. CORING		
5. CONDITION MUD & CIRCULATE		1/2
6. TRIPS		3 1/2
7. LUBRICATE RIG		1/2
8. REPAIR RIG		
9. CUT OFF DRILLING LINE		
10. DEVIATION SURVEY		
11. WIRE LINE LOGS		
12. RUN CASING & CEMENT		
13. WAIT ON CEMENT		
14. NIPPLE UP B.O.P.		
15. TEST B.O.P.		
16. DRILL STEM TEST		
17. PLUG BACK		
18. SQUEEZE CEMENT		
19. FISHING		
20. DIR. WORK		
21. lost circ.	1	
22.		
23.		
COMPLETION A. PERFORATING		
B. TUBING TRIPS		
C. TREATING		
D. SWABBING		
E. TESTING		
F.		
G.		
H.		
TOTALS	12	12

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.	
HOURS W/ OPR. D.P.	
HOURS WITHOUT D.P.	
HOURS STANDBY	
TOTAL DAYWORK	
NO. OF DAYS FROM SPUD	
CUMULATIVE ROTATING HOURS	
DAILY MUD COST	
TOTAL MUD COST	

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 6 1/4	1.00
1	Bit sub	2.34
9	4 3/4 DC's	265.78
1	Down Jars	15.71
1	up Jars OD	18.34
9	4 3/4 DCs OD	266.63
	OD	
	BHA	569.80
	STANDS ___ D.P.	7123.88
	SINGLES ___ D.P.	30.82
	KELLY DOWN	38.50
	TOTAL	7763
	WT. OF STRING	118,000

BIT RECORD

BIT NO.	11
SIZE	6 1/4
IADC CODE	
MANUFACTURER	HTC
TYPE	~~[illegible]~~ STX-20
SERIAL NO.	T37JT
JETS	open
TFA	
DEPTH OUT	
DEPTH IN	7745
TOTAL DRILLED	
TOTAL HOURS	

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION
BEARINGS/SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME	10:00	12:00	5:30
WEIGHT	9.4	9.5	9.6
PRESSURE GRADIENT			
FUNNEL VISCOSITY	48	50	53
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
BAR	810		
Bargan	2		

REMARKS: Forklift Kirk Miller
Boiler 12Hrs

CONFIDENTIAL

DRILLER: Brad Pedersen

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 6 1/4	1.00
1	B.S	2.34
9	4 3/4 DC's	265.78
1	Down Jars	15.71
1	UP Jars OD	18.34
9	4 3/4 DC's OD	266.63
	OD	
	BHA	569.80
77	STANDS ___ D.P.	7217
	SINGLES ___ D.P.	~~[illegible]~~
	KELLY DOWN	27.00
	TOTAL	7814
	WT. OF STRING	118

BIT RECORD

BIT NO.	#11
SIZE	6 1/4
IADC CODE	
MANUFACTURER	HTC
TYPE	STX-20
SERIAL NO.	T37JT
JETS	open
TFA	
DEPTH OUT	
DEPTH IN	7745
TOTAL DRILLED	69
TOTAL HOURS	6 1/2 7

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION
BEARINGS/SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME	7:00		
WEIGHT	9.9		
PRESSURE GRADIENT			
FUNNEL VISCOSITY	57		
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
Barite	291		
Barazan	3		
600 Bicarb	140		

REMARKS:
Forklift Brian McDonald
Acc. 2500 Fuel-58
man-1700 Boiler 12 hrs
Ann.-1250
Fluid 10

DRILLER: [signature]

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FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
Middle Mountain	Emery	Utah

WIRE LINE RECORD REEL NO.

SIZE	NO. LINES	LENGTH SLIPPED
1 1/4	10	

LENGTH CUT OFF | PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

LAST CASING TUBING OR LINER

SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT
7"		26 K55 N80	180		16'	7690

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
7690	7763	R		Shale	75	25	1350	5"	60							

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
600	630	1/2	7	Rig Service
630	1000	3 1/2	6	TIH W/ bit # 11
1000	1030	1/2	5	Fill pipe @ 7664
1030	1800	7 1/2	3	Wash + Ream f/ 7690 - 7763, Hole Sloughing @ 7740

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
7763	7778	R		Shale	75	25	1400			5 1/2	60					
7778	7814	D		Shale	75	25/30	1500			5	60					

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
18:00	22:30	4 1/2	3	Ream f/ 7763 - 7778
22:30	4:00	5 1/2	2	Drlg f/ 7778 - 7814
4:00	5:00	1	21	Lost All Returns, Mix & pump Baracarb Pill, Full Returns; Pulled INTO Shoe
5:00	6:00	1	3	Ream f/ 7735 - 7798 Lost 60 bbls.
↑				
ROT	118,000			
↓				

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED APPROVED

No. 3007590

No. 3007591

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mountain	21-16			12-21-07

OPERATOR	CONTRACTOR	RIG NO.
Fortuna	Patterson - UTI	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE: [signature]

SIGNATURE OF CONTRACTOR'S TOOL PUSHER: Roger Bromley

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.
3 1/2	15.50			IF	270

PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH
1	IDECO	550	15
2	IDECO	550	15

TIME DISTRIBUTION – HOURS

CODE NO. – OPERATION	NIGHT	DAY
1. RIG UP AND TEAR DOWN		
2. DRILL ACTUAL	12	11 1/2
3. REAMING		1/2
4. CORING		
5. CONDITION MUD & CIRCULATE		
6. TRIPS		
7. LUBRICATE RIG		
8. REPAIR RIG		
9. CUT OFF DRILLING LINE		
10. DEVIATION SURVEY		
11. WIRE LINE LOGS		
12. RUN CASING & CEMENT		
13. WAIT ON CEMENT		
14. NIPPLE UP B.O.P.		
15. TEST B.O.P.		
16. DRILL STEM TEST		
17. PLUG BACK		
18. SQUEEZE CEMENT		
19. FISHING		
20. DIR. WORK		
21.		
22.		
23.		
COMPLETION A. PERFORATING		
B. TUBING TRIPS		
C. TREATING		
D. SWABBING		
E. TESTING		
F.		
G.		
H.		
TOTALS	12	12

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.		
HOURS W/ OPR. D.P.		
HOURS WITHOUT D.P.		
HOURS STANDBY		
TOTAL DAYWORK		
NO. OF DAYS FROM SPUD		
CUMULATIVE ROTATING HOURS		
DAILY MUD COST		
TOTAL MUD COST		

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 6 1/4	1.00
1	Bit Sub	2.34
9	4 3/4 DC OD	265.78
1	Down Jar OD	15.71
1	up Jar OD	18.34
9	4 3/4 DCs OD	266.63
	OD	
	BHA	569.80
77	STANDS ___ D.P.	7217.58
2	SINGLES ___ D.P.	61.14
	KELLY DOWN	38.50
	TOTAL	7887.02
	WT. OF STRING	118,000

BIT RECORD

BIT NO.	11	
SIZE	6 1/4	
IADC CODE		
MANUFACTURER	HTC	
TYPE	SJX-20	
SERIAL NO.	T37JT	
JETS	open	
TFA		
DEPTH OUT		
DEPTH IN	7745	
TOTAL DRILLED	142	
TOTAL HOURS	18 1/2	

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME	6:00	12:00	5:30
WEIGHT	9.6	10.0	9.4
PRESSURE GRADIENT			
FUNNEL VISCOSITY	50	55	48
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
Gel	20		
Bar	240		
Bara Carb	124		
Barazan	6		

REMARKS: Forklift Kirk Miller
Boiler 12 Hrs

CONFIDENTIAL

DRILLER: Brad Pedersen

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 6 1/4	1.00
1	Bit Sub	2.34
9	4 3/4 DC OD	265.78
1	Down Jar	15.71
1	up Jar OD	18.34
9	4 3/4 DC OD	266.63
	OD	
	BHA	569.80
78	STANDS ___ D.P.	7309
XX	SINGLES ___ D.P.	63.38
	KELLY DOWN	11.00
	TOTAL	7954
	WT. OF STRING	119,000

BIT RECORD

BIT NO.	11	
SIZE	6 1/4	
IADC CODE		
MANUFACTURER	HTC	
TYPE	SJX-20	
SERIAL NO.	T37JT	
JETS	open	
TFA		
DEPTH OUT		
DEPTH IN	7745	
TOTAL DRILLED	209	
TOTAL HOURS	30 1/2	

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME	1800	100	600
WEIGHT	10.1	10.3	10.3
PRESSURE GRADIENT			
FUNNEL VISCOSITY	50	56	55
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
Bara Z	17	Bara C 600	20
Bara C 150	75		
Bar	450		
Gel			

REMARKS:
Acc. 2500 — Forklift = Brian Mcdonald
man. 1500 — Boiler 12 hrs
Ann. 1100 — Fuel 45" 3684 gal
Fluid 14"

DRILLER: [signature]

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED APPROVED

PRINTED IN U.S.A.

FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
Middle Mountain	Emery	Utah

WIRE LINE RECORD REEL NO.

SIZE	NO. LINES	LENGTH SLIPPED
1 1/8	10	

LENGTH CUT OFF | PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

LAST CASING TUBING OR LINER

SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT
7"		26 N80 K55	180		16'	7690

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
7798	7814	R		Shale	75	25	1350			5	60					
7814	7887	D		Shale	75	25	1350	5	60							

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
600	630	1/2	3	Wash + Ream 7798 - 7814
630	1800	11 1/2	2	Drlg f/ 7814 - 7887

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
7887	7954	D		Shale	75	25/30	1280	5"	65	5"						

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
1800	600	12	2	Drlg. f/ 7887 - 7954 Lost 120 BBLS mud To Form.

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED APPROVED

No. 3007591

No. 3007592

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mtn. 21-16				12-22-02

OPERATOR	CONTRACTOR	RIG NO.
Patterson Drilling	Fortuna	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE

SIGNATURE OF CONTRACTOR'S TOOL PUSHER: Roger Bromley

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.
[illegible]	[illegible]				266
3½	15.50				270

PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH
1	Idco	550	15
2	"	"	"

TIME DISTRIBUTION – HOURS

CODE NO. – OPERATION	NIGHT	DAY
1. RIG UP AND TEAR DOWN		
2. DRILL ACTUAL	8½	
3. REAMING		
4. CORING		
5. CONDITION MUD & CIRCULATE		
6. TRIPS	3	
7. LUBRICATE RIG	½	
8. REPAIR RIG		
9. CUT OFF DRILLING LINE		
10. DEVIATION SURVEY		
11. WIRE LINE LOGS		
12. RUN CASING & CEMENT		
13. WAIT ON CEMENT		
14. NIPPLE UP B.O.P.		
15. TEST B.O.P.		
16. DRILL STEM TEST		
17. PLUG BACK		
18. SQUEEZE CEMENT		
19. FISHING		
20. DIR. WORK		
21.		
22.		
23.		
COMPLETION A. PERFORATING		
B. TUBING TRIPS		
C. TREATING		
D. SWABBING		
E. TESTING		
F.		
G.		
H.		
TOTALS	12	

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.		
HOURS W/ OPR. D.P.		
HOURS WITHOUT D.P.		
HOURS STANDBY		
TOTAL DAYWORK		
NO. OF DAYS FROM SPUD		
CUMULATIVE ROTATING HOURS		
DAILY MUD COST		
TOTAL MUD COST		

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 6 1/4	1.00
1	Bit sub	2.34
9	4 3/4 D.C. OD	265.78
1	Down Jar OD	15.71
1	Up Jar OD	18.34
9	4 3/4 D.C. OD	266.63
	OD	
	B.H.A.	569.80
	STANDS ___ D.P.	
	SINGLES ___ D.P.	7404
	KELLY DOWN	21'
	TOTAL	7996

WT. OF STRING 116,000

BIT RECORD

BIT NO.	11
SIZE	6 1/8
IADC CODE	
MANUFACTURER	HTC
TYPE	STX-20
SERIAL NO.	137JT
JETS	Open
TFA	
DEPTH OUT	7996
DEPTH IN	7745
TOTAL DRILLED	251
TOTAL HOURS	10

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME	0700	1200	
WEIGHT	10.0	10.1+	T
PRESSURE GRADIENT			
FUNNEL VISCOSITY	50	47	P
PV/YP	/	/	P
GEL STRENGTH	/	/	8
FLUID LOSS			1
pH			P
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
BARAZAN	8		
BAR	64		
GEL	40		

REMARKS Forklift: A. David Boiler - 12 hrs

CONFIDENTIAL

DRILLER [signature]

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 6 1/8	1.00
1	Bit Sub	2.34
9	4 3/4 DC OD	265.78
1	Down Jar	15.71
1	Up Jar OD	18.34
9	4 3/4 DC OD	266.63
	OD	
	BHA	569.80
	STANDS ___ D.P.	
	SINGLES ___ D.P.	
	KELLY DOWN	
	TOTAL	

WT. OF STRING

BIT RECORD

BIT NO.	12
SIZE	6 1/8
IADC CODE	
MANUFACTURER	HTC
TYPE	STX-30
SERIAL NO.	5005063
JETS	OPEN
TFA	
DEPTH OUT	[illegible]
DEPTH IN	7996
TOTAL DRILLED	
TOTAL HOURS	

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME	2300	0200	0500
WEIGHT	10.2	10.2	10.2
PRESSURE GRADIENT			
FUNNEL VISCOSITY	49	58	58/50
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
Gel	50 SX		

REMARKS Forklift: Ben Gardner Boiler 12 Hrs

Fuel - 34

DRILLER [signature]

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED APPROVED

PRINTED IN U.S.A.

FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
Middle Mountain	Emery	Utah

	SIZE	MAKE	WEIGHT & GRADE		NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT
LAST CASING TUBING OR LINER	7"		26	N80 K55	180		16'	7690

WIRE LINE RECORD REEL NO.

SIZE	NO. LINES	LENGTH SLIPPED
1 1/8	10	

LENGTH CUT OFF	PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
7955	7996	D														

DEVIATION RECORD	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
0600	14:30	8 1/2	2	Drlg 7955-7996
14:30	15:00	1/2	7	Rig Service F/Test Pipes & Ann
15:00	18:00	3	6	Pump Pill POOH L/D 1 jt D.P.
				BOP Drill 68 sec
				21' Kelly Down

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT

DEVIATION RECORD	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
				Function Blind Rams
1800	2230	4 1/2	6	Pull DC's, G.I.H.
2230	0600	7 1/2		Drill on Bridge 7763

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

IADC APPROVED API APPROVED

No. 3007592

No. 3007593

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mtn	21-16			12-23-02

OPERATOR	CONTRACTOR	RIG NO.
Fortuna	Patterson Drilling	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE	SIGNATURE OF CONTRACTOR'S TOOL PUSHER
[signature]	Roger Bromley

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.	PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH
3 1/2	15.5				266	1	Ideco	550	15
					270	2	"	"	"

TIME DISTRIBUTION – HOURS

CODE NO.	OPERATION	NIGHT	DAY
1.	RIG UP AND TEAR DOWN		
2.	DRILL ACTUAL		11
3.	REAMING	11 1/2	1
4.	CORING		
5.	CONDITION MUD & CIRCULATE		
6.	TRIPS		
7.	LUBRICATE RIG	1/2	
8.	REPAIR RIG	[illegible]	
9.	CUT OFF DRILLING LINE		
10.	DEVIATION SURVEY		
11.	WIRE LINE LOGS		
12.	RUN CASING & CEMENT		
13.	WAIT ON CEMENT		
14.	NIPPLE UP B.O.P.		
15.	TEST B.O.P.		
16.	DRILL STEM TEST		
17.	PLUG BACK		
18.	SQUEEZE CEMENT		
19.	FISHING		
20.	DIR. WORK		
21.			
22.			
23.			
COMPLETION	A. PERFORATING		
	B. TUBING TRIPS		
	C. TREATING		
	D. SWABBING		
	E. TESTING		
	F.		
	G.		
	H.		
TOTALS		12	12

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.	
HOURS W/ OPR. D.P.	
HOURS WITHOUT D.P.	
HOURS STANDBY	
TOTAL DAYWORK	
NO. OF DAYS FROM SPUD	
CUMULATIVE ROTATING HOURS	
DAILY MUD COST	
TOTAL MUD COST	

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT	
1	B-SUB	
9	4 3/4 DC OD	
1	D-Jar OD	
1	W-Jar OD	
9	4 3/4 Jar OD	
	OD	
	BHA	569.80
79	STANDS ___ D.P.	7404
	SINGLES ___ D.P.	
	KELLY DOWN	
	TOTAL	
	WT. OF STRING	120,000

BIT RECORD

BIT NO.	12
SIZE	6 1/8
IADC CODE	
MANUFACTURER	HTC
TYPE	STX 30
SERIAL NO.	5005063
JETS	—
TFA	
DEPTH OUT	
DEPTH IN	7996
TOTAL DRILLED	
TOTAL HOURS	

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION	BEARINGS/SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME	0700	1200	0500
WEIGHT	10.2	10.2+	10.2
PRESSURE GRADIENT			
FUNNEL VISCOSITY	52	54	53
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
Barazan	4		
Caustic	2		
GEL	10		
BAR	45		

REMARKS Forklift A. David Boiler 12 hrs

CONFIDENTIAL

DRILLER Jason Harrison

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 6 1/8	1.00
1	Bit Sub	2.34
9	4 3/4 DC OD	265.78
1	Down Jar OD	15.71
1	up JAR OD	18.34
9	4 3/4 DC OD	266.63
	BHA OD	569.80
79	STANDS ___ D.P.	
X	SINGLES ___ D.P.	7436
	KELLY DOWN	40
	TOTAL	
	WT. OF STRING	124,000

BIT RECORD

BIT NO.	12
SIZE	6 1/8
IADC CODE	
MANUFACTURER	HTC
TYPE	STX 30
SERIAL NO.	500 5063
JETS	OPEN
TFA	
DEPTH OUT	
DEPTH IN	7996
TOTAL DRILLED	
TOTAL HOURS	11

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION	BEARINGS/SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME	1900	0100	0500
WEIGHT	10.1	10.2	10.2
PRESSURE GRADIENT			
FUNNEL VISCOSITY	53	58	56
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
Gel	32 sx		
BAR	70 sx		
Caustic	2 sx		
Barzan	1 sx		

REMARKS D/To Lex BumGardner Boiler 12 HRS

Fuel 27

130,000 up

124,000 rot

122,000 Dn.

DRILLER [signature]

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED APPROVED

PRINTED IN U.S.A.

FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
Middle Mtn.	Emery	Utah

	SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT
LAST CASING TUBING OR LINER	7"		26# J&K-55	180	16'		7690

WIRE LINE RECORD REEL NO.

SIZE	NO. LINES	LENGTH SLIPPED
1 1/8	10	

LENGTH CUT OFF | PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
6:00	14:45	8 3/4	3	Reaming 7186 - 7847
14:45	15:15	1/2	7	~~Tub~~ Rig Service Activate Pipes - Ann
15:15	18:00	2 3/4	3	Reaming 7847 -

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
7996	8045				60	23/25	1250/1750	5½		5½	6Z					

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
1800	1900	1	3	Ream
1900	0600	11	2	Drlg 7996 to 8045 8018 @ 2400 HR

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED APPROVED

No. 3007593

No. 3007594

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mtn	21-16			12-23-02

OPERATOR	CONTRACTOR	RIG NO.
Fortuna	Patterson	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE: [signature]

SIGNATURE OF CONTRACTOR'S TOOL PUSHER: Roger Bromley

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.	PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH
3 1/2	15.5				266	1	Ideco	550	15"
					270	2			

TIME DISTRIBUTION – HOURS

CODE NO. – OPERATION	NIGHT	DAY
1. RIG UP AND TEAR DOWN		
2. DRILL ACTUAL	11 1/2	5
3. REAMING		
4. CORING		
5. CONDITION MUD & CIRCULATE		4 3/4
6. TRIPS		1/2
7. LUBRICATE RIG	1/2	
8. REPAIR RIG		
9. CUT OFF DRILLING LINE		
10. DEVIATION SURVEY		
11. WIRE LINE LOGS		
12. RUN CASING & CEMENT		
13. WAIT ON CEMENT		
14. NIPPLE UP B.O.P.		
15. TEST B.O.P.		
16. DRILL STEM TEST		
17. PLUG BACK		
18. SQUEEZE CEMENT		
19. FISHING		
20. DIR. WORK		
21. Lost Returns		1 3/4
22.		
23.		
COMPLETION A. PERFORATING		
B. TUBING TRIPS		
C. TREATING		
D. SWABBING		
E. TESTING		
F.		
G.		
H.		
TOTALS	12	12

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.	
HOURS W/ OPR. D.P.	
HOURS WITHOUT D.P.	
HOURS STANDBY	
TOTAL DAYWORK	
NO. OF DAYS FROM SPUD	
CUMULATIVE ROTATING HOURS	
DAILY MUD COST	
TOTAL MUD COST	

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 6 1/8	1.00
1	B/SUB	2.54
9	4 3/4 DC OD	265.78
1	D Jar OD	15.71
1	U Jar OD	18.34
9	4 3/4 DC OD	266.63
	OD	
	BHA	569.80
80	STANDS ___ D.P.	
	SINGLES ___ D.P.	7498
	KELLY DOWN	24
	TOTAL	8093
	WT. OF STRING	123,000

BIT RECORD

BIT NO.	12	
SIZE	6 1/8	
IADC CODE		
MANUFACTURER	HTC	
TYPE	STX 30	
SERIAL NO.	5005063	
JETS	—	
TFA		
DEPTH OUT		
DEPTH IN	7996	
TOTAL DRILLED		
TOTAL HOURS	22 1/2	

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION	BEARINGS/SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME	7:00	12:00	5:00
WEIGHT	10.0	10.0	10.2
PRESSURE GRADIENT			
FUNNEL VISCOSITY	53	58	47
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
BAR	260		
Caustic	2		
BARAZAN	4		
Desco	2		

REMARKS: Forklift: A. David Boiler 12 hrs

CONFIDENTIAL

DRILLER: [signature]

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 6 1/8	1.00
1	Bit sub	2.54
9	4 3/4 DC OD	265.78
1	Down Jar	15.71
1	up JAR OD	18.34
9	4 3/4 DC OD	266.63
	OD	
	BHA	569.80
80	STANDS ___ D.P.	
X	SINGLES ___ D.P.	7529
	KELLY DOWN	19
	TOTAL	
	WT. OF STRING	

BIT RECORD

BIT NO.	12	
SIZE	6 1/8	
IADC CODE		
MANUFACTURER	HTC	
TYPE	STX 30	
SERIAL NO.	5005063	
JETS	open	
TFA		
DEPTH OUT		
DEPTH IN	7996	
TOTAL DRILLED		
TOTAL HOURS	27 1/2	

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION	BEARINGS/SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME	1900	0100	
WEIGHT	10.1+	Lost Circ	
PRESSURE GRADIENT			
FUNNEL VISCOSITY	48		
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
Gel	168 sx	Caustic	3 sx
Bar	180	Desco	2 sx
Barakade	245 sx		
Barazan	5 sx		

REMARKS: D/FO Lex Baumgardner Boil 12 hrs Fuel 45

DRILLER: [signature]

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED APPROVED

PRINTED IN U.S.A.

FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
Middle Mtn	Emery	Utah

	SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT
LAST CASING TUBING OR LINER	7"		26# N80 K55	18.0	16'		7990

WIRE LINE RECORD REEL NO.

SIZE	NO. LINES	LENGTH SLIPPED
1 1/4	10	

LENGTH CUT OFF	PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
8045	8093	D			55	20/25	1700	5"	61	5"	61					

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
6:00	17:00	11	2	Drlg F/8045 to 8090
17:00	17:30	1/2	7	Rig Service F/Test pipe/Ann
17:30	18:00	1/2	2	Drlg F/8090 to 8093

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
8093	8120				55	20/25	1800/1700	5½	61	5	61					

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
1800	2300	5	2	Drlg 8093 to 8120
2300	0045	1 3/4	21	Lost Returns Pump 2 pills appx 180 BBLs.
00				Pressure on standpipe @ 45 SPM 450# No Returns
0045	0115	1/2	6	POOH 5 STDS
0115	0600	4 3/4	5	Mix Mud

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED APPROVED

No. 3007594

No. 3007596

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mtn	21-16			12/25/02

OPERATOR	CONTRACTOR	RIG NO.
Fortune	Patterson Drilling	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE: [signature]

SIGNATURE OF CONTRACTOR'S TOOL PUSHER: Randy Hackford

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.
3½	15.5				

PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH
1	Ideco	550	15
2	Ideco	550	15

TIME DISTRIBUTION – HOURS

CODE NO.	OPERATION	NIGHT	DAY
1.	RIG UP AND TEAR DOWN		
2.	DRILL ACTUAL		6½
3.	REAMING		
4.	CORING		
5.	CONDITION MUD [redacted]	8½	5½
6.	TRIPS	1.25	
7.	LUBRICATE RIG	½	
8.	REPAIR RIG		
9.	CUT OFF DRILLING LINE		
10.	DEVIATION SURVEY		
11.	WIRE LINE LOGS		
12.	RUN CASING & CEMENT		
13.	WAIT ON CEMENT		
14.	NIPPLE UP B.O.P.		
15.	TEST B.O.P.		
16.	DRILL STEM TEST		
17.	PLUG BACK		
18.	SQUEEZE CEMENT		
19.	FISHING		
20.	DIR. WORK		
21.	W.O.M.T.	1.75	
22.			
23.			
COMPLETION	A. PERFORATING		
	B. TUBING TRIPS		
	C. TREATING		
	D. SWABBING		
	E. TESTING		
	F.		
	G.		
	H.		
TOTALS		12	12

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.		
HOURS W/ OPR. D.P.		
HOURS WITHOUT D.P.		
HOURS STANDBY		
TOTAL DAYWORK		
NO. OF DAYS FROM SPUD		
CUMULATIVE ROTATING HOURS		
DAILY MUD COST		
TOTAL MUD COST		

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 6⅛	1.00
1	B. Sub	2.54
9	4¾ DC OD	265.78
1	U Jar OD	15.71
1	D Jar OD	18.34
9	4¾ DC OD	266.63
	OD	
	BHA	569.8
80	STANDS ___ D.P.	
1	SINGLES ___ D.P.	7529.75
	KELLY DOWN	19
	TOTAL	8125

WT. OF STRING 124,000

BIT RECORD

BIT NO.	12
SIZE	6⅛
IADC CODE	
MANUFACTURER	HTC
TYPE	STX 30
SERIAL NO.	5005063
JETS	
TFA	
DEPTH OUT	
DEPTH IN	7996
TOTAL DRILLED	
TOTAL HOURS	27¾

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME	7:00	12:00	7
WEIGHT	10.2	10.2	10.2
PRESSURE GRADIENT			
FUNNEL VISCOSITY	45	45	45
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
GEL	60	50	108
BAR	520	150	140
Caustic	4	600	40?
BARAZAN	10		

REMARKS Forklift: A. David Boiler 12 hrs

CONFIDENTIAL

DRILLER [signature]

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 6⅛	1.00
1	Bit sub	2.54
9	4¾ DC OD	265.78
1	up-JAR OD	15.71
1	DN JAR OD	18.34
9	4¾ DC OD	266.63
	OD	
	BHA	569.80
80	STANDS ___ D.P.	
XX	SINGLES ___ D.P.	
	KELLY DOWN	
	TOTAL	

WT. OF STRING 126,000

BIT RECORD

BIT NO.	12
SIZE	6⅛
IADC CODE	
MANUFACTURER	HTC
TYPE	STX30
SERIAL NO.	5005063
JETS	
TFA	
DEPTH OUT	
DEPTH IN	7996
TOTAL DRILLED	
TOTAL HOURS	34¼

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME		1200	
WEIGHT		10/9.7	
PRESSURE GRADIENT			
FUNNEL VISCOSITY		53/47	
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
BAR	400 sk	Barabril	680
Gel	138 sk		
Caustic	5 sk		
Barazan	6 sk		

REMARKS D/FO Lex Bum Gardner Boiler 12 HRS Fuel 46

DRILLER [signature]

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED APPROVED

PRINTED IN U.S.A.

FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
Middle Mtn	Emery	Utah

	SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT
LAST CASING TUBING OR LINER	7"		26# N80 K55	190	16		7690

WIRE LINE RECORD REEL NO.

SIZE	NO. LINES	LENGTH SLIPPED
1 1/8	10	

LENGTH CUT OFF	PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
8120	8125															

DEVIATION RECORD	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
6:00	10:00	4	5	Build volume, mud up, weight up, LCM
10:00	10:15	.25	6	T.I.H.
10:15	12:00	1.75	25	Kelly up. Wait on mud truck
12:00	15:00	3	5	Mud up, Drop fill, Build Volume, Mud up
15:00	16:00	1	5	Pump 10.2# mud w/Barocarb Drill 5' (15 min)
16:00	17:00	1	6	POOH 5 stnds 1 single Kelly up
17:00	17:30	1/2	5	Build Volume Mud up
17:30	18:00	1/2	7	Rig Service

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
8125	8162				50	22/25	1400/1900	5	—	5	55					

DEVIATION RECORD	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
1800	2130	3½	5	Build Volume mix Mud
2130	0400	6½	2	Run in 5 stds, 10' Fill Drlg 8125' to 8162' Build Volume on conn @ 8142 405 Bbls.
0400	0600	2	5	~~mix Pill @ 8162' Get Returns 40 Bbl pill~~ 305 X's Barzan

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED APPROVED

No. 3007596

No.3007597

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mtn	21-16			12-26-02

OPERATOR	CONTRACTOR	RIG NO.
Fortuna	Patterson Drilling	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE: [signature]

SIGNATURE OF CONTRACTOR'S TOOL PUSHER: Randy Stackpord

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.	PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH
3 1/2	15.5					1	Ideco	550	
						2			

TIME DISTRIBUTION – HOURS

CODE NO. – OPERATION	NIGHT	DAY
1. RIG UP AND TEAR DOWN		
2. DRILL ACTUAL	21	
3. REAMING		
4. CORING		
5. CONDITION MUD & CIRCULATE	6	
6. TRIPS	3	
7. LUBRICATE RIG	1/2	
8. REPAIR RIG		
9. CUT OFF DRILLING LINE		
10. DEVIATION SURVEY		
11. WIRE LINE LOGS		
12. RUN CASING & CEMENT		
13. WAIT ON CEMENT		
14. NIPPLE UP B.O.P.		
15. TEST B.O.P.		
16. DRILL STEM TEST		
17. PLUG BACK		
18. SQUEEZE CEMENT		
19. FISHING		
20. DIR. WORK		
21. WOWT	.25	
22.		
23.		
COMPLETION A. PERFORATING		
B. TUBING TRIPS		
C. TREATING		
D. SWABBING		
E. TESTING		
F.		
G.		
H.		
TOTALS	24	

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.		
HOURS W/ OPR. D.P.		
HOURS WITHOUT D.P.		
HOURS STANDBY		
TOTAL DAYWORK		
NO. OF DAYS FROM SPUD		
CUMULATIVE ROTATING HOURS		
DAILY MUD COST		
TOTAL MUD COST		

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT Bit Hc	1
1	B/SUB	2.54
9	4 3/4 DCs OD	265.78
1	Up Jars OD	15.71
1	Dn Jars OD	18.34
9	4 3/4 DCs OD	266.63
	OD	
	BHA	569.8
81	STANDS ___ D.P.	
	SINGLES ___ D.P.	7593
	KELLY DOWN	10
	TOTAL	8178
	WT. OF STRING	

BIT RECORD

BIT NO.	12	13
SIZE	6 1/8	6 1/8
IADC CODE		
MANUFACTURER	HTC	HTC
TYPE	STX 30	STR30
SERIAL NO.	5005063	T12XM
JETS	—	—
TFA		
DEPTH OUT		
DEPTH IN	7996	8178
TOTAL DRILLED	182	
TOTAL HOURS	34 1/4	3/4

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION
BEARINGS/SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME	0700	1200	0500
WEIGHT	10.0	9.8	9.8
PRESSURE GRADIENT			
FUNNEL VISCOSITY	50	45	45
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
BAR	240	Barazan	5
600	315	Caustic	4
150	120	600 100lbs	30
GEL	99	PAC L	3

REMARKS Forklift A. David

CONFIDENTIAL

DRILLER Jason Hansen

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT Bit	6 1/8
1	Bit Sub	2.54
9	4 3/4 DC OD	265.78
1	Up Jars OD	15.71
1	Dn Jars OD	18.34
9	4 3/4 DC OD	266.63
	BHA OD	569.80
	STANDS ___ D.P.	
	SINGLES ___ D.P.	
	KELLY DOWN	
	TOTAL	
	WT. OF STRING	

BIT RECORD

BIT NO.	13	
SIZE	6 1/8	
IADC CODE		
MANUFACTURER	HTC	
TYPE	STR30	
SERIAL NO.	T12XM	
JETS		
TFA		
DEPTH OUT		
DEPTH IN	8178	
TOTAL DRILLED		
TOTAL HOURS		

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION
BEARINGS/SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME		200	500
WEIGHT		9.5	9.6
PRESSURE GRADIENT			
FUNNEL VISCOSITY		44	53
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
Barazan	5 sk	Bar	180 sk
N Seal	46 sk	600 Barazan	70 sk
Caustic	2 sk	150 Barazan	280
PAC L	2 sk	Gel	80 sk

REMARKS D/FO Lex Bumgardner Boiler 12 Hrs Fuel 42

DRILLER [signature]

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED APPROVED

PRINTED IN U.S.A.

FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
Middle Mtn	Emery	Utah

	SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT
LAST CASING TUBING OR LINER	7"		26 N80 K55	180	tbd	16'	7690

WIRE LINE RECORD REEL NO.

SIZE	NO. LINES	LENGTH SLIPPED
11/8	10	

LENGTH CUT OFF | PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
8162	8178															

DEVIATION RECORD	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
6:00	7:00	1	5	Build Volume
7:00	7:15	.25	2	Drlg F/8162 to 8164
7:15	7:30	.25	21	Wait on Water Trucks
7:30	8:00	1/2	2	Drlg F/8164 to [illegible]
8:00	8:30	1/2	2	[illegible] 8174
8:30	12:00	3 1/2	5	Build Volume
12:00	1:00	1	2	Drlg F 8174 to 8178
1:00	2:30	1 1/2	5	Build Volume pump pill
2:30	5:30	3	6	POOH For Bit
5:30	6:00	1/2	7	Rig Service

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
8178					55/160	22/45	1500/1650	5"		5"	62					

DEVIATION RECORD	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
1800	0000	6	6	G.I.H. Break Circ. 4540' Sulk Cir. 7643'
0000	0130	1 1/2	3	Ream to Bottom 100' 10' Fill on Bottom
0130			2	Drlg 8178 to

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED APPROVED

No. 3007597

No. 3007598

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mtn	21-16			12-27-02

OPERATOR	CONTRACTOR	RIG NO.
[illegible] Fortuna	Patterson Drilling	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE: [signature]

SIGNATURE OF CONTRACTOR'S TOOL PUSHER:

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.
3 1/2	15.5				

PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH
1	Ideco	550	15
2	"	"	"

TIME DISTRIBUTION – HOURS

CODE NO.	OPERATION	NIGHT	DAY
1.	RIG UP AND TEAR DOWN		
2.	DRILL ACTUAL	5 1/2	
3.	REAMING	3	
4.	CORING		
5.	CONDITION MUD & CIRCULATE	2	
6.	TRIPS		
7.	LUBRICATE RIG	1/2	
8.	REPAIR RIG	1	
9.	CUT OFF DRILLING LINE		
10.	DEVIATION SURVEY		
11.	WIRE LINE LOGS		
12.	RUN CASING & CEMENT		
13.	WAIT ON CEMENT		
14.	NIPPLE UP B.O.P.		
15.	TEST B.O.P.		
16.	DRILL STEM TEST		
17.	PLUG BACK		
18.	SQUEEZE CEMENT		
19.	FISHING		
20.	DIR. WORK		
21.			
22.			
23.			
COMPLETION	A. PERFORATING		
	B. TUBING TRIPS		
	C. TREATING		
	D. SWABBING		
	E. TESTING		
	F.		
	G.		
	H.		
TOTALS		12	

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.	
HOURS W/ OPR. D.P.	
HOURS WITHOUT D.P.	
HOURS STANDBY	
TOTAL DAYWORK	
NO. OF DAYS FROM SPUD	
CUMULATIVE ROTATING HOURS	
DAILY MUD COST	
TOTAL MUD COST	

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 6 1/8	1.00
1	B/SUB	2.54
9	4 3/4 DC's OD	265.78
1	D Jars OD	15.71
1	D Jars OD	18.36
9	4 3/4 DC's OD	266.63
	OD	
	BHA	569.80
81	STANDS ___ D.P.	
2	SINGLES ___ D.P.	7655
	KELLY DOWN	15
	TOTAL	8240

WT. OF STRING: 125,000

BIT RECORD

BIT NO.	13
SIZE	6 1/8
IADC CODE	
MANUFACTURER	HTC
TYPE	STR30
SERIAL NO.	T12XM
JETS	—
TFA	
DEPTH OUT	
DEPTH IN	8178
TOTAL DRILLED	
TOTAL HOURS	9.25

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION	BEARINGS/SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME	0700	1200	0700
WEIGHT	9.6	9.6+	9.6
PRESSURE GRADIENT			
FUNNEL VISCOSITY	48	51	47
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
BAR	100	Caustic	1
BARAN	2		
GEL	31		
NSEAL	3 pallets		

REMARKS: For Drift: A David   Boiler 12 hrs

CONFIDENTIAL

DRILLER: [signature]

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 6 1/8	1.00
1	Bit Sub	2.54
9	4 3/4 DC OD	265.78
1	W Jars OD	15.71
1	Dr Jars OD	18.36
9	4 3/4 DC OD	266.63
	OD	
81	STANDS ___ D.P.	
2	SINGLES ___ D.P.	7655
	KELLY DOWN	15
	TOTAL	

WT. OF STRING: 125

BIT RECORD

BIT NO.	13
SIZE	6 1/8
IADC CODE	
MANUFACTURER	HTC
TYPE	STR30
SERIAL NO.	T12XM
JETS	open
TFA	
DEPTH OUT	
DEPTH IN	8178
TOTAL DRILLED	
TOTAL HOURS	

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION	BEARINGS/SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
BAR	60 sx		
GEL	65 sx		
BRAZIL	140 sx		
NSEAL	6 sx		

REMARKS: D/FD Lex Baumgardner   Boiler 12 Hrs
Fuel 32

DRILLER: [signature]

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED   APPROVED

PRINTED IN U.S.A.

FIELD OR DISTRICT	COUNTY	STATE/ COUNTRY
Middlemtn	Emery	Utah

WIRE LINE RECORD REEL NO.

SIZE	NO. LINES	LENGTH SLIPPED
1 1/8	10	

LENGTH CUT OFF | PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

LAST CASING TUBING OR LINER

SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
8200	8240	D														

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
6:00	8:00	2	5	Build Volume
8:00	10:00	2	2	Drlg F/8200 to 8214
10:00	11:00	1	8	Air Out Pumps - Go through pumps
11:00	14:30	3 1/2	2	Drlg F/8214 to 8240 TD
14:30	15:00	1/2	7	Rig Service
15:00	18:00	3	3	Short Trip 6 stnds Ream to Bottom

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
1800	2000	2	3	Ream Down 5 JTs.
2000	2100	1	5	Circ.
2100	0200	5	6	TRIP Slm. out of Hole (362 BBLs)
0200	0600	4	11	Rig up Loggers & Log

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED APPROVED

No. 3007598

No. 3007598

DAILY DRILLING REPORT　　　REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mtn	21-16			12-27-02

OPERATOR	CONTRACTOR	RIG NO.
[redacted] Fortuna	Patterson Drilling	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE	SIGNATURE OF CONTRACTOR'S TOOL PUSHER
[signature]	

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.	PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH
3 1/2	15.5					1	Ideco	550	15
						2	"	"	"

TIME DISTRIBUTION – HOURS

CODE NO. – OPERATION	NIGHT	DAY
1. RIG UP AND TEAR DOWN		
2. DRILL ACTUAL	5 1/2	
3. REAMING	3	
4. CORING		
5. CONDITION MUD & CIRCULATE	2	
6. TRIPS		
7. LUBRICATE RIG	1/2	
8. REPAIR RIG	1	
9. CUT OFF DRILLING LINE		
10. DEVIATION SURVEY		
11. WIRE LINE LOGS		
12. RUN CASING & CEMENT		
13. WAIT ON CEMENT		
14. NIPPLE UP B.O.P.		
15. TEST B.O.P.		
16. DRILL STEM TEST		
17. PLUG BACK		
18. SQUEEZE CEMENT		
19. FISHING		
20. DIR. WORK		
21.		
22.		
23.		
COMPLETION A. PERFORATING		
B. TUBING TRIPS		
C. TREATING		
D. SWABBING		
E. TESTING		
F.		
G.		
H.		
TOTALS	12	

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.	
HOURS W/ OPR. D.P.	
HOURS WITHOUT D.P.	
HOURS STANDBY	
TOTAL DAYWORK	
NO. OF DAYS FROM SPUD	
CUMULATIVE ROTATING HOURS	
DAILY MUD COST	
TOTAL MUD COST	

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 6 1/8	1.00
1	B/SUB	2.54
9	4 3/4 DC's OD	265.78
1	D Jars OD	15.71
1	D Jars OD	18.36
9	4 3/4 DC's OD	266.63
	OD	
	BHA	569.80
81	STANDS ___ D.P.	
2	SINGLES ___ D.P.	7655
	KELLY DOWN	15
	TOTAL	8240
	WT. OF STRING	125,000

BIT RECORD

BIT NO.	13	
SIZE	6 1/8	
IADC CODE		
MANUFACTURER	HTC	
TYPE	STR30	
SERIAL NO.	T12XM	
JETS		
TFA		
DEPTH OUT		
DEPTH IN	8178	
TOTAL DRILLED		
TOTAL HOURS	23 1/4	9.25

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION
BEARINGS/SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME	0700	1200	0700
WEIGHT	9.6	9.6+	9.6
PRESSURE GRADIENT			
FUNNEL VISCOSITY	48	51	47
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
BAR	100	Caustic	1
BARAN	2		
GEL	31		
N-SEAL	3 pallets		

REMARKS Forklift: A. David　　Boiler 12 hrs

CONFIDENTIAL

DRILLER [signature]

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 6 1/8	1.00
1	Bit Sub	2.54
9	4 3/4 DC OD	265.78
1	D JARS OD	15.71
1	Dn Jars OD	18.36
9	4 3/4 DC OD	266.63
	OD	
81	STANDS ___ D.P.	
2	SINGLES ___ D.P.	7655
	KELLY DOWN	15
	TOTAL	
	WT. OF STRING	125

BIT RECORD

BIT NO.	13	
SIZE	6 1/8	
IADC CODE		
MANUFACTURER	HTC	
TYPE	STR30	
SERIAL NO.	T12XM	
JETS	open	
TFA		
DEPTH OUT		
DEPTH IN	8178	
TOTAL DRILLED		
TOTAL HOURS		

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION
BEARINGS/SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
BAR	60 sx		
GEL	65 sx		
BARAN	140 sx		
NSEAL	16 sx		

REMARKS D/FO Lex Baumgardner　　Boiler 12 Hrs
Fuel 32

DRILLER [signature]

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED　　APPROVED

PRINTED IN U.S.A.

FIELD OR DISTRICT	COUNTY	STATE/ COUNTRY
Middle Mtn	Emery	Utah

WIRE LINE RECORD REEL NO.

SIZE	NO. LINES	LENGTH SLIPPED
1 1/8	10	

LENGTH CUT OFF | PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

LAST CASING TUBING OR LINER

SIZE	MAKE	WEIGHT & GRADE		NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
8200	8240	D														

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
6:00	8:00	2	5	Build Volume
8:00	10:00	2	2	Drlg F/8200 to 8214
10:00	11:00	1	8	Air Out Pumps - Go through pumps
11:00	14:30	3 1/2	2	Drlg F/8214 to 8240 TD
14:30	15:00	1/2	7	Rig Service
15:00	18:00	3	3	Short Trip 6 stnds Ream to Bottom

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
1800	2000	2	3	Ream Down 5 JTs.
2000	2100	1	5	Circ.
2100	0200	5	6	TRIP Slm. out of Hole (362 BBLs)
0200	0600	4	11	Rig up loggers & log

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED APPROVED

No. 3007598

No. 3007599

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mtn	21-16			12-28-0?

OPERATOR	CONTRACTOR	RIG NO.
Fortuna	Patterson Drilling	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE: [signature]

SIGNATURE OF CONTRACTOR'S TOOL PUSHER: Randy Hachford

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.
3 1/2	15.5				

PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH
1	Ideco	550	15"
2	"	"	"

TIME DISTRIBUTION – HOURS

CODE NO.	OPERATION	NIGHT	DAY
1.	RIG UP AND TEAR DOWN		
2.	DRILL ACTUAL		
3.	REAMING	4	
4.	CORING		
5.	CONDITION MUD & CIRCULATE		6
6.	TRIPS	3.75	4
7.	LUBRICATE RIG		
8.	REPAIR RIG	1	
9.	CUT OFF DRILLING LINE		
10.	DEVIATION SURVEY		
11.	WIRE LINE LOGS	3.25	2
12.	RUN CASING & CEMENT		
13.	WAIT ON CEMENT		
14.	NIPPLE UP B.O.P.		
15.	TEST B.O.P.		
16.	DRILL STEM TEST		
17.	PLUG BACK		
18.	SQUEEZE CEMENT		
19.	FISHING		
20.	DIR. WORK		
21.			
22.			
23.			
COMPLETION	A. PERFORATING		
	B. TUBING TRIPS		
	C. TREATING		
	D. SWABBING		
	E. TESTING		
	F.		
	G.		
	H.		
TOTALS		12	

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.		
HOURS W/ OPR. D.P.		
HOURS WITHOUT D.P.		
HOURS STANDBY		
TOTAL DAYWORK		
NO. OF DAYS FROM SPUD		
CUMULATIVE ROTATING HOURS		
DAILY MUD COST		
TOTAL MUD COST		

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 6 1/8	1.00
1	B/SUB	2.54
9	4 3/4 DC OD	265.78
1	U jars OD	15.71
1	D jars OD	18.36
9	4 3/4 DCs OD	266.63
	OD	
81	STANDS ___ D.P.	7655
2	SINGLES ___ D.P.	
	KELLY DOWN	15'
	TOTAL	8240
	WT. OF STRING	

BIT RECORD

BIT NO.	13
SIZE	6 1/8
IADC CODE	
MANUFACTURER	HTC
TYPE	STR30
SERIAL NO.	T12XM
JETS	—
TFA	
DEPTH OUT	8240
DEPTH IN	8178
TOTAL DRILLED	
TOTAL HOURS	9.25

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION
BEARINGS/SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME	8:00	12:00	17:00
WEIGHT	9.6	10.0	10.0
PRESSURE GRADIENT			
FUNNEL VISCOSITY	47	50	50
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
BAR	120	150	3pal
BARAZAN	4	NSeal	3pal
Caustic	1		
GEL	4		

REMARKS Forklift: A David   Boiler 12 hrs

CONFIDENTIAL

DRILLER [signature]

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 6 1/8	1.00
1	B. SuB	2.54
9	4 3/4 DC OD	265.78
1	up Jars OD	15.71
1	Dn Jars OD	18.36
9	4 3/4 DC OD	266.63
	OD	
	BHA	569.80
	STANDS ___ D.P.	
	SINGLES ___ D.P.	
	KELLY DOWN	
	TOTAL	
	WT. OF STRING	124,000

BIT RECORD

BIT NO.	13
SIZE	6 1/8
IADC CODE	
MANUFACTURER	HTC
TYPE	STR30
SERIAL NO.	T12XM
JETS	Open
TFA	
DEPTH OUT	8240
DEPTH IN	8178
TOTAL DRILLED	
TOTAL HOURS	9 1/4

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION
BEARINGS/SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
Bar	290 sx	NSEAL	15 sx
Gel	110 sx	Caustic	4 sx
Barazan	4 sx	DESCO	2 sx
Barazan	2/0 sx		

REMARKS D/60 Cap Dunkan Dall   Boiler 12 hrs
Fuel 23

DRILLER [signature]

FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
Middle Mtn	Emery	Utah / USA

LAST CASING TUBING OR LINER	SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT
	7"		26# N80 K55			16'	7690

WIRE LINE RECORD REEL NO.

SIZE	NO. LINES	LENGTH SLIPPED
1 1/8	10	

LENGTH CUT OFF	PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT

DEVIATION RECORD	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
6:00	9:15	3.25	11	Stuck Tool, Free @ 7:15, Out of Hole w/Logs
9:15	10:00	.75	6	G I H BHA
10:00	11:00	1	9	Slip and Cut
11:00	14:00	3	6	T I H Break Circ @ 4300'
14:00	18:00	4	3	Wash and Ream F/8000 to Bottom

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT

DEVIATION RECORD	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
1800	0000	6	5	Mix Mud Build Volume
0000	0400	4	6	Trip
0400	0600	2	11	Rig up Loggers & Log
				15' In on Kelly

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED APPROVED

No. 3007599

No. 3007600

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mtn.	21-16			12-29-0

OPERATOR	CONTRACTOR	RIG NO.
Forty Nine	Patterson UTI	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE	SIGNATURE OF CONTRACTOR'S TOOL PUSHER
	Randy Packford

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.
3 1/2	15.5			IF	270

PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH
1	Ideco	550	15"
2	Ideco	550	15"

TIME DISTRIBUTION – HOURS

CODE NO. – OPERATION	NIGHT	DAY
1. RIG UP AND TEAR DOWN		
2. DRILL ACTUAL		
3. REAMING		
4. CORING		
5. CONDITION MUD & CIRCULATE	6 1/2	
6. TRIPS	4	
7. LUBRICATE RIG		
8. REPAIR RIG		
9. CUT OFF DRILLING LINE		
10. DEVIATION SURVEY		
11. WIRE LINE LOGS		8 1/2
12. RUN CASING & CEMENT		
13. WAIT ON CEMENT		
14. NIPPLE UP B.O.P.		
15. TEST B.O.P.		
16. DRILL STEM TEST		
17. PLUG BACK		
18. SQUEEZE CEMENT		
19. FISHING		
20. DIR. WORK		
21. W.O.O.	1 1/2	3 1/2
22.		
23.		
COMPLETION A. PERFORATING		
B. TUBING TRIPS		
C. TREATING		
D. SWABBING		
E. TESTING		
F.		
G.		
H.		
TOTALS	17	12

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.		
HOURS W/ OPR. D.P.		
HOURS WITHOUT D.P.		
HOURS STANDBY		
TOTAL DAYWORK		
NO. OF DAYS FROM SPUD		
CUMULATIVE ROTATING HOURS		
DAILY MUD COST		
TOTAL MUD COST		

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 6 1/8	1.00
1	B. Sub	2.54
9	4 3/4 DC OD	265.75
1	Up Jar OD	15.71
1	Down Jar OD	18.36
9	4 3/4 DC OD	266.63
	BHA OD	569.80
	STANDS ___ D.P.	
	SINGLES ___ D.P.	
	KELLY DOWN	
	TOTAL	
WT. OF STRING		

BIT RECORD

BIT NO.	13
SIZE	6 1/8
IADC CODE	
MANUFACTURER	HTC
TYPE	STR30
SERIAL NO.	T12XM
JETS	OPEN
TFA	
DEPTH OUT	8240
DEPTH IN	8178
TOTAL DRILLED	
TOTAL HOURS	9 1/4

CUTTING STRUCTURE			
INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME		1500	
WEIGHT		9.8	
PRESSURE GRADIENT			
FUNNEL VISCOSITY		47	
PV/YP	/	17 / 11	/
GEL STRENGTH	/	7 / 11/15	/
FLUID LOSS		10.2	
pH		10	
SOLIDS		5.8	

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
Bar	96	150 BARACARB	75
BARAZ.	2		
Caustic	1		
N Seal	75		

REMARKS Forklift = Frank Richins

CONFIDENTIAL

DRILLER Jimmy H.

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
1	BIT 6 1/8	1.00
1	Bit sub	2.54
9	4 3/4 DC OD	285.28
1	up Jar OD	15.71
1	Down Jar OD	18.36
9	4 3/4 DC OD	266.63
	OD	
	BHA	568.80
81	STANDS ___ D.P.	7593.21
2	SINGLES ___ D.P.	61.80
	KELLY DOWN	15
	TOTAL	8240
WT. OF STRING		134,000

BIT RECORD

BIT NO.	13
SIZE	6 1/8
IADC CODE	
MANUFACTURER	HTC
TYPE	STR 30
SERIAL NO.	T12XM
JETS	Open
TFA	
DEPTH OUT	8240
DEPTH IN	8178
TOTAL DRILLED	
TOTAL HOURS	9 1/4

CUTTING STRUCTURE			
INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME		12:00	5:30
WEIGHT		9.7	9.6
PRESSURE GRADIENT			
FUNNEL VISCOSITY		50	44
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
Baracarb	232#		
Barazan	63#		

REMARKS Forklift Kirkmiller Boiler 12 hrs
ACC 2500 Diesel 35" 2684gal
Mann 1300
Ann 900
Koomey Oil 15

DRILLER Brad Pedersen

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED APPROVED

PRINTED IN U.S.A.

FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
Middle Mountain	Emery	Utah

	SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT
LAST CASING TUBING OR LINER	7"		26# K-55			16'	7690

WIRE LINE RECORD REEL NO.

SIZE	NO. LINES	LENGTH SLIPPED
1 1/8	10	

LENGTH CUT OFF | PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT

DEVIATION RECORD	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
6:00	10:00	4	11	RUN WIRELINE logs
10:00	1330	3 1/2	21	wait on orders
1330	1715	3 3/4	11	RUN WIRELINE logs
1715	1800	3/4	11	L/D Logging Tools

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT
8225	8240	R														

DEVIATION RECORD	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
1800	1830	1/2	6	TIH W/BHA
1830	2000	1 1/2	21	W.O.O
2000	2300	3	6	TIH To Shoe, Fill pipe @ 4000'
2300	330	4 1/2	5	Circ + Cond. (Lost Approx 100bbls)
330	400	1/2	6	TIH to 8225 Kelly up, Wash + Ream to 8240
400	600	2	5	Circ + Cond.

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED APPROVED

No. 3007600

No. 3007601

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mtn.	21-16			12-30-02

OPERATOR	CONTRACTOR	RIG NO.
Fortuna	Patterson U+T	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE	SIGNATURE OF CONTRACTOR'S TOOL PUSHER
[signature]	Randy Hachford

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.
3 1/2	15.5			IF	270

PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH
1	Ideco	550	15"
2	Ideco	550	15"

TIME DISTRIBUTION – HOURS

CODE NO. – OPERATION	NIGHT	DAY
1. RIG UP AND TEAR DOWN		
2. DRILL ACTUAL		
3. REAMING		
4. CORING		
5. CONDITION MUD & CIRCULATE		5 1/2
6. TRIPS		
7. LUBRICATE RIG		
8. REPAIR RIG		
9. CUT OFF DRILLING LINE		
10. DEVIATION SURVEY		
11. WIRE LINE LOGS		
12. RUN CASING & CEMENT	10	
13. WAIT ON CEMENT		
14. NIPPLE UP B.O.P.		
15. TEST B.O.P.		
16. DRILL STEM TEST		
17. PLUG BACK		
18. SQUEEZE CEMENT		
19. FISHING		
20. DIR. WORK		
21. L/D D.P	2	6
22. C/O crew		1/2
23.		
COMPLETION A. PERFORATING		
B. TUBING TRIPS		
C. TREATING		
D. SWABBING		
E. TESTING		
F.		
G.		
H.		
TOTALS	12	12

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.		
HOURS W/ OPR. D.P.		
HOURS WITHOUT D.P.		
HOURS STANDBY		
TOTAL DAYWORK		

NO. OF DAYS FROM SPUD	
CUMULATIVE ROTATING HOURS	
DAILY MUD COST	
TOTAL MUD COST	

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
	BIT	
	OD	
	OD	
	OD	
	OD	
	OD	
	STANDS ___ D.P.	
	SINGLES ___ D.P.	
	KELLY DOWN	
	TOTAL	
WT. OF STRING		

BIT RECORD

BIT NO.			
SIZE			
IADC CODE			
MANUFACTURER			
TYPE			
SERIAL NO.			
JETS			
TFA			
DEPTH OUT			
DEPTH IN			
TOTAL DRILLED			
TOTAL HOURS			

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
magma	336	Baracarb 50	164
Bar	685	Baracarb 150	70
Barazan	3	Baracarb 600	140
gel	2		

REMARKS Forklift = Frank Richins

CONFIDENTIAL

DRILLER [signature]

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
	BIT	
	OD	
	OD	
	OD	
	OD	
	OD	
	STANDS ___ D.P.	
	SINGLES ___ D.P.	
	KELLY DOWN	
	TOTAL	
WT. OF STRING		

BIT RECORD

BIT NO.			
SIZE			
IADC CODE			
MANUFACTURER			
TYPE			
SERIAL NO.			
JETS			
TFA			
DEPTH OUT			
DEPTH IN			
TOTAL DRILLED			
TOTAL HOURS			

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			5:00
WEIGHT			9.6
PRESSURE GRADIENT			
FUNNEL VISCOSITY			42
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT
Bar	34 SX	Baracor 700 LCM	25 gal
Barazan D	6 SX	Gel	10 SX
Baracarb	4 SX		

REMARKS Diesel 46" 3381 Forklift Kirk Miller
ACC 2500 Boiler 12 hrs
Mann 1500
Ann 900
Koomey D.U. 11"

DRILLER Brad Pedersen

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED APPROVED

PRINTED IN U.S.A.

FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
Middle Mtn	Emery	Utah

LAST CASING TUBING OR LINER	SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT
	7"		26 K55			16'	7690

WIRE LINE RECORD REEL NO.

SIZE	NO. LINES	LENGTH SLIPPED
1 1/8	10	

LENGTH CUT OFF | PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT

DEVIATION RECORD	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
600	1130	5 1/2	5	Circulate & condition, Grease Drwks, Blocks & Crown
1130	1200	1/2	22	Rig up westates L/D crew
1200	1800	6	21	Spot 1Comp, 11, pump Slug L/D Drill Pipe

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT

DEVIATION RECORD	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
1800	2000	2	21	L/D Drillpipe, Break Kelly, L/D BHA
2000				R/U Casing Crew, Run 4½ Casing, Break Circ @ Shoe
	600	10	12	RIH Tag @ 7776, Circ and work Casing to 7788

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED APPROVED

No. 3007601

No. 3007602

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mtn	21-16			12-31-02

OPERATOR	CONTRACTOR	RIG NO.
Fortuna	Patterson UTI	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE	SIGNATURE OF CONTRACTOR'S TOOL PUSHER
	Randy Hachford

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.

PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH

TIME DISTRIBUTION – HOURS

CODE NO. – OPERATION	NIGHT	DAY
1. RIG UP AND TEAR DOWN	7	2½
2. DRILL ACTUAL		
3. REAMING		
4. CORING		
5. CONDITION MUD & CIRCULATE		
6. TRIPS		
7. LUBRICATE RIG		
8. REPAIR RIG		
9. CUT OFF DRILLING LINE		
10. DEVIATION SURVEY		
11. WIRE LINE LOGS		
12. RUN CASING & CEMENT		10½
13. WAIT ON CEMENT		
14. NU & TEST B.O.P.		1
15. TEST B.O.P.		
16. DRILL STEM TEST		
17. PLUG BACK		
18. SQUEEZE CEMENT		
19. FISHING		
20. DIR. WORK		
21. N/U Turbinghead S		
22.		
23.		
COMPLETION A. PERFORATING		
B. TUBING TRIPS		
C. TREATING		
D. SWABBING		
E. TESTING		
F.		
G.		
H.		
TOTALS		12

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.		
HOURS W/ OPR. D.P.		
HOURS WITHOUT D.P.		
HOURS CHANGE		
TOTAL DAYWORK		

NO. OF DAYS FROM SPUD	
CUMULATIVE ROTATING HOURS	
DAILY MUD COST	
TOTAL MUD COST	

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
	BIT	
	OD	
	OD	
	OD	
	OD	
	OD	
	STANDS ___ D.P.	
	SINGLES ___ D.P.	
	KELLY DOWN	
	TOTAL	
WT. OF STRING		

BIT RECORD

BIT NO.			
SIZE			
IADC CODE			
MANUFACTURER			
TYPE			
SERIAL NO.			
JETS			
TFA			
DEPTH OUT			
DEPTH IN			
TOTAL DRILLED			
TOTAL HOURS			

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME				
WEIGHT				
PRESSURE GRADIENT				
FUNNEL VISCOSITY				
PV/YP	/	/	/	
GEL STRENGTH	/	/	/	
FLUID LOSS				
pH				
SOLIDS				

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT

REMARKS

CONFIDENTIAL

DRILLER

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
	BIT	
	OD	
	OD	
	OD	
	OD	
	OD	
	STANDS ___ D.P.	
	SINGLES ___ D.P.	
	KELLY DOWN	
	TOTAL	
WT. OF STRING		

BIT RECORD

BIT NO.			
SIZE			
IADC CODE			
MANUFACTURER			
TYPE			
SERIAL NO.			
JETS			
TFA			
DEPTH OUT			
DEPTH IN			
TOTAL DRILLED			
TOTAL HOURS			

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME				
WEIGHT				
PRESSURE GRADIENT				
FUNNEL VISCOSITY				
PV/YP	/	/	/	
GEL STRENGTH	/	/	/	
FLUID LOSS				
pH				
SOLIDS				

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT

REMARKS Diesel 37" 2886 Forklift Kirk Miller
Boiler 12 Hrs

DRILLER Brad Pedersen

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FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
Middle Mtn.	Emery	Utah

	SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT
LAST CASING TUBING OR LINER	7"		26 K55			16'	7690
	4 1/2	LT&C	K5	P110 189	4233.83	16'	8240

WIRE LINE RECORD REEL NO.

SIZE	NO. LINES	LENGTH SLIPPED
1 1/8	10	

LENGTH CUT OFF | PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT

DEVIATION RECORD	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
600	900	3	12	CIRC. & work csg. F/ 7788 - 8240
900	1200	3	12	Circulate csg.
1200	1400	2	12	Rig up Schlumberger & cmnt. w/ cmnt head - 20 bbls of 10ppg Scavenger
1400	1500	1	14	Nipple Down BOP's
1500	1530	1/2	12	Set Slips & c/o csg. Slips set 105,000 115x Tail 62 bbls of
1530	1800	2 1/2	14	Rig Down Set Stack out 14ppg class "G" 10-1 cmnt - Gyp Ratio 200% Displace with 122 bbls of H20

DEPTH INTERVAL FROM	TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT

DEVIATION RECORD	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
1800	2300	5	2H	Set out Stack, Dress Casing top, Nipple up Tubing head
2300	330	4 1/2	1	Rig down Choke line and gas busters, Drain Mud line
330	600	2 1/2	1	Rig down Floor, Start on Mud Tanks
				Rig Release 23:59 MST Dec 31, 2002

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

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No. 3007602

No. 3007603

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mnt	21-16			1-1-03

OPERATOR	CONTRACTOR	RIG NO.
Fortuna	Patterson - UTI	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE	SIGNATURE OF CONTRACTOR'S TOOL PUSHER
MR	Roger Bromley

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.	PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH

TIME DISTRIBUTION – HOURS

CODE NO. – OPERATION	NIGHT	DAY
1. RIG UP AND TEAR DOWN		12
2. DRILL ACTUAL		
3. REAMING		
4. CORING		
5. CONDITION MUD & CIRCULATE		
6. TRIPS		
7. LUBRICATE RIG		
8. REPAIR RIG		
9. CUT OFF DRILLING LINE		
10. DEVIATION SURVEY		
11. WIRE LINE LOGS		
12. RUN CASING & CEMENT		
13. WAIT ON CEMENT		
14. NIPPLE UP B.O.P.		
15. TEST B.O.P.		
16. DRILL STEM TEST		
17. PLUG BACK		
18. SQUEEZE CEMENT		
19. FISHING		
20. DIR. WORK		
21.		
22.		
23.		
COMPLETION A. PERFORATING		
B. TUBING TRIPS		
C. TREATING		
D. SWABBING		
E. TESTING		
F.		
G.		
H.		
TOTALS		12

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.		
HOURS W/ OPR. D.P.		
HOURS WITHOUT D.P.		
HOURS STANDBY		
TOTAL DAYWORK		
NO. OF DAYS FROM SPUD		
CUMULATIVE ROTATING HOURS		
DAILY MUD COST		
TOTAL MUD COST		

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
	BIT	
	OD	
	OD	
	OD	
	OD	
	OD	
	STANDS ___ D.P.	
	SINGLES ___ D.P.	
	KELLY DOWN	
	TOTAL	
WT. OF STRING		

BIT RECORD

BIT NO.		
SIZE		
IADC CODE		
MANUFACTURER		
TYPE		
SERIAL NO.		
JETS		
TFA		
DEPTH OUT		
DEPTH IN		
TOTAL DRILLED		
TOTAL HOURS		

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT

REMARKS

CONFIDENTIAL

DRILLER Joseph H.

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
	BIT	
	OD	
	OD	
	OD	
	OD	
	OD	
	STANDS ___ D.P.	
	SINGLES ___ D.P.	
	KELLY DOWN	
	TOTAL	
WT. OF STRING		

BIT RECORD

BIT NO.		
SIZE		
IADC CODE		
MANUFACTURER		
TYPE		
SERIAL NO.		
JETS		
TFA		
DEPTH OUT		
DEPTH IN		
TOTAL DRILLED		
TOTAL HOURS		

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT

REMARKS Forklift Kirk Miller

Fuel 2583

DRILLER Brad Pedersen

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FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
Middle Mnt	Emery	Ut

WIRE LINE RECORD REEL NO.

SIZE	NO. LINES	LENGTH SLIPPED
1/8	10	

LENGTH CUT OFF | PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

LAST CASING TUBING OR LINER

SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
600	1800	12	1	Rig Down

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT

DEVIATION RECORD

DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
1800	600	12	1	Rig Down

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

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No. 3007603

No. 3007604

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mountain	21-16			1-2-03

OPERATOR	CONTRACTOR	RIG NO.
Fortuna	Patterson - UTI	

SIGNATURE OF OPERATOR'S REPRESENTATIVE

SIGNATURE OF CONTRACTOR'S TOOL PUSHER: Roger Bromley

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.	PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH

TIME DISTRIBUTION – HOURS

CODE NO. – OPERATION	NIGHT	DAY
1. RIG UP AND TEAR DOWN	12	12
2. DRILL ACTUAL		
3. REAMING		
4. CORING		
5. CONDITION MUD & CIRCULATE		
6. TRIPS		
7. LUBRICATE RIG		
8. REPAIR RIG		
9. CUT OFF DRILLING LINE		
10. DEVIATION SURVEY		
11. WIRE LINE LOGS		
12. RUN CASING & CEMENT		
13. WAIT ON CEMENT		
14. NIPPLE UP B.O.P.		
15. TEST B.O.P.		
16. DRILL STEM TEST		
17. PLUG BACK		
18. SQUEEZE CEMENT		
19. FISHING		
20. DIR. WORK		
21.		
22.		
23.		
COMPLETION A. PERFORATING		
B. TUBING TRIPS		
C. TREATING		
D. SWABBING		
E. TESTING		
F.		
G.		
H.		
TOTALS	12	12

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.		
HOURS W/ OPR. D.P.		
HOURS WITHOUT D.P.		
HOURS STANDBY		
TOTAL DAYWORK		
NO. OF DAYS FROM SPUD		
CUMULATIVE ROTATING HOURS		
DAILY MUD COST		
TOTAL MUD COST		

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
	BIT	
	OD	
	OD	
	OD	
	OD	
	OD	
	STANDS ___ D.P.	
	SINGLES___ D.P.	
	KELLY DOWN	
	TOTAL	
WT. OF STRING		

BIT RECORD

BIT NO.		
SIZE		
IADC CODE		
MANUFACTURER		
TYPE		
SERIAL NO.		
JETS		
TFA		
DEPTH OUT		
DEPTH IN		
TOTAL DRILLED		
TOTAL HOURS		

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT

REMARKS

CONFIDENTIAL

DRILLER: Stan Edwards

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
	BIT	
	OD	
	OD	
	OD	
	OD	
	OD	
	STANDS ___ D.P.	
	SINGLES___ D.P.	
	KELLY DOWN	
	TOTAL	
WT. OF STRING		

BIT RECORD

BIT NO.		
SIZE		
IADC CODE		
MANUFACTURER		
TYPE		
SERIAL NO.		
JETS		
TFA		
DEPTH OUT		
DEPTH IN		
TOTAL DRILLED		
TOTAL HOURS		

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT

REMARKS

DRILLER: Brad Pedersen

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

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FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
middle mountain	Emery	Utah

	SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT
LAST CASING TUBING OR LINER							

WIRE LINE RECORD REEL NO.

SIZE	NO. LINES	LENGTH SLIPPED

LENGTH CUT OFF	PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT

DEVIATION RECORD	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
6:00	18:00	12	1	Rig Down

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT

DEVIATION RECORD	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
600	1800	12	1	Rig Down

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED APPROVED

No. 3007604

No. 3007605

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mountain	21-16			1-3-03

OPERATOR	CONTRACTOR	RIG NO.
Fortuna	Patterson-UTI	184

SIGNATURE OF OPERATOR'S REPRESENTATIVE

SIGNATURE OF CONTRACTOR'S TOOL PUSHER: Roger Burnley

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.	PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH

TIME DISTRIBUTION – HOURS

CODE NO. – OPERATION	NIGHT	DAY
1. RIG UP AND TEAR DOWN	12	12
2. DRILL ACTUAL		
3. REAMING		
4. CORING		
5. CONDITION MUD & CIRCULATE		
6. TRIPS		
7. LUBRICATE RIG		
8. REPAIR RIG		
9. CUT OFF DRILLING LINE		
10. DEVIATION SURVEY		
11. WIRE LINE LOGS		
12. RUN CASING & CEMENT		
13. WAIT ON CEMENT		
14. NIPPLE UP B.O.P.		
15. TEST B.O.P.		
16. DRILL STEM TEST		
17. PLUG BACK		
18. SQUEEZE CEMENT		
19. FISHING		
20. DIR. WORK		
21.		
22.		
23.		
COMPLETION A. PERFORATING		
B. TUBING TRIPS		
C. TREATING		
D. SWABBING		
E. TESTING		
F.		
G.		
H.		
TOTALS	12	12

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.		
HOURS W/ OPR. D.P.		
HOURS WITHOUT D.P.		
HOURS STANDBY		
TOTAL DAYWORK		
NO. OF DAYS FROM SPUD		
CUMULATIVE ROTATING HOURS		
DAILY MUD COST		
TOTAL MUD COST		

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
	BIT	
	OD	
	OD	
	OD	
	OD	
	OD	
	STANDS ___ D.P.	
	SINGLES ___ D.P.	
	KELLY DOWN	
	TOTAL	
WT. OF STRING		

BIT RECORD

BIT NO.		
SIZE		
IADC CODE		
MANUFACTURER		
TYPE		
SERIAL NO.		
JETS		
TFA		
DEPTH OUT		
DEPTH IN		
TOTAL DRILLED		
TOTAL HOURS		

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT

REMARKS

CONFIDENTIAL

DRILLER

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
	BIT	
	OD	
	OD	
	OD	
	OD	
	OD	
	STANDS ___ D.P.	
	SINGLES ___ D.P.	
	KELLY DOWN	
	TOTAL	
WT. OF STRING		

BIT RECORD

BIT NO.		
SIZE		
IADC CODE		
MANUFACTURER		
TYPE		
SERIAL NO.		
JETS		
TFA		
DEPTH OUT		
DEPTH IN		
TOTAL DRILLED		
TOTAL HOURS		

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT

REMARKS: Forklift Kirkmiller

DRILLER: Brad Pedersen

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FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
Middle Mountain	Emery	Utah

LAST CASING TUBING OR LINER	SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT

WIRE LINE RECORD REEL NO.

SIZE	NO. LINES	LENGTH SLIPPED
1/8	10	

LENGTH CUT OFF	PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT

DEVIATION RECORD	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
06.00	18.00	12	1	Rig down - stack Rig out

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT

DEVIATION RECORD	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
600	1800	12	1	Rig Down - Stack Rig out

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

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No. 3007605

No. 3007606

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mt	21-16			1-4-03

OPERATOR	CONTRACTOR	RIG NO.
Fortuna	Patterson-UTI	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE

SIGNATURE OF CONTRACTOR'S TOOL PUSHER: Rogers Bromley

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.

PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH

TIME DISTRIBUTION – HOURS

CODE NO. – OPERATION	NIGHT	DAY
1. RIG UP AND TEAR DOWN	12	12
2. DRILL ACTUAL		
3. REAMING		
4. CORING		
5. CONDITION MUD & CIRCULATE		
6. TRIPS		
7. LUBRICATE RIG		
8. REPAIR RIG		
9. CUT OFF DRILLING LINE		
10. DEVIATION SURVEY		
11. WIRE LINE LOGS		
12. RUN CASING & CEMENT		
13. WAIT ON CEMENT		
14. NIPPLE UP B.O.P.		
15. TEST B.O.P.		
16. DRILL STEM TEST		
17. PLUG BACK		
18. SQUEEZE CEMENT		
19. FISHING		
20. DIR. WORK		
21.		
22.		
23.		
COMPLETION A. PERFORATING		
B. TUBING TRIPS		
C. TREATING		
D. SWABBING		
E. TESTING		
F.		
G.		
H.		
TOTALS	12	12

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.		
HOURS W/ OPR. D.P.		
HOURS WITHOUT D.P.		
HOURS STANDBY		
TOTAL DAYWORK		

NO. OF DAYS FROM SPUD	
CUMULATIVE ROTATING HOURS	
DAILY MUD COST	
TOTAL MUD COST	

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
	BIT	
	OD	
	OD	
	OD	
	OD	
	OD	
	STANDS ___ D.P.	
	SINGLES ___ D.P.	
	KELLY DOWN	
	TOTAL	
WT. OF STRING		

BIT RECORD

BIT NO.		
SIZE		
IADC CODE		
MANUFACTURER		
TYPE		
SERIAL NO.		
JETS		
TFA		
DEPTH OUT		
DEPTH IN		
TOTAL DRILLED		
TOTAL HOURS		

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT

REMARKS

CONFIDENTIAL

DRILLER

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
	BIT	
	OD	
	OD	
	OD	
	OD	
	OD	
	STANDS ___ D.P.	
	SINGLES ___ D.P.	
	KELLY DOWN	
	TOTAL	
WT. OF STRING		

BIT RECORD

BIT NO.		
SIZE		
IADC CODE		
MANUFACTURER		
TYPE		
SERIAL NO.		
JETS		
TFA		
DEPTH OUT		
DEPTH IN		
TOTAL DRILLED		
TOTAL HOURS		

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT

REMARKS

DRILLER

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FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
Middle Mnt	Emery	Ut

	SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT
LAST CASING TUBING OR LINER							

WIRE LINE RECORD REEL NO.

SIZE	NO. LINES	LENGTH SLIPPED

LENGTH CUT OFF	PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT

DEVIATION RECORD	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
6:00	18:00	12	1	Move Rig

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT

DEVIATION RECORD	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
600	1800	12	1	Move Rig

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED APPROVED

No. 3007606

No. 3007607

DAILY DRILLING REPORT

REPORT NO.

LEASE	WELL NO.	API WELL NUMBER	WATER DEPTH	DATE
Middle Mountain				1-5-03

OPERATOR	CONTRACTOR	RIG NO.
Fortuna	Patterson - UTI	104

SIGNATURE OF OPERATOR'S REPRESENTATIVE	SIGNATURE OF CONTRACTOR'S TOOL PUSHER
	Roger Bromley

D.P. SIZE	WEIGHT	GRADE	TOOL JT O.D.	TYPE THREAD	STRING NO.	PUMP NO.	PUMP MANUFACTURER	TYPE	STROKE LENGTH

TIME DISTRIBUTION – HOURS

CODE NO. – OPERATION	NIGHT	DAY
1. RIG UP AND TEAR DOWN		
2. DRILL ACTUAL		
3. REAMING		
4. CORING		
5. CONDITION MUD & CIRCULATE		
6. TRIPS		
7. LUBRICATE RIG		
8. REPAIR RIG		
9. CUT OFF DRILLING LINE		
10. DEVIATION SURVEY		
11. WIRE LINE LOGS		
12. RUN CASING & CEMENT		
13. WAIT ON CEMENT		
14. NIPPLE UP B.O.P.		
15. TEST B.O.P.		
16. DRILL STEM TEST		
17. PLUG BACK		
18. SQUEEZE CEMENT		
19. FISHING		
20. DIR. WORK		
21.		
22.		
23.		
COMPLETION A. PERFORATING		
B. TUBING TRIPS		
C. TREATING		
D. SWABBING		
E. TESTING		
F.		
G.		
H.		
TOTALS		

DAYWORK TIME SUMMARY (OFFICE USE ONLY)

HOURS W/ CONTR. D.P.		
HOURS W/ OPR. D.P.		
HOURS WITHOUT D.P.		
HOURS ~~STANDBY~~		
TOTAL DAYWORK		

NO. OF DAYS FROM SPUD	
CUMULATIVE ROTATING HOURS	
DAILY MUD COST	
TOTAL MUD COST	

NIGHT TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
	BIT	
	OD	
	OD	
	OD	
	OD	
	OD	
	STANDS ___ D.P.	
	SINGLES___ D.P.	
	KELLY DOWN	
	TOTAL	
WT. OF STRING		

BIT RECORD

BIT NO.		
SIZE		
IADC CODE		
MANUFACTURER		
TYPE		
SERIAL NO.		
JETS		
TFA		
DEPTH OUT		
DEPTH IN		
TOTAL DRILLED		
TOTAL HOURS		

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT

REMARKS

CONFIDENTIAL

DRILLER Brad Pedersen

DAY TOUR

DRILLING ASSEMBLY (At end of tour)

NO.	ITEM	LENGTH
	BIT	
	OD	
	OD	
	OD	
	OD	
	OD	
	STANDS ___ D.P.	
	SINGLES___ D.P.	
	KELLY DOWN	
	TOTAL	
WT. OF STRING		

BIT RECORD

BIT NO.		
SIZE		
IADC CODE		
MANUFACTURER		
TYPE		
SERIAL NO.		
JETS		
TFA		
DEPTH OUT		
DEPTH IN		
TOTAL DRILLED		
TOTAL HOURS		

CUTTING STRUCTURE

INNER	OUTER	DULL CHAR.	LOCATION

BEARINGS/ SEALS	GAGE	OTHER DULL CHAR.	REASON PULLED

MUD RECORD

TIME			
WEIGHT			
PRESSURE GRADIENT			
FUNNEL VISCOSITY			
PV/YP	/	/	/
GEL STRENGTH	/	/	/
FLUID LOSS			
pH			
SOLIDS			

MUD & CHEMICALS ADDED

TYPE	AMOUNT	TYPE	AMOUNT

REMARKS

DRILLER

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FIELD OR DISTRICT	COUNTY	STATE / COUNTRY
Middle Mountain	Emery	Utah

	SIZE	MAKE	WEIGHT & GRADE	NO. JOINTS	LENGTH	RKB. TO CSG. HD.	SET AT
LAST CASING TUBING OR LINER							

WIRE LINE RECORD REEL NO.

SIZE	NO. LINES	LENGTH SLIPPED

LENGTH CUT OFF	PRESENT LENGTH

WEAR OR TRIPS SINCE LAST CUT

CUMULATIVE WEAR OR TRIPS

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT

DEVIATION RECORD	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS
600	1800	12	1	Move Rig, Clean Location
				Rig off location @ 05:00

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DRILL..D REAM..R CORE..C	CORE NO.	FORMATION (SHOW CORE RECOVERY)	ROTARY TABLE SPEED	WT. ON BIT	PUMP PRESSURE	PUMP NO. 1 LINER SIZE	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE	PUMP NO. 2 S.P.M.	PUMP NO. 3 LINER SIZE	PUMP NO. 3 S.P.M.	PUMP NO. 4 LINER SIZE	PUMP NO. 4 S.P.M.	TOTAL PUMP OUTPUT

DEVIATION RECORD	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.	DEPTH	DEV.	DIR.	TVD	HORIZ. DISP.

TIME LOG FROM	TIME LOG TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATIONS IN SEQUENCE AND REMARKS

IADC - API OFFICIAL DAILY DRILLING REPORT FORM

APPROVED APPROVED

No. 3007607

Form 3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
Budget Bureau No. 1004-0135
Expires: March 31, 1993

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to deepen or reentry to a different reservoir.
Use "APPLICATION FOR PERMIT–" for such proposals

SUBMIT IN TRIPLICATE

1. Type of Well
☐ Oil ☒ Gas ☐

2. Name of Operator
Fortuna (US), Inc.

3. Address and Telephone No.
Suite 3400, 888 3rd Street SW, Calgary, Alberta T2P5C5 403-237-1163

4. Location of Well (Footage, Sec.,T., R:, M., or Survey Description)
1309' FSL, 834' FEL
SE/4 SE/4, Section 21, T16S, R6E, SLB&M

5. Lease Designation and Serial No.
UTU-77263

6. If Indian, Allottee or Tribe Name
N/A

7. If Unit or CA, Agreement Designation
N/A

8. Well Name and No.
Middle Mountain #21-16

9. API Well No.
43-015-30426

10. Field and Pool, or Exploratory Area
Wildcat

11. County or Parish, State
Emery County, Utah

12. **CHECK APPROPRIATE BOX(s) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA**

TYPE OF SUBMISSION	TYPE OF ACTION	
☐ Notice of Intent	☐ Change of Name	☐ Change of Plans
☒ Subsequent Report	☐ Recompletion	☐ New Construction
☐ Final Abandonment Notice	☐ Plugging Back	☐ Non-Routine Fracturing
	☐ Casing Repair	☐ Water Shut-Off
	☐ Altering Casing	☐ Conversion to Injection
	☒ Weekly Drilling Reports	☐ Dispose Water

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

Attached are the weekly drilling reports for the Middle Mountain #21-16 well

RECEIVED
JAN 07 2003
DIV. OF OIL, GAS & MINING

FILE COPY

14. I hereby certify that the foregoing is true and correct

Signed Don Hamilton Don Hamilton Title Agent for Fortuna US Date January 2, 2003

(This space for Federal or State office use)

Approved by _____ Title _____ Date _____
Conditions of approval, if any:

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Date: 12/22/2002, Report: 56.0, DFS: 56.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	**Cum. Cost To Date**
[redacted]	[redacted]
Daily Mud Cost	**Mud Additive Cost To Date**
[redacted]	[redacted]
Depth Start (ftKB)	**Depth End (ftKB)**
7,924.0	7,796.0
Depth Progress (ftKB)	**Drilling Time (hrs)**
128.0	15.00

Daily Summary

Weather	Road Condition	Hole Condition
Clear	Snow covered	Sloughing shale improving

Operations at Report Time
REAM HOLE @ 7809' / DEPTH - 7996'KB

Operations This Report Period
Drill ahead. Trip bit. Ream bridge at 7786.

Operations Next Report Period
Drill ahead.

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	15:00	15.00	02	Drilling	Drill ahead.
15:00	18:30	3.50	06	Tripping	Trip out for bit.
18:30	23:00	4.50	06	Tripping	Trip in to 7786 ft.
23:00	00:00	1.00	03	Reaming	Ream bridge at 7786 ft.

Mud Checks: 7,974.0ftKB, 12/22/2002 00:00

Type	Date	Depth (ftKB)	T(fl) (°F)	Density (lb/gal)	Vis (s/qt)	Plas Vis (cp)
Gel-Chem	12/22/2002 00:00	7,974.0	82.0	10.2	45	12.0

Yield Point (cp)	gel 10 sec (cp)	gel 10 min (cp)	Filtrate (mL/30min)	HTHP Filt (mL/30min)	Filter Cake (in)	MBT (lb/bbl)
23.0	8.0	13.0	8.0		2.000	

Lime (lb/bbl)	pH	Pm (mL/mL)	Pf (mL/mL)	Calcium (mg/L)	Potassium (mg/L)	Polymer (lb/gal)
	9.0			60.000		6.8

Chlorides (mg/L)	Sand (%)	Solids (%)	Percent Oil (%)	Percent Water (%)	LG Solids (%)	Electric Stab (V)
400.000	0.3	7.3			0.5	

Drill Strings: BHA #18, Slick

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
12	6 1/8in, STX-20, ZT37JT	7-8-FC-A-E-0-CT-PR	2.36	6.1	32/32/32

Len (ft)	Max OD (in)	String Components
569.62	4.750	Hughes STX-20, Bit Sub, Drill Collar, Drilling Jars - Hydraulic Down, Drilling Jars - Hydraulic Up, Drill Collar

Drilling Parameters: 72.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr)	Int ROP (ft/hr)	Flow Rate (gpm)
18	7,924.0	7,996.0	251.0	15.00	41.25	4.8	252

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
25	80	1,350.0	118	132	110		

Drill Strings: BHA #19, Slick

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
13	6 1/8in, STX-30, 5005063	-------	2.36		32/32/32

Len (ft)	Max OD (in)	String Components
569.62	4.750	Hughes STX-30, Bit Sub, Drill Collar, Drilling Jars - Hydraulic Down, Drilling Jars - Hydraulic Up, Drill Collar

Drilling Parameters: 0.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr)	Int ROP (ft/hr)	Flow Rate (gpm)
19	7,796.0	7,796.0	0.0		0.00		252

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
10	70	1,350.0	118	132	110		

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Directional Surveys: SINGLE SHOT

Description	Survey Company
SINGLE SHOT	Patterson Crew

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Ernie Natte, Drilling Foreman
Mel Knezevich, Drilling Foreman
Mark Moennich, Drilling Sup't
Don Helms, Mud Engineer
Randy Hackford, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3

Rig Supervisor
John Day, Tool Pusher

Rigs: Patterson U.T.I, 104

Rig Supervisor
Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

Pump Checks

P (psi)	Slow Spd	Strokes (strokes/min)	Eff (%)
1,350.0	No	60	90

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

Pump Checks

P (psi)	Slow Spd	Strokes (strokes/min)	Eff (%)
1,350.0	No	60	90

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	11	1,500.0

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA MUD ENG LIVING ALLOWANCE	1.0	35
BAROID USA MUD MAN	3.0	1,350
BAROID USA BARAZAN D PLUS	8.0	3,285
BAROID USA MUD TRANSPORT	10.0	750
BAROID USA REGULAR BARITE	64.0	232
BAROID USA QUICK GEL	90.0	257

Formation Pick Groups: Drilling Sam...

Formation Picks Group
Drilling Sample

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Date: 12/22/2002, Report: 56.0, DFS: 56.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Name	Top (ftKB)
Ferron	7,735.0
Bluegate	5,672.0
Emery	4,280.0
Mancos	3,073.0
Star Point	2,700.0

Intermediate Casing, 4,413.0ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
11/26/2002	9 5/8	J-55	36.00

Talisman Energy Canada - Daily Drilling Report

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Date: 12/23/2002, Report: 57.0, DFS: 57.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	**Cum. Cost To Date**
[redacted]	[redacted]
Daily Mud Cost	**Mud Additive Cost To Date**
[redacted]	[redacted]
Depth Start (ftKB)	**Depth End (ftKB)**
7,796.0	8,018.0
Depth Progress (ftKB)	**Drilling Time (hrs)**
222.0	5.00

Daily Summary

Weather	Road Condition	Hole Condition
CLEAR	Snow covered	Sloughing shale improving

Operations at Report Time
0600 HR - DRILL 6 1/4" HOLE / DEPTH - 8045'KB

Operations This Report Period
REAM HOLE F/ 7786' - 7996' / DRILL 6 1/4" HOLE F/ 7996' - 8018'KB

Operations Next Report Period
DRILL AHEAD

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	14:45	14.75	03	Reaming	REAM 6 1/8" HOLE F/ 7786' - 7847'
14:45	15:15	0.50	07	Rig Service	RIG SERVICE / FUNCTION PIPE RAMS
15:00	18:45	3.75	03	Reaming	REAM 6 1/8" HOLE F/ 7847' - 7996'
18:45	23:45	5.00	02	Drilling	DRILL 6 1/8" HOLE F/ 7996 - 8018'

Mud Checks: 7,996.0ftKB, 12/23/2002 10:00

Type	Date	Depth (ftKB)	T(fl) (°F)	Density (lb/gal)	Vis (s/qt)	Plas Vis (cp)
Gel-Chem	12/23/2002 10:00	7,996.0	83.0	10.2	45	12.0

Yield Point (cp)	gel 10 sec (cp)	gel 10 min (cp)	Filtrate (mL/30min)	HTHP Filt (mL/30min)	Filter Cake (in)	MBT (lb/bbl)
23.0	8.0	13.0	8.0			

Lime (lb/bbl)	pH	Pm (mL/mL)	Pf (mL/mL)	Calcium (mg/L)	Potassium (mg/L)	Polymer (lb/gal)
	9.0					

Chlorides (mg/L)	Sand (%)	Solids (%)	Percent Oil (%)	Percent Water (%)	LG Solids (%)	Electric Stab (V)
	0.3	7.3			0.5	

Drill Strings: BHA #19, Slick

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
13	6 1/8in, STX-30, 5005063	-------	2.36	44.4	32/32/32

Len (ft)	Max OD (in)	String Components
569.62	4.750	Hughes STX-30, Bit Sub, Drill Collar, Drilling Jars - Hydraulic Down, Drilling Jars - Hydraulic Up, Drill Collar

Drilling Parameters: 222.0ftKB

BHA No	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr)	Int ROP (ft/hr)	Flow Rate (gpm)
19	7,796.0	8,018.0	222.0	5.00	5.00	44.4	252

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
25	70	1,700.0	118	132	110		

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Directional Surveys: SINGLE SHOT

Description	Survey Company
SINGLE SHOT	Patterson Crew

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Mel Knezevich, Drilling Foreman
Ernie Natte, Drilling Foreman
Mark Moennich, Drilling Sup't
Don Helms, Mud Engineer
Randy Hackford, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3

Rig Supervisor: John Day, Tool Pusher

Rigs: Patterson U.T.I, 104

Rig Supervisor: Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

Pump Checks

P (psi)	Slow Spd	Strokes (strokes/min)	Eff (%)
1,700.0	No	60	90

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	11	1,500.0

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA CAUSTIC SODA	4.0	154
BAROID USA BARAZAN D PLUS	5.0	2,053
BAROID USA QUICK GEL	32.0	91
BAROID USA REGULAR BARITE	115.0	417

Formation Pick Groups: Drilling Sam...

Formation Picks Group: Drilling Sample

Name	Top (ftKB)
Ferron	7,735.0
Bluegate	5,672.0
Emery	4,280.0
Mancos	3,073.0
Star Point	2,700.0

Intermediate Casing, 4,413.0ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
11/26/2002	9 5/8	J-55	36.00

Talisman Energy Canada - Daily Drilling Report

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Date: 12/24/2002, Report: 58.0, DFS: 58.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	**Cum. Cost To Date**
[redacted]	[redacted]
Daily Mud Cost	**Mud Additive Cost To Date**
[redacted]	[redacted]
Depth Start (ftKB)	**Depth End (ftKB)**
8,018.0	8,120.0
Depth Progress (ftKB)	**Drilling Time (hrs)**
102.0	22.50

Daily Summary

Weather	Road Condition	Hole Condition
CLEAR	Snow covered	LOST CIRC @ 8120'

Operations at Report Time
0600 HR - MIX MUD F/ LOSS CIRC @ 8120'

Operations This Report Period
DRILL 6 1/8" HOLE F/ 8018' - 8120' / LOST CIRC @ 8120' (LOST 210 BBL)

Operations Next Report Period
CURE LOST CIRC & DRILL AHEAD

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	17:00	17.00	02	Drilling	DRILL 6 1/8" HOLE F/ 8018' - 8090'
17:00	17:30	0.50	07	Rig Service	RIG SERVICE / FUNCTION PIPE RAMS & ANNULAR
17:30	23:00	5.50	02	Drilling	DRILL 6 1/8" HOLE F/ 8090' - 8120'
23:00	00:00	1.00	05	Condition and/or Circulate mud	LOST CIRC @ 8120' / MIX & PUMP CAL CARB PILL (NO RETURNS)

Mud Checks: 8,120.0ftKB, 12/24/2002 23:45

Type	Date	Depth (ftKB)	T(fl) (°F)	Density (lb/gal)	Vis (s/qt)	Plas Vis (cp)
Gel-Chem	12/24/2002 23:45	8,120.0		10.0	56	22.0

Yield Point (cp)	gel 10 sec (cp)	gel 10 min (cp)	Filtrate (mL/30min)	HTHP Filt (mL/30min)	Filter Cake (in)	MBT (lb/bbl)
31.0	12.0	18.0	7.2			

Lime (lb/bbl)	pH	Pm (mL/mL)	Pf (mL/mL)	Calcium (mg/L)	Potassium (mg/L)	Polymer (lb/gal)
	9.5					

Chlorides (mg/L)	Sand (%)	Solids (%)	Percent Oil (%)	Percent Water (%)	LG Solids (%)	Electric Stab (V)
400.000		6.8			1.0	

Drill Strings: BHA #19, Slick

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
13	6 1/8in, STX-30, 5005063	-------	2.36	7.6	32/32/32

Len (ft)	Max OD (in)	String Components
569.62	4.750	Hughes STX-30, Bit Sub, Drill Collar, Drilling Jars - Hydraulic Down, Drilling Jars - Hydraulic Up, Drill Collar

Drilling Parameters: 102.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr)	Int ROP (ft/hr)	Flow Rate (gpm)
19	8,018.0	8,120.0	324.0	22.50	42.50	4.5	252

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
25	70	1,700.0	118	132	110		

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Directional Surveys: SINGLE SHOT

Description	Survey Company
SINGLE SHOT	Patterson Crew

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Ernie Natte, Drilling Foreman
Mel Knezevich, Drilling Foreman
Mark Moennich, Drilling Sup't
Don Helms, Mud Engineer
Randy Hackford, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3
Rig Supervisor
John Day, Tool Pusher

Rigs: Patterson U.T.I, 104
Rig Supervisor
Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

Pump Checks

P (psi)	Slow Spd	Strokes (strokes/min)	Eff (%)
1,700.0	No	60	90

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

Pump Checks

P (psi)	Slow Spd	Strokes (strokes/min)	Eff (%)
1,700.0	No	60	90

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	11	1,500.0

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA DESCO CHROME FREE	4.0	175
BAROID USA CAUSTIC SODA	5.0	192
BAROID USA BARAZAN D PLUS	9.0	3,696
BAROID USA BARACARB 600	70.0	2,076
BAROID USA QUICK GEL	168.0	479
BAROID USA BARACARB 150	175.0	5,604
BAROID USA REGULAR BARITE	440.0	1,597

Talisman Energy Canada - Daily Drilling Report

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 — **Date: 12/24/2002, Report: 58.0, DFS: 58.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Formation Pick Groups: Drilling Sam...

Formation Picks Group: Drilling Sample

Name	Top (ftKB)
Ferron	7,735.0
Bluegate	5,672.0
Emery	4,280.0
Mancos	3,073.0
Star Point	2,700.0

Intermediate Casing, 4,413.0ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
11/26/2002	9 5/8	J-55	36.00

Tali an Energy Canada - Daily Drilli Report

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Date: 12/25/2002, Report: 59.0, DFS: 59.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	Cum. Cost To Date
[redacted]	[redacted]
Daily Mud Cost	Mud Additive Cost To Date
[redacted]	[redacted]
Depth Start (ftKB)	Depth End (ftKB)
8,120.0	8,140.0
Depth Progress (ftKB)	Drilling Time (hrs)
20.0	2.75

Daily Summary

Weather	Road Condition	Hole Condition
CLEAR	Snow covered	LOST CIRC @ 8120'

Operations at Report Time
0600 HR - BUILD VOLUME / DEPTH - 8162'

Operations This Report Period
BUILD VOLUME / DRILL F/ 8120' - 8140' / BUILD VOLUME

Operations Next Report Period
BUILD VOLUME & DRILL F/ 8140'

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	10:00	10.00	05	Condition and/or Circulate mud	BUILD VOLUME / ATTEMPT TO CIRC @ 7690' (PARTIAL RETURNS)
10:00	10:15	0.25	06	Tripping	RUN IN TO 8120'
10:15	12:00	1.75	00	Undefined Status	WAIT ON MUD TRUCKS
12:00	15:00	3.00	05	Condition and/or Circulate mud	BUILD VOLUME
15:00	15:45	0.75	05	Condition and/or Circulate mud	PUMP CAL CARB PILL / BREAK CIRC & CIRC
15:45	16:00	0.25	02	Drilling	DRILL 6 1/8" HOLE F/ 8120' - 8125'
16:00	17:00	1.00	06	Tripping	HOIST 5 STANDS D.P. INTO 7" CSG (TO BUILD VOLUME)
17:00	17:30	0.50	05	Condition and/or Circulate mud	BUILD VOLUME
17:30	18:00	0.50	07	Rig Service	RIG SERVICE
18:00	21:30	3.50	05	Condition and/or Circulate mud	BUILD VOLUME
21:30	00:00	2.50	02	Drilling	DRILL 6 1/8" HOLE F/ 8125' - 8140'

Mud Checks: 8,140.0ftKB, 12/25/2002 00:00

Type	Date	Depth (ftKB)	T(fl) (°F)	Density (lb/gal)	Vis (s/qt)	Plas Vis (cp)
Gel-Chem	12/25/2002 00:00	8,140.0		10.2	49	18.0

Yield Point (cp)	gel 10 sec (cp)	gel 10 min (cp)	Filtrate (mL/30min)	HTHP Filt (mL/30min)	Filter Cake (in)	MBT (lb/bbl)
15.0	8.0	11.0	6.4		0.000	

Lime (lb/bbl)	pH	Pm (mL/mL)	Pf (mL/mL)	Calcium (mg/L)	Potassium (mg/L)	Polymer (lb/gal)
	10.0					

Chlorides (mg/L)	Sand (%)	Solids (%)	Percent Oil (%)	Percent Water (%)	LG Solids (%)	Electric Stab (V)
400.000		7.1			0.1	

Drill Strings: BHA #19, Slick

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
13	6 1/8in, STX-30, 5005063	-------	2.36	7.6	32/32/32

Len (ft)	Max OD (in)	String Components
569.62	4.750	Hughes STX-30, Bit Sub, Drill Collar, Drilling Jars - Hydraulic Down, Drilling Jars - Hydraulic Up, Drill Collar

Drilling Parameters: 20.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr)	Int ROP (ft/hr)	Flow Rate (gpm)
19	8,120.0	8,140.0	344.0	2.75	45.25	7.3	252

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
25	70	1,700.0	118	132	110		

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Directional Surveys: SINGLE SHOT

Description	Survey Company
SINGLE SHOT	Patterson Crew

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Mel Knezevich, Drilling Foreman
Ernie Natte, Drilling Foreman
Mark Moennich, Drilling Sup't
Don Helms, Mud Engineer
Randy Hackford, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3

Rig Supervisor: John Day, Tool Pusher

Rigs: Patterson U.T.I, 104

Rig Supervisor: Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

Pump Checks

P (psi)	Slow Spd	Strokes (strokes/min)	Eff (%)
1,700.0	No	60	90

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	11	1,500.0

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA CAUSTIC SODA	9.0	346
BAROID USA BARACARB 600	40.0	1,186
BAROID BARACARB 600	56.0	3,080
BAROID USA BARACARB 150	140.0	4,483
BAROID USA BARACARB 50	145.0	4,643
BAROID USA QUICK GEL	198.0	564
BAROID USA REGULAR BARITE	920.0	3,340

Formation Pick Groups: Drilling Sam...

Formation Picks Group: Drilling Sample

Name	Top (ftKB)
Ferron	7,735.0
Bluegate	5,672.0
Emery	4,280.0

Talisman Energy Canada - Daily Drilling Report

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 — **Date: 12/25/2002, Report: 59.0, DFS: 59.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Name	Top (ftKB)
Mancos	3,073.0
Star Point	2,700.0

Intermediate Casing, 4,413.0ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
11/26/2002	9 5/8	J-55	36.00

Tall[illegible]nan Energy Canada - Daily Drilli[illegible] Report

Well Name: FORTUNA MIDDLE M[illegible]UNTAIN #21-16 **Date: 12/26/2002, Report: 60.0, DFS: 60.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	**Cum. Cost To Date**
[redacted]	[redacted]
Daily Mud Cost	**Mud Additive Cost To Date**
[redacted]	[redacted]
Depth Start (ftKB)	**Depth End (ftKB)**
8,140.0	8,178.0
Depth Progress (ftKB)	**Drilling Time (hrs)**
38.0	6.25

Daily Summary

Weather	Road Condition	Hole Condition
CLEAR	Snow covered	LOST CIRC @ 8162'

Operations at Report Time
0600 HR - BUILD VOLUME / DEPTH - 8200'

Operations This Report Period
DRILL 6 1/8" HOLE F/ 8140' - 8178' / BUILD VOLUME / TRIP F/ BIT @ 8178'

Operations Next Report Period
BUILD VOLUME & DRILL F/ 8178'

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	04:00	4.00	02	Drilling	DRILL 6 1/8" HOLE F/ 8140' - 8162' (LOST CIRC @ 8162')
04:00	07:00	3.00	05	Condition and/or Circulate mud	PUMP PILL & REGAIN CIRC / BUILD VOLUME
07:00	07:15	0.25	02	Drilling	DRILL 6 1/8" HOLE F/ 8162' - 8164'
07:15	07:30	0.25	00	Undefined Status	WAIT ON WATER TRUCKS
07:30	08:30	1.00	02	Drilling	DRILL 6 1/8" HOLE F/ 8164' - 8174'
08:30	12:00	3.50	05	Condition and/or Circulate mud	BUILD VOLUME
12:00	13:00	1.00	02	Drilling	DRILL 6 1/8" HOOLE F/ 8174' - 8178'
13:00	14:30	1.50	05	Condition and/or Circulate mud	BUILD VOLUME & PUMP PILL
14:30	17:30	3.00	06	Tripping	TRIP F/ BIT
17:30	18:00	0.50	07	Rig Service	RIG SERVICE
18:00	00:00	6.00	06	Tripping	RUN IN HOLE W/ 6 1/8" BIT / BREAK CIRC @ 4540' & 7643'

Mud Checks: 8,178.0ftKB, 12/26/2002 11:30

Type	Date	Depth (ftKB)	T(fl) (°F)	Density (lb/gal)	Vis (s/qt)	Plas Vis (cp)
Gel-Chem	12/26/2002 11:30	8,178.0		10.0	42	14.0

Yield Point (cp)	gel 10 sec (cp)	gel 10 min (cp)	Filtrate (mL/30min)	HTHP Filt (mL/30min)	Filter Cake (in)	MBT (lb/bbl)
11.0	6.0	10.0	9.2		1.000	

Lime (lb/bbl)	pH	Pm (mL/mL)	Pf (mL/mL)	Calcium (mg/L)	Potassium (mg/L)	Polymer (lb/gal)
	10.0					

Chlorides (mg/L)	Sand (%)	Solids (%)	Percent Oil (%)	Percent Water (%)	LG Solids (%)	Electric Stab (V)
400.000		6.4			0.2	

Drill Strings: BHA #19, Slick

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
13	6 1/8in, STX-30, 5005063	7-7-BT-A-4-1-WT-PR	2.36	7.4	32/32/32

Len (ft)	Max OD (in)	String Components
569.62	4.750	Hughes STX-30, Bit Sub, Drill Collar, Drilling Jars - Hydraulic Down, Drilling Jars - Hydraulic Up, Drill Collar

Drilling Parameters: 38.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr	Int ROP (ft/hr)	Flow Rate (gpm)
19	8,140.0	8,178.0	382.0	6.25	51.50	6.1	252

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
25	70	1,700.0	118	132	110		

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Directional Surveys: SINGLE SHOT

Description	Survey Company
SINGLE SHOT	Patterson Crew

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Mel Knezevich, Drilling Foreman
Ernie Natte, Drilling Foreman
Mark Moennich, Drilling Sup't
Don Helms, Mud Engineer
Randy Hackford, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3
Rig Supervisor: John Day, Tool Pusher

Rigs: Patterson U.T.I, 104
Rig Supervisor: Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

Pump Checks

P (psi)	Slow Spd	Strokes (strokes/min)	Eff (%)
1,700.0	No	60	90

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	11	1,500.0

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA MUD ENG LIVING ALLOWANCE	4.0	140
BAROID USA MUD MAN	4.0	1,800
BAROID USA CAUSTIC SODA	6.0	231
BAROID USA BARAZAN D PLUS	10.0	4,107
BAROID USA MUD TRANSPORT	50.0	3,750
BAROID USA QUICK GEL	179.0	510
BAROID USA BARACARB 600	385.0	11,415
BAROID USA BARACARB 150	400.0	12,808
BAROID USA REGULAR BARITE	420.0	1,525

Tal[illegible]nan Energy Canada - Daily Drilli[illegible] Report

Well Name: FORTUNA MIDDLE M[illegible]UNTAIN #21-16

Date: 12/26/2002, Report: 60.0, DFS: 60.00

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Formation Pick Groups: Drilling Sam...

Formation Picks Group: Drilling Sample

Name	Top (ftKB)
Ferron	7,735.0
Bluegate	5,672.0
Emery	4,280.0
Mancos	3,073.0
Star Point	2,700.0

Intermediate Casing, 4,413.0ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
11/26/2002	9 5/8	J-55	36.00

Talisman Energy Canada - Daily Drilling Report

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 — **Date: 12/27/2002, Report: 61.0, DFS: 61.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	**Cum. Cost To Date**
[redacted]	[redacted]
Daily Mud Cost	**Mud Additive Cost To Date**
[redacted]	[redacted]
Depth Start (ftKB)	**Depth End (ftKB)**
8,178.0	8,178.0
Depth Progress (ftKB)	**Drilling Time (hrs)**
0.0	0.00

Daily Summary

Weather	Road Condition	Hole Condition
CLEAR	Snow covered	BRIDGE @ 7724'

Operations at Report Time
0600 HR - WORK STUCK LOGGING TOOL / DEPTH 8240' TD

Operations This Report Period
TRIP / DRILL 6 1/8" HOLE F/ 8178' - 8240' (TD) / CIRC & HOIST TO LOG

Operations Next Report Period
FREE LOGGING TOOL / RUN IN & CONDITION HOLE

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	01:30	1.50	03	Reaming	REAM F/ 8078' - 8178' (10' FILL ON BTM)
01:30	06:00	4.50	02	Drilling	DRILL 6 1/8" HOLE F/ 8178' - 8200'
06:00	08:00	2.00	05	Condition and/or Circulate mud	BUILD VOLUME
08:00	10:00	2.00	02	Drilling	DRILL 6 1/8" HOLE F/ 8200' - 8214'
10:00	11:00	1.00	08	Rig Repair	BLEED OFF PUMPS / THAW OUT SUCTION
11:00	14:30	3.50	02	Drilling	DRILL 6 1/8" HOLE F/ 8214' - 8240' (T.D.)
14:30	15:00	0.50	07	Rig Service	RIG SERVICE
15:00	20:00	5.00	06	Tripping	WIPER TRIP TO 7690' / REAM 155' TO BTM
20:00	21:00	1.00	05	Condition and/or Circulate mud	CIRCULATE & CONDITION HOLE
21:00	00:00	3.00	06	Tripping	HOIST TO LOG

Mud Checks: 8,223.0ftKB, 12/27/2002 12:15

Type	Date	Depth (ftKB)	T(fl) (°F)	Density (lb/gal)	Vis (s/qt)	Plas Vis (cp)
Gel-Chem	12/27/2002 12:15	8,223.0		9.7	50	17.0

Yield Point (cp)	gel 10 sec (cp)	gel 10 min (cp)	Filtrate (mL/30min)	HTHP Filt (mL/30min)	Filter Cake (in)	MBT (lb/bbl)
8.0	5.0	9.0	10.2			

Lime (lb/bbl)	pH	Pm (mL/mL)	Pf (mL/mL)	Calcium (mg/L)	Potassium (mg/L)	Polymer (lb/gal)
	10.0					

Chlorides (mg/L)	Sand (%)	Solids (%)	Percent Oil (%)	Percent Water (%)	LG Solids (%)	Electric Stab (V)
400.000		5.4				

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Directional Surveys: SINGLE SHOT

Description	Survey Company
SINGLE SHOT	Patterson Crew

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Ernie Natte, Drilling Foreman
Mel Knezevich, Drilling Foreman
Mark Moennich, Drilling Sup't
Don Helms, Mud Engineer
Randy Hackford, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3
Rig Supervisor: John Day, Tool Pusher

Rigs: Patterson U.T.I, 104
Rig Supervisor: Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	11	1,500.0

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA CAUSTIC SODA	1.0	38
BAROID USA BARAZAN D PLUS	2.0	821
BAROID USA QUICK GEL	96.0	274
BAROID USA REGULAR BARITE	160.0	581
BAROID N SEAL	175.0	12,250

Formation Pick Groups: Drilling Sam...

Formation Picks Group: Drilling Sample

Name	Top (ftKB)
Ferron	7,735.0
Bluegate	5,672.0
Emery	4,280.0
Mancos	3,073.0
Star Point	2,700.0

Intermediate Casing, 4,413.0ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
11/26/2002	9 5/8	J-55	36.00

Tal[illegible]man Energy Canada - Daily Drill[illegible] Report

Well Name: FORTUNA MIDDLE [illegible] UNTAIN #21-16 **Da[illegible] 12/27/2002, Report: 61.0, DFS: 61.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Weather	Road Condition	Hole Condition
CLEAR	Snow covered	BRIDGE @ 7724'

Operations at Report Time
0600 HR - WORK STUCK LOGGING TOOL / DEPTH 8240' TD

Operations This Report Period
TRIP / DRILL 6 1/8" HOLE F/ 8178' - 8240' (TD) / CIRC & HOIST TO LOG

Operations Next Report Period
FREE LOGGING TOOL / RUN IN & CONDITION HOLE

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	01:30	1.50	03	Reaming	REAM F/ 8078' - 8178' (10' FILL ON BTM)
01:30	06:00	4.50	02	Drilling	DRILL 6 1/8" HOLE F/ 8178' - 8200'
06:00	08:00	2.00	05	Condition and/or Circulate mud	BUILD VOLUME
08:00	10:00	2.00	02	Drilling	DRILL 6 1/8" HOLE F/ 8200' - 8214'
10:00	11:00	1.00	08	Rig Repair	BLEED OFF PUMPS / THAW OUT SUCTION
11:00	14:30	3.50	02	Drilling	DRILL 6 1/8" HOLE F/ 8214' - 8240' (T.D.)
14:30	15:00	0.50	07	Rig Service	RIG SERVICE
15:00	20:00	5.00	06	Tripping	WIPER TRIP TO 7690' / REAM 155' TO BTM
20:00	21:00	1.00	05	Condition and/or Circulate mud	CIRCULATE & CONDITION HOLE
21:00	00:00	3.00	06	Tripping	HOIST TO LOG

Mud Checks: 8,223.0ftKB, 12/27/2002 12:15

Type	Date	Depth (ftKB)	T(fl) (°F)	Density (lb/gal)	Vis (s/qt)	Plas Vis (cp)
Gel-Chem	12/27/2002 12:15	8,223.0		9.7	50	17.0

Yield Point (cp)	gel 10 sec (cp)	gel 10 min (cp)	Filtrate (mL/30min)	HTHP Filt (mL/30min)	Filter Cake (in)	MBT (lb/bbl)
8.0	5.0	9.0	10.2			

Lime (lb/bbl)	pH	Pm (mL/mL)	Pf (mL/mL)	Calcium (mg/L)	Potassium (mg/L)	Polymer (lb/gal)
	10.0					

Chlorides (mg/L)	Sand (%)	Solids (%)	Percent Oil (%)	Percent Water (%)	LG Solids (%)	Electric Stab (V)
400.000		5.4				

Drill Strings: BHA #20, Slick

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
14	6 1/8in, STR-30 , ZT12XM	-------	2.36	6.2	32/32/32

Len (ft)	Max OD (in)	String Components
569.62	4.750	Hughes STR-30 , Bit Sub, Drill Collar, Drilling Jars - Hydraulic Down, Drilling Jars - Hydraulic Up, Drill Collar

Drilling Parameters: 62.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr)	Int ROP (ft/hr)	Flow Rate (gpm)
20	8,178.0	8,240.0	62.0	10.00	10.00	6.2	252

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
25	70	1,700.0	118	132	110		

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Directional Surveys: SINGLE SHOT

Description	Survey Company
SINGLE SHOT	Patterson Crew

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	**Cum. Cost To Date**
[redacted]	[redacted]
Daily Mud Cost	**Mud Additive Cost To Date**
[redacted]	[redacted]
Depth Start (ftKB)	**Depth End (ftKB)**
8,178.0	8,240.0
Depth Progress (ftKB)	**Drilling Time (hrs)**
62.0	0.00

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Ernie Natte, Drilling Foreman
Mel Knezevich, Drilling Foreman
Mark Moennich, Drilling Sup't
Don Helms, Mud Engineer
Randy Hackford, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3

Rig Supervisor
John Day, Tool Pusher

Rigs: Patterson U.T.I, 104

Rig Supervisor
Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

Pump Checks

P (psi)	Slow Spd	Strokes (strokes/min)	Eff (%)
1,700.0	No	60	90

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	11	1,500.0

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA CAUSTIC SODA	1.0	38
BAROID USA BARAZAN D PLUS	2.0	821
BAROID USA QUICK GEL	96.0	274
BAROID USA REGULAR BARITE	160.0	581
BAROID N SEAL	175.0	12,250

Formation Pick Groups: Drilling Sam...

Formation Picks Group
Drilling Sample

Name	Top (ftKB)
Tununk	8,200.0
Ferron	7,735.0
Bluegate	5,672.0
Emery	4,280.0
Mancos	3,073.0

Intermediate Casing, 7,690.0ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
12/15/2002			

Talisman Energy Canada - Daily Drilling Report

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Date: 12/28/2002, Report: 62.0, DFS: 62.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	**Cum. Cost To Date**
[redacted]	[redacted]
Daily Mud Cost	**Mud Additive Cost To Date**
[redacted]	[redacted]
Depth Start (ftKB)	**Depth End (ftKB)**
8,240.0	8,240.0
Depth Progress (ftKB)	**Drilling Time (hrs)**
0.0	0.00

Daily Summary

Weather	Road Condition	Hole Condition
CLEAR	Snow covered	BRIDGE @ 7724'

Operations at Report Time
0600 HR - RUN IN W/ LOGGING TOOLS

Operations This Report Period
RUN IN W/ LOGGING TOOLS - STUCK @ 7724' - FREE & HOIST TOOLS / RUN IN & CONDITION HOLE

Operations Next Report Period
HOIST TO LOG & LOG WELL

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	02:00	2.00	06	Tripping	HOIST TO LOG
02:00	09:15	7.25	11	Wireline Logs	LOG W/ SHLUMBERGER / LOGGING TOOL STUCK @ 7725' / APPLY 6500# TENSION & PULL FREE / HOIST LOGGING TOOLS
09:15	10:00	0.75	06	Tripping	RUN IN W/ 6 1/8" BIT & BHA
10:00	11:00	1.00	09	Cut/Slip Drilling Line	SLIP & CUT 130' DRLG LINE
11:00	14:00	3.00	06	Tripping	RUN IN / BREAK CIRC @ 4300'
14:00	18:00	4.00	03	Reaming	WASH & REAM F/ 8000' - 8240'
18:00	00:00	6.00	05	Condition and/or Circulate mud	CIRCULATE & CONDITION MUD / BUILD VOLUME

Mud Checks: 8,240.0ftKB, 12/28/2002 23:45

Type	Date	Depth (ftKB)	T(fl) (°F)	Density (lb/gal)	Vis (s/qt)	Plas Vis (cp)
Gel-Chem	12/28/2002 23:45	8,240.0		9.8	47	19.0

Yield Point (cp)	gel 10 sec (cp)	gel 10 min (cp)	Filtrate (mL/30min)	HTHP Filt (mL/30min)	Filter Cake (in)	MBT (lb/bbl)
13.0	5.0	9.0	9.6			

Lime (lb/bbl)	pH	Pm (mL/mL)	Pf (mL/mL)	Calcium (mg/L)	Potassium (mg/L)	Polymer (lb/gal)
	10.0					

Chlorides (mg/L)	Sand (%)	Solids (%)	Percent Oil (%)	Percent Water (%)	LG Solids (%)	Electric Stab (V)
400.000		5.2			0.4	

Drill Strings: BHA #20, Slick

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
14	6 1/8in, STR-30 , ZT12XM	-------	2.36	6.2	32/32/32

Len (ft)	Max OD (in)	String Components
569.62	4.750	Hughes STR-30 , Bit Sub, Drill Collar, Drilling Jars - Hydraulic Down, Drilling Jars - Hydraulic Up, Drill Collar

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Directional Surveys: SINGLE SHOT

Description	Survey Company
SINGLE SHOT	Patterson Crew

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Mel Knezevich, Drilling Foreman
Ernie Natte, Drilling Foreman
Mark Moennich, Drilling Sup't
Don Helms, Mud Engineer
Randy Hackford, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3

Rig Supervisor: John Day, Tool Pusher

Rigs: Patterson U.T.I, 104

Rig Supervisor: Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

Pump Checks

P (psi)	Slow Spd	Strokes (strokes/min)	Eff (%)
800.0	No	45	90

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	11	1,500.0

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA MUD ENG LIVING ALLOWANCE	2.0	70
BAROID USA MUD MAN	2.0	900
BAROID USA DESCO CHROME FREE	2.0	87
BAROID USA CAUSTIC SODA	5.0	192
BAROID USA BARAZAN D PLUS	8.0	3,285
BAROID N SEAL	88.0	6,160
BAROID USA BARACARB 150	350.0	11,207
BAROID USA REGULAR BARITE	410.0	1,488

Formation Pick Groups: Drilling Sam...

Formation Picks Group: Drilling Sample

Talisman Energy Canada - Daily Drilling Report

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Date: 12/28/2002, Report: 62.0, DFS: 62.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Name	Top (ftKB)
Tununk	8,200.0
Ferron	7,735.0
Bluegate	5,672.0
Emery	4,280.0
Mancos	3,073.0

Intermediate Casing, 7,690.0ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
12/15/2002			

Talisman Energy Canada - Daily Drilling Report

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Date: 12/29/2002, Report: 63.0, DFS: 63.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	**Cum. Cost To Date**
[redacted]	[redacted]
Daily Mud Cost	**Mud Additive Cost To Date**
[redacted]	[redacted]
Depth Start (ftKB)	**Depth End (ftKB)**
8,240.0	8,240.0
Depth Progress (ftKB)	**Drilling Time (hrs)**
0.0	0.00

Daily Summary

Weather	Road Condition	Hole Condition
Clear	Snow covered	Good to T.D.

Operations at Report Time
06:00 hrs Dec 30/Clean out to case.

Operations This Report Period
Trip out and log. Run in to clean out.

Operations Next Report Period
Complete trip in. Clean out. Heal losses. Lay down pipe to case.

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	04:00	4.00	06	Tripping	HOIST TO LOG
04:00	18:00	14.00	11	Wireline Logs	LOG WELL W/ SHLUMBERGER / LOG #1 - AIT-BHC-GR-CAL
18:00	00:00	6.00	06	Tripping	Trip in to the shoe and break circulation at 4000 ft and at the shoe.

Drill Strings: BHA #20, Slick

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
14	6 1/8in, STR-30 , ZT12XM	-------	2.36	6.2	32/32/32

Len (ft)	Max OD (in)	String Components
569.62	4.750	Hughes STR-30 , Bit Sub, Drill Collar, Drilling Jars - Hydraulic Down, Drilling Jars - Hydraulic Up, Drill Collar

Drilling Parameters: 0.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr)	Int ROP (ft/hr)	Flow Rate (gpm)
20	8,240.0	8,240.0	62.0		10.00		125

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
0	30	430.0	118	132	110		

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Directional Surveys: SINGLE SHOT

Description	Survey Company
SINGLE SHOT	Patterson Crew

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Mel Knezevich, Drilling Foreman
Ernie Natte, Drilling Foreman
Mark Moennich, Drilling Sup't
Don Helms, Mud Engineer
Randy Hackford, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3

Rig Supervisor: John Day, Tool Pusher

Rigs: Patterson U.T.I, 104

Rig Supervisor: Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	11	1,500.0

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA CAUSTIC SODA	1.0	38
BAROID USA BARAZAN D PLUS	8.0	3,285
BAROID N SEAL	75.0	5,250
BAROID USA REGULAR BARITE	96.0	348
BAROID USA QUICK GEL	114.0	325
BAROID USA BARACARB 150	307.0	9,830

Formation Pick Groups: Drilling Sam...

Formation Picks Group: Drilling Sample

Name	Top (ftKB)
Tununk	8,200.0
Ferron	7,735.0
Bluegate	5,672.0
Emery	4,280.0
Mancos	3,073.0

Intermediate Casing, 7,690.0ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
12/15/2002			

Talisman Energy Canada - Daily Drilling Report

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Date: 12/30/2002, Report: 64.0, DFS: 64.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	**Cum. Cost To Date**
[redacted]	[redacted]
Daily Mud Cost	**Mud Additive Cost To Date**
[redacted]	[redacted]
Depth Start (ftKB)	**Depth End (ftKB)**
8,240.0	8,240.0
Depth Progress (ftKB)	**Drilling Time (hrs)**
0.0	0.00

Daily Summary

Weather	Road Condition	Hole Condition
Clear	Snow covered	Good to T.D.

Operations at Report Time

06:00 hrs Dec 31/ Wash casing from 7780 ft.

Operations This Report Period

Trip in and clean out to case. Circ and heal losses. Trip out laying down pipe and collars. Rig up casers and run casing.

Operations Next Report Period

Complete running casing. circulate and cement casing. Set slips and tear out rig.

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	03:30	3.50	05	Condition and/or Circulate mud	Circulate at the shoe. Condition mud to control losses.
03:30	04:00	0.50	06	Tripping	Trip in to bottom. No problems with the hole.
04:00	12:15	8.25	05	Condition and/or Circulate mud	Circulate and condition mud. Control losses.
12:15	20:00	7.75	06	Tripping	Lay down 3 1/2 drill string.
20:00	00:00	4.00	12	Run Casing & Cement	Rig in casers and run 4 1/2 casing.

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Directional Surveys: SINGLE SHOT

Description	Survey Company
SINGLE SHOT	Patterson Crew

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Ernie Natte, Drilling Foreman
Mel Knezevich, Drilling Foreman
Mark Moennich, Drilling Sup't
Don Helms, Mud Engineer
Randy Hackford, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3

Rig Supervisor: John Day, Tool Pusher

Rigs: Patterson U.T.I, 104

Rig Supervisor: Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197
Liner Size (in)	**Stroke (in)**	**V/Stk (bbl/stk)**
5	15.00	0.105

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197
Liner Size (in)	**Stroke (in)**	**V/Stk (bbl/stk)**
5	15.00	0.105

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	11	1,500.0

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA BARAZAN D PLUS	9.0	3,696
BAROID USA QUICK GEL	12.0	34
BAROID USA BARACARB 50	164.0	5,251
BAROID USA REGULAR BARITE	219.0	795
BAROID USA BARACARB 600	411.0	12,186

Formation Pick Groups: Drilling Sam...

Formation Picks Group: Drilling Sample

Name	Top (ftKB)
Tununk	8,200.0
Ferron	7,735.0
Bluegate	5,672.0
Emery	4,280.0
Mancos	3,073.0

Intermediate Casing, 7,690.0ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
12/15/2002			

Talisman Energy Canada - Daily Drilling Report

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 — **Date: 12/31/2002, Report: 65.0, DFS: 65.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

AFE No.	Total AFE Amt ($)
37511	[redacted]
Daily Cost Total	**Cum. Cost To Date**
[redacted]	[redacted]
Daily Mud Cost	**Mud Additive Cost To Date**
[redacted]	[redacted]
Depth Start (ftKB)	**Depth End (ftKB)**
8,240.0	8,240.0
Depth Progress (ftKB)	**Drilling Time (hrs)**
0.0	0.00

Daily Summary

Weather	Road Condition	Hole Condition
Heavy snow	Snow covered	Cased

Operations at Report Time

06:00 hrs Jan 01, 03 Tear out rig.

Operations This Report Period

Run casing. Circulate tight hole from 7780 ft to bottom. Circ casing and cement. Set slips, cut casing, install well head and tear out rig.

Operations Next Report Period

Tear out rig to move.

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	09:00	9.00	12	Run Casing & Cement	Run casing to 7780 ft. 02:15 hrs. Work and circulate bridge at 7780 ft. No progress until 07:00 hrs. Released Schlumberger cement ers and prep lease to lay down casing when it started to move down hole. Circulate and work casing to bottom.
09:00	12:30	3.50	05	Condition and/or Circulate mud	Circulate casing. Loosing 40 bbls per hour of drilling fluid. 50 funnel visc and 9.7 ppg weight. The last half hour of circulating the tank volume was stable. Mixed Baracor 700, 110 gallons into the mud in the suction during the last 200 bbls of circulation.
12:30	14:00	1.50	12	Run Casing & Cement	Cement casing. Good returns except for the last 10 bbls of displacement. The casing became stuck and circulation stopped. The pressure rose slow and steady for the last 10 bbls. Mud stayed at surface. Dowell didnot have a break down during this job!!!
14:00	00:00	10.00	00	Undefined Status	Pick up the BOP stack and set slips. Cut off the casing. Remove BOP, final cut casing and install wellhead. Dump and clean tanks. RIG RELEASE AT 2359 HRS, DECEMBER 31, 2002.

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Directional Surveys: SINGLE SHOT

Description	Survey Company
SINGLE SHOT	Patterson Crew

Ops Supervisors

Contact
Arnie Hamarsnes, Drilling Engineer
Ernie Natte, Drilling Foreman
Mel Knezevich, Drilling Foreman
Mark Moennich, Drilling Sup't
Don Helms, Mud Engineer
Randy Hackford, Tool Pusher
Bill Hedglin, Geologist

Rigs: Bill Martin Jr., 3

Rig Supervisor: John Day, Tool Pusher

Rigs: Patterson U.T.I, 104

Rig Supervisor: Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197
Liner Size (in)	**Stroke (in)**	**V/Stk (bbl/stk)**
5	15.00	0.105

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197
Liner Size (in)	**Stroke (in)**	**V/Stk (bbl/stk)**
5	15.00	0.105

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	11	1,500.0

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA QUICK GEL	-226.0	-644
BAROID USA BARO SEAL MEDIUM	-125.0	-1,750
BAROID USA CAUSTIC SODA	-8.0	-308
BAROID USA BARA DEFOAM	-3.0	-345
BAROID USA BARACAT	-1.0	-80
BAROID USA ALUMINIUM STEARATE	1.0	51
BAROID USA SAPP	1.0	96
BAROID USA BARACOR 700	2.0	1,767
BAROID USA MUD MAN	2.0	900
BAROID USA DESCO CHROME FREE	2.0	87

Well Name: FORTUNA MIDDLE UNTAIN #21-16 **Date: 12/31/2002, Report: 65.0, DFS: 65.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
10/28/2002		8672.00	8655.00	17.00

Daily Summary

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA MUD ENG LIVING ALLOWANCE	4.0	140
BAROID USA FUMARIC ACID	5.0	320
BAROID USA BARO SEAL COURSE	10.0	140
BAROID USA BARAZAN D PLUS	37.0	15,194
BAROID USA COTTONSEED HULLS	40.0	638
BAROID USA SAWDUST	60.0	285
BAROID USA BARACARB 150	74.0	2,369
BAROID USA MUD TRANSPORT	108.0	8,100
BAROID USA REGULAR BARITE	135.0	490
BAROID USA BARACARB 600	170.0	5,041
BAROID USA BARACARB 50	268.0	8,581
BAROID USA MAGMA FIBER	305.0	21,301
BAROID USA BARACARB 150	322.0	10,310

Formation Pick Groups: Drilling Sam...

Formation Picks Group
Drilling Sample

Name	Top (ftKB)
Tununk	8,200.0
Ferron	7,735.0
Bluegate	5,672.0
Emery	4,280.0
Mancos	3,073.0

Production Casing, 8,240.0ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
12/31/2002	4 1/2	P-110	13.50

Form 3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
Budget Bureau No. 1004-0135
Expires: March 31, 1993

SUNDRY NOTICES AND REPORTS ON WELLS

033

Do not use this form for proposals to drill or to deepen or reentry to a different reservoir.
Use "APPLICATION FOR PERMIT–" for such proposals

SUBMIT IN TRIPLICATE

1. Type of Well
☐ Oil ☒ Gas ☐

2. Name of Operator
Fortuna (US), Inc.

3. Address and Telephone No.
Suite 3400, 888 3rd Street SW, Calgary, Alberta T2P5C5 403-237-1163

4. Location of Well (Footage, Sec.,T., R:, M., or Survey Description)
1309' FSL, 834' FEL
SE/4 SE/4, Section 21, T16S, R6E, SLB&M

5. Lease Designation and Serial No.
UTU-77263

6. If Indian, Allottee or Tribe Name
N/A

7. If Unit or CA, Agreement Designation
N/A

8. Well Name and No.
Middle Mountain #21-16

9. API Well No.
43-015-30426

10. Field and Pool, or Exploratory Area
Wildcat

11. County or Parish, State
Emery County, Utah

12. **CHECK APPROPRIATE BOX(s) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA**

TYPE OF SUBMISSION	TYPE OF ACTION	
☐ Notice of Intent	☐ Change of Name	Pipeline,Powerline, Maintenance Corridor Construction ☐ Change of Plans
☒ Subsequent Report	☐ Recompletion	☐ New Construction
☐ Final Abandonment Notice	☐ Plugging Back	☐ Non-Routine Fracturing
	☐ Casing Repair	☐ Water Shut-Off
	☐ Altering Casing	☐ Conversion to Injection
	☒ Production Casing and Cement Reports	☐ Dispose Water

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

Attached are the Production Casing and Cement Reports for the Middle Mountain #21-16 well

RECEIVED
JAN 07 2003
DIV. OF OIL, GAS & MINING

FILE COPY

14. I hereby certify that the foregoing is true and correct

Signed Don Hamilton Don Hamilton Title Agent for Fortuna US Date January 2, 2003

(This space for Federal or State office use)

Approved by _____ Title _____ Date _____
Conditions of approval, if any:

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

Talisman Energy Canada - Casing Report

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16

KB Elevation (ft)	Ground Elevation (ft)	Casing Flange Elevation (ft)	KB-Ground Distance (ft)	KB-Casing Flange Distance (ft)	Spud Date	Rig Release Date
8672.00	8655.00	8655.00	17.00	17.00	10/28/2002	12/31/2002

Well Head

Wellbores: Main Hole

Size (in)	Top (ftKB)	Btm (ftKB)
17 1/2	0.0	1,125.
12 1/4	1,125.0	4,421.
8 3/4	4,421.0	7,690.
6 1/4	7,690.0	7,745.
6 1/8	7,745.0	8,240.

Casing Details

Casing Description	Casing Run Date	Casing Shoe Set Depth (ftKB)	Wellbore Name
Production Casing	12/31/2002	8,240.0	Main Hole

Item Des	OD (in)	Wt (lbs/ft)	Grade	Drift (in)	Top Thread	Jts	Len (ft)	Top (ftKB)	Mk-up Tq (ft-lbs)	Make	Model	Max OD (in)	ID (in)
Stick up	4 1/2	13.50	P-110		LT&C	1	3.00	3.2					3.92
Casing Joints	4 1/2	13.50	P-110	3.795	LT&C	188	8187.00	6.2	3660				3.92
Float Collar	4 1/2	13.50	P-110		LT&C	1	1.20	8,193.2	3660				3.92
Casing Joints	4 1/2	13.50	P-110	3.795	LT&C	1	44.06	8,194.4	3660				3.92
Float Shoe	4 1/2	13.50	P-110		LT&C	1	1.50	8,238.5	3660				3.92

Talisman Energy Canada - Casing String Summary

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16

Surface Legal Location	Bottomhole Legal Location	Field Name	Operation Group	License No.	State/Province
SE SE Sec. 21, T16S-R6E	SE SE Sec. 21, T16S - R6E	Middle Mountain	Western	43-015-30426	Utah
KB Elevation (ft)	**Ground Elevation (ft)**	**Casing Flange Elevation (ft)**	**Spud Date**	**Rig Release Date**	**Current Well Status**
8672.00	8655.00	8655.00	10/28/2002	12/31/2002	Potential Gas

Casing: Surface Casing, 1,080.0ftKB

Casing Shoe Set Depth (ftKB)	Set Tension (lbf)	String Max Nominal OD (in)	String Drift Min (in)	Centralizers	Scratchers
1,080.0	60,000.0	13 3/8	12.559	10 ft above shoe, 10 ft above float collar, 600 ft, 500 ft, 400 ft and top 2 joints.	None

Jts	Item Des	OD (in)	ID (in)	Wt (lbs/ft)	Grade	Top Thread	Top (ftKB)	Btm (ftKB)	Len (ft)	Burst Pres. (psi)	Collapse Pres. (psi)
	Casing Joints	13 3/8	12.717	48.00	H-40	ST&C	16.3	1,034.3	1018.03	1,725.9	740.0
	Float Collar	13 3/8	12.717	48.00	H-40	13 3/8	1,034.3	1,035.5	1.15		
1	Casing Joints	13 3/8	12.717	48.00	H-40	ST&C	1,035.5	1,078.4	42.95	1,725.9	740.0
	Float Shoe	13 3/8	12.717	48.00	H-40	13 3/8	1,078.4	1,080.0	1.57		

Casing: Intermediate Casing, 4,413.0ftKB

Casing Shoe Set Depth (ftKB)	Set Tension (lbf)	String Max Nominal OD (in)	String Drift Min (in)	Centralizers	Scratchers
4,413.0	144,000.0	9 5/8	8.765	10 ft above shoe, 10 ft above float collar, next 10 collars and every 3rd collar to surface	None

Jts	Item Des	OD (in)	ID (in)	Wt (lbs/ft)	Grade	Top Thread	Top (ftKB)	Btm (ftKB)	Len (ft)	Burst Pres. (psi)	Collapse Pres. (psi)
22	Casing Joints	9 5/8	8.921	36.00	J-55	ST&C	-4.4	957.7	962.18	3,524.4	2,019.9
1	Casing Pup Joint	9 5/8	8.921	36.00	J-55	ST&C	957.7	966.8	9.02		
1	Stage Collar	9 5/8	8.921	36.00	J-55	ST&C	966.8	969.6	2.82		
77	Casing Joints	9 5/8	8.921	36.00	J-55	ST&C	969.6	4,365.2	3395.63	3,524.4	2,019.9
1	Float Collar	9 5/8	8.921	36.00	J-55	ST&C	4,365.2	4,366.4	1.20		
1	Casing Joints	9 5/8	8.921	36.00	J-55	ST&C	4,366.4	4,411.5	45.13	3,524.4	2,019.9
1	Float Shoe	9 5/8	8.921	36.00	J-55	ST&C	4,411.5	4,413.0	1.46		

Casing: Intermediate Casing, 7,690.0ftKB

Casing Shoe Set Depth (ftKB)	Set Tension (lbf)	String Max Nominal OD (in)	String Drift Min (in)	Centralizers	Scratchers
7,690.0	170,000.0	7	6.151	10 ft above the shoe. 10 ft above the collar. Every collar to 500 ft inside the 9 5/8 casing.	None

Jts	Item Des	OD (in)	ID (in)	Wt (lbs/ft)	Grade	Top Thread	Top (ftKB)	Btm (ftKB)	Len (ft)	Burst Pres. (psi)	Collapse Pres. (psi)
166	Casing Joints	7	6.276	26.00	J-55	LT&C	-3.4	7,176.5	7179.98	4,974.8	4,319.9
12	Casing Joints	7	6.276	26.00	N-80	LT&C	7,176.5	7,650.1	473.53	7,237.4	5,410.1
	Float Collar	7	6.276	26.00	N-80	LT&C	7,650.1	7,651.2	1.14	7,237.4	5,410.1
1	Casing Joints	7	6.276	26.00	N-80	LT&C	7,651.2	7,688.9	37.68	7,237.4	5,410.1
	Float Shoe	7	6.276	26.00	N-80	LT&C	7,688.9	7,690.0	1.12	7,237.4	5,410.1

Casing: Production Casing, 8,240.0ftKB

Casing Shoe Set Depth (ftKB)	Set Tension (lbf)	String Max Nominal OD (in)	String Drift Min (in)	Centralizers	Scratchers
8,240.0	115,000.0	4 1/2	3.795	10 ft above the shoe. 10 ft above the collar. Every collar to the 7" shoe. Every 2nd 1000' inside.	None

Jts	Item Des	OD (in)	ID (in)	Wt (lbs/ft)	Grade	Top Thread	Top (ftKB)	Btm (ftKB)	Len (ft)	Burst Pres. (psi)	Collapse Pres. (psi)
1	Stick up	4 1/2	3.921	13.50	P-110	LT&C	3.2	6.2	3.00		
188	Casing Joints	4 1/2	3.921	13.50	P-110	LT&C	6.2	8,193.2	8187.00	12,415.2	10,680.0
1	Float Collar	4 1/2	3.921	13.50	P-110	LT&C	8,193.2	8,194.4	1.20		
1	Casing Joints	4 1/2	3.921	13.50	P-110	LT&C	8,194.4	8,238.5	44.06	12,415.2	10,680.0
1	Float Shoe	4 1/2	3.921	13.50	P-110	LT&C	8,238.5	8,240.0	1.50		

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16

KB Elevation (ft)	Ground Elevation (ft)	Casing Flange Elevation (ft)	KB-Ground Distance (ft)	KB-CF (ft)	Spud Date	Rig Release Date
8672.00	8655.00	8655.00	17.00	17.00	10/28/2002	12/31/2002

Cement Details

Cementing Start Date	Cementing End Date	String	Wellbore Name
12/31/2002 12:30	12/31/2002 14:00	Production Casing, 8,240.0ftKB	Main Hole

Comment

No problems with Dowell Schlumberger. Good returns except for the last 10 bbls. Casing became stuck and circulation stopped. Plug bumped, floats held and the mud stayed at surface.

Cement Stages: 1, 3,428.0-8,240.0ftKB

Description	Objective/Purpose	Cement Top Interval (ftKB)	Cement Bottom Interval (ftK
Production Casing	Production Casing	3,428.0	8,240.0

Top Plug?	Bottom Plug?	Q(start) (bbl/min)	Q(end) (bbl/min)	Q(avg) (bbl/min)	P(final) (psi)	P(bump) (psi)	Cmnt Rtrn (bbl)
Yes	No	5	5	5	1,250.0	2,000.0	0.0

Pipe Reciprocated?	Reciprocation Stroke Length (ft)	Pipe Rotated?	Pipe RPM (rpm)
Yes	6.00		

Depth Tagged (ftKB)	Tag Method	Depth Plug Drilled Out To (ftKB)	Drill out diameter (in)

Cement Fluids: 1, Preflush

Fluid Type	Fluid Description	Cement Amount (sacks)	Cement Class	Volume Pumped (bbl)	Yield (ft³/sack)
Preflush				20.0	

Mix H20 Ratio (gal/sack)	Free Water (%)	Density (lb/gal)	Plastic Viscosity (cp)	Thickening Time (hrs)	1st Compressive Strength (psi)
		8.3			

Cement Fluids: 2, Lead

Fluid Type	Fluid Description	Cement Amount (sacks)	Cement Class	Volume Pumped (bbl)	Yield (ft³/sack)
Lead		11	G	20.0	10.20

Mix H20 Ratio (gal/sack)	Free Water (%)	Density (lb/gal)	Plastic Viscosity (cp)	Thickening Time (hrs)	1st Compressive Strength (psi)
73.00		10.0			

Cement Fluid Additives

Add	Type	Amt	Amt Unit	Conc	Conc Unit
D020	Bentonite extender	20.0	lb	2.0	%
D907	G Cement	11.0	sx	98.0	%

Cement Fluids: 3, Tail

Fluid Type	Fluid Description	Cement Amount (sacks)	Cement Class	Volume Pumped (bbl)	Yield (ft³/sack)
Tail		200	G	62.0	1.73

Mix H20 Ratio (gal/sack)	Free Water (%)	Density (lb/gal)	Plastic Viscosity (cp)	Thickening Time (hrs)	1st Compressive Strength (psi)
8.10		14.0		3.50	

Cement Fluid Additives

Add	Type	Amt	Amt Unit	Conc	Conc Unit
S001	CaCl2	188.0	lb	1.0	%
D8004A-G	G Cement	200.0	sx	92.7	%
D42	KOLITE Loss circ	995.0	lb	5.3	%
D35-CF	LITEPOZ 3 Extender	3.0	cu. ft.	1.0	%

034

Talon Resources, Inc.

Service, Quality and Accuracy

P.O. Box 1230
195 North 100 West
Huntington, Utah 84528
Phone: 435-687-5310

Cell: 435-650-1886
Fax: 435-687-5311
Email: talon@etv.net

CONFIDENTIAL

January 8, 2003

Mr. Eric Jones
Petroleum Engineer
Bureau of Land Management
82 East Dogwood
Moab, Utah 84532

RE: Sundry Notice (Initial Site Clean-up)
—Fortuna (US), Inc.
Middle Mountain #21-16— 1,309' FSL, 834' FEL
Section 21, T16S, R6E, SLB&M, Emery County, Utah 43-015-30426

Dear Mr. Jones:

On behalf of Fortuna (US), Inc. Talon Resources, Inc. respectfully submits the enclosed original and two copies of the *Sundry Notice* for the Middle Mountain #21-16 well on lands managed by the Manti La-Sal Forest Service.

Thank you for your timely consideration of the enclosed application. Please feel free to contact myself or Mr. Don Jackson of Fortuna (US), Inc. at 1-780-621-6900 if you have any questions or need additional information.

Sincerely,

Don Hamilton

Don Hamilton
Agent for Fortuna (US), Inc.

Enclosures

cc: Mr. Don Stephens, BLM—Price Field Office
Mr. Carter Reed, USDA Forest Service—Price SO
Mr. Tom Lloyd, USDA Forest Service—Ferron DO
Mrs. Carol Daniels, Division of Oil, Gas and Mining
Mr. Arne Hamarsnes, Fortuna (US), Inc.

Form:3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
Budget Bureau No. 1004-0135
Expires: March 31, 1993

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to deepen or reentry to a different reservoir.
Use "APPLICATION FOR PERMIT--" for such proposals

SUBMIT IN TRIPLICATE

CONFIDENTIAL

1. Type of Well: ☐ Oil ☒ Gas ☐

2. Name of Operator: Fortuna (US), Inc.

3. Address and Telephone No.: Suite 3400, 888 3rd Street SW, Calgary, Alberta T2P5C5 403-237-1163

4. Location of Well (Footage, Sec.,T., R:, M., or Survey Description)
1309' FSL, 834' FEL
SE/4 SE/4, Section 21, T16S, R6E, SLB&M

5. Lease Designation and Serial No.: UTU-77263

6. If Indian, Allottee or Tribe Name: N/A

7. If Unit or CA, Agreement Designation: N/A

8. Well Name and No.: Middle Mountain #21-16

9. API Well No.: 43-015-30426

10. Field and Pool, or Exploratory Area: Wildcat

11. County or Parish, State: Emery County, Utah

12. **CHECK APPROPRIATE BOX(s) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA**

TYPE OF SUBMISSION	TYPE OF ACTION	
☐ Notice of Intent	☐ Change of Name	☐ Change of Plans
☒ Subsequent Report	☐ Recompletion	☐ New Construction
☐ Final Abandonment Notice	☐ Plugging Back	☐ Non-Routine Fracturing
	☐ Casing Repair	☐ Water Shut-Off
	☐ Altering Casing	☐ Conversion to Injection
	☒ Initial Site Cleanup Plan	☐ Dispose Water

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

Fortuna (US), Inc. would like to complete the Initial Site Cleanup of the Middle Mountain #21-16 well by adhering to the following proposed plan as referenced in the previously approved permit to drill:

- Liquids will be transported to RNI Water in Roosevelt, Utah to their permitted evaporation pit.
- Solids (mud and drill cuttings) have been tested for chemical composition and will be disposed of at the approved Nielson Construction landfill in Emery County.
- Sump liner and all other solid waste will be disposed at the approved Nielson Construction landfill in Emery County
- The earthen berm will be reinforced where the road enters the pad and as needed on the remainder of the pad to insure that no fluids leave the site.
- The Drill site will have a locked gate on the access road that will be locked at all times until further operations commence.
- Final clean up will follow in the summer of 2003 and will include, down-sizing, re-contouring, final clean up and reseeding of site as per USFS requirements and as dictated in the previously approved permit to drill.

COPY SENT TO OPERATOR
Date: 01-17-03
Initials: CHD

RECEIVED
JAN 14 2003
DIV. OF OIL, GAS & MINING

14. I hereby certify that the foregoing is true and correct

Signed Don Hamilton Don Hamilton Title Agent for Fortuna US Date January 8, 2003

(This space for Federal or State office use)

Approved by _____ Title _____

Conditions of approval, if any:

Accepted by the
Utah Division of
Oil, Gas and Mining

~~Federal Approval Of This~~
~~Action Is Necessary~~

Date: 1/16/2003
By: [illegible]

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

Tal[illegible]an Energy Canada - Directional [illegible]rvey

CONFIDENTIAL

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16

Bottomhole Legal Location	Surface Legal Location	Field Name	Operation Group	License No.	State/Province
SE SE Sec. 21, T16S - R6E	SE SE Sec. 21, T16S-R6E	Middle Mountain	Western	43-015-30426	Utah
KB Elevation (ft)	**Ground Elevation (ft)**	**KB-Ground Distance (ft)**	**Spud Date**	**Rig Release Date**	**Current Well Status**
8672.00	8655.00	17.00	2002-10-28	2002-12-31	Potential Gas

Wellbore Name	Vertical Section Direction (°)
Main Hole	90.00
Description	**Survey Company**
SINGLE SHOT	Patterson Crew

Survey Data

Tie-in Pt?	MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	NS (ft)	EW (ft)	DLS (°/100ft)
Yes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1,339.00	1.00	0.00	1,338.93	0.00	11.68	0.00	0.07
	1,806.00	1.70	357.00	1,805.80	-0.36	22.68	-0.36	0.15
	2,363.00	3.00	332.00	2,362.33	-7.64	43.80	-7.64	0.29
	2,455.00	2.00	331.00	2,454.24	-9.55	47.33	-9.55	1.09
	2,550.00	2.75	325.00	2,549.16	-11.66	50.65	-11.66	0.83
	2,580.00	3.00	332.00	2,579.12	-12.44	51.93	-12.44	1.44
	2,709.00	2.75	341.00	2,707.96	-15.03	57.83	-15.03	0.40
	2,803.00	2.00	340.00	2,801.88	-16.33	61.51	-16.33	0.80
	2,926.00	2.00	326.00	2,924.81	-18.26	65.30	-18.26	0.40
	3,053.00	1.80	346.00	3,051.74	-19.98	69.08	-19.98	0.54
	3,147.00	1.75	337.00	3,145.69	-20.90	71.83	-20.90	0.30
	3,302.00	2.00	347.00	3,300.61	-22.43	76.65	-22.43	0.26
	3,380.00	1.50	348.00	3,378.57	-22.95	78.97	-22.95	0.64
	3,512.00	1.00	8.00	3,510.54	-23.15	81.80	-23.15	0.50
	3,633.00	1.00	7.00	3,631.52	-22.88	83.89	-22.88	0.02
	3,789.00	1.00	33.00	3,787.50	-21.97	86.39	-21.97	0.29
	4,006.00	1.00	33.00	4,004.47	-19.91	89.56	-19.91	0.00
	4,381.00	1.00	21.00	4,379.41	-16.95	95.36	-16.95	0.06
	4,585.00	2.75	345.00	4,583.30	-17.58	101.75	-17.58	0.99
	4,795.00	2.75	336.00	4,793.06	-20.93	111.22	-20.93	0.21
	5,077.00	2.50	333.00	5,074.76	-26.48	122.88	-26.48	0.10
	5,546.00	2.75	331.00	5,543.27	-36.57	141.83	-36.57	0.06
	6,030.00	2.50	343.00	6,026.77	-45.29	162.08	-45.29	0.12
	6,545.00	1.75	328.00	6,541.41	-52.74	179.49	-52.74	0.18
	7,105.00	0.75	13.00	7,101.28	-56.45	190.32	-56.45	0.24
	7,670.00	1.00	103.00	7,666.24	-50.81	192.81	-50.81	0.22

Report Printed: 2003-02-20

Talis[illegible]n Energy Canada - Daily Drillin[illegible]eport

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Date: 2002-10-28, Report: 1.0, DFS: 1.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
2002-10-28	2002-12-31	8672.00	8655.00	17.00

AFE No.	Total AFE Amt ($)
37511	1,799,800
Daily Cost Total	**Cum. Cost To Date**
419,535.53	419,535.53
Daily Mud Cost	**Mud Additive Cost To Date**
0.00	0.00
Depth Start (ftKB)	**Depth End (ftKB)**
0.0	235.0
Depth Progress (ftKB)	**Drilling Time (hrs)**
235.0	5.00

Daily Summary

Weather	Road Condition	Hole Condition
Cloudy	Icey	Good

Operations at Report Time
Wait on Daylight

Operations This Report Period
Move Bill Martin Jr. onto location and drill 444.5mm hole to set 339.7mm surface casing. Hold safety meeting and rig up to drill surface hole with Bill Martin Jr. Drill 444.5mm hole with Bill Martin Jr. Cost will be one day behind until the Patterson Rig is on location.

Operations Next Report Period
Drill with Bill Martin Jr.

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	08:00	8.00	00	Undefined Status	Wait for day light.
12:00	14:00	2.00	01	Rig Up & Tear Down	Rig up Bill Martin Jr. water well rig, rotating head and booie line.
12:00	12:30	0.50	21	Safety Meeting	Safety meeting with Bill Martin Jr. crew.
14:00	19:00	5.00	02	Drilling	Drill with Hammer and 17.5" bit. Two 900 x 350 compressors running at this time. Drill to 235 ft with the hole making no noticable water. Misting at 5 gallons per minute of water and surfractant. Pull up to 100 ft to sit the night. No hole trouble at dark which is quitting time. There will be other compressors delivered to location to drill passed the 500 ft depth.
19:00	00:00	5.00	00	Undefined Status	Wait for Daylight

Drill Strings: BHA #1, Slick

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
1	17 1/2in, Q4, BMJ	-------		23.8	

Len (ft)	Max OD (in)	String Components
1000.49	9.016	Ingersol Q4, Hammer, Drill Rod, XO, Drill Rod

Drilling Parameters: 235.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr	Int ROP (ft/hr)	Flow Rate (gpm)
1	0.0	235.0	235.0	5.00	5.00	47.0	

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
2	30						

Drill Strings: BHA #20, Slick

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
14	6 1/8in, STR-30 , ZT12XM	-------	2.36	6.2	32/32/32

Len (ft)	Max OD (in)	String Components
569.62	4.750	Hughes STR-30 , Bit Sub, Drill Collar, Drilling Jars - Hydraulic Down, Drilling Jars - Hydraulic Up, Drill Collar

Drilling Parameters: 62.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr	Int ROP (ft/hr)	Flow Rate (gpm)
20	8,178.0	8,240.0	62.0	10.00	10.00	6.2	252

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
25	70	1,700.0	118	132	110		

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Ops Supervisors

Contact	Cell Phone
Arnie Hamarsnes, Drilling	403-861-8842
Mel Knezevich, Drilling Fo	780-402-1296
Mark Moennich, Drilling Su	403-863-3632

Rigs: Bill Martin Jr., 3

Rig Supervisor
John Day, Tool Pusher

Rigs: Patterson U.T.I, 104

Rig Supervisor
Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	11	1,500.0

Formation Pick Groups: Drilling Sam...

Formation Picks Group
Drilling Sample

Tali[illegible]n Energy Canada - Daily Drillin[illegible]eport

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Date: 2002-10-29, Report: 2.0, DFS: 2.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
2002-10-28	2002-12-31	8672.00	8655.00	17.00

AFE No.	Total AFE Amt ($)
37511	1,799,800
Daily Cost Total	**Cum. Cost To Date**
16,840.00	436,375.53
Daily Mud Cost	**Mud Additive Cost To Date**
0.00	0.00
Depth Start (ftKB)	**Depth End (ftKB)**
235.0	500.0
Depth Progress (ftKB)	**Drilling Time (hrs)**
265.0	11.00

Daily Summary

Weather	Road Condition	Hole Condition
Cloudy	Icey	Good

Operations at Report Time
Wait on Daylight

Operations This Report Period
Travel to location. Warm up equipment. Trip in to 235 ft. No hole problems. Start drilling at 0730 hrs. Drill to 500 ft at 1730 hrs. Blow hole clean to 1815 hrs. Pull to 375 ft to sit for the night.

Operations Next Report Period
Travel to location in the AM, start and warm the equipment. Trip in to 500 ft and mist drill.

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	07:00	7.00	00	Undefined Status	Wait on Daylight.
07:00	18:00	11.00	02	Drilling	Start and warm rig up. Trip in to 235 ft from 100 ft. No hole problems. Start drilling and drill to 500 ft with air mist. The hole is cleaning well with 10 gallons per minute of mist fluid. The hole is not making noticable water. The pressure is not increasing as it would if the hole was loading up with water. Blow the hole dry and trip up to 375 ft for the night.
18:00	00:00	6.00	00	Undefined Status	Wait on Daylight.

Drill Strings: BHA #1, Slick

Bit Ru	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
1	17 1/2in, Q4, BMJ	-------		23.8	

Len (ft)	Max OD (in)	String Components
1000.49	9.016	Ingersol Q4, Hammer, Drill Rod, XO, Drill Rod

Drilling Parameters: 265.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr	Int ROP (ft/hr)	Flow Rate (gpm)
1	235.0	500.0	500.0	11.00	16.00	24.1	

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
2	30						

Drill Strings: BHA #20, Slick

Bit Ru	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr	Nozzles (/32")
14	6 1/8in, STR-30 , ZT12XM	-------	2.36	6.2	32/32/32

Len (ft)	Max OD (in)	String Components
569.62	4.750	Hughes STR-30 , Bit Sub, Drill Collar, Drilling Jars - Hydraulic Down, Drilling Jars - Hydraulic Up, Drill Collar

Drilling Parameters: 62.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr	Int ROP (ft/hr)	Flow Rate (gpm)
20	8,178.0	8,240.0	62.0	10.00	10.00	6.2	252

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
25	70	1,700.0	118	132	110		

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

Ops Supervisors

Contact	Cell Phone
Arnie Hamarsnes, Drilling	403-861-8842
Mel Knezevich, Drilling Fo	780-402-1296
Mark Moennich, Drilling Su	403-863-3632

Rigs: Bill Martin Jr., 3
Rig Supervisor
John Day, Tool Pusher

Rigs: Patterson U.T.I, 104
Rig Supervisor
Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	11	1,500.0

Formation Pick Groups: Drilling Sam...
Formation Picks Group
Drilling Sample

Tali[illegible]n Energy Canada - Daily Drillin[illegible]eport

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Date: 2002-10-30, Report: 3.0, DFS: 3.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
2002-10-28	2002-12-31	8672.00	8655.00	17.00

Daily Summary

Weather	Road Condition	Hole Condition
Clear	Sanded	Good

Operations at Report Time
Wait on Daylight

Operations This Report Period
Travel to location. Warm up equipment. Trip in to 500 ft. No hole problems. Start drilling at 0730 hrs. Drill to 600 ft at 1530 hrs. Blow hole clean to 1615 hrs. Pull to the bit to check the hole condition. Sit for the night.

Operations Next Report Period
Make up hammer and trip in to drill.

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	07:00	7.00	00	Undefined Status	Wait on Day light.
07:00	15:30	8.50	02	Drilling	Drill ahead with air hammer. Small amount of water encountered at 500 ft. Pressure came up 20 psi. Drill ahead to 600m. Need to change choke in the hammer to reduce pressure.
15:30	19:00	3.50	06	Tripping	Wiper trip out to the hammer. Lay down hammer for one with a bigger choke. Start Energy air package to location to help lift cuttings. Bill jr. cannot pump enough pressure with this rig to go to 1100 ft. We require a booster.
19:00	00:00	5.00	00	Undefined Status	Wait on daylight.

Mud Checks: 550.0ftKB, 2002-10-30 09:00

Type	Date	Depth (ftKB)	T(fl) (°F)	Density (lb/gal)	Vis (s/qt)	Plas Vis (cp)
Air/Mist	2002-10-30 09:00	550.0	44.0	8.3		
Yield Point (cp)	gel 10 sec (cp)	gel 10 min (cp)	Filtrate (mL/30min)	HTHP Filt (mL/30min)	Filter Cake (in)	MBT (lb/bbl)
Lime (lb/bbl)	pH	Pm (mL/mL)	Pf (mL/mL)	Calcium (mg/L)	Potassium (mg/L)	Polymer (lb/gal)
	8.2	0.000				
Chlorides (mg/L)	Sand (%)	Solids (%)	Percent Oil (%)	Percent Water (%)	LG Solids (%)	Electric Stab (V)

Drill Strings: BHA #1, Slick

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
1	17 1/2in, Q4, BMJ	-------		23.8	

Len (ft)	Max OD (in)	String Components
1000.49	9.016	Ingersol Q4, Hammer, Drill Rod, XO, Drill Rod

Drilling Parameters: 100.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr	Int ROP (ft/hr)	Flow Rate (gpm)
1	500.0	600.0	600.0	8.50	24.50	11.8	

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
2	30	280.0					

Drill Strings: BHA #20, Slick

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
14	6 1/8in, STR-30 , ZT12XM	-------	2.36	6.2	32/32/32

Len (ft)	Max OD (in)	String Components
569.62	4.750	Hughes STR-30 , Bit Sub, Drill Collar, Drilling Jars - Hydraulic Down, Drilling Jars - Hydraulic Up, Drill Collar

Drilling Parameters: 62.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr	Int ROP (ft/hr)	Flow Rate (gpm)
20	8,178.0	8,240.0	62.0	10.00	10.00	6.2	252

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
25	70	1,700.0	118	132	110		

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

AFE No.	Total AFE Amt ($)
37511	1,799,800
Daily Cost Total	Cum. Cost To Date
21,921.00	458,296.53
Daily Mud Cost	Mud Additive Cost To Date
275.00	275.00
Depth Start (ftKB)	Depth End (ftKB)
500.0	600.0
Depth Progress (ftKB)	Drilling Time (hrs)
100.0	8.50

Ops Supervisors

Contact	Cell Phone
Arnie Hamarsnes, Drilling	403-861-8842
Mel Knezevich, Drilling Fo	780-402-1296
Mark Moennich, Drilling Su	403-863-3632

Rigs: Bill Martin Jr., 3

Rig Supervisor
John Day, Tool Pusher

Rigs: Patterson U.T.I, 104

Rig Supervisor
Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	11	1,500.0

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BARIOD USA MUD CHECK	1.0	275

Formation Pick Groups: Drilling Sam...

Formation Picks Group
Drilling Sample

Tali: an Energy Canada - Daily Drillin eport

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Date: 2002-10-31, Report: 4.0, DFS: 4.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
2002-10-28	2002-12-31	8672.00	8655.00	17.00

Daily Summary

Weather	Road Condition	Hole Condition
Overcast	Sanded	Good

Operations at Report Time
Wait on Daylight

Operations This Report Period
Travel to location. Warm up equipment. Trip in to 600 ft. No hole problems. Start drilling at 0730 hrs. Drill to 775 ft at 1530 hrs. Blow hole clean to 1615 hrs. Pull up 200 ft to check the hole condition. Sit for the night.

Operations Next Report Period
Trip in to 775 ft and drill ahead.

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	07:00	7.00	00	Undefined Status	Wait on day light.
07:00	18:00	11.00	02	Drilling	Hammer drill from 600 to 775 ft. Hole is in good condition. There is about 10 ft of fill each morning. Rig in Energy Air, fuel tank and have fuel brought to location. The Energy Air people are quite prompt. The fuel was a little different. Thanks for the help Arnie, Anouska and Cleve. Nielson Construction is extremely helpfull.
17:30	23:30	6.00	00	Undefined Status	Wait on day light.

Drill Strings: BHA #1, Slick

Bit Ru	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
1	17 1/2in, Q4, BMJ	-------		23.8	

Len (ft)	Max OD (in)	String Components
1000.49	9.016	Ingersol Q4, Hammer, Drill Rod, XO, Drill Rod

Drilling Parameters: 175.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr	Int ROP (ft/hr)	Flow Rate (gpm)
1	600.0	775.0	775.0	9.00	33.50	19.4	

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
2	30	280.0					

Drill Strings: BHA #20, Slick

Bit Ru	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
14	6 1/8in, STR-30 , ZT12XM	-------	2.36	6.2	32/32/32

Len (ft)	Max OD (in)	String Components
569.62	4.750	Hughes STR-30 , Bit Sub, Drill Collar, Drilling Jars - Hydraulic Down, Drilling Jars - Hydraulic Up, Drill Collar

Drilling Parameters: 62.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr	Int ROP (ft/hr)	Flow Rate (gpm)
20	8,178.0	8,240.0	62.0	10.00	10.00	6.2	252

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
25	70	1,700.0	118	132	110		

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

AFE No.	Total AFE Amt ($)
37511	1,799,800
Daily Cost Total	Cum. Cost To Date
38,213.81	496,510.34
Daily Mud Cost	Mud Additive Cost To Date
275.00	550.00
Depth Start (ftKB)	Depth End (ftKB)
600.0	775.0
Depth Progress (ftKB)	Drilling Time (hrs)
175.0	9.00

Ops Supervisors

Contact	Cell Phone
Arnie Hamarsnes, Drilling	403-861-8842
Mel Knezevich, Drilling Fo	780-402-1296
Mark Moennich, Drilling Su	403-863-3632
Bill Hedglin, Geologist	

Rigs: Bill Martin Jr., 3

Rig Supervisor
John Day, Tool Pusher

Rigs: Patterson U.T.I, 104

Rig Supervisor
Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	11	1,500.0

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BARIOD USA MUD CHECK	1.0	275

Formation Pick Groups: Drilling Sam...

Formation Picks Group
Drilling Sample

CONFIDENTIAL

Report Printed: 2003-02-20

Tali: an Energy Canada - Daily Drillin Report

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Date: 2002-11-01, Report: 5.0, DFS: 5.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
2002-10-28	2002-12-31	8672.00	8655.00	17.00

Daily Summary

Weather	Road Condition	Hole Condition
Clear	Sanded	Good

Operations at Report Time: Wait on Daylight

Operations This Report Period: C

Operations Next Report Period: Trip in to 1000 ft and drill ahead to T.D. into the Blackhawk.

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	07:00	7.00	00	Undefined Status	Wait on daylight
07:00	18:15	11.25	02	Drilling	Trip in to 775 ft and drill to 1000 ft. Blow hole clean. Trip to 700 ft and sit for the night.
18:15	00:00	5.75	00	Undefined Status	Wait on day light.

Drill Strings: BHA #1, Slick

Bit Ru	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr	Nozzles (/32")
1	17 1/2in, Q4, BMJ	-------		23.8	

Len (ft)	Max OD (in)	String Components
1000.49	9.016	Ingersol Q4, Hammer, Drill Rod, XO, Drill Rod

Drilling Parameters: 225.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr	Int ROP (ft/hr)	Flow Rate (gpm)
1	775.0	1,000.0	1,000.0	9.25	42.75	24.3	

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
2	30	300.0					

Drill Strings: BHA #20, Slick

Bit Ru	Bit	IADC Bit Dull	TFA (incl Noz) (in²	ROP (ft/hr	Nozzles (/32")
14	6 1/8in, STR-30 , ZT12XM	-------	2.36	6.2	32/32/32

Len (ft)	Max OD (in)	String Components
569.62	4.750	Hughes STR-30 , Bit Sub, Drill Collar, Drilling Jars - Hydraulic Down, Drilling Jars - Hydraulic Up, Drill Collar

Drilling Parameters: 62.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr	Int ROP (ft/hr)	Flow Rate (gpm)
20	8,178.0	8,240.0	62.0	10.00	10.00	6.2	252

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
25	70	1,700.0	118	132	110		

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

AFE No.	Total AFE Amt ($)
37511	1,799,800
Daily Cost Total	Cum. Cost To Date
18,215.00	514,725.34
Daily Mud Cost	Mud Additive Cost To Date
0.00	550.00
Depth Start (ftKB)	Depth End (ftKB)
775.0	1,000.0
Depth Progress (ftKB)	Drilling Time (hrs)
225.0	9.25

Ops Supervisors

Contact	Cell Phone
Arnie Hamarsnes, Drilling	403-861-8842
Mel Knezevich, Drilling Fo	780-402-1296
Mark Moennich, Drilling Su	403-863-3632
Bill Hedglin, Geologist	

Rigs: Bill Martin Jr., 3

Rig Supervisor: John Day, Tool Pusher

Rigs: Patterson U.T.I, 104

Rig Supervisor: Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	11	1,500.0

Formation Pick Groups: Drilling Sam...

Formation Picks Group: Drilling Sample

Name	Top (ftKB)
Price River	831.0

Tali an Energy Canada - Daily Drillin Report

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Date: 2002-11-02, Report: 6.0, DFS: 6.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
2002-10-28	2002-12-31	8672.00	8655.00	17.00

Daily Summary

Weather	Road Condition	Hole Condition
Clear	Sanded	Good

Operations at Report Time: Cement casing

Operations This Report Period: Drill to T.D. Condition hole. Trip out and case.

Operations Next Report Period: Cement casing. Install cellar.

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	07:00	7.00	00	Undefined Status	Wait on day light. Minor cold problems starting up today. temp was low 20's this A.M. On the way in Bill jr. and Nielson Construction people had come across a vehicle in the canyon up side down with two unhurt men inside. The vehicle had Colorado plates on it. Bill jr's men called the Sherriff for them. When the Sherriff arrived the men were arressted for one thing or another.
07:00	10:00	3.00	06	Tripping	Warm up equipment, Trip in. Water was at 750 ft. 250 ft or 75 bbls in the hole. There was a bridge at 960 ft and there was 10 ft of fill on bottom. The water most likely came from the sand that was drilled at 975 ft.
10:00	14:30	4.50	02	Drilling	Drill ahead with air/mist.
14:30	15:30	1.00	05	Condition and/or Circulate mud	Blow hole clean. Add polymer and clean hole. Hole is making water of an undetermined amount. The depth of the well will not allow for a water sample. We will get it at bottoms up circulating casing.
15:30	17:00	1.50	06	Tripping	Trip out to run casing.
17:00	00:00	7.00	12	Run Casing & Cement	Rig up tongs, spider, slips and elevators. Run casing to 600 ft. Switch to crane from rig line and run casing to 1061 ft. Hole has fill at this depth. No way to circulate joints of casing down. No 50 ft hoses. Casing seat at this depth is 36 ft into the Blackhawk formation.

Drill Strings: BHA #1, Slick

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
1	17 1/2in, Q4, BMJ	-------		23.8	

Len (ft)	Max OD (in)	String Components
1000.49	9.016	Ingersol Q4, Hammer, Drill Rod, XO, Drill Rod

Drilling Parameters: 125.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr)	Int ROP (ft/hr)	Flow Rate (gpm)
1	1,000.0	1,125.0	1,125.0	4.50	47.25	27.8	

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
2	30	300.0					

Drill Strings: BHA #20, Slick

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
14	6 1/8in, STR-30 , ZT12XM	-------	2.36	6.2	32/32/32

Len (ft)	Max OD (in)	String Components
569.62	4.750	Hughes STR-30 , Bit Sub, Drill Collar, Drilling Jars - Hydraulic Down, Drilling Jars - Hydraulic Up, Drill Collar

Drilling Parameters: 62.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr)	Int ROP (ft/hr)	Flow Rate (gpm)
20	8,178.0	8,240.0	62.0	10.00	10.00	6.2	252

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
25	70	1,700.0	118	132	110		

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

AFE No.	Total AFE Amt ($)
37511	1,799,800
Daily Cost Total	**Cum. Cost To Date**
114,359.34	629,084.69
Daily Mud Cost	**Mud Additive Cost To Date**
1,680.34	2,230.34
Depth Start (ftKB)	**Depth End (ftKB)**
1,000.0	1,125.0
Depth Progress (ftKB)	**Drilling Time (hrs)**
125.0	4.50

Ops Supervisors

Contact	Cell Phone
Arnie Hamarsnes, Drilling	403-861-8842
Mel Knezevich, Drilling Fo	780-402-1296
Mark Moennich, Drilling Su	403-863-3632
Bill Hedglin, Geologist	

Rigs: Bill Martin Jr., 3

Rig Supervisor: John Day, Tool Pusher

Rigs: Patterson U.T.I, 104

Rig Supervisor: Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	11	1,500.0

Mud Additive Amounts

Description	Consumed	Daily Cost ($)
BAROID USA SAPP	1.0	96
BAROID USA BARACAT	1.0	80
BAROID USA MUD TRANSPORT	8.0	600
BAROID USA QUICK FOAM	8.0	904

Formation Pick Groups: Drilling Sam...

Formation Picks Group: Drilling Sample

Name	Top (ftKB)
Price River	831.0

Surface Casing, 1,080.0ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
2002-11-02	13 3/8	H-40	48.00

Tali[illegible]n Energy Canada - Daily Drillin[illegible]eport

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16 **Date: 2002-11-03, Report: 7.0, DFS: 7.00**

Job Type: Drilling - original

Spud Date	Rig Release Date	KB Elevation (ft)	Ground Elevation (ft)	KB-Ground Distance (ft)
2002-10-28	2002-12-31	8672.00	8655.00	17.00

Daily Summary

Weather	Road Condition	Hole Condition
Clear	Sanded/Dusty	Good

Operations at Report Time
Cement casing

Operations This Report Period
Cement Casing, top up casing annulas. Install cellar and blade lease for rig move.

Operations Next Report Period
Move in Patterson Rig 104

Time Log

Start Date	End Time	Dur (hrs)	Code	Activity	Comment
00:00	02:15	2.25	12	Run Casing & Cement	Pump hole volume of water, 20 bbls of gel slurry, 285 bbls of cement. Displace with 162 bbls. plug bumped. No returns.
02:15	13:00	10.75	13	Wait On Cement	Wait for cement to set. Call out more bulk to top up.
13:00	18:00	5.00	12	Run Casing & Cement	430 sx top up job cement fell back. 80 sx top up job to get cement to stay at surface. Mike Kaminski with BLM to witness second top up. He also steped off the lease to verify it is not to big.
18:00	00:00	6.00	13	Wait On Cement	Wait on cement.

Drill Strings: BHA #20, Slick

Bit Run	Bit	IADC Bit Dull	TFA (incl Noz) (in²)	ROP (ft/hr)	Nozzles (/32")
14	6 1/8in, STR-30 , ZT12XM	-------	2.36	6.2	32/32/32

Len (ft)	Max OD (in)	String Components
569.62	4.750	Hughes STR-30 , Bit Sub, Drill Collar, Drilling Jars - Hydraulic Down, Drilling Jars - Hydraulic Up, Drill Collar

Drilling Parameters: 62.0ftKB

BHA No.	Depth Start (ftKB)	Depth End (ftKB)	Cum Depth (ftKB)	Drill Time (hrs)	Cum Drill Time (hr	Int ROP (ft/hr)	Flow Rate (gpm)
20	8,178.0	8,240.0	62.0	10.00	10.00	6.2	252

WOB (1000lbf)	RPM (rpm)	SPP (psi)	Rot HL (1000lbf)	PU HL (1000lbf)	SO HL (1000lbf)	Drilling Torque	Off Btm Tq
25	70	1,700.0	118	132	110		

Wellbores

Wellbore Name	VS Dir (°)	KO MD (ftKB)
Main Hole	90.00	300.0

AFE No.	Total AFE Amt ($)
37511	1,799,800
Daily Cost Total	**Cum. Cost To Date**
8,420.00	637,504.69
Daily Mud Cost	**Mud Additive Cost To Date**
0.00	2,230.34
Depth Start (ftKB)	**Depth End (ftKB)**
1,125.0	1,125.0
Depth Progress (ftKB)	**Drilling Time (hrs)**
0.0	0.00

Ops Supervisors

Contact	Cell Phone
Arnie Hamarsnes, Drilling	403-861-8842
Mel Knezevich, Drilling Fo	780-402-1296
Mark Moennich, Drilling Su	403-863-3632
Bill Hedglin, Geologist	

Rigs: Bill Martin Jr., 3

Rig Supervisor
John Day, Tool Pusher

Rigs: Patterson U.T.I, 104

Rig Supervisor
Jesse Blanchard, Drilling Manager

1, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
1	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

2, IDECO, MM-550

Pump Number	Pump Rating (hp)	Rod Diameter (in)
2	550.0	2.5197

Liner Size (in)	Stroke (in)	V/Stk (bbl/stk)
5	15.00	0.105

BOPs

Type	Nom Sz (in)	P(wkg) (psi)
Annular Preventers	11	1,500.0

Formation Pick Groups: Drilling Sam...

Formation Picks Group
Drilling Sample

Name	Top (ftKB)
Price River	831.0

Surface Casing, 1,080.0ftKB

Casing Run Date	Max OD (in)	Grade	Wt (lbs/ft)
2002-11-02	13 3/8	H-40	48.00

Talisman Ener(Canada - Job Operational Summ y (Completions)

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16

CONFIDENTIAL

Surface Legal Location	Field Name	Operation Group	KB Elevation (ft)	Ground Elevation (ft)	Plug Back Total Depth (ftKB)
SE SE Sec. 21, T16S-R6E	Middle Mountain	Western	8672.00	8655.00	

2003-01-13, Completion-Original

Job Category	Start Date	AFE No.	AFE Percentage (%)	Total AFE Amt ($)	Total AFE Sup ($)
Completion/Workover	2003-01-13	39363.		288,036	

Daily Operation Reports: 2003-01-14 00:00-2003-01-15 00:00

Weather	T (°F)	Road Condition	Lease Condition	Tubing Pressure (psi)	Casing Pressure (psi)	24 Hrs SCVF (bbm)	24 Hrs SISCVP (psi)	H2S < 1% (ppm)	H2S > 1% (%)

Time Log

Start Date	Code	Activity	Comment
06:00	OTHR	Other Operations	ARRIVE ON LOCATION. LEASE WET BUT FIRM, ROAD DRY

Daily Operation Reports: 2003-01-15 00:00-2003-01-16 00:00

Weather	T (°F)	Road Condition	Lease Condition	Tubing Pressure (psi)	Casing Pressure (psi)	24 Hrs SCVF (bbm)	24 Hrs SISCVP (psi)	H2S < 1% (ppm)	H2S > 1% (%)

Time Log

Start Date	Code	Activity	Comment
00:00	OTHR	Other Operations	MEET WITH ,POOL ;SERVICE RIG, GREG TODD, HALLIBURTON, FRAC STIM, DALE OWEN (ALL) HALLIBURTON,ISOLATION SERVICES, HALLIBURTON, EWL SERVICES, WEATHERFORD, SUPPORT EQUIP, STAN FULLENWIDER, TIGER TANKS, FRAC TANKS, HEAVY SURSA LOCATE; AZTEC, PIPE YARD, BENCO ANCHOR, RIG ANCHORS, EARL BRIDGES, RNI FLUID DISPOSAL, ZEKE ZACCARDI, NIELSON CONST,ROAD MAINTENANCE, WAYNE NIELSON DALBO, KCL WATER, BUZZY GORDINEA

Daily Operation Reports: 2003-01-16 00:00-2003-01-17 00:00

Weather	T (°F)	Road Condition	Lease Condition	Tubing Pressure (psi)	Casing Pressure (psi)	24 Hrs SCVF (bbm)	24 Hrs SISCVP (psi)	H2S < 1% (ppm)	H2S > 1% (%)

Daily Operation Reports: 2003-01-17 00:00-2003-01-18 00:00

Weather	T (°F)	Road Condition	Lease Condition	Tubing Pressure (psi)	Casing Pressure (psi)	24 Hrs SCVF (bbm)	24 Hrs SISCVP (psi)	H2S < 1% (ppm)	H2S > 1% (%)

Time Log

Start Date	Code	Activity	Comment
08:00	RIG	Rig Up/Down	ISSUE COLD WORK PERMIT FOR GROUND DISTURBANCE. REVIEW SITE SURVEY. LINE LOCATING IS NOT DONE BY ANCHOR INSTALLER. INSTALL AND PULL TEST RIG TO #20000. R/U SERVICE RIG, PUMP AND TANK, SPOT WEATHERFORD ACCUMULATOR UNIT. SPOT 2 SURFACE STORAGE TANKS. CALL BLM AND TALK TO DON STEVENS INFORMING HIM OF THE COMPLETION AND ESTABLISH LINE OF COMMUNICATION. CALL US FORESTRY SERVICE TOM LLOYD INFORM HIM OF RIG MOVE STATUS AND ESTABLISH A LINE OF COMMUNICATION.
18:00	SIFN	Shut in for Night	SECURE WELL. PREPARE FOR COLD WEATHER START. SDFN.

Daily Operation Reports: 2003-01-18 00:00-2003-01-19 00:00

Weather	T (°F)	Road Condition	Lease Condition	Tubing Pressure (psi)	Casing Pressure (psi)	24 Hrs SCVF (bbm)	24 Hrs SISCVP (psi)	H2S < 1% (ppm)	H2S > 1% (%)
CLEAR	41.0	GOOD	WET		0.0	0	0.0	0	0.00

Time Log

Start Date	Code	Activity	Comment
07:30	SMTG	Safety Meeting	PERFORM LEASE/RIG WALK AROUND. HOLD OPERATIONAL SAFETY MEETING WITH POOL AND NIELSON
07:45	BOPI	Install BOP's	N/D 7" 3000 TUBING SPOOL,, N/U 7" 5000 TUBING, CHANGE OVER VALVES AND FITTINGS. N/U CLASS II BOP. FUNCTION TEST. WITH PUMP OFF FUNCTION BLIND AND PIPE RAMS, INITIAL MANIFOLD PRESSURE 1600PSI FINAL PRESSURE 1350PSI. CLOSURE TIME 2 SECONDS EACH. TURN ON PUMP 47 SECOND RECOVERY TIME. PRESSURE TEST PIPE RAMS VERSUS HANGER TO 100 psi AND 3000psi FOR 15 MINUTES EACH. UNLOAD 300 JOINTS 2 3/8 TUBING. SPOT 2 FRAC FLUID TANKS. PERFORM RIG INSPECTION SEE REPORT. CREW HAS NO CERTIFICATIONS (BOP, H2S, TDG, ETC NOT REQUIRED BY STATE). NO INSPECTION CERTS WITH RIG (BOP, HOIST EQUIPMENT) THEY MAY BE AT THE OFFICE.
11:45			M/U 3 3/4" BIT AND 4 1/2" SCRAPER RIH ON 2 3/8" J-55 EUE TUBING TO 6000'
18:00			SECURE WELL. DRAIN LINES. SHUT DOWN FOR NIGHT.

Daily Operation Reports: 2003-01-19 00:00-2003-01-20 00:00

Weather	T (°F)	Road Condition	Lease Condition	Tubing Pressure (psi)	Casing Pressure (psi)	24 Hrs SCVF (bbm)	24 Hrs SISCVP (psi)	H2S < 1% (ppm)	H2S > 1% (%)
CLEAR	42.8	GOOD	WET	0.0	0.0			0	0.00

Time Log

Start Date	Code	Activity	Comment
07:30	SMTG	Safety Meeting	PERFORM LEASE/RIG WALK AROUND. HOLD OPERATIONAL SAFETY MEETING WITH POOL. CALL SAND TRUCK IN TO SAND LEASE AND BAD CORNER ON PASS.
07:45	TBGR	Run Tubing	CON TINUE RIH WITH BIT AND SCRAPER , P/U DRIFT AND TALLY. DRIFT SIZE 1.901" TAG AT 8177.8 FKB (40.3 FEET SUMP BELOW BOTTOM SHOT.)

Talisman Ener Canada - Job Operational Sumr y (Completions)

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16

CONFIDENTIAL

Surface Legal Location	Field Name	Operation Group	KB Elevation (ft)	Ground Elevation (ft)	Plug Back Total Depth (ftKB)
SE SE Sec. 21, T16S-R6E	Middle Mountain	Western	8672.00	8655.00	

Time Log

Start Date	Code	Activity	Comment
11:00	TBGP	Pull Tubing	POH BIT AND SCRAPER, RACK IN DERRICK.
12:30	BOPT	Pressure Test BOP's	PRESSURE TEST BLIND RAMS AGAINST CASING TO 100psi FOR 5 MINUTES AND 1000psi FOR 15 MINUTES.
13:00	LOGG	Logging	HOLD FORTUNA GREEN BOOK ORIENTATION. R/U HALLIBURTON EWL. RUN 1, CBL-GR-CCL FROM 8178 TO 7390, THEN PRESSURE PASS FROM 8178 TO 7390 '. TOC= 7742'. APPEARS TO BE LARGE WASHOUT BELOW 7" CASING SHOE NO BOND TO THE 4 1/2" FROM 7742' AND UP. RUN 2, SONIC DIPOLE LOG 8178 TO 7690 UNDER 1000 PSI PRESSURE. R/D EWL.
22:30	SIFN	Shut in for Night	DRAIN LINES. SECURE WELL.SDFN.

Daily Operation Reports: 2003-01-20 00:00-2003-01-21 00:00

Weather	T (°F)	Road Condition	Lease Condition	Tubing Pressure (psi)	Casing Pressure (psi)	24 Hrs SCVF (bbm)	24 Hrs SISCVP (psi)	H2S < 1% (ppm)	H2S > 1% (%)
CLEAR	37.0	GOOD	WET, ICY		0.0			0	0.00

Time Log

Start Date	Code	Activity	Comment
07:30	SMTG	Safety Meeting	PERFORM LEASE/RIG WALK AROUND. HOLD OPERATION SAFETY MEETING WITH POOL AND ZUBIATE HOT OILER.
07:45	BOPR	Remove BOP's	N/D BOPE. N/U 4 1/16" FRAC HEAD. PRESSURE TEST CASING VS FRAC HEAD TO 5000psi FOR 10min
09:30	TBGR	Run Tubing	RIH 2 3/8" TO 8170',
13:00	CIRC	Circulate Well	CIRCULATE WELL OVER TO 4% KCL BRINE
15:00	SWAB	Swabbing	SWAB WELL DOWN FOR A 1000psi UNDERBALANCE. (45 BBLS LEFT IN WELL)
17:00	TBGP	Pull Tubing	POH TUBING RACK IN DERRICK.
19:30	SIFN	Shut in for Night	SECURE WELL. SDFN.

Daily Operation Reports: 2003-01-21 00:00-2003-01-22 00:00

Weather	T (°F)	Road Condition	Lease Condition	Tubing Pressure (psi)	Casing Pressure (psi)	24 Hrs SCVF (bbm)	24 Hrs SISCVP (psi)	H2S < 1% (ppm)	H2S > 1% (%)
CLEAR	40.0	GOOD	WET, ICY		0.0			0	0.00

Time Log

Start Date	Code	Activity	Comment
07:30	SMTG	Safety Meeting	PERFORM LEASE/RIG WALK AROUND. HOLD OPERATIONAL SAFETY MEETING WITH POOL.
07:45	PERF	Perforating	R/U HALLIBURTON EWL. HOLD PRE JOB SAFETY MEETING. PRESSURE TEST LUBRICATOR TO 1500psi. RUN-1 RUN HI TEMP THERMOMETER TO 8168 ft.. BOTH THERMOMETERS 146 deg F. RUN-2 PERFORATE (SHOT 1) 8132.0-8137.5 MISRUN; (SHOT 2) 8122.0-8132.0 MISRUN. HELD SAFETY MEETING AT 200', IDENTIFIED MAN WITH ARMING KEY. DISASSEMBLE GUN, FIND PINCHED WIRE, REWIRE GUN. RUN-3 FIRE 1 PERFORATE 8132.0-8137.5' (5.5'), FIRE 2 PERFORATE 8122.0-8132.0'. BOTH SHOOTS WERE WITH THE SAME CARRIER, FIRE ONE, REPOSITION THEN FIRE TWO. THE FIRST SHOOT WAS CLEARLY OBSERVED, THE SECOND WAS OBSCURE, THE ENGINEER SAID IT WAS A NORMAL FIRE ON THE SECOND TRY. THE PERFORATIONS WERE PERFORMED WITH A 3 3/8" MILLENIUM 6 spf GUN. ALL SHOTS WERE FIRED, SHOT HOLES UNIFORM. THE GUN CAME OUT CLEAN. 30 MINUTE SHUT IN WAS O psi, A SLIGHT BLOW WHEN THE WELL WAS OPENED. WELL PERFORATED AT 1545 hours. MEMO ON TICKET TO RECOVER $760 FOR STANDBY TIME DUE TO MISRUN. R/D AND RELEASE HES EWL.
16:30	RIG	Rig Up/Down	MOVE IN AND STAND 40' FLARE STACK. PICKER UNIT HAD HYDRAULIC PROBLEMS WITH OUTRIGGERS, 1 HOUR DOCKED FROM TICKET. SPOT SEPARATOR, P TANK AND TEST EQUIPMENT. HAUL IN THE REMAINING FRAC FLUID (4% KCL). SPOT CO2 TANK AND LOAD 35 TON. SEND 100 BARRELS WELL WATER TO DISPOSAL. R/D RIG FLOOR.

Daily Operation Reports: 2003-01-22 00:00-2003-01-23 00:00

Weather	T (°F)	Road Condition	Lease Condition	Tubing Pressure (psi)	Casing Pressure (psi)	24 Hrs SCVF (bbm)	24 Hrs SISCVP (psi)	H2S < 1% (ppm)	H2S > 1% (%)
CLEAR	36.0	GOOD	GOOD		34.0			0	0.00

Talisman Ener Canada - Job Operational Sumr y (Completions)

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16

CONFIDENTIAL

Surface Legal Location	Field Name	Operation Group	KB Elevation (ft)	Ground Elevation (ft)	Plug Back Total Depth (ftKB)
SE SE Sec. 21, T16S-R6E	Middle Mountain	Western	8672.00	8655.00	

Time Log

Start Date	Code	Activity	Comment
08:00	SMTG	Safety Meeting	PERFORM LEASE RIG WALK AROUND. GREEN SAFETY ORIENTATION WITH NORTHLAND TESTERS. CATHERINE WOODFIELD OF THE U.S. FOERSTRY SERVICE HAD A SITE INSPECTION. 1. SHE SAID SHE WOULD INSPECT THE LOCATION FIRST THEN CONFER WITH ME. I THOUGHT IT PRUDENT SHE BE ACCOMPANIED, FOR HER SAFETY AND FOR ORIENTATION TO COMPLETION OPERATIONS. 2. SHE WAS CURIOUS ABOUT INITIAL WELL PERFORMANCE, I REPLIED IT IS TIGHT HOLE, SHE SAID WAS HER JOB TO KNOW, I REPLIED IT IS TO SOON TO KNOW . THAT DATA WOULD BE KNOWN AFTER THE 24 TO 48 HOUR TEST, 3. SHE REPLIED. NOBODY TOLD US (U.S. FORESTRY SERVICE) THAT THERE WOULD BE 24 HOURS OPERATIONS. 4. SHE WANTED MSDS SHEETS ON LOCATION AND AT THE OFFICE IN FERRON, I AGREED. 5. SHE ALSO THOUGHT THERE WAS A SAFETY ISSUE WITH 1 TO 2 INCHES OF MUD ON SOME AREAS OF THE LEASE, SOME AREAS WERE DRY, SHE WAS SUGGESTING MORE GRAVEL. OBSERVATION; IT IS ABOVE FREEZING AND STRONG SUNLIGHT IN THE DAY TIME, THE BASE IS SOLID. 6. SHE ALSO WANTED THE EMERGENCY SPILL GUIDELINE ON LOCATION. DONE. 7. SHE WANTED A CALL EVERYDAY ON OPERATIONAL PROGRESS. 8. TOM LLOYD (HER BOSS) WANTED A CALL EVERY COUPLE OF DAYS. THE GRAVEL AND THE 24 HOUR TESTING WERE THE TWO ISSUES THAT WERE PASSED TO CALGARY, S MCCONKEY. NOTE; THE LEASE AND LEASE ROAD ARE SANDED EVERY MORNING BUT BY LUNCH TIME THERE IS 1 TO 2 INCHES OF MUD FROM MELTING IN SOME AREAS. NOTE: ITEMS OF HSE IN PLACE PRIOR TO VISIT; ONSITE TOILET, COVERED GARBAGE BIN, DOCUMENTED COMPLETION FLUID TO DISPOSAL, A PERSNAL VISIT TO EMERGENCY DISPATCH OF EMERY COUNTY TO ESTABLISH COMMUNICATION LINK (M ALLISON), ON SITE FIRST AID FOR FRAC TREATMENT, REGULAR SAFETY MEETINGS.
08:15	RIG	Rig Up/Down	R/U 285 psi 3 STAGE SEPARATOR, 10000 psi MANIFOLD , 5000 psi LINE HEATER, 4 1/16" FLOW TEE AND ASSOCIATED EQUIPMENT.
13:15	GRAD	Static Gradient	PERFORM STATIC GRADIENT WITH DOUBLE MECHANICAL RECORDERS. MECHANICAL DEAD WEIGHT ON SURFACE, WITH 5min STOPS AT 2000', 4000', 6000' 8000' , 60 MINUTE STOP AT 8129' (MID PERFS), 5 MINUTES STOP AT 8137.5' (BOTTOM PERF), SURFACE DEAD WEIGHT. INITIAL SURFACE DEAD WEIGHT 33psi, FINAL 38 psi, ESTIMATED BHP=2800psi, FLUID LEVEL 1900' WIRELINE MEASURE. ESTIMATED BHT=142 F.
17:45	OTHR	Other Operations	.VENT GAS TO ATMOSPHERE 3 MINUTES TO ZERO. LEAVE SATELLITE PHONE ON LOCATION 011881631467465 . NIGHT CREW ASSIGNED FOR KCL WATER HEATING OPERATION.

Daily Operation Reports: 2003-01-23 00:00-2003-01-24 00:00

Weather	T (°F)	Road Condition	Lease Condition	Tubing Pressure (psi)	Casing Pressure (psi)	24 Hrs SCVF (bbm)	24 Hrs SISCVP (psi)	H2S < 1% (ppm)	H2S > 1% (%)
OVERCAST	37.0	GOOD	GOOD		600.0			0	0.00

Time Log

Start Date	Code	Activity	Comment
00:00	OTHR	Other Operations	HEAT 500 BBL'S 4% KCL BRINE TO 90 degrees F.
06:00	RIG	Rig Up/Down	MOVE IN AND RIG UP HALLIBURTON FRAC CREW. HOLD EMERGENCY RESPONSE AND GREEN BOOK SAFETY ORIENTATION MEETING..
12:00	FRAC	Fracture Stimulation	PERFORM 65Q CO2 30# WATERFRAC G ON THE FERRON SANDSTONE. PUMP 50000# OF 20/40 ACFRAC PR6000 USING GELLED 4% KCL AS CARRIER FLUID IN 11 STAGES. HIGHEST PRESSURE WAS 2979psi. NO PRESSURE SPIKE OBSERVED AS BREAKDOWN. UNDER FLUSH BY 4.26bbl. INITIAL ISIP=1110psi, FINAL ISIP 1225psi. LOAD FLUID 412bbls. RIG DOWN FRAC EQUIPMENT. VAC TRUCK CLEAN LINES AND SAND ON LEASE. RELASE HALLIBURTON, RELEASE SAFETY MAN, RELEASE VAC TRUCK, RELEASE WELLHEAD ISOLATION TOOL HAND.
14:00	FLOW	Flowback Well on Clean Up	OPEN WELL AT 1400 hours, FLOW WELL ON CLEAN UP AS PER PRODUCTION TEST REPORT

Daily Operation Reports: 2003-01-24 00:00-2003-01-25 00:00

Weather	T (°F)	Road Condition	Lease Condition	Tubing Pressure (psi)	Casing Pressure (psi)	24 Hrs SCVF (bbm)	24 Hrs SISCVP (psi)	H2S < 1% (ppm)	H2S > 1% (%)
LIGHT SNOW	40.0	GOOD	GOOD		270.0				0.00

Time Log

Start Date	Code	Activity	Comment
00:00			CONTINUE TO FLOW WELL ON CLEAN UP. SEE PRODUCTION TEST ALSO SET FEKETE FILE IN TEST ATTACHEMENT.

Report Printed: 2003-02-24

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16

CONFIDENTIAL

Surface Legal Location	Field Name	Operation Group	KB Elevation (ft)	Ground Elevation (ft)	Plug Back Total Depth (ftKB)
SE SE Sec. 21, T16S-R6E	Middle Mountain	Western	8672.00	8655.00	

Time Log

Start Date	Code	Activity	Comment
00:00	FLOW	Flowback Well on Clean Up	FLOW WELL ON CLEAN UP. WELL STOPPED FLOWING. THREE DIFFERENT GAS DETECTORS FOUND 9ppm H2S. A DRAEGER 5-60ppm TUBE, A BW TWO HEADTESTER AND A POOL ELECTRONIC TESTER. FLUID RECOVERED 412bbl (FRAC LOAD) + 45 (UNDERBALANCE LOAD)+ 359.5 (PROBABLE DRILLING LOSSES) FOR A TOTAL OF 816.5bbl. TOTAL GAS (NON BURNABLE) 1.385 mmcf, LAST SALINITY= 12635ppm, pH=7.5. TOTAL 4% KCL HAULED TO LOCATION 720.0bbls, TOTAL HAULED TO DISPOSAL 605.0bbls.
12:00	BOPI	Install BOP's	OBSERVE WELL DEAD. DRILLER CUT FINGER MOVING BOPE, SEND TO CASTLE DALE CLINIC FOR MEDICAL ATTENTION. RECIEVED 5 STITCHES AND RETURNED TO WORK.. PUMP 3 bbls 4% KCL DOWN CASING TO SCRUB ANY WELL GAS. WELL ON SLIGHT VACUUM. N/D FRAC HEAD. N/U BOPE.
14:00	PTST	Pressure Test	PRESSURE TEST PIPE RAM VS TUBING HANGER TO 1500psi FOR 15 min AND 100psi FOR 5 min
14:30	TBGR	Run Tubing	M/U 2 3/8 WIRELINE RE ENTRY GUIDE, 4' PUP JOINT OTIS XN NIPPLE AND RUN HOLE ON 260JOINTS 2 3/8" EUE TAG PBTD AT 8177.8ft/KB. PULL BACK AND LAND STRING IN HANGER WITH WLREG AT 8119.19ftKB. TOP OF XN AT 8113.1ftKB.
16:30	WHDI	Install Wellhead	N/D FLOOR AND BOPE. N/U 5000psi WELLHEAD. NO TEST PORT. TURN FLOW TEE AND WING VALVE
18:00	WTST	Well Test	READ AND RECORD PRESSURE BUILD UP.

Daily Operation Reports: 2003-01-26 00:00-2003-01-27 00:00

Weather	T (°F)	Road Condition	Lease Condition	Tubing Pressure (psi)	Casing Pressure (psi)	24 Hrs SCVF (bbm)	24 Hrs SISCVP (psi)	H2S < 1% (ppm)	H2S > 1% (%)
CLEAR	45.0	WET SPOTS DUE TO RUNOFF	GOOD	0.0	25.0			7	

Time Log

Start Date	Code	Activity	Comment
00:00	WTST	Well Test	READ AND RECORD PRESSURES. SITP=0, SICP=25psi.
07:30	SMTG	Safety Meeting	HOLD OPERATIONAL SAFETY MEETING WITH POOL AND NORTHLAND TESTERS. LEAVE LEAVE DAILY UPDATE ON THE VOICE MAIL OF CATHERINE WOODFIELD (U.S. FORESTRY SERVICE). TO DATE 6 TANDEM GRAVEL TRUCK LOADS OF ROAD BASE (ROUGH GRAVEL) FOR LEASE MAINTENANCE AND 10 LOADS FOR ACCESS ROAD MAINTENANCE DUE TRAFIC AND MELTING SNOW.
08:00	SWAB	Swabbing	R/U TO SWAB. UNSPOOL 500' SAND LINE AND VISUALLY INSPECT, CUT OFF 400' AND POUR NEW ROPE SOCKET. PULL 20 SWABS IN 7 HOURS. RECOVER 120bbls 100% BSW. IFL=2200', FFL=2500', FINAL TP=0, FINAL CP=200psi. SALINITY=18000, pH=7.5. GASSY, NO BURNABLE GAS.
18:00	WTST	Well Test	SECURE WELL. READ AND RECORD

Daily Operation Reports: 2003-01-27 00:00-2003-01-28 00:00

Weather	T (°F)	Road Condition	Lease Condition	Tubing Pressure (psi)	Casing Pressure (psi)	24 Hrs SCVF (bbm)	24 Hrs SISCVP (psi)	H2S < 1% (ppm)	H2S > 1% (%)
PARTLY CLOUDY	49.0	WET SPOTS DUE TO RUN OFF	GOOD	5.0	480.0			10	

Time Log

Start Date	Code	Activity	Comment
00:00	WTST	Well Test	READ AND RECORD PRESSURES. TP BUILT TO 5psi, CP BUILT TO 480psi.
07:30	SMTG	Safety Meeting	HOLD OPERATIONAL SAFETY MEETING WITH POOL AND NORTHLAND. CALL AND LEAVE PROGRESS UPDATE ON VOICE MAIL OF TOM LLOYD, DISTRICT GEOLOGIST USFS, CALL AND LEAVE PROGRESS UPDATE ON VOICE MAIL OF CATHERINE WOODFIELD, SITE INSPECTOR USFS.
07:45	SWAB	Swabbing	R/U TO SWAB WELL ON CLEAN UP. ITP=5psi, ICP=480psi. 10ppm H2S ON DRAEGER 5-60 ppm TUBE. GASSY AND FOAMY. SMELLS LIKE OLD DRILLING MUD. PULL 23 SWABS RECOVER 131.8bbl WATER. FINAL TAG 4000', FINAL PULL 8000'. WELL STARTED TO FLOW ON SWAB 22, WELL FLOWED ON SWAB 23, NON BURNABLE GAS. SALINITY=18000ppm, pH=7. TUBIING PRESSURE 30 PSI, CASING PRESSURE 450 AND FALLING.. FETKETE ATTACHED TO PRODUCTION TESTATTACHMENTS.
18:00	FLOW	Flowback Well on Clean Up	FLOW WELL, READ AND RECORD.

Daily Operation Reports: 2003-01-28 00:00-2003-01-29 00:00

Weather	T (°F)	Road Condition	Lease Condition	Tubing Pressure (psi)	Casing Pressure (psi)	24 Hrs SCVF (bbm)	24 Hrs SISCVP (psi)	H2S < 1% (ppm)	H2S > 1% (%)
LIGHT SNOW TO CLEAR	32.0	WET SPOTS DUE TO RUN OFF	SNOW COVERED (1")	0.0	650.0			0	

Talisman Ener Canada - Job Operational Sum y (Completions)

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16

CONFIDENTIAL

Surface Legal Location	Field Name	Operation Group	KB Elevation (ft)	Ground Elevation (ft)	Plug Back Total Depth (ftKB)
SE SE Sec. 21, T16S-R6E	Middle Mountain	Western	8672.00	8655.00	

Time Log

Start Date	Code	Activity	Comment
00:00	WTST	Well Test	TUBING DIED, CASING PRESSURE BUILT UP TO 650psi
07:30	SMTG	Safety Meeting	HOLD OPERATIONAL SAFETY MEETING WITH POOL AND NORTHLAND TESTERS. LEAVE PROGRESS UPDATE ON VOICE MAIL OF USFS SITE INSPECTOR CATHERINE WOODFIELD. CHECKED CASING GAS, OFF SCALE (OVER 100% LEL). 0ppm H2S. TEST EMERGENCY KILL, TEST WARNING DEVICE.
07:45	SWAB	Swabbing	CATHERINE WOODFIELD SITE INSPECTOR U.S.FORESTRY SERVICE PAID VISIT TO LOCATION. TOOK SOME PICTURES THEN CAME AND SAID GOODBYE. SHE SAID HER PART OF SITE MONITORING IS OVER. SHE REFERRED ME TO TOM LLOYD FOR SUSPENTION INSPECTION INSTRUCTIONS. R/U TO SWAB. PULL 22 SWABS , RECOVER 97.0 bbls WATER, TP=0, CP=190psi, FINAL TAG AT 7500', FINAL PULL FROM 8000'. SALINITY=13000ppm, pH=7.0. CASING GAS WAS 100% OF LEL, BEST TUBING GAS WAS 50% OF LEL.
17:00	WTST	Well Test	R/U AND SEND CASING GAS TO FLARE. SOME BURNABLE GAS.
18:00	WHDI	Install Wellhead	LEAVE CASING AND TUBING OPEN TO P TANK. OBSERVE WELL.

Daily Operation Reports: 2003-01-29 00:00-2003-01-30 00:00

Weather	T (°F)	Road Condition	Lease Condition	Tubing Pressure (psi)	Casing Pressure (psi)	24 Hrs SCVF (bbm)	24 Hrs SISCVP (psi)	H2S < 1% (ppm)	H2S > 1% (%)
CLEAR	32.0	WET SPOTS DUE TO RUN OFF	GOOD	0.0	0.0			0	

Time Log

Start Date	Code	Activity	Comment
00:00	WTST	Well Test	WELL OPEN TO P TANK, NO RECORDABLE FLOW.
07:30	SMTG	Safety Meeting	HOLD OPERATIONAL SAFETY MEETING WITH POOL AND NORTHLAND. FUNCTION EMERGENCY MOTOR KILL, FUNCTION WARNING DEVICE.
07:45	SWAB	Swabbing	R/U TO SWAB. PULL 24 SWABS RECOVER 79bbls WATER. IFL=5400', FFL=7800'. SALINITY 12000ppm, pH=7.0. FINAL TP=0. FINAL CP=137psi. CASING PRESSURE BUILT FROM 0 TO 191psi BY SWAB 17 THEN STARTED TO DROP ENDING AT 137psi. TUBING GAS REGISTERED 80% ON LEL METER, SOME WISPING AT THE FLARE STACK.
17:15	SIFN	Shut in for Night	DRAIN LINES, SECURE WELL.
18:00	WTST	Well Test	READ AND RECORD PRESSURE.

Daily Operation Reports: 2003-01-30 00:00-2003-01-31 00:00

Weather	T (°F)	Road Condition	Lease Condition	Tubing Pressure (psi)	Casing Pressure (psi)	24 Hrs SCVF (bbm)	24 Hrs SISCVP (psi)	H2S < 1% (ppm)	H2S > 1% (%)
PARTLY CLOUDY	44.0	WET SPOTS DUE TO RUN OFF	GOOD	91.0	380.0			0	

Time Log

Start Date	Code	Activity	Comment
00:00	WTST	Well Test	READ AND RECORD PRESSURES
07:30	SMTG	Safety Meeting	PERFORM LEASE/RIG WALK AROUND. HOLD OPERATIONAL SAFETY MEETING WITH POOL AND NORTHLAND. TEST EMERGENCY KILL. . TEST WARNING DEVICE
07:45	SWAB	Swabbing	TP=91psi, CP=380psi. BLEED OFF TUBING PRESSURE TO FLARE. IT BLED OFF IN 2 MINUTES, SMALL BLUE FLAME ABOUT 12" HIGH AT FLARE STACK. R/U TO SWAB. PULL 23 SWABS, RECOVER 62bbls WATER. IFL=5800', FFL=7500', SALINITY=9000, pH=7.0. WENT TO 1/2 hr SWABS AT 1530. SITE VISIT BY TOM LLOYD SENIOR GEOLOGIST, UNITED STATES FORESTRY SERVICE. NO ISSUES DEFINED.
17:30	WTST	Well Test	PREPARE FOR COLD WEATHER START. SECURE WELL. READ AND RECORD PRESSURES.

Daily Operation Reports: 2003-01-31 00:00-2003-02-01 00:00

Weather	T (°F)	Road Condition	Lease Condition	Tubing Pressure (psi)	Casing Pressure (psi)	24 Hrs SCVF (bbm)	24 Hrs SISCVP (psi)	H2S < 1% (ppm)	H2S > 1% (%)
CLEAR	41.0	WET SPOTS DUE TO RUN OFF	GOOD	51.0	326.0			0	

Time Log

Start Date	Code	Activity	Comment
00:00	WTST	Well Test	READ AND RECORD PRESSURES; TP=51psi, CP=326psi.
07:30	SMTG	Safety Meeting	PERFORM LEASE/R IG WALK AROUND. HOLD OPERATIONAL SAFETY MEETING WITH POOL, NORTHLAND AND NIELSON CONST.

Talisman Ener Canada - Job Operational Sum y (Completions)

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16

CONFIDENTIAL

Surface Legal Location	Field Name	Operation Group	KB Elevation (ft)	Ground Elevation (ft)	Plug Back Total Depth (ftKB)
SE SE Sec. 21, T16S-R6E	Middle Mountain	Western	8672.00	8655.00	

Time Log

Start Date	Code	Activity	Comment
07:45	SWAB	Swabbing	RECIEVED WORD FROM DON HAMILTON, TALON RESOURCES, THAT AN EXTENSION HAD BEEN GRANTED TO FEBRUARY 2, 2003. THE LEASE MUST BE LEFT GARBAGE FREE, WELLHEAD CHAINED AND LOCKED, LEASE GATE CLOSED AND LOCKED AND THE GATE HALF WAY DOWN THE MOUNTAIN MUST BE CLOSED. THE FORESTRY WOULD LOCK IT LATER IN THE WEEK. R/U TO SWAB. PULL 21 SWABS RECOVER 56bbls WATER. IFL=6100', FFL=7500'., FINAL CASING PRESSURE IS 132, SALINITY 11000ppm. pH=7.0 TAKE LOW PRESSURE GAS SAMPLES, 2 FROM CASING AND 2 FROM TUBING.TALON RESOURCES TO SEND FOR ANALYSIS, WITH INSTRUCTIONS ATTENTION STUART MCCONKEY. CLEAN UP GARBAGE FROM PREVIOUS OPERATION THAT HAD BECOME EXPOSED FROM UNDER ICE AND SNOW (CABLES, ROPES CORDS), PICK UP BOTTLES AND CANS FROM THE SIDE OF THE LEASE ROAD.
17:15	WTST	Well Test	PREPARE FOR COLD WEATHER START. READ AND RECORD.

Daily Operation Reports: 2003-02-01 00:00-2003-02-02 00:00

Weather	T (°F)	Road Condition	Lease Condition	Tubing Pressure (psi)	Casing Pressure (psi)	24 Hrs SCVF (bbm)	24 Hrs SISCVP (psi)	H2S < 1% (ppm)	H2S > 1% (%)
OVERCAST	37.0	WET SPOTS DUE TO RUN OFF	GOOD	41.0	286.0			0	

Time Log

Start Date	Code	Activity	Comment
00:00	WTST	Well Test	READ AND RECORD BUILD UPS. TP=40psi, CP=287psi.
07:30	SMTG	Safety Meeting	PERFORM LEASE/RIG WALK AROUND HOLD OPERATIONAL SAFETY MEETING WITH NORTHLAND, POOL AND RNI DRIVER.
07:45	SWAB	Swabbing	TAKE 2 HIGH PRESSURE GAS SAMPLE FROM CASING GAS, TAKE 2 HIGH PRESSURE GAS SAMPLES FROM SWAB NUMBER 12, TALE 2 HIGH PRESSURE GAS SAMPLES FROM CASING AFTER AN 10 MINUTES BLOW DOWN. SEND 10 DAILY WATER SAMPLES AND 2 SLUDGE SAMPLES ALONG WITH GAS SAMPLES FOR TESTING AT WESTERN ENVIRONMENTAL, EVANSTON, WYOMING, WITH THE INSTRUCTION TO CALL STUART McCONKEY OR AL LESINSZKI FOR TEST INSTRUCTION. R/U TO SWAB. PULL 17 SWABS ON 2 3/8" TUBING. RECOVER 44.8bbls, IFL=6100', FFL=7400' PULL FROM 8000'. SALINITY =11000ppm, pH=7.0. FINAL CASING PRESSURE=132psi, FINAL TUBING PRESSURE=0.
16:00	RIG	Rig Up/Down	RIG DOWN TEST EQUIP AND SERVICE RIG TO PREPARE FOR EARLY MOVE ON FROST. CHAIN AND LOCK WELLHEAD.

Daily Operation Reports: 2003-02-02 00:00-2003-02-03 00:00

Weather	T (°F)	Road Condition	Lease Condition	Tubing Pressure (psi)	Casing Pressure (psi)	24 Hrs SCVF (bbm)	24 Hrs SISCVP (psi)	H2S < 1% (ppm)	H2S > 1% (%)
SNOW STORM	22.0	VERY SLIPPERY	SLIPPERY						

Time Log

Start Date	Code	Activity	Comment
07:00	RIG	Rig Up/Down	PERFORM LEASE INSPECTION. THERE WAS A ONE INCH OF SNOW FALL OVER NIGHT. LEASE SLIPPERY, ACCESS ROAD SLIPPERY. PLOUGH ACCESS ROAD WITH GRADER. MOVE OUT SERVICE RIG, DOG HOUSE, POOL TRAILER, 2 TON TRUCK , TOILET AND PROPANE TANK. BRING IN CRANE AND 3 HI-BOY TRAILERS. MOVE OUT TEST EQUIPMENT. BACK LOAD EXCESS TUBING AND WELLHEAD PIECES TO AZTEC PIPE YARD. BACKLOAD WEATHERFORD EQUIPMENT. RETURN TRASH BIN. MOVE OUT SURFACE STORAGE TANKS. WATERS TRUCKS COMING FROM ROOSEVELT HAD A FOOT OF SNOW AND HEAVY DRIFTING COMING OVER THE PASS. ALL EQUIPMENT HAS TO USE THAT ROAD RETURN TO BASE. WELL WATER RECOVERY AFTER COMPLETION LOAD FLUID= 947bbls BY DISPOSAL TICKETS OR 937.3bbls BY TESTER (NORTHLAND) MEASUREMENTS. ALL COMPLETION FLUID SENT TO DISPOSAL , RNI ROOSEVELT. LIGHT SNOW IN MORNING TURNED TO HEAVY SNOW BY 1100hrs WHITE OUT CONDITIONS AFTER 12OOHOURS ON TOP OF MOUNTAIN.

Talisman Ener Canada - Job Operational Sum y (Completions)

Well Name: FORTUNA MIDDLE MOUNTAIN #21-16

CONFIDENTIAL

Surface Legal Location	Field Name	Operation Group	KB Elevation (ft)	Ground Elevation (ft)	Plug Back Total Depth (ftKB)
SE SE Sec. 21, T16S-R6E	Middle Mountain	Western	8672.00	8655.00	

Time Log

Start Date	Code	Activity	Comment
17:00			WELLHEAD BULLPLUGGED, CHAINED AND LOCKED. STEEL GATE TO LEASE CLOSED AND LOCKED. STEEL GATE HALF WAY UP THE COTTONWOOD CANYON ROAD CLOSED BUT NOT LOCKED AS USFS REQUESTED. RIG MOVE COSTS TO FOLLOW. SUSPEND WELL OPERATIONS.

Daily Operation Reports: 2003-02-03 00:00-2003-02-04 00:00

Weather	T (°F)	Road Condition	Lease Condition	Tubing Pressure (psi)	Casing Pressure (psi)	24 Hrs SCVF (bbm)	24 Hrs SISCVP (psi)	H2S < 1% (ppm)	H2S > 1% (%)
CLEAR		SNOW COVERED	SNOW COVERED						

Time Log

Start Date	Code	Activity	Comment
08:00	OTHR	Other Operations	CHECK MIDDLE GATE ON ACCESS ROAD IS CLOSED. IT WAS, FRED THE WELL CHECKER HAS AND DID ACCESS. GO TO EMERY COUNTY SHERIFF'S OFFICE, IN ORANGEVILLE, AND INFORM THEM OF THE SUSPENSION OF OPERATIONS. GO TO TALON RESOURCES OFFICE IN HUNTINGTON AND GIVE WELLHEAD KEY AND LEASE KEY TO DON HAMILTON FOR SAFE KEEPING. GO TO NIELSON CONSTRUCTION AND GET MAINTENANCE TICKETS, RIG MOVE TICKETS ARE OUTSTANDING AS TRUCKS ARE STILL ON THE ROAD. GO TO AMERI-KAN IN DUCHESNE AND SETTLE ACCOUNT, GO TO ROCKET TRUCKING IN DUCHESNE, AND SETTLE ACCOUNT. GO TO POOL IN ROOSEVELT AND SETTLE LAST TICKET FOR SERVICE RIG. GO TO RNI IN ROOSEVELT AND SETTLE ACCOUNT. THE COMPANY HAS STATE LICENSES TO OPERATE DISPOSAL PONDS AND DISPLAY THEM ON THE WALL. PROCEDE TO VERNAL AND FIND A ROOM.

Daily Operation Reports: 2003-02-04 00:00-2003-02-05 00:00

Weather	T (°F)	Road Condition	Lease Condition	Tubing Pressure (psi)	Casing Pressure (psi)	24 Hrs SCVF (bbm)	24 Hrs SISCVP (psi)	H2S < 1% (ppm)	H2S > 1% (%)
		SNOW COVERED	SNOW COVERED						

Time Log

Start Date	Code	Activity	Comment
00:00	OTHR	Other Operations	GO TO WEATHERFORD, HALIBURTON WIRELINE SHOP AND AZTEC PIPE YARD (MT 35992= 42 JOINTS 2 3/8 J 55 EUE 4.7# 35 GOOD 7DAMAGED, 4 1/16" FRAC HEAD, 7" 3000 X 11" 3000 TUBING SPOOL, 1 USED 3 3/4" BIT, STUDS AND NUTS, THREE RING GASKETS USED.)

035

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

AMENDED REPORT ☐ (highlight changes) FORM 8

WELL COMPLETION OR RECOMPLETION REPORT AND LOG

5. LEASE DESIGNATION AND SERIAL NUMBER: UTU-77263
6. IF INDIAN, ALLOTTEE OR TRIBE NAME: N/A
7. UNIT or CA AGREEMENT NAME: N/A
8. WELL NAME and NUMBER: Middle Mountain #21-16
9. API NUMBER: 4301530426
10 FIELD AND POOL, OR WILDCAT: Wildcat
11. QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: SESE 21 16S 6E
12. COUNTY: Emery
13. STATE: UTAH

1a. TYPE OF WELL: OIL WELL ☐ GAS WELL ☑ DRY ☐ OTHER CONFIDENTIAL

b. TYPE OF WORK: NEW WELL ☑ HORIZ. LATS. ☐ DEEP-EN ☐ RE-ENTRY ☐ DIFF. RESVR. ☐ OTHER

2. NAME OF OPERATOR: Fortuna (US), Inc.

3. ADDRESS OF OPERATOR: 3400, 888 - 3 St. S.W. CITY Calgary STATE AB ZIP T2P 5C5

PHONE NUMBER: (403) 237-1234

4. LOCATION OF WELL (FOOTAGES)
AT SURFACE: 1309' FSL and 834' FEL
AT TOP PRODUCING INTERVAL REPORTED BELOW: SE/4 SE/4, Sec. 21, T16S, R6E, SLB & M
AT TOTAL DEPTH: BHL: 1502 FSL 885 FEL Essentially Vertical Hole 1-3° deviation MAX./DKD

14. DATE SPUDDED: 10/28/2002
15. DATE T.D. REACHED: 12/27/2002
16. DATE COMPLETED: 2/4/2003 ABANDONED ☐ READY TO PRODUCE ☑
17. ELEVATIONS (DF, RKB, RT, GL): 8627.0 (GL)

18. TOTAL DEPTH: MD 8,240 TVD 8,235
19. PLUG BACK T.D.: MD 8,178 TVD
20. IF MULTIPLE COMPLETIONS, HOW MANY? * N/A
21. DEPTH BRIDGE PLUG SET: MD 0 TVD

22. TYPE ELECTRIC AND OTHER MECHANICAL LOGS RUN (Submit copy of each)
Full Wave Sonic, CBL, GR, CCL, see attached (open-hole logs)

23.
WAS WELL CORED? NO ☑ YES ☐ (Submit analysis)
WAS DST RUN? NO ☑ YES ☐ (Submit report)
DIRECTIONAL SURVEY? NO ☐ YES ☑ (Submit copy)

24. CASING AND LINER RECORD (Report all strings set in well)

HOLE SIZE	SIZE/GRADE	WEIGHT (#/ft.)	TOP (MD)	BOTTOM (MD)	STAGE CEMENTER DEPTH	CEMENT TYPE & NO. OF SACKS	SLURRY VOLUME (BBL)	CEMENT TOP **	AMOUNT PULLED
17.50	13.4 H-40	48.00	0	1,080	1,080	'G' 1,810	393	0.0	
12.25	9.6 J-55	36.00	0	4,413	4,417	'G' 1,975	1,036	0.0	
8.75	7.0 J-55	26.00	0	7,690	7,690	'G' 304	444	3913.0	
6.125	4.5 P-110	13.50	0	8,240	8,240	'G' 211	102	3428.0	

25. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)	SIZE	DEPTH SET (MD)	PACKER SET (MD)	SIZE	DEPTH SET (MD)	PACKER SET (MD)
2.375	8,119	0						

26. PRODUCING INTERVALS

FORMATION NAME	TOP (MD)	BOTTOM (MD)	TOP (TVD)	BOTTOM (TVD)
(A) Ferron	7,734	8,205		
(B)				
(C)				
(D)				

27. PERFORATION RECORD

INTERVAL (Top/Bot - MD)	SIZE	NO. HOLES	PERFORATION STATUS
8,122 8,137	3.38	6	Open ☑ Squeezed ☐
			Open ☐ Squeezed ☐
			Open ☐ Squeezed ☐
			Open ☐ Squeezed ☐

28. ACID, FRACTURE, TREATMENT, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL	AMOUNT AND TYPE OF MATERIAL
8122.0 - 8137.5	Frac - 412.0 bbl Gelled Salt Water + CO2 + 50,000 lbs of 20/40 Sand

29. ENCLOSED ATTACHMENTS:
☐ ELECTRICAL/MECHANICAL LOGS ☐ GEOLOGIC REPORT ☐ DST REPORT ☑ DIRECTIONAL SURVEY
☐ SUNDRY NOTICE FOR PLUGGING AND CEMENT VERIFICATION ☐ CORE ANALYSIS ☐ OTHER:

30. WELL STATUS: TA ~~Suspended~~

RECEIVED
MAR 0 7 2003
DIV. OF OIL, GAS & MINING

(5/2000) (CONTINUED ON BACK)

31. INITIAL PRODUCTION

INTERVAL A (As shown in item #26)

DATE FIRST PRODUCED:		TEST DATE:		HOURS TESTED:		TEST PRODUCTION RATES: ▯	OIL – BBL:	GAS – MCF:	WATER – BBL:	PROD. METHOD:
CHOKE SIZE:	TBG. PRESS.	CSG. PRESS.	API GRAVITY	BTU – GAS	GAS/OIL RATIO	24 HR PRODUCTION RATES: ▯	OIL – BBL:	GAS – MCF:	WATER – BBL:	INTERVAL STATUS:

INTERVAL B (As shown in item #26)

DATE FIRST PRODUCED:		TEST DATE:		HOURS TESTED:		TEST PRODUCTION RATES: ▯	OIL – BBL:	GAS – MCF:	WATER – BBL:	PROD. METHOD:
CHOKE SIZE:	TBG. PRESS.	CSG. PRESS.	API GRAVITY	BTU – GAS	GAS/OIL RATIO	24 HR PRODUCTION RATES: ▯	OIL – BBL:	GAS – MCF:	WATER – BBL:	INTERVAL STATUS:

INTERVAL C (As shown in item #26)

DATE FIRST PRODUCED:		TEST DATE:		HOURS TESTED:		TEST PRODUCTION RATES: ▯	OIL – BBL:	GAS – MCF:	WATER – BBL:	PROD. METHOD:
CHOKE SIZE:	TBG. PRESS.	CSG. PRESS.	API GRAVITY	BTU – GAS	GAS/OIL RATIO	24 HR PRODUCTION RATES: ▯	OIL – BBL:	GAS – MCF:	WATER – BBL:	INTERVAL STATUS:

INTERVAL D (As shown in item #26)

DATE FIRST PRODUCED:		TEST DATE:		HOURS TESTED:		TEST PRODUCTION RATES: ▯	OIL – BBL:	GAS – MCF:	WATER – BBL:	PROD. METHOD:
CHOKE SIZE:	TBG. PRESS.	CSG. PRESS.	API GRAVITY	BTU – GAS	GAS/OIL RATIO	24 HR PRODUCTION RATES: ▯	OIL – BBL:	GAS – MCF:	WATER – BBL:	INTERVAL STATUS:

32. DISPOSITION OF GAS (Sold, Used for Fuel, Vented, Etc.)

33. SUMMARY OF POROUS ZONES (Include Aquifers):

Show all important zones of porosity and contents thereof: Cored intervals and all drill-stem tests, including depth interval tested, cushion used, time tool open, flowing and shut-in pressures and recoveries.

34. FORMATION (Log) MARKERS:

Formation	Top (MD)	Bottom (MD)	Descriptions, Contents, etc.	Name	Top (Measured Depth)

35. ADDITIONAL REMARKS (Include plugging procedure)

36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records.

NAME (PLEASE PRINT) Janet Kully TITLE Drilling/Completions Administrator

SIGNATURE Janet Kully DATE 2/24/2003

This report must be submitted within 30 days of

- completing or plugging a new well
- drilling horizontal laterals from an existing well bore
- recompleting to a different producing formation
- reentering a previously plugged and abandoned well
- significantly deepening an existing well bore below the previous bottom-hole depth
- drilling hydrocarbon exploratory holes, such as core samples and stratigraphic tests

* ITEM 20: Show the number of completions if production is measured separately from two or more formations.

** ITEM 24: Cement Top – Show how reported top(s) of cement were determined (circulated (CIR), calculated (CAL), cement bond log (CBL), temperature survey (TS)).

Send to: Utah Division of Oil, Gas and Mining
1594 West North Temple, Suite 1210
Box 145801
Salt Lake City, Utah 84114-5801

Phone: 801-538-5340

Fax: 801-359-3940

(5/2000)

MUD ENGINEER:	Don Helms with Baroid
WELLSITE GEOLOGIST:.	Bill Hedglin
MUDLOGGING COMPANY:	DATALOG – Calgary Alberta, Canada
MUDLOGGING ENGINEER:	Gord Bennett
GAS DETECTION:	Total gas and chromatograph
WATER & ROAD WORK:	Nielson Construction Co.
HOLE SIZE:	17.5" to 1125' 12.25" from 1125' to 4421' 8.75" from 4421' to 7690' 6.25" from 7690' to total depth
CASING:	25 joints of 13 3/8" 48 lb. H40 set at 1063.7' G.L. 9 5/8" J-55 36# set at 4413' K.B. 7" 26# J-55 set at 7689' K.B.
DRILL STEM TEST(S):	None
CORE PROGRAM:	Coring in the Ferron was abandoned due to adverse hole conditions.
ELECTRIC LOGGING:	Run No. 1 at 2775' by Schlumberger Hugo Gonzalez – engineer – Rock Springs, Wyoming String 1 – AITH-TLD-PEFZ-CNL-GR-BHC, surface casing to TD String 2 – AITH – Misrun String 3 – FMI – surface. casing to TD String 4 – AITH – surface casing to TD Run No. 2 at 4421' by Schlumberger Zenobio Matos – engineer Vernal, Utah String 1 – AITH-TLD-PEFZ-CNL-GR-BHC, surface casing to TD Run No. 3 at 7690' by Schlumberger Marissa Ebert – engineer – Vernal, Utah String 1 – BHC – FMI- GR, casing to 7256' String 2 - BHC-GR, TD to 7256' String 3 - AITH-TLD-PEFZ-CNL-GR-BHC, casing to TD

logs to be forwarded shortly)

Run No. 3 at 7690' by Schlumberger
Marissa Ebert, Jill Haynie – engineers – Vernal, Utah
String 1 – AIT-BHC – GR-Caliper, casing to 7811' (Bridge)
String 2 – AIT- BHC-GR-Caliper, Casing to 8225'
String 3 – TLD-PEFZ-CNL-GR, Casing to 8225'
High resolution over bottom 200'

ROCK SAMPLES:

30' samples from 650' to 1125' in 17.5" hole
1125' to 7073' sporadic samples when possible, severe lost circulation and erratic returns.
7073' to 7745' 10' samples, except in lost circulation zones, 7745' to 8225' – 5' samples in Ferron pay zone

SAMPLE DISTRIBUTION:

Three sets of dried samples were made and turned over to the operator.

CORRRELATION WELLS:

Vortt Exploration
No. 3 Indian Creek
SW, SW, SW, Section 2, T 17 S, R 6 E
Emery County, Utah

036

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

AMENDED REPORT ☑ (highlight changes) FORM 8

WELL COMPLETION OR RECOMPLETION REPORT AND LOG

5. LEASE DESIGNATION AND SERIAL NUMBER: UTU-77263
6. IF INDIAN, ALLOTTEE OR TRIBE NAME: N/A
7. UNIT or CA AGREEMENT NAME: N/A
8. WELL NAME and NUMBER: Middle Mountain #21-16
9. API NUMBER: 4301530426
10 FIELD AND POOL, OR WILDCAT: Wildcat
11. QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: SESE 21 16S 6E
12. COUNTY: Emery
13. STATE: UTAH

1a. TYPE OF WELL: OIL WELL ☐ GAS WELL ☑ DRY ☐ OTHER CONFIDENTIAL

b. TYPE OF WORK: NEW WELL ☑ HORIZ. LATS. ☐ DEEP-EN ☐ RE-ENTRY ☐ DIFF. RESVR. ☐ OTHER

2. NAME OF OPERATOR: Fortuna (US), Inc.

3. ADDRESS OF OPERATOR: 3400, 888 - 3 St. S.W. CITY Calgary STATE AB ZIP T2P 5C5

PHONE NUMBER: (403) 237-1234

4. LOCATION OF WELL (FOOTAGES)
AT SURFACE: 1309' FSL and 834' FEL
AT TOP PRODUCING INTERVAL REPORTED BELOW: SE/4 SE/4, Sec. 21, T16S, R6E, SLB & M
AT TOTAL DEPTH:

14. DATE SPUDDED:	15. DATE T.D. REACHED:	16. DATE COMPLETED:	ABANDONED	READY TO PRODUCE	17. ELEVATIONS (DF, RKB, RT, GL):
10/28/2002	12/27/2002	2/4/2003	☐	☑	8627.0 (GL)

18. TOTAL DEPTH:	19. PLUG BACK T.D.:	20. IF MULTIPLE COMPLETIONS, HOW MANY? *	21. DEPTH BRIDGE PLUG SET:
MD 8,240 TVD 8,235	MD 8,178 TVD	N/A	MD 0 TVD

22. TYPE ELECTRIC AND OTHER MECHANICAL LOGS RUN (Submit copy of each)
Full Wave Sonic, CBL, GR, CCL, see attached (open-hole logs)

23.
WAS WELL CORED? NO ☑ YES ☐ (Submit analysis)
WAS DST RUN? NO ☑ YES ☐ (Submit report)
DIRECTIONAL SURVEY? NO ☐ YES ☑ (Submit copy)

24. CASING AND LINER RECORD (Report all strings set in well)

HOLE SIZE	SIZE/GRADE	WEIGHT (#/ft.)	TOP (MD)	BOTTOM (MD)	STAGE CEMENTER DEPTH	CEMENT TYPE & NO. OF SACKS	SLURRY VOLUME (BBL)	CEMENT TOP **	AMOUNT PULLED
17.50	13.4 H-40	48.00	0	1,080	1,080	'G' 1,810	393	0 (CAL)	
12.25	9.6 J-55	36.00	0	4,413	4,417	'G' 1,975	1,036	0 (CAL)	
8.75	7.0 J-55	26.00	0	7,690	7,690	'G' 304	444	3913 (CAL)	
6.125	4.5 J-110	13.50	0	8,240	8,240	'G' 211	102	3428 (CAL)	

25. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)	SIZE	DEPTH SET (MD)	PACKER SET (MD)	SIZE	DEPTH SET (MD)	PACKER SET (MD)
2.375	8,119	0						

26. PRODUCING INTERVALS

FORMATION NAME	TOP (MD)	BOTTOM (MD)	TOP (TVD)	BOTTOM (TVD)
(A) Ferron	7,734	8,205		
(B)				
(C)				
(D)				

27. PERFORATION RECORD

INTERVAL (Top/Bot - MD)	SIZE	NO. HOLES	PERFORATION STATUS
8,122 8,137	3.38	6	Open ☑ Squeezed ☐
			Open ☐ Squeezed ☐
			Open ☐ Squeezed ☐
			Open ☐ Squeezed ☐

28. ACID, FRACTURE, TREATMENT, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL	AMOUNT AND TYPE OF MATERIAL
8122.0 - 8137.5	Frac - 412.0 bbl Gelled Salt Water + CO2 + 50,000 lbs of 20/40 Sand

RECEIVED
MAR 10 2003
DIV. OF OIL, GAS & MINING

29. ENCLOSED ATTACHMENTS:
☐ ELECTRICAL/MECHANICAL LOGS ☐ GEOLOGIC REPORT ☐ DST REPORT ☑ DIRECTIONAL SURVEY
☐ SUNDRY NOTICE FOR PLUGGING AND CEMENT VERIFICATION ☐ CORE ANALYSIS ☐ OTHER:

30. WELL STATUS: TA ~~Suspended~~

(5/2000)

(CONTINUED ON BACK)

31. INITIAL PRODUCTION — **INTERVAL A (As shown in item #26)**

DATE FIRST PRODUCED:		TEST DATE:		HOURS TESTED:		TEST PRODUCTION RATES: ▯	OIL – BBL:	GAS – MCF:	WATER – BBL:	PROD. METHOD:
CHOKE SIZE:	TBG. PRESS.	CSG. PRESS.	API GRAVITY	BTU – GAS	GAS/OIL RATIO	24 HR PRODUCTION RATES: ▯	OIL – BBL:	GAS – MCF:	WATER – BBL:	INTERVAL STATUS:

INTERVAL B (As shown in item #26)

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CHOKE SIZE:	TBG. PRESS.	CSG. PRESS.	API GRAVITY	BTU – GAS	GAS/OIL RATIO	24 HR PRODUCTION RATES: ▯	OIL – BBL:	GAS – MCF:	WATER – BBL:	INTERVAL STATUS:

INTERVAL C (As shown in item #26)

DATE FIRST PRODUCED:		TEST DATE:		HOURS TESTED:		TEST PRODUCTION RATES: ▯	OIL – BBL:	GAS – MCF:	WATER – BBL:	PROD. METHOD:
CHOKE SIZE:	TBG. PRESS.	CSG. PRESS.	API GRAVITY	BTU – GAS	GAS/OIL RATIO	24 HR PRODUCTION RATES: ▯	OIL – BBL:	GAS – MCF:	WATER – BBL:	INTERVAL STATUS:

INTERVAL D (As shown in item #26)

DATE FIRST PRODUCED:		TEST DATE:		HOURS TESTED:		TEST PRODUCTION RATES: ▯	OIL – BBL:	GAS – MCF:	WATER – BBL:	PROD. METHOD:
CHOKE SIZE:	TBG. PRESS.	CSG. PRESS.	API GRAVITY	BTU – GAS	GAS/OIL RATIO	24 HR PRODUCTION RATES: ▯	OIL – BBL:	GAS – MCF:	WATER – BBL:	INTERVAL STATUS:

32. DISPOSITION OF GAS (Sold, Used for Fuel, Vented, Etc.)

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Show all important zones of porosity and contents thereof: Cored intervals and all drill-stem tests, including depth interval tested, cushion used, time tool open, flowing and shut-in pressures and recoveries.

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Formation	Top (MD)	Bottom (MD)	Descriptions, Contents, etc.	Name	Top (Measured Depth)

35. ADDITIONAL REMARKS (Include plugging procedure)

36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records.

NAME (PLEASE PRINT) Janet Kully TITLE Drilling/Completions Administrator

SIGNATURE Janet Kully DATE 3/4/2003 (Revised)

This report must be submitted within 30 days of

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Send to: Utah Division of Oil, Gas and Mining
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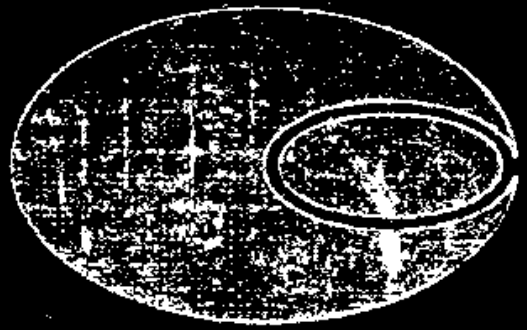
(5/2000)

ECL



Exploration Consultants (Canada) Ltd.
Canada - USA - UK - Australia
Incorporating Décollement Consulting Ltd.

041

CONFIDENTIAL

FORTUNA (U.S.) INC.

FORTUNA MIDDLE MOUNTAIN #21-16

EMERY, UTAH
U.S.A.

RECEIVED
APR 17 2003
DIV. OF OIL, GAS & MINING

PERMIT TO PRACTICE
ECL CANADA

Signature _____

Date _____

PERMIT NUMBER: P 04348

The Association of Professional Engineers, Geologists and Geophysicists of Alberta

CONFIDENTIAL

GEOLOGICAL REPORT

FOR

FORTUNA MIDDLE MOUNTAIN #21-16

SE, SE, SECTION 21, T 16 S, R 6 E

EMERY COUNTY, UTAH, U.S.

Prepared by:

Bill Hedglin
ECL Canada
#200, 1009-7 Ave. S.W.
Calgary, Alberta T2P 1A8
Canada
(403) 263-0449

Prepared for:

Mike Morrison
Fortuna Inc. (U.S.)
Suit 3400, 888 3RD ST. S.W.
Calgary, Alberta, T2P 5C5
(403) 237-1163

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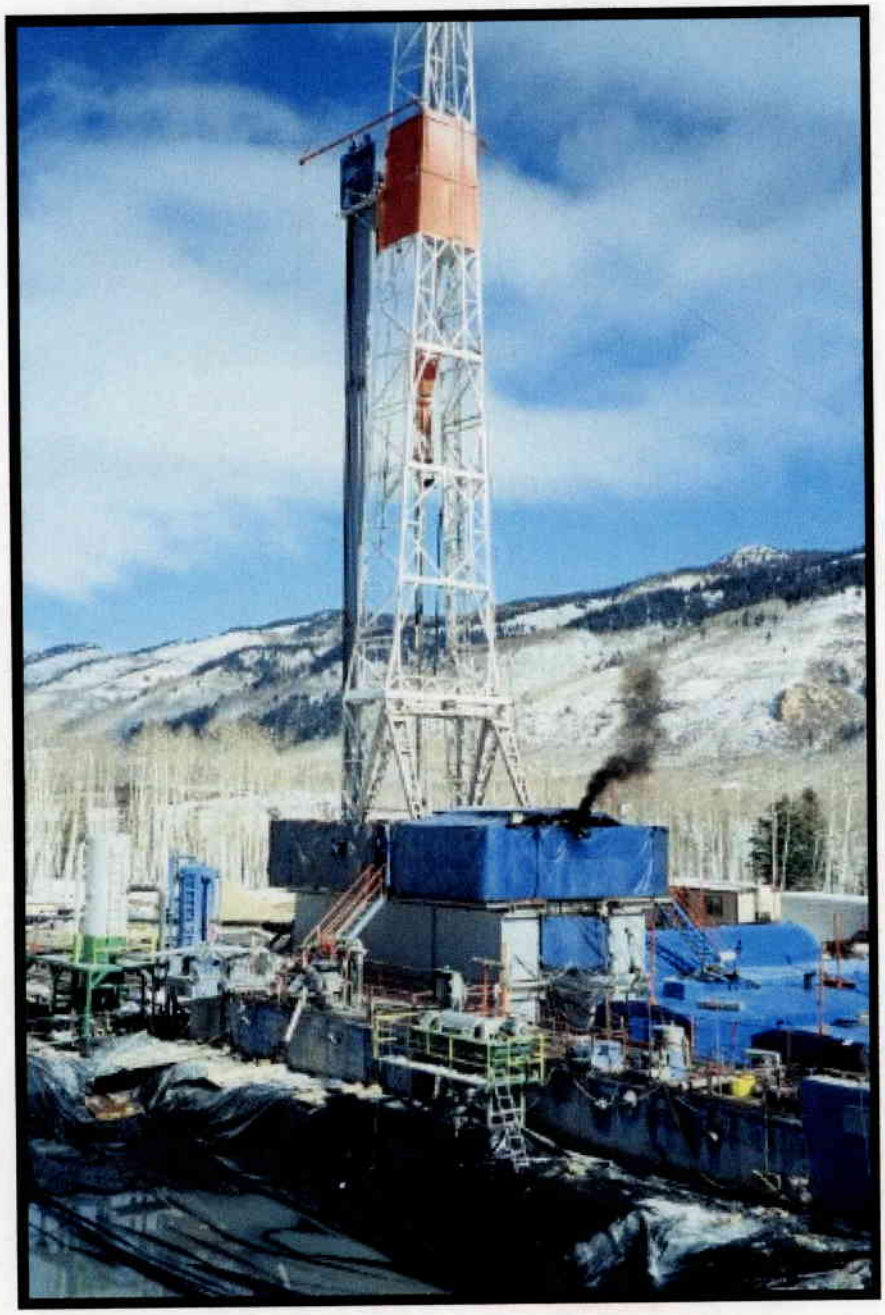
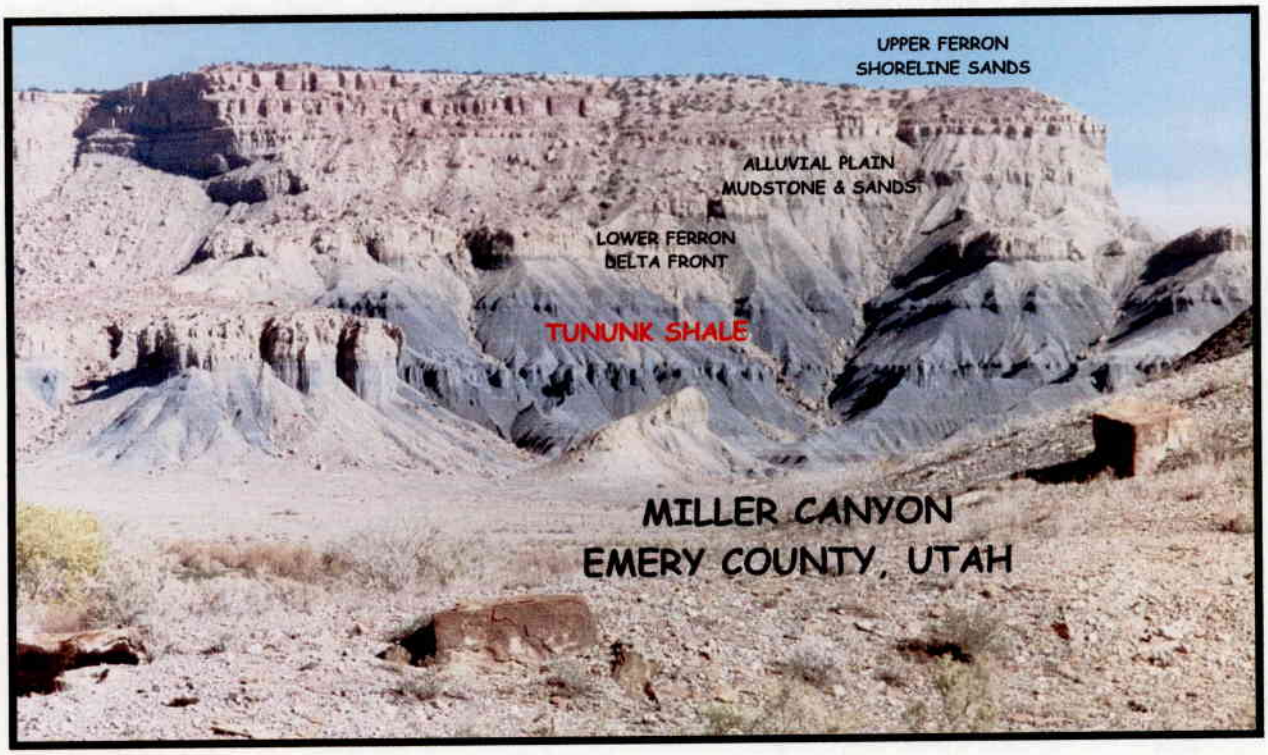


Drill site with Rig#104
Patterson Drilling Co.



Local outcrop representing depositional facies of Ferron FM similar to those encountered in Middle Mountain #21-16.

WELL DATA SUMMARY

OPERATOR:	FORTUNA (U.S.) INC.
ADDRESS:	888 3rd St. S.W., Suite 3400 Calgary, Alberta, T2P 5C5
WELL NAME:	Fortuna Middle Mountain # 21-16
AFE NUMBER:	37511
SURFACE LOCATION:	SE, SE, SECTION 21, T 16 S, R 6 E 1309' FSL, 834' FEL
BOTTOM HOLE LOCATION:	Last survey was at 7690' – N 105 E at 1 degree
COUNTY:	Emery
STATE:	Utah
GEOLOGIC REGION:	Wasatch Plateau
WELL TYPE:	Vertical wildcat
BASIS OF PROSPECT:	Seismic evaluation, with outcrop geological mapping and limited well control
ELEVATION:	G.L. – 8655', K.B. – 8672'
SPUD DATE:	October 28, 2002, 1400 hours
TOTAL DEPTH&DATE:	8240'- driller, at 14:25 on December 27, 2002
STATUS OF WELL:	To be completed as a Ferron gas well.
CONTRACTOR:	Surface hole drilled by Bill Martin Jr. Rathole Drilling, Red Rig # 3 Main hole drilled by Patterson Drilling Co., Rig 104
TOOLPUSHER:	Roger Bromley and Randy Hackford, Patterson 104
DRILLING FOREMAN:	Mel Knezevich, Rod Cuthill (relief), Ernie Natte (relief)

MUD ENGINEER:	Don Helms with Baroid
WELLSITE GEOLOGIST:.	Bill Hedglin
MUDLOGGING COMPANY:	DATALOG – Calgary Alberta, Canada
MUDLOGGING ENGINEER:	Gord Bennett
GAS DETECTION:	Total gas and chromatograph
WATER & ROAD WORK:	Nielson Construction Co.
HOLE SIZE:	17.5" to 1125' 12.25" from 1125' to 4421' 8.75" from 4421' to 7690' 6.25" from 7690' to total depth
CASING:	25 joints of 13 3/8" 48 lb. H40 set at 1063.7' G.L. 9 5/8" J-55 36# set at 4413' K.B. 7" 26# J-55 set at 7689' K.B.
DRILL STEM TEST(S):	None
CORE PROGRAM:	Coring in the Ferron was abandoned due to adverse hole conditions.
ELECTRIC LOGGING:	Run No. 1 at 2775' by Schlumberger Hugo Gonzalez – engineer – Rock Springs, Wyoming String 1 – AITH-TLD-PEFZ-CNL-GR-BHC, surface casing to TD String 2 – AITH – Misrun String 3 – FMI – surface. casing to TD String 4 – AITH – surface casing to TD Run No. 2 at 4421' by Schlumberger Zenobio Matos – engineer Vernal, Utah String 1 – AITH-TLD-PEFZ-CNL-GR-BHC, surface casing to TD Run No. 3 at 7690' by Schlumberger Marissa Ebert – engineer – Vernal, Utah String 1 – BHC – FMI- GR, casing to 7256' String 2 - BHC-GR, TD to 7256' String 3 - AITH-TLD-PEFZ-CNL-GR-BHC, casing to TD

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Marissa Ebert, Jill Haynie – engineers – Vernal, Utah
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High resolution over bottom 200'

ROCK SAMPLES:

30' samples from 650' to 1125' in 17.5" hole
1125' to 7073' sporadic samples when possible, severe lost circulation and erratic returns.
7073' to 7745' 10' samples, except in lost circulation zones, 7745' to 8225' – 5' samples in Ferron pay zone

SAMPLE DISTRIBUTION:

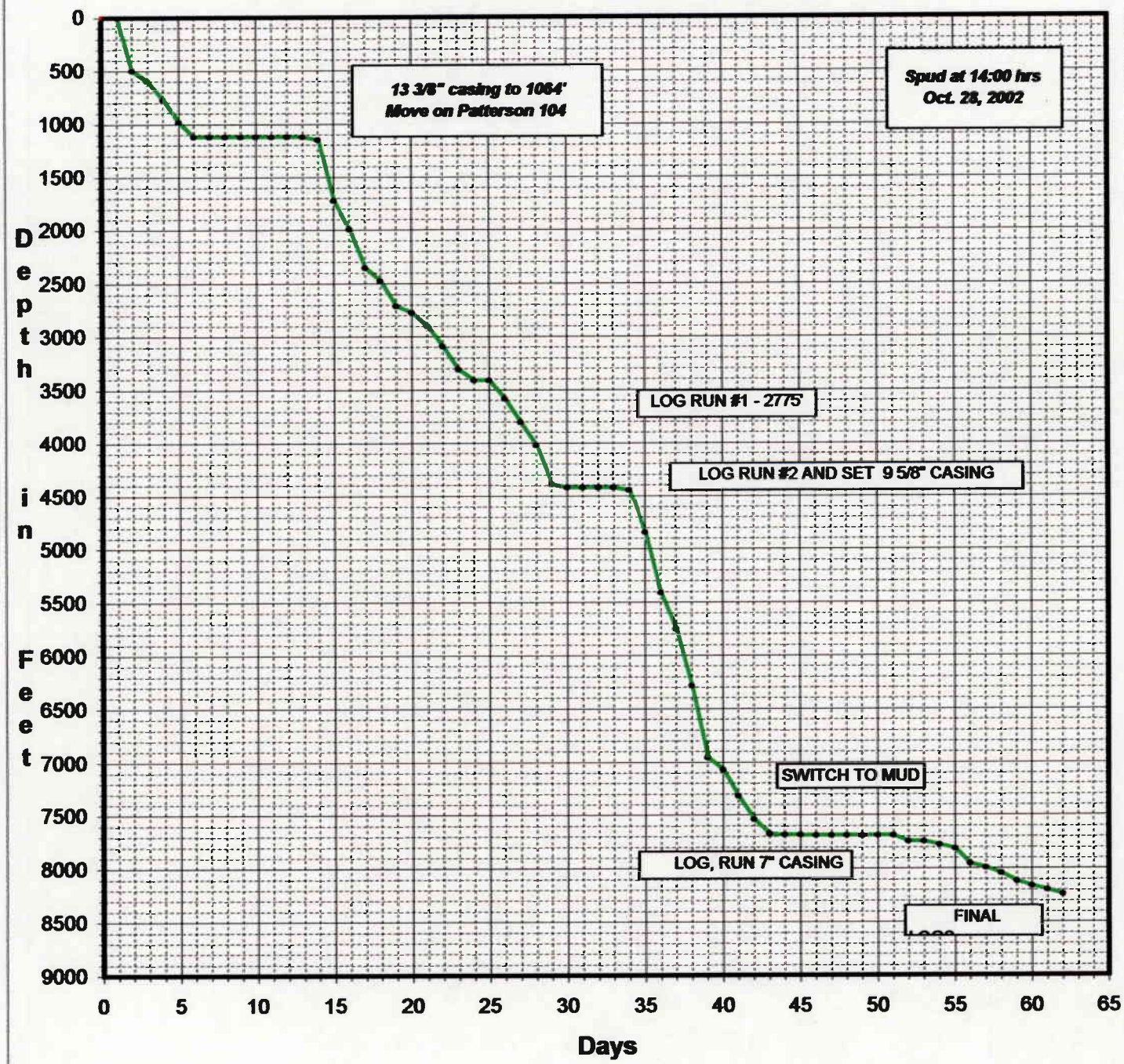
Three sets of dried samples were made and turned over to the operator.

CORRRELATION WELLS:

Vortt Exploration
No. 3 Indian Creek
SW, SW, SW, Section 2, T 17 S, R 6 E
Emery County, Utah

TIME VS DEPTH

Fortuna Middle Mountain #21-16



FORMATION TOPS

FORTUNA MIDDLE MOUNTAIN #21-16

Well Name: / Location: / Elevation:	FORTUNA MIDDLE MOUNTAIN #21-16 SE,SE, SECTION 21, T 16 S, R 6 E, EMERY COUNTY, UTAH G.L. 8655', K.B. 8672'					
FORMATION / ZONE	*PROGNOSIS (ft)*	*SAMPLE TOP*	*E-LOG (ft)*	*SUBSEA (E-Log)*	*THICKNESS*	*+/- TO PROGNOSIS*
PALEOCENE/U.CRETACEOUS						
North Horn	Surface	Surface	--			
UPPER CREATACEOUS						
Price River	450'	450 Est.	831'	7851'	646'	-371.0
Castlegate	940'	955'	1467'	7205'	233'	-527.0
Blackhawk	1105'	1025'	1700'	6972'	1020'	-595.0
Star Point	1925.0	2712'	2712'	5960'	271'	-787.0
Upper Bluegate (Mancos)	2255'	3073'	2983'	5689'	1296'	-728.0
Emery	3075'	4281'	4279'	4393'		-1204.0
Fault within Emery	3500'	Absent				
Lower Bluegate (Mancos)	3895'	5672'	5750'	2908'	1974'	-1860.0
Ferron	5755'	7734'	7738'	934'	466'	-1983.0
Tununk	6205'	8190'	8204'	468'		-1999.0
TOTAL DEPTH	6255'	8240'	8225'	447'		-1985.0
N.P.= Not Present N.R. = Not Reached						

DAILY DRILLING SUMMARY

FORTUNA INC, U.S.

MIDDLE MOUNTAIN #21-16

Date	Depth	Progress	Drilling Hours	ROP (m/hr)	Mud Properties Density	Vis	WL	pH	Operations Summary
28 Oct.	0'	235.00	5.00	47.00					Spud well at 1400 hours, drill 17.5" hole with air/mist
29 Oct.	500'	265.00	11.00	24.10					Wait on daylight, trip in to 235' and drill ahead with air mist. Shut down for the evening at 500'
30 Oct.	600'	100.00	8.50	11.80					Wait on daylight, small amount of water encountered at 500', pressure up to 20 psi. Wiper trip out to the hammer, lay down hammer for bigger one, start Energy Air to location to help lift cuttings.
31 Oct.	775'	175.00	9.00	19.40					Drill ahead in surface hole with air hammer, 10 feet of fill when arriving at morning. WOB 2000, RPM 30, Pump Press. 280
01 Nov.	985'	210.00	9.25	24.30					Drill ahead with water/foam in surface hole, shut down for evening. WOB 2000, RPM 30, Pump Press. 300
02 Nov	1125'	140.00							Drill with air mist to 1125', condition hole, lay down drill pipe, move in crane and set 25 joints of 13 3/8" casing to 1063.7" ground level.
03 Nov.	1125'	0.00	0.00	0.00					Move off Bill Martin Jr. Rathole Drilling rig, wait on Paterson rig. Finish cementing casing from surface.
04 Nov.	1125'	0.00	0.00	0.00					Paterson Drilling Co. Rig 104 begins arriving on location. Crews begin rigging up - daylights only
05 Nov.	1125'	0.00	0.00	0.00					Paterson rig continues to arrive and be rigged up, daylights only
06 Nov.	1125'	0.00	0.00	0.00					Rig loads are on location except for one. Crews rig up. Light plant is operational
07. Nov.	1125'	0.00	0.00	0.00					Continue to rig up
08 Nov.	1125'	0.00	0.00	0.00					Pressure test BOP's and blind rams. Construct blooie line. Trip in and drill out shoe.
09 Nov.	1125'	0.00	0.00	0.00					Trip in with air hammer. No shoe integrity, leaks off slowly at 100 psi
10 Nov.	1152'	27'	0.50	54.00					Drill ahead with air/mist, taking on water.
11 Nov.	1722'	570'	17.50	32.6'					Trip in with bit and drill with water/air
12 Nov.	1996'	274.00	15.00	18.20					Drill , trip for shock sub at 1975', pick up six drill collars, drill ahead
13 Nov.	2354'	358'	17.50	20.45					Drill ahead
14 Nov.	2476'	122'	13.00	9.40					Drill to 2391, trip for bit, run directional survey, Drill ahead.
15 Nov.	2713'	237.00	20.00	11.85					Drill , run surveys
16 Nov.	2775'	62'	6.00	10.33					Drill to 2775', run wiper trip, wait on loggers, trip out, run logs with Schlumberger,
17 Nov.	2902'	127'	8.00	15.80					Run logs with Schlumberger, trip in and drill

18 Nov.	3093'	191'	20.50	9.31					Drill ahead in Starpoint and Mancos in 12.25" hole
19 Nov.	3310'	217'	21.50	10.09					Drill Mancos, run survey, become stuck for 4 hours at 3293', drill ahead to 3310', losing circulation, trip out 1000' and attempt to regain returns
20 Nov.	3413'	103'	6.00	17.16					Drill ahead blind for two joints, regains returns and drill ahead. Twist off bit, bit sub, monel collar, and 2 D.C. at 3413'. Wait on fishing tools.
21 Nov.	3413'	0'	0'	0'					Retrieve fish on third try, trip in to drill, survey line breaks, trip out for survey line
22 Nov.	3584'	171'	12.50	13.68					Finish trip for survey line, drill ahead, lose returns at 3584', attempt to regain returns
23 Nov.	3807'	223'	17.00	13.11					Attempt to gain returns, drill ahead blind, with hole occassionally unloading cuttings
24 Nov.	4023'	216'	17.50	12.34					Drill ahead, trip at 3918' for loss of pump pressure, trip in and drill ahead.
25 Nov.	4391'	368'	21.50	17.11					Drill ahead to 4391', stop for logs.
26 Nov.	4421'	30'	0.75	40.00					Drill ahead to 4421', run wiper trip, trip out, wait on loggers, logging truck transmission fails, and cannot get to site, wait on new truck, start logging.
27 Nov.	4421'	0'	0.00	0.00					Finish logging, rig down loggers, run 9 5/8" casing, cement truck breaks down, wait on new cement truck
28 Nov.	4421'	0'	0.00	0.00					Cement casing, wait on cement, wait on welder for BOP's
29 Nov.	4421'	0'	0.00	0.00					Wait on welder - Thanksgiving
30 Nov.	4448'	27.00	2.50	10.80					Nipple up, test BOP, trip and drill 8.75" hole, lose returns 5' under shoe, drill ahead with air mist
1 Dec.	4843'	395'	13.00	30.38					Switch to aerated water, drill, trip at 4631', drill ahead, survey
2 Dec.	5410'	567'	21.50	26.37					Drill in Emery, run surveys
3 Dec.	5752'	342'	21.50	15.90					Drill Emery and Lower Bluegate
4 Dec.	6287'	535'	16.00	33.43					Drill Lower Bluegate, trip for bit at 5765', drill ahead
5 Dec.	6956'	669'	18.25	36.16					Drill Lower Bluegate, unload well after large water zone drilled, drill ahead, survey, unload and clean hole
6 Dec.	7073'	117'	4.50	26.00					Drill to 7073', begin tripping out to convert to mud, first few joints are tight. Trip in open ended to casing, pump mud and LCM, gain circulation, Trip out and pick up bit. Trip in hole
7 Dec.	7318'	245'	19.00	12.89	8.5	52	16	8.5	Finish trip, drill ahead, work on pump, shake out LCM, drill, lose circulation at 7304, build volume, drill on.
8 Dec.	7540'	222'	15.25	14.55	8.8	44	13.2	8.5	Drill, run wiper trip at 7455' for tight hole, drill, lose circulation at 7473', mix mud and LCM, drill on

9 Dec.	7709'	169'	12.00	14.08	8.4	63	15	8.0	Drill, circulate samples, drill, lose circulation at 7709', approx. 1000 bbls., work stuck pipe
10 Dec.	7719'	10'	1.00	6.00	8.5	43	11	8.2	Get pipe free, trip out to check bit, trip in slowly, ream to bottom. Drill 10', circulate, trip out for logs, hit bridge at 7256' with first log, log up from bridge
11 Dec.	7719'	0'	0'	0.00	8.5	44	9	8.0	Trip in to condition hole, plug bit at base of casing, trip out for bit, trip in and condition hole.
12 Dec.	7690'	3'	0'	0.00	8.5	60	10	8.0	Trip out for plugged bit, trip in drill 3', condition hole, run wiper trip, make uphole depth correction.
13 Dec.	7690'	0'	0.00	0.00	8.5	80	9	8.0	Trip out for logs, run logs TD to casing, begin running VSP
14 Dec.	7690'	0'	0.00	0.00					Finish VSP, trip in and circulate, begin laying down pipe.
15 Dec.	7690'	0'	0.00	0.00					Lay down drill pipe, run 7" casing in hole.
16 Dec.	7690'	0'	0.00	0.00					Cement casing with Schlumberger, WOC, unload slim hole equipment, pressure test blind rams, trip in with 6.25" bit, pick up drill pipe
17 Dec.	7690'	0'	0.00	0.00					Trip in hole, wait on ram blocks, run pressure test
18 Dec.	7745'	55'	2.00	30.00					Drill 6.25" hole to core point at 7745'. Trip out, pick up core barrel, trip in with barrel.
19 Dec.	7745'	0.00	0.00	0.00	8.4	45	12	7.0	Trip in with core barrel, clean hole, become stuck, mix mud, get loose, trip out core barrel, trip in with bit and condition for coring.
20 Dec.	7778'	33'	2.25	14.66'	9.5	48	8.4	9.5	Abandon coring, drill ahead with hole caving badly.
21 Dec.	7814'	36'	5.50	6.65'	10.4	60	8.4	N/A	Condition hole, raise mud weight to 10.4, and drill ahead, lose circulation at 7814', mix Bicarb, drill ahead.
22 Dec.	7955'	141'	22.00	6.40	10.2	52	8.4	8.5	Drill Ferron
23 Dec.	7996'	41'	8.50	4.97	10.2	45	8	N/A	Drill, trip for bit at 7996', hit bridge at 7763' on trip in, ream bridges from 7763'-7814'.
24 Dec.	8045'	49'	11.00	4.45	10.2	54	7.2	8.5	Ream to bottom and drill ahead in Ferron
25 Dec.	8120'	75'	16.75	4.47	10	56	7.2	9.5	Drill in Ferron, drill into lower sand at 8106', and lose circulation at 8120'. Mix mud and attempt to gain returns.
26 Dec.	8162'	42'	6.50	6.46	10.2	49	6.4	10.0	Build volume, gain returns, drill ahead to 8162, where circulation is lost, mix and pump mud, gain returns.
27 Dec.	8200'	38'	5.25	7.24	10	42	9.2	10.0	Drill ahead to 8172', losing fluid, mix and pump mud, drill to 8178', trip for bit. Ream 100' to bottom, and drill ahead.to 8200', build volume.
28 Dec.	8240'	40'	5.25	7.60	10.2	50	10.2	10.2	Build volume, drill ahead to TD of 240', condition for logs, run first log string and hit bridge and get stuck at 7778', get loose after 2 hours, bring out logging tool.
29 Dec.	8240'	0.00	0.00	0.00	10.2	47			Bring tool to surface, trip in with bit and condition hole, run in with log run 1 and log
30 Dec.	8240'	0.00	0.00	0.00	11	50	10		Finish log run 1, wait on orders, run density-
									neutron porosity, geologist, released.

BIT RECORD

:OPERATOR: Fortuna, Inc., (U.S.)
CONTRACTOR: Patterson Drilling Co., Rig 104
Ground level - 8655'

WELL NAME: Fortuna Middle Mountain #21-16
LOCATION: SE, SE, Section 21, T 16 S R 6 E, Emery County, Utah U.S.
K.B. - 8672'

Bit No.	Run No.	Size	Make	Type	Serial #	Jets	Depth In (ft)	Depth Out (ft)	FTG (ft)	Hours	ROP (ft/hr)	Accum Hours	Weight 1000	RPM
1	1	17.5"	Air hammer				0'	1125'	1125'					
2	1	12.25"	Air hammer				1125'	1152'	27'	0.50	54.00	0.50		
3	1	12.25"	STC	GT-S28C	6000317	3X18	1152'	2391'	1234'	63.75	19.30	64.25	10-27	110
4	1	12.25"	STC	FDS	ML4284	3X18	2391'	2775'	384'	39.50	9.72	103.75	10-15	110
5	1	12.25"	HTC	GT18	6000931	3X24	2775'	3413'	638'	56.25	11.30	160.00	25	80-100
6	1	12	HTC	GT28C	W190M	3X28	3413'	4421.0	1008'	70.00	14.40	230.00	30-40	80-100
7	1	8.75"	STC	L136	L57ZY	3X16	3321'	4631'	210'	7.50	28.00	237.50	30-40	60-70
8	1	8.75"	STC	F35	MJ3100	3X16	4631'	5765'	1134'	60.75	18.70	298.30	30-40	60-80
9	1	8.75"	HTC	GTS20		3X16	5768'	7719'	1951'	76.75	25.40	375.10	35-45	60-80
10	1	6.125"	HTC	GT 1		Open	7690'	7745'	55'	4.50	12.20	379.60	30-40	75
11	1	6.125"	HTC	STX 20	T37JT	Open	7745'	7996'	251'	40.00	6.27	419.60	25-32	75
12	1	6.125"	HTC	STX 30	5005063	Open	7996'	8178'	182'	36.25	5.02	455.85	25-30	60-75
13	1	6.125"	HTC	STR 30	T12XM	Open	8178'	8240'	62'	8.75	7.08	464.60	22-25	75

DAILY MUD RECORD

MUD UP AT 7073'

DAY	DATE	DEPTH	WT	VISC	WL	pH	FC	PV	YP	GEL	CI	%SOL.
1	12-06-02	7112	8.5	42	16.2	8.5	2/32	11	11	11/15	400	1.2
2	12-07-02	7320'	8.8	44	13.2	8.5	2/32	12	11	4/10/0	500	3.5
3	12-08-02	7540'	8.4	63	15.0	8.0	2/32	14	15	6/13/0	600	0.7
4	12-09-02	7709'	8.5	43	11.0	8.2	2/32	10	10	4/9/0	600	1.7
5	12-10-02	7719'	8.5	44	9.0	8.0	2/32	11	7	4/11/0	600	1.7
6	12-11-02	7719'	8.5	60	10.0	8.0	2/32	17	18	6/22/0	600	1.7
7	12-12-02	7690'	8.5	60	10.0	8.0	2/32	19	17	5/27/0	600	1.7
8	12-13-02	7690'	8.55	97	10.0	7.80	2/32	38	21	5/29/0	600	1.7
9		RUN 7" CASING, SWITCH TO AIR										
10	12-18-02	7745'	8.4	45	12.0	7.00	2/32	13	21	1/3/5	400	0.3
11.	12-19-02	7752'	9.5	48	8.4	9.5	1/32	17	18	8/13/19	400	3.0
12.	12-20-02	7778'	9.5	59	8.4	N/A	1/32	22	21	7/13/19	0	5.1
13.	12-21-02	7840'	9.9	51	8.4	8.5	1/32	16	14	6/10/15	400	6.1
14	12-22-02	7974'	10.2	45	8.0	N/A	1/32	12	23	8/13/19	0	7.3
15	12-23-02	7996'	10.2	54	7.2	8.5	1/32	18	26	10/15/19	400	7.4
16	12-24-02	8063'	10.0	56	7.2	9.5	1/32	22	31	12/18/21	400	6.8
17	12-25-02	8120'	10.2	49	6.4	10.0	1/32	18	15	8/11/15	400	7.1
18	12-26-02	8173'	10.0	42	6.4	10.0	1/32	14	11	6/10/13	400	6.4
19	12-27-02	8200'	9.65	50	10.2	10.2	2/32	17	8	5/9/11	400	5.4

DEVIATION SURVEYS

FORTUNA MIDDLE MOUNTAIN #21-16

Survey Depth *(Feet)*	***Inclination*** (degrees)	***Azimuth***	***Horiz. Dist.*** (ft.)
1124'	0.5 deg	N/A	
1257'	0.5 deg	N/A	
1406'	0.75	N/A	
1592'	1.25	N/A	
1796'	1.50	N/A	
1924'	1.50	N/A	
2121'	2	N/A	
2238'	3	N/A	
2332'	3	N/A	
DIRECTIONAL SURVEY RUN AT 2391'			
1339'	1	14	0
1806'	1.7	358	22.68
2363'	3	333	41.36
Remaining surveys run at varying intervals during drilling			
2455'	2	N 19 W	47.33
2550'	2.75	N 35 W	50.65
2580	2.75	N 28 W	51.93
2709'	2.75	N 32 W	58
2803'	2	N 33 W	
2926'	2.00	N 34 W	
3053'	1.75	N 32 W	
3147	1.75	N 36 W	
3302'	2.00	N 26 W	
3380'	1.50	N 25 W	
3512'	1.00	N 5 W	
3633'	1.00	N 6 W	
3789'	1.00	N 20 E	
4006'	1.00	N 20 E	
4381'	1.00	N 8 E	
4585'	2.75	N 15 W	
4795'	2.75	N 24 W	
5077'	2.50	N 27 W	
5546'	2.75	N 29 W	
6045'	2.50	N 17 W	
6545'	1.75	N 32 W	
7105'	0.75	N 13 E	
7670'	1.00	N 105 E	

WELL & GEOLOGICAL SUMMARY

FORTUNA MIDDLE MOUNTAIN #21-16

GENERAL:

Fortuna, Inc. U.S. drilled the **Fortuna Middle Mountain #21-16** based on seismic, and surface geology, along with limited well control. This well is located on the geologic feature known as the Wasatch Plateau, an uplifted region in east central Utah. Tectonic activity related to this prospect occurred during and after the Laramide orogeny, with most faulting being Eocene or later. Faulting in the immediate area was extensional, resulting in normal faults. The location was sited on a down thrown block, with the intent being that a predicted fault would be encountered in the Upper Cretaceous Emery Sandstone. The primary target below, the Upper Cretaceous Ferron Sandstone, would then be drilled on the up thrown block.

The Ferron Sandstone has been studied extensively, and is generally interpreted to have been deposited in a deltaic environment, with both marine upper shoreface and non marine fluvial distributary mouth bar sediments. The Ferron in the prospect area contains natural gas, with limited condensate occurring in some wells. Scattered coal beds are known from the non marine facies. The top portion of the Ferron was to be cored using air drilling. Interpretation of the Ferron from area wells suggests this sandstone is very susceptible to formation damage with water based drilling fluids.

Secondary targets in this well included the Upper Cretaceous Blackhawk, which commonly contains coal beds, particularly in the basal portion. Pressurized canisters were supplied for sampling of these coals. The Upper Cretaceous Emery Sandstone was also considered to have gas productive potential, if encountered in a structurally favorable position on the high side of the predicted fault. The Emery, in the prospect area consists of two quartzitic sands separated by silty shale, with a normal section being 1400-1500 feet thick..

DRILLING SUMMARY:

The Fortuna Middle Mountain #16-21 was spudded in the Paleocene/Upper Cretaceous North Horn Formation at 1400 hours on October 28, 2002. Surface hole at 17.5" diameter, was drilled with air/mist to a depth of 1125' G.L. using a small water well rig, the Bill Martin Jr. Rathole Drilling, Red Rig #3. This operation was daylights only, with the crews working until dark, then shutting down, and going to town for the evening. There was no depth recording system on this rig, so sample intervals were taken at kelly down, or every 25 feet, starting at 675'. A small volume of water was encountered at 550' in the lower portion of the North Horn Formation. This water did not present a significant problem, and drilling continued through the North Horn into the Price River. Log top of the Price River is placed at 821'. In the top of the Price River considerable water was encountered, and after being shut down for the evening, additional water had accumulated overnight with 250' (approximately 75 bbls.) being blown out the following morning.

The Price River was composed of medium to coarse grained sandstone, conglomeritic in part, interbedded with siltstone and minor shale and limestone. Porosity in the coarse sands could not be directly determined due to air drilling completely disassociating quartz and chert grains from matrix. However, due to heavy water flow occurring while shut down at night, porosity is interpreted to be good, in excess of 15%.

Drilling of 17.5" surface hole was halted in the Price River at 1125' G.L. Ground level and K.B. are the same on this small rig. 25 joints of 13 3/8" 48 lb. H40 casing was then run and set at 1063.7' G.L. Electric logs show casing at 1081' K.B. on the Patterson Drilling Co. rig 104 with a seventeen foot K.B.. The casing was run utilizing a crane. The following day the small rig was moved off location.

Patterson Drilling Co., rig 104 was then moved on location and rigged up over the next several days. Drilling then resumed, with 12.25" hole being drilled through the remainder of the Price River and into the Upper Cretaceous Castlegate. Dusting was attempted with air hammer out from under casing. Water was almost immediately encountered and drilling was halted at 1152'. The air hammer was replaced with a bit, and drilling continued using aerated water in an attempt to stay underbalanced in potential lost circulation zones. The shaker was bypassed, and cuttings were not always carried to the surface on a regular basis. Cuttings would occasionally unload at or beneath the shaker and were collected at random intervals, usually at connections. This made for very poor sample quality. This method of drilling continued until intermediate casing was set at 4421'. The log top of the Castlegate is placed at 1467' (+7205'). Lithology was predominantly medium to lower coarse grained sandstone. The samples were virtually 100% unconsolidated due to aerated water drilling, thus porosity was difficult to assess. Logs show density porosity values in the 15-26% range, however these values may be a bit high due to rugose hole conditions. Neutron-density crossover, or gas effect, occurs in several zones, but the out of gauge hole is interpreted to be responsible for this as the resistivity values suggest these horizons are water wet.

Drilling proceeded through the Castlegate into the top of the Upper Cretaceous Price River, which is placed at 1700' (+6972') on logs. The upper and middle sections of the Price River were composed of interbedded sandstone and siltstone with minor shale. The sandstones are predominantly very fine to fine grained, with occasional medium grained. Porosity is generally poor, with some fair intergranular porosity occasionally observed in samples. Logs show maximum density porosity values of 19-20%, with most sandstone intervals showing less than 15%. Occasional neutron-density crossover is present, but the caliper log shows these areas to be highly washed out, invalidating this apparent gas effect.

Drilling proceeded into the lower Blackhawk, where coals began to be encountered. The coals in the basal Blackhawk are mined at several localities in the area. Thin coals were interpreted from drill rate and limited, poor sample quality due to aerated water drilling, and lack of regular returns. Thin coals were interpreted to be present at 2508'-14, 2532'-34', and 2631'-33'. The hole unloaded samples shortly after the 2508'-14' interval and abundant coal was observed and placed in a pressure sealed canister for analysis for coal bed methane potential. Logs show coals at 2508'-11', 2549'-51', 2559'-61', and 2629'-31'.

Drilling proceeded into the basal Blackhawk, where two significant coal beds were encountered. These drilled at a rate of less than one minute per foot. The hole unloaded later and considerable coal was expelled. This coal was also placed in a sealed canister for analysis. Logs shows these coals at 2689'-95', and 2701'-10'.

Drilling continued approximately 50 feet into the Upper Cretaceous Starpoint to 2775', where the hole was logged prior to running 9 5/8" intermediate casing, as well as ascertaining the structural and stratigraphic setting.

Logging was accomplished with Schlumberger, with a unit being brought over from Rock Springs, Wyoming, as the Vernal, Utah trucks were all on other jobs. The Array Induction Tool (AIT) did not function properly, and another tool had to be brought in from Vernal.

Analysis of the dipmeter data resulted in the interpretation that dips were generally less than 10 degrees to the east, with dip decreasing to 5 degrees or less toward the bottom of the hole. Occasionally higher angle dips occurred in some sandstones and these were thought to represent cross bedding rather than structural dip.

The decision was made to continue drilling 12.25" hole in order to get as deep as possible before running 9 5/8" casing. This would allow for a better chance of reaching the Upper Cretaceous Ferron prior to setting the next casing string (7"). Drilling continued through the Starpoint and into the Mancos, locally known as the Upper Bluegate. The Starpoint is predominantly fine-medium grained quartzose sandstone, which occurred in samples as totally unconsolidated grains, due to the aerated water drilling method.

The Starpoint appears on logs at 2712' (+5960'). Gamma Ray shows 271 feet of clean sandstone, with no appreciable porosity. The basal contact with the Mancos (Upper Bluegate) is abrupt in this well, while normally this contact is transitional. This may suggest a lower fluvial, channel facies is present locally. The Mancos (Upper Bluegate) was drilled to 3293' where returns were lost due to massive lost circulation. Drilling then proceeded to 3310', while losing circulation, likely in the shale near bottom. Drilling was halted and attempts began to regain circulation, with minimal success. Drilling blind continued with sporadic unloading of the hole allowing for some samples of questionable quality.

At 3413', the drill string parted, leaving the bit, bit sub, monel collar, and two drill collars in the hole. The fish was retrieved on the third attempt, and drilling continued blind to 3460', where the hole began to periodically unload. Returns were sporadic throughout the remainder of the Mancos. Lithology interpreted from poor-fair samples was primarily shale with considerable interbedded shaly siltstone, and occasional very fine grained tight shaly sandstone. Scattered carbonaceous inclusions were observed. Interbedded sandstone, siltstone and shale were drilled for the remainder of the Mancos. Log top of the Mancos is placed at 2983' (+5689'), resulting in an anomalously thick section of 1296'. This thickness is interpreted as indicative that fault movement was occurring contemporaneously with Mancos deposition, although movement was apparently at a lesser rate than later during Price River and North Horn time.

The top of the Upper Cretaceous Emery member was encountered at 4279' (+4393') on logs, when drill rate increased to 1.5 minutes per foot from a prior rate of 2.5 to 5 minutes per foot. The top 60 feet of the Emery continued to drill less than 2 minutes/foot, with no returns being recovered. The hole finally unloaded at 4373'. Lithology from very poor samples was a 50/50 mix of very fine grained light brown shaly sandstone with interbedded light brown very soft slightly carbonaceous shale.

Drill rate of less than one minute/foot occurred between 4360'-4370'. Lithology was coal with interbedded very fine grained sandstone. Sample quantity was minimal, not allowing for the coal to be placed in a pressurized canister for analysis.

Drilling continued to 4421' where logs were run and 9 5/8" casing was set. No shows were observed in the Emery to this depth. Sandstone encountered immediately below the coals was mostly unconsolidated and fine-medium grained subangular-subround quartz with scattered brown chert and black organic coating on quartz grains. Logs show the sandstone intervals in the Emery to be tight, with no indications of gas effect, or hydrocarbon productive potential.

Subsequent to running 9 5/8" casing, drilling continued in the Emery. A full section of the Emery was drilled without encountering an anticipated normal fault that was expected to significantly shorten the section. Sample quality was very poor at times, with intervals of 100 feet or more having no returns due to the aerated water sporadically forcing the hole to unload. The shaker was continuously bypassed, thus gas detection efforts were not successful. The reserve pit would reach full status at times, and air would be taken off the hole, resulting in no returns for some length of time. Toward the base of the Emery the mud logging equipment was rigged down, as it had been nearly totally ineffectual to this time.

Lithology in the Emery was predominantly very fine grained quartzitic sandstones, interbedded with siltstone and occasional shale. Several thin coal beds were encountered at the following depths: 4360'-4372' (3 thin seams), 4556'-4560', 4658'-4662', 4678'-4680', 4868'-4872', and several coal seams between 4895'-5004'. Two coal beds were drilled between 5212' and 5232'. The basal Emery coal horizon, visible on several offset logs was encountered between 5452' and 5466'. Due to the paucity of sample, and at times no returns, these coals were not placed in canisters for analysis. Electric logs show thin coals essentially at very similar depths to the intervals listed above.

Electric logs of the remainder of the Emery penetrated after logging run number 2, do not show any productive horizons. Numerous thick sandstone units are present, with density porosity values averaging 12-15 percent. No density-neutron crossover, or gas effect, is present. Resistivity values are very low, with the interpretation being that these intervals are water wet. Porosity decreases in the basal portion of the Emery ands grain size was observed to also decrease in samples.

The basal Emery becomes transitional with the underlying Lower Bluegate (Mancos), turning to shale with interbedded siltstone and thin tight sandstone. At about 6000', massive sloughing of coal was observed at the shaker. This continued for the next hundred feet, with some samples carrying more than 50 percent coal cavings. This top on logs is often difficult to assign due to the transitional nature of the sediments. The top of the Lower Bluegate is placed at 5764' (+2908') on logs. TVD depth would only be about 2 feet shallower.

Drilling proceeded with aerated water, with periods of no returns. When compressors were fully deployed on the hole to clean and lift cuttings, water entry would also occur. This resulted in filling the reserve pit very quickly at times. This necessitated shutting down the compressors in part or entirely. Drilling ahead with just water resulted in essentially no returns to surface.

Drilling with aerated water continued to 7073', where it was determined that in order to obtain reasonably accurate gas detection and sample data, gel chem. mud would have to be employed. In addition, the hole was occasionally becoming tight due to incomplete lifting of cuttings during periods when compressors were not fully utilized.

Drilling with gel chem. mud commenced with viscosity in the 42-63 range, and mud weight kept at the minimum of 8.4 to 8.5 lbs/gallon, in order to limit the degree of lost circulation. Lower Bluegate intervals experiencing lost circulation were at 7304' (300 bbls.), and 7473' (approx. 470 bbls.). Sample quality deteriorated after these episodes, with the addition of massive volumes of LCM. With 99-100% LCM and a trace to 1% of sample being recovered, rig crew sample catchers began to wash five gallon buckets of LCM with a high pressure rig hose. This had the effect of floating off the LCM after several minutes, leaving a handful of cuttings in the bottom of the bucket. Interpretation from this method was determined to be reliable, with subtle changes from sample to sample being observed.

Drilling of 8.75" hole proceeded to 7699', where a slight drill rate increase from 4.5 minutes/foot to 3.0 to 3.5 minutes/foot occurred. At the connection at 7705', slight mud losses began. Samples were going to be circulated 5 feet after the connection as the drill rate suggested that the top of the Ferron had been encountered. The top of the Ferron was to be verified prior to logging, running 7"casing, and coring with air. Before samples could be circulated, total loss of circulation occurred at 7709'.

In the next few hours, several attempts to gain returns were unsuccessful, with approximately 1000 bbls. Being lost. While building volume at one point, hole caving at some unknown depth resulted in mud displacement and unloading at the surface. No gas, or evidence of hydrocarbons were detected during in this event.

The decision was made to trip out, with a tight section being encountered at about 7325'. The pipe was worked for about 3 hours before becoming free. The bit was checked and the trip back into the hole resumed, very slowly. Circulation was started at casing bottom and the remainder of the hole was reamed, with very low pump pressure (250 lbs.). A mix of 40% LCM in the mud had been reached, and no appreciable mud loss occurred tripping in the hole.

Drilling continued for another 10' to 7719'. Sample quality was extremely poor, with abundant mica and granitic LCM material, including quartz and garnet chunks. Lithology present was predominantly Bluegate shale, with minor limestone. A trace of shale with well rounded medium to lower coarse grained quartz imbedded was observed along with a trace of light gray siltstone and very fine grained shaly sandstone. The rotary table jumped considerably at times in this interval, suggesting highly fractured lithology. A gas show accompanied this 10 feet, with a maximum of 0.39 percent total gas being recorded. The chromatograph breakdown showed some C-2 and C-3 percentages, with mostly C-1. This assemblage was interpreted by the Datalog logger, Gord Bennett, to signify the presence of gas and condensate.

This show suggested proximity to the Ferron and a possible core point, thus drilling was halted. The pipe was strapped with a depth of 8687' being recorded. The initial logging run with FMI/Sonic/GR encountered a bridge at 7256' in the Lower Bluegate. The section of the hole above the bridge was logged, prior to tripping back in to clean the hole. The pipe was again strapped going in, with the same result of 8687'. A 32' uphole correction was then made. An additional three feet was drilled to insure that the bit was on bottom. Logs were then run at the corrected depth of 7690' with no problems. Loggers recorded a depth of 7684'. A Gamma Ray tool was run to bottom to get a view as close to the lost circulation and shows zones. This log showed the top of a clean sandstone at the bottom three feet of tool readings, approximately 7-8 feet off bottom. This zone was variably interpreted to lie within 5 to 20 feet of the top of the Ferron Sandstone by this consultant and Fortuna geologists.

The decision was made to run 7" casing and drill out using air with 6.25" bit to core point, rather than risk lost circulation and formation damage by drilling ahead with mud.

Subsequent to running casing, air drilling was employed to reach core point in the top of the Ferron. Slight water entry occurred in the basal Bluegate, and air/foam was employed to lift cuttings. Considerable large shale cavings were observed while drilling ahead. Drilling was halted at 10-12 foot intervals to check samples. Sandstone and light brown, and light gray bentonitic shales and bentonite was observed in the 7730'-7745' samples. Abundant dark gray shale was also present, but the influx of both unconsolidated quartz grains and intact well cemented, very fine to fine grained sandstone was interpreted to be the top of the Ferron. Drilling was halted at 7745' for coring.

Upon reaching bottom with the core barrel, it appeared some fill was present and much shale in large chunks was washed and circulated to surface with air/foam. Shortly thereafter the core barrel became stuck. After attempting to come free for a short period of time, the decision was made to switch to mud. The pipe came free after about four hours, but pump pressure could not be maintained as mud loss was occurring. Additional mud was mixed, pumped and circulated for three hours, with mud loss being minimized. The core barrel was then brought out of the hole, and the bit put on for trip in to clean out the hole, prior to another coring attempt.

While circulating and conditioning the hole, it became evident that substantial caving of dark gray basal Bluegate shale was in progress. It became difficult to get back to bottom and barite was ordered in an attempt to stabilize the incompetent horizon. At this point coring was abandoned due to hole conditions

Drilling proceeded from 7745' to 7763', where the connection was very difficult to make, requiring about 6 hours of reaming and circulating cavings.

A clean Ferron upper shoreface sandstone was encountered at 7755', with drill rate picking up from 6-9 minutes/foot to 3.5 to 4 minutes/foot. A gas increase from 3 units (0.03%) to a peak of 19 units (.19%) accompanied the drill break. The chromatograph showed mostly methane with minor amounts of methane, propane and butane, interpreted by the mudlogger to signify the presence of condensate or light oil associated with gas. Lithology was very fine to medium grained quartzitic sandstone with occasional dark chert, and rare glauconite. Clusters were mostly well cemented with silica, though occasionally slightly calcareous. **Clay content was visible in pore spaces, and porosity was rated as generally poor, in the 6-8% range. Scattered black dead oil stain was observed, and the sand exhibited even, dull to moderately bright yellow fluorescence, which gave slow faint yellow-white streaming cuts when immersed in solvent.** This lithology was observed from 7755' to 7765'.

Grain size decreased to predominantly very fine grained over the underlying interval of 7765'-7778'. **Clay content increased, resulting in porosity estimation in the 3-4% range. Fluorescence and black residual stain also decreased as did total gas values, which dropped to 3-10 units (0.03 to 0.10%).**

Drilling was halted at 7778', due to excessive caving of the basal Bluegate shale. Mud weight had been brought up to 9.5 with the addition of barite, in an attempt to hold back the sloughing shale. During repeated tries to get back to bottom at 7778', approximately 60 barrels of mud were lost. The decision was made that this caving interval had to be cemented, and a trip out of the hole was made to check the bit. The decision to cement was reversed and it was deemed prudent to get mud weight up above 10.0. Mud weight was raised to 10.4, with viscosity at 60 and the sloughing interval was gradually healed, and drilling proceeded into the middle alluvial facies of the Ferron.

The alluvial facies was comprised of interbedded channel sandstone, siltstone, and shale, with a thin coal bed encountered at 7803'. The 1 to 1.5 foot thick coal recorded 26 units (0.26%) on the gas detector.

A lost circulation zone was drilled at 7814', with approximately 70 barrels being lost. Returns were regained in a couple hours and drilling continued. The middle portion of the Ferron was drilled to 7996', where a trip for bit was undertaken. On the trip in bridges and tight hole were encountered from 7763' to 7814', which required extensive reaming for 18 hours.

Once on bottom, drilling continued in the middle Ferron alluvial facies comprised of interbedded tight well cemented sandstone, siltstone, and shale. Near the bottom of this horizon, gas shows accompanied by carbonaceous shale and coal in the samples was observed from 8095' to 8106'. Gas peaks at these depths were 0.081% and 0.342% respectively (8 units and 34 units).

Immediately beneath the coal at 8105'-06', sandstone of the basal Ferron shoreline facies was encountered. Drill rate picked up from the 12-15 minutes per foot to 5-8 minutes per foot from 8106'-8111', with a total gas peak of 0.163% (16 units), from a background of 2-4 units prior to the coal. Lithology was very fine to medium grained, well sorted, non calcareous sandstone, **with porosity estimated visually at 5-12%, better than that observed in the upper Ferron sandstone. This sand contained considerable intergranular black dead oil stain or bitumen, which did not give off fluorescence, but yielded weak streaming cuts when immersed in solvent. The gas values recorded in these intervals were under increased mud weights (10.1 – 10.2 lbs/gal.) and viscosity of 52-56. Under more balanced conditions, higher gas readings would likely have been observed.**

Drilling continued, and the next samples (8110', 8115', and 8120') were 100% sandstone, with average grain size decreasing, and clay content in pore spaces increasing in some clusters. These samples also became very calcareous. **Black intergranular dead oil stain decreased from above, and only sporadic faint residual cuts were obtained in what appeared at this point to be a fining downward section. Total gas values also decreased in this interval to .06 to .10% (6-10 units). No fluorescence or live oil stain was observed.**

Massive lost circulation took place at 8120', with the initial loss of approximately 210 barrels. Ultimate loss in this zone was over 300 barrels. Drilling began again after 20 hours of stabilizing efforts, with abundant bicarb being placed in the hole as LCM. This material was 99% of the samples over the next 40 feet. Circulation was again lost at 8162' in the interbedded transitional zone between the lower Ferron sand and the Tununk shale. Drilling with slow continual mud loss was stopped at 8173' in order to build volume. A bit trip was required at 8178', with the bottom 100' being reamed before drilling resumed, again with continual mud loss. Drilling was stopped for four hours at 8200' in order to build mud volume, with about 150 barrels being lost since the trip.

The well was drilled to total depth of 8240', into the top 50 feet of the Tununk Shale without further significant mud loss.

A wiper trip to casing was run and it became necessary to ream much of the way to bottom. Conditioning continued for several hours prior to tripping out for logs. The initial logging run with AIT-BHC-GR-Caliper ran into bridges just under casing at 7798' and 7811'. When loggers attempted to pull up they became stuck, with the top of the tool at approximately 7725', which is in the basal Bluegate interval that had caved so badly a few days earlier. Loggers could drop the tool down to the bridge at 7811', and could come no higher than 7778'(bottom of tool). Tension of 6500 lbs. was kept on the tool after several attempts to pull up through the tight spot for an hour. After an additional hour of holding tension at 6500 lbs. the tool broke free and was brought to surface.

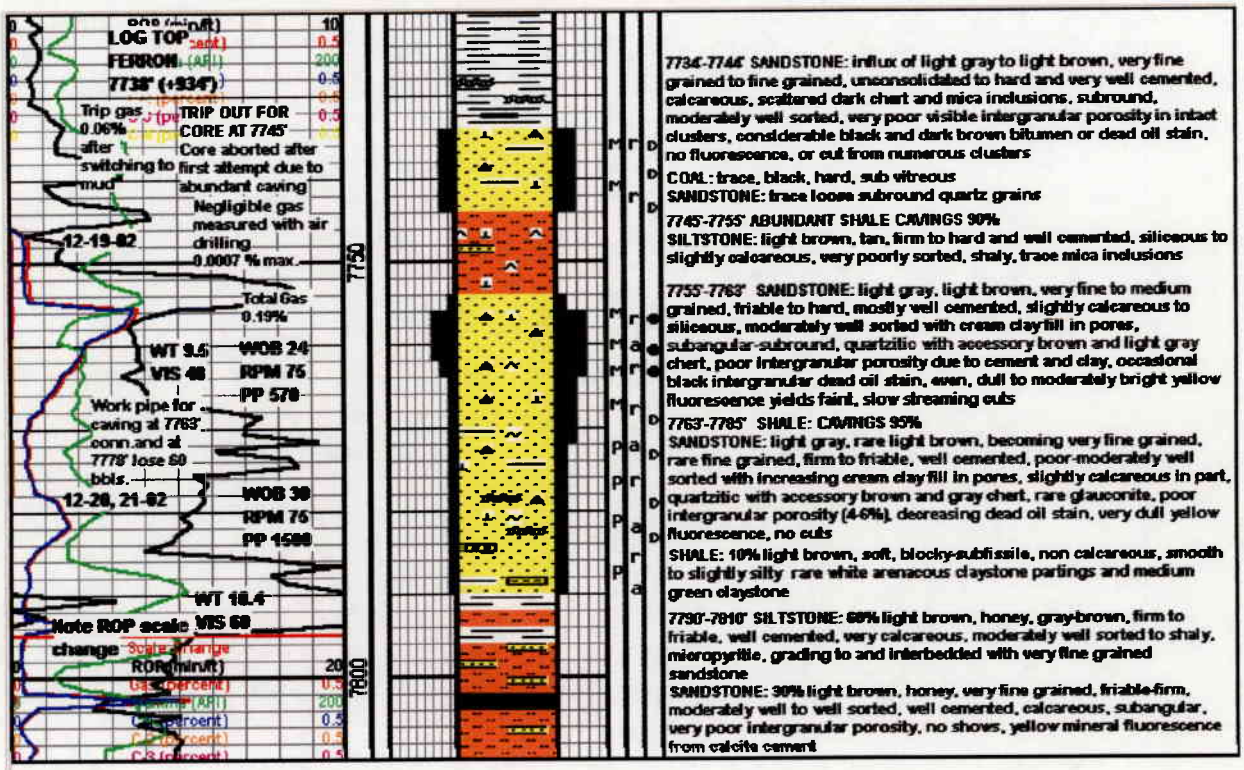
A trip with a bit was then made in to condition and raise mud weight to 10.0 lbs/gal.or slightly higher. Prior to attempting logging again, a pill of 11.0 lb./gal. mud was spotted below casing to total depth.

The AIT-BHC-GR-Caliper string was then run in the hole successfully, with occasional tight spots and minor bridges. A high resolution pass was run over the bottom 200'. Due to adverse hole conditions it was decided not to run high resolution over the entire Ferron. This data was immediately transmitted to the log analyst in Calgary. After careful consideration, it was decided to carefully attempt running the TLD-PEFZ-CNL-GR, with instructions to pull out of the hole if any resistive bridges were encountered. This string went to bottom with little obstruction, and logging up to casing encountered only a couple minor tight sections. A high resolution pass was made over the bottom 200'. No repeat section was undertaken due to the risk of staying in the hole too long.

ELECTRIC LOG INTERPRETATION OF THE FERRON

The initial logs on location were calculated using sandstone matrix. Due to the considerable amount of calcite cement observed in drill cuttings, Schlumberger was requested to also do a set of logs using limestone matrix, at a later date.

The log top of the Upper Cretaceous Ferron is placed at 7738' (+934'). The initial clean sandstone appears from 7756'-7786', but is rather shaly (35-50 API gamma ray values). Both density-neutron and Sonic porosity values are very low, on sandstone matrix. No gas effect occurs through this interval.



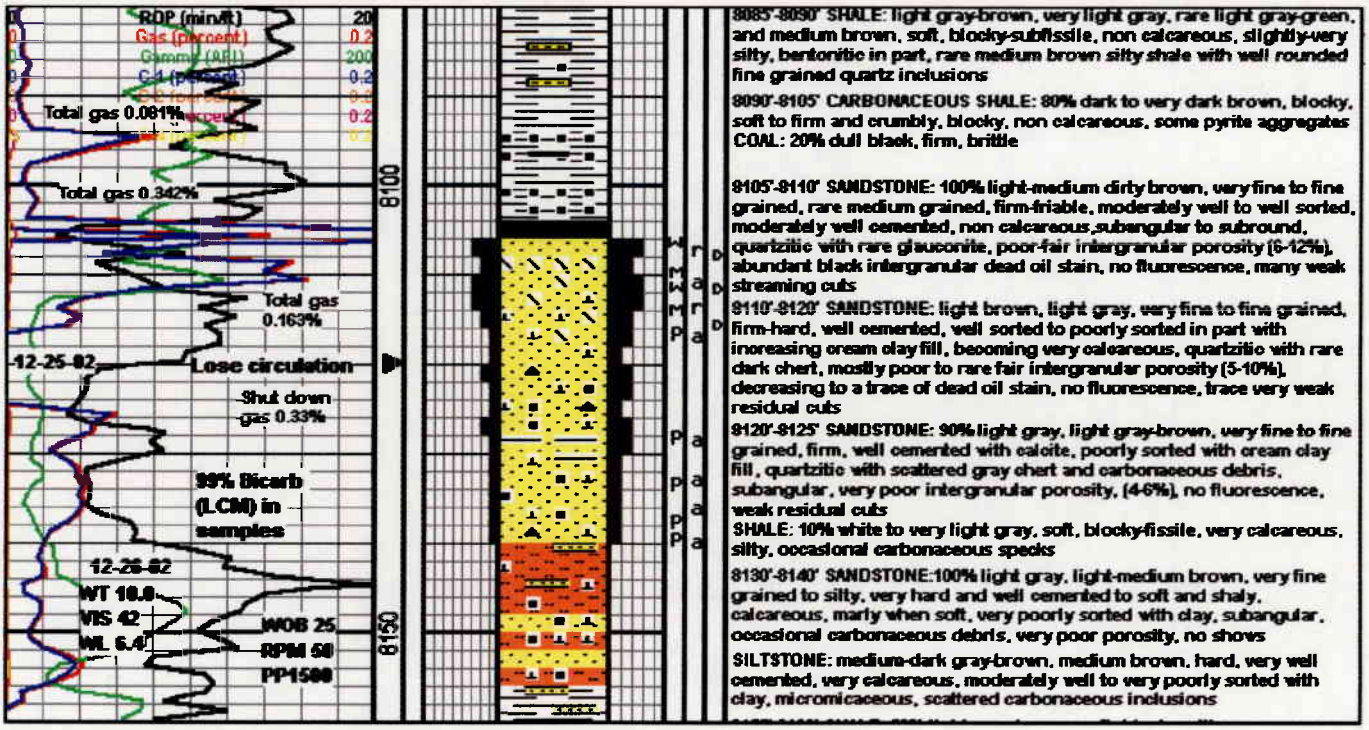
The previously mentioned coal zone shows up from 7797'-7805', and is underlain by a well developed sandstone from 7810'-7836'. This interval shows apparent marginal gas effect, with the neutron and density curves approaching each other. However porosity values are rather low, in the 3-8% range. Approximately 70 barrels of mud were lost at 7814', and low gas readings were recorded through the interval. This interval appears to have some potential for gas, if the overlying coal has charged the fractured reservoir, and the zone can recover from drilling fluid invasion.

The middle Ferron non marine alluvial section begins at 7840' with occasional thin fluvial sandstones interbedded with siltstone and shale. The sandstones rarely exceed 4% density porosity. Much of this portion of the Ferron is out of gauge, impacting density porosity values. The best indicator of potential productive zones may come from the geologist's interpretative log which notes gas shows in sandstones as follows: 7925'-7940', and 8050'-8060'. These sandstones appear tight with neutron porosity values of 3-8%. Neutron porosity values are considered more reliable than density values in areas where hole diameter is very rugose. No gas effect appears on logs in the middle Ferron.

The clean lower Ferron is found at 8111', with gamma ray values consistently below 20 units to 8144'. Porosity values were calculated from sandstone matrix to be no better than 6%, with limestone matrix values computed at 3%. Actual porosity is interpreted by log analysis to be in the 4.75 to 5% range. This intergranular porosity is rather poor, but associated fracture porosity may well prove beneficial for production in this horizon if formation damage from drilling fluid is not too extensive. Circulation was lost at 8120' immediately after a gas show of 0.342% (34 units) in a thin coal at 8104', followed by a 0.163% (16 units) peak in the top of the lower Ferron at 8108'-8110' (driller's depths). Additional lost circulation occurred from 8160'-8162'

Fracture porosity may have productive potential in the Ferron, however in this well probable formation damage occurred from massive lost circulation, as well as the heavy 10 to 11 lb/gal. Mud that was pumped.

Subsequent to running logs, 4.5" production casing was run to bottom for future completion attempts in the Ferron.



CONCLUSIONS

1. No appreciable faulting appears to be present in this well, with the entire drilled section lying within the graben.

2. The anomalous thickening of the younger formations such as Price River, Castlegate, Blackhawk, and Upper Mancos suggests that early fault activation was contemporaneous with sedimentation of these units, with increased deposition funneling into the down dropping graben regions. The thickness of the above units is 10-30% thicker than in area wells or in exposed outcrop sections.

3. Log analysis results indicate that the Upper Ferron is shaly and rather tight. The Lower Ferron is clean, with gamma ray values consistently below 20 API units. However this horizon is very well cemented. The upper 5 to 8 feet were cemented with silica, with the remainder of the lower Ferron becoming well cemented with calcite. Log interpretation yields probable porosity values in the 5% range.

4. It is suspected that considerable formation damage is likely in lost circulation zones, and intervals where gas may have been held in fractures.

5. The Fortuna Middle Mountain # 21-16 will undergo completion in the Upper Cretaceous Ferron sands for natural gas.

FUTURE DRILLING

1. Fewer days would be lost if the triple rig was brought in to drill surface hole, rather than the small water well rig.

2. Drilling blind in some uphole zones may become necessary in order to decrease costs. If confidence is high as to the structural setting, then sample and gas detection data could be temporarily sacrificed in order to get the hole down near the pay in a more timely manner.

3. Casing should be set just into the top of the Ferron in order to avoid the highly unstable basal Bluegate bentonitic shale horizon immediately on top of the Ferron. This may also allow for air drilling in the Ferron reservoir, which could avoid formation damage incurred by drilling with mud.

Wireline Logging Report

FORTUNA MIDDLE MOUNTAIN #21-16

Wasatch Plateau, Utah

Logging Suite #1 (2775' to 1081')

Date:	15-16 Nov.02	Company:	Schlumberger
Drillers T.D.	2775'	District:	Rock Springs, Wyoming
Loggers T.D.	2772'	Engineers:	Hugo Gonzalez
G.L.elevation:	8655'	Unit Number:	2187
K.B. elevation:	8672'	Witnesses:	Bill Hedglin, Rod Cuthill

Bit size:	12 1/4"	Mud Density:	
Last casing:	13 3/8" @ 1125'	Mud Viscosity:	
Type fluid in hole:	Fresh water	Mud pH:	
Time Circ' ended:	22:30, Nov. 15	Filtrate loss:	

Logging Sequence

Run #	Tool	Date	Start in hole	On bottom	Repeat Section	At surface	Logging hours
1	Platform Express (AITH-TLD-PEFZ-CNL-GRAINED-BHC)	16 Nov.	01:00 hrs	03:50 hrs	04:15 hrs	06:30 hrs	5.5 hrs
2	AIT (rerun)	16 Nov	07:15 hrs	07:45 hrs	08:30 hrs	09:00 hrs	3.0 hrs
3	FMI	16 Nov.	11:15 hrs	11:45 hrs	--	13:00 hrs	3.55 hrs
4	AIT (New tool)	16 Nov.	14:00 hrs	14:45 hrs	--	16:00 hrs	3:0 hrs
5							
6							
7							

Time Lost

	8.5 hours for improperly functioning AIT

Remarks

Glenn Gray with Talisman determined that the AIT was not functioning, and requested a rerun which was equally non satisfactory. A replacement tool was brought in from Vernal, Utah, and this one functioned properly on run # 4.

Wireline Logging Report

FORTUNA MIDDLE MOUNTAIN #21-16

Wasatch Plateau, Utah

Logging Suite #2 (4421' to 1081')

Date:	26 Nov.02	Company:	Schlumberger
Drillers T.D.	4421'	District:	Vernal, Utah
Loggers T.D.	4414'	Engineers:	Zenobio Matos
G.L.elevation:	8655'	Unit Number:	3031
K.B. elevation:	8672'	Witnesses:	Bill Hedglin, Rod Cuthill

Bit size:	12 1/4"	Mud Density:	
Last casing:	13 3/8" @ 1125'	Mud Viscosity:	
Type fluid in hole:	Fresh water	Mud pH:	
Time Circ' ended:	18:25, Nov. 25	Filtrate loss:	

Logging Sequence

Run #	Tool	Date	Start in hole	On bottom	Repeat Section	At surface	Logging hours
1	Platform Express (AITH-TLD-PEFZ-CNL-GRAINED-BHC)	26 Nov.	05:45hrs	06:50 hrs	07:45 hrs	09:40 hrs	3 hrs.,55 minutes
2							
3							
4							
5							
6							
7							

Time Lost

	8 hours for waiting on loggers

Remarks

First logging truck had transmission problems and could not make it up Cottonwood Canyon. Replacement truck arrived 8 hours later. Loggers could not transmit data from location. Limited log sections were faxed from company man's fax machine. Total logs were transmitted from Schlumberger's Vernal office later.

Wireline Logging Report

FORTUNA MIDDLE MOUNTAIN #21-16

Wasatch Plateau, Utah

Logging Suite #3 (4413' to 7684')

Date:	10 Dec.02 & 12 Dec.	Company:	Schlumberger
Drillers T.D.	7719'	District:	Vernal, Utah
Loggers T.D.	Bridged and 7684'	Engineers:	Marissa Ebert
G.L.elevation:	8655'	Unit Number:	3188
K.B. elevation:	8672'	Witnesses:	Bill Hedglin, Mel Knezevich

Bit size:	8.75"	Mud Density:	8.5/8.5
Last casing:	9 5/8"" @ 4413'	Mud Viscosity:	43/63
Type fluid in hole:	gel chem.	Mud pH:	8.2/8.2
Time Circ' ended:	17:25, Dec.10 and 09:00 on Dec. 12	Filtrate loss:	11.0/9.0

Logging Sequence

Run #	Tool	Date	Start in hole	On bottom	Repeat Section	At surface	Logging hours
1	FMI-BHC-GR	11 Dec.	01:00hrs	Bridge at 7256'	N/A	06:00 hrs	9.5
2	BHC-GR	12 Dec.	13:10	14:30	14:35-45	15:30	3.2
3	AITH-TLD-PEFZ-CNL-GR	12 Dec.	16:30	17:15	17:20-35	18:40	2.15

Time Lost

Dec. 10	3 hours that loggers waited as drill string was pulled wet – plugged bit
Dec. 12	None

Remarks

Logger hit bridge at 7256' with FMI tool on Dec. 11. Hit bridge several times at tolerated speed for that tool, with no success. The hole was then logged from the bridge to near casing at approximately 4450.' On the Dec. 12 logging job no hole problems were encountered.

Wireline Logging Report

FORTUNA MIDDLE MOUNTAIN #21-16

Wasatch Plateau, Utah

Logging Suite #4 Depth-8240'

Date: Dec. 28-29, 2002		Company:	Schlumberger
Drillers T.D.	8240'	District:	Vernal, Utah
Loggers T.D.		Engineers:	Jill Haynie Marissa Ebert
G.L.elevation:	8655'	Unit Number:	
K.B. elevation:	8672'	Witnesses:	Bill Hedglin, Ernie Natte

Bit size:	6.125"	Mud Density:	10.2, 11.0 on bottom on Dec. 29
Last casing:	7" @ 7689'	Mud Viscosity:	50
Type fluid in hole:	gel chem.	Mud pH:	10.2
Time Circ' ended:	21:00 Dec. 27, 01:00 on Dec 29	Filtrate loss:	10.2

Logging Sequence

Run #	Tool	Date	Start in hole	On bottom	Repeat Section	At surface	Logging hours
1	AITH-BHC-GR-CALIPER	Dec. 28	04:00	Bridged and stuck for 2 hrs.			
2	AITH-BHC-GR-CALIPER	Dec. 29	06:00	0:800	08:10-25	0915	3.25
3	TLD-PEFZ-CNL-GR	Dec. 29	14:55	15:44	None-adverse hole condition	16:45	1.8

Time Lost

String 1	Conditioning hole required longer than expected – loggers waiting prior to run No 1. for 5 hours
String 2	None
String 3	4 hours – waiting on orders on whether to put radioactive source in the hole.

Remarks

Bridges were encountered, and tool was stuck for two hours on run No. 1. Pull out of hole and run in with bit to condition hole and spot pill on bottom.

LITHOLOGY DESCRIPTIONS
FORTUNA MIDDLE MOUNTAIN #21-16

Sample descriptions commence at 675' in the Upper Cretaceous Price River Formation. 25' samples were collected in the 17.5" surface hole by rig crews, with a sample caught at Kelly down of each 25' joint.

650'-675' **CLAYSTONE: 50%** lavender, medium yellow-brown, soft, very silty, non calcareous, grading to siltstone
SILTSTONE: 30% medium gray, soft-firm, very shaly, highly calcareous, arenaceous in part, quartzitic
SANDSTONE: 20% light gray, cream, very fine to fine grained, firm-friable, moderately well to poorly sorted with clay fill, poor-moderately well cemented with calcite, subangular, quartzitic with rare dark chert, **predominantly poor to occasional fair intergranular porosity (9-12%)**

675'-700' **SILTSTONE: 50%** light gray, soft-firm, poor-moderately well sorted, shaly in part, very calcareous, quartzitic
SANDSTONE: 50% light-medium yellow-brown, very fine to fine grained, friable to hard and well cemented, poor-moderately well sorted, shaly in part, calcite cement, subangular, quartzitic with scattered white feldspar, **poor visible intergranular porosity**

700'-725' **SILTSTONE**: light-medium gray, soft-firm, very poorly sorted, shaly, very calcareous, grading to silty shale

725'-750' **SILTSTONE: 90%** light-medium gray, yellow-brown, soft-firm, very shaly, very calcareous, arenaceous in part when yellow-brown
SANDSTONE: 10% medium yellow-brown, very fine grained, firm-hard, poor-moderately well cemented, very calcareous, very poorly sorted with clay fill, subangular, **poor visible porosity**
SHALE: trace, medium-dark gray, soft, blocky, carbonaceous to coaly in part, micromicaceous

750'-775' **SANDSTONE: 100%** light gray, light brown, medium yellow-brown, very fine to medium grained rare lower coarse grained, unconsolidated in part, friable-firm, moderately well to well cemented, poor-moderately well sorted with much light gray and yellow-brown clay fill in part, very calcareous, quartzitic, subangular, **predominantly poor to occasional fir intergranular porosity (10-12%), no fluorescence or shows**

SHUT DOWN FOR EVENING AT 775,' RIG UP ADDITIONAL AIR COMPRESSORS AND DRILL AHEAD WITHAIR FOAM.
SAMPLE QUALITY DECREASES IN AIR DRILLED HOLE

775'-800' **SANDSTONE: 80%** light gray, light yellow-brown, fine-medium grained, rare lower coarse grained, 90% unconsolidated grains of clear to translucent quartz due to air drilling, subangular-subround, intact clusters are moderately well cemented with calcite, scattered red iron stain and dark chert, possible fair intergranular porosity in part (12%), **no shows**
SILTSTONE: 20% medium gray, soft, very poorly sorted, shaly, very calcareous, quartzitic

800'-825' **SILTSTONE: 100%** light-medium gray, light yellow-brown, mottled gray and yellow-brown, rare cream, soft-firm, very poorly sorted, shaly, very calcareous, rare mica, trace brown carbonaceous debris, very well cemented in part grading to trace silty limestone

LOG TOP PRICE RIVER 821' (+7851')

825'-850' **SANDSTONE: 100%** light brown, light-medium yellow-brown, rare light gray, very fine to fine grained, firm to hard and well cemented, subangular-subround, quartzitic with scattered brown and gray chert, rare red grains, poorly sorted with clay fill in pores, **poor visible porosity**, (3-6%), **no shows**, occasional yellow-orange mineral stain

850'-875' **SANDSTONE: 80%** light brown, very fine to medium grained, unconsolidated in part, firm-friable, moderately well cemented with calcite, poor-moderately well sorted with clay, subangular-subround, quartzitic with rare dark chert, intact clusters have poor porosity, **no shows**
SILTSTONE: 20% light brown, light-medium gray, firm, very poorly sorted, shaly, very calcareous, grading to very fine grained sandstone

875'-900' **SILTSTONE: 70%** light-medium gray, light brown, yellow-brown, soft, very calcareous, shaly, grading to shale
SHALE: 30% medium gray, soft, blocky, earthy, very calcareous, slightly-very silty, earthy, occasional black carbonaceous specks

900'-925' **SILTSTONE: 90%** light-medium gray, light brown, yellow-brown, soft-firm, very poorly sorted, shaly, very calcareous, scattered carbonaceous specks
LIMESTONE: 10% light gray-brown, light brown, cryptocrystalline in part, hard, occasional as rounded course grained inclusions likely washing out of siltstone matrix, slightly-very argillaceous, dense

925'-950' **SILTSTONE: 50%** light-medium gray, soft-firm, very shaly, very calcareous to marly in part, grading to soft shale
SANDSTONE: 40% light-medium yellow-brown, very fine grained, hard and well cemented, very poorly sorted, shaly, subangular-subround, very calcareous, **poor visible intergranular porosity** (3-4%)

SHALE: 10% medium gray, occasional light gray, very soft, blocky, slightly-very silty, calcareous

950'-975' **SANDSTONE: 100%,** Limited sample quantity, Sandstone 60% as above, influx (40%) of light gray to light yellow sandstone, composed predominantly of unconsolidated medium to coarse, and rare very course grained quartz and chert, chert is medium yellow and medium to bright red, subround, considerable reddish iron stain on quartz grains, porosity indeterminate, but possibly fair to good, **no fluorescence or shows**

975'-1000' NO SAMPLE CAUGHT, SHUT DOWN FOR EVENING
250' OF WATER IN HOLE AT DAYLIGHT (APPROX. 75 BBLS.)

1000'-1025' **SANDSTONE: 100%** Totally unconsolidated medium-very coarse grained quartz with minor milky white chert, subround, scattered red iron stain on quartz grains, trace pyrite aggregates, probable fair-good intergranular porosity, **no shows**

1025'-1050' **SHALE: 80%** light-medium gray, soft-firm, blocky, slightly-very silty, earthy, non calcareous, scattered black carbonaceous inclusions, micromicaceous
SILTSTONE: 20% medium gray, soft-firm, very poorly sorted, shaly, non calcareous, micromicaceous

1050'-1075' **SILTSTONE: 50%** light gray, light gray-brown, soft-firm, very poorly sorted, very shaly, non calcareous, some carbonaceous matter, micromicaceous, interbedded with soft gray shale
SHALE: 50% light-medium gray, gray-brown, very soft to soft, blocky, non calcareous, slightly-very silty, scattered carbonaceous inclusions, trace pyrite aggregates

1075'-1100' **SANDSTONE: 60%** light gray, salt and pepper, 90% unconsolidated very fine to rare fine grained quartz, rare intact clusters are moderately well cemented, poorly sorted with cream clay fill, non calcareous, subangular-subround, scattered dark chert, **poor visible intergranular porosity, no shows**
CLAYSTONE: 40% light-medium gray-green, soft-firm, smooth and subwaxy to very silty, non calcareous, micromicaceous, grading to trace clayey siltstone

1100'-1125' **SANDSTONE: 80%** light gray, light brown, very fine grained, firm-friable, moderately well cemented, non calcareous to slightly calcareous, very poorly sorted with cream clay fill, subangular-subround, abundant carbonaceous debris and occasional carbonaceous laminae and coaly matter, very poor porosity, no show
SHALE: 20% medium gray-brown, firm, sub blocky, silty, slightly calcareous, micromicaceous, carbonaceous, scattered pyrite

TOTAL DEPTH OF 17.5" SURFACE HOLE AT 1125', CONDITION HOLE AND RUN 13 3/8" CASING. MOVE OFF BILL MARTIN JR. RIG AND MOVE ON PATTERSON, RIG 104.

COMMENCE DRILLING 12.25" HOLE WITH AIR/MIST

1125'-1130' **SILTSTONE: 60%** medium gray, soft-firm, very poorly sorted, shaly, non calcareous, scattered carbonaceous debris
SHALE: 40% medium gray, soft-firm, blocky, non calcareous, slightly-very silty, occasional carbonaceous specks

1130'-1140' **SHALE: 70%** medium gray, soft-firm, blocky, non calcareous, slightly-very silty
SILTSTONE: 20% medium-dark gray, dark gray-brown, firm-hard, well cemented, non calcareous, very poorly sorted, shaly
SANDSTONE: 10% light gray, very fine grained, hard, well cemented, moderately well sorted, non calcareous, quartzitic with occasional brown chert, subangular, very **poor visible porosity**

HOLE IS MAKING CONSIDERABLE WATER, DRILL TO 1152' AND SHUT DOWN

1140'-1150' NO SAMPLE

DRILL AHEAD WITH WATER AND AIR. THIS RESULTS IN SURGING AT THE SHAKER MAKING SAMPLE FLOW SPORADIC, AND GAS DETECTION BECOMES IMPOSSIBLE. SAMPLES ARE COLLECTED BY RIG CREWS AT KELLY DOWN (APPROXIMATELY 30' INTERVALS).

POOR SAMPLE QUALITY

1150'-1160' **SHALE: 70%** medium gray, soft-firm, blocky-sub blocky, non calcareous to slightly calcareous, silty in part, scattered carbonaceous laminae and inclusions
SANDSTONE: 30% light gray, clear, fine-medium grained, firm-friable, moderately well sorted, moderately well cemented, calcareous, quartzitic with occasional reddish stain, subangular-subround, poor-fair visible porosity

1160'-1193' **SANDSTONE: 90%** sample is 95% unconsolidated course to very coarse grained subround quartz with occasional milky chert, rare intact clusters are well cemented, non calcareous, moderately well sorted, occasional red iron stain on quartz grains, quartzitic with scattered red grains and white feldspar, possible good intergranular porosity
SHALE: 10% dark brown, interbedded with sandstone, subfissile, very silty to arenaceous, non calcareous, carbonaceous

1193'-1225' **SANDSTONE: 100%** composed of 95% unconsolidated fine-medium grained, rare lower coarse grained quartz, with occasional black grains, and rare green grains, subangular-subround, rare intact clusters are moderately well sorted. non calcareous, well cemented, quartzitic with black grains and gray chert, occasional white feldspar, trace pyrite aggregates, estimated poor-fair intergranular porosity (6-12%)

1225'-1257' **SANDSTONE: 80%** light gray, salt and pepper, fine-medium grained, becoming more consolidated, unconsolidated in part, moderately well cemented, firm-friable, non calcareous, poor-moderately well sorted with some white clay fill, quartzitic with scattered dark minerals and chert, mostly **poor visible porosity** (6-9%)
SILTSTONE: 20% light gray, light brown, hard, well cemented, non calcareous, occasional carbonaceous inclusions, very poorly sorted, shaly, trace pyrite aggregates

1257'-1287' **SANDSTONE: 90%** light gray, salt and pepper, 95% unconsolidated fine-medium grained, rare lower coarse grained quartz with black minerals, black and brown chert, subangular-subround, scattered red-orange stain, rare intact clusters are moderately well cemented, poor-moderately well sorted with some white clay fill, slightly calcareous to very calcareous, poor to possible fair intergranular porosity
SILTSTONE: 10% light gray-brown, hard, well cemented, very poorly sorted, shaly, calcareous

1287'-1318' **SANDSTONE: 50%** light gray, salt and pepper, very fine to silty, rare fine grained, firm, well cemented, very poorly sorted with white clay fill, slightly to moderately calcareous, very poor intergranular porosity (3-6%)
SILTSTONE: 30% light gray, gray-brown, firm, well cemented, very poorly sorted, shaly, calcareous, scattered carbonaceous inclusions, dirty
CLAYSTONE: 20% medium gray-green, medium green, firm, blocky, smooth and subwaxy to silty, non calcareous, occasional carbonaceous specks
CARBONACEOUS SHALE: trace, very dark brown to black, firm, coaly

1318'-1345' **SANDSTONE: 60%** light gray, salt and pepper, very fine to fine grained, firm to hard and well cemented, poorly sorted with white clay fill, non calcareous, quartzitic with scattered black minerals and gray chert, subangular, occasional mica and red grains, **poor visible porosity**
SILTSTONE: 40% light-medium gray, gray-brown, firm, very poorly sorted, shaly, considerable carbonaceous debris, calcareous

1345'-1381' **SANDSTONE: 100%** composed of unconsolidated grains of medium to lower coarse grained quartz with scattered dark chert, occasional white feldspar, some red iron stain on quartz, possible fair intergranular porosity, occasional pyrite aggregates

1381'-1411' **NO SAMPLE COLLECTED**

1411'-1441' **SANDSTONE: 90%** light gray, 90% unconsolidated fine to medium grained quartz with rare accessory black chert, occasional red iron stain on quartz, subangular-subround, rare intact clusters are moderately well cemented, firm to friable, poor-moderately well sorted, calcareous with considerable black coaly inclusions, poor-fair intergranular porosity, (9-12%)
SILTSTONE: 10% light brown, firm, very poorly sorted, shaly, carbonaceous, slightly calcareous
COAL – trace, black crumbly, occasionally attached to sandstone clusters

LOG TOP CASTLEGATE 1467' (+7205')

1441-1475' **SANDSTONE: 40%** predominantly unconsolidated, fine-medium grained subangular-subround quartz with rare black chert and white feldspar, rare intact clusters show poor intergranular porosity, scattered coaly inclusions
SHALE: 40% medium brown, gray, firm, blocky, very silty, with abundant coaly inclusions and laminae
SILTSTONE: 19% light brown, very poorly sorted, shaly, carbonaceous, calcareous
COAL: 1% black, hard, sub vitreous

1475'-1510' **SANDSTONE: 100%** composed of 100% unconsolidated medium to lower coarse grained subangular-subround quartz with minor white feldspar and rare brown chert, occasional red iron stain on quartz grains, trace black flakes of coaly matter, possible fair-good intergranular porosity, poor sample quality

1510'-1540' **NO SAMPLE COLLECTED**

1540'-1570' **SANDSTONE: 90%** composed of 95% unconsolidated medium to lower coarse grained subangular-subround quartz with scattered white feldspar and gray chert, occasional red iron stained quartz, rare coaly inclusions in intact clusters, probable fair intergranular porosity
SILTSTONE: 10% medium-dark gray, hard, very well cemented, calcareous, carbonaceous, very poorly sorted, shaly

1570'-1602' **SANDSTONE: 70%** limited returns, 100% unconsolidated medium to coarse grained predominantly subround quartz with occasional milky chert and white feldspar, rare red iron stain on quartz, possible fair-good intergranular porosity
SILTSTONE: 20% medium-dark gray, firm-hard, very poorly sorted, shaly, non calcareous, carbonaceous
CLAYSTONE: 10% medium gray-green, firm, blocky, smooth and subwaxy, non calcareous

1602'-1630' **SANDSTONE: 90%** light gray, very fine to fine grained, firm-friable, consolidated, moderately well sorted, moderately well to well cemented, subangular, calcareous, quartzitic with scattered brown chert and black minerals, considerable black carbonaceous debris and laminae, rare white feldspar, and orange grains, **poor visible intergranular porosity (4-8%)**
SHALE: 10% medium gray, light brown, soft, blocky, very carbonaceous, non calcareous, scattered pyrite aggregates

1630'-1660' **SANDSTONE: 90%** composed of 95% unconsolidated fine to coarse grained subangular-subround quartz with accessory white feldspar and light brown chert, scattered pyrite aggregates, rare intact clusters are well cemented with calcite and moderately well to well sorted, occasional red iron stain on quartz, occasional carbonaceous matter, possible fair intergranular porosity
CARBONACEOUS SHALE: 10% dark brown, medium gray, very carbonaceous to coaly in part, blocky, brittle, slightly calcareous

1660'-1692' **SANDSTONE: 80%** mostly unconsolidated fine-medium grained quartz with minor accessory gray-brown chert, intact clusters are moderately well cemented with calcite, moderately well sorted, **poor visible intergranular porosity**
CLAYSTONE: 20% white, soft, platy, scattered carbonaceous streaks, very calcareous, likely occurring as partings in sandstone in part

1692'-1727' *VERY LIMITED RETURNS*
SANDSTONE: 80% as above
SHALE: 20% medium gray-brown, firm, blocky, very silty, calcareous, carbonaceous

INCREASE AIR FLOW TO WATER, SAMPLE CUTTINGS RECOVERY IMPROVES SLIGHTLY

LOG TOP BLACKHAWK 1700' (+6972')

1727'-1757' **SANDSTONE: 40%** light gray, salt and pepper, very fine to fine grained, rare medium grained, moderately well sorted, well cemented, calcareous, subangular-subround, quartzitic with scattered black minerals, and gray chert, rare red-orange grains, **poor visible intergranular porosity**
SILTSTONE: 60% medium brown, light gray, firm, well cemented, very poorly sorted, shaly, highly carbonaceous, non calcareous, scattered pyrite inclusions

1757'-1780' **SILTSTONE: 40%** medium gray-brown, brown, firm, very poorly sorted, shaly, slightly calcareous in part considerable carbonaceous inclusions
SHALE: 20% medium gray-brown, brown, soft-firm, blocky, very silty, non calcareous, carbonaceous
SANDSTONE: 40% light gray, very fine grained to silty, firm to hard, well cemented, poor-moderately well sorted, calcareous, very poor porosity (3-4%)

1780'-1810' **SHALE: 40%** medium-dark gray-brown, firm, blocky-subfissile, silty, calcareous, considerable carbonaceous inclusions and laminae
SILTSTONE: 60% light-medium gray, gray-brown, rare light brown, soft-firm, very poorly sorted, shaly, non calcareous to very calcareous when light gray, scattered black carbonaceous debris

1810'-1839' **SANDSTONE: 40%** light gray, very fine to fine grained, occasional medium grained, firm-hard, well cemented, poor-moderately well sorted, some white clay fill, calcareous, quartzitic with scattered light brown chert, and black minerals, subangular-subround, poor intergranular porosity
SHALE: 40% medium brown, soft-firm, blocky-subfissile, silty, non calcareous, occasional carbonaceous inclusions and laminae
SILTSTONE: 20% light gray, medium brown, firm-hard, well cemented, carbonaceous in part, micropyritic in part, calcareous when gray

1839'-1871' **SILTSTONE: 60%** medium gray-brown, brown, light brown, firm-hard, well cemented in part, very poorly sorted, shaly, calcareous, scattered carbonaceous inclusions and laminae
SHALE: 60% medium brown, soft-firm, silty, blocky, non calcareous to calcareous, abundant carbonaceous inclusions and streaks, trace very dark brown carbonaceous shale
SANDSTONE: 20% light gray, very fine grained hard, well cemented, calcareous in part, quartzitic, occasional carbonaceous debris, tight

1871'-1900' **SANDSTONE: 60%** light gray, very fine grained, firm to hard and well cemented, poor-moderately well sorted, shaly, dirty in part, calcareous, subangular, quartzitic with occasional black minerals and carbonaceous inclusions, poor intergranular porosity (4-6%)
SILTSTONE: 20% light gray-brown to brown, firm-hard, well cemented, shaly, calcareous, carbonaceous
CARBONACEOUS SHALE: 20% brown to very dark brown, soft-firm, blocky, calcareous, very silty, considerable carbonaceous inclusions and laminae

1900'-1930' **SILTSTONE: 70%** light brown, light gray-brown, tan, hard, well cemented, slightly calcareous to very calcareous, shaly, dense, occasional carbonaceous debris
SHALE: 30% light gray, gray-brown, occasional dark brown, soft-firm, subfissile-blocky, non calcareous to very calcareous, marly in part, slightly-very silty, very carbonaceous when dark brown

1930'-1960' **SILTSTONE: 80%** light gray-brown, light gray, tan, hard to very hard, well cemented, calcareous, very poorly sorted, shaly, occasional carbonaceous inclusions and laminae
SANDSTONE: 20% light gray, light gray-brown, light brown, very fine grained, hard, well cemented, very calcareous, poorly sorted with light gray clay fill, scattered carbonaceous streaks, very poor porosity (3-6%)

TRIP FOR SHOCK SUB AT 1975', PICK UP 6 DRILL COLLARS, TRIP IN WITH SAME BIT, INCREASING WOB AND RPM. THIS RESULTS IN INCREASED ROP TO 1-1.5 MIN/FT.

1960'-2000' **SANDSTONE: 100%** totally unconsolidated fine-medium grained subangular-subround quartz, with no intact clusters, Very poor sample, limited returns caught at shaker, occasional red iron stain on quartz grains, scattered white altered feldspar and white claystone partings, Porosity possible fair in part
CARBONACEOUS SHALE: trace, very dark brown to black
COAL: trace, 1 piece black hard, sub vitreous
Scattered lost circulation material in sample after trip

2000'-2028' **SANDSTONE: 80%** light brown, honey, very fine to medium grained, firm to hard, well cemented, moderately well sorted, subangular-subround, calcareous, quartzitic with rare dark brown chert and occasional light brown grains, scattered carbonaceous debris, possible fair porosity in part
SILTSTONE: 20% light brown, firm, well cemented, poorly sorted, shaly, calcareous

2028'-2059' **SILTSTONE: 60%** medium gray-brown, firm-hard, well cemented, very poorly sorted, shaly, moderately calcareous, scattered carbonaceous specks
SANDSTONE: 30% light brown, becoming very fine grained to silty, well cemented, calcareous, shaly, tight, scattered carbonaceous specks
CARBONACEOUS SHALE: 10% dark brown, black, blocky-subfissile, silty, micropyritic in part, non calcareous, considerable carbonaceous laminae and coaly inclusions
COAL: trace, black, hard, sub vitreous

2059'-2090' **SILTSTONE: 80%** light brown, dark brown, firm to hard, well cemented, moderately well sorted when light brown to shaly when dark brown, calcareous, scattered carbonaceous specks
SANDSTONE: 20% light brown, light gray, very fine grained to silty, firm-hard and well cemented, moderately well sorted to shaly, calcareous, occasional carbonaceous specks, tight

2090'-2120' **SANDSTONE: 60%** light gray, cream, very fine grained to silty, hard, well cemented moderately well sorted, moderately calcareous, scattered carbonaceous specks, quartzitic with rare dark grains, very poor porosity (4-6%)
SILTSTONE: 40% light-medium gray, medium gray-brown, very light brown, firm-hard, well cemented, very poorly sorted, shaly, calcareous, scattered carbonaceous specks

2120'-2152' **SANDSTONE: 60%** light gray, cream, very fine grained to silty, hard, well cemented, poor-moderately well sorted, some clay fill, subangular, calcareous, quartzitic with occasional gray grains, occasional carbonaceous matter, poor porosity (4-6%)

SILTSTONE: 20% very light brown, firm, well cemented, shaly, calcareous
SHALE: 20% light-medium gray-brown, soft-firm, blocky-sub blocky, slightly-very silty, calcareous, moderately carbonaceous

2152'-2184' **SANDSTONE: 60%** cream to very light brown, very fine grained to silty, rare fine grained, firm-hard, well cemented, poor-moderately well sorted, shaly in part, very calcareous, quartzitic with some light gray and brown chert, some white feldspar, occasional carbonaceous streaks, poor porosity, (4-6%)
SILTSTONE: 40% light-medium gray-brown, hard, well cemented, very poorly sorted, shaly, calcareous, scattered carbonaceous specks

2184'-2215' **SANDSTONE: 20%** cream to very light brown, becoming silty to very fine grained, hard, well cemented, poorly sorted, clayey, calcareous, very poor porosity (3-4%)
SILTSTONE: 60% light-medium gray-brown, firm-hard, well cemented, very shaly, calcareous, micromicaceous, occasional carbonaceous specks and laminae
SHALE: 20% light-medium gray-brown, firm, sub blocky-blocky, calcareous, silty, occasional carbonaceous streaks and laminae

2215'-2247' **SILTSTONE: 70%** cream, medium gray-brown, firm-hard, well cemented, very poorly sorted, shaly, very calcareous, scattered carbonaceous inclusions, micromicaceous
SHALE: 30% medium gray-brown, firm-hard, blocky-subfissile, moderately calcareous, slightly-very silty, occasional carbonaceous streaks

2247'-2278' **LOST RETURNS** – NO SAMPLE

2278'-2290' **SILTSTONE: 80%** cream, medium gray-brown, hard, well cemented, very calcareous, poorly sorted, shaly, occasional carbonaceous debris and specks
SHALE: 20% medium-dark gray-brown, soft-firm, non calcareous in part, slightly-very silty, some carbonaceous specks

2290'-2330' **VERY LIMITED RETURNS BEING CAUGHT AT SHAKER**, mostly free quartz grains, with some shale
SHALE: medium gray, very soft, blocky, slightly-moderately silty, non calcareous
SILTSTONE: cream, very light brown, soft-firm, friable in part, well cemented in part, poorly sorted, shaly, calcareous

2330'-2372' **SHALE: 80%** light gray, medium gray-brown, very soft to soft, blocky-sub blocky, non calcareous, slightly-very silty, scattered carbonaceous inclusions

SILTSTONE: 20% medium brown, medium gray, firm to hard, well cemented in part, non calcareous, very poorly sorted, shaly, occasional carbonaceous specks
Abundant free quartz grains – Cavings

2372'-2445' NO RETURNS

RESERVE PIT IS FULL AFTER TRIP AT 2391'. DRILL AHEAD WITH AIR WITH NO RETURNS. RUNNING AIR THROUGH GAS BUSTERS TO FLOWLINE AT SHAKER, WITH NO RETURNS UNTIL 2445'. CUTTINGS PROBABLY BEING FORCED INTO LOST CIRCULATION ZONES. NO GAS DETECTION POSSIBLE.

2445'-2450' **SHALE: 90%** medium gray, gray-brown, brown, soft-firm, blocky to splintery, non calcareous, slightly-very silty, scattered carbonaceous inclusions
SILTSTONE: 10% dark gray, firm to hard, well cemented, non calcareous, very poorly sorted, shaly

2450'-2470' **NO RETURNS** – Aerated water not getting cuttings to surface or they are being lost in lost circulation zones, and sporadically unloaded at the surface.

2470'-2497' **SHALE: 50%** medium gray, medium brown, soft-firm, blocky to fissile, non calcareous, slightly-very silty, scattered carbonaceous specks and organic remains
SANDSTONE: 50% light brown, light gray, cream, very fine grained, poor-moderately well sorted, shaly in part, calcareous, tight

SAMPLES ONLY CAN BE RECOVERED WHEN HOLE UNLOADS, OFTEN AFTER CONNECTIONS. THERE ARE NO RETURNS DURING MOST OF THE TIME

2497'-2532' **SANDSTONE: 70%** light brown, light gray-brown, cream, very fine grained to silty, firm-friable, moderately well sorted, moderately well cemented, very calcareous, quartzitic with black minerals inclusions and carbonaceous specks, **poor visible intergranular porosity** (4-6%), no fluorescence, stain or cuts
SHALE: 20% as above, Mancos, probable cavings
SILTSTONE: 5% light brown, soft-firm, poorly sorted, shaly, calcareous
COAL: 5% black, hard, sub vitreous, anthracitic

2532'-2561' **COAL: 50%** black, hard, sub vitreous, no fluorescence, *strong streaming and diffuse cuts from clusters of coal immersed in solvent*
SANDSTONE: 50% Totally unconsolidated fine-medium grained, rare lower coarse grained quartz, with scattered white clay parting, subround with rare subangular, no fluorescence or stain, possible fair intergranular porosity

2561'-2580' **SANDSTONE: 95%** light gray, very light brown, very fine to fine grained, rare medium grained, becoming mostly consolidated, firm-friable, moderately well sorted, moderately well to well cemented, calcareous, subangular-subround, quartzitic with rare black minerals and occasional carbonaceous inclusions, generally **poor visible intergranular porosity** (4-8%), **no shows**
SHALE: 5% light brown, soft, sub blocky to subfissile, slightly-very silty, calcareous in part
COAL: trace, black firm-hard, sub vitreous

2580'-2610' **NO RETURNS**

2610'-2635' **SANDSTONE: 50%** light brown, light gray, becoming very fine to fine grained, occasional silty, firm, well cemented, poor-moderately well sorted, shaly in part, calcareous, subangular-subround, quartzitic with scattered brown chert, trace red grains, occasional carbonaceous debris, **poor visible porosity** (4-6%)
SILTSTONE: 25% light brown, rare medium brown, soft-firm, very poorly sorted, shaly, moderately well cemented, calcareous, scattered carbonaceous specks
SHALE: 20% light brown, rare tan, soft, slightly-very silty, blocky-subfissile, calcareous
COAL: 5% black, firm-hard, sub vitreous to dull, trace pyritized organic matter

2635'-2675' **SANDSTONE: 70%** light gray, cream, light brown, very fine to fine grained, firm-hard, well cemented, poor-moderately well sorted with cream clay fill, calcareous, quartzitic with rare light brown and gray chert, occasional carbonaceous debris, poor intergranular porosity (6-8%), **no shows**
SHALE: 30% medium gray, light-medium gray-brown, soft, blocky-sub blocky, non calcareous to calcareous, slightly to very silty in part, grading to siltstone, scattered carbonaceous inclusions

2675'-2700' **NO RETURNS**: Good drilling break from 2692'-2699', drilled at less than one minute/foot. This interval interpreted as coal, with remainder likely interbedded sandstone and shale as interpreted from ROP

2717'-2717' **COAL: 100%** Hole unloads cuttings, interpreted to have originated from drilling breaks at 2692'-99, and 2705'-14'. Coal is black hard, sub vitreous, brittle, no fluorescence, *weak faint diffuse and residual cuts when immersed in solvent*.

LOG TOP STARPOINT 2712' (+5960')

2717'-2748' **SANDSTONE: 60%** light brown, very fine to fine grained, abundant unconsolidated quartz grains, intact clusters are firm-friable, well cemented, moderately well sorted to occasional poorly sorted with clay plugging pores, some possible fair intergranular porosity (10-12%), **no shows**

SILTSTONE: 40% light brown, light gray-brown, soft-firm, shaly, non calcareous to moderately calcareous, scattered carbonaceous specks

2748'-2775' Considerable coal in sample – probably cavings
SILTSTONE: 70% light brown, light gray-brown, soft-firm, very poorly sorted, shaly, calcareous, occasional carbonaceous specks,
SANDSTONE: 20% light brown, very fine grained, rare fine grained, firm-friable, poor-moderately well sorted, shaly in part, calcareous, quartzitic with rare carbonaceous inclusions, **poor visible porosity** (4-6%), **no shows**
SHALE: 10% light-medium brown, soft, sub blocky-subfissile, calcareous in part, slightly-very silty, occasional carbonaceous specks

TOTAL DEPTH – DRILLER OF 12.25" HOLE IS 2775' AT 11:58, NOV. 15, 2002
RUN LOGS WITH SCHLUMBERGER, AND DRILL AHEAD IN 12.25" HOLE

2775'-2800' **NO RETURNS**

2800'-2815' **SANDSTONE: 100%** light gray, salt and pepper, very fine grained, rare medium grained, friable-firm, moderately well cemented, poorly sorted with black minerals and carbonaceous inclusions, non calcareous, subangular-subround, **poor visible intergranular porosity, no shows**

2815'-2850' **NO RETURNS**

2850'-2880' **SANDSTONE: 70%** light gray, salt and pepper, very fine grained, friable-firm, poorly sorted with light gray clay fill, subangular-subround, moderately calcareous, moderately well to well cemented, quartzitic with scattered carbonaceous inclusions, poor porosity (4-6%), **no shows**
SHALE: 30% light-medium gray, soft, blocky-subfissile, non calcareous, slightly-very silty, micromicaceous, scattered carbonaceous inclusions

2880'-2917' **SANDSTONE: 100%** Totally unconsolidated fine-medium grained subangular-subround quartz, with scattered accessory black minerals, occasional red iron stain and black carbonaceous matter on quartz grains, porosity is indeterminate, but some possible fair porosity

2917'-2932' **SANDSTONE: 100 %** Totally unconsolidated fine grained subangular-subround quartz with accessory black minerals, and white feldspar, rare red stain on quartz grains, average grains size decreases from sample above, probable poor to rare fair intergranular porosity, **no shows**

2932'-2947' **SANDSTONE: 100%** Totally unconsolidated very fine to fine grained subround-subangular quartz with scattered accessory black minerals and white feldspar, occasional red iron stain on quartz grains, probable poor intergranular porosity, **no shows**

2947'-2962' **SANDSTONE: 90%** Totally unconsolidated very fine to fine grained subround-subangular quartz grains, with occasional white feldspar, probable poor intergranular porosity, **no shows**
SHALE: 10% light gray, medium gray-brown, soft white light gray to firm, blocky-subfissile, slightly silty, micromicaceous when gray-brown, non calcareous, scattered carbonaceous inclusions

2962'-2977' **SANDSTONE: 90%** Totally unconsolidated very fine to fine grained subround-subangular quartz grains, with occasional white feldspar, probable poor intergranular porosity, **no shows**

SHALE: 10% light gray, medium gray-brown, soft white light gray to firm, blocky-subfissile, slightly silty, micromicaceous when gray-brown, non calcareous, scattered carbonaceous inclusions

LOG TOP MANCOS (UPPER BLUEGATE) 2983' (+5689')

2977'-2990' **SANDSTONE: 100%** Totally unconsolidated very fine grained subangular-subround quartz with rare black mineral accessories, rare red iron stain on quartz, scattered white feldspar, probable poor porosity

2990'-3018' **SHALE: 50%** light gray-brown, medium gray, soft, subfissile-sub blocky, non calcareous, slightly-very silty
SILTSTONE: 50% light gray-brown, soft to rare hard and well cemented, slightly calcareous in part, very poorly sorted, shaly

3018'-3026' **SHALE: 70%** light gray-brown, light gray, light gray-green, soft, blocky-subfissile, non calcareous, slightly-very silty, rare black carbonaceous specks
SILTSTONE: 30% light gray-brown, soft, very poorly sorted, shaly, non calcareous, grading to silty shale

3026'-3032' **SANDSTONE: 90%** predominantly unconsolidated very fine grained to silty subangular quartz, scattered white feldspar, rare intact clusters are well cemented, poor-moderately well sorted with clay fill, calcareous, very poor intergranular porosity (3-4%)
SHALE: 10% light gray-brown, firm, subfissile, non calcareous, very silty

3032'-3040' **SHALE: 70%** light gray-brown, light gray, rare light gray-green, soft, blocky-subfissile, non calcareous, slightly-very silty, rare carbonaceous specks
SANDSTONE: 30% unconsolidated very fine grained subangular-subround quartz, probable poor intergranular porosity

3040'-3050' **SHALE: 90%** light gray-brown, light gray, rare light gray-green, soft, blocky-subfissile, non calcareous, smooth to silty, occasional imbedded very fine grained quartz
SANDSTONE: 10% light brown, very fine grained soft-firm, poor-moderately well cemented, very poorly sorted with light gray clay fill, very calcareous, quartzitic with scattered black minerals very poor porosity

3050'-3060' **SANDSTONE: 60%** light gray, light gray-brown, very fine grained to silty, unconsolidated in part, intact clusters are friable, poorly cemented, poorly sorted with clay fill, very calcareous, quartzitic with occasional carbonaceous debris, poor porosity
SHALE: 40% light gray, soft, blocky-subfissile, silty in part, some floating quartz grains, non calcareous

3060'-3080' **SILTSTONE: 60%** light gray, soft to friable, very poorly sorted, very shaly, non calcareous to slightly calcareous, scattered carbonaceous inclusions
SHALE: 40% light gray, light gray-brown, soft, subfissile-sub blocky, slightly calcareous in part, silty to very silty, rare smooth and subwaxy, micromicaceous

3080'-3090' **SHALE: 60%** light-medium gray, light gray-brown, soft to very soft, sub blocky-subfissile, non calcareous, slightly-very silty, micromicaceous, rare black carbonaceous specks
SILTSTONE: 40% light gray, soft to friable, very poorly sorted, very shaly, non calcareous to slightly calcareous, scattered carbonaceous inclusions, trace arenaceous

3090'-3100' **SILTSTONE: 50%** light gray, firm-friable, very poorly sorted, very shaly, poorly cemented, quartzitic, calcareous in part, dirty, scattered carbonaceous debris
SHALE: 50% light gray, medium gray-brown, soft, sub blocky-subfissile, non calcareous, slightly-very silty, micromicaceous, occasional carbonaceous inclusions

3100'-3120' **SHALE: 100%** light gray, gray-brown, rare light gray-green, soft, blocky-subfissile, non calcareous, slightly-very silty, arenaceous in part, rare smooth and subwaxy, scattered black carbonaceous inclusions

3120'-3130' **SHALE: 100%** light-medium gray-brown, light gray, rare light gray-green, soft, blocky-subfissile, non calcareous, slightly-very silty, occasional floating very fine grained quartz, some carbonaceous matter

3130'-3140' **SILTSTONE: 60%** light gray, firm-friable, very poorly sorted, clayey, calcareous, quartzitic, occasional carbonaceous inclusions
SHALE: 40% light gray, gray-brown, soft, blocky-subfissile, silty, non calcareous, micromicaceous, occasional carbonaceous specks

3140'3150' **SHALE: 100%** light gray-brown, gray, soft, blocky-subfissile, slightly-very silty, non calcareous, micromicaceous, occasional carbonaceous debris

3150'-3170' **SHALE: 80%** light gray-brown, light gray, soft, blocky-subfissile, non calcareous, slightly-very silty, micromicaceous, rare carbonaceous specks
SILTSTONE: 20% light gray, gray-brown, firm to friable, very poorly sorted, shaly, micromicaceous, non calcareous

3170'-3200' **SHALE: 100%** light-medium gray-brown, dull gray-green, blocky-subfissile, moderately-very silty, micromicaceous, non calcareous, occasional black carbonaceous specks

3200'-3225' **VERY POOR RETURNS**:
SHALE: light gray, gray-brown, soft to very soft, non calcareous, blocky-subfissile, very silty, micromicaceous, rare carbonaceous inclusions

3225'-3240' **SHALE**: dull gray-brown, dull gray-green, soft to very soft, blocky-subfissile, non calcareous, very silty, occasional floating very fine grained quartz grains, rare carbonaceous inclusions, trace pyrite aggregates, continued poor returns

3240'-3293' **NO RETURNS**

LOST CIRCULATION AT 3293'

3293'-3370' **NO RETURNS** – Drill ahead blind

3340'-3370' **HOLE UNLOADS** – very poor sample quality
SHALE: 60% light gray, gray-brown, soft-firm, blocky-sub blocky, occasional carbonaceous inclusions, micromicaceous, non calcareous, very silty grading to siltstone
SILTSTONE: 40% gray-brown, light gray, friable to soft, very poorly sorted, shaly, calcareous in part, possible cavings

3370'-3413' **LIMITED RETURNS:** Very poor sample quality, logged as shale

TWIST OFF, LEAVING BIT, BIT SUB, MONEL COLLAR AND TWO DRILL COLLARS IN THE HOLE. FISH IS RETRIEVED ON THE THIRD ATTEMPT

3413'-3413' **LITHOLOGY ON BIT WHEN FISH IS RETRIEVED**
SHALE: light gray, light gray-green, light brown, very soft to soft, blocky, slightly-very silty, trace arenaceous, non calcareous, micromicaceous, rare black carbonaceous specks

3413'-3430' **NO RETURNS**

3430'-3460' **NO RETURNS**

3460'-3470' **SILTSTONE: 70%** light-medium gray, gray-brown, soft-very soft, dirty, very poorly sorted, shaly, non calcareous to slightly calcareous, scattered carbonaceous specks
SHALE: 30% light gray, light gray-brown, soft-very soft, very silty, micromicaceous, non calcareous, rare carbonaceous specks

3470'-3490' **SHALE: 70%** medium gray-brown, medium gray, soft-very soft, very silty, micromicaceous, non calcareous, occasional carbonaceous inclusions, grading to and interbedded with shaly siltstone
SILTSTONE: 30% light-medium gray-brown, friable to soft, very shaly, very calcareous in part, quartzitic, scattered carbonaceous debris

3490'-3500' **SHALE: 50%** medium gray, gray-brown, soft, blocky-subfissile, slightly calcareous in part, micromicaceous, slightly-very silty, some carbonaceous inclusions and laminae

SILTSTONE: 50% medium gray-brown, medium gray, friable to hard and well cemented, very poorly sorted, shaly, slightly calcareous to very calcareous, quartzitic, scattered carbonaceous matter

3500'-3515' **SHALE: 80%** medium gray-brown, light gray, soft-very soft, blocky-subfissile, micromicaceous, predominantly very silty, calcareous in part, occasional carbonaceous specks
SILTSTONE: 20% medium gray-brown, friable-firm, calcareous, very poorly sorted, shaly, rare carbonaceous specks

3515'-3584' **NO RETURNS**

PULL UP 500' TO 800' AND TRY TO GAIN RETURNS

3584'-3615' **NO RETURNS**, drill ahead blind

3615'-3615' **HOLE UNLOADS**
SANDSTONE: 70% light gray, light gray-brown, very fine grained to silty, friable to firm, moderately well cemented, poor-moderately well sorted, shaly in part, slightly calcareous to moderately calcareous, subangular-subround quartzitic with scattered black carbonaceous specks, **poor visible intergranular porosity**, (6-8%), no visible stain, fluorescence, or cuts
SILTSTONE: 30% light-medium gray-brown, friable to hard and well cemented, calcareous, very poorly sorted, shaly, occasional carbonaceous specks

3615'-3630' **SHALE: 70%** light gray-brown, light gray, soft, blocky-sub blocky, calcareous in part, very silty, grading to and interbedded with dirty siltstone, scattered carbonaceous inclusions

SILTSTONE: 30% light-medium gray-brown, friable to soft, very poorly sorted, shaly, calcareous, occasional carbonaceous specks

3630'-3640' **SHALE: 70%** light gray-brown, light gray, soft, blocky-subfissile, calcareous in part, micromicaceous, mostly very silty
SILTSTONE: 30% light gray-brown, rare medium gray-brown, friable to soft, very poorly sorted, calcareous, shaly, rare black carbonaceous inclusions

3640'-3660' **HOLE UNLOADS AT 3675'** – Lagged at 3660', questionable sample quality
SILTSTONE: 100% light gray, light gray-brown, firm-friable, very poorly sorted, shaly to clayey, calcareous, rare pyritic, micromicaceous, occasional carbonaceous debris with pyrite

3660'-3670' **SHALE: 80%** medium gray-brown, soft-firm, blocky, silty, slightly-moderately calcareous, micromicaceous, scattered carbonaceous specks
SILTSTONE: 20% medium gray-brown, light gray, firm to friable, very poorly sorted, shaly, calcareous, rare carbonaceous inclusions

3670'-3690' **SHALE: 100%** medium-dark gray-brown, dark gray, soft-firm, silty, blocky-subfissile, micromicaceous, slightly calcareous, scattered brown and black carbonaceous inclusions

3690'-3700' **SHALE: 80%** medium gray-brown, medium gray, soft-firm, blocky-subfissile, very silty, slightly calcareous, micromicaceous, rare calcite fossil fragments, scattered carbonaceous specks
SILTSTONE: 20% medium gray-brown, light gray, firm, very poorly sorted, shaly, slightly calcareous, quartzitic with occasional black carbonaceous inclusions

3700'-3750' **NO RETURNS**

3750'-3790' **NO RETURNS:** Rig crew members are standing by the shaker at all times, waiting for hole to unload.

3799'-3799' **HOLE UNLOADS:** At connection, lagged back to 3775'-3795'
SILTSTONE: 60% light-medium gray, medium gray-brown, firm to friable, moderately well cemented, poor-moderately well sorted, shaly in part, slightly calcareous, occasional carbonaceous inclusions when gray-brown
SHALE: 30% medium-dark gray-brown, light gray, soft-firm, blocky to fissile, micromicaceous, very silty, scattered carbonaceous matter
SANDSTONE: 10% light gray, salt and pepper, very fine grained to silty, friable-firm, poor-moderately well sorted, considerable light gray clay fill, subangular, slightly calcareous, quartzitic with occasional black minerals and glauconite, some carbonaceous inclusions, poor porosity (4-6%), **no shows**

3799'-3830' **SILTSTONE- 40%** light gray, light gray-brown, salt and pepper, firm-hard, well cemented, calcareous, poor-moderately well sorted, shaly in part, some carbonaceous debris
SANDSTONE: 30% light gray, salt and pepper, very fine grained to silty, firm-hard, well cemented moderately well sorted, to shaly, micaceous, slightly-moderately calcareous, quartzitic with scattered carbonaceous inclusions, poor porosity (4-6%)
SHALE: 30% gray-brown, soft, fissile, very silty, carbonaceous, micromicaceous
Hole unloads cuttings at 3830' connection

3830'-3860' **NO RETURNS**

3860'-3870' **HOLE UNLOADS**, lagged back to 3870', very limited returns
SILTSTONE: 60% light gray, light gray-brown, friable to hard and well cemented, mostly poorly sorted, shaly, calcareous in part, scattered carbonaceous inclusions micromicaceous
SHALE: 20% light gray, light gray-brown, soft to very soft, blocky-subfissile, non calcareous, very silty in part

SANDSTONE: 20% light gray, salt and pepper, very fine grained to silty, firm to hard and well cemented, poorly sorted with abundant light gray clay fill, subangular, calcareous, scattered carbonaceous debris, poor intergranular porosity (4-6%)

3870'-3890' **SILTSTONE:50%** light gray, salt and pepper, friable to hard and well cemented, slightly-very calcareous, poorly sorted with clay, occasional carbonaceous inclusions
SANDSTONE: 30% light gray, salt and pepper, very fine grained to silty, friable to hard, well cemented in part, poor-moderately well sorted with much light gray clay fill, calcareous, quartzitic with scattered carbonaceous inclusions, poor porosity (4-6%), **no shows**
SHALE: 20% very light gray, gray-brown, soft to very soft, blocky-fissile, slightly-very silty, calcareous in part, rare carbonaceous specks

3890'-3950' **NO RETURNS**

3950'-3960' **HOLE UNLOADS AT 3964'** Minimal returns are caught – poor sample quality
SILTSTONE: 80% medium-dark gray, gray-brown, friable to hard and well cemented, very poorly sorted, shaly, micromicaceous, slightly-moderately calcareous, increasing carbonaceous debris
SHALE: 20% medium-dark gray, gray-brown, soft, blocky-sub blocky, non calcareous, micromicaceous, very silty, considerable carbonaceous inclusions

3960'-3990' **SILTSTONE: 70%** medium-dark gray-brown, firm to soft, very poorly sorted, very shaly, decreasing grains size from above, slightly calcareous, scattered carbonaceous matter, micromicaceous

SHALE: 30% medium-dark gray-brown, soft-very soft, blocky, very silty, micromicaceous, non calcareous, occasional carbonaceous inclusions
Very limited sample – questionable quality

3990'-4020' **NO RETURNS**

4020'-4030' **SILTSTONE: 90%** medium gray-brown, light gray, friable-firm, moderately well cemented, calcareous, very poorly sorted, shaly, pyritic in part, scattered carbonaceous inclusions micromicaceous
SHALE: 10% medium-dark gray-brown, soft-very soft, blocky, very silty, micromicaceous, non calcareous, occasional carbonaceous inclusions

4030'-4040' **SILTSTONE: 80%** medium-dark gray, gray-brown, soft and friable to firm, moderately well cemented, very poorly sorted, shaly, slightly calcareous, quartzitic with rare glauconite, micromicaceous, scattered carbonaceous inclusions
SANDSTONE: 10% light gray, very fine grained to silty, friable, moderately well sorted, moderately well cemented, calcareous, quartzitic, poor porosity (4-6%), **no shows**
SHALE: 10% Occurs as soft fissile, medium-dark gray-brown and light gray partings

4040'-4060' **SANDSTONE: 50%** light gray, salt and pepper, very fine grained to silty, firm to friable, moderately well sorted, some clay fill, moderately well cemented, calcareous, quartzitic with considerable black carbonaceous debris, poor intergranular porosity (4-8%), **no shows**
SILTSTONE: 50% light gray-brown, light gray, firm to friable, moderately well cemented, poor-moderately well sorted, shaly in part, trace glauconite
CARBONACEOUS SHALE: **trace** very dark brown, blocky, brittle
COAL: trace, black hard, brittle, sub vitreous

4060'-4080' **SILTSTONE: 80%** light gray, light-medium gray-brown, firm to friable, mostly poorly sorted, shaly, calcareous, carbonaceous, micromicaceous, pyritic in part,
SANDSTONE: 10% as above
SHALE: 10% light gray-brown, very light gray, very soft, fissile, silty, calcareous in part, carbonaceous

4080'-4090' **SILTSTONE: 70%** light-medium gray-brown, light gray, soft, friable to firm, very poorly sorted, shaly, mostly non calcareous, occasional carbonaceous inclusions, trace glauconite, trace pyrite
SHALE: 30% light gray, light gray-brown, very soft, sub blocky-fissile, slightly-very silty, non calcareous, rare carbonaceous inclusions

4090'-4100' **SILTSTONE: 50%** light-medium gray-brown, light gray, soft, friable to firm, very poorly sorted, shaly, mostly non calcareous, occasional carbonaceous inclusions, trace glauconite, trace pyrite
SANDSTONE: 50% light gray, light gray-brown, very fine grained to silty, friable, poor-moderately well cemented, poorly sorted, shaly, slightly calcareous, carbonaceous, poor porosity (4-6%, **no shows**)

4100'-4110' **SHALE: 100%** light gray, light gray-brown, very soft, blocky-subfissile, non calcareous, slightly-very silty, rare carbonaceous inclusions

4110'-4120' **SHALE: 50%** light gray, light gray-brown, very soft, blocky-subfissile, very silty, non calcareous to moderately calcareous, micromicaceous, occasional carbonaceous inclusions
SILTSTONE: 50% light gray, light-medium gray-brown, soft to friable, very poorly sorted, shaly, micromicaceous, calcareous, scattered carbonaceous specks

4120'-4150' **SILTSTONE: 80%** light gray-brown, light gray, soft to friable, very poorly sorted, shaly, slightly calcareous in part, rare carbonaceous inclusions
SHALE: 20% light gray-brown, light gray, very soft, subfissile to fissile, slightly-very silty, smooth and subwaxy in part, non calcareous, micromicaceous

4150'-4160' **SHALE: 80%** light gray-brown, light gray, very soft, blocky-subfissile, slightly-very silty, non calcareous, micromicaceous, rare carbonaceous specks

SILTSTONE: 20% light gray-brown, friable to firm, moderately well cemented, very poorly sorted, shaly, slightly calcareous, micromicaceous, rare carbonaceous inclusions

4160'-4210' **NO RETURNS**

4180'-4220' **HOLE UNLOADS AT 4230'** lagged back to 4180'-4220'
SHALE: 100% light gray-brown, very soft, blocky-subfissile, non calcareous, slightly-very silty, scattered floating very fine grained quartz grains, rare black carbonaceous inclusions

4220'-4230' **SHALE: 70%** light gray-brown, very soft, blocky-subfissile, non calcareous, slightly silty, rare carbonaceous inclusions
SANDSTONE: 30% light gray, salt and pepper, very fine grained to silty, friable, moderately well sorted, shaly in part, calcareous, quartzitic with occasional carbonaceous inclusions, **poor visible intergranular porosity** (4-6%), **no shows**

4230'-4250' **NO RETURNS**

4250'-4260' **HOLE UNLOADS AT 4270',** Very poor sample, few returns
SILTSTONE: 90% light gray-brown, friable to soft, poorly cemented, very poorly sorted, very shaly, calcareous, occasional carbonaceous inclusions

SHALE: 10% very light gray, light gray-brown, very soft, occurs as fissile partings

LOG TOP EMERY 4279' (+4393')

4260'-4280' **HOLE UNLOADS CUTTINGS AT 4297'**
SANDSTONE: 80% light gray, medium gray-brown, very fine grained, friable to firm, moderately well cemented, poor-moderately well sorted with light gray clay fill, moderately calcareous, subangular, quartzitic with rare black and brown chert, **poor visible intergranular porosity** (4-8%), no fluorescence, stain, or cuts
SHALE: 20% medium-dark gray-brown, soft-firm, blocky-subfissile, slightly-very silty, non calcareous, occasional carbonaceous inclusions

4280'-4320' **NO RETURNS**

4320'-4340' **NO RETURNS**

4340'-4350' **TRY TO UNLOAD HOLE AT CONNECTION-4360'**, Very poor sample, lagged back to 4340'-4350'
SANDSTONE: 60% light gray, very light gray-brown, very light brown, very fine grained, unconsolidated in part, to soft and friable, poorly cemented, poor-moderately well sorted, shaly in part, non calcareous to calcareous, subangular, quartzitic with rare black grains, probable poor intergranular porosity, No stain, fluorescence, or cuts

SHALE: 40% light gray-brown, soft, blocky-subfissile, non calcareous, very silty, rare carbonaceous specks

4350'-4360' **UNLOAD HOLE AT 4373',** Very poor sample quantity and quality
SANDSTONE: 50% light gray, very light brown, very fine grained to silty, very soft and friable, poor-moderately well sorted, shaly when brown, calcareous, poorly cemented, quartzitic with rare black grains and carbonaceous inclusions, **poor visible porosity, no shows**
SHALE: 50% light brown, gray-brown, very soft, blocky-subfissile, slightly-very silty, non calcareous, occasional brown and black carbonaceous remains

4360-4370' **COAL: 80%**, black, firm, brittle, sub vitreous, no fluorescence or cuts when immersed in solvent
SANDSTONE: 10% light brown, buff, very fine grained to silty, soft and friable, poorly sorted with clay fill, poor-moderately well cemented, very calcareous, quartzitic with scattered carbonaceous inclusions and laminae, poor intergranular porosity, no petroliferous odor, fluorescence, stain, or cuts
SHALE: 10% light brown, very soft, blocky-subfissile, silty, non calcareous, rare carbonaceous inclusions

4370'-4391' **SANDSTONE: 100%** Totally unconsolidated fine-medium grained subangular-subround quartz with rare white altered feldspar, probable well sorted, scattered black carbonaceous debris and coal, possible fair intergranular porosity, no petroliferous odor, stain, fluorescence, or cuts

4391'-4421' **SANDSTONE: 50%** Sample composed of 90% unconsolidated fine-medium grained subangular-subround quartz, rare intact clusters are mostly well sorted with some cream clay fill in pores, friable, poorly cemented, slightly calcareous, quartzitic with scattered brown chert, poor to fair intergranular porosity (12-18%), no petroliferous odor, fluorescence, stain, or cuts, rare black carbonaceous matter on quartz grains
SHALE: 50% light brown to buff, very soft to firm, blocky-subfissile, non calcareous, slightly-very silty, micromicaceous, rare pyrite aggregates

SAMPLE ABOVE COLLECTED AFTER TOTAL DEPTH WHEN HOLE UNLOADED CUTTINGS.

RUN LOGS WITH SCLUMBERGER AT 4421', AND RUN 9 5/8" CASING

DRILL OUT OF SHOE AND ENCOUNTER CONSIDERABLE WATER IN 5 FEET. ATTEMPT TO DRILL AHEAD WITH AIR/MIST.

4421'-4430' **NO RETURNS**

4430'-4438' **HOLE UNLOADS VERY SCANT, POOR RETURNS**
SHALE: 100% light gray, medium-dark gray-brown, soft-firm, blocky-subfissile, smooth to very silty, non calcareous, micromicaceous, trace calcite fracture fill

4438'-4461' **SANDSTONE: 90%** medium-dark gray-brown, light gray, very fine to rare fine grained, friable-firm, moderately well sorted, well cemented in part, calcareous, quartzitic with occasional brown and black chert, some carbonaceous debris when dark, poor intergranular porosity, **no shows**
SHALE: 10% very dark brown, firm, subfissile, very carbonaceous, silty, non calcareous, micromicaceous

4461'-4475' **SANDSTONE: 100%** light gray, very fine to rare fine grained, firm-friable, moderately well to well sorted, moderately well cemented, slightly calcareous, quartzitic with scattered brown and black chert, subangular-subround, poor to rare fair intergranular porosity, **no shows**, very limited returns

4475'-4490' **SANDSTONE: 100%** light gray, very fine to rare fine grained, becoming unconsolidated in part, firm-friable, moderately well to well sorted, moderately well cemented, slightly calcareous, quartzitic with scattered brown and black chert, subangular-subround, poor to rare fair intergranular porosity, **no shows**, very limited returns

4490'-4530' **SANDSTONE 90%** very fine grained, becoming more consolidated, poor-moderately well sorted with white clay fill in pores, calcareous, moderately well cemented, subangular-subround, quartzitic with black and brown chert, **poor visible intergranular porosity, no shows**
SHALE: 10% light gray, light gray-green, soft, blocky-subfissile, non calcareous, smooth

4530'-4560' **VERY POOR SAMPLE**
SANDSTONE: as above

4560'-4590' **COAL: 10%** black, firm, brittle, sub vitreous, not enough sample to canister
SANDSTONE: 90% totally unconsolidated, very fine grained subangular-subround quartz with scattered accessory dark chert, rare red iron stain on quartz grains, probable poor intergranular porosity, **no shows**

4590'-4620' **SANDSTONE: 70%** unconsolidated in part, intact clusters are light gray, very fine grained to silty, firm-friable, poor-moderately well sorted with light gray clay fill in pores, calcareous, moderately well cemented, subangular-subround, quartzitic with black carbonaceous inclusions, poor intergranular porosity, **no shows**
COAL: 10% black, firm, brittle, sub vitreous
SHALE: 20% white, light gray-green, soft, blocky to platy, probably occurs as partings in sandstone, calcareous when white

TRIP FOR BIT AT 4631'

4620'-4640' **SANDSTONE: 100%** totally unconsolidated, very fine to fine grained subangular-subround quartz with scattered black and dark brown minerals, probable poor-occasional fair intergranular porosity, **no shows**, scattered white soft, platy clay partings

4640'-4660' **SANDSTONE: 60%** totally unconsolidated, becoming very fine grained, subangular-subround quartz with scattered black and dark brown minerals, probable poor intergranular porosity, **no shows**, scattered white soft, platy clay partings
COAL: 40% black, firm, brittle, sub vitreous, micropyritic

4660'-4700' **SANDSTONE: 85%** totally unconsolidated very fine to fine grained subangular-subround quartz with scattered brown and black chert, rare red iron stain on quartz grains, possibly some fair intergranular porosity, **no shows**
COAL: 10% black, firm, brittle, sub vitreous
CARBONACEOUS SHALE: 5% dark brown, firm, blocky, very silty, calcareous in part, highly carbonaceous

4700'-4730' **SANDSTONE: 90%** Predominantly unconsolidated (99%), very fine to fine grained subangular-subround quartz with scattered brown and black chert, rare red iron stain on quartz grains, rare intact clusters are moderately well sorted, calcareous, and friable, possibly some fair intergranular porosity, **no shows**
SHALE: 10% dark brown, blocky, firm, very silty, non calcareous, abundant carbonaceous inclusions and laminae, micropyritic

4730'-4760' **SHALE: 60%** dark gray-brown, dark brown, firm, blocky-subfissile, very silty, non calcareous, carbonaceous, micropyritic
SANDSTONE: 40% light gray, very fine grained to silty, firm, mostly consolidated, poorly sorted with light gray clay fill in pores, moderately well cemented, calcareous, quartzitic with some brown chert, very poor intergranular porosity, (4-6%), **no shows**
SILTSTONE: trace, light gray, soft to firm, very shaly, calcareous, scattered carbonaceous specks

4760'-4790' **SANDSTONE: 70%** light gray, very fine grained mostly unconsolidated, rare intact clusters are friable, very poorly sorted with light gray clay fill in pores, poor-moderately well cemented, calcareous, quartzitic with rare black and brown grains, very poor intergranular porosity, **no shows**
SHALE: 30% dark gray-brown, dark brown, firm, blocky-subfissile, very silty, slightly calcareous, decreasing carbonaceous matter, trace pyrite, micromicaceous

4790'-4820' **SANDSTONE: 80%** light gray, very fine to fine grained predominantly unconsolidated, rare intact clusters are friable, very poorly sorted with light gray clay fill in pores, poor-moderately well cemented, calcareous, quartzitic with rare black and brown grains, very poor intergranular porosity, **no shows**

SHALE: 20% dark gray-brown, dark brown, firm, blocky-subfissile, very silty, slightly calcareous, scattered carbonaceous matter, trace pyrite, micromicaceous

4820'-4850' **SANDSTONE: 100%** Totally unconsolidated very fine to fine grained, rare medium grained subangular-subround quartz with accessory brown medium gray-brown chert, rare coaly and carbonaceous matter on quartz grains, possibly some fair intergranular porosity (12-15%), **no shows**

4850'-4870' **SANDSTONE: 100%** totally unconsolidated becoming predominantly very fine grained, subangular-subround quartz with rare accessory brown and black chert, considerable clay washes out of sample, suggesting very poorly sorted clayey sandstone with poor porosity (3-4%), **no shows**, scattered white soft clay partings

4870'-4900' **SHALE: 60%** dark gray-brown, dark brown, blocky-subfissile, firm, very silty, non calcareous to slightly calcareous, micromicaceous, abundant carbonaceous debris, trace calcite fossil fragments

SILTSTONE: 40% brown, light-medium gray-brown, firm to hard and well cemented, shaly, dirty, numerous carbonaceous specks
COAL: trace, black hard, sub vitreous

4900'-4930' **SHALE: 40%** dark gray-brown, dark brown, blocky-subfissile, firm, very silty, non calcareous to slightly calcareous, micromicaceous, abundant carbonaceous debris,, trace calcite fossil fragments
SILTSTONE: 30% brown, light-medium gray-brown, firm to hard and well cemented, shaly, dirty, becoming very calcareous grading to silty limestone, numerous carbonaceous specks
SANDSTONE: 20% light gray, light brown, mostly unconsolidated very fine grained quartz, intact clusters are friable, moderately well cemented, poor-moderately well sorted, shaly, very calcareous, poor intergranular porosity, **no shows**
COAL: 10% black, firm to hard, brittle, sub vitreous

4930'-4950' **COAL: 80%** black firm-hard, brittle, sub vitreous, not interpreted as representative of entire interval. Coal does not exhibit fluorescence or give cuts in solvent
SANDSTONE: 20% Totally unconsolidated very fine grained subangular-subround quartz, probable poor intergranular porosity, **no shows**

4950'-5120' **NO RETURNS:** Only one compressor is placed on the hole, as the reserve pit is full, and is being pumped down. Lithology interpreted from drill rate as interbedded sandstone, siltstone, and shale, with occasional thin coal beds

5120'-5140' **SANDSTONE: 100%** Totally unconsolidated very fine to fine grained subangular-subround quartz with scattered carbonaceous inclusions, probable poor intergranular porosity, **no shows**, occasional white very soft clay partings

5140'-5190' **SANDSTONE: 80%** light gray very fine grained, becoming consolidated, friable, very poorly sorted with white to light gray clay fill, poorly cemented, slightly calcareous, quartzitic with rare glauconite and occasional carbonaceous debris, very poorly intergranular porosity (3-4%), scattered white clay partings
SILTSTONE: 20% light brown, soft, very shaly, dirty, calcareous

5190'-5230' **CARBONACEOUS SHALE: 70%** brown to very dark brown, black and coaly, soft-firm, blocky-fissile, non calcareous, very silty, pyritic in part, abundant carbonaceous matter
SANDSTONE: 20% mostly unconsolidated very fine grained, subangular-subround quartz, intact clusters are very poorly sorted with clay, very calcareous, very poor intergranular porosity (3-4%), **no shows**, scattered white to brown very soft calcareous clay partings
COAL: 10% black, firm to hard, friable in part

5230'-5260' **SANDSTONE: 100%** Totally unconsolidated very fine grained to silty, subangular-subround quartz, calcareous in part, considerable cream clay fill washing out of sample, probable very poor intergranular porosity (3-4%), **no shows**

5260'-5290' **SANDSTONE: 80%** Totally unconsolidated very fine grained to silty, subangular-subround quartz, calcareous in part, considerable cream clay fill washing out of sample, quartzitic with scattered glauconite, probable very poor intergranular porosity (3-4%), **no shows**
CARBONACEOUS SHALE: 20% dark brown to black, soft to firm, blocky-fissile, very silty, non calcareous, occasional pyritic, coaly in part

5290'-5366' **NO RETURNS**: Limited air to no air is on the hole, as reserve pit is full, gain returns after connection at 5366'. Sample is limited in quantity and poor in quality.

5366'-5397' **POOR SAMPLES:** Lags uphole an unknown distance
SANDSTONE: 80% light gray, very fine grained, mostly unconsolidated, intact clusters are friable to firm, poor-moderately well sorted with some light gray clay fill in pores, slightly calcareous, moderately well cemented, quartzitic with rare gray-brown and brown chert, scattered carbonaceous debris, subangular-subround, poor intergranular porosity, **no shows**
SILTSTONE: 20% dark brown, light brown, firm-friable, very poorly sorted, shaly, slightly calcareous, very silty, considerable carbonaceous inclusions

5397'-5520' **NO RETURNS:** Only one compressor on hole, cuttings not being lifted.

5520'-5540' **VERY POOR QUALITY, MEAGER SAMPLE CAUGHT AT 5550'.**, Lagged back to 5520'-5540'
SANDSTONE: 90% light gray, very fine grained, mostly unconsolidated, intact clusters are moderately well cemented, friable, moderately well sorted, scattered clay in pores, calcareous, quartzitic with rare glauconite, occasional brown chert and organic coating on quartz grains, **poor visible porosity**, (4-6%), **no shows**, scattered soft white clay partings
COAL: 10% Probable cavings

5540'-5585' **SANDSTONE: 60%** light gray, very fine good, soft-firm, friable, poor-moderately well cemented, very poorly sorted with clay fill, slightly calcareous, quartzitic with scattered black minerals and carbonaceous inclusions, poor intergranular porosity (3-4%), **no shows**
SILTSTONE: 20% light gray, soft, very poorly sorted, shaly, calcareous
SHALE: 20% white, light-medium gray, very soft, mushy in part, platy to blocky, clayey and calcareous when white, silty

5585'-5615' **SILTSTONE: 70%** light gray, very soft, very poorly sorted, shaly, calcareous, scattered carbonaceous specks
SANDSTONE: 30% light gray, very fine grained to silty, soft, very poorly sorted, shaly, calcareous, grading to and interbedded with siltstone, poor intergranular porosity (3-4%)

5615'-5640' **SANDSTONE: 60%** light gray, very fine grained to silty, soft and shaly to friable, very poorly sorted, slightly calcareous in part, poorly cemented, occasional carbonaceous inclusions, poor porosity, **no shows**
SILTSTONE: 40% light gray, very soft, very poorly sorted, shaly, calcareous, scattered carbonaceous specks

5640'-5665' **SILTSTONE: 60%** light gray, light gray-brown, very soft to unconsolidated, very poorly sorted, shaly, slightly calcareous
SANDSTONE: 20% light gray, salt and pepper, very fine grained, soft and friable to firm, poor-well cemented, shaly, slightly calcareous, quartzitic with black and brown accessory chert, subangular, very poor intergranular porosity, **no shows**
SHALE: 20% medium-dark brown, firm, fissile-subfissile, very silty, non calcareous, micromicaceous, considerable carbonaceous inclusions and laminae

5665'-5685' **SHALE: 60%** medium-dark brown,, black, medium gray, firm, to soft when gray, blocky-subfissile, very silty, non calcareous, highly carbonaceous, coaly in part, pyritic occasionally
SILTSTONE: 20% light brown, tan, friable to hard and well cemented, shaly, very calcareous, scattered carbonaceous specks

SANDSTONE: 20% light gray, salt and pepper, very fine grained, rare fine grained, firm-friable, moderately well cemented, poor-moderately well sorted, some gray clay fill, subangular, quartzitic with scattered dark chert and carbonaceous inclusions, poor porosity, **no shows**

5685'-5700' **SHALE: 70%** light gray, light gray-brown, very soft, mushy, silty, calcareous, scattered carbonaceous specks
SILTSTONE: 30% light gray, very soft, very poorly sorted, shaly, calcareous, scattered carbonaceous specks

5700'-5730' **HOLE UNLOADS, VERY POOR SAMPLE**
SHALE: 40% dark brown, firm, blocky-subfissile, very silty, micromicaceous, slightly calcareous in part, abundant carbonaceous inclusions and laminae
SILTSTONE: 60% light gray, light gray-brown, very soft, very poorly sorted, shaly, non calcareous, Abundant coal and very fine grained sandstone – probable cavings from ROP

LOG TOP LOWER BLUEGATE (MANCOS) 5764', 5762 TVD (+2910')

5730'-5990' **NO RETURNS**

5970'5996' **HOLE UNLOADS AT 5790'-5996', LAGGED BACK TO 5970'**
SILTSTONE: 70% light-medium gray, firm-hard, well cemented, shaly to moderately well sorted, very calcareous, some black carbonaceous specks
SHALE: 30% medium gray, firm, blocky-subfissile, silty, calcareous, micromicaceous, occasional carbonaceous streaks

5996'-6018' **SILTSTONE 50%** light brownish-gray, light gray, firm to hard, very shaly to moderately well sorted, calcareous, micromicaceous in part, scattered carbonaceous inclusions
SHALE: 50% medium gray, firm, blocky-subfissile, silty, calcareous, micromicaceous, occasional carbonaceous streaks
COAL: Abundant black, hard vitreous, interpreted after logs to be cavings

6018'-6040' **SILTSTONE: 50%** light-medium gray-brown, medium gray, firm, moderately well to well cemented, poorly sorted, shaly, calcareous, scattered carbonaceous debris
SHALE: 50% light-medium gray-brown, medium gray, firm, blocky-subfissile, very silty to moderately silty, micromicaceous, calcareous, occasional carbonaceous inclusions

6040'-6075' **SHALE: 80%** medium-dark gray, gray-brown, firm, blocky-subfissile, moderately-very silty, calcareous, scattered carbonaceous matter, micromicaceous
SILTSTONE: 20% light-medium gray, firm to hard and well cemented, very poorly sorted and shaly to moderately well sorted, very calcareous

SANDSTONE: trace light gray, very fine grained, hard, well cemented, very calcareous, moderately well sorted, quartzitic with rare red grains, scattered black grains, no visible intergranular porosity, **no shows**

6075'-6115' Considerable coal still in sample, probable cavings,
SHALE: 70% medium-dark gray-brown, firm, blocky-fissile, very silty, micromicaceous, calcareous, rare carbonaceous specks
SILTSTONE: 30% light-medium gray-brown, light gray, light brown, firm to hard and well cemented, slightly calcareous to very calcareous, very poorly sorted, shaly, scattered carbonaceous specks
SANDSTONE: trace, light gray, very fine grained, very hard, well cemented, calcareous, moderately well sorted, quartzitic, no visible intergranular porosity, **no shows**

6115'-6150' **SAMPLE IS 80% COAL – CAVINGS**
SILTSTONE: 20% light gray, light gray-brown, firm, very poorly sorted, shaly, well cemented, micromicaceous, calcareous, rare carbonaceous inclusions, grading to silty shale

6150'-6190' **ABUNDANT COARSE COAL CAVINGS , LESS IN FINE SCREENED SAMPLE**
SHALE: 60% medium gray, medium gray-brown, firm, blocky-fissile, calcareous, very silty, micromicaceous, rare carbonaceous inclusions
SILTSTONE: 40% medium gray, medium gray-brown, firm-hard, well cemented, very shaly, calcareous, micromicaceous, rare buff inclusions, scattered carbonaceous inclusions

6190'-6220' **SILTSTONE: 80%** medium gray, medium gray-brown, firm-hard, well cemented, very shaly, calcareous, micromicaceous, rare buff inclusions, scattered carbonaceous inclusions
SHALE: 20% medium gray, medium gray-brown, firm, blocky-fissile, calcareous, very silty, micromicaceous, rare carbonaceous inclusions

6220'-6252' **SHALE: 80%** Medium gray-brown, soft-firm, blocky-fissile, very silty, calcareous, occasional carbonaceous specks, micromicaceous
SILTSTONE: 20% light gray, light brown, firm, well cemented, shaly, very calcareous

6252'-6300' **COAL 50% CAVINGS**
SHALE 100%: medium gray-brown, when wet to dark gray when black, soft and brittle to firm, fissile-subfissile, calcareous, micromicaceous, very silty, rare carbonaceous specks

6300'-6330' **SHALE: 100%** medium brown when wet to dark gray to black when dry, soft-firm, fissile-subfissile, micromicaceous, silty, slightly calcareous, rare carbonaceous specks, trace calcite fossil fragments

6330'-6350' **SHALE: 100%** medium brown when wet to very dark gray to black when dry, soft-firm, fissile-subfissile, slightly-moderately silty, slightly calcareous to rare very calcareous, micromicaceous, rare carbonaceous inclusions
COAL: 10% cavings

6350'-6390' **SHALE: 90%** medium brown when wet to very dark gray to black when dry, soft-firm, fissile-subfissile, very silty, slightly calcareous to rare very calcareous, micromicaceous, rare carbonaceous inclusions
SILTSTONE: 10% light brown, soft in part to firm, very poorly sorted, shaly, very calcareous
CLAYSTONE: trace, light brown, very soft, calcareous, mushy in part, blocky, bentonitic

6390'-6420' **SHALE: 100%** light-medium brown when wet to very dark gray to black when dried, firm to very soft, fissile-sub blocky, silty, micromicaceous, slightly to very calcareous, occasional light brown very soft and bentonitic, scattered carbonaceous inclusions

6420'-6480' **COAL: 50% CAVINGS**
SHALE: 50% light-medium brown when wet to dark gray to black when dry, soft-firm, blocky-subfissile, becoming very silty in part, calcareous, micromicaceous, trace calcite fossil fragments, scattered carbonaceous specks
SILTSTONE: 50% light-medium gray-brown, medium brown, firm to hard and well cemented, very shaly, very calcareous, occasional carbonaceous inclusions

6480'-6510' **HOLE BEGINS MAKING CONSIDERABLE WATER AT 6510', UNLOAD HOLE WITH 4 COMPRESSORS AT CONNECTION AT 6521'. WATER UNLOADS 30-40 FEET ABOVE SHAKER, NO GAS OR HYDROCARBONS OBSERVED.**
SHALE: 50% light-medium brown when wet, dark gray when dried, soft-firm, blocky-fissile, very silty, calcareous, micromicaceous, occasional black carbonaceous specks
SILTSTONE: 50% light-medium brown, light gray, firm to very hard and well cemented, dense, very shaly and dirty, to moderately well sorted when light gray, very calcareous, micromicaceous in part, occasional carbonaceous inclusions, **no shows**.

6510'-6520' **SHALE: 80%** medium brown, gray-brown when wet, very dark gray when dried, soft-firm, subfissile-fissile, calcareous, very silty, micromicaceous, scattered carbonaceous specks
SILTSTONE: 20% medium gray-brown, firm to hard, well cemented, very calcareous, very poorly sorted, shaly, dirty, rare carbonaceous specks

6520'-6550' **SHALE: 80%** medium brown, gray-brown when wet, very dark gray when dried, soft-firm, subfissile-fissile, calcareous, very silty, micromicaceous, scattered carbonaceous specks, trace calcite fossil fragments

SILTSTONE: 20% medium gray-brown, firm to hard, well cemented, very calcareous, very poorly sorted, shaly, dirty, rare carbonaceous specks

6550'-6590' **SILTSTONE: 60%** light-medium gray-brown, medium brown, firm-hard, well cemented, very calcareous, very shaly, rare carbonaceous specks
SHALE: 40% light-medium brown, gray-brown, dark gray when dry, subfissile-fissile, becoming very silty, calcareous, micromicaceous

6590'-6650' **COAL: 60% CAVINGS**
SHALE: 80% medium brown when wet, dark gray when dried, soft-firm, subfissile-fissile, slightly calcareous, slightly-very silty, micromicaceous, rare carbonaceous specks

SILTSTONE: 20% light-medium gray-brown, medium brown, firm-hard, well cemented, very calcareous, very shaly, rare carbonaceous specks

6650'-6680' **COAL: 60% CAVINGS** , Poor sample quality
SHALE: 60% medium brown when wet, dark gray when dried, soft-firm, subfissile-fissile, slightly calcareous, slightly-very silty, micromicaceous, rare carbonaceous specks
SILTSTONE: 40% light-medium gray-brown, medium brown, firm-hard, well cemented, very calcareous, very shaly, rare carbonaceous specks

6680'-6710' **COAL: 70% CAVINGS** , Very poor sample quality
SHALE: 90% light-medium brown, gray-brown, when wet, dark gray when dried, soft-firm, fissile-subfissile, slightly-very silty, calcareous, micromicaceous, rare carbonaceous inclusions
SILTSTONE: 10% medium brown, firm, blocky, very shaly, very calcareous

6710'-6750' **NO RETURNS**

6750'-6790' **SHALE: 50%** medium brown, gray-brown, when wet, dark gray when dry, soft-firm, blocky-subfissile, very silty, slightly calcareous, micromicaceous, occasional carbonaceous debris, trace calcite fossil fragments
SILTSTONE: 50% medium brown, light gray-brown, firm to hard, well cemented, non calcareous to very calcareous, very poorly sorted, shaly

6790'-6820' **COAL: 70% CAVINGS**
SHALE: light-medium gray-brown when wet, dark gray when dry, firm, subfissile-fissile, very silty, micromicaceous, slightly-moderately calcareous, occasional carbonaceous inclusions

6820'-6850' **COAL: 40% CAVINGS**
SHALE: light-medium gray-brown when wet, dark gray when dry, firm, subfissile-fissile, very silty, micromicaceous, slightly-moderately calcareous, occasional carbonaceous inclusions

6850'-6890' **SHALE: 100%** medium brown, light-medium gray-brown, dark gray when dry, soft-firm, fissile, slightly-very silty, calcareous, micromicaceous, occasional carbonaceous inclusions, decreasing coal cavings

6890'-6920' **SHALE: 100%** medium brown, light-medium gray-brown, dark gray when dry, soft-firm, fissile, slightly-very silty, calcareous, micromicaceous, occasional carbonaceous inclusions, few coal cavings

6920'-6940' **SHALE: 90%** medium brown when wet, dark gray dried, firm, subfissile-fissile, silty, slightly calcareous. micromicaceous, rare carbonaceous specks

SILTSTONE: 10% medium brown, firm to moderately hard, well cemented, platy, very shaly, very calcareous, rare carbonaceous inclusions

6940'-6970' **SHALE: 90%** medium brown when wet, dark gray dried, firm, subfissile-fissile, silty, slightly calcareous. micromicaceous, rare carbonaceous specks
SILTSTONE: 10% medium brown, firm to moderately hard, well cemented, platy, very shaly, very calcareous, rare carbonaceous inclusions, occasional pyritic

6970'-7000' **SHALE: 100%** medium brown, occasional light brown, when wet, soft when light brown, to firm, subfissile-fissile, silty, micromicaceous, calcareous, occasional light brown blocky, very soft very calcareous, and marly

7000'-7073' **SAMPLES LEFT IN HOLE**, trip out to change to mud. First few stands very tight

MIX MUD AND CONSIDERABLE LCM

DEPTH CORRECTED TO 7083'

7083'-7110' 99% LCM – orange wood fiber
SHALE: 80% medium-dark gray, soft-firm, subfissile-fissile, very silty, micromicaceous, calcareous, rare carbonaceous specks
SILTSTONE: 20% medium gray, hard, well cemented, non calcareous to calcareous, micromicaceous, rare carbonaceous inclusions

BEGIN 10' LAGGED SAMPLES

7110'-7120' 99% LCM, primarily orange wood fiber
SHALE: 100% medium-dark gray, soft-firm, subfissile-fissile, very silty, micromicaceous, calcareous, rare carbonaceous specks

7120'-7130' 99% LCM as above
SHALE: 100% medium-dark gray, soft-firm, subfissile-fissile, very silty, micromicaceous, calcareous, rare carbonaceous specks

7130'-7140' LCM – 95% composed of considerable biotite, clear crystalline quartz and green minerals – Igneous origin
SHALE: 100% medium gray-brown, very soft to soft, blocky-subfissile, moderately-very silty, earthy, rare glauconite inclusions and carbonaceous matter
SILTSTONE: trace, medium gray-brown, hard, well cemented, calcareous, very poorly sorted, shaly

7140'-7150' LCM – 99% orange wood fiber and cellophane
SHALE: medium gray-brown, firm, blocky-subfissile, silty, micromicaceous, calcareous, rare carbonaceous inclusions

7150'-7170' LCM-95%
SHALE: 100% medium brown, light brown, very soft and blocky when light brown, to firm and subfissile-fissile, silty, slightly-very calcareous, micromicaceous, rare pyrite inclusions

7170'-7180' 90% LCM
SHALE: 90% medium brown, light brown, very soft and blocky when light brown, to firm and subfissile-fissile, silty, slightly-very calcareous, micromicaceous, rare pyrite inclusions
SILTSTONE: 10% medium gray-brown, firm, blocky, very shaly, calcareous, scattered carbonaceous debris

7180'-7190' LCM 80%
SHALE: 90% light gray and very soft to medium gray, gray-brown, firm very silty, micromicaceous, slightly calcareous, scattered carbonaceous specks
SILTSTONE: 10% medium gray-brown, firm, blocky, very shaly, calcareous, scattered carbonaceous debris

7190'-7200' LCM – 50%
SHALE: 80% light gray, medium-dark gray-brown, very soft when light gray to firm, blocky-subfissile, micromicaceous, calcareous, earthy in part, occasional carbonaceous debris
SILTSTONE: 20% medium gray-brown, firm-hard, very shaly, well cemented, calcareous, occasional carbonaceous inclusions

7200'-7210' LCM – 50%
SHALE: 100% light gray, medium-dark gray-brown, very soft when light gray to firm, blocky-subfissile, micromicaceous, calcareous, earthy in part, occasional carbonaceous debris

7210'-7220' **LCM drops to 10% or less from here, sample quality improves to good**
SHALE: 100% light-dark gray, very soft to firm, blocky-subfissile, slightly-very calcareous, micromicaceous, occasional carbonaceous inclusions, trace pyrite

7220'-7230' **SHALE: 100%** light-dark gray, very soft to firm, blocky-subfissile, slightly-very calcareous, micromicaceous, occasional carbonaceous inclusions, trace pyrite

7230'-7240' **SHALE: 70%** light-dark gray, very soft to firm, blocky-subfissile, slightly-very calcareous, micromicaceous, occasional carbonaceous inclusions, trace pyrite
SILTSTONE: 30% medium gray-brown, firm to hard, well cemented, very poorly sorted, shaly, micromicaceous, calcareous, occasional buff inclusions, and carbonaceous specks

7240'-7250' **SHALE: 90%** medium-dark gray-brown, medium gray, soft-firm, slightly-very silty, micromicaceous, calcareous, rare glauconite, occasional carbonaceous inclusions

SILTSTONE: 10% medium gray-brown, firm to hard, well cemented, very poorly sorted, shaly, micromicaceous, calcareous, occasional buff inclusions, and carbonaceous specks, rare glauconite

7250'-7260' **SHALE: 90%** medium-dark gray-brown, medium gray, soft-firm, slightly-very silty, micromicaceous, calcareous, rare glauconite, occasional carbonaceous inclusions
SILTSTONE: 10% medium gray-brown, firm to hard, well cemented, very poorly sorted, shaly, micromicaceous, calcareous, occasional buff inclusions, and carbonaceous specks, rare glauconite

7260'-7270' **SHALE: 100%** medium gray-brown, soft-firm, blocky-subfissile, very silty, calcareous, micromicaceous, rare pyrite inclusions and carbonaceous specks

7270'-7280' **SHALE: 90%** medium-dark gray-brown, medium-dark gray, soft-firm, blocky-subfissile, silty, slightly-moderately calcareous, micromicaceous, trace pyritic, scattered carbonaceous inclusions
SILTSTONE: 10% medium gray-brown, hard, well cemented, shaly, very calcareous

7280'-7300' **NO RETURNS**: lost circulation at 7304', approximately 300 bbls.

7300'-7320' LCM – 50%
SHALE: 90% medium gray-brown, medium gray, soft-firm, blocky-subfissile, micromicaceous, very silty in part, calcareous , rare carbonaceous specks
SILTSTONE: 10% medium gray, soft and friable, very shaly, calcareous

7320'-7330' LCM – 50%
SHALE: 100% medium-dark gray-brown, light-medium gray, soft-firm, blocky-subfissile, micromicaceous, very silty in part, calcareous, rare carbonaceous specks

7330'-7340' LCM – 60%
SHALE: 100% medium gray, medium gray-brown, light gray-brown, very soft when light, to firm, blocky-subfissile, moderately-very silty, calcareous, micromicaceous, occasional carbonaceous debris

7340'-7350' LCM – 70%

SHALE: 100% dark gray-brown, dark gray, soft-firm, subfissile-fissile, micromicaceous, silty, becoming slightly calcareous, rare pyrite inclusions, rare carbonaceous specks

7350'-7360' LCM – 50%
SHALE: 100% dark gray-brown, dark gray, soft-firm, blocky-subfissile, micromicaceous, silty, becoming moderately to very calcareous, increasing pyrite inclusions, rare carbonaceous specks

7360'-7380' LCM – 95%, poor sample
SHALE: 100% dark gray-brown, dark gray, soft-firm, blocky-subfissile, micromicaceous, silty, calcareous, some pyrite inclusions, rare carbonaceous specks

7380'-7390' **SHALE:100%** dark gray-brown, dark gray, soft-firm, blocky-subfissile, micromicaceous, silty, calcareous, some pyrite inclusions, rare carbonaceous specks

7390'-7410' **SHALE: 100%** light gray, medium-dark gray-brown, soft-firm, micromicaceous, blocky-subfissile, very silty, calcareous, scattered carbonaceous debris

7410'-7440' **SHALE: 100%** light gray, medium-dark gray-brown, soft-firm, micromicaceous, blocky-subfissile, very silty, calcareous, scattered carbonaceous debris, occasional pyrite inclusions

7440'-7450' **SHALE: 100%** light-medium gray, medium gray-brown, soft-firm, blocky-fissile, slightly-moderately silty, calcareous, micromicaceous, occasional carbonaceous inclusions

7450'-7480' **NO RETURNS:** Lost circulation at 7473'

7480'-7490' Very poor sample quality, abundant LCM
SHALE: 80% medium-dark gray, firm, blocky-subfissile, silty, calcareous, micromicaceous, scattered carbonaceous specks
SILTSTONE: 20% dark gray, hard, well cemented, blocky, very calcareous, very poorly sorted, shaly

7490'-7500' LCM – 99%
SHALE: medium-dark gray, soft-firm, blocky-subfissile, micromicaceous, calcareous, very silty, occasional carbonaceous inclusions

7500'-7510' LCM – 99%
SHALE: medium-dark gray, soft-firm, blocky-subfissile, micromicaceous, calcareous, very silty, occasional carbonaceous inclusions, no visible sandstone

7510'-7520' LCM – 100%, trace cuttings
SHALE: medium-dark gray, soft-firm, blocky-subfissile, micromicaceous, calcareous, very silty, occasional carbonaceous inclusions, no visible sandstone

7520'-7530' LCM – 100%, trace cuttings
SHALE: medium-dark gray, soft-firm, blocky-subfissile, micromicaceous, calcareous, very silty, occasional carbonaceous inclusions, no visible sandstone

7530'-7540' LCM-99%
SHALE: medium gray, medium gray-brown, soft-firm, blocky-subfissile, moderately-very silty, micromicaceous, very calcareous, rare carbonaceous inclusions

SILTSTONE: trace, medium gray, firm-hard, well cemented, very poorly sorted, shaly, slightly calcareous, micromicaceous, occasional pyrite inclusions

CREWS BEGIN WASHING LARGE AMOUNT OF LCM AT SHAKER, FLOATING OFF LCM, LEAVING RESIDUE OF LCM/CUTTINGS, SAMPLE QUALITY AND QUANTITY IMPROVES

7540'-7550' **SHALE: 100%** medium-dark gray, rare light gray-brown, soft-firm, blocky-fissile, moderately calcareous, very silty, micromicaceous, scattered carbonaceous remains

7550'-7560' **SHALE: 95%** medium-dark gray, rare light gray-brown, soft-firm, blocky-fissile, moderately calcareous, very silty, micromicaceous, scattered carbonaceous remains
SILTSTONE:5% medium gray, firm, friable, platy, slightly calcareous, micromicaceous, very shaly

7560'-7570' **SHALE: 100%** medium-dark gray, rare light gray-brown, soft-firm, blocky-fissile, moderately calcareous, very silty, micromicaceous, scattered carbonaceous debris

7570'-7580' **SHALE: 100%** medium-dark gray, gray-brown, soft-firm, blocky-subfissile, very silty, calcareous, micromicaceous, occasional carbonaceous matter
SILTSTONE: trace, light gray, very soft, shaly, carbonaceous

7580'-7600' **SHALE: 100%** dark gray, soft-firm, blocky-fissile, very calcareous, micromicaceous, very silty, occasional carbonaceous matter

7600'-7620' **SHALE: 90%** dark gray, dark gray-brown, soft-firm, blocky-fissile, very calcareous, micromicaceous, very silty, occasional carbonaceous matter
LIMESTONE: 5% very light brown, light gray-brown, firm-hard, sublithographic, dense, moderately-very argillaceous, rare carbonaceous inclusions
SILTSTONE: 5% white, dark gray, very soft and clayey to hard and well cemented when white, considerable mica flakes, non calcareous, very poorly sorted and clayey when white, to shaly when dark gray

7620'-7630' **SHALE: 70%** dark gray, dark gray-brown, soft-firm, blocky-fissile, very calcareous, micromicaceous, very silty, occasional carbonaceous matter
LIMESTONE: 30% light brown, light gray-brown, dull medium gray-brown, rare white, sublithographic to microcrystalline, firm-hard, fragmental in part, micro pyritic, slightly-very argillaceous, very poorly intercrystalline porosity, **no shows**

SILTSTONE: trace, white, soft, fissile, very micaceous, bentonitic, dull mineral fluorescence

CIRCULATE SAMPLES AT 7660' – 80 MINUTES, 3 SAMPLES IN HOLE

7630'-7640' **SHALE: 60%** as above
SILTSTONE: 30% dark gray-brown, mottled light gray and dark gray, very soft and shaly to hard and well cemented, non calcareous, very poorly sorted, grading to shale
LIMESTONE: 10% as above, sublithographic to microcrystalline

7640'-7660' **SHALE: 50%** dark gray, firm, blocky-subfissile, very silty, slightly calcareous, very silty
SILTSTONE: 40% dark gray, firm-hard, well cemented, siliceous, non calcareous, very shaly
LIMESTONE: 10% light brown, microcrystalline, fragmental in part, slightly-moderately argillaceous, tight

7660'-7670' **SHALE: 100%** medium-dark gray, soft-firm, blocky-subfissile, very silty to gritty, slightly calcareous, rare carbonaceous specks

7670'-7680' **SHALE: 100%** dark gray, firm-moderately hard, blocky-subfissile, non calcareous, very silty, micromicaceous, rare carbonaceous specks

7680'-7690' **SHALE: 100%** medium-dark gray, gray-brown, firm-moderately hard, blocky-subfissile, non calcareous, very silty, micromicaceous, rare carbonaceous specks

7690'-7709' **NO RETURNS:** Lost circulation, approximately 1000 bbls. over next few hours

GAIN RETURNS AND DRILL 10' TO 7719' AND CIRCULATE SAMPLES. PUMP PRESSURE WAS KEPT VERY LOW TO AVOID LOSING RETURNS.
THE 10' CIRCULATION SAMPLE WAS DESCRIBED FROM APPROXIMATELY 20 SAMPLES TAKEN CONTINUOUSLY BY CREWS. NEARLY 100% OF SAMPLE IS LCM WITH MICA, QUARTZ, GARNET, AND OTHER MINERALS. DARK SHALE IS PRESENT. DESCRIPTION IS BASED ON VERY FEW GRAINS OF SAND – VERY POOR SAMPLE QUALITY.

7709'-7719' **SANDSTONE 80%:** light gray, cream, very light brown, very fine to fine grained, soft to friable, moderately well sorted to clay plugged and poorly sorted, poor-moderately well cemented, subangular-subround, non calcareous, quartzitic with rare accessory dark grains, poor to possible some fair intergranular porosity (6-10%), No visible fluorescence, stain, or cuts, tight interbedded with dark gray silty shale
SHALE 20%: very light brown, cream, soft-firm, blocky, very calcareous, bentonitic

TRIP OUT FOR LOGS WITH TWO PIPE STRAPS INDICATING UPHOLE DEPTH CORRECTION TO 7687' FIRST LOGGING RUN HITS BRIDGE AT 7256' TRIP IN TO CONDITION HOLE AND DRILL THREE FEET TO VERIFY BIT ON BOTTOM

7687'-7690' Abundant mica and granitic LCM present
SHALE: 95% dark gray, dark gray-brown, firm, blocky-subfissile, slightly-moderately calcareous, very silty, micromicaceous, trace fossil shell fragments, trace pyrite aggregates
LIMESTONE: 5% tan, light brown, light gray, soft and marly to hard, sublithographic to microcrystalline, slightly-very argillaceous, dense, tight
SHALE: trace, dark gray with imbedded well rounded medium-lower coarse grained quartz, glauconite, and pyrite, possible contact zone with Ferron
SILTSTONE: trace, light brown, very soft, very poorly sorted, shaly, calcareous, micaceous
SANDSTONE: trace, light gray, very fine grained soft and friable, very poorly sorted, shaly, calcareous, poor porosity, **no shows**

RUN LOGS AND SET 7" CASING TO 7689', DRILL OUT WITH 6.25" BIT

7690'-7702' **SHALE:** dark gray, firm, blocky-subfissile, very silty, slightly calcareous, micromicaceous, occasional pyrite inclusions, rare blocky gray-brown clayey shale, trace calcite fossil fragments

7702'-7713' **SHALE**: dark gray, firm, blocky-subfissile, very silty, slightly calcareous, micromicaceous, occasional pyrite inclusions, rare blocky gray-brown clayey shale, trace calcite fossil fragments
SILTSTONE: trace, medium gray, firm to friable, very poorly sorted, shaly, calcareous
LIMESTONE: trace, light brown, buff, possibly occurs as nodules, hard, clean

7713'-7725' **SHALE: 100%** dark gray, firm, blocky-subfissile, very silty, slightly calcareous, micromicaceous, scattered pyrite inclusions and aggregates, trace dark brown calcite fossil fragments
BENTONITE: trace, white, cream, soft and mushy, blocky, non calcareous, occasional floating mica flakes, silty in part

7725'-7734' **SHALE: 95%** dark gray, firm, blocky-subfissile, very silty, slightly calcareous, micromicaceous, scattered pyrite aggregates and inclusions, trace dark brown calcite fossil fragments
BENTONITE: 5% white, cream, soft and mushy, blocky, non calcareous, numerous floating mica flakes
COAL: trace, black, hard, sub vitreous
SANDSTONE: trace loose subround quartz grains

LOG TOP FERRON – 7738' (+934')

7734'-7745' **SANDSTONE**: influx of light gray to light brown, very fine grained to fine grained, unconsolidated to hard and very well cemented, calcareous, scattered dark chert and mica inclusions, subround, moderately well sorted, very **poor visible intergranular porosity** in intact clusters, considerable black and dark brown bitumen or dead oil stain, no fluorescence, or cut from numerous clusters
SHALE: light brown, cream, soft-firm, blocky-subfissile, slightly silty, bentonitic in part, non calcareous, scattered floating mica, Abundant dark gray shale cavings

TRIP OUT, PICK UP CORE BARREL AT 7745', TRIP IN AND GET STUCK. MIX MUD, TRIP OUT CORE BARREL, CIRCULATE AND CONDITION HOLE. ABANDON CORING AND DRILL AHEAD WITH BIT. HOLE IS CAVING CONSIDERABLY.

7745'-7755' **ABUNDANT SHALE CAVINGS 90%**
SILTSTONE: light brown, tan, firm to hard and well cemented, siliceous to slightly calcareous, very poorly sorted, shaly, trace mica inclusions
SANDSTONE: trace, light brown very fine grained, friable, moderately well cemented, moderately well sorted, calcareous, occasional carbonaceous specks, poor intergranular porosity, **no shows**

7755'-7763' **SANDSTONE:** light gray, light brown, very fine to medium grained, friable to hard, mostly well cemented, slightly calcareous to siliceous, moderately well sorted with cream clay fill in pores, subangular-subround, quartzitic with accessory brown and light gray chert, poor intergranular porosity due to cement and clay, **occasional black intergranular dead oil stain, even, dull to moderately bright yellow fluorescence yields faint, slow streaming cuts**

CONNECTION AT 7763', WORK PIPE WITH HOLE CAVING FOR 6 HOURS

7763'-7770' **SHALE: CAVINGS 95%**
SANDSTONE: light gray, rare light brown, becoming very fine grained, rare fine grained, firm to friable, well cemented, poor-moderately well sorted with increasing cream clay fill in pores, slightly calcareous in part, quartzitic with accessory brown and gray chert, rare glauconite, poor intergranular porosity (4-6%), **decreasing dead oil stain, very dull yellow fluorescence, no cuts**

7770'-7778' **SHALE: CAVINGS 90%**
SANDSTONE: 90% light gray, light brown, rare medium brown, very fine to fine grained, friable to hard and well cemented, poor-moderately well sorted, becoming very shaly in part, subangular-subround, quartzitic with accessory dark chert, poor intergranular porosity, **dull to rare moderately bright yellow fluorescence, no stain or cuts**
SHALE: 10% light brown, soft, blocky-subfissile, non calcareous, smooth to slightly silty

WORK CAVINGS AND RAISE MUD WEIGHT TO 10.4

7778'-7785' **SANDSTONE**: light gray, very fine grained, rare fine grained, friable-firm, well cemented, very poorly sorted with cream clay fill in pores, slightly calcareous in part, subangular-subround, quartzitic with occasional dark gray and brown chert, rare glauconite, very poorly intergranular porosity, dull to moderately bright yellow fluorescence, no visible stain or cuts, occasional white arenaceous claystone partings and medium green silty claystone

7785'-7790' **SANDSTONE: 60%** light gray, very fine grained, rare fine grained, friable-firm, well cemented, very poorly sorted with cream clay fill in pores, slightly calcareous in part, subangular-subround, quartzitic with occasional dark gray and brown chert, rare glauconite, very poorly intergranular porosity, dull to moderately bright yellow fluorescence, no visible stain or cuts
SILTSTONE: 30% very light brown to medium gray-brown, friable to firm, well cemented, very poorly sorted, shaly, calcareous in part, micropyritic, rare carbonaceous debris
SHALE: 10% light gray, light brown, soft, blocky to fissile, silty to arenaceous, calcareous in part

7790'-7795' **SHALE: 60%** light brown, soft, blocky-subfissile, silty to very silty, calcareous, micropyritic
SILTSTONE: 40% light brown, firm to hard and well cemented, very poorly sorted, shaly, quartzitic, very calcareous in part , micropyritic

7795'-7800' **SILTSTONE: 60%** light brown, honey, gray-brown, firm to friable, well cemented, very calcareous, moderately well sorted to shaly, micropyritic, grading to and interbedded with very fine grained sandstone
SANDSTONE: 30% light brown, honey, very fine grained, friable-firm, moderately well to well sorted, well cemented, calcareous, subangular, very poor intergranular porosity, **no shows**, yellow mineral fluorescence from calcite cement
SHALE: 10% light brown, soft, blocky-subfissile, silty to very silty, calcareous, micropyritic

7800'-7810' **SILTSTONE: 60%** light brown, honey, gray-brown, firm to friable, well cemented, very calcareous, moderately well sorted to shaly, micropyritic, grading to and interbedded with very fine grained sandstone
SANDSTONE: 20% light brown, honey, very fine grained, friable-firm, moderately well to well sorted, well cemented, calcareous, subangular, very poor intergranular porosity, **no shows**, yellow mineral fluorescence from calcite cement
COAL: 20% black, firm to hard, brittle dull to sub vitreous

LOSE CIRCULATION AT 7814' – 70 BARRELS

7810-7825' **ABUNDANT BICARB NODULES 90% IN NEXT SEVERAL SAMPLES**

SANDSTONE: 100% light gray, light brown, very fine grained, friable to firm and well cemented, poor-moderately well sorted with considerable cream clay fill, quartzitic with scattered dark grains, calcareous, in part, very poor intergranular porosity, no fluorescence, stain, or cuts

7825'-7835' **SANDSTONE: 50%** light gray, light brown, very fine grained, friable to firm and becoming very well cemented with calcite, poorly sorted with considerable cream clay fill, quartzitic with scattered dark grains, calcareous, very poor intergranular porosity, no fluorescence, stain, or cuts, grading to 20% siltstone
SHALE: 30% light gray-brown, soft-firm, blocky, arenaceous to silty with floating quartz grains, calcareous in part

7835'-7840' **SANDSTONE: 70%** light gray, light brown, very fine grained, trace fine grained well sorted, friable to firm and becoming very well cemented with calcite, poorly sorted with considerable cream clay fill, quartzitic with scattered dark grains, calcareous, very poor intergranular porosity, no fluorescence, stain, or cuts,
SILTSTONE: 30% light brown, firm, well cemented, calcareous, shaly in part
Considerable coal cavings

LOG TOP MIDDLE FERRON 7836' (+836')

7840'-7845' **SHALE: 70%** light brown, light-medium gray-brown, soft, blocky-fissile, calcareous, silty in part, occasional carbonaceous inclusions
SANDSTONE: 30% light gray, light brown, very fine to fine grained, firm, well cemented, moderately well sorted with some clay fill, quartzitic with brown chert, subangular, tight, **no shows**

7845'-7855' **SANDSTONE: 70%** light gray, light brown, very fine to fine grained, firm, well cemented, moderately well sorted with some clay fill, quartzitic with brown chert, subangular, occasional micropyritic, tight, **no shows**
SILTSTONE: 30% light gray, light brown, firm, well cemented, very poorly sorted, clayey, calcareous, occasional carbonaceous matter

7855'-7860' **SHALE: 70%** dark gray, dark gray-brown, firm, blocky-fissile, splintery in part, non calcareous, silty, micromicaceous, very carbonaceous in part
SILTSTONE: 30% light gray, light brown, firm, well cemented, very poorly sorted, clayey, calcareous, occasional carbonaceous matter

7860'-7865' **CARBONACEOUS SHALE**: very dark gray to black, firm to moderately hard, blocky, non calcareous, silty, abundant carbonaceous matter

7865'-7875' **SILTSTONE: 60%** light brown, light gray-brown, firm, very poorly sorted, shaly, calcareous, rare very carbonaceous
SANDSTONE: 20% light gray to light brown, very fine grained, firm-hard, well cemented, moderately well to poorly sorted, shaly in part, calcareous, quartzitic with scattered carbonaceous inclusions, subangular, very poor porosity, (4-6%), **no shows**

SHALE: 20% light brown, gray, soft, subfissile-fissile, calcareous

7875'-7885' **SANDSTONE: 40%** light gray, light brown, very fine grained to silty, firm-hard, well cemented, poor-moderately well sorted with cream clay fill, calcareous, subangular, quartzitic with scattered carbonaceous debris, grading to and interbedded with 40% siltstone as above, very poor porosity, (4-6%), **no shows**
SHALE: 20% light brown, rare gray, soft, subfissile-fissile, silty to arenaceous, calcareous, scattered carbonaceous specks

7885'-7895' ABUNDANT LCM
SHALE: 50% light-medium gray, white, rare light gray-green, light brown, soft, blocky-fissile, slightly-very silty, calcareous in part, bentonitic when gray
SILTSTONE: 40% light brown, light gray-brown, firm, very poorly sorted, shaly, calcareous, rare very carbonaceous
SANDSTONE: 10% light gray, light brown, very fine to fine grained, firm-friable, moderately well sorted, well cemented, subangular, calcareous, very poor porosity (4-6%), **no shows**

7895'-7905' **SHALE: 70%** light-medium gray, white, rare light gray-green, light brown, soft, blocky-fissile, slightly-very silty, calcareous in part, bentonitic when gray
SILTSTONE: 30% light brown, light gray-brown, firm, very poorly sorted, shaly, calcareous, rare very carbonaceous

7905'-7910' **SANDSTONE: 30%** light gray, very fine to fine grained, firm-friable, moderately well sorted, well cemented with calcite, subangular-subround, quartzitic with scattered gray and brown chert, rare red iron stain, poor intergranular porosity, (4-6%), **no shows**
SILTSTONE: 50% light brown, soft-firm, very poorly sorted, shaly, calcareous in part, rare carbonaceous matter
SHALE: 20% light-medium gray, white, rare light gray-green, light brown, soft, blocky-fissile, slightly-very silty, calcareous in part, bentonitic when gray

7910'-7920' **SANDSTONE: 70%** light gray, very fine to fine grained, firm-friable, moderately well sorted, well cemented with calcite, subangular-subround, quartzitic with scattered gray and brown chert, rare red iron stain, poor intergranular porosity, (4-6%), **no shows**
SHALE: 30% medium brown, light brown, light gray, rare very dark brown, soft-firm, blocky-fissile, silty when brown, non calcareous, scattered carbonaceous specks, occasional very carbonaceous when dark brown, with pyrite

7920'-7925' **SANDSTONE: 30%** light gray, very fine to fine grained, firm-friable, moderately well sorted, well cemented with calcite, subangular-subround, quartzitic with scattered gray and brown chert, rare red iron stain, poor intergranular porosity, (4-6%), **no shows**
SHALE: 70% medium brown, light brown, light gray, decreasing brown to dark brown carbonaceous shale, soft-firm, blocky-fissile, silty when brown, non calcareous, scattered carbonaceous specks

7925'-7930' 99% BICARB IN SAMPLE
SHALE: light gray, light brown, rare light gray-green, soft, fissile, non calcareous, micromicaceous, bentonitic

7930'-7935' **SANDSTONE: 100%** light brown, light gray, rare medium brown, very fine to fine grained, rare medium grained, firm, well cemented with calcite, poor-moderately well sorted with cream clay fill, subangular-subround, quartzitic with scattered brown and gray chert, poor intergranular porosity (4-8%), no stain, fluorescence, or cuts, occasional carbonaceous debris

7935'-7940' **SANDSTONE: 60%** light brown, light gray, rare medium brown, very fine to fine grained, rare medium grained, firm, well cemented with calcite, poor-moderately well sorted with cream clay fill, subangular-subround, quartzitic with scattered brown and gray chert, poor intergranular porosity (4-8%), no stain, fluorescence, or cuts, occasional carbonaceous debris
SILTSTONE: 40% light-medium brown, honey, firm to very hard and well cemented, very calcareous in part, very poorly sorted, shaly, occasional carbonaceous inclusions and laminae with drusy pyrite

7940'-7945' **SANDSTONE: 30%** light brown, light gray, rare medium brown, very fine to fine grained, rare medium grained, firm, well cemented with calcite, poor-moderately well sorted with cream clay fill, subangular-subround, quartzitic with scattered brown and gray chert, poor intergranular porosity (4-8%), no stain, fluorescence, or cuts, occasional carbonaceous debris
SILTSTONE: 70% light-medium brown, honey, firm to very hard and well cemented, very calcareous in part, very poorly sorted, shaly, occasional carbonaceous inclusions and laminae with drusy pyrite

7945'-7955' **SANDSTONE: 60%** light gray, light brown, very fine grained to silty, hard, well cemented, poor-moderately well sorted with some clay fill, subangular, becoming non calcareous to siliceous, quartzitic with rare dark grains, poor porosity, (3-4%), **no shows**
SHALE: 40% light gray, medium brown, soft-firm, blocky to fissile, slightly silty, very carbonaceous and pyritic when brown, non calcareous

7955'-7965' **SANDSTONE: 90%**, light gray, light brown, very fine to fine grained, hard very well cemented with calcite, moderately well sorted, decreasing clay content, quartzitic with scattered carbonaceous debris, poor porosity, **no shows**
SILTSTONE: 10% medium brown, hard, very well cemented, calcareous, micromicaceous, occasional carbonaceous specks

7965'-7970' **SANDSTONE: 70%** light gray, light brown, very fine to fine grained, hard very well cemented with calcite, moderately well sorted, becoming very poorly sorted with cream clay fill, quartzitic with scattered carbonaceous laminae and inclusions, poor porosity, **no shows**

SHALE: 10% medium gray, dull gray-green, off white, medium brown, soft, subfissile-fissile, non calcareous to very calcareous when white, slightly silty, bentonitic when gray, occasional carbonaceous specks

7970'-7975' **SHALE:** gray-brown, light-medium brown, soft-firm, smooth to slightly silty, blocky-fissile, micromicaceous, occasional carbonaceous debris

7975'-7985' **SHALE:** dark gray, dark gray-brown, firm to hard, blocky-subfissile, moderately-very silty, non calcareous, scattered carbonaceous inclusions and laminae, rare pyrite aggregates, grades to hard shaly siltstone in part

7985'-7990' **SHALE:** dark gray, dark gray-brown, medium brown, firm to hard, very silty in part, non calcareous, blocky-subfissile, carbonaceous, with some drusy pyrite
SHALE: trace, light gray-brown, fissile, soft, with well rounded brown pellets?, non calcareous, smooth

7990'-7995' **SANDSTONE: 80%** light gray to light brown, very fine to fine grained, firm to hard and well cemented, siliceous, moderately well to poorly sorted with some clay fill, quartzitic with rare brown chert, very poor porosity (3-4%), **no shows**
SILTSTONE: 20% light gray, light gray-brown, hard, well cemented, siliceous, shaly

TRIP FOR BIT AT 7796' REAM TO BOTTOM FOR 18 HOURS

7995'-8010' **SANDSTONE: 70%** light gray, very fine to fine grained, firm to hard, well cemented, poor-moderately well sorted with cream clay fill, slightly calcareous, quartzitic with scattered brown and gray chert, rare red iron stain, subangular-subround, very poor intergranular porosity due to cement, **no shows**
SHALE: 30% light gray, light gray-brown, soft, blocky, non calcareous, slightly-very silty

8010'-8015' **SANDSTONE: 60%** light gray, very fine to fine grained, firm to hard, well cemented, poor-moderately well sorted with cream clay fill, slightly calcareous, quartzitic with scattered brown and gray chert, rare red iron stain, subangular-subround, very poor intergranular porosity due to cement, **no shows**
SHALE: 40% light gray, light gray-brown, soft, blocky, non calcareous, slightly-very silty, non calcareous

8015'-8020' **SILTSTONE: 40%** light brown, firm-hard, well cemented, very poorly sorted, shaly, calcareous in part, quartzitic
SHALE: 30% light gray, very light brown, soft, blocky-subfissile, very silty in part, non calcareous, rare micropyritic, occasional brown carbonaceous remains, occasional imbedded quartz and chert grains

SANDSTONE: 30% light gray, very fine to fine grained, firm to hard, well cemented, poor-moderately well sorted with cream clay fill, slightly calcareous, quartzitic with scattered brown and gray chert, rare red iron stain, subangular-subround, very poor intergranular porosity due to cement, **no shows**

8020'-8025' **SILTSTONE: 70%** light brown, light gray, cream, firm-hard, very poorly sorted, very shaly, mostly non calcareous, quartzitic
SHALE: 30% light gray, light brown, soft, blocky, micropyritic, non calcareous, slightly-very silty, occasional imbedded quartz

8025'-8030' **SANDSTONE:** light brown, very fine grained, firm-hard, well cemented with calcite, poor-moderately well sorted with clay fill, subangular-subround, quartzitic with rare dark grains and pyrite inclusions, trace carbonaceous debris, very poor intgrran porosity (3-5%), **no shows**

8030'-8035' **SHALE: 80%** light gray, light gray-brown, medium brown, soft, blocky-subfissile, non calcareous, scattered carbonaceous specks, bentonitic in part, micropyritic
SANDSTONE: 20% light brown, very fine grained, firm-hard, well cemented with calcite, poor-moderately well sorted with clay fill, subangular-subround, quartzitic with rare dark grains and pyrite inclusions, trace carbonaceous debris, very poor intergranular porosity (3-5%), **no shows**

8035'-8050' **SHALE: 70%** light gray, light gray-brown, soft-firm, blocky-sub blocky, slightly-very silty, non calcareous, occasional carbonaceous specks, micropyritic
SILTSTONE: 30% light gray, light brown, firm to hard, well cemented, non calcareous, very shaly grading to shale

8050'-8060' **SANDSTONE**: light gray, light brown, very fine to fine grained, friable to hard, moderately well to poorly sorted with clay, well cemented, mostly non calcareous, siliceous, subangular-subround, with some brown chert, **abundant black bitumen, mostly on planar surfaces, rare intergranular bitumen, poor porosity (4-6%), no fluorescence, weak residual cuts, trace pyrite, occasional carbonaceous remains**

8060'-8065' **SHALE: 60%** light gray, light brown, cream, soft-firm, blocky-sub blocky, non calcareous, slightly-very silty
SANDSTONE: 40% as above with decreasing bitumen, occasional fine to medium grained and calcareous, poor porosity due to cement, **no shows**

8065'-8070' **SILTSTONE: 50%** light gray, firm-hard, well cemented, siliceous, slightly calcareous in part, moderately well sorted to shaly, grading to 10% silty shale
SANDSTONE: 40% light brown, light gray, very fine grained, firm-hard, well cemented, moderately well sorted, slightly calcareous to siliceous, quartzitic, very poor porosity (3-4%), **no shows**

8070'-8075' **SHALE: 80%** very light gray, light gray-brown, light brown, soft, blocky, slightly-very silty, non calcareous, rare carbonaceous inclusions
SILTSTONE: 20% light gray, firm-hard, well cemented, moderately well sorted to shaly, calcareous in part, to siliceous

8075'-8080' **SILTSTONE:** light brown, gray-brown, light gray, firm-hard, well cemented, moderately well sorted to shaly, mostly calcareous, scattered carbonaceous specks

8080'-8085' **SILTSTONE: 50%** light brown, gray-brown, light gray, firm-hard, well cemented, moderately well sorted to shaly, mostly calcareous, scattered carbonaceous specks
SHALE: 50% very light gray, light gray-brown, light brown, soft, blocky, slightly-very silty, non calcareous, rare carbonaceous inclusions

8085'-8090' **SHALE**: light gray-brown, very light gray, rare light gray-green, and medium brown, soft, blocky-subfissile, non calcareous, slightly-very silty, bentonitic in part, rare medium brown silty shale with well rounded fine grained quartz inclusions

8090'-8100' **SHALE:** light gray-brown, very light gray, medium brown, soft, blocky-subfissile, non calcareous, slightly-very silty, bentonitic in part
CARBONACEOUS SHALE: dark to very dark brown, black, firm to hard, brittle, blocky to fissile, splintery in part, pyritic, non calcareous, coaly in part

8100'-8105' **CARBONACEOUS SHALE: 80%** dark to very dark brown, blocky, soft to firm and crumbly, blocky, non calcareous, some pyrite aggregates
COAL: 20% dull black, firm, brittle

LOG TOP LOWER FERRON SAND 8112' (+560')

8105'-8110' **SANDSTONE: 100%** light-medium dirty brown, very fine to fine grained, rare medium grained, firm-friable, moderately well to well sorted, moderately well cemented, non calcareous, subangular-subround, quartzitic with rare glauconite, poor-fair intergranular porosity (6-12%), **abundant black intergranular dead oil stain, no fluorescence, many weak streaming cuts**

8110'-8120' **SANDSTONE:100%** light brown, light gray, very fine to fine grained, firm-hard, well cemented, well sorted to poorly sorted in part with increasing cream clay fill, becoming very calcareous, quartzitic with rare dark chert, mostly poor to rare fair intergranular porosity (5-10%), **decreasing to a trace of dead oil stain, no fluorescence, trace very weak residual cuts**

LOSS CIRCULATION AT 8120'; TOTAL LOSS WAS 300 BBLS OVER 20 HOURS.

99% BICARB IN SAMPLE FOR LOST CIRCULATION (AS WHITE ROUNDED PELLETS)
VERY POOR SAMPLE QUALITY FOR REMAINDER OF THE HOLE.

8120'-8125' **SANDSTONE: 90%** light gray, light gray-brown, very fine to fine grained, firm, well cemented with calcite, poorly sorted with cream clay fill, quartzitic with scattered gray chert and carbonaceous debris, subangular, very poor intergranular porosity, (4-6%), **no fluorescence, very weak residual cuts**
SHALE: 10% white to very light gray, soft, blocky-fissile, very calcareous, silty, occasional carbonaceous specks

8125'-8135' **SANDSTONE: 100%** becoming light-medium gray-brown, very fine grained, hard, well cemented, poor to very poorly sorted with clay, very calcareous, subangular, quartzitic with occasional dark chert and carbonaceous matter, very poor porosity (3-5%), **no shows**

8135'-8140' **SANDSTONE:100%** light-medium brown, very fine grained to silty, very hard and well cemented to soft and shaly, calcareous, marly when soft, very poorly sorted with clay, subangular, occasional carbonaceous debris, very poor porosity, **no shows**

8140'-8145' **SILTSTONE:** medium-dark gray-brown, hard, very well cemented, very calcareous, poor-moderately well sorted with clay, micromicaceous, interbedded and grading to very fine grained tight, dense sandstone

8145'-8150' **SILTSTONE: 60%** medium gray-brown, soft and shaly to firm and well cemented, very poorly sorted with clay, shaly, very calcareous, scattered carbonaceous inclusions, micromicaceous
SANDSTONE: 40% light-medium brown, light gray-brown, very fine grained, hard, well cemented with calcite, poorly sorted, shaly, quartzitic with occasional dark chert and carbonaceous debris, very poor porosity (3-4%), **no shows**

8150'-8155' **SILTSTONE: 100%** medium-dark gray-brown, medium brown, hard, very well cemented, very calcareous, moderately well to very poorly sorted with clay, micromicaceous, scattered carbonaceous inclusions

8155'-8160' **SHALE: 50%** light gray-brown, soft, blocky, silty, non calcareous, occasional carbonaceous streaks and specks
SANDSTONE: 50% light gray, very fine grained, hard, very well cemented with calcite, well sorted, quartzitic with accessory gray and brown chert, rare glauconite, subangular, very poor porosity due to cement, bright yellow mineral fluorescence, no stain, weak residual cuts after solvent dries

LOSE CIRCULATION AT 8162' – 150 BARRELS

8160'-8165' **NO RETURNS**

8165'-8170' **SANDSTONE: 60%** light gray, very fine grained, hard, very well cemented with calcite, becoming poorly sorted in part with white clay fill in pores, quartzitic with accessory gray and brown chert, rare glauconite, subangular, very poor porosity due to cement, bright yellow mineral fluorescence, no stain, weak residual cuts after solvent dries (ring cuts)
SILTSTONE: 40% light-medium gray-brown, hard, well cemented, dense, poorly sorted, shaly, calcareous, micromicaceous, some carbonaceous specks

8170'-8180' **SILTSTONE: 80%** medium-dark gray-brown, firm-hard, well cemented, calcareous in part, very shaly, occasional pyritic
SHALE: 20% medium gray, soft, blocky-subfissile, non calcareous, slightly silty

8180'-8185' **SILTSTONE: 100%** dark gray, hard, well cemented, very poorly sorted, shaly, non calcareous, micromicaceous, some pyritic

8185'-8190' **SILTSTONE: 50%** dark gray, hard, well cemented, very poorly sorted, shaly, non calcareous, micromicaceous
SHALE: 50% very dark gray, firm, brittle, silty, non calcareous, micromicaceous, some carbonaceous matter, occasional crystalline pyrite aggregates

8190'-8195' **SILTSTONE: 100%** light gray, dark gray, hard, well cemented, calcareous and moderately well sorted when light gray, to shaly when dark, quartzitic with scattered dark grains when light gray

8195'-8200' **SILTSTONE: 60%** medium gray, medium-dark gray-brown, hard, well cemented, non calcareous, poorly sorted, shaly
SHALE: 40% very dark gray, firm, fissile-subfissile, non calcareous, slightly-very silty

8200'-8205' **SILTSTONE: 60%** medium-dark gray, firm to hard, very well cemented, very poorly sorted, shaly, slightly calcareous in part, dirty
SHALE: 40% medium-dark gray, firm, blocky-subfissile, non calcareous, silty to very silty, occasional carbonaceous inclusions and pyrite

LOG TOP TUNUNK 8204' (+468')

8205'-8210' **SILTSTONE: 50%** medium-dark gray, firm to hard, very well cemented, very poorly sorted, shaly, slightly calcareous in part, dirty
SHALE: 50% medium-dark gray, firm, blocky-subfissile, non calcareous, silty to very silty, occasional carbonaceous inclusions and pyrite

8210'-8215' **SHALE: 80%** very dark gray, firm-moderately hard, brittle, non calcareous, silty, micromicaceous, blocky
SILTSTONE: 20% dark gray, hard, very well cemented, slightly calcareous, very shaly

8215'-8220' **SHALE: 80%** dark gray, dark gray-brown, firm to moderately hard, non calcareous, moderately-very silty, micromicaceous, scattered carbonaceous debris
SILTSTONE: 20% dark gray, hard well cemented, very shaly, slightly calcareous in part

8220'-8225' **SHALE: 80%** medium-dark gray, firm to hard, siliceous in part, non calcareous, moderately to very silty, micromicaceous, occasional carbonaceous inclusions grading to and interbedded with 20% well cemented shaly siltstone

8225'-8230' **SHALE: 90%** medium-dark gray, soft to moderately hard, blocky-sub blocky, non calcareous, very silty, micromicaceous, scattered carbonaceous streaks and specks, grading to 10% shaly siltstone

8230'-8240' **SHALE: 90%** medium-dark gray, soft to moderately hard, blocky-sub blocky, non calcareous, very silty, micromicaceous, scattered carbonaceous streaks and specks, occasional pyritic, grading to 10% hard shaly siltstone

TOTAL DEPTH – DRILLER 8240' AT 14:25, DEC. 27, 2002

037

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

AMENDED REPORT ☑ (highlight changes)

FORM 8

WELL COMPLETION OR RECOMPLETION REPORT AND LOG

5. LEASE DESIGNATION AND SERIAL NUMBER: UTU-77263

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: N/A

1a. TYPE OF WELL: OIL WELL ☐ GAS WELL ☑ DRY ☐ OTHER

7. UNIT or CA AGREEMENT NAME: N/A

b. TYPE OF WORK: NEW WELL ☑ HORIZ. LATS. ☐ DEEP-EN ☐ RE-ENTRY ☐ DIFF. RESVR. ☐ OTHER

8. WELL NAME and NUMBER: Middle Mountain #21-16

2. NAME OF OPERATOR: Fortuna (US), Inc.

9. API NUMBER: 4301530426

3. ADDRESS OF OPERATOR: 3400, 888 - 3 St. S.W. CITY Calgary STATE AB ZIP T2P 5C5

PHONE NUMBER: (403) 237-1234

10 FIELD AND POOL, OR WILDCAT: Wildcat

4. LOCATION OF WELL (FOOTAGES)
AT SURFACE: 1309' FSL and 834' FEL
AT TOP PRODUCING INTERVAL REPORTED BELOW: SE/4 SE/4, Sec. 21, T16S, R6E, SLB & M
AT TOTAL DEPTH:

11. QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: SESE 21 16S 6E

12. COUNTY: Emery

13. STATE: UTAH

14. DATE SPUDDED: 10/28/2002

15. DATE T.D. REACHED: 12/27/2002

16. DATE COMPLETED: 2/4/2003 ABANDONED ☐ READY TO PRODUCE ☑

17. ELEVATIONS (DF, RKB, RT, GL): 8627.0 (GL)

18. TOTAL DEPTH: MD 8,240 TVD 8,235

19. PLUG BACK T.D.: MD 8,178 TVD

20. IF MULTIPLE COMPLETIONS, HOW MANY? * N/A

21. DEPTH BRIDGE PLUG SET: MD 0 TVD

22. TYPE ELECTRIC AND OTHER MECHANICAL LOGS RUN (Submit copy of each)
Full Wave Sonic, CBL, GR, CCL, see attached (open-hole logs)

23.
WAS WELL CORED? NO ☑ YES ☐ (Submit analysis)
WAS DST RUN? NO ☑ YES ☐ (Submit report)
DIRECTIONAL SURVEY? NO ☐ YES ☑ (Submit copy)

24. CASING AND LINER RECORD (Report all strings set in well)

HOLE SIZE	SIZE/GRADE	WEIGHT (#/ft.)	TOP (MD)	BOTTOM (MD)	STAGE CEMENTER DEPTH	CEMENT TYPE & NO. OF SACKS	SLURRY VOLUME (BBL)	CEMENT TOP **	AMOUNT PULLED
17.50	13.4 H-40	48.00	0	1,080	1,080	'G' 1,810	393	0 (CAL)	
12.25	9.6 J-55	36.00	0	4,413	4,417	'G' 1,975	1,036	0 (CAL)	
8.75	7.0 J-55	26.00	0	7,690	7,690	'G' 304	444	3913 (CAL)	
6.125	4.5 P-110	13.50	0	8,240	8,240	'G' 211	102	3428 (CAL)	

25. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)	SIZE	DEPTH SET (MD)	PACKER SET (MD)	SIZE	DEPTH SET (MD)	PACKER SET (MD)
2.375	8,119	0						

26. PRODUCING INTERVALS / 27. PERFORATION RECORD

FORMATION NAME	TOP (MD)	BOTTOM (MD)	TOP (TVD)	BOTTOM (TVD)	INTERVAL (Top/Bot - MD)	SIZE	NO. HOLES	PERFORATION STATUS
(A) Ferron	7,734	8,205			8,122 8,137	3.38	6	Open ☑ Squeezed ☐
(B)								Open ☐ Squeezed ☐
(C)								Open ☐ Squeezed ☐
(D)								Open ☐ Squeezed ☐

28. ACID, FRACTURE, TREATMENT, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL	AMOUNT AND TYPE OF MATERIAL
8122.0 - 8137.5	Frac - 412.0 bbl Gelled Salt Water + CO2 + 50,000 lbs of 20/40 Sand

CONFIDENTIAL PERIOD EXPIRED 3-4-04

29. ENCLOSED ATTACHMENTS:
☐ ELECTRICAL/MECHANICAL LOGS ☐ GEOLOGIC REPORT ☐ DST REPORT ☑ DIRECTIONAL SURVEY
☐ SUNDRY NOTICE FOR PLUGGING AND CEMENT VERIFICATION ☐ CORE ANALYSIS ☐ OTHER:

30. WELL STATUS: Suspended

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(5/2000)

(CONTINUED ON BACK)

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31. INITIAL PRODUCTION

INTERVAL A (As shown in item #26)

DATE FIRST PRODUCED:		TEST DATE:		HOURS TESTED:		TEST PRODUCTION RATES: ▯	OIL – BBL:	GAS – MCF:	WATER – BBL:	PROD. METHOD:
CHOKE SIZE:	TBG. PRESS.	CSG. PRESS.	API GRAVITY	BTU – GAS	GAS/OIL RATIO	24 HR PRODUCTION RATES: ▯	OIL – BBL:	GAS – MCF:	WATER – BBL:	INTERVAL STATUS:

INTERVAL B (As shown in item #26)

DATE FIRST PRODUCED:		TEST DATE:		HOURS TESTED:		TEST PRODUCTION RATES: ▯	OIL – BBL:	GAS – MCF:	WATER – BBL:	PROD. METHOD:
CHOKE SIZE:	TBG. PRESS.	CSG. PRESS.	API GRAVITY	BTU – GAS	GAS/OIL RATIO	24 HR PRODUCTION RATES: ▯	OIL – BBL:	GAS – MCF:	WATER – BBL:	INTERVAL STATUS:

INTERVAL C (As shown in item #26)

DATE FIRST PRODUCED:		TEST DATE:		HOURS TESTED:		TEST PRODUCTION RATES: ▯	OIL – BBL:	GAS – MCF:	WATER – BBL:	PROD. METHOD:
CHOKE SIZE:	TBG. PRESS.	CSG. PRESS.	API GRAVITY	BTU – GAS	GAS/OIL RATIO	24 HR PRODUCTION RATES: ▯	OIL – BBL:	GAS – MCF:	WATER – BBL:	INTERVAL STATUS:

INTERVAL D (As shown in item #26)

DATE FIRST PRODUCED:		TEST DATE:		HOURS TESTED:		TEST PRODUCTION RATES: ▯	OIL – BBL:	GAS – MCF:	WATER – BBL:	PROD. METHOD:
CHOKE SIZE:	TBG. PRESS.	CSG. PRESS.	API GRAVITY	BTU – GAS	GAS/OIL RATIO	24 HR PRODUCTION RATES: ▯	OIL – BBL:	GAS – MCF:	WATER – BBL:	INTERVAL STATUS:

32. DISPOSITION OF GAS (Sold, Used for Fuel, Vented, Etc.)

33. SUMMARY OF POROUS ZONES (Include Aquifers):

Show all important zones of porosity and contents thereof: Cored intervals and all drill-stem tests, including depth interval tested, cushion used, time tool open, flowing and shut-in pressures and recoveries.

34. FORMATION (Log) MARKERS:

Formation	Top (MD)	Bottom (MD)	Descriptions, Contents, etc.	Name	Top (Measured Depth)

35. ADDITIONAL REMARKS (Include plugging procedure)

36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records.

NAME (PLEASE PRINT) Janet Kully TITLE Drilling/Completions Administrator

SIGNATURE Janet Kully DATE 3/4/2003

This report must be submitted within 30 days of

- completing or plugging a new well
- drilling horizontal laterals from an existing well bore
- recompleting to a different producing formation
- reentering a previously plugged and abandoned well
- significantly deepening an existing well bore below the previous bottom-hole depth
- drilling hydrocarbon exploratory holes, such as core samples and stratigraphic tests

* ITEM 20: Show the number of completions if production is measured separately from two or more formations.

** ITEM 24: Cement Top – Show how reported top(s) of cement were determined (circulated (CIR), calculated (CAL), cement bond log (CBL), temperature survey (TS)).

Send to: Utah Division of Oil, Gas and Mining
1594 West North Temple, Suite 1210
Box 145801
Salt Lake City, Utah 84114-5801

Phone: 801-538-5340

Fax: 801-359-3940

(5/2000)

TALISMAN
ENERGY

TALISMAN ENERGY INC.
SUITE 2400, 855 2ND STREET S.W.
CALGARY, ALBERTA
FAX (403) 237-1078
TEL (403) 237-1234

TO: UTAH DIVISION OF OIL, GAS AND MINING

ATTENTION:

DATE: 4/16/2003

TRANSMITTED BY: Mike Schmidt

WELL NAME: FORTUNA MIDDLE MOUNTAIN

UWI: 21-16

PLAY GEOLOGIST: MIKE MORRISON

MATERIAL AS FOLLOWS:

QTY	TYPE	RUN	COMPANY
1	PE COMP NEUT TRIPLE DETECTOR DENS	1	SCHLUMBERGER
1	PE ARRAY INDUCTION W/LINEAR CORRELATION	1	"
1	PE MICROLOG	1	"
1	PE BOREHOLE COMP SONIC	1	"
1	PE ARRAY INDUCTION	2	"
1	BOREHOLE COMP SONIC	2	"
1	PE COMPOSITE PRINT	2	"
1	PE MICROLOG	2	"
1	PE TRIPLE LITHO DENS COMP NEUT	2	"
1	ARRAY INDUCTION W/LINEAR CORRELATION GR	3	"
1	COMP NEUT TRIPLE LITHO DENS GR	3	"
1	BOREHOLE COMP SONIC GR	3	"
1	CEMENT VOLUME LOG GR	3	"
1	PE COMPOSITE PRINT	3	"
1	COMP NEUT TRIPLE LITHO DENS GR	4	"
1	COMP NEUT TRIPLE LITHO DENS/GR HIGH RES	4	"
1	CEMENT VOLUME CALIPER LOG GR	4	"
1	PE/BHC COMPOSITE PRINT	4	"
1	ARRAY INDUCTION HIGH RESOLUTION	4	"
1	BOREHOLE COMP SONIC GR	4	"
1	ARRAY INDUCTION W/LINEAR CORRELATION GR	4	"
1	FINAL GEOLOGICAL REPORT		ECL CONSULTANTS
1	WELL COMPLETION/RECOMPLETION REPORT		

A copy of the above transmittal will be retained in our files.

**** Please sign, date and fax a copy, attention to Mike Schmidt (403) 237-4694**

X Carol N. Daniels - 4-17-03

TALISMAN ENERGY CANADA
Suite 3400, 888 – 3rd Street SW
Calgary, AB T2P 5C5
FAX: 237-1620

TALISMAN

CONFIDENTIAL

Fax

DATE:	26. SEPT. 2003	Number of Pages:	
TO:	UTAH DIVISION OF OIL GAS AND MINING	FROM:	A. HAGERMEIER
COMPANY:	ATTN: DUSTIN DOUCET	E-MAIL:	
PHONE:		PHONE:	1-403-237-1258
FAX:	1-801-359-3940	FAX:	1-403-237-1086

REMARKS:

☐ Urgent ☑ For Your Review ☐ Reply ASAP ☑ Please Comment

SUNDRY NOTICE TO PLUG AND ABANDON
FORTUNA MIDDLE MOUNTAIN # 21-16

C.C. Eric Jones - BLM - 1-435-259-2106
C.C. Don Hamilton - 1-435-687-5311

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SEP 26 2003
DIV. OF OIL, GAS & MINING

FORM 9

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

038

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.

5. LEASE DESIGNATION AND SERIAL NUMBER: UTU-77263
6. IF INDIAN, ALLOTTEE OR TRIBE NAME: N/A
7. UNIT or CA AGREEMENT NAME: N/A
8. WELL NAME and NUMBER: RIDDLE MOUNTAIN #21-16
9. API NUMBER: 43-015-30426
10. FIELD AND POOL, OR WILDCAT: WILDCAT

1. TYPE OF WELL: OIL WELL ☐ GAS WELL ☒ OTHER CONFIDENTIAL
2. NAME OF OPERATOR: FORTUNA (US) INC.
3. ADDRESS OF OPERATOR: 888 3RD STREET S.W. Suite 3400, CITY CALGARY STATE AB ZIP T2P5C5 PHONE NUMBER: 403-237-1163
4. LOCATION OF WELL
FOOTAGES AT SURFACE: 1309' FSL, 834' FEL COUNTY: EMERY County
QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: SE/4 SEC 21 T16S R6E SLB&M SE/4 STATE: UTAH

11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION		
☑ NOTICE OF INTENT (Submit in Duplicate)	☐ ACIDIZE	☐ DEEPEN	☐ REPERFORATE CURRENT FORMATION
Approximate date work will start:	☐ ALTER CASING	☐ FRACTURE TREAT	☐ SIDETRACK TO REPAIR WELL
	☐ CASING REPAIR	☐ NEW CONSTRUCTION	☐ TEMPORARILY ABANDON
	☐ CHANGE TO PREVIOUS PLANS	☐ OPERATOR CHANGE	☐ TUBING REPAIR
	☐ CHANGE TUBING	☑ PLUG AND ABANDON	☐ VENT OR FLARE
☐ SUBSEQUENT REPORT (Submit Original Form Only)	☐ CHANGE WELL NAME	☐ PLUG BACK	☐ WATER DISPOSAL
Date of work completion:	☐ CHANGE WELL STATUS	☐ PRODUCTION (START/RESUME)	☐ WATER SHUT-OFF
	☐ COMMINGLE PRODUCING FORMATIONS	☐ RECLAMATION OF WELL SITE	☐ OTHER:
	☐ CONVERT WELL TYPE	☐ RECOMPLETE - DIFFERENT FORMATION	

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

PROPOSE TO ABANDON #21-16 AS PER ATTACHED PROGRAM.

Accepted by the Utah Division of Oil, Gas and Mining
Date: 10/1/03
By: [signature]

Federal Approval Of This Action Is Necessary

*Recommend * Plugs should be placed across Emery/Base of intermediate string @ ± 4400' and at Base of Surface casing shoe @ ± 1000'

NAME (PLEASE PRINT) ALFRED HABERMEYER TITLE Abandonment Engineer
SIGNATURE [signature] DATE Sept 26, 2003

(This space for State use only)

(5/2000) (See Instructions on Reverse Side)

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DIV. OF OIL, GAS & MINING

FORTUNA MIDDLE MTN #21-16
ABANDONMENT PROGRAM (Utah)

CONFIDENTIAL

The Talisman representative on the location shall ensure that appropriate State requirements and Talisman safety guidelines are met at all times. All personnel on site should read and sign the Talisman booklet "Safety Guidelines for Contractors". Conduct daily safety meetings with the crews and service personnel. Precede all operations with a procedure and safety meeting to cover the scope of the operation. Record any personnel injuries, material losses, equipment damage and lost time on the Wellview Incident Report. Take all other necessary safety precautions to protect human health, safety and welfare.

1. Where applicable, notify the relevant Government offices, and/or Forestry, etc, as well as the Talisman office in Calgary prior to commencing operations. BLM contact is Don Stevens, Forestry contact is Tom Lloyd. Maintain regular contact throughout the operations as directed.

2. Talisman Energy Inc. Safety Guidelines are given in the "Employee Safety Handbook" and "Safety Instruction for Contractors". These guidelines will be followed during the abandonment along with conducting a daily safety and procedures meeting.

3. Prior to abandonment operation, establish and **record the SCVF flow rate and pressure build up.** Test to confirm lack of surface casing vent flow. Provided there is no flow, proceed with the program; otherwise consult with Calgary office to determine remedial program necessary.

4. Install and pull test service rig anchors.

5. Move on a service rig complete with a pump and tank. Rig up ensuring that the equipment spacing conforms to all regulatory body regulations (including but not limited to the local state, PSAC, OH&S, WCB) and Talisman standards and that the crew has the necessary certifications. Precede all operations with a procedure and safety meeting to cover the scope of the operation.

6. Vent any gas off the tubing and fill the tubing with fresh water to kill the well. Remove the wellhead. Install and function test a Class II BOP.

7. The cement top on the 4-1/2" 15.5 lb/ft production casing was logged at 7,742 ft KB, which is 52 ft below the intermediate casing shoe at 7,690ft KB. The reason for the low cement top is due to lost circulation during the cementing operations. An attempt should be made to recement this interval since it is the only portion of the annulus not cemented.

8. Wellbore currently consists of 2-3/8" tubing set at 8,119 ft KB. RIH with tubing to PBTD approx. 8193 ft. KB. Circulate well over to mud weighted with a density of 9.0 ppg. POOH with tubing.

9. RIH with permanent bridge plug on wireline, set BP approx 8,110 ft. KB, pressure test BP to 1,000 psi, dump bail 35 ft of cement on top of BP.

10. RIH with perforating gun, perforate 3 ft interval at approx 7700 ft depth, POOH with guns. Attempt to establish circulation to surface. If circulation is not established, but the interval

takes mud, RIH with tubing to 7750 ft KB, mix and pump 2 bbls of thixotropic cement (100 ft in length). PU to 7600 ft, circulate tubing clean.

11. If circulation was established to surface, RIH with cement retainer, set retainer above perforations, test retainer to 1000 psi. Sting into retainer, mix and pump sufficient cement until returns are indicated at surface. Pull out of retainer, dump excess cement on top of retainer. Cement on top of retainer to be minimum of 50 ft. in length, or 35 ft. if using a bailer.

12. Top up the casing to surface with mud.

13. Regulations require a 10 sxs cement plug at surface, as well as 10 sxs cement inside each additional casing string.

14. Cut off casing strings a minimum of 3ft below the final restored ground level. Cap the casings by welding a steel plate on each. Plate to be at least ¼" in thickness.

15. A permanent monument showing the well number, location and name of the lease shall be erected. The monument shall consist of pipe not less than 4" in diameter and not less than 10ft in length, of which 4 ft shall be above the ground level and the remainder shall be embedded in cement. The top of the pipe must be permanently sealed.

16. Contact Don Hamilton regarding site restoration. Restore location.

Notes: AFE # AF_____ $120,900

The wellhead, casing bowl, recovered casings and other associated equipment may be returned to Talisman's warehouse or other designated location.

September 26, 2003 Alfred Habermeyer phone (403) 237-1258 fax (403) 237-1086

Habermeyer, Alfred

From: Stairs, Mike
Sent: September 26, 2003 8:43 AM
To: McConkey, Stuart; Habermeyer, Alfred
Cc: Kostandi, Ramsey
Subject: FW: Middle Mountain Well


Middle Mountain Letter.doc


pic02976.gif

fyi.

-----Original Message-----
From: Jackie Contreras [mailto:jcontreras@fs.fed.us]
Sent: Friday, September 26, 2003 7:49 AM
To: mstairs@talisman-energy.com
Cc: Thomas W Lloyd
Subject: Middle Mountain Well

Please find attached the letter regarding Middle Mountain Well. A hard copy will be mailed to you office in Canada today. If you have any questions, please let us know. Thank you.

(See attached file: Middle Mountain Letter.doc)

(Embedded image moved to file: pic02976.gif)Jackie Contreras
U.S. Forest Service
Manti-La Sal National Forest
Email - jcontreras@fs.fed.us
(435) 384-2505

United States Department of Agriculture
Forest Service
Manti-La Sal National Forest

Ferron/Price Ranger District
Ferron Work Center
115 West Canyon Road
P.O. Box 310
Ferron, UT 84523
Phone # (435) 384-2372
Fax # (435) 384-3296

File Code: 2820-2
Date: September 26, 2003

Mike Stairs
Project Manager
Fortuna US-Talisman Energy
888 3rd Street SW , Suite 3400
Calgary, Alberta, Canda, UT 84523T2P5C5

Dear Mr. Stairs:

Thank you for your call on September 17, 2003, stating that Fortuna-USA has made a decision to reclaim the Federal #21-16, UTU-77263 (Middle Mountain well) drilled during late Fall 2002. It is understood you will proceed with a sundry notice to the BLM for hole plugging and site reclamation. It is also understood you would like to proceed with this plan starting October 6, 2003.

During the summer the Forest Service conducted site inspections and found several items needing attention prior to winter closure per the Surface Plan of Operations. 1.) All topsoil piles need to be seeded, 2.) Silt fence along east side of the pad needs repaired, 3.) There is a sinkhole starting on the east side of the pad and a tension crack needing repair, and 4.) Some slash is smashing the silt fence on the southeast corner of the pad. If you are successful in completing site reclamation this fall these concerns are mute, however if reclamation is not complete, work must be done this fall prior to the onset of winter conditions.

Inspections were also conducted on the Cottonwood Canyon Road. Clean up operations associated with the road improvements made to NFSR 50040 were not completed last year due to the onset of inclement weather. In addition, snow removal operations that were necessary to maintain access to the well site resulted in displacement of aggregate surfacing from the roadway. A road log has been generated with work items that will need to be completed prior to this winter. Items include pulling aggregate from the roadsides back in to the travelway or replacement of such displaced aggregate on the Cottonwood Canyon road from the end of the pavement to the Millers Flat Road. Items of work that need to be completed within the limits of the reconstruction include: removal of aggregate from the cut and fill slopes, removal of the large rocks and roadside debris located between the roadway and the adjacent stream channel, reestablishment and installation of silt fence along the embankments adjacent to the stream channel, installation of silt fence at drain dip outlets and leadout ditches, restoration of the stream channel, including removal of aggregate and dressing up and seeding of all disturbed areas.

Please contact Tom Lloyd, District Geologist at 435-636-3596 with a proposed work schedule. A pre-work meeting is also necessary to further define the scope of work needing to be done prior to startup and to review the road log so that all work can be satisfactorily completed.

Sincerely,

/s/ Mesia Nyman
MESIA NYMAN
District Ranger

Wellbore Diagram

API Well No: 43-015-30426-00-00 **Permit No:** **Well Name/No:** MIDDLE MOUNTAIN 21-16

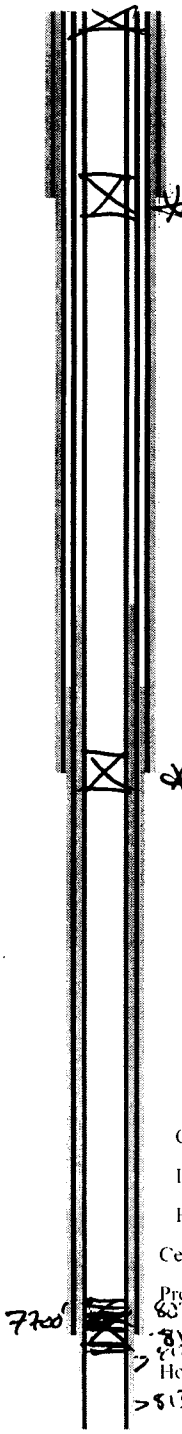
Company Name: FORTUNA (U. S.) INC

Location: Sec: 21 T: 16S R: 6E Spot: SESE

Coordinates: X: 478564 Y: 4362337

Field Name: WILDCAT

County Name: EMERY



TD: **TVD:** **PBTD:**

String Information

String	Bottom (ft sub)	Diameter (inches)	Weight (lb/ft)	Length (ft)
HOL1	1080	17.5		
SURF	1080	13.375	48	1080
HOL2	4417	12.25		
I1	4417	9.625	36	4417
HOL3	7690	8.75		
I2	7690	7	26	7690
HOL4	8240	6.125		
PROD	8240	4.5	13.5	8240

Cement Information

String	BOC (ft sub)	TOC (ft sub)	Class	Sacks
I1	4417	0	G	1975
I2	7690	3913	G	304
PROD	8240	~~3428~~ 7742	G	211
SURF	1080	0	G	1810

Perforation Information

Top (ft sub)	Bottom (ft sub)	Shts/Ft	No Shts	Dt Squeeze
8122	8137			

Formation Information

Formation	Depth	Formation	Depth
PRRV	831		
CSLGT	1467		
BLKHK	1700		
STRPT	2712		
BLUGT	2983		
EMEY	4279		
FRSD	7734		
TNUNK	8204		

TALISMAN ENERGY CANADA
Suite 3400, 666 – 3rd Street SW
Calgary, AB T2P 5C6
FAX: 237-1620

TALISMAN

FORTUNA (US) INC.

Fax

DATE:	31 OCT 2003	Number of Pages:	7
TO:	ERIC JONES	FROM:	A. HABERMEYER
COMPANY:	BLM	E-MAIL:	
PHONE:		PHONE:	1-403-237-1258
FAX:	435-259-2106	FAX:	1-403-237-1086

REMARKS:

☐ Urgent ☐ For Your Review ☐ Reply ASAP ☐ Please Comment

TOM LLOYD - FOREST SERVICE 435-384-3296

DUSTIN DOUCET - UTAH DIV OF OIL MINING 801-359-3940

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039

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

FORM 9

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.

5. LEASE DESIGNATION AND SERIAL NUMBER: UTU-77263
6. IF INDIAN, ALLOTTEE OR TRIBE NAME: N/A
7. UNIT or CA AGREEMENT NAME: N/A
8. WELL NAME and NUMBER: Middle Mountain #21-16
9. API NUMBER: 43-015-30426
10. FIELD AND POOL, OR WILDCAT: Wildcat

1. TYPE OF WELL: OIL WELL ☐ GAS WELL ☒ OTHER ~~CONFIDENTIAL~~
2. NAME OF OPERATOR: Fortuna (US) Inc.
3. ADDRESS OF OPERATOR: 888 3rd Street S.W. Suite 3400 CITY Calgary STATE AB ZIP T2P 5C5 PHONE NUMBER: 403-237-1258
4. LOCATION OF WELL
FOOTAGES AT SURFACE: 1309' FSL, 834' FEL
COUNTY: Emery County
QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: SE/4 SE/4 SEC 21 T16S R6E SLB+M
STATE: UTAH

11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION		
☐ NOTICE OF INTENT (Submit in Duplicate)	☐ ACIDIZE	☐ DEEPEN	☐ REPERFORATE CURRENT FORMATION
Approximate date work will start:	☐ ALTER CASING	☐ FRACTURE TREAT	☐ SIDETRACK TO REPAIR WELL
	☐ CASING REPAIR	☐ NEW CONSTRUCTION	☐ TEMPORARILY ABANDON
	☐ CHANGE TO PREVIOUS PLANS	☐ OPERATOR CHANGE	☐ TUBING REPAIR
	☐ CHANGE TUBING	☑ PLUG AND ABANDON	☐ VENT OR FLARE
☑ SUBSEQUENT REPORT (Submit Original Form Only)	☐ CHANGE WELL NAME	☐ PLUG BACK	☐ WATER DISPOSAL
Date of work completion:	☐ CHANGE WELL STATUS	☐ PRODUCTION (START/RESUME)	☐ WATER SHUT-OFF
	☐ COMMINGLE PRODUCING FORMATIONS	☐ RECLAMATION OF WELL SITE	☐ OTHER:
	☐ CONVERT WELL TYPE	☐ RECOMPLETE - DIFFERENT FORMATION	

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

The well has been abandoned and cut and capped. Reclamation of the wellsite to follow. and road

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OCT 31 2003
DIV. OF OIL, GAS & MINING

NAME (PLEASE PRINT) Alfred Hagemeyer TITLE Abandonment Engineer
SIGNATURE Alf Hagemeyer DATE Oct 31, 2003

(This space for State use only)

(5/2000) (See Instructions on Reverse Side)

Talisman Energy Canada - Schematic - Current

Well Name: FORTUNA MIDDLE MTN #21-16

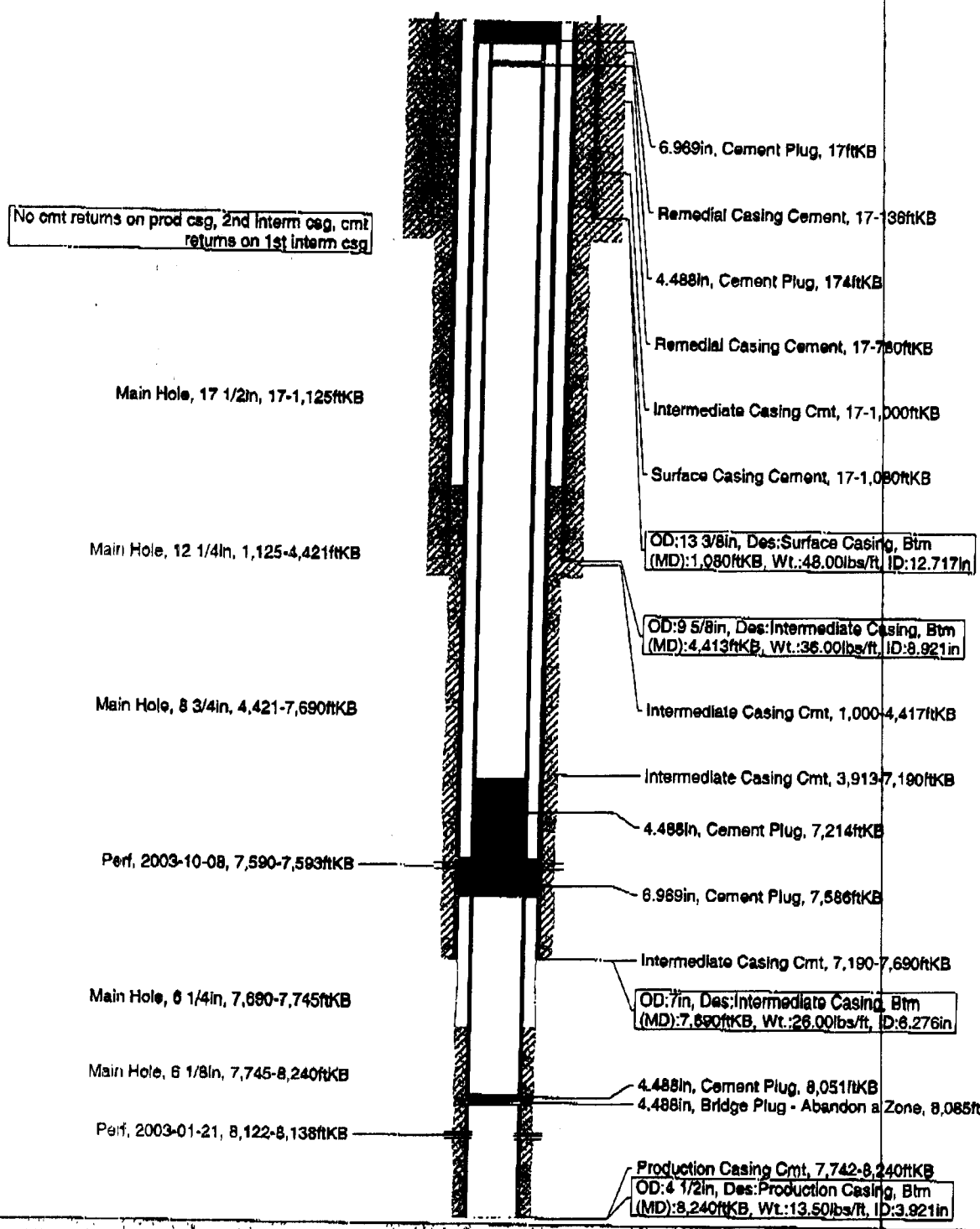
Surface Legal Location	Field Name	Operation Group	State/Province	License No.	Current Well Status
700139412321112490B0	Middle Mountain	Southern District	Utah	UT43-015-30426	Abandoned Gas
KB Elevation (ft)	**Ground Elevation (ft)**	**Casing Flange Elevation (ft)**	**KB-Ground Distance (ft)**	**KB-Casing Flange Distance (ft)**	**Plug Back Total Depth (ftKB)**
8672.00	8655.00	8655.00	17.00	17.00	8,178.0

Most Recent Job

Primary Job Type	Spud Date	Operation End Date
Completion-Original	2003-01-13	2003-02-02

Main Hole: 2003-10-09

Schematic - Actual



ftKB (MD)
-3
13
30
174
449
943
978
1034
1124
1819
1973
2295
2546
2743
3184
3381
4109
4334
4418
4631
5741
6486
7053
7110
7177
7390
7431
7593
7650
7685
7698
7718
7745
7971
8087
8137
8178
8239

Talisman En...gy Canada - Job Operational Summary (Completions)

Well Name: FORTUNA MIDDLE MTN #21-16

Surface Legal Location	Field Name	Operation Group	KB Elevation (m)	Ground Elevation (m)	Plug Back Total Depth (mKB)
700139412321112490B0	Middle Mountain	Southern District	2643.23	2638.04	2,492.65

Abandonment, 2003-09-29 7:29:00 PM

Job Category	Primary Job Type	Start Date	AFE No.	AFE Percentage (%)	Total AFE-Sup ($)	Total Field Est Cost ($)
Abandon	Abandonment	2003-09-29	AF43650	100.00	120,900	63,970

Daily Operation Reports: 2003-09-30 00:00 - 2003-10-01 00:00

Weather	T (°C)	Lease/Road Conditions	Tubing Pressure (kPa)	Casing Pressure (kPa)	24 Hrs SICVP (kPa)	24 Hrs SCVF	H2S < 1% (ppm)	H2S > 1% (%)

Time Log

Start Date	Code	Activity	Comment
08:00	OTHR	Other Operations	ARRIVE IN PRICE, UTAH AT 1200hrs. - BOOK SERVICE RIG, LEED ENERGY, OCT 4 SOONEST. (NO RIGS AVAILABLE IMMEDIATELY). - CALL TOM LLOYD SENIOR GEOLOGIST U.S. FORESTRY SERVICE. GET VERBAL OKAY FROM HIM TO PROCEDE WITH ABANDONMENT PROVIDING THE ROAD SPECIALIST AGREES. - CALL JEFF ALEXANDER, THE ROAD SPECIALIST, U.S. FORESTRY SERVICE. HE INFORMED ME THE ROAD USE AGREEMENT HAD EXPIRED, TODAY. CALL CALGARY TO FAX DOWN A REQUEST FOR AN EXTENTION TO THE ROAD USE AGREEMENT TO JEFF ALEXANDER, USFS.

Daily Operation Reports: 2003-10-01 00:00 - 2003-10-02 00:00

Weather	T (°C)	Lease/Road Conditions	Tubing Pressure (kPa)	Casing Pressure (kPa)	24 Hrs SICVP (kPa)	24 Hrs SCVF	H2S < 1% (ppm)	H2S > 1% (%)
CLEAR	32	DRY/GOOD	210	3,650			0	

Time Log

Start Date	Code	Activity	Comment
00:00	OTHR	Other Operations	BOOK ; - HALIBURTON ELECTRIC WIRELINE SERVICE. - HALIBURTON CEMENT SERVICE - WEATHERFORD BOPE - RAIN FOR RENT SURFACE STORAGE TANK, (RETURN) - AMERIC-KAN FOR PORTA POTTI AND GARBAGE BIN. - NIELSON WATER - NIELSON WELDER AND BACKHOE. RECIEVE CALL FROM; - TOM LLOYD SENIOR GEOLOGIST U.S. FORESTRY SERVICE. HE REQUESTED THAT A MARKER NOT BE CEMENTED IN PLACE AS PER REGULATIONS. HE SAID HE HAD TALKED TO BUREAU OF LAND MANAGEMENT (BLM) AND THEY HAD AGREED. HE ALSO REMINDED ME THAT ELK HUNTING SEASON STARTS THIS WEEKEND, AND THAT NO HEAVY VEHICLES WERE TO OPERATE ON PARK ROADS, FOR FRIDAY, SATURDAY AND SUNDAY. - CALGARY SAYING OKAY TO THE NO MARKER REQUEST. IT WAS REQUESTED TO CHECK AGAIN IF THE FORESTRY MEANT DRILLING RIGS OR SERVICE RIGS. CALLED TOM LLOYD, SENIOR GEOLOGIST USFS. HE INTERPRETS DRILLING RIG MOVE AS ANY VEHICLE LARGER THAN A PICKUP TRUCK. HE IS WORRIED ABOUT SAFETY WITH THE HIGH DENSITY OF HUNTER TRAFIC. HE SAID WE OULD BE IN VIOLATION OF THE ROAD USE AGREEMENT AND DRILLING PERMIT. REBOOK SERVICES TO COMMENCE ABANDONMENT ON MONDAY. GO TO LOCATION. TUBING PRESSURE 200KPa, 114mm CASING PRESSURE 1940KPa, 114 X 177 ANNULUS ON VACUUM, AND SHUT IN SURFACE CASING VALVE (177 X 244 ANNULUS).

Daily Operation Reports: 2003-10-02 00:00 - 2003-10-03 00:00

Weather	T (°C)	Lease/Road Conditions	Tubing Pressure (kPa)	Casing Pressure (kPa)	24 Hrs SICVP (kPa)	24 Hrs SCVF	H2S < 1% (ppm)	H2S > 1% (%)
RAIN	22	WET/ SLIPPERY						

Time Log

Start Date	Code	Activity	Comment
10:00	OTHR	Other Operations	MEET WITH FERNANDO ORTEGA, AREA MANAGER FOR LEED ENERGY, A SERVICE RIG SUPPLIER. INSPECT RIG; RIG MEETS UTAH STATE REQUIREMENTS AND ROAD WORTHINESS. CALL DON HAMILTION, TALON RESOURCES. STILL NO APPROVAL ON ROAD USE EXTENSION. CALL WEATHERFORD AND ORDER BOPE SYSTEM.

Talisman En[illegible]y Canada - Job Operational Summary (Completions)

Well Name: FORTUNA MIDDLE MTN #21-16

Surface Legal Location	Field Name	Operation Group	KB Elevation (m)	Ground Elevation (m)	Plug Back Total Depth (mKB)
700139412321112490B0	Middle Mountain	Southern District	2643.23	2638.04	2,492.65

Daily Operation Reports: 2003-10-03 00:00 - 2003-10-04 00:00

Weather	T (°C)	Lease/Road Conditions	Tubing Pressure (kPa)	Casing Pressure (kPa)	24 Hrs SISCVP (kPa)	24 Hrs SCVF	H2S < 1% (ppm)	H2S > 1% (%)
RAIN, CLOUDY	21	GOOD/DRY			0	0 BUBBLES IN 10 MINUTES		

Time Log

Start Date	Code	Activity	Comment
08:00			48 hr SISCVP= TSTM, 10 MINUTE BUBBLE TEST YIELDED NO BUBBLES. SHUT DOWN FOR FRIDAY SATURDAY AND SUNDAY FOR THE OPENING WEEKEND OF ELK HUNTNG SEASON AS PER ROAD USE AGREEMENT WITH THE U.S. FORESTRY SERVICE.

Daily Operation Reports: 2003-10-06 00:00 - 2003-10-07 00:00

Weather	T (°C)	Lease/Road Conditions	Tubing Pressure (kPa)	Casing Pressure (kPa)	24 Hrs SISCVP (kPa)	24 Hrs SCVF	H2S < 1% (ppm)	H2S > 1% (%)
PARTLY CLOUDY	21	SOFT SPOTS/DRY	150	3,650		0 BUBBLES IN 10 MINUTES		

Time Log

Start Date	Code	Activity	Comment
07:00	MISR	Move in Service Rig	MOVE IN LEED SERVICE RIG c/w DOG HOUSE. HAUL IN WEATHERFORD BOP AND ACC UNIT. HAUL IN RAIN FOR RENT SURFACE TANK. HAUL IN AMERI-KAN WASTE BIN AND TOILET. HAUL IN RIG PUMP. HAUL IN RIG TANK. SPOT RIG SOUTH. CAN'T GET PAST SOFT SPOTS. SPOT RIG NORTH, JACKS WERE SINKING. ORDER UP RIG MATTING. BLEED OFF ANNULUS IN 7 MINUTES TO ATMOSPHERE. CALL AND LEAVE MESSAGE WITH ERIC JONES, BLM OF COMMENCEMENT OF ACTIVITIES. HOLD OPERATIONAL SAFETY MEETING WITH LEED SERVICE RIG CREW. ORIENT CREW TO TALISMAN GUIDELINES FOR CONTRACTORS. THE CREWS HAVE NO FORMAL TRAINING AS REQUIRED IN CANADIAN OPERATIONS.

Daily Operation Reports: 2003-10-07 00:00 - 2003-10-08 00:00

Weather	T (°C)	Lease/Road Conditions	Tubing Pressure (kPa)	Casing Pressure (kPa)	24 Hrs SISCVP (kPa)	24 Hrs SCVF	H2S < 1% (ppm)	H2S > 1% (%)
CLEAR	26	SOFT SPOTS/ DRY	0	140		0 BUBBLES IN 10 MINUTES		

Time Log

Start Date	Code	Activity	Comment
07:30	SMTG	Safety Meeting	PERFORM LEASE/RIG INSPECTION, SOFT SPOTS ON LEASE. HOLD OPERATIONAL SAFETY MEETING WITH LEED ENERGY.
08:00	RIG	Rig Up/Down	SITP=0 KPa, SICP= 140KPa. KILL WELL WITH 2.5m3 FRESH WATER. OBSERVE WELL DEAD. N/D WELLHEAD. N/U CLASS II BOPE. PRESSURE TEST WELLHEAD CONNECTION X PIPE RAMS TO 10500KPa. R/U RIG FLOOR AND TONGS. CALL ERIC JONES BLM, MOAB, UT. CONFIRM PERFORATE 7590' , 100' INSIDE 7" SHOE. HE ALSO WANTED A 200' PLUG INSIDE 7" X 4.5" ANNULUS.
11:00	TBGP	Pull Tubing	DON STEVENS, BLM PRICE, UT. ON SITE AT 1100hrs. UNSEAT HANGER AND POH PRODUCTION 60mm STRING.
13:00	BPSET	Set Bridge Plug	R/U HALIBURTON EWL. RUN 1; RUN GUAGE RING-JUNK BASKET HOLD PRE EXPLOSIVE SAFETY MEETING. RUN 2; SET PERMANENT BRIDGE PLUG AT 2464.3mKB 8082.9 ft. FILL WELL WITH FRESH WATER. PRESSURE TEST BRIDGE PLUG TO 10350KPa FOR 10 MINUTES. RUN 3; DUMP BAIL 7 LINEAR METRES CLASS G CEMENT. } 34.4 ft RUN4; DUMP BAIL 3.6 LINEAR METRES CLASS G CEMENT RUN OUT OF DAYLIGHT.
20:00	SIFN	Shut in for Night	SECURE WELL. SDFN.

Daily Operation Reports: 2003-10-08 00:00 - 2003-10-09 00:00

Weather	T (°C)	Lease/Road Conditions	Tubing Pressure (kPa)	Casing Pressure (kPa)	24 Hrs SISCVP (kPa)	24 Hrs SCVF	H2S < 1% (ppm)	H2S > 1% (%)
CLEAR	26	SOFT SPOTS/ DRY		0		0 BUBBLES IN 10 MINUTES		

Time Log

Start Date	Code	Activity	Comment
07:30	SMTG	Safety Meeting	HOLD OPERATIONAL SAFETY MEETING WITH HES, LEED AND AZTEC TRUCKING.
08:00	PERF	Perforating	R/U TO PERFORATE. RUN 1; PERFORATE 2313.43 TO 2314.34mKB, 1m 6SPM, 120° PHASED, 12gm CHARGES. 7588 - 7590 ft

Talisman Energy Canada - Job Operational Summary (Completions)

Well Name: FORTUNA MIDDLE MTN #21-16

Surface Legal Location	Field Name	Operation Group	KB Elevation (m)	Ground Elevation (m)	Plug Back Total Depth (mKB)
700139412321112490B0	Middle Mountain	Southern District	2643.23	2638.04	2,492.65

Time Log

Start Date	Code	Activity	Comment
09:30	OTHR	Other Operations	ESTABLISH SQUEEZE RATE OF .169m3/min AT 10.3MPa. CALL ERIC JONES BLM, MOAB, UTAH, AGREE TO SQUEEZE 200% 177 X 114mm ANNULUS AND LEAVE 30m PLUG ABOVE PERFS. AND TO LEAVE 30m PLUG AT TOP OF 144mm CASING.
10:00	TBGR	Run Tubing	RIH CEMENT STRING, PULL 6 SWABS WITH 30 STANDS IN HOLE TO AVOID TRIP DISPLACEMENT. LAND STRING AT 2320.7mKB. 7609 ft
13:30	CEMSQ	Cement Squeeze	R/U HALIBURTON. HOLD SAFETY MEETING. P/T LINES TO 24.0MPa. BREAK CIRCULATION WITH FRESH WATER. BATCH MIX .95m3 THIXOTROPIC AND PUMP AS A BALANCED PLUG. PULL BACK TO 2167.12mKB. REVERSE CIRCULATE CLEAN. SQUEEZE 140 LITRES, PRESSURE UP TO 14.0MPa AND HELD. 177mmX 114mm ANNULUS WAS OPEN, NO RESPONSE. 7111 ft
16:00	WOC	Wait on Cement	DON STEVENS BLM PRICE UTAH, CALLED THAT GOOD. CLOSE IN WELL WITH 14.0MPa ON IT UNTL MORNING

Daily Operation Reports: 2003-10-09 00:00 - 2003-10-10 00:00

Weather	T (°C)	Lease/Road Conditions	Tubing Pressure (kPa)	Casing Pressure (kPa)	24 Hrs SICVP (kPa)	24 Hrs SCVP	H2S < 1% (ppm)	H2S > 1% (%)
CLEAR	22	SOFT SPOTS/ DRY	11,375	11,375		0 BUBBLES IN 10 MINUTES		

Time Log

Start Date	Code	Activity	Comment
07:30	SMTG	Safety Meeting	PERFORM LEASE/RIG WALK AROUND. HOLD OPERATIONAL SAFETY MEETING WITH LEED ENERGY.
08:00	TBGP	Pull Tubing	SITP=11375KPa, SICP=11375KPa. SQUEEZE PRESSURE BLED DOWN 2625KPa OVER NIGHT. TUBING PLUGGED SWAB DOWN TO 500m, POH AND LAY DOWN WORK STRING. FOUND 2 PLUGGED JOINTS. TOM LLOYD FROM US FORESTRY SERVICE, FERRON, UTAH. PAID A SITE VISIT. A REMINDER WAS MADE OF THE ROAD CLOSURE TO HEAVY TRAFIC FOR THE NEXT 4 DAYS STARTING TOMORROW. DON STEPHENS BLM, PRICE UTAH WAS ON SITE.
14:00	CEMSQ	Cement Squeeze	R/U HALLIBURTON ENERGY SERVICES BATCH MIX .562m3 THIXOTROPIC SLURRY. i) TOP FILL 114mm X 177mm ANNULUS WITH .238m3, 24.5m (80 LINEAR FEET). ii) SPOT .324m3 BALANCED PLUG IN 114mm CASING 41.5m (136 LINEAR FEET) FROM 94.48mKB UP TO 52.98mKB. WASH UP BACK TO RIG TANK. R/D HALLIBURTON
15:30	RIG	Rig Up/Down	POH L/D CEMENT STRING. N/D BOPE, N/U WELLHEAD R/D SERVICE RIG. RIG DOWN PUMP AND TANK. HAUL OUT SURFACE WATER TANK. MOVE RIG OFF OF MOUNTAIN. EMPTY RIG TANK AND HAUL TO DISPOSAL. HAUL PUMP OFF OF MOUNTAIN. HAUL MATTING AND RIG TANK OFF MOUNTAIN. RUN OUT OF DAYLIGHT, RUN OUT OF TRUCKS. ROAD CLOSED FOR 4 DAYS.

Daily Operation Reports: 2003-10-10 00:00 - 2003-10-11 00:00

Weather	T (°C)	Lease/Road Conditions	Tubing Pressure (kPa)	Casing Pressure (kPa)	24 Hrs SICVP (kPa)	24 Hrs SCVP	H2S < 1% (ppm)	H2S > 1% (%)
CLEAR	20	SOFT SPOTS/ DRY	0	0	0	0 BUBBLES IN 10 MINUTES	0	

Time Log

Start Date	Code	Activity	Comment
08:00			US FORESTRY SERVICE ROAD USE AGREEMENT BANS THE USE OF MULTI AXEL VEHICLES (BIG TRUCK) AS REMINDED BY TOM LLOYD SENIOR GEOLOGIST FERRON. LEFT ON LOCATION; -PIPE TRAILER WITH 258 JOINTS 60mm TUBING. -WEATHERFORD BOPE. DON HAMILTON OF TALON RESOURCES TO OPEN GATE ON 03/10/14 AT 1300hrs TO ALLOW TRUCKS TO RETRIEVE EQUIPMENT. TALKED TO DON JACKSON TLM CONSTRUCTION. HE AGREED TO CUT AND CAP WELL. HE REQUESTED THE TOILET AND GARBAGE BIN BE LEFT ON LOCATION. ESTIMATED TIME OF RECLAIMATION COMMENCEMENT 03/10/27. LEAVE MESSAGE ON DON STEPHENS VOICE MAIL WITH CEMENTING RESULTS.

Talisman Energy Canada - Job Operational Summary (Completions)

Well Name: FORTUNA MIDDLE MTN #21-16

Surface Legal Location	Field Name	Operation Group	KB Elevation (m)	Ground Elevation (m)	Plug Back Total Depth (mKB)
700139412321112490 80	Middle Mountain	Southern District	2643.23	2638.04	2,492.65

Daily Operation Reports: 2003-10-26 00:00 - 2003-10-27 00:00

Weather	T (°C)	Lease/Road Conditions	Tubing Pressure (kPa)	Casing Pressure (kPa)	24 Hrs BISCVP (kPa)	24 Hrs SCVF	H2S < 1% (ppm)	H2S > 1% (%)
		SOFT SPOTS/ DRY				0 BUBBLES IN 10 MINUTES		

Time Log

Start Date	Code	Activity	Comment
00:00	OTHR	Other Operations	THERE HAS BEEN DIFFICULTY IN GETTING COSTS OUT OF SOME THE SERVICES IN REASONABLE TIME. EXAMPLE; IF A TRUCK TAKES 5 HOURS TO GET TO LOCATION A DRIVER WILL NOT ASSUME IT WILL TAKE 5 HOURS TO RETURN, THE DRIVER PASSES THE INFO TO THEIR OFFICE AND THAT SEEMS TO BE THE END OF IT. I HAVE BEEN IN TOUCH WITH BUT HAVE RECIEVED NO RESPONSE FROM - RNI, 2 TICKETS 33336 AND 33410, FOR WATER TO DISPOSAL. - NIELSON, 2 TICKETS FOR WATER DELIVERY - WEATHERFORD BOPE RENTAL - AZTEC PIPE, FOR PIPE RETURN, MT35998 AND STORAGE COSTS.

Daily Operation Reports: 2003-10-27 00:00 - 2003-10-28 00:00

Weather	T (°C)	Lease/Road Conditions	Tubing Pressure (kPa)	Casing Pressure (kPa)	24 Hrs SICVP (kPa)	24 Hrs SCVF	H2S < 1% (ppm)	H2S > 1% (%)
		SOFT SPOTS/ DRY				0 BUBBLES IN 10 MINUTES		

Time Log

Start Date	Code	Activity	Comment
08:00	CUTC	Cut and Cap Casing	CONSTRUCTION CUT AND CAPPED WELL. WELLHEAD WAS SENT TO AZTEC YARD, VERNAL UTAH, LISTED ON MT 35998 (TALISMAN MT SCRATCHED OUT W/ FORTUNA US HAND WRITTEN ON IT) - 258 JTS 60mm EUE TUBING - 1 WELLHEAD 35MPa; BONNET+FLOW TEE+ GATE VALVE + GATE VALVE+ TUBING SPOOL+INTERMEDIATE SPOOL+ CASING BOWL c/w SURFACE VENT.

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

FORM 9

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.

5. LEASE DESIGNATION AND SERIAL NUMBER: UTU-77263

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: N/A

7. UNIT or CA AGREEMENT NAME: N/A

1. TYPE OF WELL: OIL WELL ☐ GAS WELL ☐ OTHER ABANDONED (G/W)

8. WELL NAME and NUMBER: Middle Mountain #21-16

2. NAME OF OPERATOR: FORTUNA (U.S.) INC (N2160)

9. API NUMBER: 43-015-30426

3. ADDRESS OF OPERATOR: Ste 3400 - 888 - 3 ST SW CALGARY, ALBERTA CANADA T2P5C5 (CITY / STATE / ZIP)

PHONE NUMBER: 403-237-1234

10. FIELD AND POOL, OR WILDCAT: Wildcat

4. LOCATION OF WELL

FOOTAGES AT SURFACE: 1309' FSL, 834' FEL

COUNTY: EMERY

QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: S/E/4 SE/4 Sec 21, T16S, R6E SLB&M

STATE: UTAH

11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION		
☐ NOTICE OF INTENT (Submit in Duplicate)	☐ ACIDIZE	☐ DEEPEN	☐ REPERFORATE CURRENT FORMATION
Approximate date work will start: _____	☐ ALTER CASING	☐ FRACTURE TREAT	☐ SIDETRACK TO REPAIR WELL
	☐ CASING REPAIR	☐ NEW CONSTRUCTION	☐ TEMPORARILY ABANDON
	☐ CHANGE TO PREVIOUS PLANS	☑ OPERATOR CHANGE	☐ TUBING REPAIR
	☐ CHANGE TUBING	☐ PLUG AND ABANDON	☐ VENT OR FLARE
☐ SUBSEQUENT REPORT (Submit Original Form Only)	☐ CHANGE WELL NAME	☐ PLUG BACK	☐ WATER DISPOSAL
Date of work completion:	☐ CHANGE WELL STATUS	☐ PRODUCTION (START/RESUME)	☐ WATER SHUT-OFF
_____	☐ COMMINGLE PRODUCING FORMATIONS	☐ RECLAMATION OF WELL SITE	☐ OTHER: _____
	☐ CONVERT WELL TYPE	☐ RECOMPLETE - DIFFERENT FORMATION	

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

Operator Change - See attached Certificate and Articles of Merger

The operator name change is as follows:

From: Fortuna (U.S.) Inc. (N2160)

To: FUSI LLC (N2605)

RECEIVED
NOV 29 2004
DIV. OF OIL, GAS & MINING

NAME (PLEASE PRINT) Blaine MacInnes TITLE Drilling Engineer

SIGNATURE [signature] DATE Nov 24, 2004.

(This space for State use only)

APPROVED 12/21/04

EL

Division of Oil, Gas and Mining
Earlene Russell, Engineering Technician

(See Instructions on Reverse Side)

(5/2000)

Division of Oil, Gas and Mining

OPERATOR CHANGE WORKSHEET

ROUTING
1. GLH
2. CDW
3. FILE

043

Change of Operator (Well Sold) — Designation of Agent/Operator

X **Operator Name Change** — Merger

The operator of the well(s) listed below has changed, effective: **10/1/2003**

FROM: (Old Operator):	**TO:** (New Operator):
N2160-Fortuna (U.S.) Inc.	N2605-FUSI, LLC
Ste 3400 888 3 St SW	Ste 3400 888 3 St SW
Calgary, Alberta, Canada T2P 5C5	Calgary, Alberta, Canada T2P 5C5
Phone: 1-(403) 237-1234	Phone: 1-(403) 237-1234

CA No. **Unit:**

WELL(S)

NAME	SEC	TWN	RNG	API NO	ENTITY NO	LEASE TYPE	WELL TYPE	WELL STATUS	
JOES VALLEY 20-1	21	150S	060E	4303930025		Federal	GW	NEW	C
MIDDLE MOUNTAIN 21-16	21	160S	060E	4301530426	13659	Federal	D	PA	K
LOWRY WATER 32-12	32	160S	060E	4301530522		Federal	GW	NEW	C
FLAT CYN ST 36-3	36	160S	060E	4301530524		State	GW	APD	C

OPERATOR CHANGES DOCUMENTATION

Enter date after each listed item is completed

1. (R649-8-10) Sundry or legal documentation was received from the **FORMER** operator on: 12/20/2004
2. (R649-8-10) Sundry or legal documentation was received from the **NEW** operator on: 12/20/2004

3. The new company was checked on the **Department of Commerce, Division of Corporations Database on:** 11/4/2004
4. Is the new operator registered in the State of Utah: YES Business Number: 5409020-0161
5. If **NO**, the operator was contacted contacted on:

6a. (R649-9-2)Waste Management Plan has been received on: Requested

6b. Inspections of LA PA state/fee well sites complete on: n/a

7. **Federal and Indian Lease Wells:** The BLM and or the BIA has approved the merger, name change, or operator change for all wells listed on Federal or Indian leases on: BLM not yet BIA n/a

8. **Federal and Indian Units:**
The BLM or BIA has approved the successor of unit operator for wells listed on: n/a

9. **Federal and Indian Communization Agreements ("CA"):**
The BLM or BIA has approved the operator for all wells listed within a CA on: n/a

10. **Underground Injection Control ("UIC")** The Division has approved UIC Form 5, **Transfer of Authority to Inject,** for the enhanced/secondary recovery unit/project for the water disposal well(s) listed on: n/a

DATA ENTRY:

1. Changes entered in the **Oil and Gas Database on:** 12/22/2004
2. Changes have been entered on the **Monthly Operator Change Spread Sheet on:** 12/22/2004
3. Bond information entered in RBDMS on: 12/22/2004
4. Fee/State wells attached to bond in RBDMS on: 12/22/2004
5. Injection Projects to new operator in RBDMS on: n/a
6. Receipt of Acceptance of Drilling Procedures for APD/New on: 12/22/2004

FEDERAL WELL(S) BOND VERIFICATION:

1. Federal well(s) covered by Bond Number: UT 1263

INDIAN WELL(S) BOND VERIFICATION:

1. Indian well(s) covered by Bond Number: n/a

FEE & STATE WELL(S) BOND VERIFICATION:

1. (R649-3-1) The **NEW** operator of any fee well(s) listed covered by Bond Number 33632617

2. The **FORMER** operator has requested a release of liability from their bond on: n/a
The Division sent response by letter on: n/a

LEASE INTEREST OWNER NOTIFICATION:

3. (R649-2-10) The **FORMER** operator of the fee wells has been contacted and informed by a letter from the Division of their responsibility to notify all interest owners of this change on: n/a

COMMENTS:

FORM 9

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

5. LEASE DESIGNATION AND SERIAL NUMBER: UTU - 77263

SUNDRY NOTICES AND REPORTS ON WELLS

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: N/A

7. UNIT or CA AGREEMENT NAME: N/A

Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.

1. TYPE OF WELL: OIL WELL ☐ GAS WELL ☑ OTHER ABANDONED

8. WELL NAME and NUMBER: MIDDLE MOUNTAIN #21-16

2. NAME OF OPERATOR: FUSI LLC

9. API NUMBER: 4301530426

3. ADDRESS OF OPERATOR: 3400 - 888 - 3RD STREET CITY CALGARY STATE AB ZIP T2P5C5

PHONE NUMBER: (403) 237-1234

10. FIELD AND POOL, OR WILDCAT: WILDCAT

4. LOCATION OF WELL

FOOTAGES AT SURFACE: 1309' FSL 834' FEL

COUNTY: EMERY

QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: SESE 21 16S 6E

STATE: UTAH

11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION		
☐ NOTICE OF INTENT (Submit in Duplicate)	☐ ACIDIZE	☐ DEEPEN	☐ REPERFORATE CURRENT FORMATION
Approximate date work will start:	☐ ALTER CASING	☐ FRACTURE TREAT	☐ SIDETRACK TO REPAIR WELL
	☐ CASING REPAIR	☐ NEW CONSTRUCTION	☐ TEMPORARILY ABANDON
	☐ CHANGE TO PREVIOUS PLANS	☑ OPERATOR CHANGE	☐ TUBING REPAIR
	☐ CHANGE TUBING	☐ PLUG AND ABANDON	☐ VENT OR FLARE
☐ SUBSEQUENT REPORT (Submit Original Form Only)	☐ CHANGE WELL NAME	☐ PLUG BACK	☐ WATER DISPOSAL
Date of work completion:	☐ CHANGE WELL STATUS	☐ PRODUCTION (START/RESUME)	☐ WATER SHUT-OFF
	☐ COMMINGLE PRODUCING FORMATIONS	☐ RECLAMATION OF WELL SITE	☐ OTHER:
	☐ CONVERT WELL TYPE	☐ RECOMPLETE - DIFFERENT FORMATION	

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

The operator name change is as follows:

From: FUSI LLC
To: Fortuna (US) L.P.

RECEIVED
JAN 18 2005
DIV. OF OIL, GAS & MINING

NAME (PLEASE PRINT) BLAINE MACINNES TITLE DRILLING ENGINEER

SIGNATURE [signature] DATE 1/5/2005

(This space for State use only)

(5/2000) (See Instructions on Reverse Side)

APPROVED 2/24/05
ER
Division of Oil, Gas and Mining
Earlene Russell, Engineering Technician

044

Division of Oil, Gas and Mining

OPERATOR CHANGE WORKSHEET

ROUTING
1. GLH
2. CDW

Change of Operator (Well Sold) — Designation of Agent/Operator

X Operator Name Change — Merger

The operator of the well(s) listed below has changed, effective: **12/21/2004**

FROM: (Old Operator):	**TO:** (New Operator):
N2605-FUSI LLC 3400-888 3rd St SW Calgary, Alberta, Canada T2P 5C5 Phone: 1-(403) 237-1234	N2710-Fortuna (US) LP 3400-888 3rd St SW Calgary, Alberta, Canada T2P 5C5 Phone: 1-(403) 237-1234

CA No. **Unit:**

WELL(S)

NAME	SEC	TWN	RNG	API NO	ENTITY NO	LEASE TYPE	WELL TYPE	WELL STATUS	
JOES VALLEY 20-1	21	150S	060E	4303930025		Federal	GW	NEW	C
MIDDLE MOUNTAIN 21-16	21	160S	060E	4301530426	13659	Federal	D	PA	K
LOWRY WATER 32-12	32	160S	060E	4301530522		Federal	GW	NEW	C
FLAT CYN ST 36-3	36	160S	060E	4301530524		State	GW	APD	C

OPERATOR CHANGES DOCUMENTATION

Enter date after each listed item is completed

1. (R649-8-10) Sundry or legal documentation was received from the **FORMER** operator on: 1/18/2005
2. (R649-8-10) Sundry or legal documentation was received from the **NEW** operator on: 1/18/2005
3. The new company was checked on the **Department of Commerce, Division of Corporations Database on:** 1/19/2005
4. Is the new operator registered in the State of Utah: YES Business Number: 5409020-0181
5. If **NO**, the operator was contacted contacted on:

6a. (R649-9-2)Waste Management Plan has been received on: IN PLACE

6b. Inspections of LA PA state/fee well sites complete on: n/a

7. **Federal and Indian Lease Wells:** The BLM and or the BIA has approved the merger, name change, or operator change for all wells listed on Federal or Indian leases on: BLM not yet BIA n/a

8. **Federal and Indian Units:**
The BLM or BIA has approved the successor of unit operator for wells listed on: n/a

9. **Federal and Indian Communization Agreements ("CA"):**
The BLM or BIA has approved the operator for all wells listed within a CA on: n/a

10. **Underground Injection Control ("UIC")** The Division has approved UIC Form 5, **Transfer of Authority to Inject,** for the enhanced/secondary recovery unit/project for the water disposal well(s) listed on: n/a

DATA ENTRY:

1. Changes entered in the **Oil and Gas Database on:** 2/24/2005
2. Changes have been entered on the **Monthly Operator Change Spread Sheet on:** 2/24/2005
3. Bond information entered in RBDMS on: 2/24/2005
4. Fee/State wells attached to bond in RBDMS on: 2/24/2005
5. Injection Projects to new operator in RBDMS on: n/a
6. Receipt of Acceptance of Drilling Procedures for APD/New on: 1/20/2005

FEDERAL WELL(S) BOND VERIFICATION:

1. Federal well(s) covered by Bond Number: UT 1263

INDIAN WELL(S) BOND VERIFICATION:

1. Indian well(s) covered by Bond Number: n/a

FEE & STATE WELL(S) BOND VERIFICATION:

1. (R649-3-1) The **NEW** operator of any fee well(s) listed covered by Bond Number 33632617

2. The **FORMER** operator has requested a release of liability from their bond on: n/a
The Division sent response by letter on: n/a

LEASE INTEREST OWNER NOTIFICATION:

3. (R649-2-10) The **FORMER** operator of the fee wells has been contacted and informed by a letter from the Division of their responsibility to notify all interest owners of this change on: n/a

COMMENTS: