

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. TYPE OF WORK
 DRILL DEEPEN PLUG BACK

b. TYPE OF WELL
 OIL WELL GAS WELL OTHER

2. NAME OF OPERATOR
 Phillips Oil Company

3. ADDRESS OF OPERATOR
 P. O. Box 2920 Casper, WY 82602

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.)
 At surface 2100' FSL, 660' FWL (NW SW)
 At proposed prod. zone same

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*
 Approximately 4 miles southeast of Montezuma Creek, Utah

15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drig. unit line, if any)
 3180' south of Ratherford Unit Lease Line

16. NO. OF ACRES IN LEASE
 2560 Acres

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.
 1209' south of #17-12

19. PROPOSED DEPTH
 5700'

20. ROTARY OR CABLE TOOLS
 Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.)
 4735' ungraded ground

22. APPROX. DATE WORK WILL START*
 First Quarter 1985

RECEIVED
 JAN 07 1985
 DIVISION OF OIL, GAS & MINING

5. LEASE DESIGNATION AND SERIAL NO.
 14-20-603-353

6. IF INDIAN, ALLOTTEE OR TRIBE NAME
 Navajo

7. UNIT AGREEMENT NAME
 SW-I-4192

8. FARM OR LEASE NAME
 Ratherford Unit

9. WELL NO.
 #17-13

10. FIELD AND POOL, OR WILDCAT
 Greater Aneth

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
 Sec. 17-T41S-R24E

12. COUNTY OR PARISH
 San Juan

13. STATE
 Utah

PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
17-1/2"	13-3/8"	48#	100'	150 sx (circ to surface)
12-1/4"	9-5/8"	36#	1600'	600 sx (circ to surface)
8-1/2"	7"	23#, & 26#	5700'	600 sx (T.O.C. Approx. 2000')

Approval is requested to drill Ratherford Unit #17-13, a Desert Creek Development oil well, to increase the ultimate recovery from the Ratherford Unit.

BOP equipment will be operated daily and tested weekly.

APPROVED BY THE STATE
 OF UTAH DIVISION OF
 OIL, GAS, AND MINING
 DATE: _____
 BY: _____

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 A. E. Stuart TITLE Area Manager DATE December 27, 1984
 (This space for Federal or State office use)

PERMIT NO. _____ APPROVAL DATE _____

APPROVED BY _____ TITLE _____ DATE _____
 CONDITIONS OF APPROVAL, IF ANY:

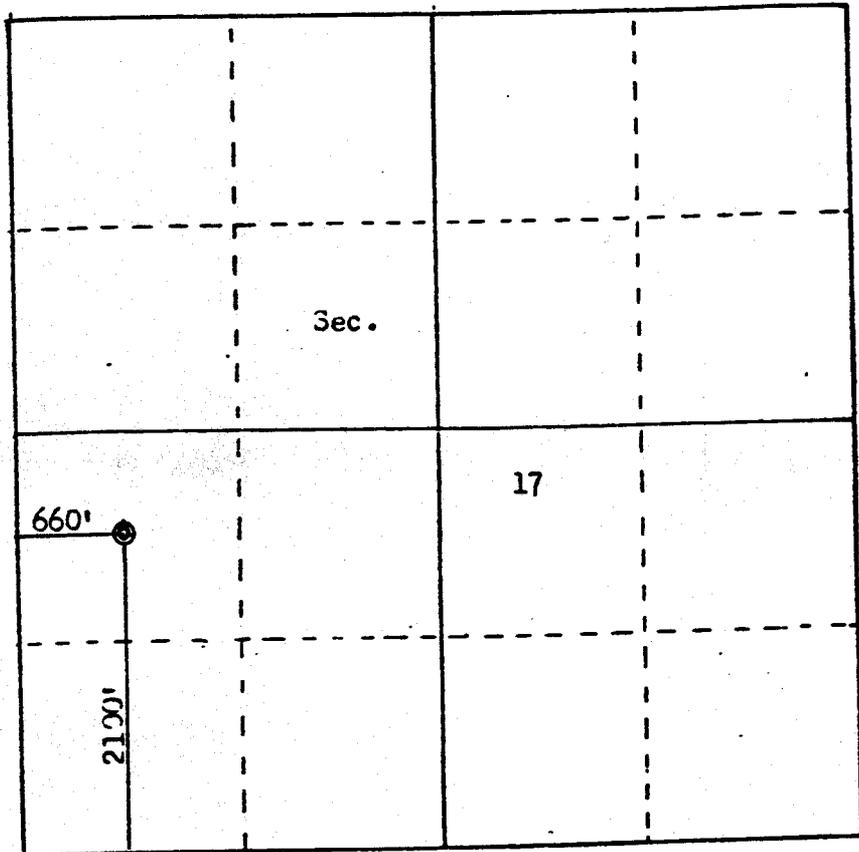
COMPANY PHILLIPS OIL COMPANY

LEASE RATHER RD UNIT WELL NO. 17-13

SEC. 17, T. 41S, R. 24E
San Juan County, Utah

LOCATION 2100' ESL 660' FWL

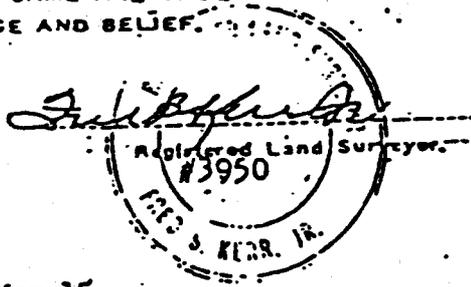
ELEVATION 4735 ungraded ground



SCALE—4 INCHES EQUALS 1 MILE

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

SEAL:



SURVEYED May 15 1984

RATHERFORD UNIT #17-13

Supplement to Form 9-331C "Application for Permit to Drill, Deepen, or Plug Back."

DRILLING PROGRAM

1. Surface formation is the Dune Sand, which consists of loose windblown sand, age-recent.

Estimated tops of geologic markers:

Shinarump	2322'
DeChelly	2616'
Hermosa	4527'
Desert Creek Zone I	5506'

2. Brackish water-bearing sands are expected in the Navajo, Wingate, and DeChelly formations. Oil is expected to be encountered in the Ismay and Desert Creek formations. The top of cement will be approximately at 2000'.

3. Blow-out preventers will be 10" Series 900 equipment to be tested initially to 3000 psi. They will be inspected and operated daily and pressure tested weekly to 1500 psi. Weekly pressure tests will be supervised by representatives of Phillips Oil Company and the drilling contractor. Tests will be recorded on the daily drilling report which will remain on the rig floor during drilling operations. BOP tests will be conducted in accordance with Phillips standards, copy attached.

4. a. Proposed Casing Program:

1. Conductor casing:

100'	13-3/8"	48#/ft	H-40	ST&C	new
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2. Surface casing:

1600'	9-5/8"	36#/ft	K-55	ST&C	new
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Surface casing will be tested to 1500# before drilling out.

3. Production casing:

5700'	7"	23# & 26#/ft	K-55	ST&C	new
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Production casing will be tested to 3000#.

b. Proposed Cementing Program:

1. Conductor Casing:

Conductor casing will be cemented with 150 sks Class B cement. Cement will be brought to surface.

2. Surface Casing:

Surface casing will be cemented with 300 sks "light" cement followed with 300 sks Class B cement. Cement will be brought to surface.

3. Production casing:

Production casing will be cemented with "light" cement followed with Class B cement. For cement volume, caliper will be used with 15% excess. The top of the cement should be around 2000'. If other zones with hydrocarbon potential are encountered, they will be covered with cement.

c. Auxiliary Equipment:

Auxiliary equipment will include upper and lower kelly cocks, a drill string safety valve, and a pit level indicator.

5. Drilling Fluid:

Drilling fluid will be a fresh water based mud system. Spud mud is gel and water with a weight of 8.4-8.8 ppg. From the surface to approximately 1600', gel and water will be used. Mud weight may be up to 9 ppg to control water flow from the Wingate formation. A slurry of 8.6-9.5 ppg, 32-38 viscosity, and less than 15cc/30 min. water loss will be used from 1600'-5200'. Mud weight may be increased to 10.4 ppg if a water flow is encountered. From 5200' to total depth mud properties will be 10.5-12.5 ppg, 40-45 viscosity, and below 10 cc water loss.

Adequate quantities of mud materials will be stored at the location to equal the volume of the rigs complete circulating system. A flow sensor will be used.

6. Testing, logging, and coring:

The logging program will consist of DLL, GR, SP, and Caliper from T. D. to the surface casing. A FDC/CNL and a Micro-proximity log will be run from T. D. to 4300'. A temperature or cement bond log will be run to determine cement top. No coring or drill stem tests are planned.

7. Downhole Conditions:

Drilling in the area indicates no abnormal pressures, temperatures, or hydrogen sulfide gas.

8. Phillips anticipates starting operations in the first quarter of 1985. Drilling operations are estimated to take fifteen days per well.

CULTURAL RESOURCE REPORT

San Juan College has prepared a cultural resource inventory of the subject wellsite. A copy of the report has been sent to the BLM Farmington office. Pertinent information regarding the subject well is attached.

SURFACE USE PROGRAM

1. Existing Roads

- a. Access to existing lease roads is approximately 4 miles southeast of Montezuma Creek, Utah.
- b. The existing roads will be maintained in the same or better condition.
- c. Refer to the attached access road map for road information.

2. Access Roads

Planned upgrading of existing access roads is shown on the attached map.

3. Location of Existing Wells.

Locations of existing wells are shown on the attached maps.

4. Production from the proposed well will be piped to Ratherford Unit Tank Battery #2, located in the NW SE Sec. 12-T41S-R23E San Juan County, Utah. The flowline will be visible from the existing lease roads. A plat of the proposed leadline is attached.

5. Water Supply

- a. The source of water to drill the subject well is from the River Booster, NE/4 Sec. 5., or from the Water Injection Plant, SE/4 Sec. 17 in T41S-R24E, San Juan County, Utah.
- b. The drilling water will be trucked from the water source to the subject well.
- c. A water supply well will not be drilled on the lease.

6. Construction Materials

- a. Only native soils will be used for construction of wellsite and the access road.

- b. Pit run rock will be used on the wellsite and access road when needed.
- c. The above materials are owned by the Navajo Tribe.

7. Waste Disposal

- a. Cuttings: Cuttings will be contained in a fenced reserve pit until dry enough to cover. Upon abandonment, the reserve pit area will be backfilled, shaped to natural topography, and seeded.
- b. Drilling Fluid: Drilling fluid will be contained in a fenced reserve pit until dry enough to cover. Upon abandonment, the reserve pit area will be backfilled, shaped to natural topography, and seeded.
- c. Garbage/Trash: All garbage and trash will be put in the burn pit. The burn pit will be fenced on four sides. After the burn pit is no longer in use, the trash and garbage will be covered with a minimum of 4 feet of fill.
- d. Salt: No salts are anticipated on this well. If salt is present, it will be disposed of in the reserve pit.
- e. Chemicals: Chemicals will be disposed of in the reserve pit.
- f. Sewage: Dry chemical toilets will be used.

8. Ancillary Facilities

No ancillary facilities are required.

9. Well Site Layout.

- a. Refer to attached Rig Layout plat
- b. There are no plans to line the reserve pit unless porous soil materials are encountered during construction.

10. Surface Reclamation Plans

- a. Construction Program: A cross section of the drill site showing cuts and fills is attached.
- b. Well Abandonment: All disturbed areas will be shaped to the natural topography and seeded in accordance with BLM requirements.
- c. Producing Well: Those areas not needed for production purposes will be recontoured to the surrounding topography. Seeding will be in accordance with BLM requirements.

d. Pipelines and flowlines: Flowlines will be above ground and follow or be visible from existing roads.

e. Rehabilitation will begin as soon as possible, considering weather and other factors, and proceed per recommendation of the BLM. The reserve pit will be reclaimed once it dries.

11. Surface Ownership: The wellsite location, access road and leadline are on the Navajo Indian Reservation. No dwellings are in the proposed drilling area.

12. Other information:

The reserve pit will be fenced on three sides during drilling and on the fourth side after the rig is moved out.

13. Operator's Representative and Certification.

a. Field Representative:

A. E. Stuart
P. O. Box 2920
Casper, Wyoming 82602
307-237-3791

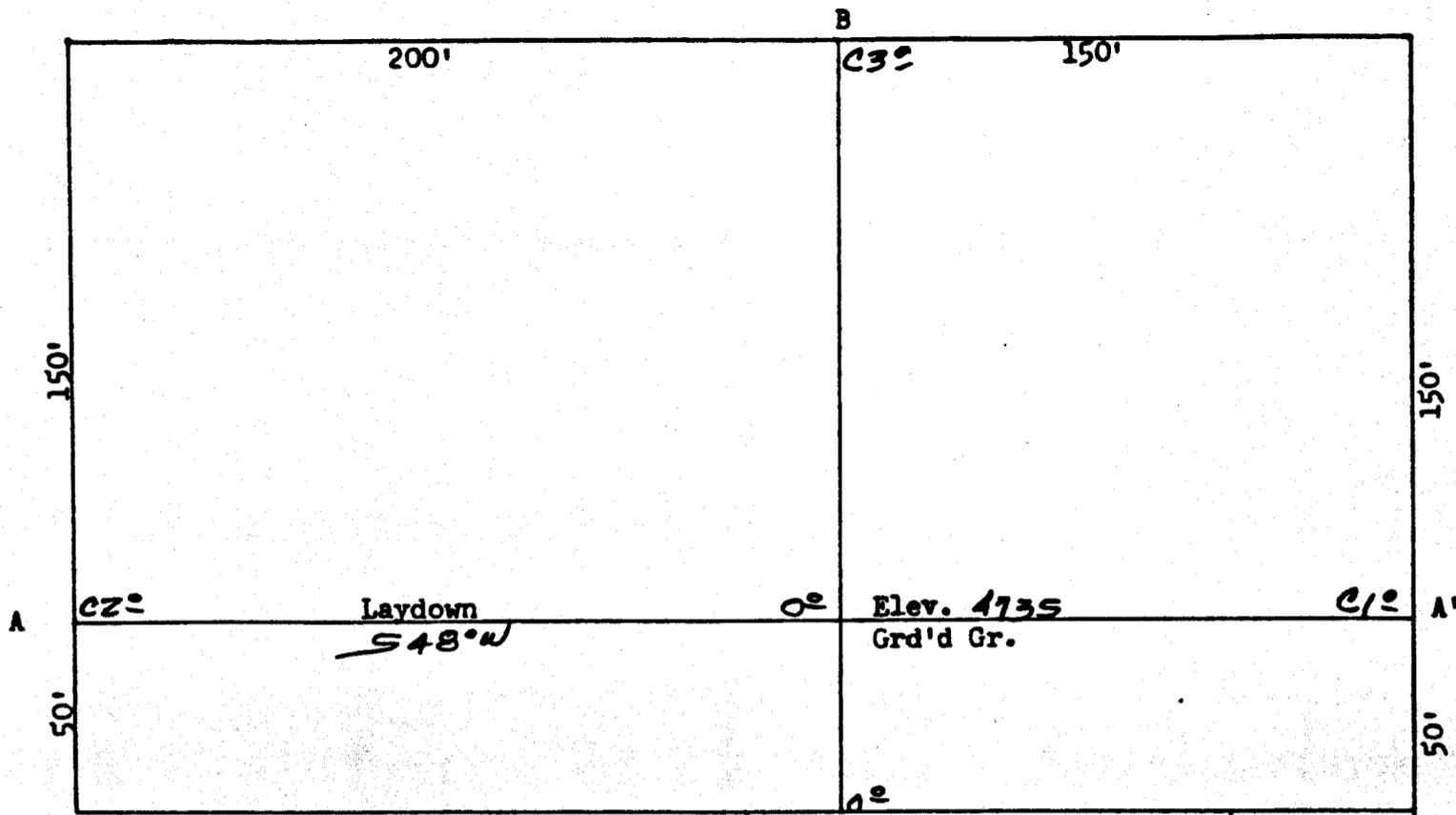
I hereby certify that I or persons under my direct supervision have inspected the proposed drill site and access route; and I am familiar with the conditions which currently exist; that the statements made in this plan are to the best of my knowledge true and correct; and that the work associated with operations proposed herein will be performed by Phillips Oil Company and its contractors and subcontractors in conformity with this plan and the terms and conditions under which it is approved. This statement is subject to the provisions of the 18 U.S.C. 1001 for the filing of a false statement.

Date December 28, 1984

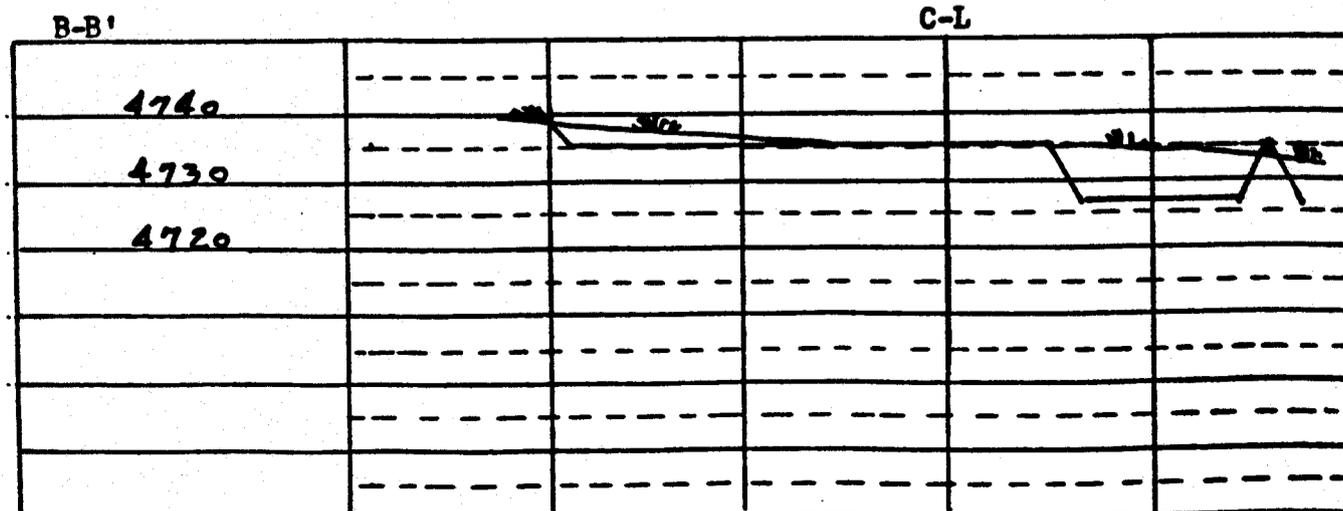
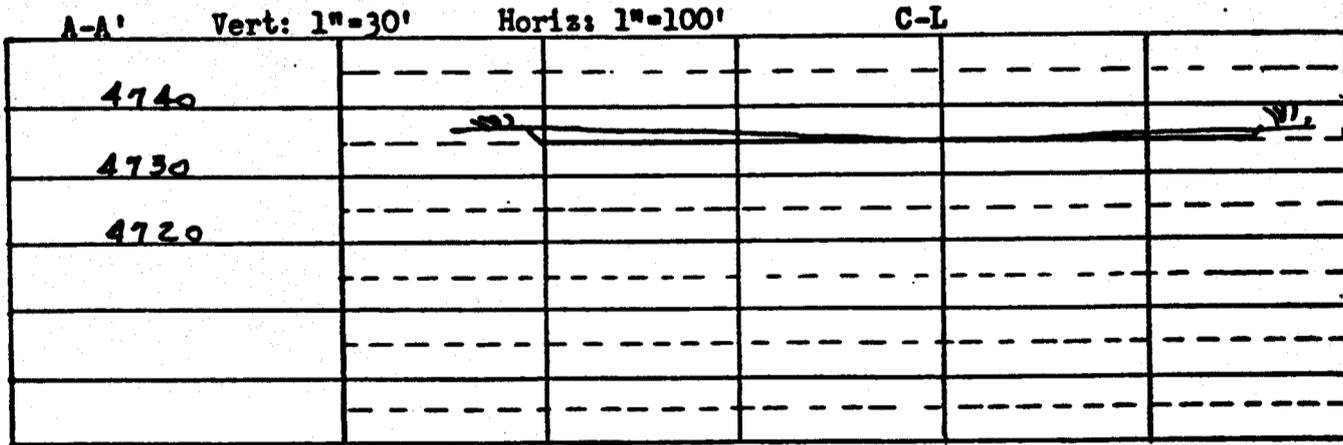
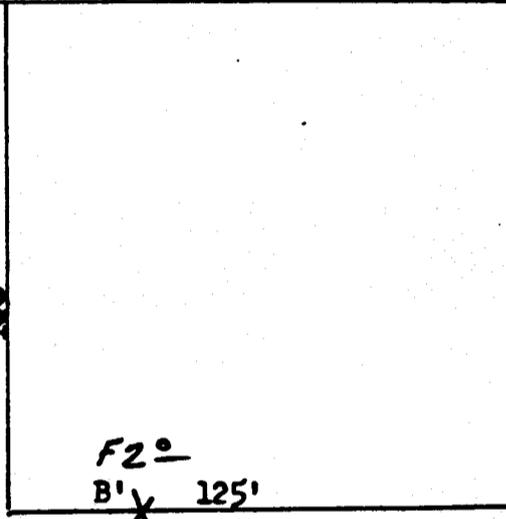

A. E. Stuart
Area Manager

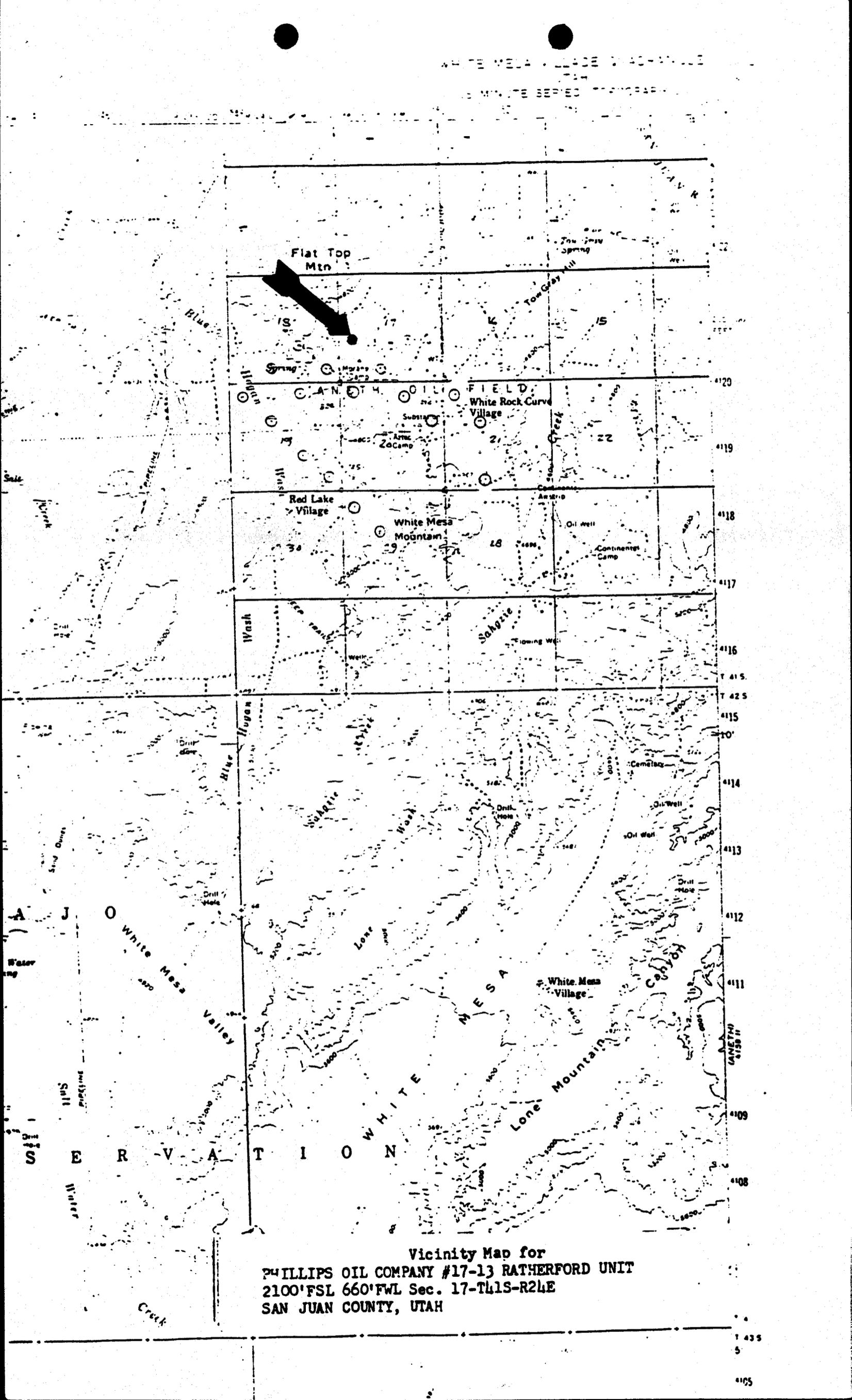
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Casper - RC

Profile for
 PHILLIPS OIL COMPANY #17-13 RATHERFORD UNIT
 2100' FSL 660' FWL Sec, 17-T4LS-R24E
 SAN JUAN COUNTY, UTAH



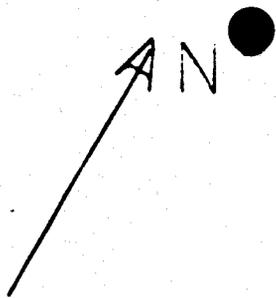
Scale: 1"=50'





Flat Top Mtn

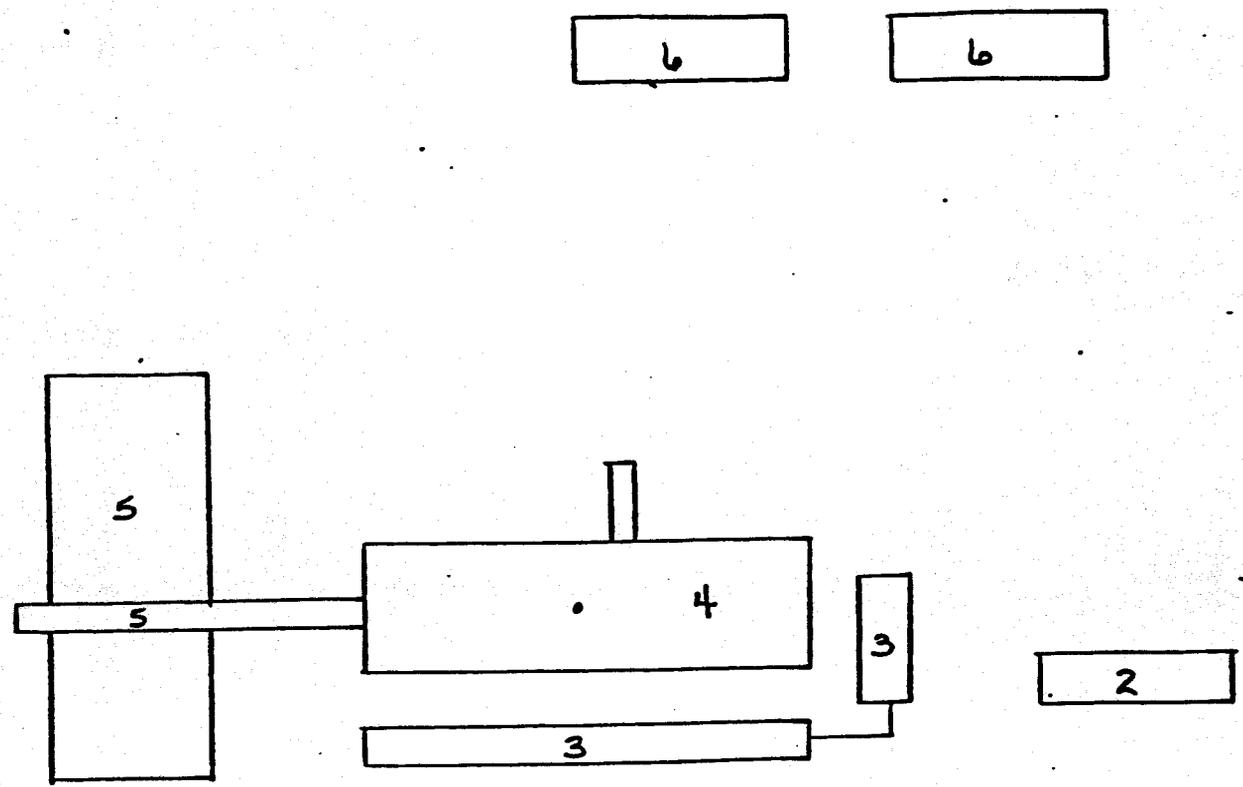
Vicinity Map for
 PHILLIPS OIL COMPANY #17-13 RATHERFORD UNIT
 2100' FSL 660' FWL Sec. 17-T41S-R24E
 SAN JUAN COUNTY, UTAH



FATHERFORD UNIT

#17-13

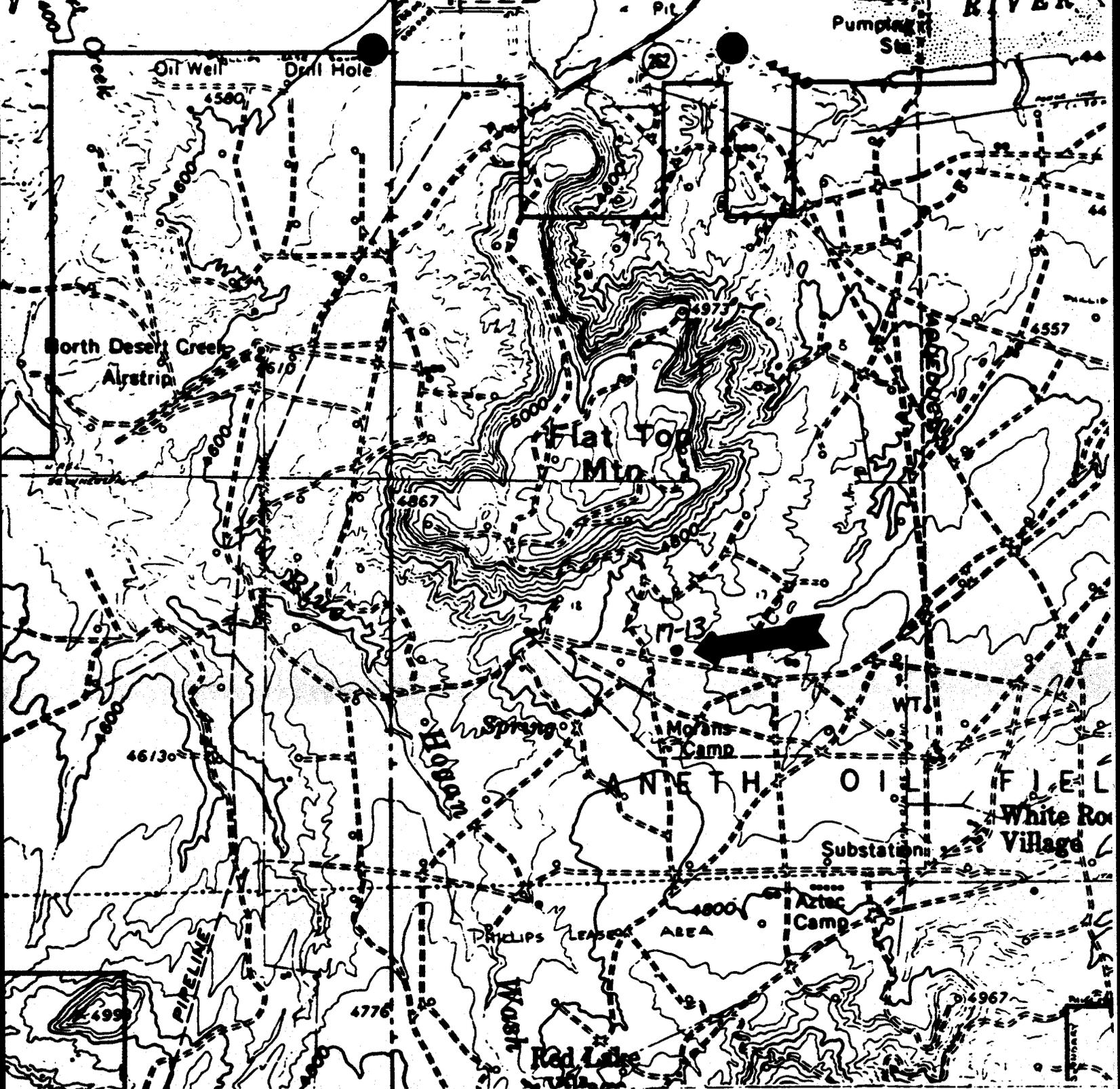
NW SW Sec. 17 T41S-R24E



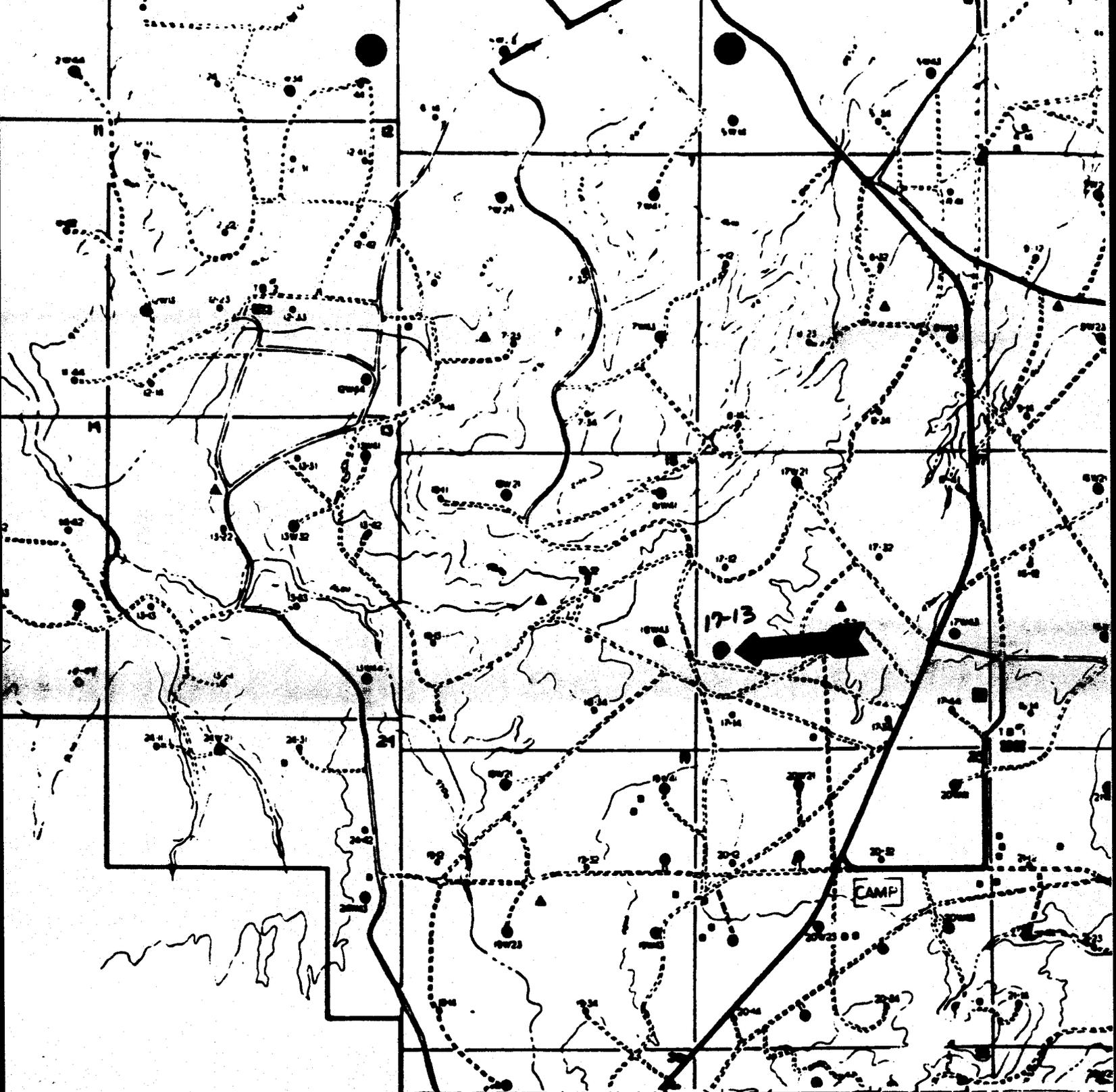
- 1. RESERVE PIT
- 2. TRASH PIT
- 3. CIR. PITS & PUMP
- 4. RIG
- 5. CAT WALK & PIPE RACKS
- 6. TRAILERS

DRILLING RIG LAYOUT

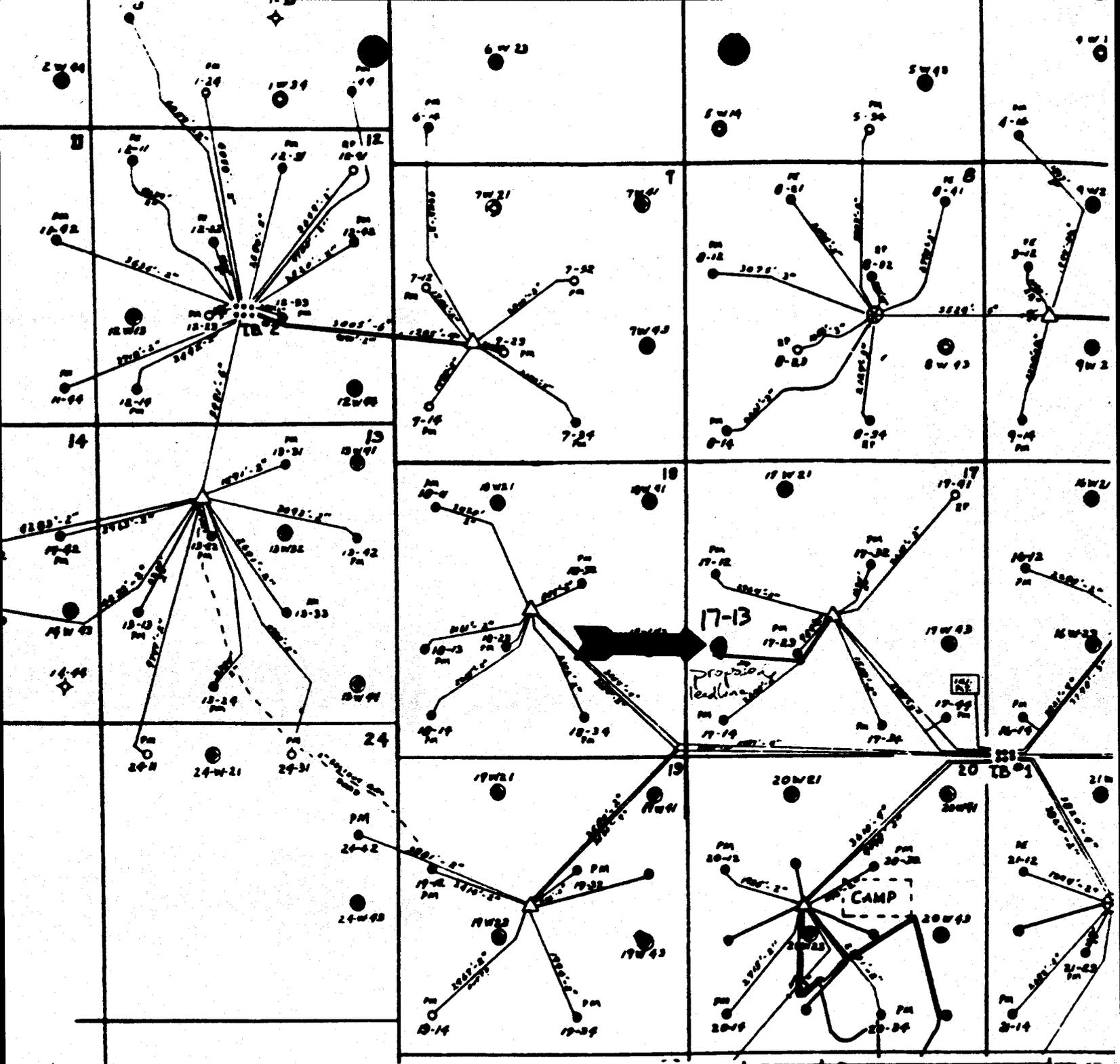
OUTLINE OF LOCATION - APPROXIMATELY 300' x 350'
NOT TO SCALE



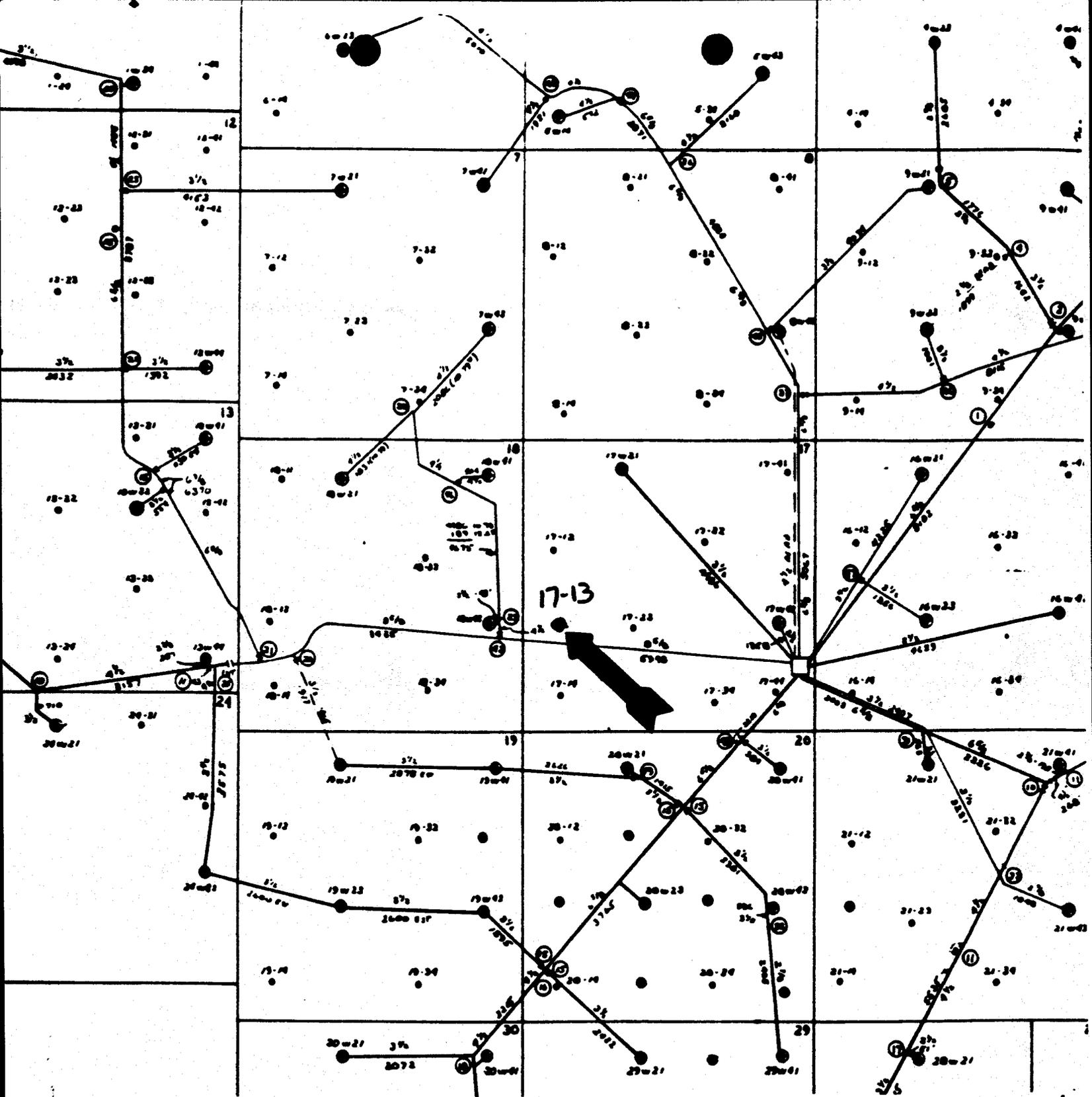
NO.	REVISION	BY	DATE	CHKD	APP'D
FOR BIDS	 PHILLIPS PETROLEUM COMPANY BARTLESVILLE, OKLAHOMA		J.A. NO.	FILE CODE	
FOR APPR			AFE NO.	SCALE	
FOR CONST					
DRAWN 3-12-54 EJJ	RATHERFORD UNIT WELL 17-13 PROPOSED NW SW SEC 17 T41S-R24E SAN JUAN CO., UTAH		DWG NO.		
CHECKED			SH NO.		
APP'D					



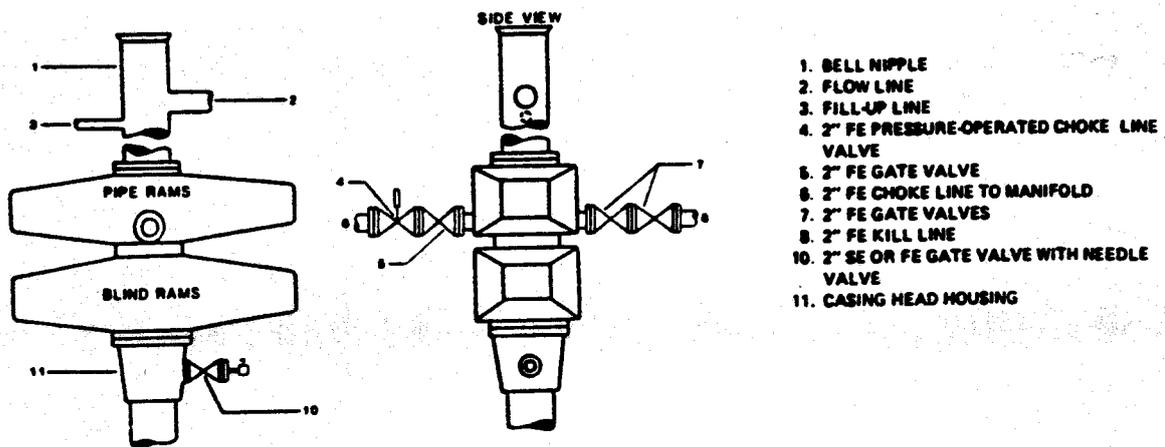
1									
NO.		REVISION		BY	DATE	CHKD		APP'D	
FOR BIDS		 PHILLIPS PETROLEUM COMPANY BARTLESVILLE, OKLAHOMA						JA NO.	FILE CODE
FOR APPR								AFE NO.	SCALE
FOR CONST									2.2" = 1 M
DRAWN 3-12-54	BULL							DWG NO.	
CHECKED								SH NO.	
APP'D									
		RATHERFORD UNIT WELL 17-13 PROPOSED ROAD PLAT NW SW SEC 17 T41S-R24E SAN JUAN CO., UTAH							



1		Relocation of proposed leadline		BSM	12/26/94		
NO.	REVISION	BY	DATE	CHKD	APPD		
100-35						JA NO.	FILE CODE
FOR APPR	PHILLIPS PETROLEUM COMPANY					AFE NO.	SCALE
FOR CONST	BARTLESVILLE, OKLAHOMA						2.2" = 100'
SAN JUAN 3-13-24		RATHERFORD UNIT WELL 17-13		CAMP		ICWG NO.	
		PROPOSED LEADLINE PLAT				SH NO.	
		NW SW SEC 17 T41S-R24E					
		SAN JUAN CO., UTAH					
CHECKED							
APPD							



NO.	REVISION	BY	DATE	CHKD	APP'D
FOR BIDS	 PHILLIPS PETROLEUM COMPANY BARTLESVILLE, OKLAHOMA		JA NO.	FILE CODE	
FOR APPR			AFE NO.	SCALE 2.2" = 1 mi	
FOR CONST			DWG NO.	SH NO.	
DRAWN 12-26-34 BJM	RATHERFORD UNIT WELL 17-13 WATER INJECTION LINES NW SW SEC. 17 T41S-R24E SAN JUAN CO., UTAH				
CHECKED					
APP'D					



- 1. BELL NIPPLE
- 2. FLOW LINE
- 3. FILL-UP LINE
- 4. 2" FE PRESSURE-OPERATED CHOKE LINE VALVE
- 5. 2" FE GATE VALVE
- 6. 2" FE CHOKE LINE TO MANIFOLD
- 7. 2" FE GATE VALVES
- 8. 2" FE KILL LINE
- 10. 2" SE OR FE GATE VALVE WITH NEEDLE VALVE
- 11. CASING HEAD HOUSING

Figure 7-10. Standard Hydraulic Blowout Preventer Assembly
 (2 M or 3 M Working Pressure) Alternative 3 (without Drilling Spool)

Well Control 4
 January/83

PHILLIPS PETROLEUM COMPANY



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 Section II

7.6 Testing Surface Blowout Preventer Equipment

7.6.1 Pressure Test Frequency

All rams, annulars, valves, choke and kill lines, choke manifold, kelly cocks, and safety valves shall be pressure tested at the following frequencies:

- (1) Initial installation of blowout preventers.
- (2) After setting casing, before drilling cement.
- (3) Every 7 days or on first trip out of hole after 7 days since previous pressure test.
- (4) After any component of the blowout preventer assembly is disturbed, replaced or repaired (this includes lines, valves, or choke manifold). In this case, the component changed may be the only component tested.
- (5) Prior to conducting first drill stem test in a series of one or more DST's.
- (6) Any time the Phillips Wellsite Supervisor deems necessary, such as prior to drilling into suspected high pressure zones.



7.6.2 Function Test Frequency

All rams, annulars, valves, and other items specified below, shall be function tested at the following frequencies.

- (1) On initial installation from driller control and remote panel.
- (2) Each trip out of hole alternating between driller's and remote control panel but not more than once every twenty-four (24) hours. Close pipe rams or annular preventer ONLY on drill pipe.

7.6.3 Test Pressures

Use the following table to identify which test is appropriate and at what pressure.

TEST	DESCRIPTION
Low Pressure	Test to 200-300 psi prior to each high pressure test.
Initial Installation	<p>Test all rams, annulars, valves, choke manifold, kelly cocks, and safety valves to the lesser of the following pressures.</p> <ul style="list-style-type: none"> . Rated working pressure of the component in the blowout preventer assembly with the exception of annular preventer which is to be tested to 70% of the rated working pressure. . The API rated casing burst pressure of the last casing to be utilized in the well with the BOP assembly being tested. . Rated working pressure of the casing head. . If "Cup Tester" is used do not exceed 80% of the API rated burst pressure of the casing.
Repair	Repaired or replaced components are to be tested to the same pressures used in the Initial Test.



7.6.3, cont'd

TEST	DESCRIPTION
Weekly and After Setting Casing	<p>Test all rams, annulars, valves, choke and kill lines, choke manifold, kelly cocks, and safety valves, to the lesser of the following pressures.</p> <ul style="list-style-type: none"> . 50% of the rated working pressure of the component to be tested. . 80% of the API rating of the casing burst pressure then in the well. . Test blind rams during internal casing pressure test. (Refer to drilling program for test pressures).
DST Operations	<p>Test all pipe rams, annular preventers, valves, choke and kill lines, choke manifold, kelly cocks, and safety valves to the maximum anticipated surface pressure expected while conducting drill stem tests. Do not test annular to more than 70% of its working pressure.</p>
Shallow Casing	<p>Where cased hole is less than 2000 feet measured depth, the test pressure may be 1.5 psi per foot of casing depth, not to exceed 80% of the API rated burst pressure. In the case of shallow conductor casing or drive pipe (500 feet or less) that is equipped with one BOP, then the test pressures do not need to exceed 1.0 psi per foot of casing depth.</p>
Accumulator	<p>Test accumulator to the manufacturer's rated working pressure. Test the accumulator for time to pump up to specifications.</p>

7.6.4 Blowout Preventer Test Practices

- (1) All pressure tests shall be witnessed by Phillips' Representative and the Contractor's Senior Supervisor on Location. All tests shall be recorded on the Phillips' Daily Drilling Report, the IADC Report and the BOP Test Form; see Figure 7-13. A reproducible copy of the BOP Test Form (Figure 7-13) can be found in Section III.



7.6.4, cont'd

- (2) Hold all low pressure tests for three minutes and high pressure tests for five minutes or until Phillips Representative and the Contractor's Senior Supervisor are satisfied no leaks exist.
- (3) A detail procedure for the testing of blowout preventer and choke manifold equipment will be included in the drilling programs. The procedure is to be distributed for each drilling unit under contract by the operating office. Each operating office must include the following practices:
- a. Prior to testing, all lines and valves will be thoroughly flushed to ensure the system is clear. Test all opening and closing control lines to 1500 psi and inspect for leaks.
 - b. If necessary, run a stand of drill collars below the test plug to prevent unseating the test tool during testing.
 - c. All precautions must be taken to avoid pressuring the casing below the test tool.
 - d. The running string is to be full of water (or antifreeze solution) for immediate indication of test tool leakage.
 - e. All pipe rams, blind/shear rams, blind rams, annular preventers, valves, fail-safe valves, choke and kill lines are to be tested at the frequencies and pressures outlined in this section.
 - f. Drill pipe safety valve, lower and upper kelly cocks are to be tested from below at pressures and frequencies outlined in this section.
 - g. All test fluids are to be bled back to the pump unit in safe manner.

7.6.5 Testing Wellhead Pack-offs

The wellhead pack-off is to be pressure tested upon installation for five minutes. Test pressure is to be 80% API rated casing collapse or the rated working pressure of the casing head whichever is the lesser. Casing annulus valve(s) must be in open position to prevent casing collapse during pack-off testing.

When testing the wellhead pack-off, use recorded test pressures and volumes to determine if pack-off is leaking. Pressure should be immediately released at the first indication of a leak.

7.6.6 Safety Precautions

One pumping unit operator is to be stationed at the high pressure pumping unit, and is to remain at this station until all testing has been completed. The pump unit operator is to be in continuous communication with the person who is recording the test data. The Phillips Wellsite Supervisor and Contractor's Senior Supervisor on location will be the only personnel who will go into the test area to inspect for leaks when the equipment involved is under pressure. The rig crews are to stay clear of the area until such time that both the Phillips Wellsite Supervisor and the Contractor's Senior Supervisor have contacted the pumping unit operator and all three have agreed that all pressure has been released, and there is no possibility of pressure being trapped. The rig crews may then go into the area to repair leaks or work as directed.

All lines, swings, and connections that are used in the testing of the blowout preventers are to be adequately secured in place.

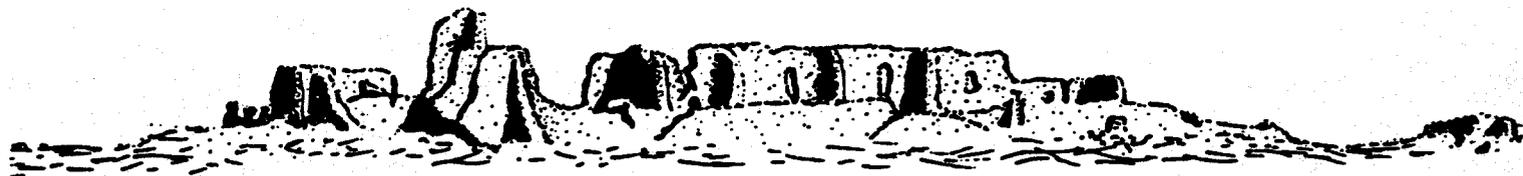
Pressure is to be released only through the pressure release lines that are vented back into the pump unit tanks. The lines are to be clamped down to direct the flow into unit tanks.



Cultural Resources Management Program

San Juan College

**Archaeological Surveys of
Thirteen Proposed Well Locations and
Associated Flow Lines and Access Routes
in San Juan County, Utah,
Conducted for Phillips Petroleum**



Report 84-SJC-071A

**Federal Antiquities Permit 83-AZ/NM/UT-047 and
Navajo Nation Antiquities Permit #1984-4**

June 6, 1984



Scale 1: 250,000

Report 84-SJC-071A

Project Location

T 41S

Ratherford Unit:

17-13

17-24

18-44

19-22

19-31

19-33

Satellite Gathering Expansion

20-11

20-31

20-42

21-11

21-24

29-11

29-22

A Cultural Resources Inventory Prepared by Kristin Langenfeld and L. Jean Hooton, Archaeologists, Under the Supervision of Dr. Richard P. Watson, Director, Cultural Resources Management Program, San Juan College, Farmington, New Mexico

ABSTRACT

On May 21, 22 and 23, 1984 a Class III Archaeological Survey was conducted south of Montezuma Creek, San Juan County, Utah, on lands to be used for nineteen proposed well locations, associated flow lines and access routes and one satellite station expansion. A total of eight archaeological sites and eleven isolated occurrences were located during the inspections. This report details the results of archaeological surveys on thirteen of the proposed locations, access and flow line routes and the satellite station expansion. Approximately 36 hectares (90 acres) in Sections 17, 18, 19, 20, 21 and 29, T. 41 S., R. 24 E. were inspected for cultural resources in conjunction with the project areas described in this report. A total of six isolated occurrences were located. These isolates do not appear to represent surface indications of subsurface cultural deposits and archaeological clearance is recommended for the project areas described in this report. The remaining six proposed locations, access routes and flow lines and associated cultural resources will be detailed in a report to be sent under separate cover.

The work was conducted by the:

Cultural Resources Management Program
San Juan College
4601 College Blvd.
Farmington, NM 87401-4699
Phone: 505/326-3311, Extension 344

The work was conducted under:

Federal Antiquities Permit 83-AZ/NM/UT-047 and
Navajo Nation Antiquities Permit #1984-4

The work was conducted for:

Phillips Petroleum Company

11.
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1.
INTRODUCTION

On May 21, 22 and 23, 1984 Kristin Langenfeld and L. Jean Hooton, from the Cultural Resources Management Program, San Juan College, conducted a Class III Archaeological Survey for Phillips Petroleum Company. The survey was conducted under Federal Antiquities Permit 83-AZ/NM/UT-047 and Navajo Nation Antiquities Permit #1984-4 on lands owned by the Navajo Nation. Mr. Max Isaacs, of Phillips Petroleum, accompanied the archaeologists during the inspection.

Nature of Proposed Land Modifications:

Land modifications proposed by Phillips Petroleum for the Rutherford Unit include the construction of well locations and, in some cases, access routes. These activities will constitute the major mechanical disturbances in the area. In addition, aboveground flow lines connecting each well with a local gathering station will be laid. These lines usually parallel either existing or proposed roads and will be laid from the road. Mechanical disturbance connected with flow lines will be minimal. Access routes, where required, will either follow existing two-tracks or run cross-country. In a few cases existing, bladed roads will be modified to accommodate drill rigs. Well locations will be 350' x 350' (107 m. x 107 m.) including pits. Access routes will be 30' (10 m.) in width and flow lines will require a 10-foot-wide (3-meter) corridor. Combined flow lines and access routes will require a 40-foot (12-meter) right-of-way.

Methodology:

A series of parallel transects spaced 10 meters to 15 meters apart was used to survey a 450-foot x 450-foot (137-meter x 137-meter) area for each well location. This includes a buffer zone of 50 feet (15 meters) around the perimeter of the project area.

Zigzag transects were used to survey 25-foot-wide (7.6-meter) flow line corridors. This includes a buffer zone of 7.5 feet (2.3 meters) on each side of the right-of-way. Zigzag transects were used to survey 75-foot-wide (23-meter) access or combined access and flow line routes. This includes a buffer zone of between 17.5 feet (5 meters) and 23 feet (7 meters) on each side of the right-of-way.

During the inspection the presence of recent trash, recent features and existing disturbances within individual project areas were noted. Isolates were mapped relative to a known point using a Brunton compass and pacing. Locations of isolates were plotted on maps provided by Phillips Petroleum. When isolates were encountered, an area with a radius of at least 25 feet (8 meters) around the isolate was closely inspected for features and additional artifacts.

In report preparation UTM Coordinates were plotted from the USGS White Mesa Village, Utah, 15-Minute Quadrangle (Figure 2). Legal descriptions were made using maps enlarged from the 15-Minute Quadrangle (Figures 4-9). The project area is on unplatted land, therefore, some discrepancies occur between the two map scales.

PHYSIOGRAPHY AND ENVIRONMENT

The project locations are confined to an area 3.2 kilometers by 4 kilometers (2 miles by 2.5 miles) located approximately 8 kilometers (5 miles) south of Montezuma Creek, San Juan County, Utah. The area is bordered on the north by Flat Top Mesa and on the south by White Mountain Mesa. Blue Hogan Wash and Sahgzie Creek delineate the western and eastern boundaries, respectively (see Figures 1 and 2). Several zones, differing in soils, vegetation, topography, terrain and elevation, are represented within the survey area. The major characteristics of these zones are outlined below.

Zone A - Mesa Slopes:

This zone is confined to the northern slopes of White Mesa Mountain. Terrain is broken and eroded with a slope of up to 32%. Soils are poorly developed and include locally sandy, shallow soils on narrow benches and clayey soils with bentonite deposits in badland formations. Sandstone outcrops and exposed bedrock sandstone are common. Surface deposits include lag gravels and numerous sandstone spalls. Numerous arroyos dissect the slopes. Vegetation is generally sparse and includes rabbitbrush, shadscale, Russian thistle and prickly pear cactus. Ground cover ranges from 0% to 20%. Maximum elevation is approximately 1,570 meters (5,150 feet)

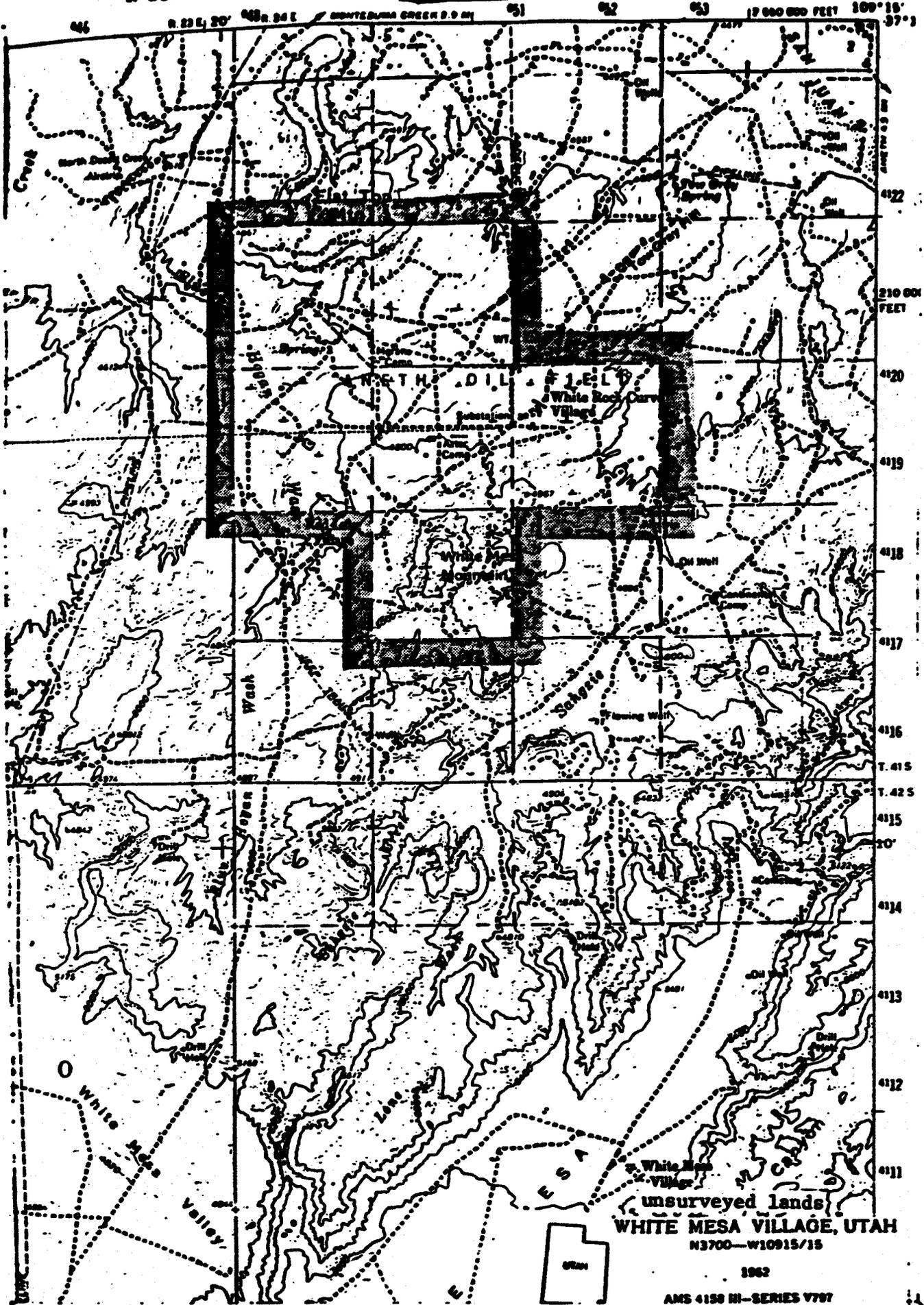
Zone B - Badland Formations:

This zone includes erosional remnants of both sandstone capped badland hills and somewhat more extensive low mesa shaped remnants. These formations are characterized by steep slopes frequently dissected

R 23E

R 24E

19 000 000 FEET 109° 15'



T 41S
T 42S

unsurveyed lands
WHITE MESA VILLAGE, UTAH
N3700-W10915/15

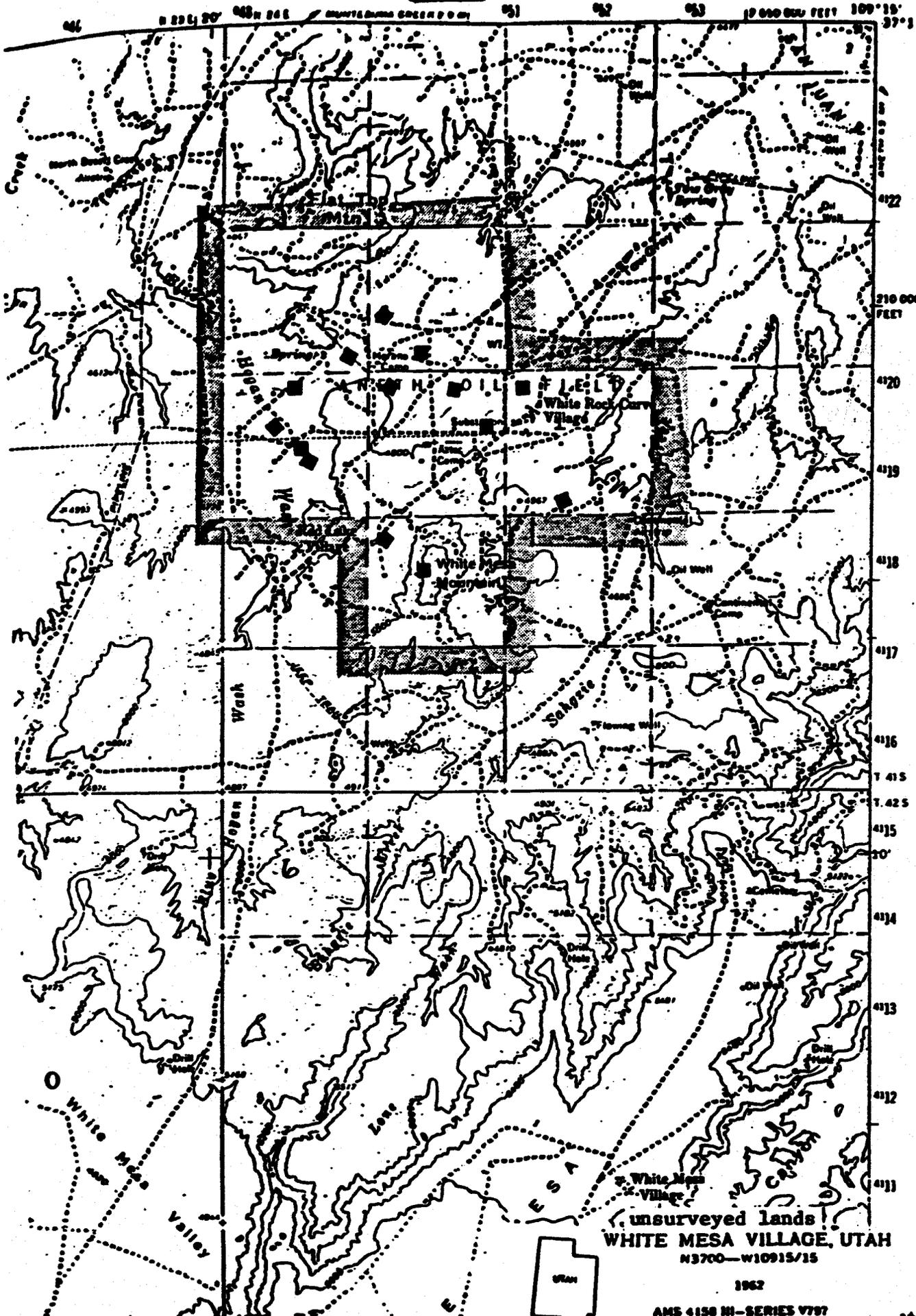
1962

AMS 4150 III-SERIES 7797

FIGURE 1

R 23E

R 30E



■ proposed wells

unsurveyed lands
WHITE MESA VILLAGE, UTAH
N3700-W10915/15

1962

AMS 4158 NI-SERIES V797

FIGURE 2
Report 84-SJC-071A

T 41S

T 42S

4122

210 000
FEET

4120

4119

4118

4117

4116

T 415

T 425

4115

4114

4113

4112

4111



by arroyos. Soils are generally clayey, shallow and poorly developed with localized bentonitic clay deposits common. In many areas broken, platy shale is exposed. Vegetation is generally quite sparse and limited to scattered snakeweed and grasses. Ground cover ranges from 0% to 20%. In general, the badland formations characterized by Zone B are similar to Zone A except that they are generally lower in elevation, averaging 1,433 meters (4,700 feet), and contain areas with shaley outcrops.

Zone C - Stabilized and Semistabilized Dunes:

This zone characterizes the majority of the project locations. Dunes are found in a variety of topographic situations including ridges, arroyo bottoms and mesa tops and slopes. In some areas they are found on or adjacent to badland formations. Terrain ranges from level to rolling and gently rolling with blown-out areas common. In some instances the blowouts have acted as seasonal catchments, as evidenced by surface clay deposits left behind as water evaporates or filters down. Soils within the dunal deposits are sandy to very sandy loams and are generally reddish-brown in color. The deposits range from shallow, where old blowouts have exposed bedrock sandstone or shale, to quite deep. Entrenched arroyos through dunal deposits were noted to exceed 3 meters in depth in some places. Vegetation is of the desertscrub community and includes blackbrush, sagebrush, shadscale, ephedra, rabbitbrush, snakeweed, echinocereus, narrowleaf yucca, prickly pear cactus and Russian thistle. A wide variety of grasses and annuals is also represented and includes grama, galleta, ricegrass, needle & thread, ring muhly, six-weeks fescue, brome, dropseed, crested

wheat, alkali sacaton, globemallow, white asters and lupine. Not all species are represented in all areas and additional unidentified shrubs and grasses are present. Ground cover varies greatly from as little as 10% to as much as 80%. In general, elevations range between 1,425 to 1,479 meters (4,675 to 4,850 feet).

Zone D - Active Dunes:

This zone includes those dunal deposits which are unstable and shifting. Topographic context is the same as for Zone C and active dunes are frequently associated with stabilized dunes. These dunes are long and rounded. Blowouts are common and the white sand of the active dunes displays characteristic wave patterns. The depth of the deposits is variable as with the stabilized and semistabilized dunes.

Vegetation is limited to sparse, scattered grasses and low shrubs.

Elevations are the same as for Zone C.

Discussion of Zones:

Owing to one or more factors (including terrain, slope and lack of developed soils), neither Zone A nor Zone B is an area likely to contain cultural materials. Project areas located in these zones represent less than 15% of the total locations described in this report. With the exception of recent trash, no cultural materials were located in these zones.

The remaining 86% of the project areas are located in Zone C (13 locations), or in a combination of Zones C and D (one location). As indicated in the preceding description of the stabilized and semistabilized dunal deposits, these areas are all remarkably similar in terms of soils and terrain. They differ primarily in terms of

topographic setting, direction of slope and degree to which they have been dissected by erosion. The areas represented by Zone C are considered most likely to contain subsurface in-situ cultural materials. Over 60% of the archaeological sites (to be detailed in Report 84-SJC-071B) and the overwhelming majority of isolates were located in stabilized and semistabilized dune situations. The possibility of subsurface cultural remains with no surface indications in the deposits is acknowledged as quite real.

No project locations were located completely within the active dunes described as Zone D. Active dunes were encountered on portions of two of the project areas described in this report. Potential for cultural materials, with or without surface indications, within these deposits is also considered to be high. Both sites and isolates were located in Zone D. The major distinction between Zones C and D, in terms of cultural resources, is the likelihood that materials in Zone D are likely to be encountered only in blowouts and are much more likely to be out of context.

Water Sources:

Within the project area water sources are generally limited to seasonally running washes - the largest of which are Blue Hogan Wash and Sahgzie Creek. The San Juan River is located approximately 3.2 kilometers (2 miles) northeast of the most easterly portions of the project area. Only one permanent water source, a spring in the southern half of Section 18, is shown on USGS maps. The presence of tamarisk in the southern portion of Section 21 along an east trending feeder of Sahgzie Creek suggests the existence of either an underground

water source or seasonally accumulating water. An earthen dam of relatively recent construction (now broken) is located on Blue Hogan Wash in the NW 1/4 of Section 19 and provided a relatively large catchment area. Tamarisk is present below the dam although no water was present at the time of the survey. In addition, as noted earlier, some catchments seasonally hold small amounts of water. A windmill in the SW 1/4 of Section 24, T. 41 S., R. 23 E., just west of the project area, and a flowing well in the NW 1/4 of Section 12, T. 41 S., R. 23 E., just west of the project area, are also used by local inhabitants for watering livestock. A few isolated, seasonal springs or seeps are reported in the area, however, their locations are not known.

Fauna:

Little wildlife was seen within the project area during the archaeological inspection. Lizards were seen frequently and one cottontail rabbit was observed. Large and small rodent burrows were noted and coyote were heard during the survey of the slopes of White Mesa Mountain. According to Mr. Isaacs, hawks are also frequently seen in the vicinity of White Mesa Mountain.

Present Day Land Use:

The project area is located in the heart of the Aneth Oil Field where extensive development related to energy exploration and production over the past 20 years has occurred. Well locations dot the area and numerous roads, powerlines, above and below ground pipelines and oil field camps are a direct result of this development.

The area is also used extensively by local Navajo families. Occupied and unoccupied houses and hogans occur frequently throughout

the project area. Although no interviews were conducted with customary land users due, in part, to the fragility of relations between oil companies and local Navajos, it was noted that the area is intensively utilized for grazing activities. Moreover, both functional sweat houses and the remains of sweat houses attest to the use of the area in ritual activity. In the absence of interviews it is impossible to know whether sacred areas or graves are present within the project area. Nothing resembling grave sites was noted during the inspection of individual project locations.

RECORDS SEARCH

Prior to the initiation of fieldwork a records search was conducted using information available at the Cultural Resources Management Program, San Juan College, and the Navajo Nation Cultural Resource Management Program, Farmington Office, as well as through phone contact with both the Navajo Nation Cultural Resource Management Program, Window Rock and several local contract archaeology firms.

Numerous large and small archaeological surveys and excavations have been conducted in southeastern Utah. The majority of those projects have been located north of the San Juan River to the north, northeast and northwest of the project area. Projects have been related to both large parcel inventory surveys (see for example Fike and Lindsay, 1976) and energy and economic development (see for example Hewett, Powers and Kemrer, 1979; Berge, 1975; Langenfeld, 1982 and Reed, 1983). Sites dating from the Archaic Period through recent Historic Period have been documented.

Within the project area itself few sites have been documented. According to a contact at Phillips Petroleum, previous archaeological surveys in the Phillips Field had been conducted by Complete Archaeological Service Associates of Cortez. Only one site has been recorded by C.A.S.A., and it is a lithic scatter with diagnostic tools dated to the San Jose Phase of the Archaic Period (L. Hammack to R.P. Watson, personal communication). The site is located in the SE 1/4 of the NE 1/4 of Section 29, T. 41 S., R. 24 E. The site number is unknown and its location was plotted on Figure 3 by use of UTM's provided by Mr. Hammack of C.A.S.A.

Two additional sites within the Phillips Field have been documented by the Navajo Nation Cultural Resource Management Program (Martin, 1983). Those sites are also located in Sections 16 and 29, T. 41 S., R. 24 E. UT-C-54-3 is described as a permanent Historic Navajo sheep camp with two corrals or lambing pens and possible hogan. UT-C-54-4 is an undated lithic scatter containing complete and broken flakes and burned sandstone. The locations of these sites were also plotted on Figure 3 on the basis of UTM's provided in the report. The actual site location in Section 16 is uncertain. On maps provided by Phillips Petroleum a large site area is shown in the SW 1/4, however, it has not been determined if this site was recorded by Navajo Nation Cultural Resource Management Program or C.A.S.A.

According to Mr. Isaacs, the Navajo Tribal Utility Authority has worked on the Phillips Lease Area within the last year. In the absence of a known project number, however, it is not possible to obtain information concerning a cultural resource inventory related to the project (Joe Anderson, personal communication).

Three additional sites north of the project area and south of the San Juan River have been recorded by the Navajo Nation Cultural Resource Management Program. Those sites are briefly described below and were plotted on Figure 3 on the basis of information provided by the source listed:

- UT-C-54-1: Post 1970 Navajo site (Phillip Stewart, personal communication).
- UT-C-54-2: Lithic/ceramic/ground stone scatter located in blowouts; Anasazi, Basketmaker III-Pueblo I (Phillip Stewart, personal communication).
- UT-C-54-5: Lithic scatter; undated (McEnany, 1984).
- SJC-727: Rubble mound, lithics, ceramics.

None of the previously recorded sites will be impacted by the proposed land modifications.

PROJECT LOCATIONS

Proposed Well: Ratherford Unit 17-13 (Figure 4)

Land Jurisdiction: Navajo Nation

Legal Description: The proposed location will be in the Center of the NW 1/4 of the SW 1/4 of Section 17, T. 41 S., R. 24 E., S.L.P.M., San Juan County, Utah. The well will be 2,100 feet from the south line and 660 feet from the west line. Access and flow line will run from the well through the Center of the East 1/2 of the NW 1/4 of the SW 1/4, and the South 1/2 of the NE 1/4 of the SW 1/4 of Section 17.

Elevation: 1,444 meters (4,735 feet)

UTM Coordinates: Well = Zone 12; 649,815 mE; 4,120,550 mN.
Road and E-O-L = Zone 12; 650,645 mE; 4,120,400 mN.

Actual Project Area: Well = 107 m. x 107 m. (350' x 350')
Access and Flow = 12.2 m. x 580 m. (40' x 1,900')
TOTAL: 1.8 hectares (4.6 acres)

Actual Survey Area: 137 m. x 137 m. (450' x 450')
23 m. x 580 m. (75' x 1,900')
TOTAL: 3.2 hectares (7.92 acres)

Physiography and Environment:

The well and access are located in Zone C. The flow line follows an existing road.

Cultural Resources:

None.

Recommendations:

Archaeological clearance is recommended for the project area.

15.
R 24E

unsurveyed lands

Ratherford Unit 17-13
2100' FSL / 660' FWL
Sect. 17, T 41S, R 24E
San Juan County, Utah
owner: Navajo Res.

17

T 41S

Ratherford Unit 17-24
720' FSL / 1980' FWL
Sect. 17, T 41S, R 24E
San Juan County, Utah
owner: Navajo Res.

Scale 1" = 1000'

WHITE MESA VILLAGE, UTAH
N3700-W10915/15

1962

AMS 4150 III-SERIES V797

 proposed well
 proposed flow line

FIGURE 4
Report 84-SJC-071A

SUMMARY

A total of six isolated occurrences were located during the inspection of the fourteen project areas. The isolates are described in the appropriate preceding "Project Location" sections and are summarized in Table 1.

Eleven of the project areas contained no archaeological materials. Three project areas contained isolated chipped or ground stone artifacts, the information potential of which is suggested to have been exhausted with recording. Archaeological clearance, therefore, is recommended for all fourteen project areas described in this report.

In the event that any previously undiscovered archaeological materials are encountered during the course of construction activities, work in the immediate area should cease immediately and the Bureau of Indian Affairs Area Archaeologist should be notified.

Final clearance is the prerogative of the Bureau of Indian Affairs Area Archaeologist and will be granted upon review of this report at his discretion.

TABLE 1: Summary of Isolated Occurrences

IO #	Well Name	$\frac{1}{2}, \frac{1}{2}, \frac{1}{2}$	Sec	T	R	UTM's	Description	Comments
1	18-44	NW,NW,SE	18	41 S	24 E	Zone 12; 648965E 4120535N	Three pieces of chipped stone. Two broken tertiary flakes, quartzite; one piece shatter less than 3 cm in length. Cultural affiliation unknown.	Information potential exhausted with recording.
2	18-44	C,W $\frac{1}{2}$,NW,SE	18	41 S	24 E	Zone 12; 648895E 4120475N	One exhausted chert core. Cultural affiliation unknown.	Located approximately 122 m (400') southeast of IO #1. Information potential exhausted with recording.
4	20-42	C,SE,NE	20	41 S	24 E	Zone 12; 651020E 4119290N	One quartzite hammerstone. Cultural affiliation unknown.	Located in bladed area. Probably out of context. Information potential exhausted with recording.
5	20-42	SE,NE,NE	20	41 S	24 E	Zone 12; 651170E 4119565N	One ground stone fragment. Possible mano. Unifacial grinding. Fine grained sandstone. Cultural affiliation unknown.	Located approximately 275 m (900') northeast of IO #4. Information potential exhausted with recording.
10	19-22	C,N $\frac{1}{2}$,SE,NW	19	41 S	24 E	Zone 12; 648675E 4119245N	One broken secondary chert flake. No retouch present.	Information potential exhausted with recording.
11	19-22	C,N $\frac{1}{2}$,SE,NW	19	41 S	24 E	Zone 12; 648665E 4119265N	One complete tertiary quartzite flake. Single-struck platform, distal termination hinged, no retouch present. Maximum size: 70 mm x 25 mm x 5 mm. Cultural affiliation unknown.	Information potential exhausted with recording.

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1982 Archaeological Surveys of 24 Proposed Drill Pad Conversions Near Montezuma Creek, San Juan County, Utah (CRMP-82-077). On file, Navajo Nation Cultural Resource Management Program, Window Rock, Arizona.
- Lipe, William
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1983 An Archaeological Survey of Surface Flowlines and Assorted Parcels of Land in San Juan County, Utah (CRMP-83-336). On file, Navajo Nation Cultural Resource Management Program, Farmington, New Mexico.
- McEnany, Tim
1984 An Archaeological Survey of Two Well Locations Near Montezuma Creek, Utah for the Chuska Energy Company (CRMP-84-36). On file, Navajo Nation Cultural Resource Management Program, Farmington, New Mexico.
- Reed, Alan C.
1983 An Archaeological Survey of a Segment of Seismic Line R-3-83 in San Juan County, Utah. Contributions to Anthropology Series No. 749. On file, Division of Conservation Archaeology, Farmington, New Mexico.

OPERATOR Phillips Oil Co. DATE 1-17-85

WELL NAME Rutherford Unit #17-13

SEC NW 5W 17 T 41S R 24E COUNTY San Juan

43-037-31133
API NUMBER

Indian
TYPE OF LEASE

CHECK OFF:

- PLAT
- BOND
- NEAREST WELL
- LEASE
- FIELD
- POTASH OR OIL SHALE

PROCESSING COMMENTS:

Unit well - or on POD

Need water permit

APPROVAL LETTER:

- SPACING: A-3 Rutherford c-3-a CAUSE NO. & DATE
- c-3-b c-3-c

STIPULATIONS:

1 - Water



STATE OF UTAH
NATURAL RESOURCES
Oil, Gas & Mining

Scott M. Matheson, Governor
Temple A. Reynolds, Executive Director
Dianne R. Nielson, Ph.D., Division Director

4241 State Office Building • Salt Lake City, UT 84114 • 801-533-5771

January 22, 1985

Phillips Oil Company
P. O. Box 2920
Casper, Wyoming 82602

Gentlemen:

Re: Well No. Ratherford Unit #17-13 - NW SW Sec. 17, T. 41S, R. 24E
2100' FSL, 660' FWL - San Juan County, Utah

Approval to drill the above referenced oil well is hereby granted in accordance with Section 40-6-18, Utah Code Annotated, as amended 1983; and predicated on Rule A-3, General Rules and Regulations and Rules of Practice and Procedure, subject to the following stipulations:

1. Prior to commencement of drilling, receipt by the Division of evidence providing assurance of an adequate and approved supply of water.

In addition, the following actions are necessary to fully comply with this approval:

1. Spudding notification to the Division within 24 hours after drilling operations commence.
2. Submittal to the Division of completed Form OGC-8-X, Report of Water Encountered During Drilling.
3. Prompt notification to the Division should you determine that it is necessary to plug and abandon this well. Notify John R. Baza, Petroleum Engineer, (Office) (801) 538-5340, (Home) 298-7695 or R. J. Firth, Associate Director, (Home) 571-6068.
4. Compliance with the requirements and regulations of Rule C-27, Associated Gas Flaring, General Rules and Regulations, Oil and Gas Conservation.

Phillips Oil Company
Well No. Ratherford Unit #17-13
January 22, 1985
Page 2

5. This approval shall expire one (1) year after date of issuance unless substantial and continuous operation is underway or an application for an extension is made prior to the approval expiration date.

The API number assigned to this well is 43-037-31133.

Sincerely,



R. J. Firth
Associate Director, Oil & Gas

as
Enclosures
cc: Branch of Fluid Minerals
Bureau of Indian Affairs

BUREAU OF LAND MANAGEMENT

SUNDRY NOTICES AND REPORTS ON WELLS

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

5. LEASE DESIGNATION AND SERIAL NO. 14-20-603-353 3

6. IF INDIAN, ALLOTTEE OR TRIBE NAME Navajo

7. UNIT AGREEMENT NAME SW-I-4192

8. FARM OR LEASE NAME Ratherford Unit

9. WELL NO.

10. FIELD AND POOL, OR WILDCAT Greater Aneth

11. SEC., T., R., N., OR S.E. AND SUBST. OR AREA Sec. 17-T41S-R24E

14. PERMIT NO.

15. ELEVATIONS (Show whether DF, ST, OR, etc.) 4765' MSL

12. COUNTY OR PARISH San Juan

13. STATE Utah

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:

SUBSEQUENT REPORT OF:

- TEST WATER SHUT-OFF
- FRACURE TREAT
- SHOOT OR ACIDIZE
- REPAIR WELL
- (Other)
- PULL OR ALTER CASING
- MULTIPLE COMPLETE
- ABANDON*
- CHANGE PLANS

- WATER SHUT-OFF
- FRACURE TREATMENT
- SHOOTING OR ACIDIZING
- (Other)
- REPAIRING WELL
- ALTERING CASING
- ABANDONMENT*

(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

17. 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.)

Phillips Oil Company proposes to expand surface facilities to a plot 80' x 200', 0.37 acres, in the center of Section 17-T41S-R24E immediately adjacent to and inclusive of the existing 49' x 46' Section 17 gathering installation. This area is to be used to install oilwell production test facilities. The area will be fenced, bermed, and reseeded upon abandonment.

- 5- BLM, Farmington, NM
- 2- Utah O&GCC, Salt Lake City, Utah
- 1- P. J. Adamson
- 1- B. Conner, 318-B-TRW
- 1- J. R. Weichbrodt
- 1- C. M. Anderson
- 1- P. Rooney
- 1- File

ACCEPTED BY THE STATE OF UTAH DIVISION OF OIL, GAS, AND MINING

DATE: 1/27/85 BY: John R. Bays

Federal approval of this action is required before commencing operations.

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

SIGNED A. E. Stuart

TITLE Area Manager

DATE January 30, 1985

(This space for Federal or State office use)

APPROVED BY CONDITIONS OF APPROVAL, IF ANY:

TITLE

DATE

*See Instructions on Reverse Side

**UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT**

SUBMIT IN TRIPLICATE*
(Other instructions on reverse side)

Budget Bureau No. 1004-0133
Expires August 31, 1985

SUNDRY NOTICES AND REPORTS ON WELLS

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

RECEIVED		1. LEASE DESIGNATION AND SERIAL NO. 14-20-603-353 14-20-603-355 2. TO INCLUDE, ALLOTTEE OR TRACT NAME Navajo
1. <input type="checkbox"/> OIL WELL <input type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER Flowline	MAY 06 1985 DIVISION OF OIL	3. UNIT ASSIGNMENT NAME SW-I-4192
2. NAME OF OPERATOR Phillips Oil Company		4. FARM OR LEASE NAME Rutherford Unit
3. ADDRESS OF OPERATOR P. O. Box 2920 Casper, WY 82602		5. WELL NO. 17.13
4. LOCATION OF WELL (Report location clearly and in accordance with any State regulations.) See also space 17 below.) At surface SW SW Sec. 16 & SE SE Sec. 17 of T41S-R24E San Juan Co., Utah		6. FIELD AND FOOT, OR WILDCAT Greater Aneth
14. PERMIT NO.	15. ELEVATIONS (Show whether 50, 100, etc.) 4760' MSL	7. SEC. T., R., N., OR S.W. AND SURVEY OR AREA Sec. 16 & 17 T41S-R24E
		8. COUNTY OR PARISH 9. STATE San Juan Co. Utah

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF <input type="checkbox"/>	FULL OR ALTER CASING <input type="checkbox"/>	WATER SHUT-OFF <input type="checkbox"/>	REPAIRING WELL <input type="checkbox"/>
FRACTURE TREAT <input type="checkbox"/>	MULTIPLE COMPLETE <input type="checkbox"/>	FRACTURE TREATMENT <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
SHOOT OR ACIDIZE <input type="checkbox"/>	ABANDON* <input type="checkbox"/>	SHOOTING OR ACIDIZING <input type="checkbox"/>	ABANDONMENT* <input type="checkbox"/>
REPAIR WELL <input type="checkbox"/>	CHANGE PLANS <input type="checkbox"/>	(Other) <input type="checkbox"/>	(Other) <input type="checkbox"/>

(Other) Install flowline (NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

17. 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.)

Phillips Oil Company requests approval to install a flowline as shown on the attached Plat A-2A. This flowline will connect Tank Battery 1 with the Water Injection Plant. The line will be used to carry oil-water emulsion from the Water Injection Plant to Tank Battery 1. The proposed flowline will parallel an existing water line connecting the two locations.

In Drilling

- 5- BLM, Farmington
- 2- Utah O&GCC, Salt Lake City, Utah
- 1- P. J. Adamson
- 1- B. Conner, 318-B-TRW
- 1- J. R. Weichbrodt
- 1- C. M. Anderson
- 1- P. Rooney
- 1- File

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

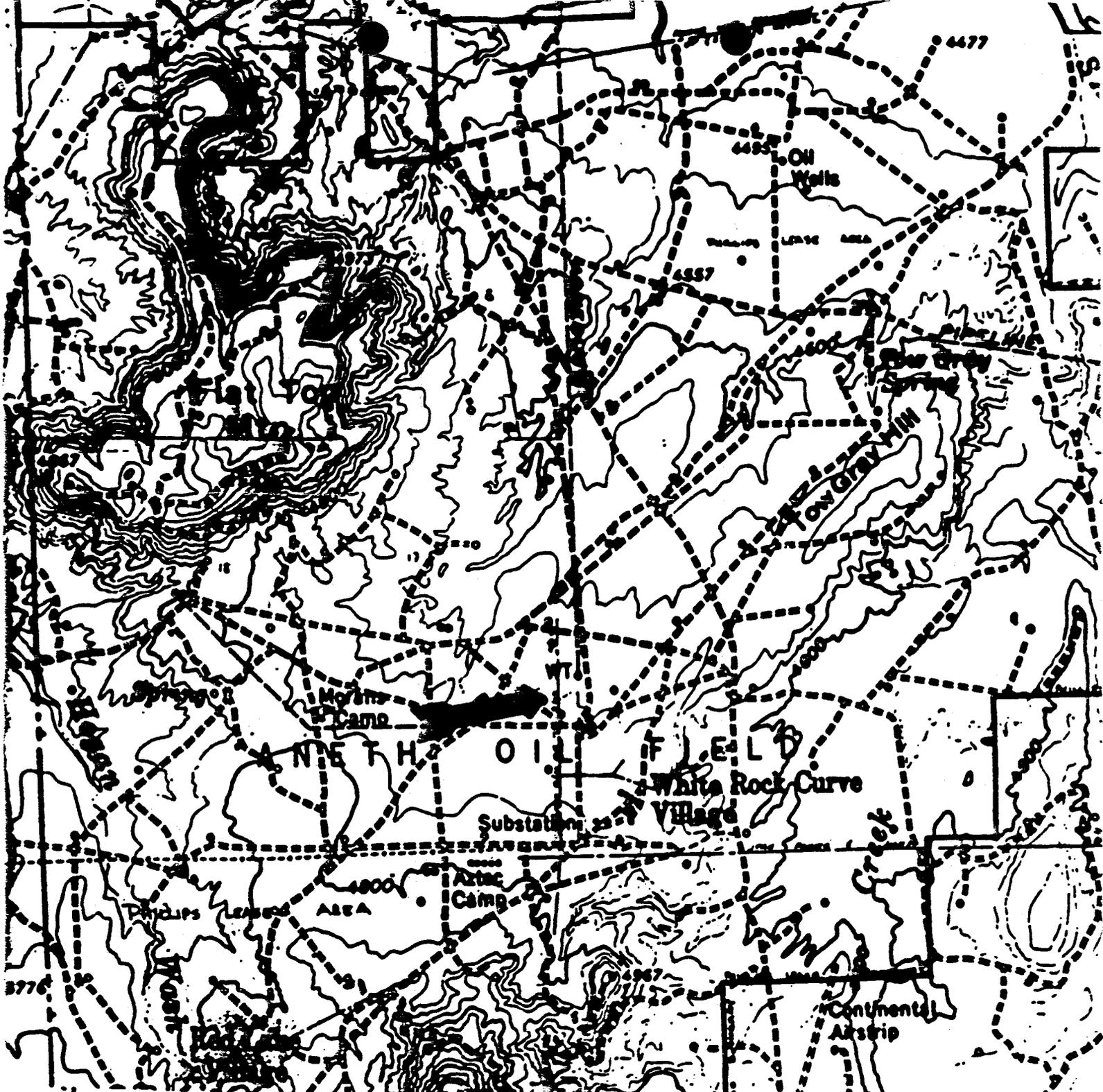
SIGNED A. E. Stuart TITLE Area Manager DATE February 4, 1985

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

*See Instructions on Reverse Side



NO.	REVISION	BY	DATE	CHKD	APP'D
FOR BIDS	 PHILLIPS PETROLEUM COMPANY BARTLESVILLE, OKLAHOMA		JA NO	FILE CODE	
FOR APPR			AFE NO	SCALE 2.2" = 1 mi	
FOR CONST			DWG NO	A 2 A	
DRAWN	RATHERFORD UNIT PROPOSED FLOWLINE PLAT SEC. 16 & 17 T41S-R24E SAN JUAN CO., UTAH			SH NO.	
CHECKED					
APP'D					

**UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY**

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use Form 9-331-C for such proposals.)

1. oil well gas well other

JUN 27 1985

2. NAME OF OPERATOR
Phillips Oil Company

DIVISION OF OIL
GAS & MINING

3. ADDRESS OF OPERATOR
8055 E. Tufts Ave., Denver, CO 80237

4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
AT SURFACE: 2100' FNL, 660' FWL
AT TOP PROD. INTERVAL:
AT TOTAL DEPTH:

16. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

REQUEST FOR APPROVAL TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF	<input type="checkbox"/>		<input type="checkbox"/>
FRACTURE TREAT	<input type="checkbox"/>		<input type="checkbox"/>
SHOOT OR ACIDIZE	<input type="checkbox"/>		<input type="checkbox"/>
REPAIR WELL	<input type="checkbox"/>		<input type="checkbox"/>
PULL OR ALTER CASING	<input type="checkbox"/>		<input type="checkbox"/>
MULTIPLE COMPLETE	<input type="checkbox"/>		<input type="checkbox"/>
CHANGE ZONES	<input type="checkbox"/>		<input type="checkbox"/>
ABANDON*	<input type="checkbox"/>		<input type="checkbox"/>
(other)	<input type="checkbox"/>		<input type="checkbox"/>

5. LEASE 14-20-603-353	
6. IF INDIAN, ALLOTTEE OR TRIBE NAME Navajo	
7. UNIT AGREEMENT NAME SW-I-4192	
8. FARM OR LEASE NAME Ratherford Unit	
9. WELL NO. #17-13	
10. FIELD OR WILDCAT NAME Greater Aneth	
11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA Sec. 17-T41S, R24E	
12. COUNTY OR PARISH San Juan	13. STATE Utah
14. API NO. 43-037-31133	
15. ELEVATIONS (SHOW DF, KDB, AND WD) 4735' ung. G.L.	

(NOTE: Report results of multiple completion or zone change on Form 9-330.)

17. 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.)*

Drilled 17-1/2" conductor hole to 119' on 6-15-85. Ran 13-3/8" 48# K-55 ST&C casing, set at 118.68'. Cemented with 177 cu.ft. (150 sx) Class B to surface. Finished job and moved out rat hole driller 6-15-85.

Spudded well 6-18-85 with Four Corners Drilling Rig #9. Drilled 12-1/4" hole to 1635'. Ran 9-5/8" 36# K-55 ST&C surface casing, set at 1635. Cemented with 726 cu.ft. (300 sx) Class B w/20% Diacel D; tailed with 354 cu.ft. (300 sx) Class B. Circulated to surface. Job complete 6-19-85.

Subsurface Safety Valve: Manu. and Type _____ Set @ _____ Ft.

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

SIGNED [Signature] TITLE Drilling Manager DATE 6-24-85

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

- | | |
|-------------------------|-----------------------------------|
| 6 - BLM, Farmington, NM | 1- Chevron USA, Inc. |
| 2 - Utah O&GCC, SCL | 1- Mobil Oil Corp. |
| 1 - Casper | 1- Texaco, Inc. |
| 1 - File (RC) | *See Instructions on Reverse Side |
| 1 - J. Weichbrodt | 1-Shell Oil Corp. |

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use Form 9-331-C for such proposals.)

1. oil well gas well other

2. NAME OF OPERATOR
Phillips Oil Company

3. ADDRESS OF OPERATOR
8055 E. Tufts Ave., Denver, CO 80237

4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
AT SURFACE: 2100' FNL, 660' FWL
AT TOP PROD. INTERVAL:
AT TOTAL DEPTH:

16. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

REQUEST FOR APPROVAL TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF	<input type="checkbox"/>		<input type="checkbox"/>
FRACTURE TREAT	<input type="checkbox"/>		<input type="checkbox"/>
SHOOT OR ACIDIZE	<input type="checkbox"/>		<input type="checkbox"/>
REPAIR WELL	<input type="checkbox"/>		<input type="checkbox"/>
PULL OR ALTER CASING	<input type="checkbox"/>		<input type="checkbox"/>
MULTIPLE COMPLETE	<input type="checkbox"/>		<input type="checkbox"/>
CHANGE ZONES	<input type="checkbox"/>		<input type="checkbox"/>
ABANDON*	<input type="checkbox"/>		<input type="checkbox"/>
(other)			

5. LEASE 14-20-603-353	
6. IF INDIAN, ALLOTTEE OR TRIBE NAME Navajo	
7. UNIT AGREEMENT NAME SW-I-4192	
8. FARM OR LEASE NAME Ratherford Unit	
9. WELL NO. #17-13	
10. FIELD OR WILDCAT NAME Greater Aneth	
11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA Sec. 17-T41S, R24E	
12. COUNTY OR PARISH San Juan	13. STATE Utah
14. API NO. 43-037-31133	
15. ELEVATIONS (SHOW DF, KDB, AND WD) 4735' ung. G.L.	

(NOTE: Report results of multiple completion or zone change on Form 9-330.)

17. 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.)*

Drilled 8-3/4" hole to 5609'. Ran 7" 23# and 26#, K-55 and S-95, LT&C casing to 5608.7'. Cemented casing with 1144 cu. ft. (400 sx) Class B w/20% Diacel; tailed with 360 cu.ft. (300 sx) Class B, with 18% salt. Pressure tested casing to 1500 psi. Job complete 6-30-85. Plug back total depth 5594'.

Subsurface Safety Valve: Manu. and Type _____ Set @ _____ Ft.

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

SIGNED [Signature] TITLE Drilling Manager DATE July 8, 1985

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

- | | |
|-------------------------|-----------------------------------|
| 6 - BLM, Farmington, NM | 1 - Chevron USA, Inc |
| 2 - Utah O&GCC, SCL | 1 - Mobil Oil Corp. |
| 1 - Casper | 1 - Texaco, Inc. |
| 1 - File (RC) | *See Instructions on Reverse Side |
| 1 - J. Weichbrodt | 1 - Shell Oil Co. |

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUBMIT IN DUPLICATE

(See other instructions on reverse side)

Form approved.
Budget Bureau No. 1004-0137
Expires August 31, 1985

WELL COMPLETION OR RECOMPLETION REPORT AND LOG *

1a. TYPE OF WELL: OIL WELL GAS WELL DRY Other _____

b. TYPE OF COMPLETION: NEW WELL WORK OVER DEEP EN PLUG BACK DIFF. REKV. Other _____

2. NAME OF OPERATOR
Phillips Petroleum Company

3. ADDRESS OF OPERATOR
P.O. Box 2920, Casper, WY 82602

4. LOCATION OF WELL (Report location clearly and in accordance with any Special Provisions)
At surface 2100' FSL & 660' FWL, NW SW

At top prod. interval reported below

At total depth

14. PERMIT NO. -- DATE ISSUED 1-22-85

15. DATE SPUDDED 6/18/85 16. DATE T.D. REACHED 6/29/85 17. DATE COMPL. (Ready to prod.) 8/5/85 18. ELEVATIONS (DF, RKB, RT, GR, ETC.)* GR 4738', RKB 4749'

20. TOTAL DEPTH, MD & TVD 5609' 21. PLUG, BACK T.D., MD & TVD 5582' 22. IF MULTIPLE COMPL., HOW MANY* -- 23. INTERVALS DRILLED BY ROTARY TOOLS 0 - 5609' CABLE TOOLS --

24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)*
5507'- 5570' Desert Creek Zone I

5. LEASE DESIGNATION AND SERIAL NO.
14-20-603-353

6. IF INDIAN, ALLOTTEE OR TRIBE NAME
Navajo

7. UNIT AGREEMENT NAME
SW-I-4192

8. FARM OR LEASE NAME
Ratherford Unit

9. WELL NO.
17-13

10. FIELD AND POOL, OR WILDCAT
Greater Aneth

11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA
Sec. 17-T41S-R24E

12. COUNTY OR PARISH San Juan 13. STATE Utah

19. ELEV. CASINGHEAD --

25. WAS DIRECTIONAL SURVEY MADE No

26. TYPE ELECTRIC AND OTHER LOGS RUN DSN D4F DLL GR SP Caliper, FRC/CM C B C C L 27. WAS WELL CORED No

28. CASING RECORD (Report all strings set in well)

CASING SIZE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
13-3/8"	48#	118.68'	17-1/2"	177 cu ft Class B	--
9-5/8"	36#	1635'	12-1/4"	1080 cu ft Class B	--
7"	23 & 26#	5609'	8-3/4"	1504 cu ft Class B	--

29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)
--	--	--	--	--

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)
2-7/8"	5375'	

31. PERFORATION RECORD (Interval, size and number)

5532-5570', 2 SPF, 4" HSC Gun, 76 shots
5507-5520', 2 SPF, 4" HSC Gun, 26 shots

32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
5507-5570'	Acidized each ft w/50 gal 28% HCL w/2 gal/1000 F-801, 3 gal/1000 W-802, 1 gal/1000 A-250 & 6 gal/1000 U-42. Acidized 2nd stage w/5400 gal 28% HCL w/2 gal/1000 F-801, 3 gal/1000

33. PRODUCTION (CONTINUED ON BACK)

DATE FIRST PRODUCTION 8/5/85 PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump) Pumping 2-1/2" x 1-3/4" x 24' Rod WELL STATUS (Producing or shut-in) Producing

DATE OF TEST 9/5/85 HOURS TESTED 24 CHOKER SIZE -- PROD'N. FOR TEST PERIOD -- OIL—BBL. 86 GAS—MCF. 67 WATER—BBL. 0 GAS-OIL RATIO 779

WELL TUBING PRESS. 40 CASING PRESSURE 30 CALCULATED 24-HOUR RATE -- OIL—BBL. 86 GAS—MCF. 67 WATER—BBL. 0 OIL GRAVITY-API (CORR.) 40.0

34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.) Sold TEST WITNESSED BY

35. LIST OF ATTACHMENTS
None

36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records

SIGNED D. C. Gill TITLE Area Manager DATE 9/9/85

*(See Instructions and Spaces for Additional Data on Reverse Side)

37. SUMMARY OF POROUS ZONES: (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):

FORMATION	TOP	BOTTOM	DESCRIPTION, CONTENTS, ETC.	NAME	MEAS. DEPTH	TOP TRUE VERT. DEPTH
No. 32	Acid Job (Continued)				LOG TOPS	
W-802, 1 gal/1000 A-250, 6 gal/1000 U-42 & 4#/1000 J-120, using 140, 1.2 sp. gr., ball sealers. Displaced w/37 BW.				Shinarump DeChelly Hermosa Ismay Desert Creek Zone I		2302' 2624' 4529' 5338' 5502'
			NO CORES OR DST'S RUN.			
DISTRIBUTION						
4 - BLM, Farmington, New Mexico						
2 - Utah O&G CC, Salt Lake City, Utah						
1 - Navajo Nation						
1 - R. Ewing, B'Ville						
1 - L. Williamson (r) G. W. Berk, Denver						
1 - T. L. Carten (r) P. Bertuzzi, Denver						
1 - J. Lindemood, Denver						
1 - W.I. Owners						
1 - P. Adamson						
1 - Cortez Office						
1 - File (RC)						

38. GEOLOGIC MARKERS

Mobil Oil Corporation

P.O. BOX 5444
DENVER, COLORADO 80217-5444

May 14, 1986

RECEIVED
MAY 16 1986

Utah Board of Oil, Gas and Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

Attn: R. J. Firth
Associate Director

DIVISION OF
OIL, GAS & MINING

SUPERIOR OIL COMPANY MERGER

Dear Mr. Firth:

On September 20, 1984, The Superior Oil Company (Superior) became a wholly owned subsidiary of Mobil Corporation. Since January 1, 1985, Mobil Oil Corporation (MOC), another wholly owned subsidiary of Mobil Corporation, has acted as agent for Superior and has operated the Superior-owned properties.

On April 24, 1986, Superior was merged with Mobil Exploration and Producing North America Inc. (MEPNA), which is also a wholly owned subsidiary of Mobil Corporation. MEPNA is the surviving company of the merger.

This letter is to advise you that all properties held in the name of Superior will now be held in the name of MEPNA; and that these properties will continue to be operated by MOC as agent for MEPNA.

Attached is a listing of all wells and a separate listing of injection-disposal wells, Designation of Agent and an organization chart illustrating the relationships of the various companies. If you have any questions or require additional documentation of this merger, please feel free to contact me at the above address or (303) 298-2577.

Very truly yours,



CNE/rd
CNE8661

R. D. Baker
Environmental Regulatory Manager

Division of Oil, Gas and Mining
OPERATOR CHANGE WORKSHEET

Routing:

1	VLC/07-93
2	DES/8-93
3	VLC
4	RJF
5	DES
6	PL

Attach all documentation received by the division regarding this change.
 Initial each listed item when completed. Write N/A if item is not applicable.

- Change of Operator (well sold) Designation of Agent
 Designation of Operator Operator Name Change Only

The operator of the well(s) listed below has changed (EFFECTIVE DATE: 7-1-93)

TO (new operator) M E P N A
 (address) PO DRAWER G
CORTEZ, CO 81321
GLEN COX (915)688-2114
 phone (303)565-2212
 account no. N7370

FROM (former operator) PHILLIPS PETROLEUM COMPANY
 (address) 5525 HWY 64 NBU 3004
FARMINGTON, NM 87401
PAT KONKEL
 phone (505)599-3452
 account no. N0772(A)

Well(s) (attach additional page if needed): ***RATHERFORD UNIT (NAVAJO)**

Name: **SEE ATTACHED**	API: <u>43037-31133</u>	Entity: _____	Sec _____	Twp _____	Rng _____	Lease Type: _____
Name: _____	API: _____	Entity: _____	Sec _____	Twp _____	Rng _____	Lease Type: _____
Name: _____	API: _____	Entity: _____	Sec _____	Twp _____	Rng _____	Lease Type: _____
Name: _____	API: _____	Entity: _____	Sec _____	Twp _____	Rng _____	Lease Type: _____
Name: _____	API: _____	Entity: _____	Sec _____	Twp _____	Rng _____	Lease Type: _____
Name: _____	API: _____	Entity: _____	Sec _____	Twp _____	Rng _____	Lease Type: _____
Name: _____	API: _____	Entity: _____	Sec _____	Twp _____	Rng _____	Lease Type: _____

OPERATOR CHANGE DOCUMENTATION

- Sec 1. (Rule R615-8-10) Sundry or other legal documentation has been received from former operator (Attach to this form). (Reg. 8-20-93) (6/93 Prod. Rpt. 8-16-93)
- Sec 2. (Rule R615-8-10) Sundry or other legal documentation has been received from new operator (Attach to this form). (Reg. 8-31-93) (Rec'd 9-14-93)
- N/A 3. The Department of Commerce has been contacted if the new operator above is not currently operating any wells in Utah. Is company registered with the state? (yes/no) _____ If yes, show company file number: _____.
- Sec 4. (For Indian and Federal Wells ONLY) The BLM has been contacted regarding this change (attach Telephone Documentation Form to this report). Make note of BLM status in comments section of this form. Management review of Federal and Indian well operator changes should take place prior to completion of steps 5 through 9 below.
- Sec 5. Changes have been entered in the Oil and Gas Information System (Wang/IBM) for each well listed above. (O&G wells 10-6-93) (Wiw's 10-26-93)
- Sec 6. Cardex file has been updated for each well listed above. (O&G wells 10-6-93) (Wiw's 10-26-93)
- Sec 7. Well file labels have been updated for each well listed above. (O&G wells 10-6-93) (Wiw's 10-26-93)
- Sec 8. Changes have been included on the monthly "Operator, Address, and Account Changes" memo for distribution to State Lands and the Tax Commission. (10-6-93)
- Sec 9. A folder has been set up for the Operator Change file, and a copy of this page has been placed there for reference during routing and processing of the original documents.

ENTITY REVIEW

- See 1. (Rule R615-8-7) Entity assignments have been reviewed for all wells listed above. Were entity changes made? (yes/no) no (If entity assignments were changed, attach copies of Form 6, Entity Action Form).
- N/A 2. State Lands and the Tax Commission have been notified through normal procedures of entity changes.

BOND VERIFICATION (Fee wells only)

- See / N/A 1. (Rule R615-3-1) The new operator of any fee lease well listed above has furnished a proper bond.
2. A copy of this form has been placed in the new and former operators' bond files.
3. The former operator has requested a release of liability from their bond (yes/no) . Today's date 19 . If yes, division response was made by letter dated 19 .

LEASE INTEREST OWNER NOTIFICATION RESPONSIBILITY

- N/A 1. (Rule R615-2-10) The former operator/lessee of any fee lease well listed above has been notified by letter dated 19 , of their responsibility to notify any person with an interest in such lease of the change of operator. Documentation of such notification has been requested.
- N/A 2. Copies of documents have been sent to State Lands for changes involving State leases.

FILMING

1. All attachments to this form have been microfilmed. Date: 11/17 19 93 .

FILING

- See 1. Copies of all attachments to this form have been filed in each well file.
- See 2. The original of this form and the original attachments have been filed in the Operator Change file.

COMMENTS

931006 BIA/BM Approved 7-9-93.

MONTHLY OIL AND GAS PRODUCTION REPORT

OPERATOR NAME AND ADDRESS:

ACCOUNT NUMBER: N0772

P J KONKEL
PHILLIPS PETROLEUM COMPANY
5525 HWY 64 NBU 3004
FARMINGTON NM 87401

RECEIVED

AUG 16 1993

REPORT PERIOD (MONTH/YEAR):

6 / 93

DIVISION OF
OIL, GAS & MINING

AMENDED REPORT (Highlight Changes)

Well Name API Number	Entity	Location	Producing Zone	Well Status	Days Oper	Production Volumes		
						OIL(BBL)	GAS(MCF)	WATER(BBL)
#21-23								
4303713754	06280	41S 24E 21	DSCR	POW	29	1374	883	58
#3-44								
4303715031	06280	41S 24E 3	DSCR	POW	30	111	94	2905
#3-14								
4303715124	06280	41S 24E 3	DSCR	POW	30	67	23	302
#9-12								
4303715126	06280	41S 24E 9	DSCR	POW	30	112	654	17363
#9-14								
4303715127	06280	41S 24E 9	DSCR	POW	30	201	315	423
#28-12								
4303715336	06280	41S 24E 28	PRDX	POW	29	112	47	2428
#29-12								
4303715337	06280	41S 24E 29	PRDX	POW	29	56	0	672
#29-32								
4303715339	06280	41S 24E 29	DSCR	POW	29	1402	287	2224
#29-34								
4303715340	06280	41S 24E 29	DSCR	POW	29	757	48	0
#30-32								
4303715342	06280	41S 24E 30	DSCR	POW	29	588	1049	3744
#3-12								
4303715620	06280	41S 24E 3	DSCR	POW	30	268	11	363
#9-34								
4303715711	06280	41S 24E 9	DSCR	POW	30	45	46	9800
#10-12								
4303715712	06280	41S 24E 10	DSCR	POW	30	45	23	1088
TOTALS						5138	3480	41370

USCA
8-18-93

COMMENTS: Effective July 1, 1993, Phillips Petroleum Company has sold its interest in the Ratherford Unit to Mobil Exploration and Producing U.S., Incorporated, P. O. Box 633, Midland, Texas 79702. Mobil assumed operations on July 1, 1993.

I hereby certify that this report is true and complete to the best of my knowledge. Date: 8/11/93

Name and Signature: PAT KONKEL *Pat Konkell* Telephone Number: 505 599-3452

STATE OF UTAH
DIVISION OF OIL, GAS AND MINING

3. LEASE DESIGNATION & SERIAL NO.

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

SUNDRY NOTICES AND REPORTS ON WELLS

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

NAVAJO TRIBAL

7. UNIT AGREEMENT NAME

RATHERFORD UNIT

8. FARM OR LEASE NAME

9. WELL NO.

1. OIL WELL GAS WELL OTHER

2. NAME OF OPERATOR

MOBIL OIL CORPORATION

3. ADDRESS OF OPERATOR

P. O. BOX 633 MIDLAND, TX 79702

SEP 13 1993

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.
See also space 17 below.)

At surface

At proposed prod. zone

10. FIELD AND POOL, OR WILDCAT

GREATER ANETH

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA

DIVISION OF
OIL, GAS & MINING

14. API NO.

15. ELEVATIONS (Show whether DF, RT, GR, etc.)

12. COUNTY
SAN JUAN

13. STATE
UTAH

16. Check Appropriate Box To Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:

TEST WATER SHUT-OFF

FRACTURE TREAT

SHOOT OR ACIDIZE

REPAIR WELL

(Other)

PULL OR ALTER CASING

MULTIPLE COMPLETE

ABANDON

CHANGE PLANS

SUBSEQUENT REPORT OF:

WATER SHUT-OFF

FRACTURE TREATMENT

SHOOTING OR ACIDIZING

(Other) CHANGE OF OPERATOR

(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

REPAIRING WELL

ALTERING CASING

ABANDONMENT*

APPROX. DATE WORK WILL START _____

DATE OF COMPLETION _____

17. 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.)

* Must be accompanied by a cement verification report.

AS OF JULY1, 1993, MOBIL OIL CORPORATION IS THE OPERATOR OF THE RATHERFORD UNIT.
ATTACHED ARE THE INDIVIDUAL WELLS.

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

SIGNED

Shirley Todd

TITLE

ENV. & REG TECHNICIAN

DATE

9-8-93

(This space for Federal or State office use)

APPROVED BY _____

TITLE _____

DATE _____

CONDITIONS OF APPROVAL, IF ANY:

See Instructions On Reverse Side

MONTHLY OIL AND GAS DISPOSITION REPORT

OPERATOR NAME AND ADDRESS:

L B Sheffield
 BRIAN BERRY
~~M E P N A MOBIL~~
 POB 219031-1807A RENTWR *F.O. DRAWER G*
 DALLAS TX 75221-9031 *CORTEZ, Co. 81321*

UTAH ACCOUNT NUMBER: N7370

REPORT PERIOD (MONTH/YEAR): 7 / 93

AMENDED REPORT (Highlight Changes)

**931006 updated. Joe*

ENTITY NUMBER	PRODUCT	GRAVITY BTU	BEGINNING INVENTORY	VOLUME PRODUCED	DISPOSITIONS				ENDING INVENTORY
					TRANSPORTED	USED ON SITE	FLARED/VENTED	OTHER	
05980	OIL			177609	177609	0			
	GAS			72101	66216	5885			
11174	OIL								
	GAS								
	OIL								
	GAS								
	OIL								
	GAS								
	OIL								
	GAS								
	OIL								
	GAS								
	OIL								
	GAS								
TOTALS				249710	243825	5885			

RECEIVED

SEP 13 1993

DIVISION OF
OIL, GAS & MINING

COMMENTS: *PLEASE NOTE ADDRESS change. Mobil ~~also~~ PRODUCTION REPORTS will be compiled and sent from the Cortez, Co. office IN THE FUTURE.*

I hereby certify that this report is true and complete to the best of my knowledge.

Date: 9/5/93

Name and Signature: *Lwell B Sheffield*

Telephone Number: 303 565 2212
246 68 2528

Sept 29, 1993

TO: Lisha Cordova - Utah Mining
Oil & Gas

FROM: Janice Easley
BLM Farmington, NM
505 599-6355

Here is copy of Rutherford Unit
Successor Operator.

4 pages including this one.

File Ratherford Unit (GC)

RECEIVED
BLM

JUL 27 AM 11:44

Navajo Area Office
P. O. Box 1060
Gallup, New Mexico 87305-1060

070 FARMINGTON, NM

ARES/543

JUL 26 1993

Mr. G. D. Cox
Mobil Exploration and
Producing North America, Inc.
P. O. Box 633
Midland, Texas 79702

SEARCHED	INDEXED
SERIALIZED	FILED
JUL 26 1993	
FBI - FARMINGTON	
3	
2	
ALL SUPPLY	

Dear Mr. Cox:

Enclosed for your information and use is the approved Designation of Operator between the Phillips Petroleum Company and Mobil Exploration and Producing North America, Inc. for the Ratherford Unit.

Please note that all other concerned parties will be furnished their copy of the approved document.

Sincerely,

ACTING Area Director

Enclosure

cc: Bureau of Land Management, Farmington District Office w/enc.
TNN, Director, Minerals Department w/enc.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS

RECEIVED
BLM

DESIGNATION OF OPERATOR

Phillips Petroleum Company is, on the records of the Bureau of Indian Affairs, operator of the Ratherford Unit,

AREA OFFICE: Window Rock, Arizona
LEASE NO: Attached hereto as Exhibit "A"

JUN 27 11:44
070 FARMINGTON, NM

and, pursuant to the terms of the Ratherford Unit Agreement, is resigning as Unit Operator effective July 1, 1993, and hereby designates

NAME: Mobil Exploration and Producing North America Inc., duly elected pursuant to the terms of the Ratherford Unit Agreement,

ADDRESS: P. O. Box 633, Midland, Texas 79702
Attn: G. D. Cox

as Operator and local agent, with full authority to act on behalf of the Ratherford Unit lessees in complying with the terms of all leases and regulations applicable thereto and on whom the authorized officer may serve written or oral instructions in securing compliance with the Operating Regulations (43 CFR 3160 and 25 CFR 211 and 212) with respect to (described acreage to which this designation is applicable):

Attached hereto as Exhibit "A"

Bond coverage under 25 CFR 211, 212 or 225 for lease activities conducted by the above named designated operator is under Bond Number 05202782 (attach copy). Evidence of bonding is required prior to the commencement of operations.

It is understood that this designation of operator does not relieve any lessee of responsibility for compliance with the terms of the leases and the Operating Regulations. It is also understood that this designation of operator does not constitute an assignment of any interest in the leases.

In case of default on the part of the designated operator, the lessees will make full and prompt compliance with all regulations, lease terms, stipulations, or orders of the Secretary of the Interior or his representative.

Attached is the appropriate documentation relevant to this document.

The designated operator agrees to promptly notify the authorized officer of any change in the operatorship of said Ratherford Unit.

Phillips Petroleum Company

June 17, 1993

By: M. B. [Signature]
Attorney-in-Fact

Mobil Exploration and Producing
North America Inc.

June 11, 1993

By: B. D. [Signature]
Attorney-in-Fact B.D. MARTINY

[Signature]
APPROVED BY

ACTING AREA DIRECTOR
TITLE

7/9/93
DATE

APPROVED PURSUANT, TO SECRETARIAL REDELEGATION ORDER 209 DM 8 AND 230 DM 3.

This form does not constitute an information collection as defined by 44 U.S.C. 3502 and therefore does not require OMB approval.

EXHIBIT "A"

ATTACHED TO AND MADE A PART OF DESIGNATION OF SUCCESSOR OPERATOR, RATHERFORD UNIT

EXHIBIT "C"

Revised as of September 29, 1992
SCHEDULE OF TRACT PERCENTAGE PARTICIPATION

<u>Tract Number</u>	<u>Description of Land</u>	<u>Serial Number and Effective Date of Lease</u>	<u>Tract Percentage Participation</u>
1	S/2 Sec. 1, E/2 SE/4 Sec. 2, E/4 Sec. 11, and all of Sec. 12, T-41-S, R-23-E, S.L.M. San Juan County, Utah	14-20-603-246-A Oct. 5, 1953	11.0652565
2	SE/4 and W/2 SW/4 Sec. 5, the irregular SW/4 Sec. 6, and all of Sec. 7 and 8, T-41-S, R-24-E, San Juan County, Utah	14-20-603-368 Oct. 26, 1953	14.4159942
3	SW/4 of Sec. 4, T-41-S, R-24-E, San Juan County, Utah	14-20-603-5446 Sept. 1, 1959	.5763826
4	SE/4 Sec. 4, and NE/4 Sec. 9, T-41-S, R-24-E, San Juan County, Utah	14-20-603-4035 March 3, 1958	1.2587779
5	SW/4 of Sec. 3, T-41-S, R-24-E, S.L.M., San Juan County, Utah	14-20-603-5445 Sept. 3, 1959	.4667669
6	NW/4 of Sec. 9, T-41-S, R-24-E, S.L.M., San Juan County, Utah	14-20-603-5045 Feb. 4, 1959	1.0187043
7	NW/4, W/2 NE/4, and SW/4 Sec. 10, SE/4 Sec. 9, T-41-S, R-24-E, San Juan County, Utah	14-20-603-4043 Feb. 18, 1958	3.5097575
8	SW/4 Sec. 9, T-41-S, R-24-E, S.L.M. San Juan County, Utah	14-20-603-5046 Feb. 4, 1959	1.1141679
9	SE/4 Sec. 10 and S/2 SW/4 Sec. 11 T-41-S, R-24-E, San Juan County, Utah	14-20-603-4037 Feb. 14, 1958	2.6186804
10	All of Sec. 13, E/2 Sec. 14, and E/2 SE/4 and N/2 Sec. 24, T-41-S, R-23-E, S.L.M., San Juan County, Utah	14-20-603-247-A Oct. 5, 1953	10.3108861
11	Sections 17, 18, 19 and 20, T-41-S, R-24-E, San Juan County Utah	14-20-603-353 Oct. 27, 1953	27.3389265
12	Sections 15, 16, 21, and NW/4, and W/2 SW/4 Sec. 22, T-41-S, R-24-E, San Juan County, Utah	14-20-603-355 Oct. 27, 1953	14.2819339
13	W/2 Section 14, T-41-S, R-24-E, San Juan County, Utah	14-20-603-370 Oct. 26, 1953	1.8500847
14	N/2 and SE/4, and E/2 SW/4 Sec. 29, NE/4 and E/2 SE/4 and E/2 W/2 irregular Sec. 30, and E/2 NE/4 Sec. 32, T-41-S, R-24-E, San Juan County, Utah	14-20-603-407 Dec. 10, 1953	6.9924969
15	NW/4 Sec. 28, T-41-S, R24-E San Juan County, Utah	14-20-603-409 Dec. 10, 1953	.9416393
16	SE/4 Sec. 3, T-41-S, R-24-E San Juan County, Utah	14-20-0603-6504 July 11, 1961	.5750254
17	NE/4 Sec. 3, T-41-S, R-24-E San Juan County, Utah	14-20-0603-6505 July 11, 1961	.5449292
18	NW/4 Sec. 3, T-41-S, R-24-E San Juan County, Utah	14-20-0603-6506 July 11, 1961	.5482788
19	NE/4 Sec. 4, T-41-S, R24-E San Juan County, Utah	14-20-0603-7171 June 11, 1962	.4720628
20	E/2 NW/4 Sec. 4, T-41-S, R-24-E San Juan County, Utah	14-20-0603-7172 June 11, 1962	.0992482

100% Indian Lands

TOTAL 12,909.74

100.000000

Division of Oil, Gas and Mining
PHONE CONVERSATION DOCUMENTATION FORM

Route original/copy to:

Well File _____

(Location) Sec ___ Twp ___ Rng ___
(API No.) _____

Suspense
(Return Date) _____
(To - Initials) _____

Other
OPERATOR CHANGE

1. Date of Phone Call: 10-6-93 = Time: 9:30

2. DOGM Employee (name) L. CORDOVA (Initiated Call
Talked to:

Name GLEN COX (Initiated Call - Phone No. (915) 688-2114

of (Company/Organization) MOBIL

3. Topic of Conversation: OPERATOR CHANGE FROM PHILLIPS TO MOBIL "RATHERFORD UNIT".
(NEED TO CONFIRM HOW OPERATOR WANTS THE WELLS SET UP - MEPNA AS PER BIA APPROVAL
OR MOBIL OIL CORPORATION AS PER SUNDRY DATED 9-8-93?)

4. Highlights of Conversation: _____

MR. COX CONFIRMED THAT THE WELLS SHOULD BE SET UNDER ACCOUNT N7370/MEPNA AS
PER BIA APPROVAL, ALSO CONFIRMED THAT PRODUCTION & DISPOSITION REPORTS WILL NOW
BE HANDLED OUT OF THEIR CORTEZ OFFICE RATHER THAN DALLAS.

MEPNA-

PO DRAWER G

CORTEZ, CO 81321

(303)565-2212

*ADDRESS CHANGE AFFECTS ALL WELLS CURRENTLY OPERATED BY MEPNA, CURRENTLY
REPORTED OUT OF DALLAS (MCELMO CREEK).

12W-44	43-037-16405	14-20-603-246A	SEC. 12, T41S, R23E	SE/SE 660 FSL; 660 FEL
12W-44A	43-037-31543	14-20-603-246A	SEC. 12, T41S, R23E	SE/SE 807 FEL; 772 FSL
13-11W	43-037-31152	14-20-603-247A	SEC. 13, T41S, R23E	NW/NW 500 FNL; 660 FWL
13-12	43-037-31127	14-20-603-247A	SEC. 13, T41S, R23E	SW/NW 1705 FNL; 640 FWL
13W-13	43-037-15851	14-20-603-247A	SEC. 13, T41S, R23E	NW/SW 1980 FSL; 4620 FEL
13-14	43-037-31589	14-20-603-247A	SEC. 13, T41S, R23E	660 FSL; 660 FWL
13-21	43-037-31128	14-20-603-247A	SEC. 13, T41S, R23E	NE/NW 660 FNL; 1920 FWL
13W-22	43-037-15852	14-20-603-247A	SEC. 13, T41S, R23E	SE/NW 1988 FNL; 3300 FEL
13-23	43-037-31129	14-20-603-247A	SEC. 13, T41S, R23E	NE/SW 1980 FSL; 1930 FWL
13W-44	43-037-15853	14-20-603-247	SEC. 13, T41S, R23E	600 FSL; 3300 FEL
13W-32	43-037-16406	14-20-603-247A	SEC. 13, T41S, R23E	1881 FNL; 1979 FEL
13W-33	43-037-15855	14-20-603-247A	SEC. 13, T41S, R23E	NW/SE 1970 FSL; 1979 FEL
13W-34	43-037-31130	14-20-603-247A	SEC. 13, T41S, R23E	SW/SE 660 FSL; 1980 FEL
13-41	43-037-15856	14-20-603-247A	SEC. 13, T41S, R23E	NE/NE 660 FNL; 660 FEL
13W-42	43-037-15857	14-20-603-247A	SEC. 13, T41S, R23E	SE/NE 2139; 585 FEL
13-43	43-037-31131	14-20-603-247A	SEC. 13, T41S, R23E	NE/SE 1700 FSL; 960 FEL
13W-44	43-037-16407	14-20-603-247A	SEC. 13, T41S, R23E	SE/SE 635 FSL; 659 FEL
14-03	NA	14-20-603-4037	SEC. 11, T41S, R23E	SW/SW 660 FSL; 660 FEL
14-32	43-037-15858	14-20-603-247A	SEC. 14, T41S, R23E	2130 FNL; 1830 FEL
14-41	43-037-31623	14-20-603-247A	SEC. 14, T41S, R23E	NE/NE 521 FEL; 810 FNL
14W-42	43-037-15860	14-20-603-247A	SEC. 14, T41S, R23E	SE/NE 1976 FNL; 653 FEL
14W-43	43-037-16410	14-20-603-247A	SEC. 14, T41S, R23E	3300 FSL; 4770 FEL
14-33	43-037-15859	14-20-603-247	SEC. 14, T41S, R23E	2130 FSL; 1830 FEL
15-12	43-037-15715	14-20-603-355	SEC. 15, T41S, R24E	1820 FNL; 500 FWL
15W-21	43-037-16411	14-20-603-355	SEC. 15, T41S, R24E	660 FNL; 1820 FWL
15-22	43-037-30449	14-20-603-355	SEC. 15, T41S, R24E	SE/NW, 1980 FNL; 2050 FWL
15-32	43-037-15717	14-20-603-355A	SEC. 15, T41S, R24E	1980 FNL; 1980 FEL
15-33	43-037-15718	14-20-603-355	SEC. 15, T41S, R24E	NW/SE 1650 FSL; 1980 FEL
15-41	43-037-15719	14-20-603-355	SEC. 15, T41S, R24E	660 FNL; 660' FEL
15-42	43-037-30449	14-20-603-355	SEC. 15, T41S, R24E	SE/NE 2020 FNL; 820 FEL
16W-12	43-037-15720	14-20-603-355	SEC. 16, T41S, R24E	SW/NW 1880 FNL; 660 FWL
16-13	43-037-31168	14-20-603-355	SEC. 16, T41S, R24E	1980 FSL; 660 FWL
16W-14	43-037-15721	14-20-603-355	SEC. 16, T41S, R24E	SW/SW 660 FSL; 660 FWL
16W-21	43-037-16414	14-20-603-355	SEC. 16, T41S, R24E	NE/NW 660 FNL; 1880 FWL
16W-23	43-037-15722	14-20-603-355	SEC. 16, T41S, R24E	NE/SW 1980 FSL; 1980 FWL
16-32	43-037-15723	14-20-603-355	SEC. 16, T41S, R24E	1980 FNL; 1980' FEL
16-34	43-037-15724	14-20-603-355	SEC. 16, T41S, R24E	660 FNL; 1980' FEL
16-41	43-037-15725	14-20-603-355	SEC. 16, T41S, R24E	660 FNL; 660 FEL
16W-43	43-037-16415	14-20-603-355	SEC. 16, T41S, R24E	NE/SE 2140 FSL; 820 FEL
17-11	43-037-31169	14-20-603-353	SEC. 17, T41S, R24E	NW/NW 1075' FNL; 800' FWL
17W-12	43-037-15726	14-20-603-353	SEC. 17, T41S, R24E	SW/NW 1980' FNL; 510' FWL
17-13	43-037-31133	14-20-603-353	SEC. 17, T41S, R24E	NW/SW 2100' FSL; 660' FWL
17W-14	43-037-15727	14-20-603-353	SEC. 17, T41S, R24E	SW/SW 660' FSL; 660' FWL
17W-21	43-037-16416	14-20-603-353	SEC. 17, T41S, R24E	510' FNL; 1830' FWL
17-22	43-037-31170	14-20-603-353	SEC. 17, T41S, R24E	1980' FNL; 1980' FWL
17W-23	43-037-15728	14-20-603-353	SEC. 17, T41S, R24E	NE/SW 1980' FWL; 1880' FSL
17-31	43-037-31178	14-20-603-353	SEC. 17, T41S, R24E	NW/NE 500' FNL; 1980' FEL
17-32W	43-037-15729	14-20-603-353	SEC. 17, T41S, R24E	SW/NE 1830' FNL; 2030' FEL
17-33	43-037-31134	14-20-603-353	SEC. 17, T41S, R24E	NW/SE 1980' FSL; 1845' FEL
17-34W	43-037-15730	14-20-603-353	SEC. 17, T41S, R24E	SW/SE 560' FSL; 1880' FEL
17W-41	43-037-15731	14-20-603-353	SEC. 17, T41S, R24E	610' FNL; 510' FEL
17-42	43-037-31177	14-20-603-353	SEC. 17, T41S, R24E	SE/NE 1980; FNL, 660' FEL
17-44	43-037-15732	14-20-603-353	SEC. 17, T41S, R24E	660 FSL; 660' FEL
17W-43	43-037-16417	14-20-603-353	SEC. 17, T41S, R24E	NE/SE 1980' FSL; 660' FEL
18-11	43-037-15733	14-20-603-353	SEC. 18, T41S, R24E	NW/NW 720' FNL; 730' FWL
18-12W	43-037-31153	14-20-603-353	SEC. 18, T41S, R24E	SW/NW 1980' FNL; 560' FWL
18W-21	43-037-16418	14-20-603-353	SEC. 18, T41S, R24E	NE/NW 660' FNL; 1882' FWL
18-22	43-037-31236	14-20-603-353	SEC. 18, T41S, R24E	SW/NW 2200' FNL; 2210' FWL
18W-23	43-037-30244	14-20-603-353	SEC. 18, T41S, R24E	NE/SW 2385' FSL; 2040' FWL
18W-14	43-037-15735	14-20-603-353	SEC. 18, T41S, R24E	SW/SW 810' FSL; 600' FWL
18-24	43-037-31079	14-20-603-353	SEC. 18, T41S, R24E	SE/SW 760' FSL; 1980' FWL
18-31	43-037-31181	14-20-603-353	SEC. 18, T41S, R24E	NW/NE 795' FNL; 2090; FEL
18W-32	43-037-15736	14-20-603-353	SEC. 18, T41S, R24E	SW/NE 2140' FNL; 1830' FEL
18-33	43-037-31135	14-20-603-353	SEC. 18, T41S, R24E	NW/SE 1870' FSL; 1980' FEL
18-34W	43-037-15737	14-20-603-353	SEC. 18, T41S, R24E	SW/SE 780' FSL; 1860 FEL
18W-41	43-037-15738	14-20-603-353	SEC. 18, T41S, R24E	NE/NE 660' FNL; 660' FEL
18-42	43-037-31182	14-20-603-353	SEC. 18, T41S, R24E	SE/NE 2120' FNL; 745' FEL
18W-43	43-037-16419	14-20-603-353	SEC. 18, T41S, R24E	NE/SE 1980' FSL; 660' FEL
18-44	43-037-31045	14-20-603-353	SEC. 18, T41S, R24E	SE/SE 660' FSL; 660' FEL
19-11	43-037-31080	14-20-603-353	SEC. 19, T41S, R24E	NW/NW 660' FNL; 660' FWL
19-12	43-037-15739	14-20-603-353	SEC. 19, T41S, R24E	600' FWL; 1980' FNL
19-14	43-037-15740	14-20-603-353	SEC. 19, T41S, R24E	600' FSL; 660' FEL

PA'd

PA'd

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

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

5. Lease Designation and Serial No.
14-20-603-353

6. If Indian, Allottee or Tribe Name
NAVAJO TRIBAL

7. If Unit or CA, Agreement Designation
RATHERFORD UNIT

8. Well Name and No.
RATHERFORD 17-13

9. API Well No.
43-037-31133

10. Field and Pool, or exploratory Area
GREATER ANETH

11. County or Parish, State
SAN JUAN UT

SUBMIT IN TRIPLICATE

1. Type of Well

Oil Well Gas Well Other

2. Name of Operator **Mobil Exploration & Producing U.S. Inc.
as Agent for Mobil Producing TX & NM Inc.**

3. Address and Telephone No.
P.O. Box 633, Midland, TX 79702 (915) 688-1585

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
**2100' FSL, 660' FWL
SEC.17, 41S, R24E**

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

TYPE OF SUBMISSION	TYPE OF ACTION
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Abandonment
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Recompletion
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Plugging Back
	<input type="checkbox"/> Casing Repair
	<input type="checkbox"/> Altering Casing
	<input type="checkbox"/> Other DRILL DEEPER
	<input type="checkbox"/> Change of Plans
	<input type="checkbox"/> New Construction
	<input type="checkbox"/> Non-Routine Fracturing
	<input type="checkbox"/> Water Shut-Off
	<input type="checkbox"/> Conversion to Injection
	<input type="checkbox"/> Dispose Water

(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

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.)*

SEE ATTACHED PROCEDURE

(APD)

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

Signed Shirley Robertson Title ENV. & REG. TECHNICIAN Date 6-19-95

(This space for Federal or State Office use)
Approved by [Signature] Title Petro Chem Engineer Date 6/27/95
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.

Ratherford Unit 17-13
AFE #5AG9

Drill Deeper Procedure

1. Lock out, tag out all power sources. MIRU workover rig. Load well with lease water. RD pumping unit horse head and pump tee. NU and PT BOP's to 2000 psi high and 300 psi low.
2. POH with laying down sucker rods and rod pump. Release tubing anchor and POH laying down production tubing.
3. PU 6-1/8" rock bit, ten 3-1/2" drill collars on 2-7/8", 10.4 lb/ft AOH Grade E drillpipe. RIH to PBSD at 5582'. Circulate hole using +/- 8.7 ppg polymer mud to confirm that circulation is possible. If can not circulate, RU air drilling equipment as was used for milling windows on horizontal wells.
4. Drill well to a TD of 5695' DPM. Circulate out drilling fluid using lease water (if possible). POH laying down drillpipe. RU Schlumberger. RIH with TDT log and log from TD at 5695' DPM to 5450' EL. POH. RD Schlumberger.
5. PU squeeze packer on 2-7/8", 6.5 lb/ft J-55 EUE 8rd tubing. Hydrotest tubing to 4000 psi while RIH. Set squeeze packer at 5450' and PT backside to 500 psi. Monitor backside pressure.
6. RU Halliburton. PT lines to 4000 psi. MI 100 bbls of 10 ppg brine. Pump the following acid stimulation treatment at +/- 8 BPM not exceeding 3500 psi surface injection pressure:
 - A) 40 bbls of 15 percent HCL acid
 - B) 15 bbls of rock salt pill
 - C) 40 bbls of 15 percent HCL acid
 - D) 15 bbls of rock salt pill
 - E) 40 bbls of 15 percent HCL acid
 - F) 15 bbls of rock salt pill
 - G) 40 bbls of 15 percent HCL acid
 - H) Displace with +/- 50 bbls 10 ppg brine

NOTE: 1) All acid to contain 5 gal/M Fe-1A, 25 lbs/M Fe-2, 1 gal/M HAI-81, 1 gal/M LOSURF-300, 10 gal/M MUSOL A, 1 gal/M SGA-HT

2) Rock salt pill to contain 10 ppg brine, 1 lb/M GBW-3, 10 gal/M LGC-8, 1 ppg TBA-110 diverter

7. Swab well for remainder of daylight hours. Release squeeze packer and POH. RIH with bit and bulldog bailer. CO salt fill to TD of 5695'. POH. Run gas anchor, tubing anchor, production tubing, rod pump, and sucker rods as per Ed Barber's recommendation. Hang well on pumping unit. RDMD workover rig.

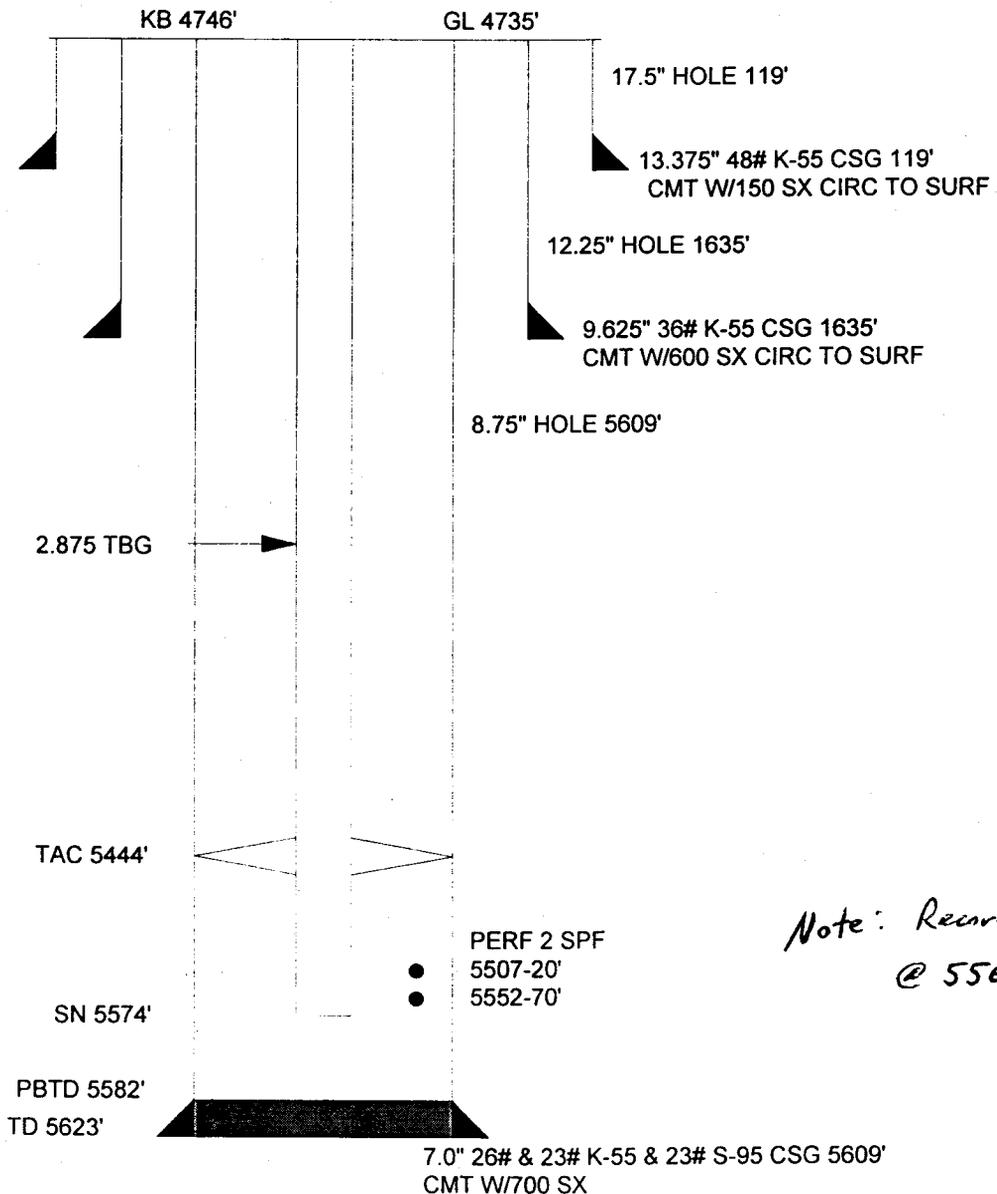
PREPARED BY: S. S. Murphy

AFE # 5AG9

RATHERFORD UNIT 17-13
GREATER ANETH FIELD UTAH
XXXX SEC 17-T41S-R24E
SAN JUAN COUNTY UTAH
API 43-037-31133
PRISM 0043047

PRODUCER

EXISTING

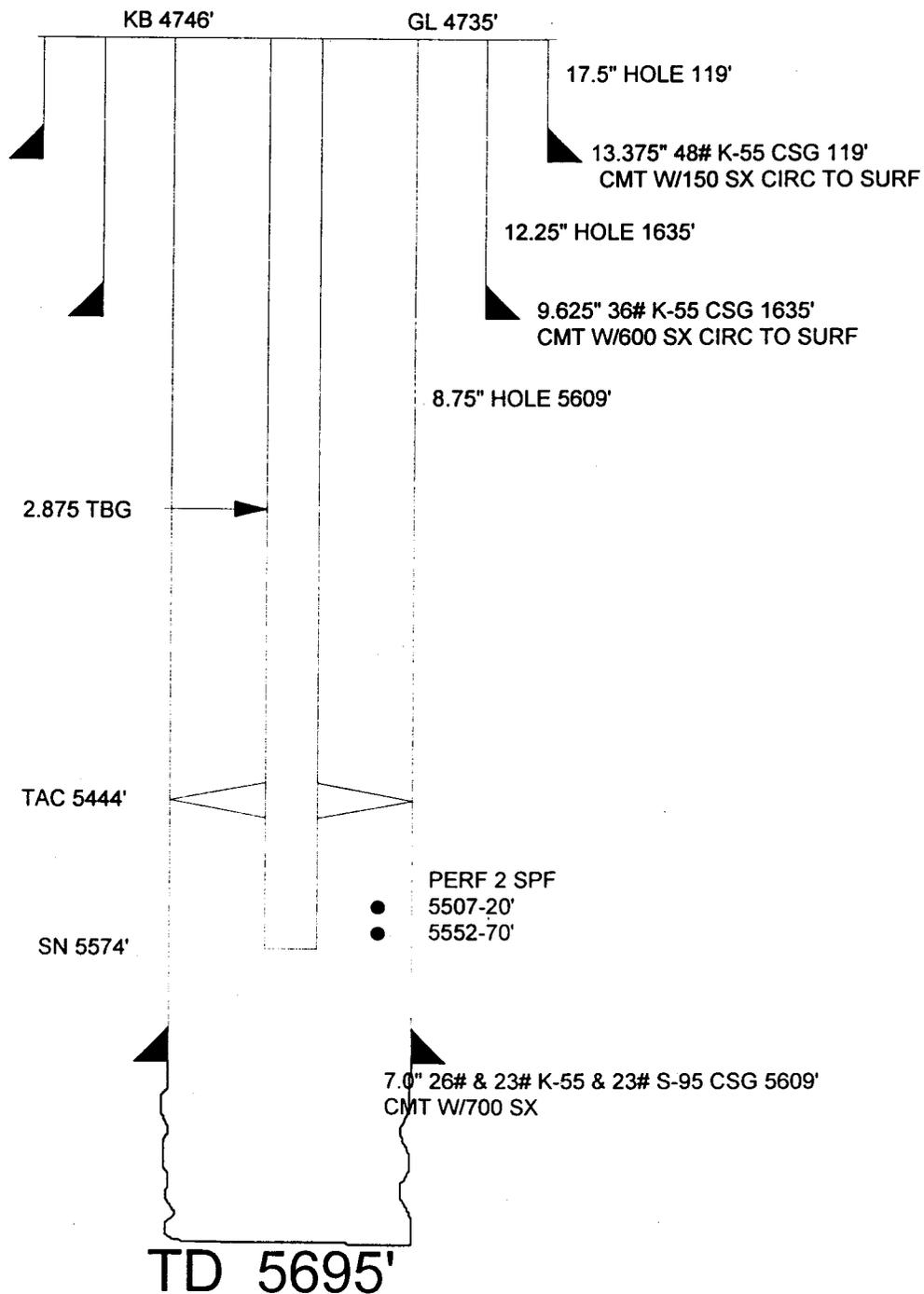


*Note: Records show F.C.
@ 5569' drilled out*

RATHERFORD UNIT 17-13
GREATER ANETH FIELD UTAH
XXXX SEC 17-T41S-R24E
SAN JUAN COUNTY UTAH
API 43-037-31133
PRISM 0043047

PRODUCER

PROPOSED



WORKSHEET
APPLICATION FOR PERMIT TO DRILL

APD RECEIVED: 06/23/95

API NO. ASSIGNED: 43-037-31133

WELL NAME: RATHERFORD 17-13 (RE-ENTRY)
 OPERATOR: MOBIL E & P U.S. INC (N7370)

PROPOSED LOCATION:
 NESW 17 - T41S - R24E
 SURFACE: 2100-FSL-0660-FWL
 BOTTOM: 2100-FSL-0660-FWL
 SAN JUAN COUNTY
 GREATER ANETH FIELD (365)

INSPECT LOCATION BY: / /		
TECH REVIEW	Initials	Date
Engineering		
Geology		
Surface		

LEASE TYPE: IND
 LEASE NUMBER: 14-20-603-353

PROPOSED PRODUCING FORMATION: DSCR

RECEIVED AND/OR REVIEWED:

Plat

Bond: Federal[] State[] Fee[]
 (Number _____)

Potash (Y/N)

Oil shale (Y/N)

Water permit
 (Number _____)

RDCC Review (Y/N)
 (Date: _____)

LOCATION AND SITING:

R649-2-3. Unit: _____

R649-3-2. General.

R649-3-3. Exception.

Drilling Unit.
 Board Cause no: _____
 Date: _____

COMMENTS: _____

STIPULATIONS: _____

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUNDRY NOTICES AND REPORTS ON WELLS

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Use "APPLICATION FOR PERMIT - " for such proposals

SUBMIT IN TRIPLICATE

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

5. Lease Designation and Serial No.

14-20-603-353

6. If Indian, Allottee or Tribe Name

NAVAJO TRIBAL

7. If Unit or CA, Agreement Designation
RATHERFORD UNIT

8. Well Name and No.

RATHERFORD 17-13

9. API Well No.

43-037-31133

10. Field and Pool, or exploratory Area
GREATER ANETH

11. County or Parish, State

SAN JUAN UT

1. Type of Well
 Oil Well Gas Well Other

2. Name of Operator Mobil Exploration & Producing U.S. Inc.
as Agent for Mobil Producing TX & NM Inc.

3. Address and Telephone No.
P.O. Box 633, Midland, TX 79702 (915) 688-1585

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
2100' FSL, 660' FWL
SEC.17, 41S, R24E

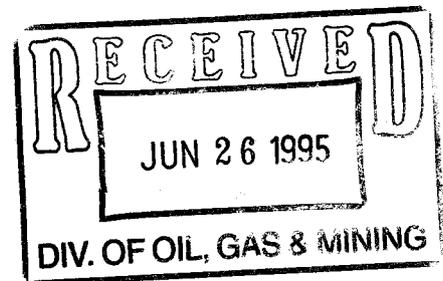
12. CHECK APPROPRIATE BOX(S) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION
<input type="checkbox"/> Notice of Intent	<input type="checkbox"/> Abandonment
<input checked="" type="checkbox"/> Subsequent Report	<input type="checkbox"/> Recompletion
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Plugging Back
	<input type="checkbox"/> Casing Repair
	<input type="checkbox"/> Altering Casing
	<input checked="" type="checkbox"/> Other DRILL DEEPER
	<input type="checkbox"/> Change of Plans
	<input type="checkbox"/> New Construction
	<input type="checkbox"/> Non-Routine Fracturing
	<input type="checkbox"/> Water Shut-Off
	<input type="checkbox"/> Conversion to Injection
	<input type="checkbox"/> Dispose Water

(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

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.)*

05-30-95 MIRU NU BOP POH W/TBG. FILL HOLE FROM TOP W/MUD.
05-31-95 TAG @ 5583; (PBD) MIX MUD. TRY TO FILL HOLE. WOULD NOT CIRC AFTER PUMPING 500 BBLs. DRY DRILL. GOT RETURNS AFTER PUMPING A TOTAL OF 920 BBLs. DRILLED TO 5604'.
06-01-95 DRILLED W/PARTIAL RETURNS DRILLED TO 5670'
06-02-95 DRILLED TO TD AT 5697'. DISPLACE MUD OUT OF HOLE W/PRODUCED WTR.
06-05-95 SWAB ND BOP. SHOE AT 5609'.
06-06-95 RIH W/RODS & PUMP. RDMO.



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

Signed Shirley Robertson Title ENV. & REG. TECHNICIAN Date 6-21-95

(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.

* See Instruction on Reverse Side

Division of Oil, Gas and Mining
OPERATOR CHANGE WORKSHEET

1-LEC	7-PL
2-LWP	8-SJ
3-DB	9-FILE
4-VLC	
5-RJF	
6-LWP	

Attach all documentation received by the division regarding this change.
 Initial each listed item when completed. Write N/A if item is not applicable.

- Change of Operator (well sold) Designation of Agent
 Designation of Operator Operator Name Change Only

The operator of the well(s) listed below has changed (EFFECTIVE DATE: 8-2-95)

TO (new operator) MOBIL EXPLOR & PROD
 (address) C/O MOBIL OIL CORP
PO DRAWER G
CORTEZ CO 81321
 phone (303) 564-5212
 account no. N7370

FROM (former operator) M E P N A
 (address) C/O MOBIL OIL CORP
PO DRAWER G
CORTEZ CO 81321
 phone (303) 564-5212
 account no. N7370

Well(s) (attach additional page if needed):

Name: <u>** SEE ATTACHED **</u>	API: <u>037-31133</u>	Entity: _____	Sec _____	Twp _____	Rng _____	Lease Type: _____
Name: _____	API: _____	Entity: _____	Sec _____	Twp _____	Rng _____	Lease Type: _____
Name: _____	API: _____	Entity: _____	Sec _____	Twp _____	Rng _____	Lease Type: _____
Name: _____	API: _____	Entity: _____	Sec _____	Twp _____	Rng _____	Lease Type: _____
Name: _____	API: _____	Entity: _____	Sec _____	Twp _____	Rng _____	Lease Type: _____
Name: _____	API: _____	Entity: _____	Sec _____	Twp _____	Rng _____	Lease Type: _____
Name: _____	API: _____	Entity: _____	Sec _____	Twp _____	Rng _____	Lease Type: _____

OPERATOR CHANGE DOCUMENTATION

- N/A 1. (Rule R615-8-10) Sundry or other legal documentation has been received from former operator (Attach to this form).
- N/A 2. (Rule R615-8-10) Sundry or other legal documentation has been received from new operator (Attach to this form).
- N/A 3. The Department of Commerce has been contacted if the new operator above is not currently operating any wells in Utah. Is company registered with the state? (yes/no) _____ If yes, show company file number: _____.
- N/A 4. (For Indian and Federal Wells ONLY) The BLM has been contacted regarding this change (attach Telephone Documentation Form to this report). Make note of BLM status in comments section of this form. Management review of **Federal and Indian** well operator changes should take place prior to completion of steps 5 through 9 below.
- Yes 5. Changes have been entered in the Oil and Gas Information System (Wang/IBM) for each well listed above. (8-3-95)
- LWP 6. Cardex file has been updated for each well listed above. 8-21-95
- Yes 7. Well file labels have been updated for each well listed above. 9-28-95
- Yes 8. Changes have been included on the monthly "Operator, Address, and Account Changes" memo for distribution to State Lands and the Tax Commission. (8-3-95)
- Yes 9. A folder has been set up for the Operator Change file, and a copy of this page has been placed there for reference during routing and processing of the original documents.

ENTITY REVIEW

- Lee* 1. (Rule R615-8-7) Entity assignments have been reviewed for all wells listed above. Were entity changes made? (yes no) (If entity assignments were changed, attach copies of Form 6, Entity Action Form).
- N/A* 2. State Lands and the Tax Commission have been notified through normal procedures of entity changes.

BOND VERIFICATION (Fee wells only) ** No Fee Lease Wells at this time!*

- N/A* *Lee* 1. (Rule R615-3-1) The new operator of any fee lease well listed above has furnished a proper bond.
2. A copy of this form has been placed in the new and former operators' bond files.
3. The former operator has requested a release of liability from their bond (yes/no) _____. Today's date _____ 19____. If yes, division response was made by letter dated _____ 19____.

LEASE INTEREST OWNER NOTIFICATION RESPONSIBILITY

- N/A* 1. (Rule R615-2-10) The former operator/lessee of any **fee lease** well listed above has been notified by letter dated _____ 19____, of their responsibility to notify any person with an interest in such lease of the change of operator. Documentation of such notification has been requested. *DTS 8/5/95*
- N/A* 2. Copies of documents have been sent to State Lands for changes involving State leases.

FILMING

1. All attachments to this form have been microfilmed. Date: October 6 1995.

FILING

1. Copies of all attachments to this form have been filed in each well file.
2. The original of this form and the original attachments have been filed in the Operator Change file.

COMMENTS

950803 LIC F5/Not necessary!

MONTHLY OIL AND GAS PRODUCTION REPORT

OPERATOR NAME AND ADDRESS:

C/O MOBIL OIL CORP
 M E P N A
 PO DRAWER G
 CORTEZ CO 81321

UTAH ACCOUNT NUMBER: N7370

REPORT PERIOD (MONTH/YEAR): 6 / 95

AMENDED REPORT (Highlight Changes)

Well Name			Producing Zone	Well Status	Days Oper	Production Volumes		
API Number	Entity	Location				OIL(BBL)	GAS(MCF)	WATER(BBL)
4303731131	06280	41S 23E 13	DSCR					
4303731132	06280	41S 23E 24	DSCR					
4303731133	06280	41S 24E 17	DSCR					
4303731134	06280	41S 24E 17	DSCR					
4303731135	06280	41S 24E 18	DSCR					
4303731162	06280	41S 23E 1	DSCR					
4303731163	06280	41S 24E 7	DSCR					
4303731164	06280	41S 24E 7	DSCR					
4303731165	06280	41S 24E 7	DSCR					
4303731166	06280	41S 24E 7	DSCR					
4303731167	06280	41S 24E 7	IS-DC					
4303731168	06280	41S 24E 16	DSCR					
4303731169	06280	41S 24E 17	DSCR					
TOTALS								

COMMENTS: _____

I hereby certify that this report is true and complete to the best of my knowledge.

Date: _____

Name and Signature: _____

Telephone Number: _____

PHONE CONVERSATION DOCUMENTATION FORM

Route original/copy to:

Well File _____
(Location) Sec ___ Twp ___ Rng ___
(API No.) _____

Suspense
(Return Date) _____
(To - Initials) _____

Other
OPER NM CHG _____

1. Date of Phone Call: 8-3-95 Time: _____

2. DOGM Employee (name) L. CORDOVA (Initiated Call)
Talked to:

Name R. J. FIRTH (Initiated Call) - Phone No. (_____)
of (Company/Organization) _____

3. Topic of Conversation: M E P N A / N7370

4. Highlights of Conversation: _____

OPERATOR NAME IS BEING CHANGED FROM M E P N A (MOBIL EXPLORATION AND PRODUCING
NORTH AMERICA INC) TO MOBIL EXPLOR & PROD. THE NAME CHANGE IS BEING DONE AT
THIS TIME TO ALLEVIATE CONFUSION, BOTH IN HOUSE AND AMONGST THE GENERAL PUBLIC.
*SUPERIOR OIL COMPANY MERGED INTO M E P N A 4-24-86 (SEE ATTACHED).

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

5. Lease Designation and Serial No.

14-20-603-353

6. If Indian, Allottee or Tribe Name

NAVAJO TRIBAL

7. If Unit or CA, Agreement Designation

RATHERFORD UNIT

8. Well Name and No.

RATHERFORD 17-13

9. API Well No.

43-037-31133

10. Field and Pool, or exploratory Area

GREATER ANETH

11. County or Parish, State

SAN JUAN UT

SUBMIT IN TRIPLICATE

1. Type of Well

Oil Well Gas Well Other

2. Name of Operator MOBIL PRODUCING TX & NM INC.*

*MOBIL EXPLORATION & PRODUCING US INC. AS AGENT FOR MPTM

3. Address and Telephone No.

P.O. Box 633, Midland TX 79702 (915) 688-2585

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

SECTION 17 T41S R24E
NW/SW 2100 FSL; 660FWL

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

TYPE OF SUBMISSION	TYPE OF ACTION
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Abandonment
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Recompletion
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Plugging Back
	<input type="checkbox"/> Casing Repair
	<input type="checkbox"/> Altering Casing
	<input checked="" type="checkbox"/> Other <u>SIDETRACK</u>
	<input type="checkbox"/> Change of Plans
	<input type="checkbox"/> New Construction
	<input type="checkbox"/> Non-Routine Fracturing
	<input type="checkbox"/> Water Shut-Off
	<input type="checkbox"/> Conversion to Injection
	<input type="checkbox"/> Dispose Water

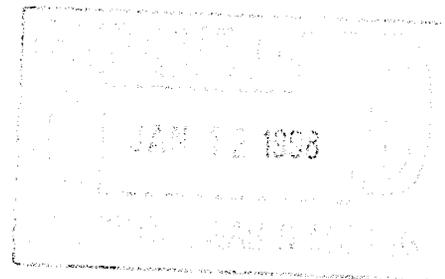
(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

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.)*

BHL: LATERAL #1 1202' NORTH & 1202' WEST FROM SURFACE SPOT (ZONE 1b) 366 x 366
 LATERAL #2 613' SOUTH & 1314' EAST FROM SURFACE SPOT (ZONE 1b) 187 x 401
 LATERAL #3 1392' NORTH & 975' WEST FROM SURFACE SPOT (ZONE 1a) 424 x 297
 LATERAL #4 832' SOUTH & 1188' EAST FROM SURFACE SPOT (ZONE 1a) 254 x 362

390 x 2432 FNL
SEC 18

SEE ATTACHED



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

Signed Shirley Houchins Title SHIRLEY HOUCHINS/ENV & REG TECH Date 01/08/98

(This space for Federal or State office use)

Approved by John R. Boye Title Associate Director Date 1/27/98

Conditions of approval, if any: Utah DOGM

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.

Ratherford Unit Well #17-13 Horizontal Drilling Procedure

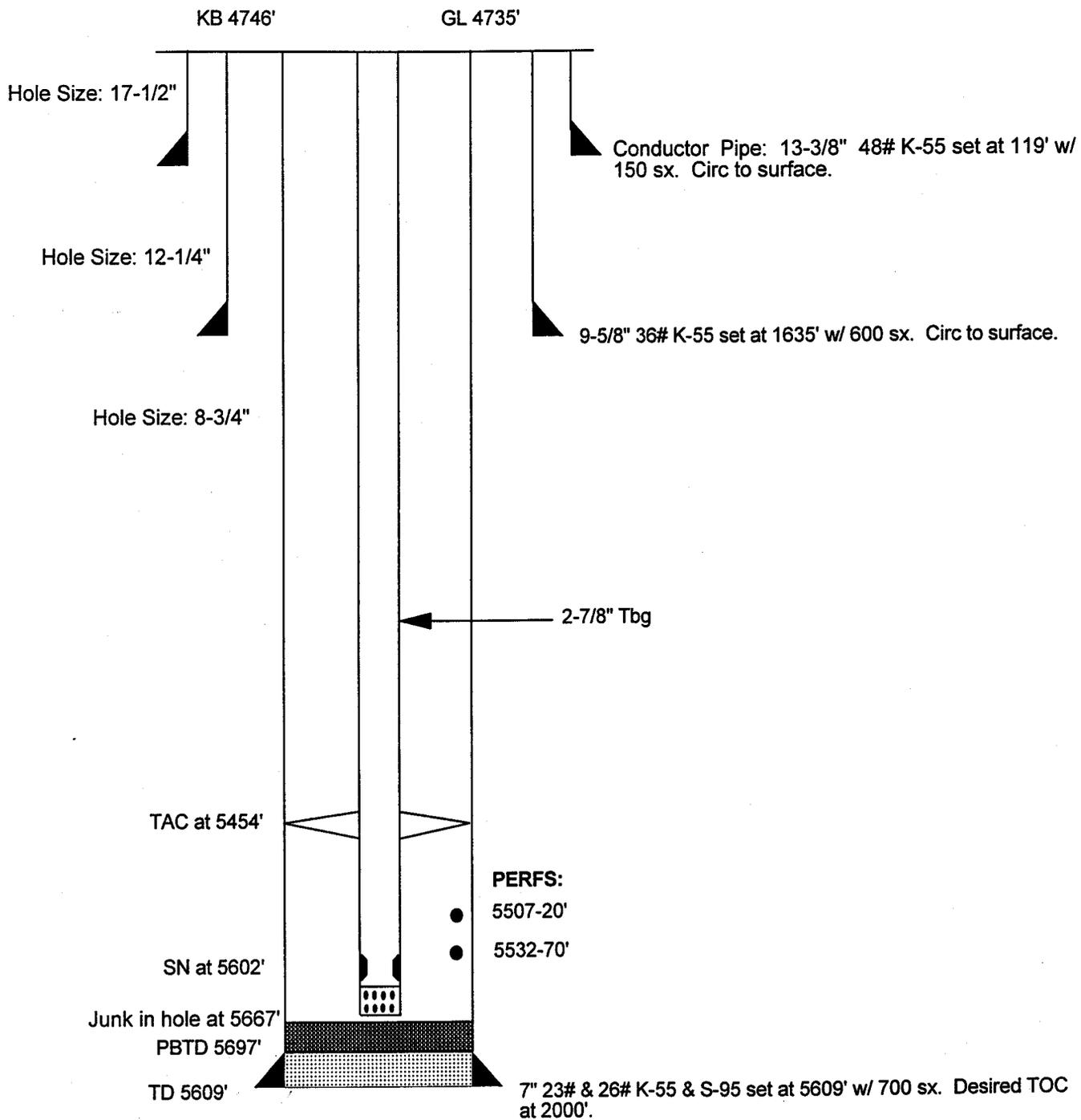
The objective of this procedure is to prepare this wellbore for sidetracking, sidetrack the subject well and drill multilateral short radius horizontal laterals (1450-1700 feet).

1. Prepare location and dig working pit.
2. MIRU WSU, reverse unit, and H2S equipment. Bullhead kill weight fluid down tubing.
3. ND wellhead and NU BOP's. Pressure test BOP's to working pressure.
4. Continue to POH with related equipment (tubing and rods for producers or tubing and packer for injectors).
5. RU wireline to run any logs desired and run gage ring for casing size and weight.
6. Set cement retainer on wireline and squeeze existing perms.
7. Pressure test casing to 1000 psi.
8. RDMO WSU.
9. MIRU 24 hr. WSU. NU BOP's and pressure test with chart.
10. PU tubing, drilling collars, and drill pipe in derrick and run in hole. Then POH and stand back.
11. Run packer on wireline and set using GR/CCL log to correlate with. RD wireline.
12. PU drillpipe with UBHO sub in string and latch into packer to survey the hole and obtain orientation of keyway. POH w/gyro and drill string.
13. Orient whipstock on surface to desired bearing and RIH on drill pipe. Latch into packer. Shear stater mill bolt and make starter cut.
14. POH w/ starter mill and pick up window mill and watermelon mill and continue to mill window. Drill 1-2 ft of formation
15. POH w/ mills and PU curve building assembly and drill string with UBHO sub in string and RIH.
16. RU gyro to assist in time drilling and starting out of the casing window. POH w/ gyro when inclination dictates it must be pulled.
17. Finish drilling the curve using the MWD.
18. POH once curve is finished and PU lateral motor to drill the lateral using MWD.
19. Once lateral TD is reached, POH w/ directional equipment.
20. PU retrieving hook and RIH on drill pipe. Retrieve whipstock and PU new whipstock oriented for desired bearing to start in hole.

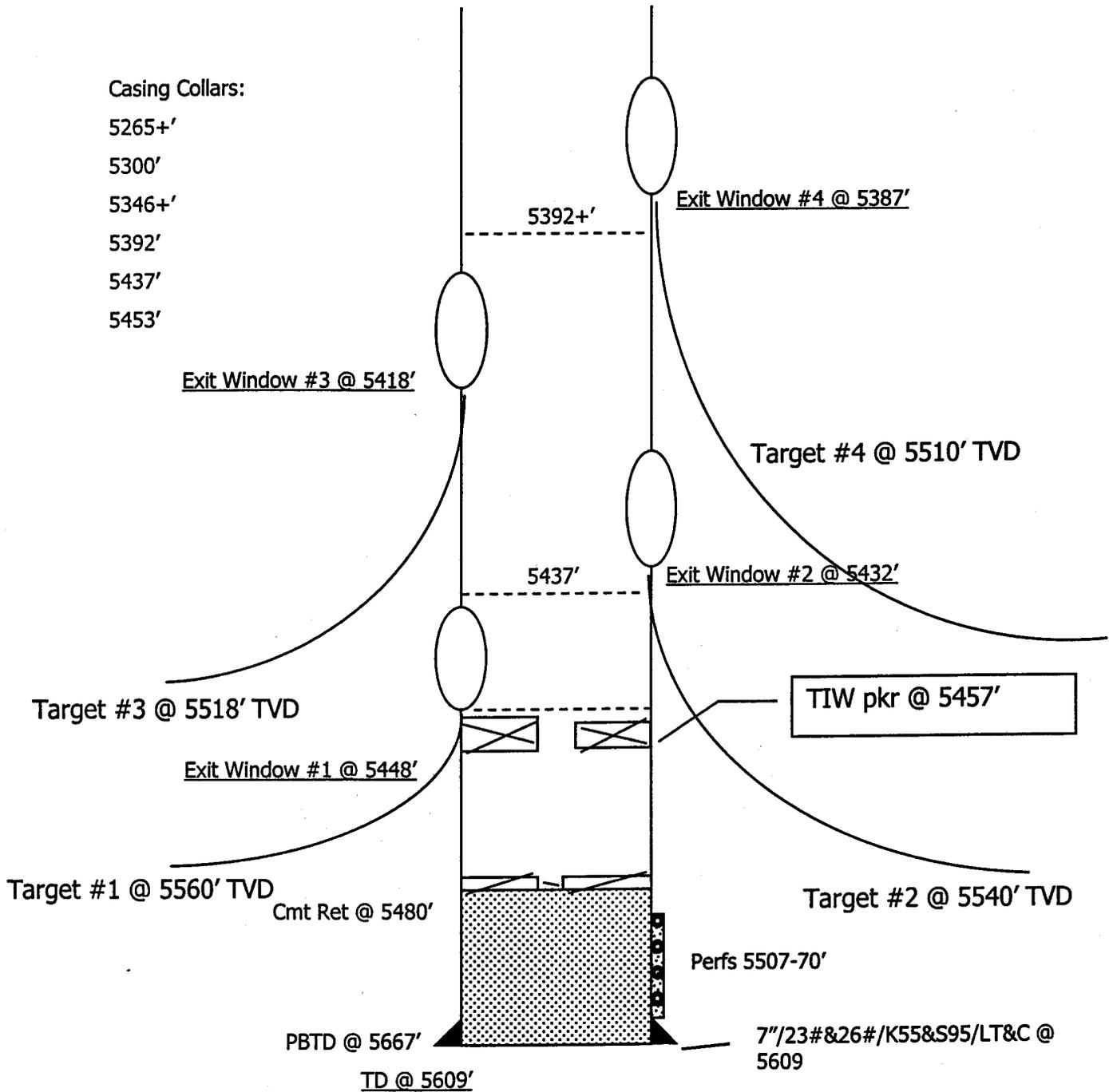
RATHERFORD UNIT # 17-13
GREATER ANETH FIELD
2100' FSL & 660' FWL
SEC 17-T41S-R24E
SAN JUAN COUNTY, UTAH
API 43-037-31133
PRISM 0043047

PRODUCER

Capacities:	bbl/ft	gal/ft	cuft/ft
2-7/8" 6.5#	.00579	.2431	.0325
7" 23#	.0393	1.6535	.2210
7" 26#	.0382	1.6070	.2148
2-7/8"x7"23#	.0313	1.3162	.1760
2-7/8"x7"26#	.0302	1.2698	.1697



Ratherford Unit #17-13



Window	Btm-Top of Window	Ext length	Curve Radius	Bearing	Horiz Displ
1	5448-40	-----	112	315	1700
2	5432-24	16	108	115	1450
3	5418-10	30	100	325	1700
4	5387-79	56	123	125	1450

The double spline is 2.42 ft long and the bottom of the whipstock, the latch, the debris and the shear sub are 8.68 ft long. These lengths must be added to the extension lengths to determine the entire whipstock assembly length.

PG/RE REQUEST FOR NEW WELL INFORMATION

DEVELOPMENT DISTRIBUTION:

G.D. Cox	1135	Land
S.A. Robertson	838	Env/Reg
W.G. Storbeck	806	Drlg.
P.T. Horne	1032	Prod Eng
T.A. Jones	1039	Resv Eng
D.C. Larson	1037	Geol
L.P. Harman	1036	Geol
P.A. Rauscher	1041	Eng TA
L.C. Olson	1033	LO/CO2 TS
T.W. McPherson	CORTEZ	Fac Eng
T.D. Cochran	CORTEZ	Opns Eng
C.E. Lakey	CORTEZ	TOS 4Corners
E.T. Barber	CORTEZ	TPR Foreman
E.J. Ahtsodie	CORTEZ	Inj Foreman
A.M. Lee	CORTEZ	Prod Foreman
CENTRAL FILES		

FORM REQUIRED:

Lease Check/Review/JI
 Regulatory Requirements
 Well Cost - Drilling
 Reserves Evaluation
 Facilities
 Completion Costs, O&M

RESPONSE NEEDED FOR:

AFE (X)
 BUDGET ()

PROJECT SUMMARY: Seventh of seventeen-well program of multi-lateral reentries of existing wellbores followed by coiled tubing matrix acid stimulation.

GENERAL WELL INFORMATION:

Well # 17-13	Ratherford Unit	Greater Aneth Field	San Juan County, Utah
Location: 2100' FSL & 660' FWL		Section 17 T41S R24E	API# 43-037-31133
Well Type: Quad-Lateral Producer		Location Code: 17679-00	CBCR ID#
Mobil WI, Gross: 74.17% Net: 64.36%		BC: 14 AFE#	PRISM# 0043047
Elevation, GL: 4735 ft KB: 4748 ft		TD: 5697'	X 2637155 Y 208648
Objective Formation(s): DESERT CREEK ZONE I			Desired Spud Date: 2nd Quarter, 1998

ESTIMATED RESERVOIR PARAMETE RS:

Formation	Depth Interval	Gross/Net	Porosity	Sw	Temp	Pressure
Desert Creek 1a	5507' to 5530'	23'/16'	14%	65%	116 F	2000-3700 PSI
Desert Creek 1b	5530' to 5558'	28'/28'	15%	65%	116 F	2000-3700 PSI

PRODUCTION/INJECTION DATA:

CURRENT -	55 BOPD	825 BWPD	40 MCFGD
FORECAST -	250 BOPD	300 BWPD	100 MCFGD

STRATIGRAPHIC COLUMN:

Formation	Top (MD/SS)	Base (MD/SS)
LOWER ISMAY	5472' (-724')	5490' (-742')
GOTHIC SHALE	5490' (-742')	5504' (-756')
DESERT CREEK I	5507' (-759')	5608' (-860')
DESERT CREEK II	5608' (-860')	
CHIMNEY ROCK		

EXISTING WELLBORE CONDITION:

CASING PROGRAM:	PBTD: 5667'
13.375" Conductor @ 119'	PERFS/OH: Pfs 5507-5570, OH 5609-5697
9.625" Surface String @ 1635'	OTHER: TAC @ 5454'
7.0" Production Casing @ 5609'	TUBING: 2.875"

LOGGING PROGRAM:

Contractor: Rocky Mountain GeoEngineering (Mudlog)
 Open Hole:
 Cased Hole: GR/CNL PRIOR TO DRLG
 Mud Log: ON AT START OF CURVE THROUGH T.D. OF EACH LATERAL
 Existing Wireline Logs: CDL/DSN, DGL/MGL, uLOG, CBL/CCL, TDT

CORE AND TEST PROGRAM:

SWS Points:
 Core Interval:
 Formation Tests:

DIRECTIONAL DATA (Preliminary):

LEG #1 BOTTOM HOLE LOCATION: 1202' North & 1202' West from surface spot	Zone 1b
Bearing and Distance: 1700' at 315 Degrees Azimuth Landing 5560' TVD	90.2 Dip
LEG #2 BOTTOM HOLE LOCATION: 613' South & 1314' East from surface spot	Zone 1b
Bearing and Distance: 1450' at 115 Degrees Azimuth Landing 5540' TVD	90.0 Dip
LEG #3 BOTTOM HOLE LOCATION: 1392' North & 975' West from surface spot	Zone 1a
Bearing and Distance: 1700' at 325 Degrees Azimuth Landing 5518' TVD	89.6 Dip
LEG #4 BOTTOM HOLE LOCATION: 832' South & 1188' East from surface spot	Zone 1a
Bearing and Distance: 1450' at 125 Degrees Azimuth Landing 5510' TVD	90.0 Dip

ANTICIPATED DRILLING PROBLEMS:

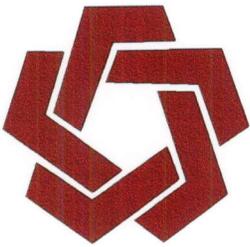
Possible H2S Zones: Lower Ismay & Desert Creek	Previous Casing Leaks:
Mud Properties: Fresh water	Anticipated BHP: 3400#
Cement Top or Other Cementing Requirements: TOC @	2000' (Calc)
<u>EXISTING OPENHOLE SECTION REQUIRES SHUTOFF</u>	

ADJACENT REFERENCE WELLS: NAME, LOCATION, AND DEPTH:

#18-42	1972' N43W	317 Azimuth	TD 5670' KB 4787'
#17-24	1681' S64E	116 Azimuth	TD 5594' KB 4736'

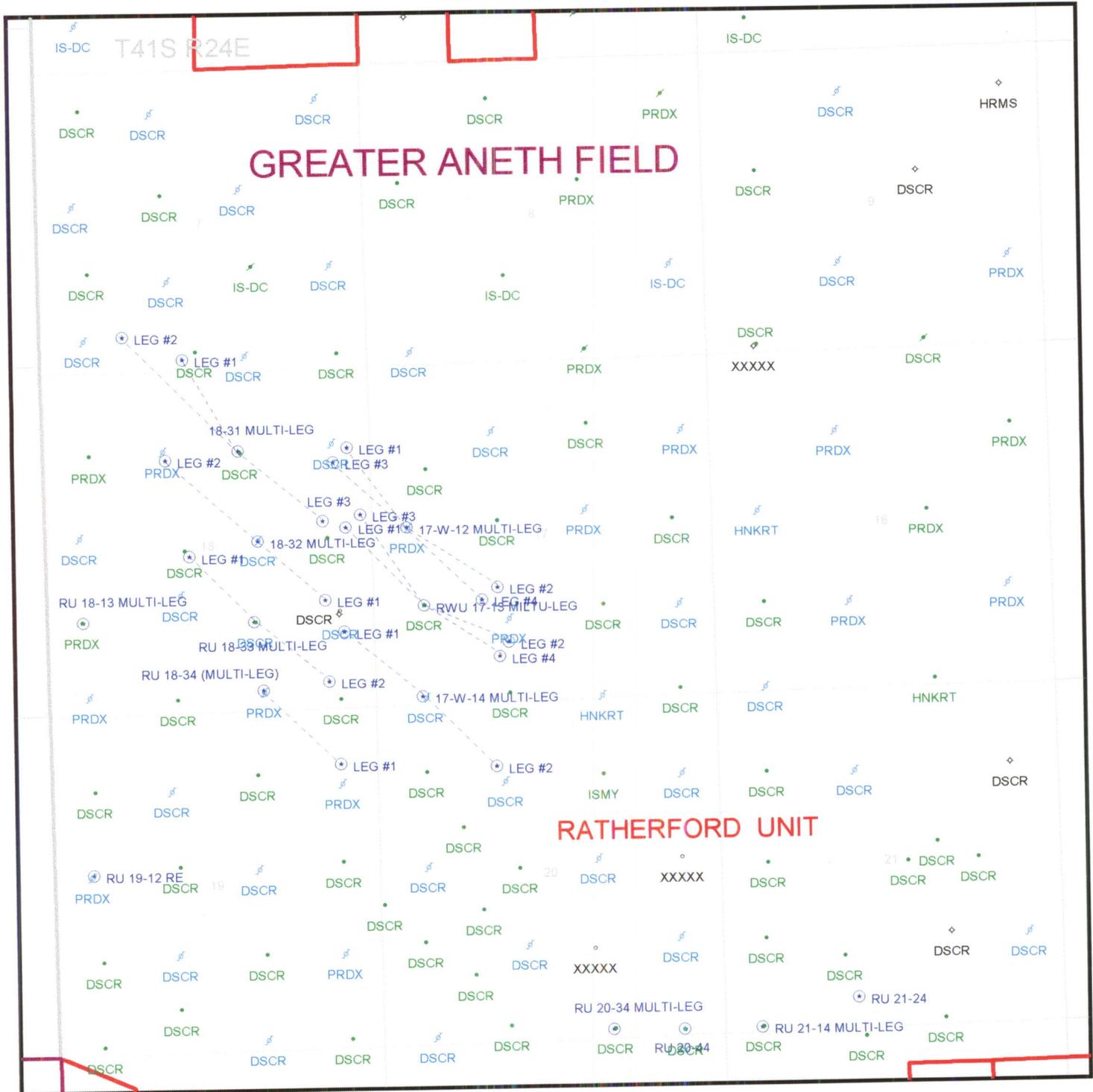
PREPARED BY: D.C. LARSON x2019 Room 1037

DATE: 10/21/1997



DIVISION OF OIL, GAS & MINING

OPERATOR: MOBIL EXPL & PROD (N7370)
FIELD: GREATER ANETH (365)
SEC. TWP. RNG.: SEC. 17, T41S, R24E
COUNTY: SAN JUAN UAC: R649-2-3 REATHERFORD UNIT



DATE PREPARED:
15-JAN-1998

WORKSHEET
APPLICATION FOR PERMIT TO DRILL

APD RECEIVED: 01/12/98

API NO. ASSIGNED: 43-037-31133

WELL NAME: RU 17-13 (MULTI-LEG)
 OPERATOR: MOBIL EXPL & PROD (N7370)

PROPOSED LOCATION:
 NSW 17 - T41S - R24E
 SURFACE: 2100-FSL-0660-FWL
 BOTTOM: ~~2432-FNL-0390-FEL~~ *multilateral*
 SAN JUAN COUNTY
 GREATER ANETH FIELD (365)

INSPECT LOCATION BY: / /		
TECH REVIEW	Initials	Date
Engineering		
Geology		
Surface		

LEASE TYPE: IND
 LEASE NUMBER: 14-20-603-353

PROPOSED PRODUCING FORMATION: DSCR

RECEIVED AND/OR REVIEWED:

Plat

Bond: Federal State Fee
 (Number ALREADY BONDED)

Potash (Y/N)

Oil shale (Y/N)

Water permit
 (Number NAVATO ALLOTMENT)

RDCC Review (Y/N)
 (Date: _____)

LOCATION AND SITING:

R649-2-3. Unit: RATHERFORD UNIT

R649-3-2. General.

R649-3-3. Exception.

Drilling Unit.
 Board Cause no: _____
 Date: _____

COMMENTS: _____

STIPULATIONS: 1. Directional drilling



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

Michael O. Leavitt
Governor
Ted Stewart
Executive Director
Lowell P. Braxton
Division Director

1594 West North Temple, Suite 1210
PO Box 145801
Salt Lake City, Utah 84114-5801
801-538-5340
801-359-3940 (Fax)
801-538-7223 (TDD)

January 27, 1998

Mobil Exploration & Producing
P.O. Box 633
Midland, TX 79702

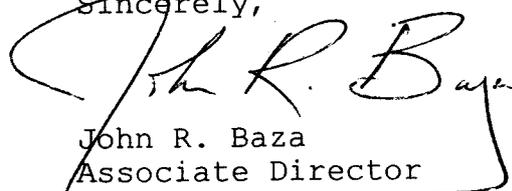
Re: Ratherford Unit, 2100' FSL, 660' FWL, NWSW
SEC. 17, T. 41 S., R.24 E., San Juan County, Utah

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.

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 43-037-31133.

Sincerely,


John R. Baza
Associate Director

ls

Enclosures

cc: San Juan County Assessor
Bureau of Land Management, Moab District Office

Operator: Mobile Exploration & Producing
Well Name & Number: Ratherford
API Number: 43-037-31133
Lease: 14-20-603-353
Location: NW SW Sec. 17 T. 41 S. R. 24 E.

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 following spudding the well or commencing drilling operations. Contact Jim Thompson at (801)538-5336.

Notify the Division prior to commencing operations to plug and abandon the well. Contact John R. Baza (801)538-5334.

3. Reporting Requirements

All required reports, forms and submittals shall 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. In accordance with Utah Admin. R.649-3-11, Directional Drilling, submittal of a complete angular deviation and directional survey report is required.



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

Michael O. Leavitt
Governor

Ted Stewart
Executive Director

Lowell P. Braxton
Division Director

1594 West North Temple, Suite 1210
PO Box 145801
Salt Lake City, Utah 84114-5801
801-538-5340
801-359-3940 (Fax)
801-538-7223 (TDD)

February 18, 1998

CORRECTED LETTER

Mobil Exploration & Producing U.S., Inc.
P.O. Box 633
Midland, Texas 79702

Re: Ratherford 17-13 Well, 2100' FSL, 660' FWL, NW SW, Sec. 17,
T. 41 S., R. 24 E., San Juan 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.

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 43-037-31133.

Sincerely,

A handwritten signature in black ink, appearing to read "John R. Baza".

John R. Baza
Associate Director

lwp

Enclosures

cc: San Juan County Assessor
Bureau of Land Management, Moab District Office

Operator: Mobil Exploration & Producing U.S., Inc.
Well Name & Number: Ratherford 17-13
API Number: 43-037-31133
Lease: 14-20-603-353
Location: NW SW Sec. 17 T. 41 S. R. 24 E.

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 following spudding the well or commencing drilling operations. Contact Jim Thompson at (801)538-5336.

Notify the Division prior to commencing operations to plug and abandon the well. Contact John R. Baza (801)538-5334.

3. Reporting Requirements

All required reports, forms and submittals shall 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. In accordance with Utah Admin. R. 649-3-11, Directional Drilling, submittal of a complete angular deviation and directional survey report is required.

DIVISION OF OIL, GAS AND MINING

SPUDDING INFORMATION

Name of Company: MOBIL E & P

Well Name: RATHERFORD UNIT 17-13 (RE-ENTRY)

Api No. 43-037-31133

Section 17 Township 41S Range 24E County SAN JUAN

Drilling Contractor BIG "A"

Rig # 25

SPUDDED:

Date 3/21/98

Time _____

How ROTARY

Drilling will commence _____

Reported by BENNY BRIGGS

Telephone # 801-651-3473

Date: 3/23/98 Signed: JLT

✓



ROCKY MOUNTAIN GEO-ENGINEERING

Electronic Rig Monitoring Systems • Well Logging • Consulting Geology • Coal Bed Methane Services

PASON ROCKY MOUNTAIN GEO-ENGINEERING CORP.

2450 INDUSTRIAL BLVD. • GRAND JUNCTION, CO 81505

(970) 243-3044 • (FAX) 241-1085

Tuesday, April 14, 1998



Division of Oil & Gas Mining
State of Utah
1594 West North Temple
3 Triad Center, Ste. 1210
Salt Lake City, UT 84116

Re: Ratherford Unit 17-13 Legs 1,2,3&4
Sec. 17, T41S, R24E **43 037 31133**
San Juan County, Utah **DRV**

Dear Sirs:

Enclosed is the final computer colored log for the above referenced well.
IN LOG FILE

We appreciate the opportunity to be of service to you and look forward to working with you again in the near future.

If you have any questions regarding the enclosed data, please contact us.

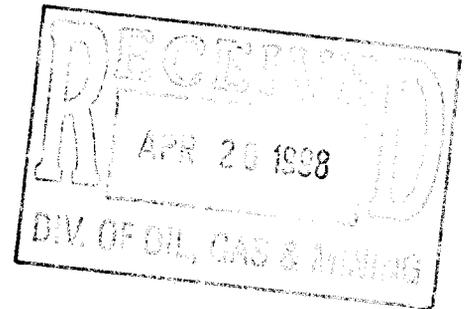
Sincerely,

Bill Nagel
Senior Geologist

BN/dn

Enc. 1 Final Computer Colored Log and Geology Report For Each Leg

cc Letter Only; Dana Larson; Mobil E & P U.S., Inc.; Midland, TX



MOBIL

**RATHERFORD UNIT #17-13
NW HORIZONTAL LATERAL LEG #1
UPPER 1-B POROSITY BENCH
DESERT CREEK MEMBER
PARADOX FORMATION
SECTION 17, T41S, R24E
SAN JUAN, UTAH**

**GEOLOGY REPORT
by
DAVE MEADE & MARVIN ROANHORSE
ROCKY MOUNTAIN GEO-ENGINEERING CORP.
GRAND JUNCTION, COLORADO
(970) 243-3044**

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WELL SUMMARY

OPERATOR: MOBIL EXPLORATION & PRODUCTION U.S. INC.

NAME: RATHERFORD UNIT #17-13 NW HORIZONTAL LATERAL
LEG #1 IN 1-B UPPER POROSITY BENCH, DESERT CREEK

LOCATION: SECTION 17, T41S, R24E

COUNTY/STATE: SAN JUAN, UTAH

ELEVATION: KB:4735' GL:4748'

SPUD DATE: 3/20/98

COMPLETION DATE: 3/25/98

DRILLING ENGINEER: BENNY BRIGGS

WELLSITE GEOLOGY: DAVE MEADE / MARVIN ROANHORSE

MUDLOGGING ENGINEERS: DAVE MEADE / MARVIN ROANHORSE / PAUL SPEAR

CONTRACTOR: BIG "A" RIG 25
TOOLPUSHER: J. DEES / M. SMITH

HOLE SIZE: 4 3/4"

CASING RECORD: SIDETRACK IN WINDOW AT 5448' MEASURED DEPTH

DRILLING MUD: M-I
ENGINEER: RON WESTENBERGE / MIKE PITTSINGER
MUD TYPE: FRESH WATER & BRINE WATER W/ POLYMER SWEEPS

DIRECTIONAL DRILLING CO: SPERRY-SUN

ELECTICAL LOGGING: NA

TOTAL DEPTH: 6832' MEASURED DEPTH; TRUE VERTICAL DEPTH-555.5'

STATUS: TOH & LAY DOWN TOOLS - PREPARE WELL FOR SE LEG #2

DRILLING CHRONOLOGY
RATHERFORD UNIT #17-13
1-B NW HORIZONTAL LATERAL LEG #1

DATE	DEPTH	DAILY	ACTIVITY
3/20/98	5457'	0'	RIG DOWN & MOVE RIG TO R.U. 17-13 LOC.-RIG UP-NIPPLE UP-TEST STACK & VALVES-RUN IN & SET PACKER W/WIRE LINE-MAKE UP UBHO & P.U. DRL CLRS OFF RACK
3/21/98	5457'	2'	P.U. DRL CLRS & AOH DRL PIPE OFF RACK-CIR BTMS UP-STING IN TO PACKER W/ LATCH ASSM. -RIG UP GYRO DATA & RUN GYRO TO BTM-PULL GYRO-TOH & STRAP PIPE-L.D. ANCHOR LATCH ASSEMBLY-P. U. WHIPSTOCK & ORIENT-TIH W/WHIPSTOCK @ 5457' & SET-SHEAR OFF (TOP OF WHIPSTOCK @ 5439')-P.U. SWIVEL & FILL PIPE-MILL W/STARTER MILL 5439'-5442'-CIR OUT & TOH-L. D. STARTER MILL & P.U. WINDOW & WATERMELON MILLS-TIH-CIR-MILL 5439' TO 5442'
3/22/98	5442'	35'	MILL WINDOW-5442'-5448'-PUMP 10 BBL SWEEPS & CIR OUT-L.D. 12 JNTS AOH-TOH-L.D. MILLS-P.U. CURVE ASSEMBLY & TEST MWD & MUD MTR- TIH-TEST MWD- CHANGE OUT SUBS-TIH W/ CURVE ASSM-CIR BTMS UP-RIG UP WIRELINE & SET GYRO-TIME DRLG @ 2 MINS/FOOT FROM 5448'-5450'- DIR DRLG W/WIRELINE SURVEYS FROM 5450'-5477'-PULL GYRO & RIG DOWN GYRO DATA-WORK ON POWER SWIVEL
3/23/98	5477'	326'	WORK ON POWER SWIVELDIR DRLG & SURVEYS-PUMP SWEEP & CIR OUT SPLS @ 5604' (TD OF CURVE)-L.D. 7 JTS PIPE-TOH-L.D. CURVE ASSEMBLY-P.U. LATERAL BHA W/BIT #2 & TEST MWD / MUD MOTOR-TIH-P.U. 44 JNTS PH6 - TIH W/ LATERAL ASSEMBLY-PICK UP 50 JTS PH6-CIR BTMS UP-DIR DRLG & SURVEYS
3/24/98	5803'	949'	DIR DRLG & SURVEYS
3/27/98	6752'	80'	DIR DRLG & SURVEYS TO 6832'-PUMP SWEEP & CIR OUT SPLS-TOH-L.D. LATERAL ASSEMBLY-P.U. RETRIEVING HOOK-TIH-LATCH INTO & RETRIEVE WHIPSTOCK-TOH-L.D. HOOK ASSEMBLY & WHIPSTOCK #1-P.U. WHIPSTOCK #2 & STARTER MILL-TIH
3/27/98	6832'	0'	

DAILY ACTIVITY

Operator: MOBIL

Well Name: RATHERFORD UNIT #17-13 NW 1-B HORIZONTAL LATERAL LEG #1

DATE	DEPTH	DAILY	DATE	DEPTH	DAILY
3/20/98	5454'	0'			
3/21/98	5454'	2'			
3/22/98	5442'	35'			
3/23/98	5477'	326'			
3/24/98	5803'	949'			
3/25/98	6752'	80'			
TD	6832'				

BIT RECORD

OPERATOR: MOBIL

WELL NAME: RATHERFORD UNIT #17-13 NW 1-B HORIZONTAL LATERAL LEG #1

RUN	SIZE	MAKE	TYPE	IN/OUT	FTG	HRS	FT/HR
#1 (RR)	4 3/4"	STC	MF-3P	5448'/ 5477'	156'	9.5	16.4
#2	4 3/4"	STC	MF-15GP	5477'/ 6832'	1228'	37.5	32.8

SPERRY-SUN DRILLING SERVICES
SURVEY DATA

Customer ... : Mobil (Utah)
Platform ... : RATHERFORD UNIT
Slot/Well ... : BA25/17-13 1A1

MEASURED DEPTH	ANGLE DEG	DIRECTION DEG	TVD	NORTHINGS FEET	EASTINGS FEET	VERTICAL SECTION	DOG LEG
6292.00	91.60	314.50	5539.04	599.74 N	552.43 W	814.71	3.55
6324.00	89.00	314.00	5538.88	622.07 N	575.35 W	846.70	8.27
6355.00	88.40	313.70	5539.58	643.54 N	597.70 W	877.69	2.16
6387.00	87.80	312.30	5540.64	665.35 N	621.09 W	909.65	4.76
6419.00	88.30	311.20	5541.73	686.65 N	644.95 W	941.58	3.77
6450.00	88.70	310.30	5542.54	706.88 N	668.42 W	972.48	3.18
6481.00	90.00	309.80	5542.89	726.82 N	692.15 W	1003.37	4.49
6513.00	89.00	311.90	5543.17	747.75 N	716.35 W	1035.28	7.27
6545.00	87.70	312.10	5544.09	769.15 N	740.12 W	1067.22	4.11
6577.00	87.20	314.90	5545.52	791.16 N	763.31 W	1099.17	8.88
6609.00	85.10	315.90	5547.66	813.89 N	785.73 W	1131.10	7.27
6640.00	87.90	317.50	5549.56	836.40 N	806.95 W	1162.02	10.40
6672.00	88.60	316.50	5550.53	859.80 N	828.76 W	1193.99	3.81
6704.00	87.60	315.20	5551.60	882.74 N	851.04 W	1225.97	5.12
6736.00	87.70	316.10	5552.91	905.61 N	873.39 W	1257.94	2.83
6768.00	88.80	316.10	5553.88	928.65 N	895.56 W	1289.92	3.44
6799.00	88.50	315.90	5554.62	950.95 N	917.09 W	1320.90	1.16
6832.00	88.50	315.90	5555.48	974.64 N	940.05 W	1353.89	0.00

THE DOGLEG SEVERITY IS IN DEGREES PER 100.00 FEET.
N/E COORDINATE VALUES GIVEN RELATIVE TO WELL SYSTEM REFERENCE POINT.
TVD COORDINATE VALUES GIVEN RELATIVE TO WELL HEAD.
THE VERTICAL SECTION ORIGIN IS WELL HEAD.
THE VERTICAL SECTION WAS COMPUTED ALONG 315.00 (TRUE).
CALCULATION METHOD: MINIMUM CURVATURE.

SURVEY 6832' IS PROJECTED TO BIT AT TD

SPERRY-SUN DRILLING SERVICES
SURVEY DATA

Customer ... : Mobil (Utah)
Platform ... : RATHERFORD UNIT
Slot/Well .. : BA25/17-13 1A1

MEASURED DEPTH	ANGLE DEG	DIRECTION DEG	TVD	NORTHINGS FEET	EASTINGS FEET	VERTICAL SECTION	DOG LEG
5400.00	0.54	331.44	5399.52	33.75 N	1.19 E	23.02	0.00
5439.00	0.76	345.01	5438.52	34.16 N	1.04 E	23.42	0.68
5448.00	5.20	315.00	5447.50	34.51 N	0.73 E	23.88	50.64
5458.00	10.10	312.80	5457.41	35.43 N	0.23 W	25.21	49.08
5468.00	16.50	310.60	5467.14	36.95 N	1.96 W	27.51	64.19
5478.00	23.10	308.80	5476.54	39.10 N	4.57 W	30.88	66.27
5488.00	29.90	311.20	5485.49	41.98 N	7.97 W	35.32	68.83
5498.00	34.40	312.80	5493.95	45.54 N	11.92 W	40.63	45.79
5508.00	35.70	310.80	5502.14	49.37 N	16.21 W	46.37	17.35
5518.00	39.50	317.60	5510.06	53.62 N	20.56 W	52.46	56.22
5528.00	43.30	311.90	5517.56	58.27 N	25.26 W	59.06	53.49
5538.00	49.80	310.90	5524.44	63.06 N	30.71 W	66.31	65.40
5548.00	56.70	311.60	5530.42	68.34 N	36.73 W	74.30	69.23
5558.00	63.10	312.40	5535.43	74.13 N	43.15 W	82.93	64.37
5568.00	69.40	314.40	5539.46	80.42 N	49.79 W	92.08	65.60
5578.00	75.30	316.30	5542.49	87.20 N	56.49 W	101.60	61.71
5603.00	88.90	318.00	5545.92	105.31 N	73.28 W	126.29	54.81
5628.00	88.70	319.90	5546.44	124.16 N	89.70 W	151.22	7.64
5659.00	89.10	317.30	5547.03	147.41 N	110.19 W	182.15	8.48
5691.00	91.10	318.50	5546.98	171.15 N	131.64 W	214.11	7.29
5723.00	92.30	318.00	5546.03	195.01 N	152.94 W	246.04	4.06
5754.00	90.80	317.40	5545.19	217.93 N	173.80 W	276.99	5.21
5786.00	90.70	317.50	5544.77	241.50 N	195.43 W	308.96	0.44
5818.00	91.00	317.90	5544.30	265.17 N	216.97 W	340.92	1.56
5849.00	89.10	315.80	5544.27	287.78 N	238.17 W	371.90	9.14
5881.00	89.30	315.80	5544.72	310.72 N	260.47 W	403.90	0.63
5912.00	90.00	316.30	5544.91	333.04 N	281.99 W	434.89	2.77
5944.00	90.60	316.30	5544.74	356.17 N	304.10 W	466.88	1.87
5976.00	90.40	316.10	5544.46	379.27 N	326.24 W	498.87	0.88
6007.00	89.30	314.90	5544.54	401.38 N	347.97 W	529.87	5.25
6038.00	89.70	313.80	5544.81	423.05 N	370.14 W	560.87	3.78
6070.00	90.90	313.50	5544.64	445.14 N	393.29 W	592.86	3.87
6102.00	92.80	314.00	5543.61	467.25 N	416.39 W	624.83	6.14
6133.00	92.70	313.10	5542.12	488.59 N	438.84 W	655.79	2.92
6165.00	92.50	313.50	5540.67	510.51 N	462.10 W	687.74	1.40
6197.00	91.10	314.90	5539.67	532.81 N	485.03 W	719.72	6.19
6229.00	89.30	315.20	5539.55	555.45 N	507.64 W	751.72	5.70
6261.00	90.50	314.50	5539.61	578.02 N	530.32 W	783.72	4.34

MUD REPORT

OPERATOR: MOBIL

WELL NAME: RATHERFORD UNIT #17-13 NW 1-B HORIZONTAL LATERAL LEG #1

DATE	DEPTH	WT	VIS	PLS	YLD	GEL	PH	WL	CK	CHL	CA	SD	OIL	WTR
3/21/98	5457'	8.4	26	1	1	0/0	8.0	NC	NC	900	200	-	0%	100%
3/22/98	5448'	8.4	26	1	1	0/0	12.0	NC	NC	5500	600	-	0%	100%
3/23/98	5551'	8.35	26	1	1	0/0	12.0	NC	NC	5500	280	-	2%	98%
3/24/98	6192'	8.5	26	1	1	0/0	12.0	NC	NC	12.5 K	320	-	3%	97%
3/25/98	6832'	8.5	26	1	1	0/0	12.0	NC	NC	12 K	360	-	2%	98%

SAMPLE DESCRIPTIONS

OPERATOR: MOBIL

WELL NAME: RATHERFORD UNIT #17-13 NW 1-B HORIZONTAL LATERAL

DEPTH	LITHOLOGY
5448.00 5470.00	"LS wh-crm-tan,rr brn-gybrn,crpxl,v rr micxl-vfxl,v rr gran-micsuc,pred dns occ chk PKST,v rr thn GRNST stks,v sl slty,tr ANHY xl-frag fl,tr trnsl-smky gy CHT frag,v rr brn crpxl-micxl DOL ptgs,rr-v rr spty intxl-pp vug POR,rr spty bri yel FLOR,n-v rr spty brn-dkbrn STN-blk dd o STN,tr f-mg slow-mod fast stmg CUT"
5470.00 5480.00	"LS AA w/rr styl,scat ANHY incl-POR fl-rr xl,incr crm-ltgy PKST,tr intxl-v rr scat pp vug POR,tr spty bri yel FLOR,v rr spty lt-mbrn STN-v rr blk dd o STN,rr spty fr slo-mod fast strmg CUT,v rr brn micxl rthy DOL lams"
5480.00 5490.00	"LS crm-tan,pred dns crpxl PKST AA,v rr ANHY-CALC xl-frac fl,rr ltgy-trnsl CHT,thn intbd sl alg GRNST,dol-tr DOL cmt,tt-tr intxl-v rr pp vug POR,rr-tr spty bri yel FLOR,spty brn-blk STN,tr fr fast strmg CUT"
5490.00 5500.00	"LS crm-tan-ltbrn,crpxl,occ micxl,sl dol-arg ip,occ rr ANHY xl-incl,dns-v rr intxl POR,v rr scat dull yel FLOR,n vis STN,v p slow CUT w/scat micxl brn DOL w/scat intxl POR,spty FLOR-STN-CUT,grdg dkgy-blk,SH sl calc-dol ip,carb-sooty v sl slty-mica"
5500.00 5510.00	"SH AA w/scat brn micxl rthy DOL incl bcmg pred crm-tan crpxl-micxl dns-sl slty LS tt,spty mnrl FLOR,NSOC"
5510.00 5520.00	"LS crm-wh,occ ltgy,tan-ltbrn ip,crpxl-micxl,rr vfxl-gran,pred dns-sl slty,occ chk,rr scat ooc-oom GRNST incl,tt-rr intxl-ool POR,tr spty fr bri yel FLOR,rr brn-blk STN,tr g mod fast-fast CUT w/thn DOL AA,rr intxl POR,NFSOC,scat blk SH AA"
5520.00 5530.00	"LS AA,bcmg pred ltbrn ooc-oom GRNST w/g ool-tr intxl POR,g FLOR-STN-CUT,v thn micxl tt brn DOL lams & blk carb SH cvgs-ptgs" □
5530.00 5550.00	"LS crm-wh,occ tan-ltbrn,crpxl-micxl,w/thn ool-oom GRNST incl,pred dns tt sl chk occ ool PKST,DOL rich cmt-rr thn micxl-crpxl lmy DOL lams,scat trnsl-bf CHT frag,v sl anhy,pred dns tt,n-v rr ool-intxl POR,rr spty FLOR-STN-v p slow CUT"
5550.00 5560.00	"LS crm-ltbrn-brn,occ wh,crpxl-vfxl,gran-micsuc ip,bcmg pred ooc-oom GRNST,scat dns plty-chk sl ool PKST,occ DOL rich cmt,v sl anhy-v rr ANHY xl-incl,v rr trnsl-bf CHT frag,tt-g intxl-ool POR,fr bri yel FLOR,n-fr brn-rr blk STN,n-fr slow-mod fast CUT"
5560.00 5580.00	"LS ltbrn-brn,occ crm-tan,micxl-vfxl,gran-micsuc,pred ooc-oom GRNST,w/rr scat dns v sl ool PKST,occ DOL rich cmt,v sl anhy-v rr ANHY xl-incl,v rr scat trnsl CHT frag,fr-g ool-fr intxl POR,fr-g bri yel FLOR,g brn STN-tr spty blk dd o STN,fr-g mod fast CUT"

DEPTH	LITHOLOGY
5580.00 5590.00	"LS AA, POR-FLOR-STN AA, fr-g mod fast-fast stmg mlky CUT"
5590.00 5604.00	"LS ltbrn-brn, rr crm-wh, micxl-vfxl, gran-micsuc, pred ooc-oom GRNST, w/v rr dns v sl ool PKST frag, tr DOL rich cmt, sl anhy-v rr ANHY xl-incl, v rr trnsl CHT frag, g ool-fr intxl POR, g bri-dull yel FLOR, g brn STN-tr spty blk dd o STN, fr-g mod fast-fast stmg CUT"
5604.00 5620.00	"LS AA, micxl-vfxl, incr gran-occ micsuc, pred GRNST AA, w/v rr dns PKST AA, incr tr DOL rich cmt, sl anhy-v rr ANHY xl-incl, POR AA, g even bri yel FLOR, STN AA, g fast stmg-blooming mlky CUT"
5620.00 5630.00	"LS AA/incr m-dkbrn, rr tan-crm-wh frag, vfxl-gran, micxl, pred ooc-oom GRNST/tr dns sl ool-chky PKST, v sl anhy, v rr trnsl qrtz-CHT, POR-FLOR AA, g m-dkbrn/scat ltbrn & blk dd o STN, g fast stmg mlky CUT"
5630.00 5640.00	"LS AA, pred GRNST AA/sl decr PKST AA, POR-FLOR-STN-CUT AA"
5640.00 5650.00	"LS m-dk-occ ltbrn, rr crm-wh, vfxl-gran, micsuc-micxl, ooc-oom GRNST/rr dns sl ool PKST, sl chky-anhy, tr DOL cmt, rr trnsl-wh qrtz-CHT frag, g ool-fr intxl POR, g even bri yel FLOR, g m-dk brn/tr scat blk dd o STN, g blooming-fast stmg CUT"
5650.00 5660.00	"LS lt-m-dkbrn, tr crm-wh, vfxl-gran, micsuc-micxl, ooc-oom GRNST/incr thn chky plty-tr dns sl ool PKST, sl anhy/tr POR fl-rr xln ANHY, POR-FLOR AA, g-fr brn-dk brn/blk dd o STN, CUT AA"
5660.00 5670.00	"LS AA, pred GRNST AA/decr PKST AA, POR-FLOR-STN AA, g fast-mod fast stmg mlky CUT"
5670.00 5680.00	"LS m-dk-ltbrn, rr tan-crm, vfxl-gran-micsuc, micxl, pred ooc-oom GRNST/tr dns sl ool-v rr chky plty PKST, sl anhy/v rr xln ANHY, tr DOL cmt, POR AA, g even mod bri-bri yel FLOR, g m-dkbrn/scat blk dd o STN, g fast stmg mlky CUT"
5680.00 5700.00	"LS AA, vfxl-gran, sl micsuc-occ micxl, ooc-oom GRNST/tr dns sl ool-v rr chky plty PKST, v sl anhy/v rr xln ANHY-POR fl, tr DOL rich cmt, g ool-fr intxl POR, g even bri-mod bri yel FLOR, g m-dkbrn/tr blk dd o STN, g fast-tr blooming mlky CUT"
5700.00 5730.00	"LS dk-mbrn, occ ltbrn, rr crm-wh, vfxl-gran-micsuc, micxl, rr crpxl, ooc-oom GRNST, rr scat-occ intbd dnssl ool-rr thn chky plty PKST, v sl anhy/rr POR fl, tr DOL rich cmt, g ool-fr intxl POR, FLOR AA, g dk-mbrn/scat blk dd o STN, g blooming-fast stmg mlky CUT"
5730.00 5750.00	"LS m-dkbrn, occ ltbrn, tr crm-wh, vfxl-gran-micsuc, micxl-occ crpxl, pred GRNST AA, sl incr scat dns-chky plty PKST AA, ooc sl anhy/rr POR fl, v rr xln ANHY frag, tr DOL rich cmt, POR AA, g even bri-mod bri yel FLOR, STN & CUT AA"

DEPTH	LITHOLOGY
5750.00 5770.00	"LS m-ltbrn,occ dkbrn,tr crm-wh,vfxl-gran,micsuc-micxl,sl incr crpxl frag,pred ooc-oom GRNST,sl incr dns sl ool-rr thn chky plty PKST,sl anhy/tr POR fl,tr DOL rich cmt,POR-FLOR AA,g m-ltbrn/scat dkbrn-blk dd o STN,g blooming-fast stmg mlky CUT; ALSO NOTE:? =CACO drlg solids added to mud system:trnsl-clr xls,w/scat metal frag"
5770.00 5790.00	"LS lt-mbrn,occ dkbrn,tr ltgybrn,crm-wh,vfxl-gran,micsuc-micxl,crpxl frag,pred ooc-oom GRNST,tr dns sl ool-thn chky plty PKST,anhy/tr POR fl,tr DOL cmt,POR AA,g-fr scat mod bri-dull/tr scat bri yel FLOR,g-fr lt-mbrn/tr dkbrn-blk STN,CUT AA,"
5790.00 5810.00	"LS m-ltbrn,occ dkbrn,tr crm-wh,vfxl-gran,micsuc-micxl,ooc-oom GRNST/tr dns sl ool-thn chky plty PKST,sl anhy/tr POR fl,tr DOL rich cmt,POR AA,g even mod bri-bri yel FLOR,g m-ltbrn/scat dkbrn-blk dd o STN,g blooming-fast stmg mlky CUT"
5810.00 5830.00	"LS m-lt-dkbrn,tr crm-wh,vfxl-gran-micsuc,micxl,tr crpxl,ooc-oom GRNST,tr chky dns sl ool-thn plty PKST,sl anhy/rr POR fl,tr DOL rich cmt,POR-FLOR AA,g m-ltbrn/incr scat dkbrn-blk dd o STN,g blooming-fast stmg mlky CUT"
5830.00 5840.00	"LS AA,vfxl-gran,micsuc-micxl,sl incr crpxl frag,pred GRNST AA,tr PKST AA,sl anhy/rr POR fl,tr DOL rich cmt,POR-FLOR-STN AA,g blooming-fast stmg mlky CUT"
5840.00 5850.00	"LS AA.ooc-oom GRNST/tr scat dns sl ool-thn chky plty PKST,sl anhy/rr POR fl-v rr xln ANHY,DOL cmt,POR-FLOR-STN-CUT AA"
5850.00 5870.00	"LS m-ltbrn,occ dkbrn,tr crm-wh,vfxl-gran,micsuc-micxl,sl incr crpxl frag,pred ooc-oom GRNST,sl incr dns sl ool-tr thn chky plty PKST,sl anhy/tr POR fl,DOL rich cmt,g ool-fr intxl POR,g mod bri-scat bri yel FLOR,STN AA,g mod fast-sl blooming mlky CUT"
5870.00 5890.00	"LS m-lt-dkbrn,tr crm-wh,vfxl-gran-micsuc,micxl-sl crpxl,pred ooc-oom GRNST/sl incr PKST AA,sl anhy/tr POR fl,v rr xln ANHY,DOL rich cmt,g ool-fr intxl POR,FLOR AA,g m-ltbrn/scat dkbrn-tr blk dd o STN,g blooming-fast stmg mlky CUT"
5890.00 5910.00	"LS m-dk-ltbrn,tr crm-wh,vfxl-gran,micxl-micsuc,occ crpxl,ooc-oom GRNST,sl incr dns-chky plty PKST,sl-occ v any/tr POR fl,v rr xln ANHY,DOL cmt,g ool-fr intxl POR,g bri-mod bri yel FLOR,g m-dkbrn/tr blk dd o STN,CUT AA"
5910.00 5930.00	"LS AA/sl incr crm-wh,vfxl-gran-micsuc,micxl,pred ooc-oom GRNST/sl incr crpxl dns sl ool-thn chky plty PKST,sl-occ v anhy/rr POR fl,v rr xln ANHY,tr DOL cmt,g ool-fr intxl POR,g mod bri-scat bri yel FLOR,g m-dkbrn/scat blk dd o STN,g fast-blooming CUT"
5930.00 5970.00	"LS m-ltbrn,occ dkbrn,rr crm-wh,vfxl-gran,micsuc-micxl,rr crpxl,pred ooc-oom GRNST,tr dns sl ool-rr thn chky plty PKST,sl anhy/tr POR fl,tr DOL rich cmt,POR-FLOR AA,g m-ltbrn/scat dkbrn-rr blk dd o STN,g blooming-fast stmg mlky CUT"

DEPTH	LITHOLOGY
5970.00 5980.00	"LS AA,w/v rr scat trnsl-clr CHT frag,POR-FLOR-STN-CUT AA"
5980.00 5990.00	"LS m-ltbrn,rr dkbrn-occ crm-wh,micxl-vfxl,occ gran-micsuc,pred ooc-oom GRNST,tr dns-crpxl v sl ool rr chky-pty PKST,sl anhy/tr POR fl,tr DOL rich cmt,fr-g ool-fr intxl POR,g bri yel FLOR,g m-ltbrn-tr dkbrn-rr blk dd o STN,g mod fast-fast stmg mlky CUT"
5990.00 6010.00	"LS pred ltbrn-tan,occ m-dkbrn-crm-wh,micxl-vfxl,gran-micsuc ip,ooc-oom GRNST,w/rr scat PKST AA,sl dol cmt-rr ANHY xl-incl,POR-FLOR-STN-CUT AA"
6010.00 6030.00	"LS ltbrn-tan,occ crm-wh-v rr m-dkbrn,micxl-vfxl,gran-micsuc ip,pred ooc-oom GRNST,scat dns crpxl sl ool-occ chky PKST,sl anhy-tr POR fl,tr dol cmt,fr-g ool-tr intxl POR,fr-g bri-tr dull FLOR,fr-g brn-dkbrn STN-tr blk dd o STN,g mod fast-fast stmg CUT"
6030.00 6050.00	"LS AA,pred ooc-oom GRNST,w/rr scat v sl ool dns occ chky-pty PKST,fr-g ool-tr intxl POR,fr-g bri-tr dull yel FLOR,fr-g ltbrn-brn-tr dkbrn STN-tr blk dd o STN,fr-g mod fast-fast stmg mlky CUT"
6050.00 6080.00	"LS lt-mbrn,occ dkbrn,micxl-vfxl,gran-suc ip,pred ooc-oom GRNST,w/scat brn-tan-rr crm dns sl ool PKST,occ anhy-v rr xl,tr DOL rich cmt,fr-g ool-fr intxl POR,fr-g bri-tr dull yel FLOR,fr-g brn-mbrn STN,rr-tr blk dd o STN,fr-g mod fast-fast stmg mlky CUT"
6080.00 6110.00	"LS AA,pred ooc-oom GRNST,tr scat dns sl ool PKST w/rr ANHY xl-incl,pred g ool POR-w/rr scat intxl POR,g bri-dull yel FLOR,g brn-mbrn STN-rr blk dd o STN,fr-g mod fast-fast stmg CUT"
6110.00 6130.00	"LS lt-mbrn,occ dkbrn,micxl-vfxl,gran-suc ip,pred ooc-oom GRNST,w/tr brn-tan-crm dns sl ool occ chk-pty PKST,sl anhy-v rr xl,tr DOL rich cmt,fr-g ool-intxl POR,fr-g bri dull yel FLOR,fr-g brn-mbrn STN,tr blk dd o STN,fr-g mod fast-fast stmg mlky CUT"
6130.00 6140.00	"LS AA,sl incr dns PKST AA,v rr trnsl-clr CHT frag,g bri yel FLOR,g intxl-fr ool POR,mg brn-mbrn STN-rr-tr blk dd o STN,fr-g mod fast-fast stmg mlky CUT"
6140.00 6160.00	"LS tan-ltbrn,occ crm-wh-mbrn,crpxl-vfxl,gran-micsuc ip,pred ooc-oom GRNST w/incr pty-chk dns-v sl ool PKST,occ DOL cmt,scat ANHY xl-incl,tt-mg ool-fr intxl POR,mg bri yel FLOR,fr brn-tr mbrn STN-rr blk dd oil STN,fr-g mod fast-fast stmg mlky CUT"
6160.00 6180.00	"LS lt-mbrn,occ gybrn,scat crm-tan,crpxl-vfxl,occ gran-micsuc,pred ooc-oom GRNST w/thn scat sl ool dns anhy PKST incl-frag,anhy ip-scat ANHY POR fl,tt-mg ool-intxl POR,mg bri yel FLOR,fr-g brn-mbrn STN-rr blk dd o STN,fr-g mod fast-fast stmg mlky CUT"
6180.00 6200.00	"LS AA,w/sl incr dns sl-v ool occ anhy PKST incl-lams,occ ANHY fl POR,rr scat trnsl CHT frag,tt-mg ool-intxl POR,mg bri-fr dull yel FLOR,g brn-dkbrn STN,tr blk dd o STN,fr-g mod fast-fast stmg CUT"

DEPTH	LITHOLOGY
6200.00 6220.00	"LS lt-mbrn,occ gybrn,scat crm-tan,crpxl-vfvl,occ gran-micsuc,pred ooc-oom GRNST w/thn intbd sl ool anhy dns PKST incl-lams,rr scat ANHY xl-POR fl,tr-mg ool-intxl POR,mg bri yel FLOR,fr-g brn-mbrn STN-tr blk dd o STN,fr-g mod fast-fast stmg mlky CUT"
6220.00 6230.00	"LS AA,decr PKST frag,v rr CHT AA,pred g intxl-ool POR-FLOR-STN-CUT AA"
6230.00 6250.00	"LS ltbrn-tan,occ gybrn-crm-rr wh,micxl-vfvl,gran-suc ip,pred ooc-oom GRNST w/thn scat sl ool dns crpxl anhy PKST frag,sl anhy-rr ANHY POR fl,chtty ip,fr-mg ool-fr intxl POR,mg bri yel FLOR,fr-g brn-mbrn STN-rr blk dd o STN,fr-g mod fast-fast stmg mlky CUT"
6250.00 6270.00	"LS AA,pred ooc-oom GRNST,incr sl ool dns anhy PKST w/depth,v rr trnsl-bf CHT frag,tt-v g ool-mg intxl POR,fr-g bri yel FLOR,fr ltbrn-tr mbrn STN,rr-tr spty blk dd o STN,mg mod fast-fast stmg mlky CUT"
6270.00 6290.00	"LS tan-brn,occ gybrn-crm,v rr wh,crpxl-vfvl,gran-suc ip,pred ooc-oom GRNST w/scat tt sl ool dns anhy PKST frag,occ anhy-tr ANHY fl POR in PKST,fr ool-fr intxl POR,mg bri yel FLOR,mg brn-mbrn STN-spty blk dd o STN,fr-g mod fast-fast stmg mlky CUT"
6290.00 6310.00	"LS AA,pred ooc-oom GRNST,w/scat thn intbd sl ool dns anhy PKST stks & incl,v rr trnsl-bf CHT frag,tt-v g ool-mg intxl POR,fr-g bri yel FLOR,fr ltbrn-tr mbrn STN,rr-tr spty blk dd o STN,mg mod fast-fast stmg mlky CUT"
6310.00 6330.00	"LS tan-brn,occ gybrn-crm,v rr wh,crpxl-vfvl,gran-suc ip,pred ooc-oom GRNST,w/rr thn sl ool dns anhy PKST incl-lams,occ anhy-tr ANHY fl POR in PKST,fr ool-fr intxl POR,mg bri yel FLOR,mg ltbrn-brn STN-rr spty blk dd o STN,fr-g mod fast-fast stmg mlky CUT"
6330.00 6360.00	"LS tan-brn,occ gybrn-crm,v rr wh,crpxl-vfvl,gran-suc ip,pred ooc-oom GRNST w/thn intbd dns sl anhy occ ool PKST stks,rr ANHY xl-POR fl in PKST,fr ool-fr intxl POR,mg bri yel FLOR,fr-g brn-mbrn STN-rr spty blk dd o STN,fr-g mod fast-fast stmg mlky CUT"
6360.00 6390.00	"LS AA,pred ooc-oom GRNST w/scat & incr w/depth sl ool dns occ plty tan PKST,fr-g intxl-fr ool POR,fr-g bri-occ dull yel FLOR,g lt-mbrn STN-rr spty blk dd o STN,fr-g mod fast-fast stmg mlky CUT"
6390.00 6420.00	"LS lt-mbrn,occ tan,rr crm-wh,micxl-vfvl,occ crpxl,gran-micsuc ip,pred ooc-oom GRNST w/thn stks sl ool dns PKST,occ anhy-v rr ANHY xl-POR fl,v rr trnsl CHT frag,sl dol cmt,fr-g intxl-ool POR,fr-g bri-tr dull yel FLOR,g brn-tr blk STN,fr-g fast stmg CUT"
6420.00 6440.00	"LS pred ooc-oom GRNST AA,incr dns ool v sl arg-plty-occ chk PKST stks,tt-v g intxl-ool POR,mg bri-tr dull yel FLOR,fr-mg ltbrn-brn STN,rr blk dd o STN,fr-g mod fast-fast stmg mlky CUT"

DEPTH

LITHOLOGY

- 6440.00 6460.00 "LS lt-mbrn, occ tan, rr crm-wh, micxl-vfxl, occ crpxl, gran-micsuc ip, pred ooc-oom GRNST w/v stky sl ool sl plty PKST, occ anhy-v rr ANHY xl-POR fl, v rr trnsl CHT frag, sl dol cmt, fr-g intxl-ool POR, g bri-tr dull yel FLOR, g brn-tr blk STN, g fast stmg CUT"
- 6460.00 6480.00 "LS pred ooc-oom GRNST AA, w/sl incr crm-wh plty-sl chk occ ool dns PKST, occ tt-g intxl-fr ool POR, mg bri-rr dull yel FLOR, fr-mg brn-mbrn STN-tr blk dd o STN, v g fast-v fast stmg mlky CUT "
- 6480.00 6490.00 "LS tan-lt-mbrn, occ wh-crm, crpxl-vfxl, gran-micsuc ip, pred ooc-oom GRNST w/thn intbd dns occ chk-plty v sl ool PKST, v rr trnsl-clr CHT frag, occ dol cmt, sl anhy-rr xl-POR FL, tr-g ool-fr intxl POR, mg bri-tr dull yel FLOR, n-mg brn-rr blk STN, mg fast stmg CUT"
- 6490.00 6510.00 "LS AA, vfxl-gran, crpxl-micsuc ip, pred GRNST AA w/tr PKST AA, tr ltbrn-tan-clr CHT frag, tr dol cmt, sl anhy-rr xl-POR fl, g-fr ool-intxl POR, fr-g mod bri-dull/scat bri yel FLOR, m-lt brn/tr dkbrn-rr blk STN, g fast-mod fast stmg mlky CUT"
- 6510.00 6530.00 "LS m-dkbrn, occ ltbrn-tan, trcrm-wh, vfxl-gran-micsuc, micxl-occ crpxl, ooc-oom GRNST/tr intbd dns sl ool PKST, sl chky-anhy/rr POR fl, tr brn-ltbrn CHT, sl dol cmt strk, g-fr ool-tr intxl POR, g-fr mod bri-dull/scat bri yel FLOR, g m-dkbrn/incr blk dd o STN, g mod fast/tr fast stmg mlky CUT"
- 6530.00 6550.00 "LS lt-mbrn, occ dkbrn, tan, tr crm-wh, vfxl-micsuc-gran, micxl-sl crpxl, ooc-oom GRNST/tr scat dns-rr chky plty PKST, sl anhy/tr POR fl-rr xln ANHY, tr tan-brn CHT frag, POR AA, g even mod bri/scat bri yel FLOR, g-fr lt-m brn/tr dkbrn-rr blk STN, g fast-blooming CUT"
- 6550.00 6570.00 "LS lt-mbrn, occ wh-crm, dkbrn, vfxl-gran-micsuc, micxl-crpxl, GRNST AA w/occ dns sl ool-sl incr thn chky plty PKST, v rr CHT frag AA, occ dol cmt, sl anhy-tr xl-POR fl, fr-g ool-tr intxl POR, g mod bri-dull/tr bri yel FLOR, STN AA, g fast-mod fast stmg mlky CUT"
- 6570.00 6590.00 "LS AA/tr crm-wh, vfxl-gran-micxl, occ micsuc-crpxl, pred ooc-oom GRNST/sl incr dns sl ool-v rr thn chky plty PKST, sl anhy/tr POR fl-v rr xln ANHY, incr DOL rich cmt, rr brn CHT, g-fr ool-tr intxl POR, g even mod bri/scat bri yel FLOR, g-fr lt-mbrn/tr dkbrn-rr blk dd o STN, g fast-mod fast stmg mlky CUT"
- 6590.00 6620.00 "LS m-ltbrn, occ dkbrn, rr crm-off wh, vfxl-gran-micxl, occ micsuc-crpxl, GRNST AA/tr scat dns sl ool PKST, sl-occ v chky- sl anhy/tr POR fl-v rr xln ANHY, sl dol-tr DOL cmt, v rr trnsl CHT, fr-g ool-tr intxl POR, fr-g scat mod bri-dull/tr bri yel FLOR, g m-dkbrn/scat ltbrn & tr blk dd o STN, g mod fast-fast stmg mlky CUT"
- 6620.00 6630.00 "LS AA, pred ooc-oom GRNST/occ PKST AA, sl anhy-chky-tr v chky/tr POR fl, sl incr dol/tr DOL rich cmt, tr tan-brn CHT, POR-FLOR-STN-CUT AA w/scat bri yel FLOR, g m-dkbrn/tr scat blk dd o STN, g fast-mod fast stmg mlky CUT"

DEPTH	LITHOLOGY
6630.00 6660.00	"LS m-dkbrn,occ ltbrn,tr crm-off wh,tan,vfxl-gran,occ sl micsuc,crpxl,pred ooc-oom GRNST,tr scat dns sl ool PKST,sl-occ mod chky/tr POR fl,v rr xln ANHY incl,tr brn-tan-trnsl CHT/rr ool incl,DOL rich cmt,g-fr ool/tr intxl POR,g even mod bri"
6660.00 6680.00	"LS AA,ooc-oom GRNST,tr scat dns sl ool-rr agal mat PKST,sl chky-anhy/rr POR fl-v rr xln ANHY,rr brn-tan CHT,DOL rich cmt,POR AA,g even mod bri-dull/scat bri yel FLOR,STN AA/sl incr blk dd o STN,g fast stmg-sl blooming mlky CUT"
6680.00 6700.00	"LS m-dk-ltbrn,occ crm-off wh,tr tan,vfxl-micsuc-micxl,occ crpxl,ooc-oom GRNST,tr PKST AA,sl chky-anhy/rr POR fl-v rr xl ANHY,tr CHT AA,g ool-tr intxl POR,g even mod bri-bri yel FLOR,g m-ltbrn/scat dkbrn-rr blk STN,g fast-mod fast stmg mlky CUT "
6700.00 6720.00	"LS m-ltbrn,occ dkbrn,tr crm-tan-off wh,vfxl-micxl-gran,occ crpxl-sl micsuc,pred oom-ooc GRNST/incr dns sl ool PKST,sl chky-anhy/tr POR fl-rr xln ANHY,rr trnsl-tan CHT,sl dol/tr DOL cmt,fr ool-bcmg tt/rr intxl POR,FLOR AA,g brn-ltbrn-tr dkbrn STN,g fast-sl blooming mlky CUT"
6720.00 6740.00	"LS AA,vfxl-micxl-gran,occ crpxl-sl micsuc,pred dns sl oom-ooc GRNST grdg to PKST,scat dns v sl ool PKST,sl chky-anhy/sl incr POR fl-tr xln ANHY incl,rr tan-brn CHT,sl dol/tr DOL rich cmt,fr-g intxl/occ ool POR,FLOR-STN-CUT AA"
6740.00 6760.00	"LS AA,sl incr dkbrn,tr tan-crm-off wh,vfxl-micxl-gran,occ crpxl-sl micsuc,bcmg incr ooc-oom GRNST/scat dns sl ool PKST,sl-occ v chky-tr plty PKST frag,sl anhy-rr xln ANHY,tr CHT AA,fr-g ool-intxl POR/tr POR fl,g-fr m-ltbrn/scat dkbrn STN,g-fr mod bri-dull/scat bri yel FLOR,g m-lt-dkbrn STN,rr blk dd o STN,g fast stmg-blooming mlky CUT"
6760.00 6780.00	"LS m-ltbrn,tan,occ dkbrn,tr crm-off wh,vfxl-micxl-gran,occ crpxl-sl micsuc,pred GRNST AA,incr dns sl ool-v sl agal PKST,sl chky-v sl anhy/tr POR fl-v rr xln ANHY,tr tan-brn CHT,decr dol/rr DOL cmt strk,POR-FLOR-STN AA,g mod fast-fast stmg mlky CUT"
6780.00 6810.00	"LS m-ltbrn,occ ltgybrn,crm-wh,tr dkbrn,vfxl-micxl,gran,occ crpxl-sl micsuc,pred oom-ooc GRNST grdg to dns sl ool PKST/scat thn chky plty PKST,sl anhy/tr POR fl-xln ANHY,rr CHT AA,v sl dol,fr-g intxl-ool POR,g even mod bri-bri yel FLOR,g-fr ltbrn/scat brn-tr dkbrn/rr blk dd o STN,g fast-mod fast stmg mlky CUT"
6810.00 6820.00	"LS ltbrn-brn,occ crm-bf,crpxl-vfxl,gran-micsuc,pred ooc-oom GRNST w/incr plty-chk v sl ool anhy dns PKST lams-frag,rr scat trnsl-brn CHT frag,sl dol cmt,tt-mg intxl-tr-fr ool POR,fr-g dull-tr bri yel FLOR,fr ltbrn STN-rr spty blk dd o STN,fr mod fast CUT"
6820.0 6832.00	"LS AA,pred sl ooc-oom GRNST,w/incr stky dns sl anhy occ plty PKST incl-lams,decr intxl-ool POR,sl decr FLOR-STN-CUT"

FORMATION TOPS

OPERATOR: MOBIL

WELL NAME: RATHERFORD UNIT #17-13 NW 1-B HORIZONTAL LATERAL LEG #1

FORMATION NAME	SAMPLES	SAMPLES	DATUM
	MEASURED DEPTH	TRUE VERTICAL DEPTH	KB:4748'
LOWER ISMAY	5448'	5448'	-700'
GOTHIC SHALE	5493'	5490'	-742'
DESERT CREEK	5509'	5503'	-755'
DC 1-A ZONE	5512'	5505'	-757'
DC 1-A / 1-B TRANSITION	5530'	5519'	-771'
DC 1-B ZONE	5551'	5532'	-784'

GEOLOGICAL SUMMARY

AND

ZONES OF INTEREST

The Mobil Exploration and Production U.S., Inc., Ratherford Unit #17-13 Horizontal Lateral Leg #1 was a re-entry of the Mobil Ratherford Unit #17-13 located in Section 17, T41S, R24E, and was sidetracked in a northwesterly direction from a 5448' measured depth, 5448' true vertical depth, on March 21, 1998. The lateral reached a measured depth of 6832', true vertical depth of 5555.5' at total depth, with a horizontal displacement of 1354' and true vertical plane 316 degrees, on March 25, 1998; in the upper Desert Creek 1-B porosity zone, where the decision to terminate the lateral was made. The lateral was drilled with no significant problems and remained in the purposed 1-B porosity zone until termination of the lateral. The lateral leg was drilled with fresh water and brine water with polymer sweeps as the drilling fluid. A minor amount of oil was noted while drilling the Lower Ismay in the curve section with an increase noted when penetrating the 1-B zone in the curve section. During the lateral section through the 1-B porosity zone, significant amounts of oil were noted in the mud and on the pits; probably due to the well being a production well prior to the well being horizontally drilled. The background gases noted on the accompanying mud log show only a marked increase as the Lower Ismay was drilled, and a steady increase after penetrating the Upper Desert Creek 1-A porosity zone in the curve. As the lateral progressed, the background gas remained high until reaching a measured depth of 6600', when the background gas began slowly decreasing. The lower gas readings near the end of the lateral might be attributed to the increasing amount of flushing further away from the vertical well bore. The samples showed moderately good to good oil shows through out the drilling of the lateral in the 1-B zone, until reaching termination.

The objectives of the Ratherford Unit #17-13 Leg 1 horizontal lateral were to identify and define the porosity zone of the 1-B bench of the Desert Creek Member of the Upper Paradox Formation, and to evaluate the effective porosity, and reservoir properties. These objectives were accomplished and it became apparent that the 1-B zone in this lateral direction can be considered as a single predominately homogeneous unit. After completing the curve section of the lateral, the lateral section required intermitted sliding to maintain vertical and horizontal plane direction. The borehole remained within nine feet or less of the proposed target line and in the 1-B porosity zone.

The Lower Ismay, Gothic Shale, the transition zone at the top of the Desert Creek, the 1-A porosity zone, the 1-A to 1-B transition zone, and the 1-B porosity zone were encountered while drilling the curve section of the lateral. Kick off point for this lateral was 5448' measured and true vertical depth, at very top of the carbonates and marls of the Lower Ismay.

The top of the Lower Ismay was picked at 5448' measured depth, 5448' true vertical depth, at the base of the very thin Hovenweep shale. This pick was based on the vertical well electric logs, as the kick off point for this lateral was at the thin Hovenweep Shale to Lower Ismay contact. The upper Lower Ismay limestones were predominately white to cream to tan, occasionally brown, with some scattered light gray brown, microcrystalline to cryptocrystalline, scattered thin streaks of very finely crystalline to granular, clean to earthy, and very slightly silty. Minor amounts of chert and rare scattered microfossils were also observed. These limestone had streaks of fair intercrystalline, to very rare spotty pin point vuggular and very poor fractured porosity. The fractures showed minor anhydrite and calcite crystal growth and filling in the fractures. The minor porosity had spotty fair visible fluorescence, stain and cut. Thinly interbedded in the limestones were scattered light to dark brown,

thin, minor dolomites which were microcrystalline, earthy to clean, with poor intercrystalline porosity, and no visible to very rare faint dull yellow fluorescence, rare spotty brown stain and a very poor diffuse to residual ring cut. The limestones and interbedded dolomites in the base of the Lower Ismay were light brown to gray brown, slightly mottled, cryptocrystalline to microcrystalline, and clean to argillaceous, becoming increasingly shaley, and grading into calcareous to dolomitic, carbonaceous shale. The basal Lower Ismay limestones and dolomites lay gradationally over the Gothic Shale.

Penetration of the Gothic Shale occurred at 5493' measured depth, 5490' true vertical depth. The Gothic Shale was predominantly dark gray to black to dark gray brown, carbonaceous, silty, brittle to firm, subblocky to fissile, calcareous to slightly dolomitic and slightly micaceous, with minor silty material. The top of the Gothic was gradational from the very thin interbedding of very argillaceous, dolomitic limestones and limy dolomites, to the very dolomitic to calcareous, carbonaceous shale. The top of the Gothic was picked predominantly by a slight decrease in penetration rate and an increase in the percentage of shale in the samples.

A gradational transitional zone appears between the Gothic Shale and the top of the Desert Creek Porosity members of the Paradox Formation; and it is within this zone where the top of the Desert Creek member is commonly picked due to a very noticeable facies and penetration rate change. In this leg the top of the Desert Creek was picked at a measured depth of 5509' and at a true vertical depth of 5503'. The zone was predominately a slightly dolomitic, very dense cryptocrystalline to microcrystalline limestone, with thinly interbedded brown, limy, argillaceous dolomites and very thin carbonaceous shales. The limestones were cream to tan, some gray to brown, crypto to microcrystalline, argillaceous, with very rare intercrystalline porosity, but only very rare, spotty, dull mineral fluorescence, with no visible stain or cut. The interbedded dolomites were microcrystalline to granular, slightly silty and had no visible porosity or sample show. The limestones graded into the oolitic to oolmoldic limestone grainstones and the thin dense limestone packstones of the 1-A porosity zone.

The top of the Desert Creek 1-A porosity zone began at 5512' measured depth, 5505' true vertical depth and was noted by sample identification and a significant increase in the penetration rate. The top of the 1-A porosity in this lateral was in a very oolitic, clean to very slightly dolomitic, slightly anhydritic limestone grainstone with interbedded dense limestone packstone and very thin, dense limy dolomites near the top. The limestones were tan to cream to white, light brown to occasionally light gray brown, cryptocrystalline to very fine crystalline, granular to micro sucrosic, with oolitic to intercrystalline porosity. Interbedded within the oolitic limestones were scattered dense limestone packstones. The oolitic to oolmoldic limestones had fair to good sample shows within this zone. The 1-A porosity zone appears to be 14' (true vertical thickness) thick and with streaks of dense packstones interbedded in the porosity throughout most of the section. At a measured depth of 5530', 5519' true vertical depth the bottom of 1-A porosity bench was encountered and was indicated by a decrease in the drill rate. The transition zone between the 1-A and the 1-B porosity benches appeared to be approximately 13 feet thick, and was marked by a obvious facies change from oolitic to oolmoldic limestone grainstones to a dense to chalky platy anhydritic limestone packstones, that had thin interbedded oolitic grainstones, with only a very minor oil shows.

The top of the oolitic to oolmoldic limestone grainstone porosity of the 1-B porosity zone picked at a measured depth of 5551', 5532' true vertical depth. The top was marked by a significant increase in the oolitic to oolmoldic limestone lithology and penetration rate. Lithology of the 1-B porosity zone consisted of light brown to tan to medium brown to occasionally dark brown, microcrystalline to very fine crystalline, granular to microsucrosic with traces of sucrosic streaks, oolitic to oolmoldic limestone grainstone. These oolitic limestones were had traces of dolomitic rich cement, slightly anhydritic to traces of crystal anhydrite inclusions and some porosity filling. Very thinly interbedded throughout the grainstones, in minor amounts were very rare scattered tan to light brown, white to cream to rare light gray brown, cryptocrystalline to microcrystalline, dense occasionally oolitic, chalky, platy, anhydritic packstones. The limestone grainstones had good to fair

oolitic to oolimoldic to intercrystalline porosity, with fair to good even dull to moderately bright with traces of spotty bright yellow fluorescence, fair to good light brown to brown stain with traces of dark brown to black dead oil stain* and a good slow to moderately fast to fast streaming milky cut. The minor amounts of oil, as well as the intermittent 1' to 10' flare continued as the curve penetrated the 1-B porosity zone. There were thin interbedded dense cryptocrystalline packstones noted, which were predominately tight with no to very rare sample shows. Very rare scattered thin black, carbonaceous, calcareous to dolomitic shale partings, as well as brown, cryptocrystalline to microcrystalline, argillaceous to dense, dolomite fragments with no oil shows, which were predominately cavings, and very rare gray to gray brown chert fragments were also noted.

At a measured depth of 5604' and a true vertical depth of 5546' the curve was landed with an inclination of 88.9 degrees and a horizontal displacement of 126 feet, in the 1-B porosity zone, 4' above the proposed target line. After landing curve section with in the purposed porosity zone, drilling of the lateral section was commenced in a northwesterly direction on March 23, 1998, with the well bore slowly turned upward to reach an angle of approximately 90 degrees. The lithology of the 1-B porosity zone from the top of the zone to the landing of the curve was constant and consisted of brown to light brown to tan, oolitic to oolimoldic grainstone limestones, with very rare to traces of dense to very rare chalky platy packstones. Sample shows were good to fair in the oolitic to oolimoldic and intercrystalline porosity.

On March 23, 1998, at the measured depth of 5604', the northwesterly lateral section in the 1-B porosity zone was commenced. The well bore was oriented upward at a very shallow angle to bring the well path level. The well path remained approximately level in the good oolitic to oolimoldic limestones grainstones, with good sample shows until reaching a measured depth of 6060', true vertical depth of 5544.5', with a horizontal displacement of 582', at approximately 6' above the proposed target line, the well path turned abruptly upward. Until this point the average angle of declination was 89.9 degrees. At the measured depth of 6060' the angle rose to 92.8 degrees. There was no noticeable change in the penetration rate to indicate a change in lithology from the good oolitic to oolimoldic limestone to a denser limestone packstone noted in the samples. It was interpreted that the bit had glanced of a very thin tight streak of packstone, trending slightly upward with in the porosity. A series of short slides to bring the well path level was begun, as the well path drifted upward to a maximum true vertical depth of 5439', at a measured depth of 6324', with a horizontal displacement of 847'. The well path was continued and allowed to drift downward at a very shallow angle. The lithology through this interval was light brown to brown, occasionally cream to tan, very fine crystalline to microcrystalline, granular to microsucrosic, with rare sucrosic streaks, oolitic to oolimoldic, very slightly dolomitic to anhydritic limestone grainstones, with very rare scattered dense to platy packstones. Through out the sample shows remained good.

At a measured depth of approximately 6540', 5544' true vertical depth, with a horizontal displacement of 1065', a significant downward change in the inclination angle was noted. The lateral was continue to it's total depth of 6832' measured depth, 5555.5' true vertical depth and a horizontal displacement of 1354', with slides upward to control the rate of drop in the well bore. Another tight streak or the top of the 1-B zone was interpreted to be pushing the well path downward. The lateral through out this interval showed a slightly slower penetration rate when the drilling assembly was rotated and a significantly slower rate when slide to angle correction. The lithology remained predominately the brown to light brown to tan, occasionally some cream, micro to very finely crystalline, granular to micro sucrosic, oolitic to oolimoldic limestone grainstones, with good oolitic to intercrystalline porosity, and fair to good sample shows. This interval showed very minor increases in the amounts of dense to platy packstones with no visible oil shows. A slide begun at a measured depth of 6800' to 6809', slowed to a completed halt of the drill string, forcing the remaining 23' of the lateral to be rotated, with the well path still being forced downward. From the measured depth of 6810' to the lateral's termination at a measured depth of 6832', 5555.5' true vertical depth, and a horizontal displacement of 1354', significant amounts of dense, occasionally chalky to platy, very slightly oolitic packstones were seen. The sample show through this interval also decreased.

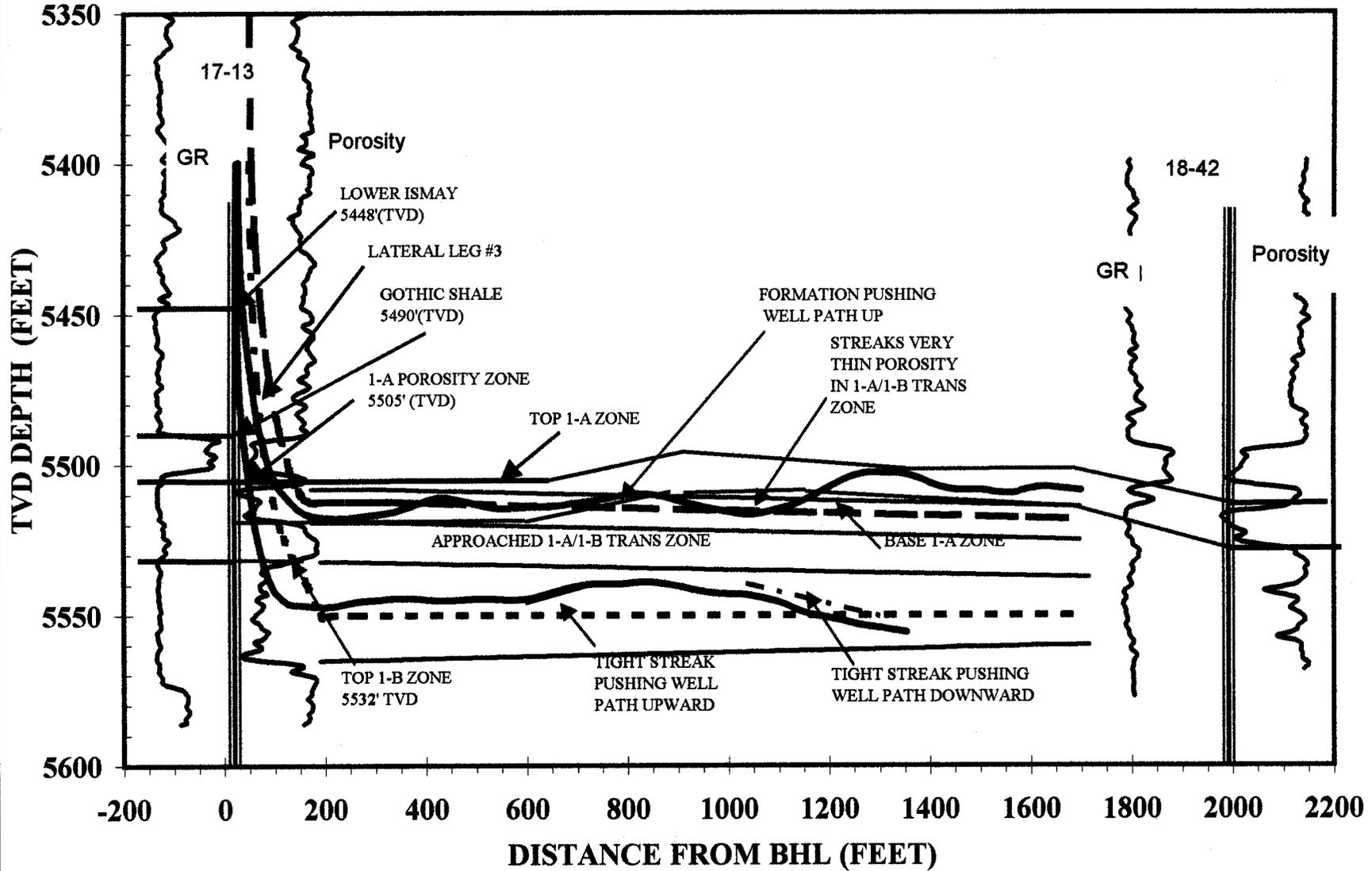
Sliding to control the drop angle and the horizontal directions of the well path, could no longer be achieved due to hole conditions. So, the lateral was terminated in the downward dipping tight streak or possible top of the 1-B zone. The 17-13 Lateral Leg #1 was terminated on March 25, 1998' at a measured depth of 6832', 5555.5' true vertical depth, and a horizontal displacement of 1354' within the thinning porosity of the 1-B porosity zone.

In tracking the northwesterly lateral in the 1-B porosity zone, is that in this area the oolitic to oolimoldic limestone porosities are consistent throughout the zone. Having a minor effect on the porosity, were the minor amounts of anhydrite filled porosity and the scattered, very thin, dense to platy limestone packstones interbedded throughout the 1-B zone, as well as the upward dipping tight streaks and then downward (or possible top) encountered with in the lateral. Staining was fair to good through out, with sections having a trace to fair stain, and the amount of black dead oil staining trapped in the oolitic to oolimoldic porosity ranging from a trace to fair amount. The fluorescence and cuts remained predominately good through out, decreasing in the last 23' of lateral. The lateral used the proposed target line as a reference point through the 1-B bench. The well bore was allowed to follow the line of best porosity after entering the 1-B porosity zone which resulted in the lateral remaining an average of 6' above the target line until reaching a horizontal displacement of 1065'. From 1065' of horizontal displacement to the lateral's termination, when the well path was forced downward, the lateral dropped in true vertical depth until the lateral was terminated below the proposed target line.

While drilling the curve and lateral sections, the increases in background gas was due to the minor amounts of oil encountered while drilling the Lower Ismay as well as the 1-A and 1-B porosity benches in the curve, and also in the 1-B zone in the lateral. A slow increase in the background gases was noted when the 1-A zone was penetrated at a measured depth of 5512' in the curve section, until reaching a measured depth of 6640' when a slow decreasing in background was noted to the lateral's termination. While this lateral was drilled as a northwesterly sidetrack of an production well in the Upper Desert Creek 1-B porosity zone, is seen to have very good reservoir qualities that have yet to be flushed from the offsetting injector wells. It appears that the porosities are well enough developed, in this northwesterly direction to enhance the overall production performance of the 1-B porosity zone.

*The black residual staining has been called by Dr. Dave Eby & others as "bitchimum" and is also known as "dead oil" ("dd o stn" on mud logs). This staining is associated with the movement of oil over long periods of time and is a good indicator of producible hydrocarbons when associated with productive porosities, but can also be found in porosities that have been filled by anhydrites and other material at later dates.

MOBIL, Ratherford Unit #17-13, Northwest Laterals



MOBIL

RATHERFORD UNIT #17-13
SE HORIZONTAL LATERAL LEG #2
UPPER 1-B POROSITY BENCH
DESERT CREEK MEMBER
PARADOX FORMATION
SECTION 17, T41S, R24E
SAN JUAN, UTAH

GEOLOGY REPORT
by
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ROCKY MOUNTAIN GEO-ENGINEERING CORP.
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WELL SUMMARY

OPERATOR: MOBIL EXPLORATION & PRODUCTION U.S. INC.

NAME: RATHERFORD UNIT #17-13 SE HORIZONTAL LATERAL
LEG #2 IN UPPER 1-B POROSITY BENCH, DESERT CREEK

LOCATION: SECTION 17, T41S, R24E

COUNTY/STATE: SAN JUAN, UTAH

ELEVATION: KB:4735' GL:4748'

SPUD DATE: 3/26/98

COMPLETION DATE: 3/29/98

DRILLING ENGINEER: BENNY BRIGGS

WELLSITE GEOLOGY: DAVE MEADE / MARVIN ROANHORSE

MUDLOGGING ENGINEERS: DAVE MEADE / MARVIN ROANHORSE

CONTRACTOR: BIG "A" RIG 25
TOOLPUSHER: J. DEES /M. SMITH

HOLE SIZE: 4 3/4"

CASING RECORD: SIDETRACK IN WINDOW AT 5448' MEASURED DEPTH

DRILLING MUD: M-I
ENGINEER: RON WESTENBERGE / MIKE PITTSINGER
MUD TYPE: FRESH WATER & BRINE WATER W/ POLYMER SWEEPS

DIRECTIONAL DRILLING CO: SPERRY-SUN

ELECTICAL LOGGING: NA

TOTAL DEPTH: 6492' MEASURED DEPTH; TRUE VERTICAL DEPTH-5540.3'

STATUS: TOH & LAY DOWN TOOLS - PREPARE WELL FOR NW LEG #3

DRILLING CHRONOLOGY
RATHERFORD UNIT #17-13
1-B SE HORIZONTAL LATERAL LEG #2

DATE	DEPTH	DAILY	ACTIVITY
3/26/98	5457'	24'	TIH W/WHIPSTOCK #2 & STARTER MILL-SET WHIPSTOCK #2 @ 5424'-SHEAR OFF W/25K-MILL CSG 5424' TO 5426'-CIR BTMS UP & PUMP 10 BBLs BRINE WATER-TOH-L.D. STARTER MILL-P.U. WINDOW & WATERMELON MILLS-TIH-MILL FROM 5426' TO 5433'-PUMP SWEEP & CIR BTMS UP-TOH-L.D. MILLS-P.U. CURVE ASSEMBLY & TEST MWD/MUD MOTOR-ORIENT-TIH-P.U. 2 JTS PIPE & PUP JTS-CIR-R.U. GYRO DATA & RUN IN W/GYRO- TIME DRLG @ 2 MINS/ INCH FROM 5433'-5436' - TIME DRLG W/WIRELINE SURVEYS FROM 5436'-5448'
3/27/98	5448'	205'	DIR DRLG W/WIRELINE SURVEYS FROM 5448'-5460'PULL GYRO & RIG DOWN GYRO DATA-L.D PUP JT-DIR DRLG & SURVEYS-PUMP SWEEP & CIR OUT SPLS @ 5601' (TD OF CURVE)-TOH-L.D. CURVE ASSEMBLY-P.U. LATERAL BHA W/BIT #2 & TEST MWD / MUD MOTOR-TIH-P.U. PH6 - TIH W/ LATERAL ASSEMBLY-CIR BTMS UP-DIR DRLG & SURVEYS
3/28/98	5698'	703'	DIR DRLG & SURVEYS
3/29/98	6401'	91'	DIR DRLG & SURVEYS TO 6492'(TD LATERAL LEG #2) -PUMP SWEEP & CIR OUT SPLS-TOH-L.D. LATERAL ASSEMBLY-P.U. SUPER HOOK-TIH-LATCH INTO WHIPSTOCK & RETRIEVE-TOH-L.D. HOOK ASSEMBLY & WHIPSTOCK #2 -P.U. WHIPSTOCK #3 & STARTER MILL-TIH-SET WHIPSTOCK #3 @ 5402'-MILL W/STARTER MILL 5402' TO 5404'-CIR BTMS UP & PUMP 20 BBLs BRINE WATER-CK FOR FLOW (NO FLOW)
3/30/98	6492'/ 5404'	2'	SEE R.U. 17-13 LEG #3 REPORT

DAILY ACTIVITY

Operator: MOBIL

Well Name: RATHERFORD UNIT #17-13 SE 1-B HORIZONTAL LATERAL LEG #2

DATE	DEPTH	DAILY	DATE	DEPTH	DAILY
3/26/98	5457' (whip stock)	24'			
3/27/98	5448'	205'			
3/28/98	5698'	703'			
3/29/98	6401'	91'			
3/30/98	6492'	TD			

BIT RECORD

OPERATOR: MOBIL

WELL NAME: RATHERFORD UNIT #17-13 SE 1-B HORIZONTAL LATERAL LEG #2

RUN	SIZE	MAKE	TYPE	IN/OUT	FTG	HRS	FT/HR
#1 (RR)	4 3/4"	STC	MF-3P	5433'/ 5601'	168'	13	12.9
#2	4 3/4"	STC	MF-15GP	5601'/ 6492'	891'	33.5	26.6

SPERRY-SUN DRILLING SERVICES
SURVEY DATA

Customer ... : Mobil (Utah)
Platform ... : RATHERFORD UNIT
Slot/Well .. : BA25/17-13 2A1

MEASURED DEPTH	ANGLE DEG	DIRECTION DEG	TVD	NORTHINGS FEET	EASTINGS FEET	VERTICAL SECTION	DOG LEG
5400.00	0.54	331.44	5399.50	33.80 N	1.20 E	-13.20	0.00
5424.00	0.67	340.85	5423.50	34.03 N	1.10 E	-13.39	0.68
5433.00	4.00	115.00	5432.49	33.95 N	1.37 E	-13.11	49.92
5443.00	8.90	115.80	5442.43	33.47 N	2.38 E	-11.98	49.01
5453.00	14.30	116.60	5452.22	32.58 N	4.18 E	-9.98	54.02
5463.00	19.80	117.40	5461.77	31.24 N	6.79 E	-7.05	55.05
5473.00	25.30	118.20	5471.01	29.45 N	10.18 E	-3.22	55.08
5483.00	30.50	119.00	5479.84	27.21 N	14.29 E	1.45	52.13
5493.00	36.20	119.50	5488.19	24.52 N	19.08 E	6.93	57.07
5503.00	41.00	120.20	5496.00	21.42 N	24.49 E	13.14	48.20
5513.00	46.20	120.10	5503.24	17.95 N	30.45 E	20.01	52.00
5523.00	50.70	115.50	5509.88	14.48 N	37.07 E	27.48	56.64
5533.00	54.90	112.90	5515.92	11.22 N	44.34 E	35.44	46.82
5543.00	59.30	117.00	5521.35	7.67 N	51.94 E	43.83	55.85
5553.00	64.60	118.50	5526.05	3.56 N	59.75 E	52.64	54.63
5563.00	70.50	119.20	5529.87	0.90 S	67.84 E	61.86	59.35
5573.00	76.00	119.60	5532.75	5.60 S	76.18 E	71.41	55.13
5601.00	87.70	121.00	5536.72	19.56 S	100.06 E	98.96	42.08
5627.00	87.60	118.20	5537.78	32.39 S	122.65 E	124.85	10.77
5658.00	89.90	116.30	5538.46	46.58 S	150.20 E	155.81	9.62
5690.00	91.10	117.00	5538.18	60.93 S	178.80 E	187.80	4.34
5722.00	90.20	116.80	5537.82	75.41 S	207.33 E	219.78	2.88
5754.00	90.40	117.30	5537.65	89.96 S	235.83 E	251.76	1.68
5785.00	91.10	117.80	5537.24	104.30 S	263.31 E	282.72	2.77
5816.00	89.80	116.30	5537.00	118.40 S	290.92 E	313.70	6.40
5848.00	90.00	116.40	5537.05	132.60 S	319.60 E	345.69	0.70
5880.00	91.10	116.80	5536.75	146.93 S	348.21 E	377.68	3.66
5912.00	90.30	115.90	5536.36	161.13 S	376.88 E	409.66	3.76
5943.00	90.50	116.80	5536.14	174.89 S	404.66 E	440.66	2.97
5975.00	90.50	116.30	5535.86	189.19 S	433.28 E	472.64	1.56
6007.00	91.10	115.40	5535.41	203.14 S	462.08 E	504.63	3.38
6038.00	90.40	114.00	5535.01	216.09 S	490.24 E	535.63	5.05
6069.00	90.60	113.10	5534.74	228.48 S	518.65 E	566.62	2.97
6101.00	89.30	112.00	5534.77	240.75 S	548.21 E	598.59	5.32
6133.00	88.90	110.60	5535.27	252.37 S	578.02 E	630.52	4.55
6165.00	90.40	109.90	5535.46	263.45 S	608.04 E	662.41	5.17
6197.00	91.50	109.60	5534.93	274.26 S	638.15 E	694.27	3.56
6228.00	89.00	112.60	5534.80	285.42 S	667.07 E	725.19	12.60

SPERRY-SUN DRILLING SERVICES
SURVEY DATA

Customer ... : Mobil (Utah)
Platform ... : RATHERFORD UNIT
Slot/Well .. : BA25/17-13 2A1

MEASURED DEPTH	ANGLE DEG	DIRECTION DEG	TVD	NORTHINGS FEET	EASTINGS FEET	VERTICAL SECTION	DOG LEG
6260.00	90.10	112.20	5535.05	297.61 S	696.65 E	757.15	3.66
6292.00	90.10	111.30	5534.99	309.47 S	726.37 E	789.10	2.81
6324.00	89.90	110.60	5534.99	320.91 S	756.26 E	821.02	2.28
6356.00	86.50	110.60	5536.00	332.16 S	786.19 E	852.91	10.63
6387.00	86.50	110.60	5537.89	343.05 S	815.15 E	883.76	0.00
6418.00	88.60	111.50	5539.22	354.17 S	844.06 E	914.65	7.37
6449.00	89.30	112.20	5539.78	365.71 S	872.82 E	945.60	3.19
6461.00	89.30	113.30	5539.93	370.35 S	883.89 E	957.59	9.17
6492.00	89.30	113.30	5540.31	382.61 S	912.36 E	988.58	0.00

THE DOGLEG SEVERITY IS IN DEGREES PER 100.00 FEET.
 N/E COORDINATE VALUES GIVEN RELATIVE TO WELL SYSTEM REFERENCE POINT.
 TVD COORDINATE VALUES GIVEN RELATIVE TO WELL HEAD.
 THE VERTICAL SECTION ORIGIN IS WELL HEAD.
 THE VERTICAL SECTION WAS COMPUTED ALONG 115.00 (TRUE).
 CALCULATION METHOD: MINIMUM CURVATURE.

SURVEY #492' IS PROJECTED TO BIT AT TD.

MUD REPORT

OPERATOR: MOBIL

WELL NAME: RATHERFORD UNIT #17-13 SE 1-B HORIZONTAL LATERAL LEG #2

DATE	DEPTH	WT	VIS	FLS	YLD	GEL	PH	WL	CK	CHL	CA	SD	OIL	WTR
3/26/98	5432'	9.0	26	1	1	0/0	12.5	NC	NC	62K	480	-	2%	98%
3/27/98	5540'	8.9	26	1	1	0/0	13.0	NC	NC	59K	480	-	2%	98%
3/28/98	6026'	9.0	26	1	1	0/0	13.0	NC	NC	59K	480	-	2%	98%
3/29/98	6492'	8.7	28	1	1	0/0	11.5	NC	NC	44K	500	-	7%	93%

SAMPLE DESCRIPTIONS

OPERATOR: MOBIL

WELL NAME: RATHERFORD UNIT #17-13 SE 1-B HORIZONTAL LATERAL LEG #2

DEPTH	LITHOLOGY
5433.00 5440.00	"LS lt-mbrgy,wh,occ tan-crm,ltgy,crpxl,occ micxl,dns-thn chky plty-sl arg,sl mrly ip,anhy/tr xln ANHY,v rr ltbrn-tan CHT frag,tt-v rr intxl POR,NFSOC,w/tr SH dkbrn-brnblk,plty,sft-frm,sl slty-arg,sl carb"
5440.00 5450.00	"LS AA,bcmg rthy-sl slty,chky-sl anhy/tr xln ANHY,tt-rr intxl POR,NFSOC,w/tr DOL m-dkbrn,crpxl,sl shy-v sl arg,tt,NFSOC & rr SH AA"
5450.00 5460.00	"LS lt-mbrngy-ltgy,mbrn-dkbrn-brnblk,tr tan,wh,crpxl-sl micxl,rthy-shy,chky-sl anhy,occ dol grdg to shy-arg lmy DOL,rr dkbrn CHT,dns,tt-rr intxl POR,NFSOC"
5460.00 5470.00	"LS m-ltgybrn-ltgy,ltbrn,occ dkbrn-brnblk,tr wh,crpxl-occ micxl,rthy,occ sl shy-slty,arg ip,chky-sl anhy/tr xln ANHY incl,tt,NFSOC w/tr DOL,dk-mbrn,crpxl,sl shy,arg,lmy ip,tt,NFSOC"
5470.00 5480.00	"LS wh-crm-ltgy,tan,rr brn,crpxl,chky/tr ANHY xl-incl-v rr frac fl,tr DOL strk,rr blk SH lam,dns,tt-v rr frac-intxl POR,scat bri yel FLOR,rr spty dkbrn-blk STN,tr slow-mod fast stmg CUT"
5480.00 5490.00	"LS AA,sl incr frac-intxl POR,FLOR-STN-CUT AA,w/incr brn micxl-gran DOL,tr intxl POR,fr dull-bri yel FLOR,tr brn STN,fr mod fast stmg CUT"
5490.00 5500.00	"LS & DOL AA,w/tr POR-FLOR-STN-CUT AA,occ DOL v arg,w/LS & DOL grdg to blk carb SH"
5500.00 5510.00	"SH dkgy-blk,occ dkgybrn,sbblky-sbplty,fis ip,mfrm-brit,dol-calc,sl mica,v sl slty,carb-sooty,w/scat dns tt crpxl crm-tan LS & gybrn-brn crpxl arg-mrly DOL frag,NFSOC"
5510.00 5520.00	"LS ltbrn-brn,occ crm-wh-ltgy,crpxl-vfxl,occ gran-micsuc,pred dns sl dol PKST-grdg to sl ooc-oom GRNST,tt-fr intxl-tr ool POR,tr bri yel FLOR,rr brn-v rr blk STN,tr slow-mod fast CUT & thn intbd arg-mrly brn micxl-crpxl rthy lmy DOL w/tr POR-FLOR-STN CUT"
5520.00 5540.00	"LS ltbrn-brn,crpxl-vfxl,occ gran-micsuc,pred ooc-oom GRNST,scat & bcmg dns chk-plty PKST,rr ANHY xl-incl-POR fl,sl dol,v rr trnsl CHT frag,fr-g ool-tr intxl POR,fr-mg bri yel FLOR,fr brn-tr blk STN,fr-g mod fas-fast stmg mlky CUT,scat tt DOL FRAG-SH CVGS"
5540.00 5570.00	"LS crm-wh,occ tan,rr brn,crpxl-micxl,w/v rr thn vfxl-gran stks,n-v rr ooc-oom mat,pred chk-dns-plty sl fos PKST,v rr GRNST stks,occ ANHY xl-rr FRAC fl,v sl dol cmt,pred tt,w/v rr stks intxl-ool-frac POR,spty bri yel FLOR,spty brn-rr blk STN,rr dif CUT"

DEPTH	LITHOLOGY
5570.00 5580.00	"LS AA,bcmg pred ltbrn-brn,micxl-vfxl,gran-micsuc ooc-oom GRNST,w/decr ool plty-chk PKST,decr ANHY fl-incl,v rr-n frac POR,pred fr-mg intxl-ool POR,mfr bri yel FLOR,fr brn STN-tr blk dd o STN,bcmg fr-g mod fast stmg CUT "
5580.00 5601.00	"LS lt-mbrn,occ dkbrn,tan-crm ip,micxl-vfxl,gran-occ suc,pred ooc-oom GRNST,w/scat thn crpxl sl ool PKST incl-lams,scat ANHYxl-v rr POR fl,occ DOL cmt,n-v rr bf-brn CHT frag,g intxl-fr ool POR,fr-g bri yel FLOR,g brn-dkbrn-tr blk STN,fr-g fast stmg CUT"
5601.00 5620.00	"LS m-dkbrn,occ tan-crm-wh,gran-vfxl,sl micxl-crpxl,ooc-oom GRNST,tr intbd dns-scat chky plty PKST,sl anhy/tr xln ANHY-rr POR fl,sl dol/tr DOL cmt,g ool-tr intxl POR,g even mod bri-scat bri yel FLOR,g brn-dknbrn/occ blk dd o STN,g fast stmg mlky CUT"
5620.00 5630.00	"LS AA,ooc-oom GRNST,tr intbd dns sl ool-rr chky plty PKST,sl anhy/rr xln ANHY-POR fl,sl dol/tr DOL cmt,POR-FLOR AA,g brn-dknbrn/tr blk dd o STN,g fast stmg mlky CUT"
5630.00 5650.00	"LS lt-mbrn,tan,occ dkbrn,tr crm-wh,vfxl-gran,occ sl micsuc-micxl,crpxl,ooc-oom GRNST,tr dns-rrchky plty PKST,sl anhy/rr POR fl-xln ANHY,sl dol,POR AA,g even mod bri/scat bri yel FLOR,g ltbrn-brn/scat dkbrn-blk dd o STN,g fast stmg-sl blooming mlky CUT"
5650.00 5660.00	"LS lt-mbrn,occ tan-crm-wh,tr dkbrn,gran-vfxl,sl micsuc-crpxl,ooc-oom GRNST/incr thn chky plty-tr dns PKST,sl anhy/tr xln ANHY-POR fl,sl dol/tr DOL cmt,POR-FLOR-STN-CUT AA"
5660.00 5670.00	"LS AA,ooc-oom GRNST/decr PKST AA,sl anhy/tr POR fl-rr xln ANHY,v sl dol/rr DOL cmt,POR AA,g-fr mod bri/tr bri yel FLOR,STN AA,g fast stmg mlky CUT"
5670.00 5680.00	"LS AA,ooc-oom GRNST/tr thn chky plty-dns PKST,sl anhy,tr POR fl-rr xln ANHY,sl dol/tr DOL cmt,POR AA,g even mod bri-bri yel FLOR,g lt-mbrn/scat dkbrn-blk dd o STN,g fast stmg-sl blooming mlky CUT"
5680.00 5700.00	"LS lt-mbrn,occ tan-crm-wh,tr dkbrn,gran-vfxl,sl micsuc-crpxl,GRNST AA/decr PKST AA,sl anhy AA,sl dol/tr DOL cmt,g ool/tr intxl POR,g even mod bri-dull/tr bri yel FLOR,g lt-mbrn/tr dknbrn-blk dd o STN,g fast stmg mlky CUT"
5700.00 5720.00	"LS lt-mbrn,occ tan-crm-wh,tr dkbrn,gran-vfxl-sl micsuc,tr crpxl,ooc-oom GRNST/tr dns intbd sl ool PKST,chky-sl anhy/sl incr POR fl-rr xln ANHY,sl dol,g ool/tr intxl POR,g even mod bri-bri yel FLOR,g-fr lt-mbrn/scat dkbrn-blk dd o STN,CUT AA"

DEPTH	LITHOLOGY
5720.00 5740.00	"LS AA,gran-vfxl-sl micsuc,tr crpxl,oc-oom GRNST/rr intbd dns PKST,chky-sl anhy/tr POR fl-rr xln ANHY,sl-v sl dol,POR AA,g even mod bri-dull/scat bri yel FLOR,g-fr lt-mbrn/scat dkbrn-blk dd o STN,g fast-mod fast stmg mlky CUT"
5740.00 5760.00	"LS ltbrn-tan-crm,occ mbrn,tr dkbrn,rr wh,gran-vfxl-sl micsuc,tr crpxl,GRNST AA/tr dns intbd sl ool-v rr thn plty PKST,chky-sl anhy/POR fl-rr xln ANHY,sl dol/tr DOL cmt,POR-FLOR AA,g-fr lt-mbrn/scat blk dd o-tr dkbrn STN,CUT AA"
5760.00 5790.00	"LS AA,gran-vfxl-micsuc,tr micxl-crpxl,oc-oom GRNST/tr intbd dns sl ool-rr thn plty PKST,chky-sl anhy/POR fl-rr xln ANHY,sl dol/tr DOL cmt,g ool/tr intxl POR,g even dull-mod bri/scat bri yel FLOR,g-fr lt-mbrn/scat dkbrn-blk dd o STN,g fast stmg mlky CUT"
5790.00 5810.00	"LS ltbrn-tan-crm,occ m-dkbrn,rr wh,gran-vfxl-sl micsuc,tr crpxl,GRNST AA/tr dns intbd sl ool PKST,chky-sl anhy/POR fl-rr xln ANHY,sl dol/tr DOL cmt,POR AA,g even dull-mod bri/spty bri yel FLOR,g-fr lt-mbrn/scat dkbrn-blk dd o STN,g fast stmg mlky CUT"
5810.00 5830.00	"LS ltbrn-tan,occ m-dkbrn,crm,rr wh,gran-vfxl-sl micsuc,tr crpxl,GRNST AA/tr dns intbd sl ool PKST,chky-sl anhy/tr POR fl-rr xln ANHY incl,sl dol/tr DOL cmt,POR-FLOR AA,g-fr lt-mbrn/occ dkbrn-incr blk dd o STN,g sl blooming-fast stmg mlky CUT"
5830.00 5850.00	"LS lt-mbrn,occ dkbrn-gybrn,rr crm,crpxl-vfxl,gran-micsuc ip,pred ooc-oom GRNST,v rr dns sl ool anhy ip PKST,v rr ANHY xl-incl-v rr POR fl,DOL cmt ip,g ool-fr intxl POR,g dull-tr bri yel FLOR,fr brn-mbrn STN-tr blk dd o STN,fr-g fast stmg mlky CUT"
5850.00 5870.00	"LS AA,w/v rr scat trnsl-clr CHT frag,POR-FLOR-STN-CUT AA"
5870.00 5880.00	"LS pred ooc-oom GRNST,incr dns ool crpxl sl anhy PKST incl-frag,tt-fr intxl-ool POR,fr dull-tr bri yel FLOR,fr-mg lt-mbrn STN,tr blk dd o STN,fr-g mod fast-fast stmg CUT"
5880.00 5890.00	"LS AA,pred ooc-oom GRNST w/v sl incr PKST AA-lams-frag,POR-FLOR-STN-CUT AA"
5890.00 5920.00	"LS tan-mbrn,crm-wh ip,crpxl-vfxl,gran-micsuc ip,intbd ooc-oom GRNST & dns sl ool PKST,occ anhy-tr ANHY xl-rr POR fl,v sl dol cmt,n-v rr scat trnsl CHT frag,tt-v g intxl-ool POR,fr-g dull-bri yel FLOR,tr-fr brn-rr spty blk STN,n-v g mod fast-fast stmg CUT"
5920.00 5940.00	"LS AA,pred fr-g intxl-tr-fr ool POR,fr-mg ltbrn-tr mbrn STN,rr-tr spty blk dd o STN,n-mg mod fast-fast stmg mlky CUT"
5940.00 5960.00	"LS tan-brn,crm ip,micxl-vfxl,gran-micsuc,occ suc,sl ool-oom GRNST,w/thn intbd sl ool anhy rr chk-plty PKST,occ DOL cmt,v rr trnsl CHT frag,scat ANHY xl-POR fl,tt-mg intxl-fr ool POR,fr-g dull-bri yel FLOR,fr brn-dkbrn STN-spty blk dd o STN,g fast CUT"

DEPTH	LITHOLOGY
5960.00 5980.00	"LS tan-ltbrn,occ brn,rr crm-wh,micxl-vfxl,occ gran-micsuc,pred sl ooc-oom GRNST,w/thn stks sl ool crpxl occ chk-ptyPKST,sl anhy-rr ANHY xl,DOL cmt ip,tt-g intxl-fr ool POR,mg dull-fr bri yel FLOR,tr-fr brn STN-rr spty blk dd o STN,fr-g fast stmg CUT"
5980.00 6010.00	"LS AA,pred ooc-oom GRNST,w/scat thn PKST AA,v rr scat clr-bf CHT frag,rr scat ANHY xl-incl-v rr POR fl,fr-g dull-fr bri yel FLOR,tr-fr ltbrn-tr brn STN,rr spty blk dd o STN,fr-g fast stmg mlky CUT"
6010.00 6020.00	"LS AA,intbd ooc-oom GRNST & dns sl ool PKST AA,rr trnsl-clr CHT frag,tt-fr intxl-tr ool POR,mg dull-fr bri yel FLOR,fr ltbrn-tr mbrn STN-rr spty blk dd o STN,fr slow-tr fast stmg CUT"
6020.00 6040.00	"LS tan-ltbrn,occ brn,rr crm,micxl-vfxl,occ gran-micsuc,pred sl ooc-oom GRNST w/stks sl ool crpxl occ chk-pty PKST,sl anhy-rr ANHY xl,DOL cmt ip,tt-g intxl-fr ool POR,mg dull-fr bri yel FLOR,tr-fr brn-rr spty blk STN,fr-g mod fast-fr fast stmg mlky CUT"
6040.00 6060.00	"LS tan-ltbrn,occ crm-dkbrn,rr wh,intbd sl ooc-oom GRNST & scat thn dns v sl ool occ pty-chk PKST,AA,tt-g intxl-tr ool POR,fr-g dull-fr bri yel FLOR,tr ltbrn-rr brn STN,fr-g mod fast-fast stmg mlky CUT"
6060.00 6080.00	"LS AA,decr PKST,fr-g intxl-fr ool POR,fr-g dull-bri yel FLOR,fr ltbrn-tr dkbrn STN,fr-g mod fast-fast stmg CUT,occ tr slow dif CUT"
6080.00 6090.00	"LS tan-ltbrn,occ crm-dkbrn,rr wh,intbd sl ooc-oom GRNST & scat thn dns v sl ool occ pty-chk PKST,AA,tt-g intxl-tr ool POR,fr dull-tr bri yel FLOR,tr ltbrn-rr brn STN,fr-g slow-fast stmg mlky CUT"
6090.00 6110.00	"LS tan-ltbrn,occ mbrn-gybrn,crpxl-vfxl,gran-suc ip,occ ooc-oom GRNST w/thn intbd dns v sl ool occ anhy PKST,v rr trnsl-crl CHT frag-ANHY xl-POR fl,sl dol cmt,tt-g intxl-fr ool POR,mfr brn-rr spty blk STN,fr-g slow-fast stmg CUT"
6110.00 6130.00	"LS tan-ltbrn,rr crm-mbrn,crpxl-vfxl,gran-micsuc ip,pred ooc-oom GRNST,w/tr dns sl anhy-rr ool occ chky-pty PKST,scat ANHY xl-POR fl,v sl dol,v rr CHT frag,tr-g intxl-tr ool POR,fr-g dull-tr bri yel FLOR,fr ltbrn-brn-rr spty blk STN,fr slow-fast stmg CUT"
6130.00 6150.00	"LS AA,sl decr dns PKST,incr ool POR,FLOR-STN-CUT AA"
6150.00 6180.00	"LS tan-ltbrn,occ brn,rr crm-wh,crpxl-vfxl,gran-micsuc ip,pred ooc-oom GRNST,w/scat dns occ chky-pty PKST frag-incl,v rr trnsl CHT frag-scat ANHY xl-POR fl,mg intxl-fr ool POR,mg dull-fr bri yel FLOR,fr brn-rr blk STN,fr-g slow-fast stmg CUT"
6180.00 6200.00	"LS AA,pred ooc-oom GRNST,w/scat dns v sl ool occ anhy PKST,v rr CHT frag,v sl DOL rich cmt,fr-g intxl-ool POR,fr-g dull-fr bri yel FLOR,tr-fr ltbrn-rr brn STN-rr spty blk dd o STN,fr-g mod fast-fast stmg mlky CUT"

DEPTH

LITHOLOGY

- 6200.00 6220.00 "LS tan-ltbrn, occ mbrn-crm, micxl-vfxl, gran-suc ip, occ ooc-oom GRNST w/thn intbd dns-crpxl v sl ool occ anhy sl plty PKST, rr trnsl-crl CHT frag-ANHY xl-POR fl, DOL cmt ip, tt-fr intxl-fr ool POR, fr brn-mbrn STN-tr spty blk STN, fr-g mod fast-fast stmg CUT"
- 6220.00 6230.00 "LS tan-ltbrn, occ crm-wh, micxl-vfxl, gran-micsuc, occ sl ooc-oom GRNST, w/thn intbd chk-plty occ sl ool anhy ip PKST lams-frag, rr trnsl CHT frag-tr trnsl ANHY xl-incl, v rr POR fl, mg intxl-tr ool POR, fr dull-tr bri yel FLOR, fr ltbrn-rr blk STN, mg mod fast CUT"
- 6230.00 6260.00 "LS pred tan-ltbrn, rr crm, micxl-vfxl, gran-micsuc ip, rr suc, ooc-oom GRNST, w/thn scat intbd dns occ plty-chk sl ool PKST, v rr CHT frag, anhy ip-rr ANHY xl-tr POR fl, fr dull-tr bri yel FLOR, tr-fr ltbrn STN-rr spty blk dd o STN, fr mod fast-fast stmg mlky CUT"
- 6260.00 6280.00 "LS tan-ltbrn-crm, occ wh, micxl-vfxl, gran-sl micsuc, occ crpxl, pred ooc-oom GRNST/scat-intbd dns sl ool-thn plty chky PKST, sl anhy/tr POR fl-tr intxl ANHY, rr tan-trnsl CHT incl, v sl dol, fr-g ool-intxl POR, g mod bri-dull /scat bri yel FLOR, fr-g ltbrn/ rr dkbrn-blk dd o STN, g slow-mod fast stmg mlky CUT"
- 6280.00 6300.00 "LS tan-ltgybrn, crm-wh, occ ltbrn, tr mbrn-rr dkbrn, vfxl-micxl, gran-sl micsuc, occ crpxl, pred ooc-oom GRNST/incr scat-occ intbd dns sl ool-thn chky plty PKST, anhy/tr xln ANHY-POR fl, fr-g ool-intxl POR, fr scat mod bri/tr bri yel FLOR, fr ltbrn-rr brn-vrr dkbrn & blk dd o STN, fr-g slow stmg mlky CUT"
- 6300.00 6330.00 "LS tan, ltgybrn-crm-wh, tr lt-mbrn, rr dkbrn, vfxl-micxl-gran, crpxl, occ micsuc, pred GRNST AA/scat-occ intbd PKST AA, tr crm-transl CHT, v sl dol, anhy/tr xln ANHY-POR fl, fr-g ool-intxl POR, FLOR AA, fr ltbrn/tr brn-rr dkbrn-blk STN, fr-g dif/g-fr bri res ring CUT"
- 6330.00 6350.00 "LS ltgybrn-tan-crm, occ lt-mbrn, wh, tr dkbrn, micxl-crpxl, occ vfxl-gran, pred dns sl ool-thn chky plty PKST intbd/thn chky ool GRNST strk, anhy/tr xln ANHY-POR fl, rr CHT AA, v sl dol ip, fr intxl-tr ool POR, tr scat mod bri-bri yel FLOR, fr ltbrn-tr brn STN, v p dif/v fnt res ring CUT"
- 6350.00 6360.00 "LS tan-ltbrn-crm, wh, occ brn, crpxl-micxl, occ vfxl-gran, dns-thn chky plty PKST intbd/ool GRNST, anhy/POR fl-tr intxl ANHY, rr xln CALC, sl dol/tr DOL rich cmt, fr intxl-tr ool POR/rr sl frac POR, tr scat mod bri yel FLOR, fr ltbrn/tr brn-rr blk pp STN, CUT AA"
- 6360.00 6380.00 "LS AA, crpxl-micxl, occ vfxl-gran, dns-thn chky plty PKST intbd/incr sl ool GRNST, anhy/POR fl-tr intxl ANHY, rr xln CALC, sl dol/tr DOL rich cmt, rr trnsl-crm CHT, POR-FLOR AA, fr ltbrn/rr brn/blk pp STN, CUT AA"
- 6380.00 6400.00 "LS tan-crm-ltbrn, wh, occ brn, crpxl-micxl, occ vfxl-gran, dns-thn chky plty PKST intbd/sl ool GRNST, anhy/POR fl-tr intxl ANHY, tr tan-crm CHT, rr xln CALC, sl dol, fr intxl-tr ool-rr frac POR, FLOR-STN AA, v p dif/v fnt res ring CUT-v rr v slow stmg mlky CUT"

DEPTH

LITHOLOGY

6420.00 6440.00 "LS tan-ltgybrn-crm,wh.tr brn,crpxl-micxl,occ vfxl-sl
gran,pred dns sl ool-thn chky plty PKST,sl anhy/POR fl-tr xln ANHY,rr brn-tan
CHT,rr xln CALC,sl dol/tr DOL cmt,fr intxl-tr ool POR,fr mod bri/scat bri yel
FLOR,fr ltbrn-rr brn/v rr blk pp STN,fr dif/v fnt res ring CUT-tr slow stmg
CUT "

6440.00 6460.00 "LS tan-brn,occ crm-wh,crpxl-micxl,occ vfxl-gran,occ
micsuc,intbd sl ooc-oom GRNST-sl anhy occ ool chky-plty ip dns PKST,sl dol
cmt,scat ANHY xl-rr POR fl,fr intxl-tr ool POR,mfr dull-rr bri yel FLOR,tr-fr
brn-rr spty blk STN,fr slow-rr mod fast stmg CUT"

6460.00 6480.00 "LS AA,pred dns sl ool chk-plty ip crm-tan PKST,w/thn intbd
sl ooc-oom GRNST,tt-tr intxl-rr ool POR,tr-mfr intxl-rr ool POR,fr ltbrn-brn
STN-rr spty blk dd o STN,n-fr slow-mod fast stmg-tr dif CUT"

6480.00 6492.00 "LS tan-brn-crm,occ wh,crpxl-micxl,occ vfxl-gran,micsuc
ip,intbd sl ooc-oom GRNST & sl anhy occ ool chky-plty ip dns PKST,sl dol
cmt,scat ANHY xl-rr POR fl,tt-fr intxl-ool POR,mfr dull-rr bri yel FLOR,tr-fr
brn-rr spty blk STN,n-fr slow-mod fast stmg CUT"

FORMATION TOPS

OPERATOR: MOBIL

WELL NAME: RATHERFORD UNIT #17-13 SE 1-B HORIZONTAL LATERAL LEG #2

FORMATION NAME		SAMPLES	SAMPLES	DATUM
		MEASURED DEPTH	TRUE VERTICAL DEPTH	KB:4748'
LOWER ISMAY		5450'	5448'	-700'
GOTHIC SHALE		5496'	5490'	-742'
DESERT CREEK		5509'	5503'	-755'
DC 1-A ZONE		5517'	5505'	-757'
DC 1-A / 1-B TRANSITION		5539'	5519'	-771'
DC 1-B ZONE		5571'	5532'	-784'

GEOLOGICAL SUMMARY

AND

ZONES OF INTEREST

The Mobil Exploration and Production U.S., Inc., Ratherford Unit #17-13 Horizontal Lateral Leg #2 was a re-entry of the Mobil Ratherford Unit #17-13 located in Section 17, T41S, R24E, and was sidetracked in a southeasterly direction from a 5433' measured depth, 5432.5' true vertical depth, on March 26, 1998. The lateral reached a measured depth of 6492', true vertical depth of 5540.3' at total depth, with a horizontal displacement of 988.6' and true vertical plane 113 degrees, on March 29, 1998; in the upper Desert Creek 1-B porosity zone, where the decision to terminate the lateral was made. The lateral was drilled with no mechanical problems and remained in the purposed 1-B porosity zone until termination of the lateral. The lateral leg was drilled with fresh water and brine water with polymer sweeps as the drilling fluid. Due to the amount of oil from the previous lateral, no significant increase in oil was noted while drilling either the curve or lateral sections in Lateral Leg #2. The background gases noted on the accompanying mud log showed only minor increases as the Lower Ismay, the Upper Desert Creek 1-A and 1-B porosity zones were drilled. A steady increase in the background gas was noted as the lateral was drilled in the Upper Desert Creek 1-B porosity zone. As the lateral progressed, the background gas reached a high of 1700 units at measured depth of 6240', after which the background gas began slowly decreasing, until oil was added to the mud system to facilitate rotating and sliding in the lateral section at a measured depth of 6330'. The lower gas readings near the end of the lateral is due to the porosity zone pinching out and becoming very thin and streaking at a horizontal distance of 800' from the vertical well bore. The samples showed moderately good to good oil shows in the lateral until reaching 800' in the 1-B zone, and decreased as the lateral continued to termination.

The objectives of the Ratherford Unit #17-13 Leg #2 horizontal lateral were to identify and define the porosity zone of the 1-B bench of the Desert Creek Member of the Upper Paradox Formation, and to evaluate the effective porosity, and reservoir properties. These objectives were accomplished and it became apparent that the 1-B zone, in this lateral direction, has lateral changes in porosity and rock classification. After completing the curve section of the lateral, the lateral section required intermitted sliding to remain with in the porosity interval, as well as to control horizontal plane direction. The borehole remained within 5 feet or less of the proposed target line and in the 1-B porosity zone.

The very base of the Upper Ismay, the Lower Ismay, Gothic Shale, the transition zone at the top of the Desert Creek, the 1-A porosity zone, the 1-A to 1-B transition zone, and the 1-B porosity zone were all encountered while drilling the curve section of the lateral. Kick off point for this lateral was 5424' measured and true vertical depth, in the very basal carbonates and thin carbonaceous shales of the Upper Ismay.

The basal Upper Ismay in the curve section of the lateral leg #2, was predominately a limestone packstone. The limestones were light brown to gray brown, occasionally white to cream to tan, crypto to microcrystalline, dense, some chalky to slightly argillaceous, becoming marly and dolomitic with depth. Interbedded in these limestones were brown chert fragments, thin black slightly carbonaceous shales and increasing amounts of medium to dark brown crypto to microcrystalline, limey dolomites. As the Upper Ismay approached the very thin Hovenweep Shale the amount of limey marlstones and shaley dolomites increased and graded into the very thin black, limey to dolomitic

shales of the Hovenweep Shale. The limestones and thin dolomites had no visible porosity, fluorescence, stain or cut.

The top of the Lower Ismay was picked at 5450' measured depth, 5448' true vertical depth, at the base of the very thin Hovenweep shale. This pick was based on the vertical well electric logs, as well as lithology and drill rate. The upper Lower Ismay limestones were predominately white to cream to tan, occasionally brown, with some scattered light gray brown, micro to cryptocrystalline, scattered thin streaks of very finely crystalline to granular, clean to earthy, and very slightly silty. Minor amounts of chert and rare scattered microfossils were also observed. These limestone had streaks of fair intercrystalline, to very rare spotty pin point vuggular and fracture porosity. The fractures showed minor anhydrite and calcite crystal growth and filling in the fractures. The porosity had spotty fair visible fluorescence, stain and cut. A slight gas increase was noted while drilling the porosity of the Lower Ismay. Thinly interbedded in the limestones were scattered light to dark brown, thin, minor dolomites which were microcrystalline, earthy to clean, with poor intercrystalline porosity, and no visible to very rare faint dull yellow fluorescence, rare spotty brown stain and a very poor diffuse to residual ring cut. The limestones and interbedded dolomites at the base of the Lower Ismay were light brown to gray brown, slightly mottled, crypto to microcrystalline, and clean to argillaceous, becoming increasingly shaley, and grading into calcareous to dolomitic, carbonaceous shale. The basal Lower Ismay limestones and dolomites lay gradationally over the Gothic Shale and are marked by a significant decrease in penetration rate.

The top of the Gothic Shale was drilled at a measured depth of 5496', 5490' true vertical depth. The top of the Gothic was picked predominantly by an increase in the penetration rate and an increase in the percentage of shale in the samples. The Gothic Shale was predominantly dark gray to black to dark gray brown, carbonaceous, silty, brittle to firm, subblocky to fissile, calcareous to slightly dolomitic and slightly micaceous, with minor silty material. The top of the Gothic was gradational from the very thin interbedding of very argillaceous, dolomitic limestones and limy dolomites, to the very dolomitic to calcareous, carbonaceous shale.

Between the Gothic Shale and the top of the Desert Creek Porosity members of the Paradox Formation is a dense transition zone. At the very top of this dense carbonate is where the top of the Desert Creek member is commonly picked due to a very noticeable facies and penetration rate change. In this leg the top of the Desert Creek was picked at a measured depth of 5509' and at a true vertical depth of 5503'. The zone was predominately a slightly dolomitic, very dense, crypto to microcrystalline limestone packstone and wackstone, with thinly interbedded brown, limy, argillaceous dolomites and some very rare and very thin carbonaceous shales. The limestones were light brown to brown, cream to tan, some gray, crypto to microcrystalline, with traces of very finely crystalline, dense, slightly argillaceous, with very rare intercrystalline porosity, but only very rare, spotty fluorescence, with no to very rare visible stain or cut. The interbedded dolomites were microcrystalline to granular, slightly silty and had no visible porosity or sample show. The limestones graded into the oolitic to oolmoldic limestone grainstones and the thin dense limestone packstones of the 1-A porosity zone.

The top of the Desert Creek 1-A porosity zone was picked at 5517' measured depth, 5505' true vertical depth. A change in lithology, from the dense limestone packstones and wackstones to the oolitic and oolmoldic limestones, and a significant increase in the penetration rate marked the top. The 1-A porosity in the curve section of this lateral was a very oolitic to oolmoldic, clean to very slightly dolomitic, slightly anhydritic limestone grainstone with very thinly interbedded dense limestone packstone and some very thin, dense limy dolomites near the top. The limestones were tan to cream to white, light brown to occasionally light gray brown, cryptocrystalline to very fine crystalline, granular to micro sucrosic, with oolitic to intercrystalline porosity. Interbedded within the oolitic limestones were scattered dense limestone packstones. The oolitic to oolmoldic limestones had fair to good sample shows within this zone. The 1-A porosity zone appears to be 14' (true vertical thickness) thick and with streaks of dense packstones interbedded in the porosity, in the middle and lower portion of

the section. At a measured depth of 5539', 5519' true vertical depth the bottom of 1-A porosity bench was encountered and was indicated by a decrease in the drill rate. The transition zone between the 1-A and the 1-B porosity benches appeared to be approximately 13 feet thick. This transition zone was marked by a obvious facies change from oolitic to oolmoldic limestone grainstones to a dense to chalky platy anhydritic limestone packstones, that had very thin streaks of oolitic grainstones, with only a very minor oil shows.

The top of the oolitic to oolmoldic limestone grainstone porosity of the 1-B porosity zone picked at a measured depth of 5571', 5532' true vertical depth. The top was marked by a significant increase in the oolitic to oolmoldic limestone lithology and penetration rate. Lithology of the 1-B porosity zone consisted of light brown to tan to medium brown to occasionally dark brown, microcrystalline to very fine crystalline, granular to microsugrosic with traces of sugrosic streaks, oolitic to oolmoldic limestone grainstone. These oolitic limestones were had traces of dolomitic rich cement, slightly anhydritic to traces of crystal anhydrite inclusions and some porosity filling. Very thinly interbedded throughout the grainstones, in minor amounts were very rare scattered tan to light brown, white to cream to rare light gray brown, cryptocrystalline to microcrystalline, dense occasionally oolitic, chalky, platy, anhydritic limestone packstones. The limestone grainstones had good to fair oolitic to oolmoldic to intercrystalline porosity, with fair to good even dull to moderately bright with traces of spotty bright yellow fluorescence, fair to good light brown to brown stain with traces of dark brown to black dead oil stain* and a good slow to moderately fast to fast streaming milky cut. The interbedded dense cryptocrystalline packstones were tight with no to very rare sample shows. Very rare scattered thin black, carbonaceous, calcareous to dolomitic shale partings, as well as brown, cryptocrystalline to microcrystalline, argillaceous to dense, dolomite fragments with no oil shows, which were predominately cavings, and very rare gray to gray brown chert fragments were also noted.

At a measured depth of 5601' and a true vertical depth of 5537' the curve was landed with an inclination of 87.7 degrees and a horizontal displacement of 99 feet, in the 1-B porosity zone, 3' above the proposed target line. After landing curve section with in the purposed porosity zone, drilling of the lateral section was commenced in a northwesterly direction on March 27, 1998, with the well bore slowly turned upward to reach an angle of approximately 90 degrees. The lithology of the 1-B porosity zone, from the top of the zone to the landing of the curve was in the very good oolitic to oolmoldic limestone lithology noted above, with very rare to traces of dense to very rare chalky platy packstones. Sample shows were predominately fair to good in the oolitic to oolmoldic and intercrystalline porosities.

On March 27, 1998, at the measured depth of 5601', the northwesterly lateral section in the 1-B porosity zone was commenced. The well bore was oriented upward at a very shallow angle to bring the well path level. The well path remained approximately level in the good oolitic to oolmoldic limestones grainstones, with good sample shows until reaching a measured depth of 5771', true vertical depth of 5537.5', with a horizontal displacement of 273', approximately 2.5' above the proposed target line, the well path was bumped upward abruptly by the formation. Until this point the average angle of declination was 90 degrees. At the measured depth of 5771' the angle rose to 91.1 degrees. There was a very subtle change in the penetration rate, indicating a slight change in lithology from the good oolitic to oolmoldic limestone to a denser limestone packstone. The samples showed only a very minor increase in the dense limestone packstones at this point. It was interpreted that the bit had glanced of a tight streak or lens of packstone, trending slightly upward at a shallow angle of 90.2 degrees, with in the porosity. A series of short slides to bring the well path level was begun, as the well path was pushed upward to a maximum true vertical depth of 5435', at a measured depth of 6038', with a horizontal displacement of 536'. The well path was continued and remain very level, at of very near a true vertical depth of 5535', until reaching a measured depth of 6308', 5535' true vertical depth and a horizontal displacement of 805'. The lithology through this interval was light brown to brown, occasionally cream to tan, very fine crystalline to microcrystalline, granular to microsugrosic, with rare sugrosic streaks, oolitic to oolmoldic, very slightly dolomitic to anhydritic

limestone grainstones, with varying amounts of dense to occasionally platy, slightly oolitic limestone packstones. Through out this interval, the sample shows remained predominately good, even though it appeared that the porosity interval within the 1-B zone was thinning to approximately 1' thick.

At a measured depth of approximately 6308', 5535' true vertical depth, with a horizontal displacement of 805', a significant decrease in the rate of penetration rate, with an increase in the dense limestone packstones noted. It was determined that the porosity zone had; a) pinched out or b) dipped sharply downward at this point, similarly to what occurred in the 18-43B southeast lateral. The lateral was turned downward at this point toward the proposed target line, which was at a true vertical depth 5540'. From the measured depth of 6308', to a measured depth of 6450', 5539.8' true vertical depth and a horizontal displacement of 946', the lithology was predominately a tight tan to cream, occasionally some white to light brown, crypto to microcrystalline, dense, very slightly oolitic, occasionally platy to chalky limestone packstone, with thin streaks of light brown to tan, micro to very finely crystalline, occasionally granular to micro sucrosic, slightly oolitic to oolimoldic limestone grainstones. This lithology had streaks of fair intercrystalline to traces of oolitic porosity, and traces of fair sample shows. Upon reaching a measured depth of 6450', the well path was turned approximately level, with an 89.3 degree dip. From 6450' until the termination of 988.6', the lithology remained predominately the dense limestone packstones with minor streaks of slightly oolitic to oolimoldic limestone grainstones. The interval showed decreasing amounts of sample shows as well as in the background gases.

The decision to terminate the 17-13 Lateral Leg #2 was made on March 29, 1998' at a measured depth of 6492', 5540.3' true vertical depth, and a horizontal displacement of 988.6', when it was apparent that the porosity of the 1-B porosity zone had decreased to very thin streaks. The lateral could have been continued downward, but based upon the offsetting R. U. 18-42 vertical well the porosity was not anticipated to improve in thickness or quality with either true vertical depth or horizontal displacement.

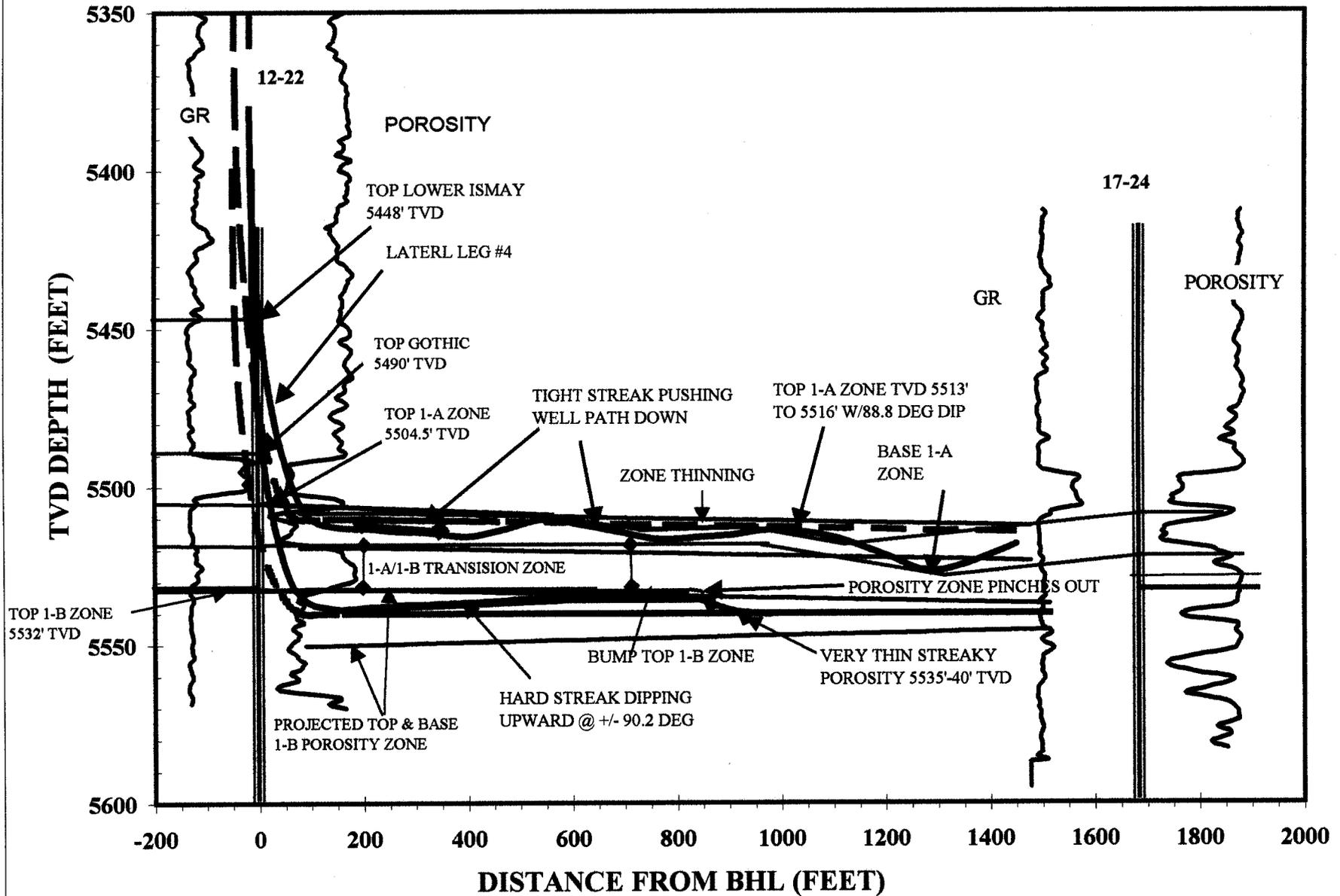
In tracking the northwesterly lateral in the 1-B porosity zone, the oolitic to oolimoldic limestone porosities are not laterally consistent throughout the zone. Having a minor effect on the good porosity, were the minor amounts of anhydrite filled porosity and the increasing, dense to platy limestone packstones in the 1-B zone, as the upward dipping tight streaks and then laterally increasing packstones were encountered with in the lateral. Sample shows were fair to good through out the majority of the lateral penetrated, with laterally decreasing stain, fluorescence and cut. The lateral used the proposed target line as a reference point through the 1-B bench. The well bore was allowed to follow the line of best porosity after entering the 1-B porosity zone which resulted in the lateral remaining an average of 3' above the target line until reaching a horizontal displacement of 805'. From 805' of horizontal displacement to the lateral's termination, when the well path was turned downward in the hope that the porosity would improve as the lateral dropped in true vertical depth. The lateral was terminated at the proposed target line.

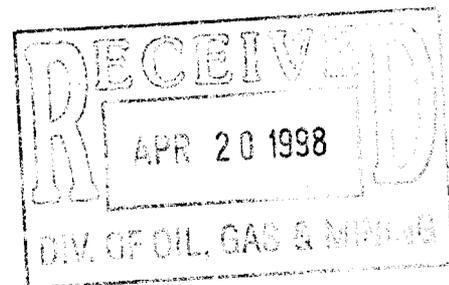
While drilling the curve and lateral sections, the increases in background gas was due to the minor amounts of oil encountered while drilling the Lower Ismay as well as the 1-A and 1-B porosity benches in the curve, and also due to the amount of oil added near the end of the lateral to improve the penetration rate. An significant increase in the background gases was noted when the 1-A zone was penetrated at a measured depth of 5512' in the curve section, and then gradually decreased until reaching a measured depth of 5601' at the termination of the curve section. The lateral section was begun with a comparatively low background gas that increased until reaching a measured depth of 6240' near the top of the 1-B porosity zone, and then began slowly decreasing to the lateral's termination. While this lateral was drilled as a northwesterly sidetrack of a production well in the Upper Desert Creek 1-B porosity zone, it was seen to have very good reservoir qualities that have yet to be flushed from the offsetting injector wells until reaching a horizontal displacement of 805'. It appears that the porosities are well enough developed, although becoming very thin, in this

northwesterly direction to possibly enhance the overall production performance of the 1-B porosity zone.

*The black residual staining has been called by Dr. Dave Eby & others as "bitchimum" and is also known as "dead oil" ("dd o stn" on mud logs). This staining is associated with the movement of oil over long periods of time and is a good indicator of producable hydrocarbons when associated with productive porosities, but can also be found in porosities that have been filled by anhydrites and other material at later dates.

MOBIL, Ratherford #17-13, Southeast Lateral





MOBIL

**RATHERFORD UNIT #17-13
NW HORIZONTAL LATERAL LEG #3
UPPER 1-A POROSITY BENCH
DESERT CREEK MEMBER
PARADOX FORMATION
SECTION 17, T41S, R24E
SAN JUAN, UTAH**

**GEOLOGY REPORT
by
DAVE MEADE
ROCKY MOUNTAIN GEO-ENGINEERING CORP.
GRAND JUNCTION, COLORADO
(970) 243-3044**

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WELL SUMMARY

OPERATOR: MOBIL EXPLORATION & PRODUCTION U.S. INC.

NAME: RATHERFORD UNIT #17-13 NW HORIZONTAL LATERAL
LEG #3 IN UPPER DESERT CREEK 1-A POROSITY BENCH

LOCATION: SECTION 17, T41S, R24E

COUNTY/STATE: SAN JUAN, UTAH

ELEVATION: KB:4735' GL:4748'

SPUD DATE: 3/30/98

COMPLETION DATE: 4/03/98

DRILLING ENGINEER: BENNY BRIGGS/SIMON BARRERA

WELLSITE GEOLOGY: DAVE MEADE

**MUDLOGGING
ENGINEERS:** DAVE MEADE / MARK KOURY

CONTRACTOR: BIG "A" RIG 25
TOOLPUSHER: J. DEES /M. SMITH

HOLE SIZE: 4 3/4"

CASING RECORD: SIDETRACK IN WINDOW AT 5402' MEASURED DEPTH

**DRILLING MUD:
ENGINEER:** M-I
RON WESTENBERGE / MIKE PITTSINGER
MUD TYPE: FRESH WATER & BRINE WATER W/ POLYMER SWEEPS

**DIRECTIONAL
DRILLING CO:** SPERRY-SUN

ELECTICAL LOGGING: NA

TOTAL DEPTH: 7154' MEASURED DEPTH; TRUE VERTICAL DEPTH-5508.5'

STATUS: TOH & LAY DOWN TOOLS - PREPARE WELL FOR SE LEG #4

DRILLING CHRONOLOGY
RATHERFORD UNIT #17-13
1-A NW HORIZONTAL LATERAL LEG #3

DATE	DEPTH	DAILY	ACTIVITY
3/30/98	6492'/ 5404'	21'	TOH-L.D. HOOK & STARTER MILL-P.U. WINDOW & WATERMELLON MILLS-TIH-CIR-MILL WINDOW FROM 5402' TO 5411'-CIR BTMS UP & WORK MILL-PUMP 10 BBL SWEEP & CIR OUT-L.D. 12 JTS PIPE-L.D MILLS-P.U. CURVE ASSEMBLY-TEST MWD & MUD MOTOR-TIH-RIG UP NEW SWIVEL-P.U. 2 JTS AOH PIPE-FILL PIPE-RIG UP GYRO DATA & RUN GYRO-TIME DRLG 5411-5414'-DIR DRLG W/WIRE LINE SURVEYS
3/31/98	5425'	297'	DIR DRLG W/WIRELINE SURVEYS TO 5446' PULL GYRO & RIG DOWN GYRO DATA-DIR DRLG & SURVEYS TO 5541'-WORK MWD (PULSAR FAILING)-DIR DRLG & SURVEYS TO 5554'-WORK MWD (PULSAR FAILED)-TOH-L.D. 5 JTS AOH-TOH-L.D. CURVE ASSEMBLY-P.U. LATERAL BHA W/BIT #2 -ORIENT & TEST MWD / MUD MOTOR-TIH-P.U.12 JTS PH6 - TIH-DIR DRLG & SURVEYS
4/01/98	5722'	703'	DIR DRLG & SURVEYS
4/02/98	6465'	549'	DIR DRLG & SURVEYS -PUMP SWEEP & CIR OUT SPLS-TOH-L.D. LATERAL ASSEMBLY-P.U. RETRIEVING HOOK-TIH-LATCH INTO & RETRIEVE WHIPSTOCK-TOH-L.D. HOOK ASSEMBLY & WHIPSTOCK #2-P.U. WHIPSTOCK #3 & STARTER MILL-TIH
4/03/98	7014'	140'	DIR DRLG & SURVEYS TO 7154'-CIR. OUT SPLS & SWEEP-PUMP 10 BBL BRINE-TOH-L.D. LATERAL ASSEMBLY-P.U. SUPER HOOK-TIH-LATCH INTO & RETRIEVE WHIPSTOCK #3-TOH-L.D. WHIPSTOCK-P.U. WHIPSTOCK #4 & STARTER MILL-TIH-SET WHIPSTOCK -MILL W/STARTER MILL

DAILY ACTIVITY

Operator: MOBIL

Well Name: RATHERFORD UNIT #17-13 NW 1-A HORIZONTAL LATERAL LEG #3

DATE	DEPTH	DAILY	DATE	DEPTH	DAILY
3/30/98	6492'/5404'	21'			
3/31/98	5425'	297'			
4/01/98	5722'	703'			
4/02/98	6465'	549'			
4/03/98	7014'	140'			
TD	7154'				

BIT RECORD

OPERATOR: MOBIL

WELL NAME: RATHERFORD UNIT #17-13 NW 1-A HORIZONTAL LATERAL LEG #3

RUN	SIZE	MAKE	TYPE	IN/OUT	FTG	HRS	FT/HR
#1 (RR)	4 3/4"	STC	MF-3P	5411'/ 5555'	144'	12	12
#2	4 3/4"	STC	MF-15GP	5555'/ 7154'	1599'	69	23.2

SPERRY-SUN DRILLING SERVICES
SURVEY DATA

Customer ... : Mobil (Utah)
Platform ... : RATHERFORD UNIT
Slot/Well .. : BA25/17-13, 3A1

MEASURED DEPTH	ANGLE DEG	DIRECTION DEG	TVD	NORTHINGS FEET	EASTINGS FEET	VERTICAL SECTION	DOG LEG
5400.00	0.54	331.44	5399.50	33.80 N	1.20 E	27.00	0.00
5402.00	0.54	331.44	5401.50	33.82 N	1.19 E	27.02	0.00
5411.00	4.70	325.00	5410.49	34.16 N	0.96 E	27.43	46.26
5421.00	9.30	334.10	5420.41	35.22 N	0.37 E	28.64	47.18
5431.00	15.20	339.10	5430.18	37.17 N	0.45 W	30.71	59.89
5441.00	20.90	338.20	5439.68	40.06 N	1.58 W	33.72	57.07
5451.00	26.60	339.00	5448.83	43.81 N	3.05 W	37.63	57.09
5461.00	32.90	339.50	5457.51	48.44 N	4.80 W	42.44	63.05
5471.00	38.70	342.40	5465.62	53.97 N	6.70 W	48.06	60.42
5481.00	42.80	346.80	5473.19	60.26 N	8.42 W	54.20	50.04
5491.00	46.80	342.90	5480.29	67.06 N	10.27 W	60.82	48.52
5501.00	52.10	342.10	5486.79	74.30 N	12.56 W	68.07	53.35
5511.00	57.30	344.20	5492.57	82.11 N	14.92 W	75.82	54.75
5521.00	61.80	344.80	5497.63	90.42 N	17.22 W	83.94	45.30
5531.00	66.80	341.10	5501.97	99.03 N	19.87 W	92.51	60.09
5554.00	77.50	343.20	5509.01	119.84 N	26.55 W	113.40	47.32
5596.00	84.80	340.80	5515.47	159.27 N	39.38 W	153.05	18.27
5628.00	89.00	338.00	5517.20	189.17 N	50.62 W	183.99	15.77
5660.00	89.50	335.30	5517.62	218.55 N	63.30 W	215.33	8.58
5691.00	90.40	334.90	5517.64	246.66 N	76.35 W	245.85	3.18
5722.00	92.00	333.40	5516.99	274.56 N	89.86 W	276.45	7.07
5753.00	90.50	330.50	5516.32	301.90 N	104.43 W	307.21	10.53
5785.00	92.70	331.90	5515.42	329.93 N	119.84 W	339.00	8.15
5817.00	93.50	333.00	5513.69	358.26 N	134.62 W	370.69	4.25
5849.00	93.60	333.40	5511.71	386.77 N	149.02 W	402.30	1.29
5880.00	89.60	331.80	5510.85	414.27 N	163.28 W	433.01	13.90
5912.00	87.70	329.40	5511.60	442.14 N	178.98 W	464.84	9.56
5944.00	87.60	327.40	5512.91	469.37 N	195.74 W	496.76	6.25
5976.00	88.40	324.00	5514.03	495.79 N	213.75 W	528.73	10.91
6007.00	90.10	324.20	5514.44	520.90 N	231.93 W	559.72	5.52
6038.00	91.30	323.20	5514.06	545.88 N	250.28 W	590.71	5.04
6070.00	89.60	321.20	5513.81	571.16 N	269.89 W	622.67	8.20
6101.00	90.90	320.90	5513.67	595.27 N	289.38 W	653.59	4.30
6133.00	91.80	321.00	5512.92	620.11 N	309.53 W	685.51	2.83
6165.00	90.90	320.50	5512.16	644.88 N	329.77 W	717.41	3.22
6196.00	91.80	321.20	5511.43	668.92 N	349.34 W	748.32	3.68
6228.00	92.10	321.60	5510.34	693.91 N	369.29 W	780.24	1.56
6260.00	90.30	321.20	5509.67	718.91 N	389.25 W	812.16	5.76

SPERRY-SUN DRILLING SERVICES
SURVEY DATA

Customer ... : Mobil (Utah)
Platform ... : RATHERFORD UNIT
Slot/Well .. : BA25/17-13, 3A1

MEASURED DEPTH	ANGLE DEG	DIRECTION DEG	TVD	NORTHINGS FEET	EASTINGS FEET	VERTICAL SECTION	DOG LEG
6292.00	90.00	320.90	5509.59	743.80 N	409.37 W	844.09	1.33
6324.00	87.70	320.50	5510.23	768.56 N	429.63 W	875.99	7.30
6355.00	86.70	319.60	5511.75	792.29 N	449.51 W	906.84	4.34
6387.00	87.50	318.20	5513.37	816.37 N	470.52 W	938.61	5.03
6418.00	88.00	317.00	5514.58	839.25 N	491.41 W	969.33	4.19
6450.00	88.30	315.40	5515.62	862.33 N	513.54 W	1000.94	5.08
6482.00	89.00	315.60	5516.37	885.15 N	535.97 W	1032.49	2.27
6513.00	92.20	315.20	5516.05	907.22 N	557.73 W	1063.05	10.40
6545.00	91.90	314.70	5514.90	929.81 N	580.36 W	1094.54	1.82
6576.00	93.30	315.90	5513.49	951.82 N	602.14 W	1125.06	5.95
6607.00	94.80	315.60	5511.31	973.97 N	623.72 W	1155.58	4.93
6639.00	95.50	315.80	5508.43	996.78 N	645.98 W	1187.03	2.27
6670.00	94.60	318.10	5505.70	1019.34 N	667.06 W	1217.61	7.94
6702.00	93.30	319.60	5503.50	1043.38 N	688.06 W	1249.34	6.19
6734.00	90.00	320.30	5502.58	1067.86 N	708.64 W	1281.20	10.54
6766.00	89.80	322.10	5502.63	1092.80 N	728.69 W	1313.13	5.66
6797.00	89.30	324.00	5502.88	1117.57 N	747.32 W	1344.11	6.34
6829.00	85.90	324.70	5504.22	1143.55 N	765.96 W	1376.08	10.85
6860.00	85.90	323.70	5506.43	1168.63 N	784.04 W	1406.99	3.22
6892.00	88.50	322.10	5508.00	1194.12 N	803.32 W	1438.93	9.54
6924.00	90.50	321.60	5508.28	1219.28 N	823.09 W	1470.88	6.44
6955.00	89.20	320.20	5508.36	1243.34 N	842.64 W	1501.80	6.16
6987.00	87.80	320.20	5509.19	1267.91 N	863.11 W	1533.67	4.37
7019.00	92.00	321.60	5509.25	1292.74 N	883.29 W	1565.58	13.83
7050.00	92.60	323.00	5508.01	1317.25 N	902.23 W	1596.52	4.91
7082.00	89.80	325.10	5507.34	1343.14 N	921.01 W	1628.51	10.94
7114.00	88.90	324.90	5507.70	1369.35 N	939.36 W	1660.50	2.88
* 7154.00	88.90	324.90	5508.47	1402.07 N	962.36 W	1700.50	0.00 *

THE DOGLEG SEVERITY IS IN DEGREES PER 100.00 FEET.
N/E COORDINATE VALUES GIVEN RELATIVE TO WELL HEAD.
TVD COORDINATE VALUES GIVEN RELATIVE TO WELL HEAD.
THE VERTICAL SECTION ORIGIN IS WELL HEAD.
THE VERTICAL SECTION WAS COMPUTED ALONG 325.00 (TRUE).
CALCULATION METHOD: MINIMUM CURVATURE.

* 7154 PROJECTED TO BIT AT T.D.

MUD REPORT

OPERATOR: MOBIL

WELL NAME: RATHERFORD UNIT #17-13 NW 1-A HORIZONTAL LATERAL LEG #3

DATE	DEPTH	WT	VIS	PLS	YLD	GEL	PH	WL	CK	CHL	CA	SD	OIL	WTR
3/30/98	5401'	8.8	28	1	2	0/0	11.5	NC	NC	52K	520	-	6%	94%
3/31/98	5530'	8.7	28	1	2	0/0	12.0	NC	NC	51K	500	-	8%	92%
4/01/98	6046'	8.7	28	1	2	0/0	12.0	NC	NC	53K	480	-	8%	92%
4/02/98	6529'	8.8	28	1	2	0/0	11.6	NC	NC	53K	280	-	7%	93%
4/03/98	7154'	8.8	28	1	2	0/0	12.0	NC	NC	52K	320	-	6%	94%

SAMPLE DESCRIPTIONS

OPERATOR: MOBIL

WELL NAME: RATHERFORD UNIT #17-13 NW 1-A HORIZONTAL LATERAL LEG #3

DEPTH	LITHOLOGY
5411.00 5420.00	"LS lt-mbrn, tan-crm, buff, ltgy-offwh, crpxl-micxl, sl arg ip, dns, chky, anhy, tt intxl por, NFSOC"
5420.00 5430.00	"LS lt-mbrn, tan-crm, buff, ltgy-offwh, crpxl-micxl, sl arg ip, dns, chky, anhy, tt intxl por, NFSOC, SH m-dkbrn, brnblk, frm, sbblky-ireg, sooty ip, carb ip, lmy"
5430.00 5440.00	"LS lt-mbrn, tan-crm, buff, ltgy-offwh, crpxl-micxl, sl arg ip, dns, chky, anhy, tt intxl por, NFSOC"
5440.00 5450.00	"LS lt-mbrn, tan-crm, buff, ltgy-offwh, crpxl-micxl, sl arg ip, dns, chky, anhy, tt intxl por, NFSOC, SH m-dkbrn, brnblk, frm, sbblky-ireg, carb ip, lmy"
5450.00 5460.00	"LS tan-mbrn, occ gybrn-crm, crpxl-micxl, v rr vfxl-gran, rthy-chk ip, occ anhy-v rr ANHY xl-frac fl, sl dol, tt-v rr intxl-frac POR, v rr spty dull yel FLOR, rr spty dkbrn-blk STN, tr slow dif-stmg CUT, w/rr thn brn-mbrn micxl arg DOL-v rr intxl POR-FLOR-STN-CUT, w/v rr CHT frag & dkgy-blk carb SH lams-ptgs"
5460.00 5490.00	"LS crm-wh, occ tan-ltgy-ltbrn, crpxl-vfxl, gran-suc ip, v sl alg, pred GRNST, w/v rr scat dns-sl chk PKST, dol ip, v rr ANHY xl fl frac, tt-mg intxl-rr pp vug-frac POR, fr bri yel FLOR, tr brn STN-spty blk dd o STN, fr-mg slow-fast stmg CUT, scat gy-brn CHT frag & rr DOL brn-dkbrn, micxl, v rr vfxl, arg-rthy, occ dns, mrly ip, tt-v rr intxl POR, tr dull-bri yel FLOR, spty brn STN, rr slow dif CUT w/decr blk-dkgy sbplty-pkty dol-calc, sl carb SH ptgs"
5490.00 5510.00	"LS wh-crm-ltgy-tan, crpxl-micxl, v rr vfxl-micsuc, occ frac, pred dns sl chky PKST w/v rr thn stks v sl alg GRNST, rr CHT frag-ANHY xl-frac fl, rr stks arg lmy brn mrly dns DOL, rr-tr intxl-v rr alg-frac POR, mfr bri yel FLOR, rr-tr spty dkbrn-blk STN, tr slow CUT"
5510.00 5520.00	"LS AA, pred dns tt PKST, v dol ip, grdg to v lmy brn-mbrn arg-sl mrly DOL, dns, tt, NFSOC, pred grdg to dkgy-blk carb calc-dol SH"
5520.00 5530.00	"SH dkgy-blk, sbblky-sbplty, mfrm, fis ip, calc-sl dol, mica, sl slty, carb-sooty, w/v rr scat dns tt sl arg LS & DOL frag"
5530.00 5540.00	"LS crm-tan-ltbrn, crpxl-micxl, arg-chk, dns, pred PKST, sl dol, rr mic fos, dol, anhy, tt-v rr intxl POR, spty dull yel FLOR, v rr spty brn-blk STN, v p slow CUT, w/v thn intbd mbrn crpxl-micxl tt DOL stky, rr CHT frag, occ SH CVGS"
5540.00 5555.00	"SPL LAGGED AFTER TRIP ABNT CVGS V P SPL"

DEPTH	LITHOLOGY
5540.00 5555.00	"LS ltbrn-brn,crpxl-vfxl,gran-micsuc ip,pred ooc-oom GRNST,w/thn intbd sl ool PKST,tr DOL cmt,scat ANHY xl-incl,v rr CHT frag,fr-g ool-intxl POR,mg dull-bri yel FLOR,fr ltbrn-rr blk STN,fr-g mod fast-fast stmg CUT"
5555.00 5570.00	"LS ltbrn-brn,crpxl-vfxl,gran-micsuc-suc ip,pred ooc-oom GRNST,w/thn intbd sl ool PKST,tr DOL cmt,scat ANHY xl-incl,tr CHT frag,fr-g ool-intxl POR, bri yel FLOR,fr ltbrn-rr blk STN,fr-g mod fast-fast stmg CUT"
5570.00 5590.00	"LS ltbrn-brn,tan-crm,crpxl-vfxl,suc-micsuc,pred ooc-oom GRNST,w/thn intbd sl ool PKST,tr DOL cmt,scat ANHY xl-incl,fr-g ool-intxl POR,bri yel FLOR,fr ltbrn-rr blk STN,mod fast-fast stmg CUT"
5590.00 5600.00	"LS ltbrn-brn,tan-crm,crpxl-vfxl,suc-micsuc,pred ooc-oom GRNST,w/thn intbd sl ool PKST,tr DOL cmt,scat ANHY xl-incl,fr-g ool-intxl POR,bri yel FLOR,fr ltbrn-rr blk STN,mod fast-fast stmg CUT"
5600.00 5610.00	"LS ltbrn-brn,tan-ltgy,crpxl-vfxl,gran-micsuc ip,pred ooc-oom GRNST,w/thn intbd sl ool PKST,tr DOL cmt,scat ANHY xl-incl,v rr CHT frag,fr-g intxl POR,abnt bri yel FLOR,fr ltbrn-rr blk STN,fast stmg CUT"
5610.00 5620.00	"LS ltbrn-brn,crpxl-vfxl,gran-micsuc ip,pred ooc-oom GRNST,w/thn intbd sl ool PKST,tr DOL cmt,scat ANHY xl-incl,v rr CHT frag,fr-g ool-intxl POR,mg dull-bri yel FLOR,fr ltbrn-rr blk STN,fr-g mod fast-fast stmg CUT"
5640.00 5660.00	"LS ltbrn-brn,tan-crm,crpxl-vfxl,suc-micsuc,pred ooc-oom GRNST,w/thn intbd sl ool PKST,tr DOL cmt,scat ANHY xl-incl,fr-g ool-intxl POR,bri yel FLOR,fr ltbrn-rr blk STN,mod fast-fast stmg CUT"
5660.00 5680.00	"LS crm-ltbrn, tan-buff, ltgy-offwh, fxl-micxl, suc-micsuc ip, ooc-oom grnst, thn intbd sl ool pkst, sl dol cmt ip, anhy, dns ip, xl incl, tr cht, dull-bri yel flor / occ ltbrn stn & fast stmg cut"
5680.00 5690.00	"LS ltbrn-brn,tan-crm,crpxl-vfxl,suc-micsuc,pred ooc-oom GRNST,w/thn intbd sl ool PKST,tr DOL cmt,scat ANHY xl-incl,fr-g ool-intxl POR,bri yel FLOR,fr ltbrn-rr blk STN,mod fast-fast stmg CUT"
5700.00 5720.00	"LS crm-ltbrn, tan-buff, ltgy-offwh, fxl-micxl, suc-micsuc ip, ooc-oom grnst, thn intbd sl ool pkst, sl dol cmt ip, anhy, dns ip, xl incl, tr cht, dull-bri yel flor / occ ltbrn stn & fast stmg cut"
5720.00 5740.00	"LS ltbrn-brn,tan-crm,crpxl-vfxl,suc-micsuc,pred ooc-oom GRNST,w/thn intbd sl ool PKST,tr DOL cmt,scat ANHY xl-incl,fr-g ool-intxl POR,bri yel FLOR,fr ltbrn-rr blk STN,mod fast-fast stmg CUT"
5740.00 5760.00	"LS crm-ltbrn, tan-buff, ltgy-offwh, fxl-micxl, suc-micsuc ip, ooc-oom grnst, thn intbd sl ool pkst, sl dol cmt ip, anhy, dns ip, xl incl, tr cht, dull-bri yel flor / occ ltbrn stn & fast stmg CUT"

DEPTH	LITHOLOGY
5760.00 5780.00	"LS ltbrn-brn,tan-crm,crpxl-vfvl,suc-micsuc,pred ooc-oom GRNST,w/thn intbd sl ool PKST,tr DOL cmt,scat ANHY xl-incl,tr clr cht,fr-g ool-intxl POR,bri yel FLOR,fr ltbrn-rr blk STN,mod fast-fast stmg CUT"
5780.00 5800.00	"LS ltbrn-brn,tan-crm,crpxl-vfvl,suc-micsuc,pred ooc-oom GRNST,w/thn intbd sl ool PKST,tr DOL cmt,fr-g ool-intxl POR,bri yel FLOR,fr ltbrn STN,mod fast-fast stmg CUT"
5800.00 5820.00	"LS ltbrn-brn,crpxl-vfvl,gran-micsuc ip,pred ooc-oom GRNST,w/thn intbd sl ool PKST,tr DOL cmt,ANHY xl-incl,fr-g ool-intxl POR,bri yel FLOR,fr ltbrn STN,fast stmg CUT"
5820.00 5840.00	"LS ltbrn-brn,crm-tan, offwh-buff,crpxl-vfvl,gran-micsuc ip,pred ooc-oom GRNST,w/thn intbd sl ool PKST,tr DOL cmt,ANHY xl-incl,fr-g ool-intxl POR,bri yel FLOR,fr ltbrn STN,fast stmg CUT"
5840.00 5860.00	"LS crm-tan-brn,crpxl-vfvl,gran-micsuc ip,pred ooc-oom GRNST,w/rr thn sl ool dns occ chk-pty PKST,sl anhy-occ dol,rr ANHY xl-incl-rr POR fl,fr-g intxl-ool POR,mg dull-bri yel FLOR,tr-fr brn-rr spty blk STN,fr-g mod fast-fast stmg mlky CUT"
5860.00 5880.00	"LS AA,sl decr PKST,fr-g ool-tr-fr intxl POR,FLOR-STN-CUT AA"
5880.00 5890.00	"LS crm-tan-brn,crpxl-vfvl,gran-micsuc ip,pred ooc-oom GRNST,w/tr thn sl ool dns occ chk-pty PKST,sl anhy-occ dol,rr ANHY xl-incl-rr POR fl,fr intxl-mg ool POR,mg bri-tr dull yel FLOR,fr-g brn-rr-tr spty blk STN,fr-g mod fast-fast stmg mlky CUT"
5890.00 5910.00	"LS AA,incr mbrn-gybrn,pred v g ooc-oom GRNST,rr-tr ltbrn-crm occ wh sl ool PKST,v rr gybrn-tan CHT frag,fr-g ool-tr-fr intxl POR,g bri yel FLOR,mg brn-dkbrn STN-tr blk dd o STN,fr-g mod fast-fast stmg mlky CUT"
5910.00 5930.00	"LS crm-tan-brn,occ mbrn,micxl-vfvl,gran-micsuc ip,pred ooc-oom GRNST,w/rr mbrn sl ool dns occ chk-pty crpxl PKST,sl anhy-occ dol,rr ANHY xl-incl-rr POR fl,mg ool-fr intxl POR,mg bri-yel FLOR,fr-g brn-tr spty blk STN,fr-g mod fast-fast stmg mlky CUT"
5930.00 5950.00	"LS AA,pred ooc-oom GRNST,w/scat v sl mic fos-rr ool crm-ltbrn dns occ pty-chk PKST,v sl decr intxl POR,mg ool POR,FLOR-STN-CUT AA"
5950.00 5960.00	"LS AA,v rr dkbrn-brn CHT frag,POR-FLOR-STN-CUT AA"
5960.00 5990.00	"LS tan-brn,occ crm,micxl-vfvl,gran-micsuc ip,pred ooc-oom GRNST,tr mbrn sl ool dns occ chk-pty crpxl PKST frag-rr Crin fos,tr DOL cmt,rr ANHY xl-incl-rr POR fl,mg ool-fr intxl POR,mg bri yel FLOR,fr-g brn-tr spty blk STN,fr-g mod fast-fast stmg mlky CUT"
5990.00 6010.00	"LS AA,pred ooc-oom GRNST,w/sl incr dns sl ool anhy PKST frag,fr-mg ool-fr intxl POR,fr-g bri-tr dull yel FLOR,fr ltbrn-brn STN,tr blk dd o STN,fr-g mod fast-fast stmg mlky CUT"

DEPTH	LITHOLOGY
6010.00 6040.00	"LS tan-ltbrn,occ brn,micxl-vfxl,gran-micsuc ip,pred ooc-oom GRNST,tan-rr wh sl ool dns chk-pty ip crpxl PKST incl-frag,sl DOL cmt,rr ANHY xl-incl-rr POR fl,mg ool-fr intxl POR,mg dull-tr bri FLOR,fr-g brn-rr spty blk STN,fr-g mod fast-fast stmg mlky CUT"
6040.00 6050.00	"LS AA,sl incr dns tan-ltbrn occ crm-wh ool PKST incl,incr intxl POR,FLOR-STN-CUT AA"
6050.00 6070.00	"LS ltbrn-brn,tan ip,crpxl-vfxl,gran-micsuc ip,pred ooc-oom GRNST,tan-rr wh sl ool dns chk-pty ip PKST incl-frag,sl DOL cmt,rr ANHY xl-rr POR fl,rr CHT frag,mg ool-fr intxl POR,mg dull-bri FLOR,fr-g brn-rr spty blk STN,fr-g mod fast-fast stmg mlky CUT"
6070.00 6110.00	"LS tan-ltbrn,occ mbrn,crpxl-vfxl,gran-micsuc ip,pred ooc-oom GRNST,sl incr tan-rr wh pty ip PKST incl-frag w/depth,sl DOL cmt,rr ANHY xl-POR fl,rr CHT frag,fr-mg ool-intxl POR,mg dull-rr bri FLOR,fr brn-rr spty blk STN,fr-g mod fast-fast stmg mlky CUT"
6110.00 6130.00	"LS AA,pred crm-tan,occ ltbrn-rr brn,v sl incr dns sl ool PKST incl w/scat rr Crin fos,tr-fr ool-fr intxl POR,mfr-fr dull-rr bri yel FLOR,fr ltbrn STN-rr blk dd o STN,fr-mg mod fast-fast stmg CUT"
6130.00 6140.00	"LS AA,bcmg intbd ooc-oom GRNST & sl ool dns anhy ip PKST,tr-g ool-tr intxl POR,fr-mg dull-tr bri yel FLOR,tr-fr ltbrn STN-rr spty blk dd o STN,fr-mg mod fast-fast stmg mlky CUT"
6140.00 6160.00	"LS crm-brn,occ wh-tan,crpxl-vfxl,gran-micsuc ip,pred ooc-oom GRNST,rr-tr sl ool dns sl chk-pty PKST,rr DOL rich-sl anhy cmt,fr-g intxl-fr ool POR,fr-g dull-bri yel FLOR,fr brn-rr blk STN,fr-g mod fast-fast stmg CUT"
6160.00 6180.00	"LS AA,sl incr dns sl ool PKST,v rr trnsl-crl CHT frag,v sl decr ool-intxl POR,fr-g FLOR-STN-CUT"
6180.00 6200.00	"LS crm-tan,occ wh-brn,crpxl-vfxl,gran-micsuc ip,intbd ooc-oom GRNST & dns sl ool pty-chk ip PKST,occ anhy-DOL cmt,v rr ANHY xl-rr POR fl,v rr CHT frag,tt-g intxl-tr ool POR,fr-g dull-tr yel FLOR,tr-fr brn-rr blk STN,fr-g mod fast-fast stmg mlky CUT"
6200.00 6210.00	"LS AA,pred tan,occ crm,brn ip,pred sl ooc-oom GRNST,tr scat sl dns PKST,POR-FLOR-STN-CUT"
6210.00 6230.00	"LS crm-tan,occ wh-brn,crpxl-vfxl,gran-micsuc ip,intbd ooc-oom GRNST & dns sl ool pty-chk ip PKST,occ anhy-DOL cmt,v rr ANHY xl-rr POR fl,v rr CHT frag,tr-g intxl-tr ool POR,fr-g dull-tr yel FLOR,tr brn-rr spty blk STN,fr-g mod fast-fast stmg mlky CUT"
6230.00 6260.00	"LS tan,occ crm-brn,micxl-vfxl,gran-micsuc ip,sl ooc-oom GRNST w/scat dns PKST frag,occ DOL rich-ANHY cmt,v rr ANHY xl,fr-g intxl-tr-fr ool POR,fr-g bri-tr dull yel FLOR,fr ltbrn-tr brn STN-rr spty blk dd o STN,fr-g mod fast-fast stmg mlky CUT"

DEPTH	LITHOLOGY
6260.00 6280.00	"LS AA,sl incr ANHY xl-cmt,sl incr brn STN,POR-FLOR-CUT AA"
6280.00 6310.00	"LS tan-ltbrn,rr brn-crm-wh,crpxl-vfxl,gran-micsuc ip,sl ooc-oom GRNST,scat dns v sl ool occ chky-pty PKST,v rr ANHY xl-incl,sl DOL cmt,v rr CHT frag,fr-g intxl-tr ool POR,mg dull-tr bri yel FLOR,tr-fr ltbrn STN-rr blk dd o STN,mg mod fast-fast stmg CUT"
6310.00 6330.00	"LS tan,occ ltbrn,rr wh,crpxl-vfxl,occ gran-micsuc,intbd sl ooc-oom GRNST & dns v sl ool occ chky PKST,anhy-tr ANHY xl-incl,v sl dol,v rr CHT frag,tt-fr intxl-tr ool POR,fr dull-tr bri yel FLOR,tr ltbrn-rr blk STN,fr slow-mod fast stmg mlky CUT"
6330.00 6340.00	"LS ltbrn,occ tan,rr crm,crpxl-micxl,occ vfxl,gran-micsuc ip,intbd v sl ooc GRNST w/dns occ ool rr chky-pty PKST,rr trnsd CHT frag,scat ANHY xl-incl,v sl DOL cmt,tt-fr intxl-rr-tr ool POR,mg dull-rr bri yel FLOR,tr ltbrn-rr blk STN,fr slow-mod fast CUT"
6340.00 6360.00	"LS ltbrn,occ tan,rr crm,crpxl-micxl,occ vfxl,gran-micsuc ip,intbd v sl ooc GRNST w/dns occ ool rr chky-pty PKST,scat ANHY xl-incl,v sl DOL cmt,tt-fr intxl-tr ool POR,mg dull-rr bri yel FLOR,tr ltbrn-rr blk STN,fr slow-mod fast CUT"
6360.00 6380.00	"LS ltbrn,occ tan-crm,ltgy,crpxl-micxl-vfxl,gran-micsuc ip,intbd ooc GRNST w/dns ool rr chky-pty PKST,scat ANHY xl-incl,v sl DOL cmt,tr fos frags,CRI,fr intxl-ool POR,mg dull-rr bri yel FLOR,tr ltbrn-rr blk STN,fr slow-mod fast CUT"
6380.00 6400.00	"LS offwh-crm,ltbrn-tan,crpxl-micxl,gran-micsuc ip,intbd v sl ooc GRNST w/dns ool chky-pty PKST,scat ANHY xl-incl,v sl DOL cmt,tt intxl-tr ool POR,mg dull-rr bri yel FLOR,tr ltbrn-rr blk STN,fr slow-mod fast CUT"
6400.00 6420.00	"LS offwh-crm,ltbrn-tan,crpxl-micxl,micsuc ip,intbd v sl ooc GRNST w/dns ool chky-pty PKST,scat ANHY xl-incl,v sl DOL cmt,tt intxl-tr ool POR,mg dull-rr bri yel FLOR,tr ltbrn-rr blk STN,fr slow-mod fast CUT"
6420.00 6440.00	"LS offwh-crm,ltbrn-tan,crpxl-micxl,gran-micsuc ip,intbd v sl ooc GRNST w/dns ool chky-pty PKST,scat ANHY xl-incl,v sl DOL cmt,tt intxl-tr ool POR,mg dull-rr bri yel FLOR,tr ltbrn-rr blk STN,fr slow-mod fast CUT"
6440.00 6460.00	"LS offwh-ltgy,crm-buff,micxl-crpxl,dns,chky,v rr fos frags,v sl anhy,pred PKST,occ chky,v rr DOL cmt ip,tt-v rr intxl por,n-v rr spotty dull-bri yel FLOR,w/n-v rr brn STN,n-v p slow stmg-slow dif CUT"
6460.00 6480.00	"LS offwh-crm,ltbrn-tan,crpxl-micxl,pred dns tt v sl chky-pty PKST w/v rr scat GRNST stks,scat ANHY xl-incl,v sl DOL cmt,tt-v rr intxl,sl tr dull-rr bri yel FLOR,v rr spty ltbrn-blk STN,tr slow dif-v rr mod fast stmg CUT"

DEPTH	LITHOLOGY
6480.00 6500.00	"LS offwh-crm,tan,occ bf,micxl-crppl,pred dns chky-pty sl anhy PKST,n-v sl dol,n-v rr v thn ltbrn GRNST stks,v rr clr-trnsl CHT frag,tt-v rr thn intxl POR,v rr spty dull-bri yel FLOR,n vis STN,rr spty slow dif-v rr slow stmg CUT"
6500.00 6510.00	"LS crm-tan,occ ltbrn-wh,crppl-micxl,dns,pty-chk ip v sl ool PKST,w/v rr v thn stks GRNST,anhy-v rr ANHY xl-incl,occ Calc fl frac,v sl dol ip,tt-v rr intxl-frac POR,n-tr spty dull-bri yel FLOR,v rr spty brn-blk STN,n-v rr slow dif CUT"
6510.00 6530.00	6"LS AA,v rr vfxl,pred PKST AA,w/rr GRNST AA,tt-tr intxl-v rr spty ool POR,n-rr spty dull-bri yel FLOR,rr spty brn STN-v rr spty blk dd o STN,n-v rr slow dif-slow stmg CUT"
6530.00 6540.00	"LS AA,pred dns occ chk-pty v sl ool PKST AA,w/v rr stks thn v sl ool GRNST,v rr trnsl-crl CHT frag,v rr POR-FLOR-STN-CUT AA"
6540.00 6550.00	"LS AA,incr pty-chky PKST,n-v rr stks GRNST,n-v rr spty intxl-ool POR,v rr spty FLOR-STN-CUT AA"
6550.00 6560.00	"LS crm-tan,occ ltbrn-wh,crppl-micxl,dns,pty-chk ip v sl ool PKST,w/v rr stks GRNST,anhy ip,occ Calc fl frac,v sl dol ip,v rr trnsl-bf CHT frag,tt-v rr intxl-frac POR,n-v rr spty dull-bri yel FLOR,v rr spty dkbrn-blk STN,n-v rr slow dif CUT"
6560.00 6570.00	"LS AA,pred dns occ chk-pty v sl ool PKST AA,w/v rr thn v sl ool GRNST,v rr CHT AA,v rr POR-FLOR-STN-CUT AA"
6570.00 6580.00	"LS AA,pred dns tt occ pty-chk sl anhy PKST w/v rr scat ool,n-v rr v thn ooc ip GRNST stks,tt-v rr intxl POR,n-v spty dull-bri yel FLOR,v rr spty dkbrn STN-v rr blk dd o STN,n-tr slow dif-v rr slow stmg CUT"
6580.00 6600.00	"LS tan,occ crm-wh,v rr ltbrn,crppl-micxl,v rr vfxl-gran,pred dns occ chk-pty v sl ool anhy PKST,v rr thn stks v sl ooc GRNST,scat ANHY xl,v rr trnsl CHT frag,tt-rr intxl-v rr ool POR,tr spty dull-bri yel FLOR,v rr spty brn STN,v p slow dif CUT"
6600.00 6610.00	"LS AA,decr PKST,n-v rr scat GRNST lams AA,n-v rr stky POR,v rr spty FLOR-STN-CUT AA"
6610.00 6620.00	"LS AA,pred PKST AA,incr sl ooc-oom GRNST,scat CHT AA,v rr ANHY xl-v sl DOL cmt,tt-tr intxl-v rr ool POR,tr dull-rr bri yel FLOR,rr-tr ltbrn-v rr spty blk dd o STN,rr-tr slow dif-v rr slow stmg CUT"
6620.00 6630.00	"LS AA,bcmg pred ltbrn ooc-oom sl anhy GRNST,v sl dol,w/PKST AA,tt-mg ool-intxl POR,mfr dull-bri yel FLOR,tr ltbrn STN-rr spty blk dd o STN,tr-mfr slow dif-slow stmg mlky CUT"

DEPTH	LITHOLOGY
6630.00 6650.00	"LS ltbrn-brn-tan,occ crm,crpxl-vfxl,occ gran-micsuc,pred ooc-oom GRNST,scat thn dns tt PKST,v rr ANHY xl-POR fl,v rr CHT frag,v sl dol,fr-mg intxl-tr ool POR,fr dull-bri yel FLOR,fr brn-tr blk STN,fr-mg slow-mod fast stmg CUT"
6650.00 6660.00	"LS AA,occ mbrn,pred sl ooc-oom GRNST,mg intxl-fr ool POR,fr-g dull-bri yel FLOR,fr ltbrn-brn STN-rr blk dd o STN,fr-g mod fast-fast stmg mlky CUT"
6660.00 6690.00	"LS tan-lt-mbrn,occ crm,crpxl-vfxl,gran-micsuc ip,pred sl ooc-oom GRNST,scat dns v sl ool chk ip PKST,v sl anhy-dol,v rr trnsl-clr CHT frag,tt-mg intxl-fr ool POR,fr-g dull-bri yel FLOR,fr-brn STN-rr spty blk dd o STN,fr-mg slow-fast stmg mlky CUT"
6690.00 6710.00	"LS pred brn-mbrn,micxl-vfxl,gran-micsuc ip,ooc-oom GRNST,decr PKST AA,fr-g intxl-ool POR,FLOR-STN-CUT AA"
6710.00 6730.00	"LS tan-lt-mbrn,occ crm,crpxl-vfxl,gran-micsuc ip,pred sl ooc-oom GRNST,scat dns v sl ool chk ip PKST,v sl anhy-dol,v rr trnsl-clr CHT frag,tt-mg intxl-fr ool POR,fr-g dull-bri yel FLOR,fr-brn STN-rr spty blk dd o STN,fr-mg slow-fast stmg mlky CUT"
6730.00 6740.00	"LS AA / dcrs carb mat & incrs yel flor"
6740.00 6760.00	"LS tan-lt-mbrn,occ crm,crpxl-vfxl,gran-micsuc ip,pred sl ooc-oom GRNST,scat dns v sl ool chk ip PKST,v sl anhy-dol,v rr trnsl-clr CHT frag,tt-mg intxl-fr ool POR,fr-g dull-bri yel FLOR,fr-brn STN-rr spty blk dd o STN,fr-mg slow-fast stmg mlky CUT"
6760.00 6780.00	"LS ltgy-trnsl, crm-tan, ltbrn, offwh, frm-brit-mhd, micxl-vfxl, dol cmt ip, wh cly, anhy, micsuc-suc, ool, chky ip, occ tt PKST, dull-bri yel flor / occ ltbrn stn & gd strmg-mlky cut"
6780.00 6800.00	"LA AA / sl incrs offwh tt dns PKST"
6800.00 6820.00	"LS ltgy-trnsl, crm-tan, ltbrn, offwh, frm-brit-mhd, micxl-crpxl-vfxl, pred ooc-oom grnst, dol cmt ip, wh cly, anhy, micsuc-suc, ool, tr fos frags,chky ip, occ tt PKST, dull-bri yel flor / occ ltbrn stn & gd strmg-mlky cut"
6820.00 6840.00	"LS ltgy-trnsl, crm-tan, ltbrn, offwh, frm-brit-mhd, micxl-vfxl, dol cmt ip, wh cly, anhy, micsuc-suc, ool, chky ip, occ tt PKST, dull-bri yel flor / occ ltbrn stn & gd strmg-mlky cut"
6840.00 6860.00	"LS AA"
6860.00 6880.00	"LS ltgy-trnsl, crm-tan, ltbrn, offwh, frm-brit-mhd, micxl-crpxl-vfxl, pred ooc-oom grnst, dol cmt ip, wh cly, anhy, micsuc-suc, ool, tr fos frags,chky ip, occ tt PKST, dull-bri yel flor / occ ltbrn stn & gd strmg-mlky cut"

DEPTH	LITHOLOGY
6880.00	6900.00 "LS ltgy-trnsl, crm-tan, ltbrn, offwh, frm-brit-mhd, micxl-vfxl, dol cmt ip, wh cly, anhy, micsuc-suc, ool, chky ip, occ tt PKST, dull-bri yel flor / occ ltbrn stn & gd strmg-mlky cut"
6900.00	6930.00 "LS tan-lt-mbrn,occ crm,crpxl-vfxl,gran-micsuc ip,pred sl ooc-oom GRNST,scat dns v sl ool chk ip PKST,v sl anhy-dol,v rr trnsl-clr CHT frag,tt-mg intxl-fr ool POR,fr-g dull-bri yel FLOR,tr-fr brn STN-rr spty blk dd o STN,fr-mg slow-fast stmg mlky CUT"
6930.00	6940.00 "LS ltgy-trnsl, crm-tan, ltbrn, offwh, frm-brit-mhd, micxl-vfxl, dol cmt ip, wh cly, anhy, micsuc-suc, ool, chky ip, occ tt PKST, dull-bri yel flor / occ ltbrn stn & gd strmg-mlky cut"
6940.00	6950.00 "LS ltgy-trnsl, crm-tan, ltbrn, offwh, frm-brit-mhd, micxl-crpxl-vfxl, pred ooc-oom grnst, dol cmt ip, wh cly, anhy, micsuc-suc, ool, tr fos frags,chky ip, occ tt PKST, dull-bri yel flor / occ ltbrn stn & gd strmg-mlky cut"
6950.00	6980.00 "LS tan-lt-mbrn,occ crm,crpxl-vfxl,gran-micsuc ip,pred sl ooc-oom GRNST,scat dns v sl ool chk ip PKST,v sl anhy-dol,v rr trnsl-clr CHT frag,tt-mg intxl-fr ool POR,fr-g dull-bri yel FLOR,tr-fr brn STN-rr spty blk dd o STN,fr-mg slow-fast stmg mlky CUT"
6980.00	7000.00 "LS ltgy-trnsl, crm-tan, ltbrn, offwh, frm-brit-mhd, micxl-vfxl, dol cmt ip, wh cly, anhy, micsuc-suc, ool, chky ip, occ tt PKST, dull-bri yel flor / occ ltbrn stn & gd strmg-mlky cut"
7000.00	7020.00 "LS ltgy-trnsl, crm-tan, ltbrn, offwh, frm-brit-mhd, micxl-crpxl-vfxl, pred ooc-oom grnst, dol cmt ip, wh cly, anhy, micsuc-suc, ool, tr fos frags,chky ip, occ tt PKST, dull-bri yel flor / occ ltbrn stn & gd strmg-mlky cut"
7020.00	7040.00 "LS tan-lt-mbrn,occ crm,crpxl-vfxl,gran-micsuc ip,pred sl ooc-oom GRNST,scat dns v sl ool chk ip PKST,v sl anhy-dol,v rr trnsl-clr CHT frag,tt-mg intxl-fr ool POR,fr-g dull-bri yel FLOR,tr-fr brn STN-rr spty blk dd o STN,fr-mg slow-fast stmg mlky CUT"
7040.00	7070.00 "LS ltgy-trnsl, crm-tan, ltbrn, offwh, frm-brit-mhd, micxl-vfxl, dol cmt ip, wh cly, anhy, micsuc-suc, ool, chky ip, occ tt PKST, dull-bri yel flor / occ ltbrn stn & gd strmg-mlky cut"
7070.00	7080.00 "LS ltgy-trnsl, crm-tan, ltbrn, offwh, frm-brit-mhd, micxl-crpxl-vfxl; pred ooc-oom grnst, dol cmt ip, wh cly, anhy, micsuc-suc, ool, tr fos frags,chky ip, occ tt PKST, dull-bri yel flor / occ ltbrn stn & gd strmg-mlky cut"
7080.00	7100.00 "LS tan-lt-mbrn,occ crm,crpxl-vfxl,gran-micsuc ip,pred sl ooc-oom GRNST,scat dns v sl ool chk ip PKST,v sl anhy-dol,v rr trnsl-clr CHT frag,tt-mg intxl-fr ool POR,fr-g dull-bri yel FLOR,tr-fr brn STN-rr spty blk dd o STN,fr-mg slow-fast stmg mlky CUT"

DEPTH

LITHOLOGY

7100.00 7120.00 "LS tan-ltbrn,occ crm-offwh,micxl-crpxl-vfxl,micsuc-suc
ip,pred ooc-oom GRNST,DOL cmt ip,scat dns occ chk-plty v sl ool PKST,anhy
ip,v rr fos frags,fr-mg dull-bri yel FLOR,tr ltbrn STN-n-v rr spty blk dd o
STN,mg slow-fast strmg-mlky CUT"

7120.00 7140.00 "LS tan-ltbrn,occ crm,rr wh-brn-ltgy,crpxl-vfxl,gran-micsuc
ip,pred sl ooc-oom GRNST,w/scat dns occ sl plty-chk PKST,rr scat ANHY xl-
incl,occ DOL rich cmt,v rr bf CHT frag,fr intxl-ool POR,mg dull-fr bri yel
FLOR,tr-fr ltbrn-rr brn-blk STN,mg mod fast CUT"

7140.00 7154.00 "LS AA,v sl incr dns ool PKST,incr ANHY xl-v rr POR fl,POR-
FLOR-STN-CUT"

FORMATION TOPS

OPERATOR: MOBIL
WELL NAME: RATHERFORD UNIT #17-13 NW 1-A HORIZONTAL LATERAL LEG #3

FORMATION NAME		SAMPLES MEASURED DEPTH	SAMPLES TRUE VERTICAL DEPTH	DATUM KB:4748'
LOWER ISMAY		5449'	5448'	-700'
GOTHIC SHALE		5509'	5491'	-743'
DESERT CREEK		5531'	5502'	-754'
DC 1-A ZONE		5539'	5504'	-756'

GEOLOGICAL SUMMARY

AND

ZONES OF INTEREST

The Mobil Exploration and Production U.S., Inc., Ratherford Unit #17-13 Horizontal Lateral Leg #3 was a re-entry of the Mobil Ratherford Unit #17-13 located in Section 17, T41S, R24E, and was sidetracked in a southeasterly direction from a 5411' measured depth, 5410.5' true vertical depth, on March 30, 1998. The lateral reached a measured depth of 7154', true vertical depth of 5508.5' at total depth, with a horizontal displacement of 1700.5' and true vertical plane 324.9 degrees, on April 3, 1998; in the upper Desert Creek 1-A porosity zone, where the lateral was terminated. While drilling the curve section the MWD probe failed at a measured depth of 5555', 5509' true vertical depth, 5' into the top of the 1-A porosity zone on March 31, 1998, necessitating a trip, at which time bottom hole assembly was change from the curve to lateral assemblies. At a measured depth of 5690', 5517.6' true vertical depth, and a horizontal displacement of 246', the build (curve) section was completed with the lateral assembly. The lateral was drilled with no further problems and remained with in the 1-A zone through out its length. The 1-A porosity through out the majority of its length, was consistant. Except from 875' to 1170' of horizontal displacement, when the base of the 1-A zone was penetrated. The lateral leg was drilled with fresh water and brine water with polymer sweeps as the drilling fluid. Due to the amount of oil in the mud system from the previous laterals, no significant increases in the background gases was noted while drilling the curve or lateral sections. During the lateral section through the 1-A porosity zone, a very gradual increase was noted in the background gases and in the amount of oil in the mud system. As the lateral progressed, the background gas gradually decreased when the base of the 1-A was penetrated, and gradually increased when the porosity was regained. The lower gas readings near the end of the lateral might be attributed to the increasing amount of flushing further away from the vertical well bore. The samples had fair to moderately good oil shows throughout the majority of the lateral in the 1-A zone.

The objectives of the Ratherford Unit #17-13 Leg #3 horizontal lateral were to identify and define the porosity zone of the 1-A bench of the Desert Creek Member of the Upper Paradox Formation, and to evaluate the effective reservoir properties. These objectives were accomplished and it became apparent that the 1-A zone in this lateral direction can be considered as a single predominately homogeneous unit. After completing the curve section of the lateral, the lateral section required intermitted sliding to maintain vertical and horizontal plane direction. The well path followed the proposed target line as much as possible then used it as a reference point, as the lateral progressed with in the 1-A porosity zone.

The very base of the Upper Ismay, the Lower Ismay, Gothic Shale, the transition zone at the top of the Desert Creek, and the upper one third of the 1-A porosity zone were encountered while drilling the curve section of the lateral. Kick off point for this lateral was 5411' measured, 5410.5' true vertical depth, in the very basal carbonates, marls and thin carbonaceous shales of the Upper Ismay.

The lower 38' of the Upper Ismay in the curve section of the lateral leg #3, was predominately a limestone packstone. The limestones were light to medium brown to light gray, occasionally white to cream to tan, cryptocrystalline to microcrystalline, dense, some chalky to slightly argillaceous, becoming marly and dolomitic with depth. Interbedded in these limestones were brown chert fragments, thin black slightly carbonaceous shales and increasing amounts of medium to dark brown

cryptocrystalline to microcrystalline, limey dolomites. As the Upper Ismay approached the very thin Hovenweep Shale the amount of limey marlstones and shaley dolomites increased and graded into the very thin black, limey to dolomitic shales of the Hovenweep Shale. The limestones and thin dolomites had no visible porosity, fluorescence, stain or cut.

The top of the Lower Ismay was picked at 5449' measured depth, 5448' true vertical depth, at the base of the very thin Hovenweep shale. This pick was based on sample identification as well as the vertical well electric logs. The upper Lower Ismay limestones were predominately tan to medium brown, with some scattered light gray brown to cream, cryptocrystalline to microcrystalline, scattered thin streaks of very finely crystalline to granular, clean to earthy, with rare scattered fractures that showed some anhydrite and calcite filling. Minor amounts of brown to dark brown chert fragments and rare thin black carbonaceous shales were observed. Through the middle of the Lower Ismay from 5456' to 5491' measured depths, were cream to white, occasionally tan to light gray, cryptocrystalline to very finely crystalline, some sucrosic limestone grainstones. These limestone were slightly algal, with a very dolomitic rich cement, and had fair intercrystalline, to very rare spotty pin point vuggular and very poor fractured porosity. Thinly interbedded in the limestones were brown to dark brown, microcrystalline, with some very finely crystalline, limey, earthy to argillaceous dolomite grainstones and had traces of intercrystalline porosity. The porosity in the limestones and very thin dolomites had a trace to fair visible fluorescence, a spotty brown to rare black stain* and a fair to moderately good streaming cut. The dense limestones and thin interbedded dolomites in the very base of the Lower Ismay below the 27' thick porosity zone were white to cream, light brown to light gray, slightly mottled, cryptocrystalline to microcrystalline, predominately tight and clean to argillaceous. These basal carbonates became increasingly shaley, with rare scattered chert fragments and grading into calcareous to dolomitic, carbonaceous shale. The basal Lower Ismay limestones and dolomites lay gradationally over the Gothic Shale.

The Gothic Shale was penetrated at a measured depth of 5509', 5491' true vertical depth. The Gothic Shale was predominantly dark gray to black to dark gray brown, carbonaceous, silty, brittle to firm, subblocky to fissile, calcareous to slightly dolomitic and slightly micaceous, with minor silty material. The top of the Gothic was gradational from the very thin interbedding of very argillaceous, dolomitic limestones and limy dolomites, to the very dolomitic to calcareous, carbonaceous shale. The top of the Gothic was picked predominantly by a slight increase in penetration rate and an increase in the percentage of shale in the samples.

A gradational transitional zone appears between the Gothic Shale and the top of the Desert Creek Porosity members of the Paradox Formation; and it is within this zone where the top of the Desert Creek member is commonly picked due to a very noticeable facies and penetration rate change. In this northwesterly leg the top of the Desert Creek was picked at a measured depth of 5531' and at a true vertical depth of 5502'. The zone was predominately a slightly dolomitic, very dense cryptocrystalline to microcrystalline limestone packstone, with thinly interbedded brown, limy, argillaceous dolomites and very thin carbonaceous shales. The limestones were cream to tan to light brown, crypto to microcrystalline, argillaceous to slightly chalky, with very rare thin intercrystalline porosity streaks, but only very rare, spotty dull fluorescence, with a very poor brown to black stain and a very poor slow cut. The interbedded dolomites were cryptocrystalline to microcrystalline, limey, slightly argillaceous, and tight with no visible porosity or sample show. The limestones graded into the very good oolitic to oolmoldic limestone grainstones and the thin dense limestone packstones of the 1-A porosity zone.

The top of the Desert Creek 1-A porosity zone was at 5539' measured depth, 5504' true vertical depth and was noted by a significant increase in the penetration rate, oolitic to oolmoldic limestone grainstone and sample show. The top of the 1-A porosity in this lateral was in a very oolitic, clean to very slightly dolomitic, slightly anhydritic limestone grainstone with scattered thin interbedded dense limestone packstones with very minor thin, dense limy dolomites near the top. The limestones were tan to light to medium brown, cryptocrystalline to very fine crystalline, granular to

microsucrosic, with oolitic to intercrystalline porosity. Interbedded within the oolitic limestones were rare scattered dense, slightly oolitic, limestone packstones, with very rare scattered anhydrite crystals and translucent to buff chert fragments. The oolitic to oolimoldic limestones had fair to good sample shows within this zone. The 1-A porosity zone was 13' (true vertical thickness) thick and had very rare streaks of dense packstones scattered with in the porosity throughout most of the section. At a measured depth of 5592', 5517.6' true vertical depth the bottom of 1-A porosity bench was approached as the end of the curve section was completed with the lateral assembly and the well path was turned upward toward the proposed target line. The lithology of the 1-A porosity zone from the top of the zone to the base of the curve or build section was constant, and was a brown to light brown to tan, oolitic to oolimoldic grainstone limestone, with very rare to traces of dense to very rare chalky platy packstones. Sample shows were good to fair in the oolitic to oolimoldic and intercrystalline porosity.

From the measured depth of 5592', until reaching a measured depth of 5870', 5511' true vertical depth, with a horizontal displacement of 423', the well bore was oriented upward at a very shallow angle to acquire the proposed target line. After the well bore acquired the target line, the well path was allowed to slowly drift downward into the good oolitic to oolimoldic limestone grainstones, with good sample shows until reaching a measured depth of approximately 6100', true vertical depth of 5513.5', with a horizontal displacement of 652'. At this point the formation began slowly pushing the well bore slowly upward at an average angle of 90.2 degrees. The well path was continued upward with short slides to control the rate of climb, until reaching a true vertical depth of 5509.5', 6290' measured depth, with a horizontal displacement of 842', which was approximately 5' above the proposed target line. Throughout this interval the lithology remained predominately the light brown, oolitic to oolimoldic, very slightly dolomitic to anhydritic limestone grainstone, with scattered traces of packstone fragments and rare Crinoid stem fragments. Sample shows remained moderately good, with a moderately high background gas. The well bore encountered what was thought at the time, to be the top of the 1-A porosity zone dipping downward.

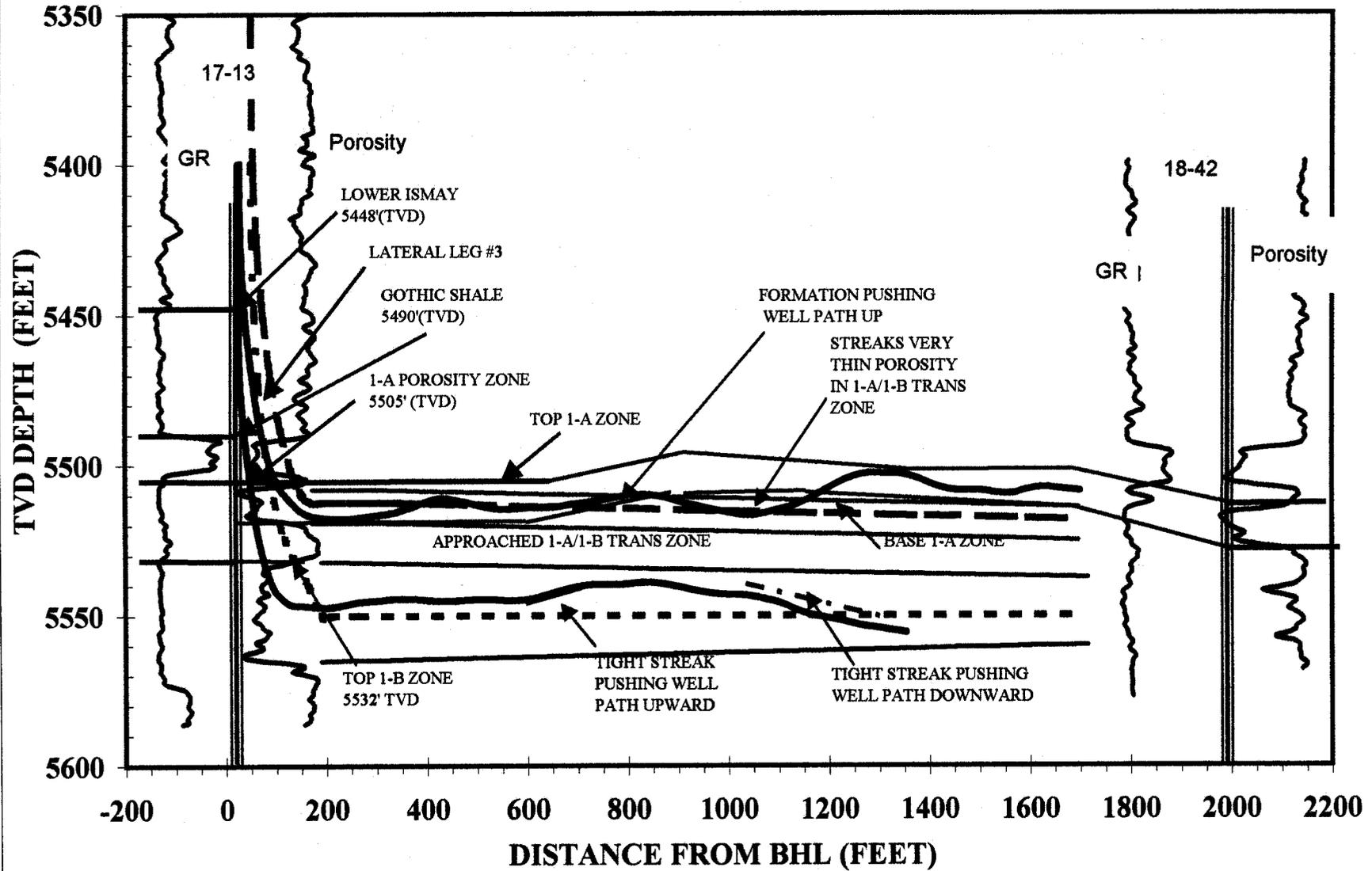
The well bore was turned downward in an attempt to reacquire the target line and the very good oolitic to oolimoldic limestones. The well path was continued downward in the dense, occasionally platy to chalky, slightly cherty, cream to tan to some white, very slightly oolitic, limestone packstone, until reaching a measured depth of 6465', 5516.8' true vertical depth, and a horizontal displacement of 1016', approximately 2' below the proposed target line. It had become obvious that the base of the 1-A porosity zone had been encountered and that the down turn in the well path had in actuality penetrated the 1-A to 1-B transition zone. At this time the well path was turned upward. From the measured depth of 6465' to a measured depth of 6619', 5510' true vertical depth, with a horizontal displacement of 1167', the well path continued upward with an angle of 93.5 degrees in the tight limestone packstones. Upon reaching the measured depth of 6619' there was a noticeable change in the penetration rate indicating a change in lithology from the denser limestone packstone to a good oolitic to oolimoldic limestone was noted in the samples. At this point the base of the very good oolitic to oolimoldic, cream to tan to light brown, slightly anhydritic to very slightly dolomitic limestone grainstones, was encountered. A series of short slides to bring the well path level was begun, as the well path drifted upward to a maximum true vertical depth of 5502.5', at a measured depth of 6750', with a horizontal displacement of 1302'. It was interpreted that the bit had "bumped" the tight, dense, limestone packstones at the very top of the 1-A porosity zone, due to the 3-degree drop in upward angle. From the measured depth of 6750' to the lateral's termination the well path was oriented slightly downward and then leveled off near the true vertical depth of 5508'. The lateral was terminated on March 3, 1998', at a measured depth of 7154', 5508.5' true vertical depth, with 1700.5' of horizontal displacement. After reacquiring the best porosity of the 1-A zone, the lithology returned to the light brown to tan, occasionally cream, very fine crystalline to microcrystalline, granular, some microsucrosic to sucrosic streaks, oolitic to oolimoldic, very slightly dolomitic to anhydritic limestone grainstones, with very rare scattered dense to platy packstones.

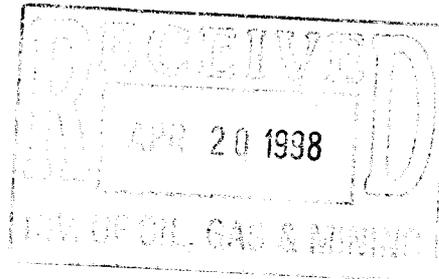
In tracking the northwesterly lateral in the 1-A porosity zone, it appears that the oolitic to oolimoldic limestone porosities are consistent throughout the zone. Having a minor effect on the porosity, were the minor amounts of anhydrite filled porosity and the scattered, very thin, dense to platy limestone packstones interbedded throughout the 1-A zone, as well as the doming of the zone encountered in the lateral. Staining was fair to good through out the porosity, with the exception of the interval which penetrated the base, and the last 500' having a fair stain, and the amount of black dead oil* staining trapped in the oolitic to oolimoldic porosity ranging from a rare to fair amount. The fluorescence and cuts remained predominately good through out the majority of the lateral, with the interval penetrating the base having no to rare streaks of fluorescence and cut. The lateral used the proposed target line as a reference point through the 1-A bench. The well bore, through out most of its length, until penetrating the base, was allowed to follow the line of best porosity after entering the 1-A porosity zone which resulted in the lateral remaining an average of 5 to 6' above the target line.

While drilling the curve and lateral sections, the increases in background gas was due to the minor amounts of oil encountered while drilling the Lower Ismay as well as the 1-A porosity bench in the curve, as well as the 1-A zone in the lateral. A slow decrease in the background gases was noted when the base of the 1-A zone was penetrated from a measured depth of 6308' to 6619' in the lateral section. A slight increase in the background gas was again noted after regaining the porosity zone, until nearing the termination of the lateral. While this lateral was drilled as a northwesterly sidetrack of an production well in the Upper Desert Creek 1-A porosity zone, it is seen to have very good reservoir qualities that have yet to be flushed from the offsetting injector wells. It appears that the porosities are well enough developed, in this northwesterly direction to enhance the overall production performance of the 1-A porosity zone.

*The black residual staining has been called by Dr. Dave Eby & others as "bitchimum" and is also known as "dead oil" ("dd o stn" on mud logs). This staining is associated with the movement of oil over long periods of time and is a good indicator of producible hydrocarbons when associated with productive porosities, but can also be found in porosities that have been filled by anhydrites and other material at later dates.

MOBIL, Ratherford Unit #17-13, Northwest Laterals





MOBIL

RATHERFORD UNIT #17-13
SE HORIZONTAL LATERAL LEG #4
UPPER 1-A POROSITY BENCH
DESERT CREEK MEMBER
PARADOX FORMATION
SECTION 17, T41S, R24E
SAN JUAN, UTAH

GEOLOGY REPORT
by
DAVE MEADE
ROCKY MOUNTAIN GEO-ENGINEERING CORP.
GRAND JUNCTION, COLORADO
(970) 243-3044

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WELL SUMMARY

OPERATOR: MOBIL EXPLORATION & PRODUCTION U.S. INC.

NAME: RATHERFORD UNIT #17-13 SE HORIZONTAL LATERAL
LEG #4 IN UPPER DESERT CREEK 1-A POROSITY BENCH

LOCATION: SECTION 17, T41S, R24E

COUNTY/STATE: SAN JUAN, UTAH

ELEVATION: KB:4735' GL:4748'

SPUD DATE: 4/04/98

COMPLETION DATE: 4/09/98

DRILLING ENGINEER: BENNY BRIGGS/SIMON BARRERA

WELLSITE GEOLOGY: DAVE MEADE / MARVIN ROANHORSE

MUDLOGGING ENGINEERS: DAVE MEADE / MARVIN ROANHORSE / MARK KOURY

CONTRACTOR: BIG "A" RIG 25
TOOLPUSHER: J. DEES / M. SMITH

HOLE SIZE: 4 3/4"

CASING RECORD: SIDETRACK IN WINDOW AT 5379' MEASURED DEPTH

DRILLING MUD: M-I
ENGINEER: RON WESTENBERGE / MIKE PITTSINGER
MUD TYPE: FRESH WATER & BRINE WATER W/ POLYMER SWEEPS

DIRECTIONAL DRILLING CO: SPERRY-SUN

ELECTICAL LOGGING: NA

TOTAL DEPTH: 6927' MEASURED DEPTH; TRUE VERTICAL DEPTH-5518'

STATUS: TOH & LAY DOWN TOOLS - PREPARE WELL FOR RIG MOVE

DRILLING CHRONOLOGY
RATHERFORD UNIT #17-13
1-A SE HORIZONTAL LATERAL LEG #4

DATE	DEPTH	DAILY	ACTIVITY
4/04/98	5381'	32'	TOH-L.D. HOOK & STARTER MILL-P.U. WINDOW & WATERMELLON MILLS-TIH-P.U PUP JT-MILL WINDOW FROM 5379' TO 55387'-CIR BTMS UP & WORK MILL-PUMP 10 BBL SWEEP & CIR OUT-PUMP 10 BBL BRINE-L.D. 12 JTS PIPE-TOH-L.D MILLS-P.U. CURVE ASSEMBLY-TEST MWD & MUD MOTOR-TIH-P.U. 2 JTS AOH PIPE-FILL PIPE-RIG UP GYRO DATA & RUN GYRO-TIME DRLG 5887'-5491 '-DIR DRLG W/WIRE LINE SURVEYS TO 5413'
4/05/98	5413'	178'	PULL GYRO & RIG DOWN GYRO DATA-DIR DRLG & SURVEYS TO 5591'-PUMP 10 BBL SWEEP & CIR BTMS UP-PUMP 10 BBL BRINE-L.D. 40 JTS AOH-TOH-L.D. CURVE ASSEMBLY-P.U. LATERAL BHA W/BIT #2 -ORIENT & TEST MWD / MUD MOTOR-TIH-P.U.40 JTS PH6-TIH
4/06/98	5591'	875'	TIH-DIR DRLG & SURVEYS
4/07/98	6466'	75'	DIR DRLG & SURVEYS TO 6541'-PUMP BRINE PILL & L.D. 2 JNTS AOH PIPE-TOOH
4/08/98	6541'	198'	TOOH-L.D. MOTOR & BIT-P.U. NEW MOTOR & BIT, ORIENTATE & TEST-TIH- DIR DRLG & SURVEYS
4/09/98	6739'	188'	DIR DRLG & SURVEYS TO 6927'-PUMP 10 BBL SWEEP & CIR. OUT SPLS-L.D. 2 JTS AOH-TOH-L.D. LATERAL ASSEMBLY-P.U. SUPER HOOK-TIH-LATCH INTO & RETRIEVE WHIPSTOCK #4-TOH-L.D. WHIPSTOCK & PACKER-TIH & SET BRIDGE PLUG-PREPARE RIG FOR MOVE TO R.U. 17-21 LOCATION

DAILY ACTIVITY

Operator: MOBIL

Well Name: RATHERFORD UNIT #17-13 SE 1-A HORIZONTAL LATERAL LEG #4

DATE	DEPTH	DAILY	DATE	DEPTH	DAILY
4/04/98	5381'	32'			
4/05/98	5413'	178'			
4/06/98	5591'	875'			
4/07/98	6466'	75'			
4/08/98	6541'	198'			
4/09/98	6739'	188'			
TD	6927'				

BIT RECORD

OPERATOR: MOBIL

WELL NAME: RATHERFORD UNIT #17-13 SE 1-A HORIZONTAL LATERAL LEG #4

RUN	SIZE	MAKE	TYPE	IN/OUT	FTG	HRS	FT/HR
#1 (RR)	4 3/4"	STC	MF-3P	5387'/ 5591'	204'	18	11.3
#2	4 3/4"	STC	MF-3P	5591'/ 6541'	950'	41	23.2
#3	4 3/4"	STC	MF-3P	6541'/ 6927'	386'	22.5	17.2

SPERRY-SUN DRILLING SERVICES
SURVEY DATA

Customer ... : Mobil (Utah)
Platform ... : RATHERFORD UNIT
Slot/Well .. : BA25/17-13, 4A1

MEASURED DEPTH	ANGLE DEG	DIRECTION DEG	TVD	NORTHINGS FEET	EASTINGS FEET	VERTICAL SECTION	DOG LEG
5200.00	0.66	323.70	5199.54	32.00 N	2.32 E	-16.45	0.00
5379.00	0.55	330.47	5378.53	33.58 N	1.29 E	-18.21	0.07
5387.00	3.40	125.00	5386.53	33.48 N	1.46 E	-18.00	48.80
5397.00	7.40	132.80	5396.48	32.87 N	2.18 E	-17.07	40.58
5407.00	12.00	134.90	5406.33	31.70 N	3.39 E	-15.41	46.13
5417.00	16.80	135.90	5416.02	29.92 N	5.13 E	-12.96	48.06
5427.00	21.70	136.50	5425.46	27.54 N	7.41 E	-9.73	49.04
5437.00	26.70	138.40	5434.57	24.52 N	10.18 E	-5.73	50.60
5447.00	30.90	134.10	5443.34	21.05 N	13.51 E	-1.00	46.81
5457.00	34.00	127.20	5451.78	17.57 N	17.59 E	4.33	48.25
5467.00	38.90	126.80	5459.82	14.00 N	22.33 E	10.26	49.06
5477.00	44.40	126.80	5467.29	10.02 N	27.65 E	16.90	55.00
5487.00	49.00	129.50	5474.14	5.52 N	33.37 E	24.17	50.01
5497.00	52.80	134.20	5480.45	0.34 N	39.14 E	31.87	52.66
5507.00	56.50	136.60	5486.24	5.47 S	44.86 E	39.88	41.85
5517.00	59.70	133.70	5491.52	11.48 S	50.85 E	48.24	40.37
5527.00	62.80	131.30	5496.33	17.40 S	57.31 E	56.93	37.46
5537.00	65.90	129.40	5500.66	23.24 S	64.18 E	65.90	35.42
5547.00	70.80	129.50	5504.35	29.14 S	71.36 E	75.17	49.01
5557.00	75.60	130.30	5507.24	35.28 S	78.70 E	84.70	48.61
5567.00	80.70	131.70	5509.29	41.70 S	86.08 E	94.43	52.81
5591.00	88.20	135.40	5511.61	58.15 S	103.38 E	118.03	34.81
5630.00	88.50	130.90	5512.73	84.80 S	131.81 E	156.61	11.56
5662.00	90.70	131.20	5512.96	105.81 S	155.94 E	188.43	6.94
5694.00	88.70	129.40	5513.13	126.51 S	180.34 E	220.29	8.41
5726.00	89.10	128.20	5513.74	146.56 S	205.28 E	252.21	3.95
5758.00	89.60	125.90	5514.10	165.83 S	230.81 E	284.19	7.35
5789.00	90.20	125.10	5514.16	183.84 S	256.05 E	315.19	3.23
5820.00	88.00	122.80	5514.64	201.14 S	281.76 E	346.18	10.27
5851.00	88.90	120.50	5515.48	217.40 S	308.14 E	377.11	7.96
5883.00	91.60	120.10	5515.34	233.55 S	335.76 E	409.00	8.53
5915.00	91.80	121.90	5514.39	250.02 S	363.18 E	440.90	5.66
5947.00	92.90	122.40	5513.08	267.03 S	390.25 E	472.84	3.78
5978.00	92.70	122.80	5511.57	283.71 S	416.33 E	503.77	1.44
6010.00	91.80	122.80	5510.31	301.04 S	443.21 E	535.72	2.81
6042.00	88.30	122.10	5510.28	318.20 S	470.21 E	567.69	11.15
6074.00	88.20	122.90	5511.26	335.39 S	497.19 E	599.64	2.52
6105.00	88.20	123.10	5512.23	352.26 S	523.17 E	630.61	0.64

SPERRY-SUN DRILLING SERVICES
SURVEY DATA

Customer ... : Mobil (Utah)
Platform ... : RATHERFORD UNIT
Slot/Well .. : BA25/17-13, 4A1

MEASURED DEPTH	ANGLE DEG	DIRECTION DEG	TVD	NORTHINGS FEET	EASTINGS FEET	VERTICAL SECTION	DOG LEG
6137.00	88.20	123.10	5513.24	369.73 S	549.97 E	662.57	0.00
6168.00	88.10	123.50	5514.24	386.74 S	575.86 E	693.54	1.33
6199.00	87.80	123.80	5515.35	403.91 S	601.65 E	724.52	1.37
6231.00	89.00	124.70	5516.24	421.91 S	628.09 E	756.50	4.69
6262.00	90.20	125.10	5516.46	439.65 S	653.51 E	787.50	4.08
6293.00	90.90	125.40	5516.16	457.54 S	678.83 E	818.50	2.46
6325.00	90.80	125.40	5515.69	476.07 S	704.91 E	850.49	0.31
6357.01	90.30	126.30	5515.38	494.82 S	730.85 E	882.50	3.22
6389.00	91.40	127.50	5514.90	514.02 S	756.43 E	914.46	5.09
6421.00	91.80	127.30	5514.01	533.45 S	781.84 E	946.42	1.40
6452.00	90.00	126.60	5513.52	552.08 S	806.61 E	977.40	6.23
6484.00	89.50	126.60	5513.66	571.16 S	832.30 E	1009.39	1.56
6517.00	88.70	124.30	5514.18	590.30 S	859.18 E	1042.38	7.38
6548.00	88.40	125.80	5514.97	608.09 S	884.55 E	1073.37	4.93
6580.00	87.50	124.90	5516.11	626.60 S	910.63 E	1105.35	3.98
6612.00	86.30	124.20	5517.84	644.72 S	936.95 E	1137.30	4.34
6643.00	87.00	122.60	5519.65	661.75 S	962.79 E	1168.23	5.63
6675.00	86.00	120.00	5521.61	678.34 S	990.07 E	1200.10	8.69
6707.00	85.90	118.50	5523.87	693.94 S	1017.92 E	1231.86	4.69
6738.00	86.50	118.20	5525.92	708.63 S	1045.15 E	1262.59	2.16
6770.00	91.00	119.40	5526.62	724.04 S	1073.17 E	1294.38	14.55
6802.00	92.30	119.40	5525.70	739.74 S	1101.04 E	1326.22	4.06
6834.00	93.30	119.20	5524.14	755.38 S	1128.91 E	1358.02	3.19
6865.00	93.70	119.40	5522.24	770.52 S	1155.90 E	1388.81	1.44
6894.00	93.80	119.40	5520.35	784.73 S	1181.11 E	1417.61	0.34
* 6927.00	93.80	119.40	5518.16	800.89 S	1209.79 E	1450.38	0.00 *

THE DOGLEG SEVERITY IS IN DEGREES PER 100.00 FEET.
N/E COORDINATE VALUES GIVEN RELATIVE TO WELL HEAD.
TVD COORDINATE VALUES GIVEN RELATIVE TO WELL HEAD.
THE VERTICAL SECTION ORIGIN IS WELL HEAD.
THE VERTICAL SECTION WAS COMPUTED ALONG 125.00 (TRUE).
CALCULATION METHOD: MINIMUM CURVATURE.

* 6927 PROJECTED TO BIT

MUD REPORT

OPERATOR: MOBIL

WELL NAME: RATHERFORD UNIT #17-13 SE 1-A HORIZONTAL LATERAL LEG #4

DATE	DEPTH	WT	VIS	PLS	YLD	GEL	PH	WL	CK	GHL	CA	SD	OIL	WTR
4/04/98	5383'	8.9	28	2	1	0/0	11.6	NC	NC	62K	320	-	5%	95%
4/05/98	5474'	8.9	28	2	1	0/0	12.5	NC	NC	69K	240	-	5%	95%
4/06/98	5778'	8.9	28	2	1	0/0	12.0	NC	NC	69K	160	-	6%	94%
4/07/98	6470'	8.9	28	5	3	0/0	11.7	41.2	NC	64K	240	-	7%	93%
4/08/98	6642'	8.8	28	5	3	0/0	11.6	36.2	NC	59K	260	-	8%	92%
4/09/98	6927'	8.8	28	5	3	0/0	11.6	26.0	NC	59.6K	240	-	9%	91%

SAMPLE DESCRIPTIONS

OPERATOR: MOBIL

WELL NAME: RATHERFORD UNIT #17-13 SE 1-A HORIZONTAL LATERAL LEG #4

DEPTH	LITHOLOGY
5392.00 5398.00	"LS offwh-ltgy,ltbrn,micxl-crpxl,arg-chky ip,occ dol,pred dns,tt-v rr intxl-frac POR,tr spty yel FLOR,NSOC,v rr trnsl CHT frag & v thn stks ltgy lmy mica SH"
5400.00 5410.00	"LS offwh-ltgy,ltbrn,micxl-crpxl,arg ip,chky,dns,n vis POR,v rr spty yel FLOR-NSOC,scat trnsl-dkbrn CHT frag,thn intbd brn-dkbrn micxl arg-sl mrly DOL tt NFSOC,& v rr thn SH ptgs m-dkgy-dkgybrn,sbblky,carb ip,sooty,lmy "
5410.00 5420.00	"LS AA,v rr intxl POR,n-v rr dull yel FLOR-rr mnrl FLOR,n vis STN-CUT,scat smky gy-brn CHT frag,v rr brn micxl rthy DOL lams-incl,tt-rr intxl POR,n-v rr FLOR,NSOC,rr SH ptgs"
5420.00 5430.00	"LS tan-brn,crpxl,rr micxl,rthy-dns,occ chk,v chty-smky gy-brn CHT frag,dns,tt,NFSOC,incr dkgybrn-dkgy SH lams AA,v rr DOL ptgs,arg,lmy tt,NFSOC"
5430.00 5440.00	"LS pred crm-tan,AA,chky,w/scat CHT-DOL-SH AA"
5440.00 5460.00	"LS crm-tan-brn,crpxl-micxl,rthy-arg,sl dol,mrly ip,v rr mic fos,tt-v rr intxl-frac POR,rr spty dull-bri yel FLOR,n vis STN,v p slow dif CUT,w/scat gy-brn CHT frag,v thn blk SH ptgs & ltbrn-gybrn micxl rthy-arg sl mrly tt DOL lams"
5460.00 5470.00	"LS AA,bcmg pred wh-crm,occ brn-gy,sl slty ip,incr ANHY-CALC fl fra,sl mrly,tr intxl-frac POR,tr dull-bri yel FLOR,v rr spty brn-blk STN,p slow dif CUT,scat CHT frag,v rr brn-mbrn arg-rthy DOL w/rr rthy POR,n-v rr p FLOR-STN-CUT"
5470.00 5480.00	"LS AA,incr slty,tt-v rr intxl POR,spty dull yel FLOR,n vis STN,v p slow CUT,w/scat CHT-SH & tt arg DOL AA"
5480.00 5500.00	"DOL brn-ltbrn,micxl,occ vfxl-gran,arg,sl rthy,lmy ip,tr ANHY xl-POR fl,scat trnsl CHT frag,rr mic fos-sl alg,tt-fr intxl POR,g bri yel FLOR,rr-tr brn STN-v rr blk dd o STN,fr slow dif-tr mod fast stmg CUT,tr wh-crm crpxl v anhy dns dol LS incl,tt,NFSOC"
5500.00 5510.00	"LS crm-tan-ltbrn,crpxl-micxl,rthy-chk,v dol-grdg to v lmy DOL ip,v rr SH ptgs,scat mic fos,v anhy-ANHY fl POR,tt-v rr frag-rthy POR,n vis STN,v p slow dif CUT,tr DOL AA,occ dkbrn mrly fos ip,POR-FLOR-STN-CUT AA,rr dkgy-blk SH lams-trnsl-bf CHT frag"
5510.00 5520.00	"LS wh-crm,occ tan,AA,rthy-chk,sl dol,w/thn intbd ltbrn micxl rthy DOL AA,bcmg pred blk carb SH"

DEPTH	LITHOLOGY
5520.00 5530.00	"SH dkgy-blk, sbblky, fis ip, carb, sl mica, slty ip, calc-dol, sl sooty, w/v thn dns LS & rthy DOL AA, tt, NFSOC"
5530.00 5540.00	"SH AA, w/ DOL mbrn-brn, micxl-crpxl, rthy, arg, lmy-sl anhy, dns-v rr intxl POR, n-v p dull yel FLOR, n vis STN, v p slow CUT & LS crm-wh-tan, crpxl, occ micxl, rthy-chk, sl slty, anhy, tt, NFSOC"
5540.00 5550.00	"LS crm-brn, crpxl-micxl, rr vfxl ooc GRNST, pred dns, tt-v rr intxl POR, v rr spty FLOR-STN-CUT, w/scat CHT frag, v rr SH lams, thn intbd rthy brn-mbrn sl mrly dns fos DOL"
5550.00 5580.00	"LS crm-lt-mbrn, occ wh, crpxl-vfxl, gran-micsuc ip, ooc-oom GRNST, w/scat dns sl ool rthy tt PKST incl-rr thn SH cvgs-scat CHT frag, v rr thn brn rthy DOL ptg, tr ANHY xl-incl, tt-g ool-fr intxl POR, rr-fr dull-bri yel FLOR, fr brn-rr blk STN, mg mod fast stmg CUT"
5580.00 5591.00	"LS tan-brn-gybrn, occ crm, crpxl-vfxl, gran-micsuc ip, ooc-oom GRNST, decr PKST AA, g ool-fr intxl POR, fr-g dull-bri yel FLOR, fr-g brn-tr blk STN, fr-g mod fast-fast stmg CUT"
5591.00 5600.00	"LS AA, w/sl tr PKST AA, FLOR-STN-CUT AA"
5600.00 5620.00	"LS crm-lt-mbrn, occ wh, crpxl-vfxl, gran-micsuc ip, ooc-oom GRNST, w/scat dns sl ool rthy tt PKST incl-rr thn SH cvgs-scat CHT frag, v rr thn brn rthy DOL ptg, tr ANHY xl-incl, tt-g ool-fr intxl POR, rr-fr dull-bri yel FLOR, fr brn-rr blk STN, mg mod fast stmg CUT"
5620.00 5640.00	"LS tan-lt-mbrn, occ crm-offwh, crpxl-vfxl, gran-micsuc ip, ooc-oom GRNST, w/scat dns sl ool rthy tt PKST, scat trnsl-bf CHT frag, tr ANHY xl-incl, g ool-fr intxl POR, mg-fr bri-rr dull yel FLOR, fr brn-dkbrn STN-rr blk dd o STN, mg mod fast stmg CUT"
5640.00 5660.00	"LS ltbrn-tan, occ dkbrn, occ crm, crpxl-vfxl, gran-micsuc ip, pred ooc-oom GRNST, tr ANHY xl-incl-rr POR fl, scat dns sl ool v anhy PKST frag, occ DOL rich cmt, fr-g ool-fr intxl POR, mg bri yel FLOR, g brn-v rr blk STN, fr-g mod fast-fast stmg mlky CUT"
5660.00 5680.00	"LS AA, sl incr dns ltbrn-tan PKST, v rr bf CHT frag, fr-mg ool-fr intxl POR, mg bri FLOR, fr brn-mbrn STN-tr blk dd o STN, fr-g mod fast-fast stmg CUT "
5680.00 5690.00	"LS AA, POR-FLOR-STN-CUT AA"
5690.00 5720.00	"LS ltbrn-brn, occ tan-dkbrn, crpxl-vfxl, gran-micsuc ip, pred ooc-oom GRNST, w/scat ANHY xl-rr POR fl, tr dns sl ool anhy PKST, occ DOL rich cmt, n-v rr trnsl-bf CHT frag, fr-g ool-tr-fr intxl POR, mg bri yel FLOR, mg lt-mbrn STN-rr blk dd o STN, mg mod fas-fast CUT"
5720.00 5730.00	"LS AA, POR-FLOR-STN-CUT AA"

DEPTH	LITHOLOGY
5730.00 5750.00	"LS tan-mbrn, pred ooc-oom GRNST AA, decr dns PKST, pred g ool-tr-fr intxl POR, g bri-tr dull yel FLOR, fr-g brn-dkbrn STN, tr blk dd o STN, g mod fast-fast stmg CUT"
5750.00 5770.00	"LS tan-ltbrn, occ brn-dkbrn, micxl-vfxl, occ crpxl, gran-micsuc ip, pred ooc-oom GRNST, scat dns sl ool occ pkty-chk anhy PKST, sl dol ip, v rr CHT frag, fr-g ool-fr intxl POR, mg bri-fr dull yel FLOR, mg brn STN-tr blk dd o STN, fr-g mod fast-fast stmg mlky CUT"
5770.00 5790.00	"LS pred ooc-oom GRNST AA, v sl incr dns ool anhy sl chky PKST incl, POR-FLOR-STN-CUT AA"
5790.00 5810.00	"LS pred ooc-oom GRNST AA, crpxl dns ool anhy sl chky PKST frag-incl, POR-FLOR-STN-CUT AA"
5810.00 5830.00	"LS tan-ltbrn, occ brn-dkbrn, micxl-vfxl, occ crpxl, gran-micsuc ip, pred ooc-oom GRNST, scat dns sl ool occ pkty-chk anhy PKST, rr DOL-ANHY cmt, v rr CHT frag, fr-g ool-fr intxl POR, mg bri-fr dull yel FLOR, mg brn-tr blk STN, fr-g mod fast-fast stmg mlky CUT"
5830.00 5850.00	"LS AA, pred ooc-oom GRNST w/occ DOL-ANHY cmt, sl incr dns cprxl ool occ anhy PKST, tt-mg ool-tr intxl POR, g bri-tr dull yel FLOR, g brn-mbrn STN-tr blk dd o STN, mg slow-fast stmg CUT"
5850.00 5860.00	"LS AA, decr PKST frag-incl, POR-FLOR-STN-CUT AA"
5860.00 5880.00	"LS tan-ltbrn, occ brn-dkbrn, micxl-vfxl, occ crpxl, gran-micsuc ip, pred ooc-oom GRNST, scat dns sl ool occ pkty-chk anhy PKST, rr DOL-ANHY cmt, v rr CHT frag, fr-g ool-fr intxl POR, mg bri-fr dull yel FLOR, mg brn-tr blk STN, fr-g mod fast-fast stmg mlky CUT"
5880.00 5910.00	"LS ltbrn-tan, occ brn-rr gybrn, micxl-vfxl, gran-misuc ip, pred ooc-oom GRNS, rr scat crpxl dns sl ool occ anhy PKST incl, sl tr DOL cmt, rr ANHY xl-POR fl, mg ool-tr intxl POR, g bri-tr dull yel FLOR, mg brn-tr blk STN, g mod fast-fast stmg mlky CUT"
5910.00 5930.00	"LS AA, pred ooc-oom GRNST, sl DOL-v rr ANHY cmt, rr thn scat stks PKST AA, POR-FLOR-STN-CUT AA"
5930.00 5950.00	"LS AA, v sl incr tan dns crpxl v sl ool occ anhy PKST, mfr-g ool-tr-fr intxl POR, fr-g bri-rr dull yel FLOR, mg ltbrn-brn STN-rr blk dd o STN, mg mod fast-fast stmg CUT"
5950.00 5960.00	"LS AA, v g ool-fr intxl POR, g bri-rr dull yel FLOR, g brn-tr blk STN, g mod-v fast stmg CUT"
5960.00 5980.00	"LS ltbrn-tan, occ brn-rr gybrn, micxl-vfxl, gran-misuc ip, pred ooc-oom GRNS, rr scat crpxl dns sl ool occ anhy PKST incl, sl tr DOL cmt, rr ANHY xl-POR fl, mg ool-tr intxl POR, g bri-tr dull yel FLOR, mg brn-tr blk STN, g mod fast-fast stmg mlky CUT"

DEPTH

LITHOLOGY

5980.00 6000.00 "LS tan-ltbrn,occ brn-rr gybrn,micxl-vfxl,gran-misuc ip,pred ooc-oom GRNT,sl DOL-rr ANHY cmt-v rr POR fl,rr scat crpxl dns sl ool occ anhy PKST incl,v rr CHT frag,mg ool-tr intxl POR,g bri-tr dull yel FLOR,mg brn-tr blk STN,g mod fast-fast stmg mlky CUT"

6000.00 6010.00 "LS pred v g ooc-oom GRNST,w/v rr DOL-sl ANHY cmt,v rr scat trnsl-crl CHT frag,rr PKST AA,fr-g POR-FLOR-STN-CUT AA"

6010.00 6030.00 "LS tan-ltbrn,occ brn-rr gybrn,micxl-vfxl,gran-misuc ip,pred ooc-oom GRNT,sl DOL-rr ANHY cmt-v rr POR fl,rr crpxl dns sl ool occ anhy PKST incl,v rr clr CHT frag,mg ool-fr intxl POR,g bri-rr dull yel FLOR,fr brn-rr blk STN,g mod fast-fast stmg mlky CUT"

6030.00 6050.00 "LS AA,pred g ooc-oom GRNST,rr DOL-v rr ANHY cmt,rr ANHY xl-incl,g ool-tr intxl POR,g bri yel FLOR,fr brn STN-rr-tr blk dd o STN,g mod fas-fast stmg mlky CUT"

6050.00 6070.00 "LS tan,occ ltbrn-brn,v rr crm,crpxl-vfxl,gran-misuc ip,pred ooc-oom GRNT,sl dol,rr ANHY xl-v rr POR fl,scat crpxl dns sl ool occ anhy PKST incl,v rr clr CHT frag,fr ool-intxl POR,g bri-rr dull yel FLOR,fr brn-rr blk STN,g mod fast-fast stmg mlky CUT"

6070.00 6090.00 "LS pred tan ooc-oom GRNST AA,w/rr-tr scat dns sl ool anhy PKST frag,POR-FLOR-STN-CUT AA"

6090.00 6100.00 "LS AA,v g ooc-oom GRNST AA scat PKST AA,mg-g ool-tr intxl POR,g FLOR-STN-CUT AA"

6100.00 6120.00 "LS tan,occ ltbrn-brn,v rr crm,crpxl-vfxl,gran-misuc ip,pred ooc-oom GRNT,sl dol,rr ANHY xl-v rr POR fl,scat crpxl dns sl ool occ anhy PKST incl,v rr clr CHT frag,fr ool-intxl POR,g bri-rr dull yel FLOR,fr brn-rr blk STN,g mod fast-fast stmg mlky CUT"

6120.00 6150.00 "LS tan,occ ltgybrn-crm-v rr brn,micxl-vfxl,gran-misuc ip,occ suc,pred sl ooc-oom GRNST,v rr scat dns anhy sl ool PKST frag,occ DOL cmt,v rr ANHY xl,g intxl-fr ool POR,g bri yel FLOR,fr brn-rr blk STN,g mod fast-fast stmg mlky CUT"

6150.00 6160.00 "LS tan,occ ltbrn-brn,v rr crm,crpxl-vfxl,gran-misuc ip,pred ooc-oom GRNT,sl dol,rr ANHY xl-v rr POR fl,scat crpxl dns sl ool occ anhy PKST incl,v rr clr CHT frag,fr ool-intxl POR,g bri-rr dull yel FLOR,fr brn-rr blk STN,g mod fast-fast stmg mlky CUT"

6160.00 6200.00 "LS tan-ltbrn,rr ltgybrn,micxl-vfxl,gran-suc ip,pred ooc-oom GRNST,sl DOL-v rr ANHY cmt,scat dns ool anhy chky ip PKST,v rr scat ANHY xl-clr CHT frag,mg-g ool-intxl POR,g bri yel FLOR,fr brn-dkbrn STN-rr spty blk dd o STN,mg mod fast-fast stmg CUT"

6200.00 6220.00 "LS AA,v g ooc-oom GRNST AA scat PKST AA,mg-g ool-tr intxl POR,g FLOR-STN-CUT AA"

DEPTH	LITHOLOGY
6220.00 6250.00	"LS tan-ltbrn,rr ltgybrn,micxl-vfxl,gran-suc ip,pred ooc-oom GRNST,sl DOL-v rr ANHY cmt,scat dns ool anhy chky ip PKST,v rr scat ANHY xl-clr CHT frag,mg-g ool-intxl POR,g bri yel FLOR,fr brn-dkbrn STN-rr spty blk dd o STN,mg mod fast-fast stmg CUT"
6250.00 6270.00	"LS ltbrn-tan, crm-ltgy, trnsl, micxl-vfxl, pred ooc-oom, sl dol cmt ip, tr ANHY, occ dns chky PKST, tr cht frags, abnt bri yel flor / occ ltbrn stn & tr dd o stn & mod fast-fast stmg cut"
6270.00 6300.00	"LS tan-ltbrn,rr ltgybrn,micxl-vfxl,gran-suc ip,pred ooc-oom GRNST,sl DOL-v rr ANHY cmt,scat dns ool anhy chky ip PKST,v rr scat ANHY xl-clr CHT frag,mg-g ool-intxl POR,g bri yel FLOR,fr brn-dkbrn STN-rr spty blk dd o STN,mg mod fast-fast stmg CUT"
6300.00 6330.00	"LS ltbrn-tan, crm-ltgy, trnsl, micxl-vfxl, pred ooc-oom, sl dol cmt ip, tr ANHY, occ dns chky PKST, tr cht frags, abnt bri yel flor / occ ltbrn stn & tr dd o stn & mod fast-fast stmg cut"
6330.00 6360.00	"SHAKER & POSSUMBELLY BYPASSED WHILE CLEANING POSSUMBELLY - SAMPLE INTERPRETED FROM DRILL RATE & OFF SET WELL DATA"
6360.00 6400.00	"LS tan-ltbrn,rr ltgybrn,micxl-vfxl,gran-suc ip,pred ooc-oom GRNST,sl DOL-v rr ANHY cmt,scat dns ool anhy chky ip PKST,v rr scat ANHY xl-clr CHT frag,mg-g ool-intxl POR,g bri yel FLOR,fr brn-dkbrn STN-rr spty blk dd o STN,mg mod fast-fast stmg CUT"
6400.00 6430.00	"LS ltbrn-tan, crm-ltgy, trnsl, micxl-vfxl, pred ooc-oom, sl dol cmt ip, tr ANHY, incrs dns chky PKST, occ cht frags, abnt bri yel flor / occ ltbrn stn & tr dd o stn & mod fast-fast stmg cut"
6430.00 6440.00	"LS ltbrn-tan, crm-ltgy, trnsl, wh, crpxl-micxl, occ vfxl, ooc-oom, sl dol cmt ip, ANHY, dns chky PKST, tr cht frags, abnt occ yel flor / occ ltbrn stn & tr dd o stn & mod fast-fast stmg cut"
6440.00 6450.00	"LS AA / incrs PKST & tt anhy fl GRNST"
6450.00 6460.00	"LS ltbrn-tan, crm-ltgy, trnsl, wh, crpxl-micxl, occ vfxl, ooc-oom, sl dol cmt ip, ANHY, dns chky PKST, tr cht frags, abnt occ yel flor / occ ltbrn stn & tr dd o stn & mod fast-fast stmg cut"
6460.00 6470.00	"LS wh-ltgy, ltbrn-tan,micxl-crpxl,v rr vfxl,pred arg-chk sl plty slty-v slty dns PKST,v rr v thn scat v sl ooc-oom GRNST stks,tt-v rr vis intxl POR,tr spty dull-v rr bri yel FLOR,rr spty ltbrn-v rr spty blk STN,v rr p slow dif-slow stmg CUT"
6470.00 6480.00	"LS AA,pred plty-chk occ slty-v slty arg PKST w/v rr stks v sl ooc-oom GRNST,n-v rr stks POR-FLOR-STN-CUT AA"
6480.00 6500.00	"LS wh-ltgy,micxl-crpxl,pred arg-chk sl plty slty-v slty dns sl anhy-anhy PKST,v rr stks v thn ltbrn-tan micxl-vfxl v sl ooc-oom GRNST stks,v rr ANHY incl,tt-v rr vis intxl POR,v rr spty dull-bri yel FLOR,n-rr spty ltbrn-blk STN,n-v rr p slow dif CUT"

DEPTH

LITHOLOGY

6500.00 6510.00 "LS ltgy-crm,occ ltbrn-brn,crpxl-micxl,occ vfxl-gran,micsuc ip,pred dns sl arg-sl slty occ plty-chk PKST,w/v rr thn intbd sl ooc-oom GRNST,sl anhy-rr ANHY xl,v sl dol,tt-rr intxl-ool POR,n-rr spty bri-dull FLOR,rr ltbrn-v rr blk STN,n-p slow dif CUT"

6510.00 6530.00 "LS ltgy-wh,decr ltbrn-tan,micxl-crpxl,rr vfxl,pred arg-chk sl plty slty-v slty dns PKST,rr v thn scat v sl ooc-oom GRNST stks,tt-v rr vis intxl-ool POR,tr scat spty dull-mod bri yel-rr bri FLOR,rr ltbrn-v rr spty blk STN,fr slow dif/tr v fnt res ring CUT"

6530.00 6541.00 "LS AA/tr scat ltbrn-tan,crpxl-micxl,occ micxl-v sl micsuc,pred arg-chky sl anhy PKST/tr thn dkgy-blk mot strks,intbd/sl oom-occ v sl dol GRNST,tr xln ANHY,POR AA,decr FLOR AA,n-tr ltbrn STN,p dif/tr v fnt res ring CUT"

6541.00 6550.00 "LS AA,POR-FLOR-STN-CUT AA W/TR BLK CARB SH CVGS"

6550.00 6560.00 6551.82 0 "LS ltgy,occ crm-rr brn,crpxl-micxl,rthy-chk,dns,slty-v slty ip,plty,v sl mica,v rr mic fos,tt-v rr v thn stks POR-FLOR-STN-CUT AA"

6560.00 6580.00 "LS ltgy-wh-crm,rr tan-brn,crpxl-micxl,rthy-slty,occ v slty,chk,sl anhy,mica ip,arg,pred PKST w/v rr stks v thn GRNST,tt-v rr intxl POR,n-spty dull-bri FLOR,n vis stn,v p slow dif CUT"

6580.00 6590.00 "LS pred ltbrn-tan,crpxl-vfxl,bcmg pred v sl ooc-oom GRNST,decr PKST AA,rr-tr intxl-v rr ool POR,rr spty bri-dull yel FLOR,v rr spty brn STN,v p dif-v rr slow stmg CUT"

6590.00 6600.00 "LS ltbrn-tan,incr wh-crm-ltgy,crpxl-vfxl,pred v sl ooc-oom GRNST/incr intbd thn chky-anhy plty-dns PKST,tr tan-crm CHT,POR AA,sl incr FLOR AA,STN & CUT AA"

6600.00 6610.00 "LS tan-ltbrn,crpxl-vfxl,pred v sl ooc-oom GRNST intbd/dns sl ool chky-anhy PKST,tr CHT AA,anhy/rr POR fl-xln ANHY,POR-FLOR AA,fr ltbrn/tr brn-rr blk pp dd o STN,fr slow-mod fast stmg mlky CUT"

6610.00 6630.00 "LS AA,sl micsuc,GRNST AA intbd/dns PKST AA,tr tan-crm sil-CHT,anhy/tr POR fl-rr xln ANHY,fr-g ool/tr intxl POR,fr scat mod bri-dull yel FLOR,STN AA,g mod fast stmg mlky CUT"

6630.00 6650.00 "LS tan-ltbrn,occ crm,tr wh,crpxl-micxl,occ vfxl-sl micsuc,pred sl ool GRNST,tr scat-intbd dns sl ool-tr chky plty PKST,sl anhy/tr POR fl-rr xln ANHY,tr crm-tan CHT,fr-g ool/tr intxl POR,g even mod bri-bri yel FLOR,fr-g ltbrn/scat brn & blk pp dd o STN,g mod fast-fast stmg mlky CUT"

6541.00 6550.00 "LS AA,POR-FLOR-STN-CUT AA W/TR BLK CARB SH CVGS"

6550.00 6560.00 6551.82 0 "LS ltgy,occ crm-rr brn,crpxl-micxl,rthy-chk,dns,slty-v slty ip,plty,v sl mica,v rr mic fos,tt-v rr v thn stks POR-FLOR-STN-CUT AA"

DEPTH

LITHOLOGY

6541.00 6550.00 "LS AA, POR-FLOR-STN-CUT AA W/TR BLK CARB SH CVGS"

6550.00 6560.00 6551.82 0 "LS ltgy, occ crm-rr brn, crpxl-micxl, rthy-chk, dns, slty-v slty ip, plty, v sl mica, v rr mic fos, tt-v rr v thn stks POR-FLOR-STN-CUT AA"

6560.00 6580.00 "LS ltgy-wh-crm, rr tan-brn, crpxl-micxl, rthy-slty, occ v slty, chk, sl anhy, mica ip, arg, pred PKST w/v rr stks v thn GRNST, tt-v rr intxl POR, n-spty dull-bri FLOR, n vis stn, v p slow dif CUT"

6580.00 6590.00 "LS pred ltbrn-tan, crpxl-vfxl, bcmg pred v sl ooc-oom GRNST, decr PKST AA, rr-tr intxl-v rr ool POR, rr spty bri-dull yel FLOR, v rr spty brn STN, v p dif-v rr slow stmg CUT"

6590.00 6600.00 "LS ltbrn-tan, incr wh-crm-ltgy, crpxl-vfxl, pred v sl ooc-oom GRNST/incr intbd thn chky-anhy plty-dns PKST, tr tan-crm CHT, POR AA, sl incr FLOR AA, STN & CUT AA"

6600.00 6610.00 "LS tan-ltbrn, crpxl-vfxl, pred v sl ooc-oom GRNST intbd/dns sl ool chky-anhy PKST, tr CHT AA, anhy/rr POR fl-xln ANHY, POR-FLOR AA, fr ltbrn/tr brn-rr blk pp dd o STN, fr slow-mod fast stmg mlky CUT"

6610.00 6630.00 "LS AA, sl micsuc, GRNST AA intbd/dns PKST AA, tr tan-crm sil-CHT, anhy/tr POR fl-rr xln ANHY, fr-g ool/tr intxl POR, fr scat mod bri-dull yel FLOR, STN AA, g mod fast stmg mlky CUT"

6630.00 6650.00 "LS tan-ltbrn, occ crm, tr wh, crpxl-micxl, occ vfxl-sl micsuc, pred sl ool GRNST, tr scat-intbd dns sl ool-tr chky plty PKST, sl anhy/tr POR fl-rr xln ANHY, tr crm-tan CHT, fr-g ool/tr intxl POR, g even mod bri-bri yel FLOR, fr-g ltbrn/scat brn & blk pp dd o STN, g mod fast-fast stmg mlky CUT"

6650.00 6670.00 "LS tan-crm, occ ltbrn, tr brn, wh, vfxl-gran, micxl-sl micsuc, crpxl, pred oom-oom GRNST, tr dns sl ool-rr thn chky pty PKST, sl anhy/tr POR fl-rr xln ANHY, v sl dol, v rr CHT AA, g oom-oom/tr intxl POR, g even bri-mod bri yel FLOR, fr tlbrn/scat tr brn-blk pp "dd o STN, g fast-blooming mlky CUT"

6670.00 6700.00 "LS AA, vfxl-gran-sl micsuc, occ micxl-crpxl, pred GRNST AA/tr dns sl ool-rr thn chky plty PKST, sl anhy/tr POR fl-v rr xln ANHY, v rr CHT AA, v sl dol, g oom-oom/tr intxl POR, g even bri-mod bri yel FLOR, STN AA, g fast stmg-sl blooming mlky CUT"

6700.00 6710.00 "LS AA, pred oom-oom GRNST intbd/dns sl ool-v rr thn chky plty PKST, sl anhy/tr POR fl, v rr xln ANHY, v rr CHT AA, POR-FLOR-STN-CUT AA"

6710.00 6730.00 "LS tan-crm, occ ltbrn, tr brn, wh, vfxl-gran-sl micsuc, micxl-crpxl, ooc-oom GRNST, tr dns sl ool-rr thn chky plty PKST, anhy/sl incr POR fl-v rr xln ANHY, rr crm-tan CHT, v sl dol, g-fr oom-oom/tr intxl POR, g even mod bri-bri yel FLOR, g-fr ltbrn/tr scat brn/rr blk dd o STN, g fast stmg mlky CUT"

6730.00 6740.00 "LS AA, pred GRNST AA, intbd/dns sl ool-incr chky plty PKST, anhy/incr POR fl-tr xln ANHY, tr scat CHT AA, POR-FLOR AA, fr-g ltbrn/decr brn-blk pp dd o STN, g mod fast-slow stmg mlky CUT"

DEPTH

LITHOLOGY

- 6740.00 6750.00 "LS AA, pred oom-oom GRNST, intbd/PKST AA, sl decr thn chky plty PKST, sl anhy/tr POR fl-rr xln ANHY, v sl dol, tr CHT AA, POR-FLOR AA, fr-g ltbrn/rr brn & blk pp dd o STN, g slow stmg mlky CUT"
- 6750.0 6770.00 "LS tan-crm, tr ltbrn, rr brn, wh, vfxl-gran-micsuc, occ micxl-crpxl, pred ooc-oom GRNST intbd/dns thn dns sl ool-v rr plty PKST, bcmg incr chky-sl anhy/tr POR fl-rr xln ANHY, incr crm-tan CHT, g-fr intxl-ool POR, FLOR-STN AA, g mod fast-fast stmg mlky CUT"
- 6770.00 6800.00 "LS AA, vfxl-gran-micxl, occ crpxl-micsuc, pred ooc-oom GRNST intbd/PKST AA, chky-sl anhy/tr POR fl-v rr xln ANHY, tr crm-tan CHT, g-fr intxl-ool POR, g even mod bri-bri yel FLOR, fr ltbrn/tr brn & rr blk pp dd o STN, g mod fast-fast stmg mlky CUT"
- 6800.00 6820.00 "LS tan-crm, ltbrn, occ brn, tr wh, vfxl-gran, sl micsuc, occ crpxl, pred GRNST AA intbd/thn dns sl ool-tr plty PKST, sl chky-sl anhy/tr POR fl-rr xln ANHY, tr CHT AA, g-fr intxl-ool POR, FLOR-STN AA, g mod fast-fast stmg mlky CUT"
- 6820.00 6830.00 "LS AA, pred ooc-oom GRNST intbd/thn PKST AA, sl incr chky-sl anhy/tr POR fl, rr xln ANHY, POR-FLOR-STN AA, g fast-mod fast stmg mlky CUT"
- 6830.00 6850.00 "LS tan-crm, occ ltbrn, tr wh, vfxl-gran, occ micsuc, micxl-crpxl, pred ooc-oom GRNST, tr intbd-scat dns sl ool-rr thn plty PKST, chky-sl anhy/tr POR fl-rr xln ANHY, rr crm-tan CHT, v sl dol, g-fr ool-intxl POR, g even mod bri-bri yel FLOR, fr ltbrn/tr brn-rr blk pp dd o STN, g slow-mod fast stmg mlky CUT"
- 6850.00 6870.00 "LS AA/sl incr ltbrn, vfxl-gran-micsuc, occ micxl-crpxl, pred ooc-oom GRNST intbd/thn dns sl ool-v rr plty PKST, chky-sl anhy/tr POR fl-rr xln ANHY, v rr crm-tan CHT, g-fr ool-intxl POR, FLOR-STN AA, g mod fast-fast stmg mlky CUT"
- 6870.00 6890.00 "LS tan-crm-ltbrn, tr brn, rr wh, vfxl-gran-sl micsuc, occ micxl-crpxl, pred ooc-oom GRNST intbd/thn dns sl ool-v rr plty PKST, sl chky-sl anhy/tr POR fl-rr xln ANHY, tr crm-tan CHT, g-fr ool-intxl POR, FLOR AA, fr-g ltbrn/tr brn-rr blk STN, CUT AA"
- 6890.00 6910.00 LS tan-crm-ltbrn, rr brn-wh, crpxl-vfxl, occ gran-micsuc, pred ooc-oom GRNST w/thn dns sl ool-v rr plty-chk PKST, sl anhy-tr ANHY xl-POR fl, rr clr-tan CHT, v sl dol, g-fr ool-intxl POR, fr-g dull-bri yel FLOR, fr-g ltbrn-brn-rr blk STN, fr-mg mod fast stmg CUT"
- 6910.00 6927.00 "LS tan-crm-ltbrn, rr brn-wh, crpxl-vfxl, occ gran-micsuc, pred ooc-oom GRNST w/sl incr dns sl ool-v rr plty-chk PKST, sl anhy-tr ANHY xl-POR fl, rr clr-tan CHT, v sl dol, g-fr ool-intxl POR, fr-g dull-bri yel FLOR, fr-g ltbrn-brn-rr blk STN, fr-mg mod fast stmg CUT"

FORMATION TOPS

OPERATOR: MOBIL

WELL NAME: RATHERFORD UNIT #17-13 SE 1-A HORIZONTAL LATERAL LEG #4

FORMATION NAME		SAMPLES MEASURED DEPTH	SAMPLES TRUE VERTICAL DEPTH	DATUM KB:4748'
LOWER ISMAY		5453'	5448'	-700'
GOTHIC SHALE		5517'	5491'	-743'
DESERT CREEK		5541'	5502'	-754'
DC 1-A ZONE		5547'	5504'	-756'

GEOLOGICAL SUMMARY

AND

ZONES OF INTEREST

The Mobil Exploration and Production U.S., Inc., Rutherford Unit #17-13 Horizontal Lateral Leg #4 was a re-entry of the Mobil Rutherford Unit #17-13 located in Section 17, T41S, R24E, and was sidetracked in a southeasterly direction from a 5387' measured depth, 5386.5' true vertical depth, on April 4, 1998. The lateral reached a measured depth of 6927', true vertical depth of 5518.2' at total depth, with a horizontal displacement of 1450.4' and true vertical plane 119.4 degrees, on April 9, 1998; in the upper Desert Creek 1-A porosity zone, where the lateral was terminated. The curve section was drilled with no problems to a measured depth of 5591', 5511' true vertical depth, seven (7') into the top of the 1-A porosity zone on April 5, 1998. At the measured depth of 5591', also on April 5th, the lateral section was begun. The lateral was drilled with no major problems. The minor problems encountered were; penetrating the transition zone above the top of the 1-A porosity zone at a horizontal displacement of 965' with a true vertical depth of 5513', and at a measured depth of 6600' with a horizontal displacement of 1125', problems were encountered with the MWD probe not reading accurate tool faces. A bit trip was made at a horizontal displacement of 1067', a measured depth of 6541', also in the transition zone just above the 1-A porosity zone. No further problems were encountered as the remainder of the Upper Desert Creek 1-A zone was rotated out the rest of its length. The 1-A porosity throughout the majority of its length, except from 965' to 1113' of horizontal displacement, when the top of the 1-A zone was penetrated, was consistent. The lateral leg was drilled with fresh water and brine water with polymer sweeps as the drilling fluid. Due to the amount of oil in the mud system from the previous laterals, no significant increases in the background gases was noted while drilling the curve. As the lateral section progressed through the 1-A porosity zone, a steady, increase was noted in the background gases and in the amount of oil in the mud system, while drilling the porosity zone in the lateral. When the top of the 1-A zone was penetrated in the lateral section, a very gradual decrease in the background gas was noted, and gradually increased again when the porosity was regained. The samples had fair to moderately good oil shows throughout the majority of the lateral in the 1-A zone, except when the Upper Desert Creek transition zone was penetrated.

The objectives of the Rutherford Unit #17-13 Leg #4 horizontal lateral were to identify the lithology and define the parameters of the 1-A bench of the Desert Creek Member of the Upper Paradox Formation, and to evaluate the effective porosity, and reservoir properties. These objectives were accomplished and it became apparent that the 1-A zone in this lateral direction can be considered as a single predominately homogeneous unit. After completing the curve section of the lateral, the lateral section required intermitted sliding to maintain vertical and horizontal plane direction. The well path followed the proposed target line as much as possible, then used it as a reference point when unable to follow the line, as the lateral progressed within the best porosity of the 1-A zone.

The lower half of the Upper Ismay, the Lower Ismay, Gothic Shale, the transition zone at the top of the Desert Creek, and the upper one third of the 1-A porosity zone were encountered while drilling the curve section of the lateral. Kick off point for this lateral was 5387' measured, 5486.5' true vertical depth, in the carbonates, thin marls, and thin carbonaceous shales and scattered cherts of the Upper Ismay.

The lower 61' of the Upper Ismay in the curve section of the lateral leg #4, was predominately a limestone packstone. The limestones were light gray to off-white, occasionally tan to brown, with scattered medium brown, cryptocrystalline to microcrystalline, dense, some chalky to slightly argillaceous, becoming marly and dolomitic with depth. These limestones had very thin rare streaks of intercrystalline and fracture porosity, with the porosity zones having very poor visible fluorescence, stain or cut. Interbedded in these limestones were thin black slightly carbonaceous shale laminations to partings, and medium to dark brown cryptocrystalline to microcrystalline, limey, earthy to argillaceous dolomites with scattered rare micro to crinoid fossils and some scattered translucent to brown to smokey gray brown chert fragments. As the Upper Ismay approached the very thin Hovenweep Shale the amount of limey marlstones and shaley dolomites increased and graded into the very thin black, limey to dolomitic shales of the Hovenweep Shale. The limestones and thin dolomites had as noted above no to very poor, rare visible porosity, fluorescence, stain or cut.

The top of the Lower Ismay was picked at 5453' measured depth, 5448' true vertical depth, at the base of the very thin Hovenweep shale. This pick was based on sample identification as well as the vertical well electric logs. The upper Lower Ismay limestones were predominately tan to medium brown, with some scattered light gray brown to cream, cryptocrystalline to microcrystalline, scattered thin streaks of very finely crystalline to granular, clean to earthy, with rare scattered fractures that showed some anhydrite and calcite filling. Minor amounts of brown to dark brown chert fragments and rare thin black carbonaceous shales were observed. Through the middle of the Lower Ismay from 5464' to 5503' measured depths, were cream to white, occasionally tan to light gray, cryptocrystalline to very finely crystalline, some sucrosic, very dolomitic limestone grainstones. These limestones became predominately brown, micro to very finely crystalline, granular, occasionally sucrosic, and very limey dolomites in this southeasterly direction. The dolomite grainstones and thin limestone grainstones were slightly algal, with a slightly anhydritic cement, and had fair intercrystalline, to very rare spotty pin point vuggy and very poor fractured porosity. The porosity in the dolomites and very thin limestones had a trace to fair visible fluorescence, a spotty brown to rare black stain and a fair to moderately good streaming cut. The lithology became predominately dense limestones and thin interbedded dolomites in the very base of the Lower Ismay below the 27' thick porosity zone. The tight limestone packstones were white to cream, light brown to light gray, slightly mottled, cryptocrystalline to microcrystalline, predominately tight and clean to argillaceous. The dolomites near the base of the Lower Ismay were brown to dark gray brown, microcrystalline to cryptocrystalline, argillaceous, limey and graded to a dolomitic marlstone on occasion. These basal carbonates became increasingly shaley, with rare scattered chert fragments and grading into calcareous to dolomitic, carbonaceous shale. The basal Lower Ismay limestones and dolomites lay gradationally over the Gothic Shale.

The Gothic Shale was penetrated at a measured depth of 5517', 5491' true vertical depth. The Gothic Shale was predominantly dark gray to black to dark gray brown, carbonaceous, silty, brittle to firm, subblocky to fissile, calcareous to slightly dolomitic and slightly micaceous, with minor silty material. The top of the Gothic was gradational from the very thin interbedding of very argillaceous, dolomitic limestones and limy dolomites, to the very dolomitic to calcareous, carbonaceous shale. The top of the Gothic was picked predominantly by a slight increase in penetration rate and an increase in the percentage of shale in the samples.

A gradational transitional zone appears between the Gothic Shale and the top of the Desert Creek Porosity members of the Paradox Formation; and it is within this zone where the top of the Desert Creek member is commonly picked due to a very noticeable facies and penetration rate change. In this southeasterly leg, the top of the Desert Creek was picked at a measured depth of 5541' and at a true vertical depth of 5502'. The zone was predominately a slightly dolomitic, very dense cryptocrystalline to microcrystalline limestone packstone, with thinly interbedded brown, limy, argillaceous dolomites and very thin carbonaceous shales. The limestones were cream to tan to light brown, cryptocrystalline to microcrystalline, argillaceous to slightly chalky, occasionally slightly silty, with very rare thin intercrystalline porosity streaks, but only very rare, spotty dull fluorescence, with no to a very poor brown to black visible stain and a very poor slow cut. The interbedded dolomites

were cryptocrystalline to microcrystalline, limey, slightly argillaceous, and tight with no visible porosity or sample show. The limestones graded into the very good oolitic to oolmoldic limestone grainstones and the thin dense limestone packstones of the 1-A porosity zone.

The top of the Desert Creek 1-A porosity zone was at 5547' measured depth, 5504' true vertical depth and was noted by a significant increase in the penetration rate, oolitic to oolmoldic limestone grainstone and sample show. The top of the 1-A porosity in this lateral was in a very oolitic, clean to very slightly dolomitic, slightly anhydritic limestone grainstone with scattered thin interbedded dense limestone packstones with very minor thin, dense limy dolomites near the top. The limestones were tan to light to medium brown, some gray brown, micro to very finely crystalline, granular to microcrystalline, with oolitic to intercrystalline porosity. Interbedded within the oolitic limestones were rare scattered dense, slightly oolitic, cryptocrystalline to rare microcrystalline limestone packstones, with very rare scattered anhydrite crystals and translucent to buff chert fragments. The oolitic to oolmoldic limestones had fair to good sample shows within this zone. The 1-A porosity zone was 14' (true vertical thickness) thick and had very rare streaks of dense packstones scattered with in the porosity throughout most of the section. At a measured depth of 5591', 5511' true vertical depth, with a horizontal displacement of 118', the curve section was completed, one foot (1') below the proposed target line. The lithology of the 1-A porosity zone from the top of the zone to the base of the curve or build section was consistent, in the above described oolitic to oolmoldic limestone grainstone, with very rare to traces of dense to very rare chalky platy packstones. Sample shows were good to fair in the oolitic to oolmoldic and intercrystalline porosity.

From the measured depth of 5592', until reaching a measured depth of 5870', 5515.5' true vertical depth, with a horizontal displacement of 396', the well bore was pushed slowly downward by the formation. During this interval in the well path remained in the good oolitic to oolmoldic limestone grainstones, with good sample shows. At the measured depth of 5780', the thin tight streak that had been slowly pushing the well path downward ended and the well path was oriented upward toward the proposed target line. The target line was acquired at a measured depth of 6020', 5510' true vertical depth, with a horizontal displacement of 546'. As the inclination of the well path was lowered to bring the well path level, the well path was pushed sharply downward as the top of the 1-A zone was bumped at 5510' true vertical depth. From 6020', until reaching a measured depth of approximately 6250', true vertical depth of 5516.5', with a horizontal displacement of 774', the formation again slowly pushed the well bore downward at an average angle of 88.2 degrees. At 6250' well path was oriented very slightly upward at a very shallow angle until reaching a measured depth of 6360', 5515.3' true vertical depth, with a horizontal displacement of 882', when the well path was pushed upward, when the top an upward trending hard streak or base of the zone, was encountered. As the well path was pushed upward, the top of the 1-A porosity zone, the Upper Desert Creek transition zone, was encountered and penetrated at a measured depth of 6430', 5513.3' true vertical depth, with a horizontal displacement of 965'. If the base was encountered at 6360' then the porosity zone had thinned to 2' thick.

From the beginning of the lateral section to the measured depth of 6430' the lithology of the zone remained in the very good oolitic to oolmoldic limestones with good porosity and sample shows. Through out this interval the background gas had steadily increased, and the well had a surging 1' to 8' flare. At 6430' when the top of the 1-A zone was penetrated, until the porosity was reacquired, at a measured depth of 6588', 5516.5' true vertical depth, with a horizontal displacement of 1113', the lithology was in the very tight, silty, limestone packstone of the transition zone. These limestone packstones were white to cream to light gray, cryptocrystalline to microcrystalline, dense, platy, occasionally chalky, some slightly micaceous, silty to very silty and very tight. Scattered within the packstones were very thin streaks of tan to light brown, limestone grainstones, The grainstones had very poor visible porosity, fluorescence, stain or cut. Upon reacquiring the best porosity of the 1-A zone at the measured depth of 6588', the lithology returned to the very good limestone grainstones which were slightly oolitic to oolmoldic, with a fair to good sample show. It was at this time, that as the lateral assembly was slid upward to control the rate of drop through the zone and bring the well

path level, that the MWD probe began giving widely ranging tool faces. At this time the decision was made to use a minimum of slides and rotate as much as possible to the end of the lateral section.

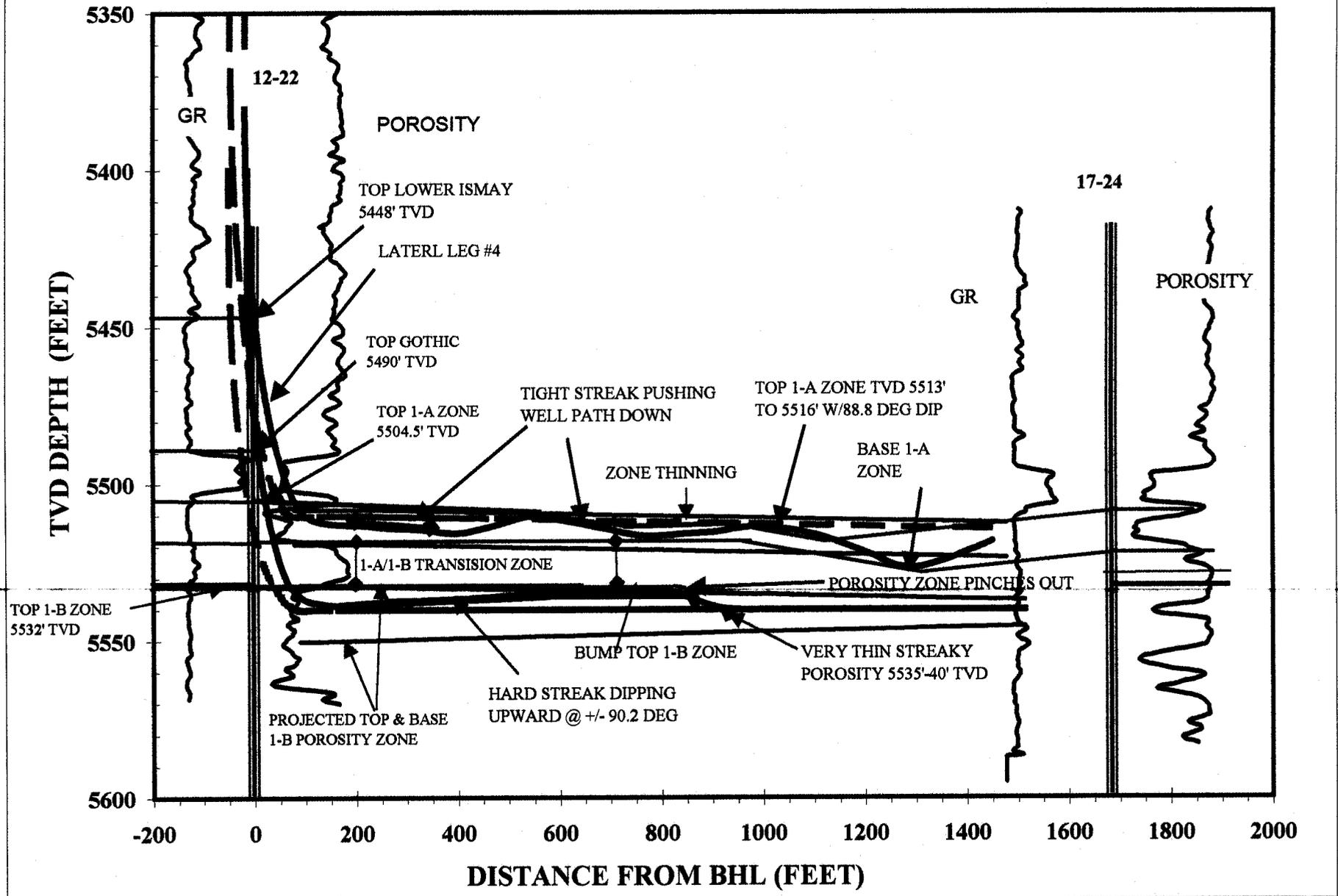
As the lateral was continued to its termination, the vertical section drooped until the bottom was encountered at a measured depth of 6754', 5527' true vertical depth, and a horizontal displacement of 1278'. Upon encountering the base of the 1-A porosity zone, the well path "glanced" off the bottom of the zone, the top of the 1-A to 1-B transition zone, and was pushed upward at an average angle of 92.7 degrees. At the measured depth of 6927', 5518' true vertical depth, and a horizontal displacement of 1450', the lateral was terminated on April 9, 1998. Through out the lateral section from the measured depth of 6588' to its end at 6927', the lithology was the good limestone grainstones, which were slightly to very oolitic to oolimidic, and had a fair to good porosity, with fair to good sample show. Scattered through out this interval were rare limestone packstones and clear to tan chert fragments.

In tracking the northwesterly lateral in the 1-A porosity zone, it appears that the oolitic to oolimidic limestone porosities are consistent throughout the zone. Having a minor effect on the porosity, were the minor amounts of anhydrite filled porosity and the scattered fragments and rare Crinoid stem fragments. Through out the majority of the lateral, a moderately high background gas was noted, except when the transition zone at the top of the 1-A porosity was penetrated. The well bore encountered base of the 1-A zone twice and penetrated the top of the 1-A porosity zone once. Sample shows remained moderately good, throughout the 1-A zone, with the exception of the interval that penetrated the top of the zone, the oolitic to oolimidic and intercrystalline porosity ranged from a trace to abundant amount. The fluorescence and cuts remained predominately good through out the majority of the lateral, with the interval penetrating the top having no to rare streaks of fluorescence and cut. The lateral used the proposed target line as a reference point through the 1-A bench. The well bore, through out most of its length, until penetrating the top, was allowed to follow the line of best porosity after entering the 1-A porosity zone which resulted in the lateral averaging 4' to 5' below the target line.

While drilling the curve and lateral sections, the increases in background gas was due to the amount of oil encountered while drilling the Lower Ismay as well as the 1-A porosity bench in the curve, as well as the 1-A zone in the lateral. A slow increase in the background gases was noted when the 1-A zone was penetrated, until penetrating the top from the measured depth of 6430' to 6588' in the lateral section. A slight increase in the background gas was again noted after regaining the porosity zone to the end of the lateral. This lateral was drilled as a southeasterly sidetrack of a production well in the Upper Desert Creek 1-A porosity zone, and was seen to have very good reservoir qualities that have yet to be flushed from the offsetting injector wells. It appears that the porosities are well enough developed, in this southeasterly direction to enhance the overall production performance of the 1-A porosity zone.

*The black residual staining has been called by Dr. Dave Eby & others as "bitchimum" and is also known as "dead oil" ("dd o stn" on mud logs). This staining is associated with the movement of oil over long periods of time and is a good indicator of producable hydrocarbons when associated with productive porosities, but can also be found in porosities that have been filled by anhydrites and other material at later dates.

MOBIL, Ratherford #17-13, Southeast Lateral



**UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT**

SUBMIT IN DUPLICATE

(See other instructions on reverse side)

FORM APPROVED
OMB NO. 1004-0137
Expires: February 28, 1995

WELL COMPLETION OR RECOMPLETION REPORT AND LOG*

1a. TYPE OF WELL: OIL WELL GAS WELL DRY Other _____

b. TYPE OF COMPLETION:
NEW WELL WORK OVER DEEP-EN PLUG BACK DIFF. RESVR. Other SIDETRACK

2. NAME OF OPERATOR **MOBIL PRODUCING TX & NM INC.***
***MOBIL EXPLORATION & PRODUCING US INC. AS AGENT FOR MPTH**

3. ADDRESS AND TELEPHONE NO.
P.O. Box 633, Midland TX 79702 (915) 688-2585

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)*
At surface
(NW/SW) 2100' FSL & 660' FWL
At top prod. interval reported below

* #37
At total depth
* #37

14. PERMIT NO. _____ DATE ISSUED **1-27-98**

15. DATE SPUDED **2-17-98** 16. DATE T.D. REACHED **4-10-98** 17. DATE COMPL. (Ready to prod.) **5-14-98** 18. ELEVATIONS (DF, RKB, RT, GR, ETC.)* **4735' GR, 4746' KB**

20. TOTAL DEPTH, MD & TVD **** #37** 21. PLUG, BACK T.D., MD & TVD **** #37** 22. IF MULTIPLE COMPLETIONS, HOW MANY _____ 23. INTERVALS DRILLED BY _____

24. PRODUCING INTERVAL(S), OF THIS COMPLETION - TOP, BOTTOM, NAME (MD AND TVD)* **** #37** **DSCR**

26. TYPE ELECTRIC AND OTHER LOGS RUN **NO** 27. WAS WELL CORED **NO**

28. CASING RECORD (Report all strings set in well)

CASING SIZE/GRADE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	TOP OF CEMENT, CEMENTING RECORD	AMOUNT PULLED
13 3/8"	48#	119'	17 1/2"	150 SXS - SURFACE	
9 5/8"	36#	1635'	12 1/4"	600 SXS - SURFACE	
7"	23 & 26#	5609'	8 3/4"	700 SXS - 2000'	

29. LINER RECORD 30. TUBING RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)	SIZE	DEPTH SET (MD)	PACKER SET (MD)
					2 7/8"	5200'	

31. PERFORATION RECORD (Interval, size and number)

32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.	
DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
5480'	SET 7" CMT RETAINER
5507-5570'	SQZ PERFS W/110 SXS CLASS "G" NT
	*** #37

33.* PRODUCTION

DATE FIRST PRODUCTION 5-14-98		PRODUCTION METHOD (Flowing, gas lift, pumping - size and type of pump) 2 1/2" X 2" X 24' AXELSON				WELL STATUS (Producing or shut-in) PRODUCING	
DATE OF TEST 5-25-98	HOURS TESTED 24	CHOKE SIZE	PROD'N. FOR TEST PERIOD →	OIL - BBL. 1177	GAS - MCF. 685	WATER - BBL. 85	GAS - OIL RATIO 582
FLOW. TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE →	OIL - BBL.	GAS - MCF.	WATER - BBL.	OIL GRAVITY - API (CORR.)	

34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.) _____ TEST WITNESSED BY _____

35. LIST OF ATTACHMENTS
DIRECTIONAL SURVEY

36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records

SIGNED *Shirley Houchins* TITLE **SHIRLEY HOUCHINS/ENV & REG TECH** DATE **7-7-98**

*(See Instructions and Spaces for Additional Data on Reverse Side)

37. SUMMARY OF POROUS ZONES: (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):

38.

GEOLOGIC MARKERS

FORMATION	TOP	BOTTOM	DESCRIPTION, CONTENTS, ETC.	NAME	TOP	
					MEAS. DEPTH	TRUE VERT. DEPTH
* #4			LAT #1 - 975' NORTH, 940' WEST F/SURF SPOT LAT #2 - 383' SOUTH, 912' EAST F/SURF SPOT LAT #3 - 1402' NORTH, 962' WEST F/SURF SPOT LAT #4 - 801' SOUTH, 1210' EAST F/SURF SPOT			
** #20 & #24			LAT #1 (5447-5555' TVD)(5448-6832' TMD) LAT #2 (5424-5540' TVD)(5433-6492' TMD) LAT #3 (5411-5508' TVD)(5411-7154' TMD) LAT #4 (5387-5518' TVD)(5387-6927' TMD)			
*** #32	5610' 5600' 5640' 6588'	6821' 6495' 7154' 6927'	LAT #1 ACIDIZE W/16,800 GALS 15% HCL ACID LAT #2 ACIDIZE W/12,390 GALS 15% HCL ACID LAT #3 ACIDIZE W/15,500 GALS 15% HCL ACID LAT #4 ACIDIZE W/8618 GALS 15% HCL ACID			

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

5. Lease Designation and Serial No.

14-20-603-353

6. If Indian, Allottee or Tribe Name

NAVAJO TRIBAL

7. If Unit or CA, Agreement Designation

RATHERFORD UNIT

8. Well Name and No.

RATHERFORD 17-13

9. API Well No.

43-037-31133

10. Field and Pool, or exploratory Area

GREATER ANETH

11. County or Parish, State

SAN JUAN UT

SUBMIT IN TRIPLICATE

1. Type of Well

Oil Well Gas Well Other

2. Name of Operator

MOBIL PRODUCING TX & NM INC.*
*MOBIL EXPLORATION & PRODUCING US INC. AS AGENT FOR MPTM

3. Address and Telephone No.

P.O. Box 633, Midland TX 79702 (915) 688-2585

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

SEC. 17, T41S, R24E
(NW/SW) 2100' FSL & 660' FWL

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

TYPE OF SUBMISSION	TYPE OF ACTION
<input type="checkbox"/> Notice of Intent	<input type="checkbox"/> Abandonment
<input checked="" type="checkbox"/> Subsequent Report	<input type="checkbox"/> Recompletion
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Plugging Back
	<input type="checkbox"/> Casing Repair
	<input type="checkbox"/> Altering Casing
	<input checked="" type="checkbox"/> Other SIDETRACK
	<input type="checkbox"/> Change of Plans
	<input type="checkbox"/> New Construction
	<input type="checkbox"/> Non-Routine Fracturing
	<input type="checkbox"/> Water Shut-Off
	<input type="checkbox"/> Conversion to Injection
	<input type="checkbox"/> Dispose Water

(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

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.)*

BHL:

LATERAL #1; 975' NORTH & 940' WEST FROM SURFACE SPOT (ZONE 1b).
LATERAL #2; 383' SOUTH & 912' EAST FROM SURFACE SPOT (ZONE 1b).
LATERAL #3; 1402' NORTH & 962' WEST FROM SURFACE SPOT (ZONE 1a).
LATERAL #4; 801' SOUTH & 1210' EAST FROM SURFACE SPOT (ZONE 1a).

SEE ATTACHED PROCEDURE.

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

Signed

Shirley Houchins

Title

SHIRLEY HOUCHINS/ENV & REG TECH

Date

7-7-98

(This space for Federal or State office use)

Approved by

Title

Date

Conditions of approval, if any:

DRILLED FOOTAGE CALCULATION FOR DIRECTIONAL AND HORIZONTAL WELLS

Unit, Well Name: Ratherford Unit, Well 17-13
API Well #: 43-037-31133
Well Completion: Horizontal, 4 Legs

First leg description:		Lateral #1
Kick Off Point	MD	5439.00
Kick Off Point	TVD	5438.52
End of Leg	MD	6832.00
End of Leg	TVD	5555.38
	Footage drilled:	1393.00
Max. TVD Recorded		5555.38

Second leg description:		Lateral #2
	KOP MD:	5424.00
	KOP TVD:	5423.52
	EOL MD:	6492.00
	EOL TVD:	5540.33
	Footage drilled:	1068.00
Max. TVD Recorded		5540.33

Third leg description:		Lateral #3
	KOP MD:	5402.00
	KOP TVD:	5401.52
	EOL MD:	7154.00
	EOL TVD:	5517.64
	Footage drilled:	1752.00
Max. TVD Recorded		5517.64

Fourth leg description:		Lateral #4
	KOP MD:	5379.00
	KOP TVD:	5378.53
	EOL MD:	6927.00
	EOL TVD:	5526.61
	Footage drilled:	1548.00
Max. TVD Recorded		5526.61

Fifth leg description:		Leg #4
	KOP MD:	5408.00
	KOP TVD:	5407.31
	EOL MD:	7157.00
	EOL TVD:	5541.70
	Footage drilled:	1749.00
Max. TVD Recorded		5541.70

Total Footage Drilled (MD):	7510.00
Deepest point (TVD):	5555.38

ATTACHMENT - FORM 3160-5
RATHERFORD UNIT 17-13
14-20-603-353
NAVAJO TRIBAL
SAN JUAN, UTAH

- 02-17-98 CALLED NAVAJO EPA @ 10:46 2-16-98, INFORMED OF INTENT TO MI COMPLETION RIG & PREP FOR DRLG TOOLS, INTENT TO DIG PIT & LINE. CALLED BLM @ 8:01 2-17-98, MARK KELLY'S ANSWERING MACHINE, INFORMED OF INTENT TO MOVE IN & PREP. FOR DRLG. TOOLS. SHUT IN TBG PRESSURE @ 10:30 WAS 100 PSI, SICP @ 10:30 WAS 50 PSI. RU & KILL WELL W/10# BRINE, RU & KILL TBG W/10# BRINE. ND PROD. WH. NU BOPE. RU SPOOL UT. POOH, LD ESP, DOWN HOLE PUMP SIFN.
- 02-18-98 SI PRESSURE AT 07:30 WAS 50 PSI. RU BLUE JET WIRELINE UNIT. RIH WITH GAMMA RAY, CSG. COLLAR LOG TO 5520'. LOG FROM 5520' TO 5110'. RIH TO 5480'. SET 7" 23# CMT. RETAINER. PICK-UP SETTING TOOL FOR CMT. RETAINER. RIH TO 5480'. TEST TBG. TO 2500 PSI. OK. SPACE OUT WITH POWER SWIVEL. SIFN.
- 02-19-98 SI PRESSURE AT 07:30 WAS 0 PSI. MIRU DOWELL CMT UNIT. TEST LINES TO 2500 PSI. RU AND SQUEEZE CMT. CSG. PERFS AT 5507' TO 5570' AND 7" OPEN HOLE WITH 60 SACKS OF CLASS 'G' NEAT CMT. + .4% FLUID LOSS + .1% DISPERSANT (12 BBLs OF CMT.) FOLLOWED BY 50 SACKS OF CLASS 'G' NEAT CMT. (10 BBLs). PRESSURE TO 2500 PSI AND HOLDING. PULL OUT OF CMT. RETAINER AT 5480' REVC. OUT 4 BBLs OF CMT. TO PIT. RDMO DOWELL CMT. UNIT. POH, LAY DOWN TBG. STRING. SIFN.
- 02-20-98 SI PRESSURE AT 07:30 WAS 0 PSI. ND BOPE. ND TBG. WELD ON 2.5" EXTENSION ONTO 7" CSG AND COOL DOWN. NU TBG. HEAD TEST TO 1500 PSI. OK. RDMO NAVAJO WEST RIG #15. FINAL PREP. REPORT. TURN WELL OVER TO DRLG. TOOLS.
- 03-20-98 NOTIFIED JIM THOMPSON W/ STATE UTAH ABOUT STARTING DRILLING OPERATIONS @ 1:00 PM 20 MARCH 1998. MIRU NAVAJO WEST #25.
- 03-21-98 SINGLE JACK RAN MMS TEST ON BOP, 2000# HIGH, 250#, HELD OK SCHLUMBERGER RAN 7" TIW BIG BORE WHIPSTOCK PKR, SET TOP OF PKR @ 5457'. RIH W/ TIM ANCHOR LATCH ASSEMBLY LATCHED INTO PKR @ 5457'. GYRO DATA RAN GYRO, PKR KEYWAY SET @ 204 DEG GTF, RAN GYRO DIRECTIONAL SURVEY EVERY 200' FROM 5452-200'. POH W/ ANCHOR LATCH ASSEMBLY. FINAL REPORT FOR REENTRY.
- 03-22-98 RIH W/ WHIPSTOCK, STARTING MILL & 2.875" AOHDP, LATCHED INTO TIW PKR @ 5457 W/ KEYWAY @ 204 GTF, SHEARED BOLT ON WHIPSTOCK, SET TOP OF WHIPSTOCK @ 5439' W/ FACE OF WHIPSTOCK @ 315 DEG. MILLED WINDOW FROM 5439-5440' W/ STARTING MILL. POH W/ STARTING MILL. RIH W/ 6 1/8" WINDOW & WATERMELLON MILLS. MILLED WINDOW FROM 5438-5447' & FORMATION TO 5448'. PUMPED SWEEP & CIRC HOLE CLEAN. POH W/ MILLS. FINAL REPORT FOR LATERAL 1.
- 03-22-98 RIH W/ MUD MOTOR, RUN GYRO.
- 03-23-98 DRILLED CURVE 1A1 FROM 5448-5604', LANDED CURVE @ 5604' MD, 91.7 ANGLE, 316 DIRECTION, 127 VS. PUMPED POLYMER SWEEP & CIRC HOLE CLEAN. POH W/ CURVE ASSEMBLY, PU LATERAL ASSEMBLY.
- 03-24-98 SLIDE & ROTATE DRILLED LATERAL 1A1 FROM 5604-6500'.
- 03-25-98 SLIDE & ROTATE DRILLED LATERAL 1A1 FROM 6500-6832' 1B ZONE, TD LATERAL 1A1 @ 6832' MD, 5555' TVD, 88.5 ANGLE, 315 DIRECTION, 1353 VS. PUMPED POLYMER SWEEP & CIRC HOLE CLEAN. POH & LD MWD & MUD MOTOR.
- 03-26-98 RIH W/ SUPERHOOK & 2.875" AOHDP, CAUGHT & SHEARED WHIPSTOCK @ 5441'. POH W/ WHIPSTOCK. FINAL REPORT FOR LATERAL 1A1.

ATTACHMENT - FORM 3160-5

RATHERFORD UNIT 17-13

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NAVAJO TRIBAL

SAN JUAN, UTAH

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- 03-26-98 RIH W/ TIW ANCHOR LATCH ASSEMBLY, 7" WHIPSTOCK STARTING MILL & 2.875" AOHP, SET ANCHOR LATCH IN TIW FULL BORE PKR @ 5457' W/ KEYWAY @ 204 GTF, DHEARED BOLT & SET TOP OF WHIPSTOCK @ 5424'. CUT WINDOW W/ STARTING MILL FROM 5424-5426', CIRC CLEAN. POH W/ MILL. RIH W/ WINDOW & WATERMELLON MILLS. CUT WINDOW FROM 5424-5432' & FORMATION TO 5433'. PUMPED POLYMER SWEEP & CIRC HOLE CLEAN. POH W/ MILLS.
- 03-27-98 RIH W/ GYRO DATA. TIME DRILLED & SLIDE DRILLED CURVE FROM 5433-5460'. POH W/ GYRO SLIDE DRILLED CURVE 2 W/ MWD FROM 5448-5601, TD CURVE @ 5436' TVD, 90 DEG ANGLE, 119 DEG DIRECTION, 99' VS PUMPED POLYMER SWEEP & CIRC HOLE CLEAN. POH & LD 2.875" AOHP.
- 03-28-98 RIH W/ LATERAL ASSEMBLY, DRILLED LATERAL 2A1 FROM 5601-6220'.
- 03-29-98 SLIDE & ROTATE DRILLED LATERAL 2A1 FROM 6220-6492', 1B ZONE THINNED UT, TD LATERAL @ 6492' MD, 89.3 ANGLE, 113 DIRECTION, 5440'TVD, 988'VS. PUMPED POLYMER SWEEP & CIRC HOLE CLEAN. RIH W/ SUPERHOOK & 2.875" AOHP, CAUGHT & SHEARED WHIPSTOCK. FINAL REPORT FOR LATERAL 2A1.
- 03-30-98 POH & LD WHIPSTOCK. RIH W/ TIW ANCHOR LATCH ASSEMBLY, WHIPSTOCK, STARTING MILL, & 2.875" AOHP, LATCHED INTO TIW PKR @ 5457'. CUT WINDOW W/ STARTING MILL FROM 5402-5404', CIRC CLEAN. POH W/ STARTING MILL. RIH WINDOW & WATERMELLON MILL & 2.875" AOHP. CUT WINDOW FROM 5402-5410.5' PUMPED POLYMER SWEEP & CIRC HOLE CLEAN. POH W/ MILLS. FINAL REPORT FOR LATERAL 3.
- 03-31-98 RU GYRO DATA. ORIENT TOOLFACE ON ASSY. TIME DRILL FROM 5411-5555'. POOH LAYING DOWN. AOHP AND CURVE BUILDING ASSY. (LAST SURVEY AT MD 5521' 61.80 ANGLE, 344.80 AZ., TVD 5497.63, VS 83.94.
- 04-01-98 TIH W/ LAT. BUILDING ASSY. (1.83 MRT.) SLIDE/ROTATE DRILL AND SURVEYS FROM 5555-6325'.
- 04-02-98 SLIDE/ROTATE DRILL AND SURVEYS FROM 6325-6731'.
- 04-03-98 SLIDE/ROTATE DRILL AND SURVEYS FROM 6731' TO 7154' TD. LATERAL 3A1. LAST SURVEY AT 7114' MD, 88.9 ANGLE, 324.90 AZ., 5508.47' TVD, 1660.50 VS. (PROJECTED AT BIT 7154' MD, 88.90 ANGLE, 324.90 AZ., 5507.47 TVD, 1700.5 VS). PUMP AND CIRC SWEEP. POOH W/ LATERAL ASSY. TIH W/ SUPERHOOK TO 5380' LATCH WHIPSTOCK. POOH AND LAY DOWN SAME. FINAL REPORT LATERAL 3A1.
- 04-04-98 RIH W/ TIW ANCHOR LATCH ASSY., WHIPSTOCK, STARTING MILL, AOHP TO 5457'. MILL W/ STARTER MILL FROM 5379-5381'. CIRC SWEEP. TOOH W/ STARTER MILL. RIH MILL AND WATERMELON MILL, AOHP. CUT WINDOW FROM 5379-5386' PLUS 1' FORMATION TO 5387'. POOH LAYING DOWN MILL ASSY. PICKING UP CURVE BUILDING ASSY. FINAL REPORT FOR LATERAL 4.
- 04-05-98 RU GYRO DATA AND ORIENT TOOL FACE. TIME DRILL FROM 5387-5413'. RD GYRO DATA. SLIDE/DRILL AND SURVEYS FROM 5413-5590'. LAST SURVEY AT 5567 MD, 80.70 ANGLE, 131.70 AZ., 5509.29' TVD, 94.43 VS (PROJECTED AT BIT 5591' MD, 90.5 ANGLE 131.70 AZ., 5511.13'TVD, 118.17 VS.)
- 04-06-98 FINISH CIRC OUT SWEEP. POOH LAYING DOWN. AOHP. POOH AND LAY DOWN CURVE BULDING ASSY. TIH W/ NEW BIT, PU SWIVEL, BREAK CIRC. SLIDE/ROTATE DRILL AND SURVEYS FROM 5590-6200'.
- 04-07-98 SLIDE/ROTATE DRILL AND SURVEYS FROM 6200-6525'.

ATTACHMENT - FORM 3160-5

RATHERFORD UNIT 17-13

14-20-603-353

NAVAJO TRIBAL

SAN JUAN, UTAH

PAGE 3

04-08-98 SLIDE/ROTATE DRILL FROM 6525-6595'.
04-09-98 SLIDE/DRILL AND SURVEY FROM 6595-6927' MD. (TD LAT.) (SURVEY PROJECTED
AT MD 6927', 93.80 ANGLE, 119.40 AZ., 5518.16' TVD, 1450' VERTICAL SECTION.)
POOH LAYING DOWN SPERRY SUN TOOLS. TIH W/ RBP AND SET AT 5251'+/-.
PRESSURE TEST TO 500# OK. FINAL LATERAL 4A1.
04-10-98 FINISH LAYING DOWN DRILLSTRING. ND BOP STACK, GAS SEPARATOR, JET MUD
PIT ETC. RIGGING DOWN FOR MOVE. FINAL REPORT PENDING COMPLETION.

COMPLETION

04-27-98 ROAD NAVAJO WEST #36 TO LOC, RU UNIT SPOT AUX EQUIPMENT, SDFN.
04-28-98 WHP=0, NDWH, NUBOP, SPOT FLOAT & TANKS, TIH, LATCH ON RBP, TOH, TIH W T/P,
PKR & TBG, SET PKR AT 5206.26', BOTTOM OF T/P AT 5577.99' TEST TO 500# SI &
SDFN.
04-29-98 RU DOWELL CTU. ACIDIZE 6927' BACK TO 6588', 112 BBLs 15% HCL ACID, ACIDIZE
FROM 6432' BACK TO 5590' WITH 278 BBLs SAME ACID. LATERAL #4A1. WELL SI
TOH W C/T. SI & SDFN.
05-01-98 TIH W T/P, PKR, & TBG, PKR AT 5227.10', BOT OF T/P AT 5631.81', TEST SIFN.
05-02-98 RU DOWELL CTU, TIH & ACIDIZE FROM 5640-7154' W 500 BBLs 15% HCL, LATERAL
#3A1.
05-04-98 SI TBG PRESSURE AT 07:30 WAS 500 PSI. BLEED TO 0. RIH WITH RETV. HEAD FOR
WHIPSTOCK. RELEASE WHIPSTOCK, POH. ORIENT RETV. WHIPSTOCK. RIH TO
5426' SET. RIH W/ PKR AND TAIL PIPE TO 5259' SET, TEST TO 500 PSI. OK.
05-05-98 RIH W/ COILED TBG TO 6495'. DOWELL ACIDIZE LATERAL 2A1 FROM 6495' TO 5600'
W/ 12390 GAL OF 15% HCL ACID, LATERAL #2A1. SIFN.
05-07-98 SI CSG PRESSURE AT 07:30 WAS 100 PSI. RU AND TEST PKR AND CSG TO 500 PSI.
OK. SIFN.
05-08-98 SI TBG. PRESSURE AT 07:30 WAS 200 PSI. MIRU DOWELL COILED TBG UNIT. RIH W/
CT TO 6821'. DOWELL ACIDIZE LATERAL 1A1 FROM 6821' TO 5610' W/ 16,800 GAL
OF 15% HCL ACID. SIFN.
05-11-98 SI TBG PRESSURE AT 07:30 WAS 650 PSI. RU AND KILL WELL. RELEASE AND POH
W/ 2.875" TBG, LAY DOWN PKR. PICK-UP RETV. TOOLS. RIH TO 5447' LATCH ON
RETV. WHIPSTOCK, RELEASE POH. RIH TO 5300'. SIFN.
05-12-98 SI PRESSURE AT 07:30 WAS 200 PSI. RIH W/ 2.875", TBG. TO 5200'. SIFN.
05-13-98 SI PRESSURE AT 07:30 WAS 300 PSI. RIH W/ 2.875" PRODUCTION TBG. FOR ROD
PUMP ASSEMBLY. ND BOPE. SET TBG. ANCHOR W/ 18,000# TENSION. NU PUMP
WELL HEAD. SHUT WELL IN.
05-14-98 SI TBG PRESSURE AT 07:30 WAS 450 PSI. RIH AXELSON DOWN HOLE PUMP - 2.5" x
2" x 24'. RU PUMP WELL HEAD AND TEST PUMP TO 450 PSI. OK. RDMO NAVAJO
WEST RIG #36. FINAL COMPLETION REPORT. TURN OVER TO PRODUCTION.

Mobil

**San Juan County
Utah
Ratherford Unit
RU 17-13 - Leg 1 MWD Survey**

SURVEY REPORT

30 April, 1998

sperry-sun
DRILLING SERVICES
A DIVISION OF BORGES INDUSTRIES, INC.

Survey Ref: svy2557

Sperry-Sun Drilling Services

Survey Report for RU 17-13



Mobil
San Juan County

Utah
Ratherford Unit

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Toolface Azimuth
0.00	0.000	0.000	0.00	0.00 N	0.00 E	0.00		
200.00	0.380	174.490	200.00	0.66 S	0.06 E	-0.51	0.190	174.490
400.00	0.270	192.980	400.00	1.78 S	0.02 E	-1.27	0.075	145.360
600.00	0.190	278.410	599.99	2.19 S	0.41 W	-1.26	0.159	143.383
800.00	0.620	324.310	799.99	1.26 S	1.37 W	0.08	0.253	61.527
1000.00	0.640	327.270	999.98	0.56 N	2.61 W	2.24	0.019	59.914
1200.00	0.890	334.850	1199.96	2.90 N	3.87 W	4.79	0.135	25.858
1400.00	1.490	330.240	1399.92	6.56 N	5.82 W	8.76	0.304	348.625
1600.00	1.410	329.910	1599.85	10.95 N	8.35 W	13.65	0.040	185.794
1800.00	1.110	337.080	1799.80	14.86 N	10.33 W	17.82	0.169	155.829
2000.00	0.980	347.470	1999.77	18.32 N	11.46 W	21.06	0.115	129.573
2200.00	0.420	350.140	2199.75	20.71 N	11.96 W	23.10	0.280	178.001
2400.00	0.460	102.490	2399.75	21.26 N	11.30 W	23.02	0.366	144.430
2600.00	1.290	80.650	2599.73	21.45 N	8.29 W	21.03	0.440	326.946
2800.00	1.780	68.950	2799.65	22.93 N	3.17 W	18.46	0.290	321.457
3000.00	1.170	59.240	2999.59	25.09 N	1.48 E	16.70	0.329	197.476
3200.00	0.640	76.910	3199.56	26.39 N	4.32 E	15.60	0.296	160.875
3400.00	0.280	84.560	3399.55	26.69 N	5.90 E	14.70	0.182	174.129
3600.00	0.110	323.780	3599.55	26.89 N	6.27 E	14.58	0.175	195.697
3800.00	0.110	300.690	3799.55	27.14 N	5.99 E	14.96	0.022	258.455
4000.00	0.180	287.920	3999.55	27.34 N	5.53 E	15.42	0.038	328.743
4200.00	0.350	289.160	4199.55	27.63 N	4.65 E	16.25	0.085	2.552
4400.00	0.130	342.490	4399.55	28.05 N	4.01 E	17.00	0.146	159.051
4600.00	0.220	347.740	4599.55	28.64 N	3.86 E	17.53	0.046	12.734
4800.00	0.290	344.990	4799.55	29.51 N	3.65 E	18.29	0.036	348.706
5000.00	0.340	334.540	4999.54	30.53 N	3.26 E	19.28	0.038	305.729
5200.00	0.660	323.700	5199.54	32.00 N	2.32 E	20.98	0.166	338.065
5400.00	0.540	331.440	5399.52	33.75 N	1.19 E	23.03	0.072	149.793

Leg 1 MWD Survey

5439.00	0.760	345.010	5438.52	34.16 N	1.03 E	23.43	0.685	41.893
5448.00	5.200	315.000	5447.51	34.51 N	0.73 E	23.89	50.641	325.218
5458.00	10.100	312.800	5457.42	35.43 N	0.23 W	25.22	49.079	355.487
5468.00	16.500	310.600	5467.14	36.95 N	1.96 W	27.51	64.188	354.403
5478.00	23.100	308.800	5476.55	39.10 N	4.57 W	30.88	66.274	353.870
5488.00	29.900	311.200	5485.49	41.98 N	7.98 W	35.32	68.825	10.032
5498.00	34.400	312.800	5493.96	45.54 N	11.93 W	40.64	45.795	11.395
5508.00	35.700	310.800	5502.14	49.37 N	16.21 W	46.37	17.346	317.716
5518.00	39.500	317.600	5510.07	53.63 N	20.56 W	52.46	56.217	50.249
5528.00	43.300	311.900	5517.57	58.27 N	25.26 W	59.07	53.495	313.062

Continued...

Sperry-Sun Drilling Services

Survey Report for RU 17-13



**Mobil
San Juan County**

**Utah
Ratherford Unit**

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Toolface Azimuth
5538.00	49.800	310.900	5524.44	63.06 N	30.71 W	66.31	65.403	353.279
5548.00	56.700	311.600	5530.42	68.34 N	36.73 W	74.30	69.227	4.860
5558.00	63.100	312.400	5535.44	74.13 N	43.15 W	82.93	64.372	6.376
5568.00	69.400	314.400	5539.46	80.42 N	49.80 W	92.08	65.602	16.615
5578.00	75.300	316.300	5542.49	87.20 N	56.49 W	101.60	61.712	17.357
5603.00	88.900	318.000	5545.92	105.31 N	73.28 W	126.29	54.813	7.193
5628.00	88.700	319.900	5546.44	124.16 N	89.70 W	151.22	7.640	96.030
5659.00	89.100	317.300	5547.04	147.41 N	110.19 W	182.15	8.484	278.721
5691.00	91.100	318.500	5546.98	171.15 N	131.65 W	214.11	7.289	30.965
5723.00	92.300	318.000	5546.03	195.01 N	152.94 W	246.04	4.062	337.396
5754.00	90.800	317.400	5545.20	217.93 N	173.80 W	277.00	5.211	201.803
5786.00	90.700	317.500	5544.78	241.50 N	195.44 W	308.96	0.442	135.002
5818.00	91.000	317.900	5544.30	265.17 N	216.97 W	340.92	1.562	53.124
5849.00	89.100	315.800	5544.27	287.78 N	238.17 W	371.91	9.135	227.868
5881.00	89.300	315.800	5544.72	310.72 N	260.48 W	403.90	0.625	0.000
5912.00	90.000	316.300	5544.91	333.04 N	281.99 W	434.89	2.775	35.539
5944.00	90.600	316.300	5544.74	356.18 N	304.10 W	466.88	1.875	0.000
5976.00	90.400	316.100	5544.46	379.27 N	326.25 W	498.88	0.884	225.000
6007.00	89.300	314.900	5544.55	401.38 N	347.97 W	529.87	5.251	227.489
6038.00	89.700	313.800	5544.82	423.05 N	370.14 W	560.87	3.776	289.978
6070.00	90.900	313.500	5544.65	445.14 N	393.29 W	592.86	3.865	345.964
6102.00	92.800	314.000	5543.62	467.25 N	416.40 W	624.83	6.139	14.729
6133.00	92.700	313.100	5542.13	488.59 N	438.84 W	655.79	2.918	263.674
6165.00	92.500	313.500	5540.68	510.51 N	462.10 W	687.74	1.396	116.579
6197.00	91.100	314.900	5539.67	532.81 N	485.03 W	719.72	6.186	134.990
6229.00	89.300	315.200	5539.56	555.45 N	507.64 W	751.72	5.703	170.537
6261.00	90.500	314.500	5539.62	578.02 N	530.32 W	783.72	4.341	329.742
6292.00	91.600	314.500	5539.05	599.75 N	552.43 W	814.71	3.548	0.000
6324.00	89.000	314.000	5538.88	622.07 N	575.35 W	846.71	8.274	190.888
6355.00	88.400	313.700	5539.58	643.54 N	597.70 W	877.69	2.164	206.556
6387.00	87.800	312.300	5540.64	665.35 N	621.09 W	909.65	4.758	246.768
6419.00	88.300	311.200	5541.73	686.65 N	644.95 W	941.58	3.774	294.437
6450.00	88.700	310.300	5542.54	706.88 N	668.43 W	972.49	3.176	293.958
6481.00	90.000	309.800	5542.90	726.82 N	692.15 W	1003.37	4.493	338.960
6513.00	89.000	311.900	5543.18	747.75 N	716.36 W	1035.28	7.268	115.471
6545.00	87.700	312.100	5544.10	769.15 N	740.13 W	1067.22	4.110	171.260
6577.00	87.200	314.900	5545.52	791.16 N	763.31 W	1099.18	8.880	100.195
6609.00	85.100	315.900	5547.67	813.89 N	785.73 W	1131.10	7.265	154.619
6640.00	87.900	317.500	5549.56	836.41 N	806.95 W	1162.03	10.398	29.752
6672.00	88.600	316.500	5550.54	859.80 N	828.76 W	1193.99	3.813	304.988
6704.00	87.600	315.200	5551.60	882.74 N	851.04 W	1225.97	5.124	232.396
6736.00	87.700	316.100	5552.91	905.61 N	873.39 W	1257.94	2.827	83.673
6768.00	88.800	316.100	5553.89	928.65 N	895.57 W	1289.92	3.437	0.000
6799.00	88.500	315.900	5554.62	950.95 N	917.09 W	1320.90	1.163	213.680
6832.00	88.500	315.900	5555.48	974.64 N	940.05 W	1353.89		

Continued...

Sperry-Sun Drilling Services

Survey Report for RU 17-13



Mobil
San Juan County

Utah
Ratherford Unit

All data is in feet unless otherwise stated. Directions and coordinates are relative to True North.
Vertical depths are relative to Well. Northings and Eastings are relative to Well.

The Dogleg Severity is in Degrees per 100ft.
Vertical Section is from Well and calculated along an Azimuth of 315.000° (True).

Based upon Minimum Curvature type calculations, at a Measured Depth of 6832.00ft.,
The Bottom Hole Displacement is 1354.11ft., in the Direction of 316.035° (True).

Mobil

**San Juan County
Utah
Ratherford Unit
RU 17-13 - Leg 2 MWD Survey**

SURVEY REPORT

30 April, 1998

sperry-sun
DRILLING SERVICES
A DIVISION OF BUSINESS INDUSTRIES, INC.

Survey Ref: svy2593

Sperry-Sun Drilling Services

Survey Report for RU 17-13



**Mobil
San Juan County**

**Utah
Ratherford Unit**

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Toolface Azimuth
Gyro								
0.00	0.000	0.000	0.00	0.00 N	0.00 E	0.00		
200.00	0.380	174.490	200.00	0.66 S	0.06 E	0.34	0.190	174.490
400.00	0.270	192.980	400.00	1.78 S	0.02 E	0.77	0.075	145.360
600.00	0.190	278.410	599.99	2.19 S	0.41 W	0.55	0.159	143.383
800.00	0.620	324.310	799.99	1.26 S	1.37 W	-0.71	0.253	61.527
1000.00	0.640	327.270	999.98	0.56 N	2.61 W	-2.60	0.019	59.914
1200.00	0.890	334.850	1199.96	2.90 N	3.87 W	-4.73	0.135	25.858
1400.00	1.490	330.240	1399.92	6.56 N	5.82 W	-8.05	0.304	348.625
1600.00	1.410	329.910	1599.85	10.95 N	8.35 W	-12.19	0.040	185.794
1800.00	1.110	337.080	1799.80	14.86 N	10.33 W	-15.65	0.169	155.829
2000.00	0.980	347.470	1999.77	18.32 N	11.46 W	-18.13	0.115	129.573
2200.00	0.420	350.140	2199.75	20.71 N	11.96 W	-19.59	0.280	178.001
2400.00	0.460	102.490	2399.75	21.26 N	11.30 W	-19.22	0.366	144.430
2600.00	1.290	80.650	2599.73	21.45 N	8.29 W	-16.58	0.440	326.946
2800.00	1.780	68.950	2799.65	22.93 N	3.17 W	-12.57	0.290	321.457
3000.00	1.170	59.240	2999.59	25.09 N	1.48 E	-9.26	0.329	197.476
3200.00	0.640	76.910	3199.56	26.39 N	4.32 E	-7.23	0.296	160.875
3400.00	0.280	84.560	3399.55	26.69 N	5.90 E	-5.93	0.182	174.129
3600.00	0.110	323.780	3599.55	26.89 N	6.27 E	-5.68	0.175	195.697
3800.00	0.110	300.690	3799.55	27.14 N	5.99 E	-6.04	0.022	258.455
4000.00	0.180	287.920	3999.55	27.34 N	5.53 E	-6.54	0.038	328.743
4200.00	0.350	289.160	4199.55	27.63 N	4.65 E	-7.46	0.085	2.552
4400.00	0.130	342.490	4399.55	28.05 N	4.01 E	-8.22	0.146	159.051
4600.00	0.220	347.740	4599.55	28.64 N	3.86 E	-8.61	0.046	12.734
4800.00	0.290	344.990	4799.55	29.51 N	3.65 E	-9.17	0.036	348.706
5000.00	0.340	334.540	4999.54	30.53 N	3.26 E	-9.95	0.038	305.729
5200.00	0.660	323.700	5199.54	32.00 N	2.32 E	-11.42	0.166	338.065
5400.00	0.540	331.440	5399.52	33.75 N	1.19 E	-13.19	0.072	149.793
Leg 2 MWD Survey								
5424.00	0.670	340.850	5423.52	33.98 N	1.09 E	-13.38	0.680	42.158
5433.00	4.000	115.000	5432.52	33.90 N	1.36 E	-13.10	49.916	140.282
5443.00	8.900	115.800	5442.45	33.42 N	2.37 E	-11.97	49.007	1.449
5453.00	14.300	116.600	5452.24	32.53 N	4.17 E	-9.97	54.023	2.099
5463.00	19.800	117.400	5461.80	31.19 N	6.78 E	-7.04	55.049	2.826
5473.00	25.300	118.200	5471.03	29.40 N	10.17 E	-3.21	55.084	3.564
5483.00	30.500	119.000	5479.87	27.16 N	14.28 E	1.46	52.133	4.473
5493.00	36.200	119.500	5488.22	24.47 N	19.07 E	6.94	57.066	2.971
5503.00	41.000	120.200	5496.03	21.37 N	24.48 E	13.15	48.198	5.474
5513.00	46.200	120.100	5503.27	17.91 N	30.44 E	20.02	52.005	359.204

Continued...

Sperry-Sun Drilling Services

Survey Report for RU 17-13



Mobil
San Juan County

Utah
Ratherford Unit

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Toolface Azimuth
5523.00	50.700	115.500	5509.90	14.43 N	37.06 E	27.49	56.637	321.035
5533.00	54.900	112.900	5515.95	11.17 N	44.32 E	35.45	46.822	332.957
5543.00	59.300	117.000	5521.38	7.62 N	51.93 E	43.84	55.853	39.172
5553.00	64.600	118.500	5526.08	3.51 N	59.74 E	52.65	54.626	14.383
5563.00	70.500	119.200	5529.90	0.95 S	67.83 E	61.87	59.353	6.394
5573.00	76.000	119.600	5532.78	5.65 S	76.17 E	71.42	55.133	4.043
5601.00	87.700	121.000	5536.74	19.61 S	100.05 E	98.97	42.077	6.867
5627.00	87.600	118.200	5537.81	32.44 S	122.64 E	124.86	10.767	267.896
5658.00	89.900	116.300	5538.48	46.63 S	150.19 E	155.82	9.622	320.422
5690.00	91.100	117.000	5538.20	60.98 S	178.79 E	187.81	4.341	30.253
5722.00	90.200	116.800	5537.84	75.46 S	207.32 E	219.79	2.881	192.529
5754.00	90.400	117.300	5537.67	90.01 S	235.82 E	251.77	1.683	68.197
5785.00	91.100	117.800	5537.27	104.35 S	263.30 E	282.73	2.775	35.532
5816.00	89.800	116.300	5537.02	118.44 S	290.91 E	313.71	6.403	229.093
5848.00	90.000	116.400	5537.08	132.65 S	319.58 E	345.70	0.699	26.565
5880.00	91.100	116.800	5536.77	146.98 S	348.20 E	377.69	3.658	19.981
5912.00	90.300	115.900	5536.38	161.18 S	376.87 E	409.67	3.763	228.371
5943.00	90.500	116.800	5536.16	174.94 S	404.65 E	440.67	2.974	77.468
5975.00	90.500	116.300	5535.89	189.24 S	433.27 E	472.65	1.562	270.002
6007.00	91.100	115.400	5535.44	203.19 S	462.07 E	504.64	3.380	303.698
6038.00	90.400	114.000	5535.03	216.14 S	490.23 E	535.64	5.049	243.443
6069.00	90.600	113.100	5534.76	228.53 S	518.64 E	566.63	2.974	282.533
6101.00	89.300	112.000	5534.79	240.80 S	548.19 E	598.60	5.322	220.237
6133.00	88.900	110.600	5535.29	252.42 S	578.00 E	630.53	4.550	254.043
6165.00	90.400	109.900	5535.49	263.50 S	608.02 E	662.42	5.173	334.980
6197.00	91.500	109.600	5534.96	274.31 S	638.14 E	694.28	3.563	344.749
6228.00	89.000	112.600	5534.82	285.47 S	667.05 E	725.20	12.597	129.791
6260.00	90.100	112.200	5535.07	297.66 S	696.64 E	757.16	3.658	340.016
6292.00	90.100	111.300	5535.02	309.52 S	726.36 E	789.11	2.812	270.001
6324.00	89.900	110.600	5535.02	320.96 S	756.24 E	821.03	2.275	254.055
6356.00	86.500	110.600	5536.02	332.21 S	786.18 E	852.92	10.625	180.000
6387.00	86.500	110.600	5537.92	343.10 S	815.14 E	883.77		
6418.00	88.600	111.500	5539.24	354.22 S	844.04 E	914.66	7.369	23.200
6449.00	89.300	112.200	5539.81	365.76 S	872.81 E	945.61	3.193	45.002
6461.00	89.300	113.300	5539.96	370.40 S	883.88 E	957.60	9.166	90.007
6492.00	89.300	113.300	5540.33	382.66 S	912.35 E	988.59		

All data is in feet unless otherwise stated. Directions and coordinates are relative to True North. Vertical depths are relative to Well. Northings and Eastings are relative to Well.

The Dogleg Severity is in Degrees per 100ft.
Vertical Section is from Well and calculated along an Azimuth of 115.000° (True).

Based upon Minimum Curvature type calculations, at a Measured Depth of 6492.00ft.,
The Bottom Hole Displacement is 989.35ft., in the Direction of 112.754° (True).

Mobil

**San Juan County
Utah
Ratherford Unit
RU 17-13 - Leg 3 MWD Survey**

SURVEY REPORT

30 April, 1998

sperry-sun
DRILLING SERVICES
A DIVISION OF AMERSON INTERNATIONAL, INC.

Survey Ref: svy2595

Sperry-Sun Drilling Services

Survey Report for RU 17-13



Mobil
San Juan County

Utah
Ratherford Unit

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Toolface Azimuth
Gyro								
0.00	0.000	0.000	0.00	0.00 N	0.00 E	0.00		
200.00	0.380	174.490	200.00	0.66 S	0.06 E	-0.58	0.190	174.490
400.00	0.270	192.980	400.00	1.78 S	0.02 E	-1.47	0.075	145.360
600.00	0.190	278.410	599.99	2.19 S	0.41 W	-1.56	0.159	143.383
800.00	0.620	324.310	799.99	1.26 S	1.37 W	-0.25	0.253	61.527
1000.00	0.640	327.270	999.98	0.56 N	2.61 W	1.95	0.019	59.914
1200.00	0.890	334.850	1199.96	2.90 N	3.87 W	4.60	0.135	25.858
1400.00	1.490	330.240	1399.92	6.56 N	5.82 W	8.72	0.304	348.625
1600.00	1.410	329.910	1599.85	10.95 N	8.35 W	13.76	0.040	185.794
1800.00	1.110	337.080	1799.80	14.86 N	10.33 W	18.10	0.169	155.829
2000.00	0.980	347.470	1999.77	18.32 N	11.46 W	21.58	0.115	129.573
2200.00	0.420	350.140	2199.75	20.71 N	11.96 W	23.82	0.280	178.001
2400.00	0.460	102.490	2399.75	21.26 N	11.30 W	23.89	0.366	144.430
2600.00	1.290	80.650	2599.73	21.45 N	8.29 W	22.33	0.440	326.946
2800.00	1.780	68.950	2799.65	22.93 N	3.17 W	20.60	0.290	321.457
3000.00	1.170	59.240	2999.59	25.09 N	1.48 E	19.70	0.329	197.476
3200.00	0.640	76.910	3199.56	26.39 N	4.32 E	19.14	0.296	160.875
3400.00	0.280	84.560	3399.55	26.69 N	5.90 E	18.48	0.182	174.129
3600.00	0.110	323.780	3599.55	26.89 N	6.27 E	18.43	0.175	195.697
3800.00	0.110	300.690	3799.55	27.14 N	5.99 E	18.80	0.022	258.455
4000.00	0.180	287.920	3999.55	27.34 N	5.53 E	19.22	0.038	328.743
4200.00	0.350	289.160	4199.55	27.63 N	4.65 E	19.97	0.085	2.552
4400.00	0.130	342.490	4399.55	28.05 N	4.01 E	20.68	0.146	159.051
4600.00	0.220	347.740	4599.55	28.64 N	3.86 E	21.25	0.046	12.734
4800.00	0.290	344.990	4799.55	29.51 N	3.65 E	22.08	0.036	348.706
5000.00	0.340	334.540	4999.54	30.53 N	3.26 E	23.14	0.038	305.729
5200.00	0.660	323.700	5199.54	32.00 N	2.32 E	24.88	0.166	338.065
5400.00	0.540	331.440	5399.52	33.75 N	1.19 E	26.97	0.072	149.793
Leg 3 MWD Survey								
5402.00	0.540	331.440	5401.52	33.77 N	1.18 E	26.98		
5411.00	4.700	325.000	5410.51	34.11 N	0.95 E	27.40	46.265	352.728
5421.00	9.300	334.100	5420.44	35.17 N	0.36 E	28.60	47.176	18.106
5431.00	15.200	339.100	5430.20	37.12 N	0.46 W	30.68	59.892	12.651
5441.00	20.900	338.200	5439.71	40.01 N	1.59 W	33.69	57.067	356.770
5451.00	26.600	339.000	5448.86	43.76 N	3.06 W	37.60	57.090	3.603
5461.00	32.900	339.500	5457.54	48.40 N	4.81 W	42.40	63.048	2.474
5471.00	38.700	342.400	5465.64	53.92 N	6.71 W	48.02	60.416	17.491
5481.00	42.800	346.800	5473.22	60.22 N	8.43 W	54.16	50.039	36.699
5491.00	46.800	342.900	5480.31	67.01 N	10.28 W	60.79	48.516	324.110

Continued...

Sperry-Sun Drilling Services

Survey Report for RU 17-13



Mobil
San Juan County

Utah
Ratherford Unit

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Toothface Azimuth
5501.00	52.100	342.100	5486.81	74.25 N	12.57 W	68.03	53.347	353.194
5511.00	57.300	344.200	5492.59	82.06 N	14.93 W	75.79	54.747	18.857
5521.00	61.800	344.800	5497.66	90.37 N	17.23 W	83.91	45.296	6.711
5531.00	66.800	341.100	5501.99	98.98 N	19.88 W	92.48	60.086	325.484
5554.00	77.500	343.200	5509.03	119.79 N	26.57 W	113.36	47.324	10.921
5596.00	84.800	340.800	5515.49	159.22 N	39.39 W	153.02	18.274	341.805
5628.00	89.000	338.000	5517.22	189.12 N	50.63 W	183.96	15.766	326.262
5660.00	89.500	335.300	5517.64	218.50 N	63.31 W	215.30	8.580	280.473
5691.00	90.400	334.900	5517.67	246.62 N	76.36 W	245.82	3.177	336.037
5722.00	92.000	333.400	5517.02	274.51 N	89.87 W	276.41	7.074	316.867
5753.00	90.500	330.500	5516.34	301.85 N	104.45 W	307.17	10.530	242.682
5785.00	92.700	331.900	5515.45	329.88 N	119.86 W	338.97	8.148	32.444
5817.00	93.500	333.000	5513.72	358.21 N	134.63 W	370.65	4.246	53.904
5849.00	93.600	333.400	5511.74	386.72 N	149.03 W	402.27	1.286	75.926
5880.00	89.600	331.800	5510.87	414.23 N	163.29 W	432.97	13.896	201.821
5912.00	87.700	329.400	5511.63	442.09 N	178.99 W	464.81	9.564	231.602
5944.00	87.600	327.400	5512.94	469.32 N	195.75 W	496.72	6.253	267.094
5976.00	88.400	324.000	5514.06	495.74 N	213.77 W	528.70	10.909	283.185
6007.00	90.100	324.200	5514.46	520.85 N	231.94 W	559.69	5.522	6.711
6038.00	91.300	323.200	5514.08	545.83 N	250.29 W	590.68	5.039	320.201
6070.00	89.600	321.200	5513.83	571.11 N	269.90 W	622.64	8.202	229.646
6101.00	90.900	320.900	5513.70	595.22 N	289.39 W	653.56	4.304	347.006
6133.00	91.800	321.000	5512.94	620.06 N	309.54 W	685.47	2.830	6.337
6165.00	90.900	320.500	5512.19	644.84 N	329.79 W	717.38	3.217	209.054
6196.00	91.800	321.200	5511.46	668.87 N	349.35 W	748.28	3.678	37.860
6228.00	92.100	321.600	5510.37	693.86 N	369.30 W	780.20	1.562	53.108
6260.00	90.300	321.200	5509.70	718.86 N	389.26 W	812.13	5.762	192.531
6292.00	90.000	320.900	5509.61	743.75 N	409.38 W	844.06	1.326	225.000
6324.00	87.700	320.500	5510.26	768.51 N	429.64 W	875.96	7.295	189.861
6355.00	86.700	319.600	5511.77	792.24 N	449.52 W	906.80	4.338	221.932
6387.00	87.500	318.200	5513.39	816.33 N	470.53 W	938.58	5.034	299.740
6418.00	88.000	317.000	5514.61	839.20 N	491.42 W	969.30	4.191	292.611
6450.00	88.300	315.400	5515.64	862.28 N	513.56 W	1000.90	5.085	280.599
6482.00	89.000	315.600	5516.39	885.10 N	535.98 W	1032.46	2.275	15.944
6513.00	92.200	315.200	5516.07	907.17 N	557.74 W	1063.02	10.403	352.877
6545.00	91.900	314.700	5514.93	929.76 N	580.37 W	1094.50	1.821	239.029
6576.00	93.300	315.900	5513.52	951.77 N	602.15 W	1125.03	5.945	40.547
6607.00	94.800	315.600	5511.33	973.92 N	623.73 W	1155.55	4.934	348.728
6639.00	95.500	315.800	5508.46	996.73 N	645.99 W	1187.00	2.274	15.875
6670.00	94.600	318.100	5505.73	1019.30 N	667.07 W	1217.57	7.940	111.342
6702.00	93.300	319.600	5503.52	1043.33 N	688.07 W	1249.31	6.194	130.928
6734.00	90.000	320.300	5502.60	1067.82 N	708.65 W	1281.17	10.542	168.017
6766.00	89.800	322.100	5502.66	1092.75 N	728.70 W	1313.10	5.660	96.341
6797.00	89.300	324.000	5502.90	1117.52 N	747.34 W	1344.08	6.338	104.750
6829.00	85.900	324.700	5504.24	1143.50 N	765.97 W	1376.04	10.847	168.389

Continued...

Sperry-Sun Drilling Services

Survey Report for RU 17-13



Mobil
San Juan County

Utah
Ratherford Unit

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Toolface Azimuth
6860.00	85.900	323.700	5506.46	1168.58 N	784.06 W	1406.96	3.218	269.964
6892.00	88.500	322.100	5508.02	1194.07 N	803.33 W	1438.90	9.537	328.380
6924.00	90.500	321.600	5508.30	1219.23 N	823.10 W	1470.84	6.442	345.961
6955.00	89.200	320.200	5508.38	1243.29 N	842.65 W	1501.76	6.163	227.121
6987.00	87.800	320.200	5509.22	1267.86 N	863.12 W	1533.64	4.375	180.000
7019.00	92.000	321.600	5509.28	1292.69 N	883.30 W	1565.55	13.835	18.441
7050.00	92.600	323.000	5508.03	1317.20 N	902.24 W	1596.49	4.910	66.758
7082.00	89.800	325.100	5507.36	1343.09 N	921.02 W	1628.47	10.936	143.108
7114.00	88.900	324.900	5507.72	1369.30 N	939.37 W	1660.47	2.881	192.527
7154.00	88.900	324.900	5508.49	1402.02 N	962.37 W	1700.46		

All data is in feet unless otherwise stated. Directions and coordinates are relative to True North. Vertical depths are relative to Well. Northings and Eastings are relative to Well.

The Dogleg Severity is in Degrees per 100ft.

Vertical Section is from Well and calculated along an Azimuth of 325.000° (True).

Based upon Minimum Curvature type calculations, at a Measured Depth of 7154.00ft., The Bottom Hole Displacement is 1700.54ft., in the Direction of 325.534° (True).

Mobil

**San Juan County
Utah
Ratherford Unit
RU 17-13 - Leg 4 MWD Survey**

SURVEY REPORT

30 April, 1998

sperry-sun
DRILLING SERVICES
A DIVISION OF HESSAGE INDUSTRIES, INC.

Survey Ref: svy2741

Sperry-Sun Drilling Services

Survey Report for RU 17-13



Mobil
San Juan County

Utah
Ratherford Unit

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
Gyro							
0.00	0.000	0.000	0.00	0.00 N	0.00 E	0.00	0.190
200.00	0.380	174.490	200.00	0.66 S	0.06 E	0.43	0.075
400.00	0.270	192.980	400.00	1.78 S	0.02 E	1.04	0.159
600.00	0.190	278.410	599.99	2.19 S	0.41 W	0.92	0.253
800.00	0.620	324.310	799.99	1.26 S	1.37 W	-0.40	0.019
1000.00	0.640	327.270	999.98	0.56 N	2.61 W	-2.45	0.135
1200.00	0.890	334.850	1199.96	2.90 N	3.87 W	-4.84	0.304
1400.00	1.490	330.240	1399.92	6.56 N	5.82 W	-8.53	0.040
1600.00	1.410	329.910	1599.85	10.95 N	8.35 W	-13.12	0.169
1800.00	1.110	337.080	1799.80	14.86 N	10.33 W	-16.99	0.115
2000.00	0.980	347.470	1999.77	18.32 N	11.46 W	-19.89	0.280
2200.00	0.420	350.140	2199.75	20.71 N	11.96 W	-21.67	0.366
2400.00	0.460	102.490	2399.75	21.26 N	11.30 W	-21.45	0.440
2600.00	1.290	80.650	2599.73	21.45 N	8.29 W	-19.10	0.290
2800.00	1.780	68.950	2799.65	22.93 N	3.17 W	-15.75	0.329
3000.00	1.170	59.240	2999.59	25.09 N	1.48 E	-13.18	0.296
3200.00	0.640	76.910	3199.56	26.39 N	4.32 E	-11.59	0.182
3400.00	0.280	84.560	3399.55	26.69 N	5.90 E	-10.48	0.175
3600.00	0.110	323.780	3599.55	26.89 N	6.27 E	-10.29	0.022
3800.00	0.110	300.690	3799.55	27.14 N	5.99 E	-10.66	0.038
4000.00	0.180	287.920	3999.55	27.34 N	5.53 E	-11.15	0.085
4200.00	0.350	289.160	4199.55	27.63 N	4.65 E	-12.04	0.146
4400.00	0.130	342.490	4399.55	28.05 N	4.01 E	-12.81	0.046
4600.00	0.220	347.740	4599.55	28.64 N	3.86 E	-13.27	0.036
4800.00	0.290	344.990	4799.55	29.51 N	3.65 E	-13.94	0.038
5000.00	0.340	334.540	4999.54	30.53 N	3.26 E	-14.84	0.166
5200.00	0.660	323.700	5199.54	32.00 N	2.32 E	-16.45	0.073

Leg 4 MWD Survey

5379.00	0.550	330.470	5378.53	33.57 N	1.29 E	-18.20	48.796
5387.00	3.400	125.000	5386.52	33.47 N	1.46 E	-18.00	40.576
5397.00	7.400	132.800	5396.48	32.86 N	2.18 E	-17.06	46.128
5407.00	12.000	134.900	5406.33	31.69 N	3.39 E	-15.40	48.063
5417.00	16.800	135.900	5416.01	29.92 N	5.13 E	-12.96	49.039
5427.00	21.700	136.500	5425.45	27.54 N	7.41 E	-9.72	50.597
5437.00	26.700	138.400	5434.57	24.52 N	10.18 E	-5.72	46.807
5447.00	30.900	134.100	5443.33	21.05 N	13.51 E	-1.00	48.246
5457.00	34.000	127.200	5451.77	17.57 N	17.59 E	4.33	49.057
5467.00	38.900	126.800	5459.81	13.99 N	22.33 E	10.27	

Continued...

Sperry-Sun Drilling Services

Survey Report for RU 17-13



Mobil
San Juan County

Utah
Ratherford Unit

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
5477.00	44.400	126.800	5467.28	10.01 N	27.65 E	16.91	55.000
5487.00	49.000	129.500	5474.14	5.52 N	33.37 E	24.17	50.013
5497.00	52.800	134.200	5480.45	0.34 N	39.14 E	31.87	52.656
5507.00	56.500	136.600	5486.23	5.47 S	44.86 E	39.89	41.855
5517.00	59.700	133.700	5491.52	11.49 S	50.85 E	48.24	40.370
5527.00	62.800	131.300	5496.33	17.41 S	57.31 E	56.93	37.464
5537.00	65.900	129.400	5500.66	23.24 S	64.18 E	65.91	35.415
5547.00	70.800	129.500	5504.34	29.15 S	71.36 E	75.17	49.009
5557.00	75.600	130.300	5507.23	35.28 S	78.70 E	84.71	48.607
5567.00	80.700	131.700	5509.29	41.70 S	86.08 E	94.44	52.807
5591.00	88.200	135.400	5511.61	58.15 S	103.38 E	118.04	34.809
5630.00	88.500	130.900	5512.73	84.81 S	131.81 E	156.62	11.559
5662.00	90.700	131.200	5512.95	105.82 S	155.94 E	188.44	6.939
5694.00	88.700	129.400	5513.12	126.51 S	180.34 E	220.30	8.408
5726.00	89.100	128.200	5513.73	146.56 S	205.28 E	252.22	3.952
5758.00	89.600	125.900	5514.10	165.84 S	230.81 E	284.19	7.355
5789.00	90.200	125.100	5514.15	183.84 S	256.05 E	315.19	3.226
5820.00	88.000	122.800	5514.64	201.15 S	281.76 E	346.18	10.266
5851.00	88.900	120.500	5515.48	217.41 S	308.14 E	377.11	7.965
5883.00	91.600	120.100	5515.34	233.55 S	335.76 E	409.00	8.530
5915.00	91.800	121.900	5514.39	250.02 S	363.18 E	440.91	5.657
5947.00	92.900	122.400	5513.08	267.04 S	390.25 E	472.84	3.775
5978.00	92.700	122.800	5511.56	283.72 S	416.33 E	503.78	1.441
6010.00	91.800	122.800	5510.31	301.04 S	443.21 E	535.73	2.812
6042.00	88.300	122.100	5510.28	318.21 S	470.21 E	567.69	11.154
6074.00	88.200	122.900	5511.26	335.39 S	497.19 E	599.65	2.518
6105.00	88.200	123.100	5512.23	352.27 S	523.17 E	630.61	0.645
6137.00	88.200	123.100	5513.23	369.74 S	549.97 E	662.58	0.000
6168.00	88.100	123.500	5514.23	386.75 S	575.86 E	693.55	1.329
6199.00	87.800	123.800	5515.34	403.91 S	601.65 E	724.52	1.368
6231.00	89.000	124.700	5516.24	421.92 S	628.09 E	756.50	4.687
6262.00	90.200	125.100	5516.45	439.65 S	653.52 E	787.50	4.080
6293.00	90.900	125.400	5516.16	457.54 S	678.83 E	818.50	2.457
6325.00	90.800	125.400	5515.68	476.08 S	704.91 E	850.50	0.313
6357.01	90.300	126.300	5515.37	494.82 S	730.86 E	882.50	3.216
6389.00	91.400	127.500	5514.90	514.03 S	756.43 E	914.47	5.088
6421.00	91.800	127.300	5514.01	533.46 S	781.84 E	946.43	1.397
6452.00	90.000	126.600	5513.52	552.09 S	806.61 E	977.40	6.230
6484.00	89.500	126.600	5513.66	571.17 S	832.30 E	1009.39	1.562
6517.00	88.700	124.300	5514.18	590.30 S	859.18 E	1042.38	7.378
6548.00	88.400	125.800	5514.96	608.10 S	884.55 E	1073.37	4.933
6580.00	87.500	124.900	5516.11	626.60 S	910.63 E	1105.35	3.976
6612.00	86.300	124.200	5517.84	644.72 S	936.95 E	1137.30	4.340
6643.00	87.000	122.600	5519.65	661.76 S	962.79 E	1168.24	5.626
6675.00	86.000	120.000	5521.60	678.35 S	990.07 E	1200.11	8.691

Continued...

Sperry-Sun Drilling Services

Survey Report for RU 17-13



Mobil
San Juan County

Utah
Ratherford Unit

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Toolface Azimuth
6707.00	85.900	118.500	5523.86	693.95 S	1017.92 E	1231.87	4.686	266.124
6738.00	86.500	118.200	5525.92	708.63 S	1045.15 E	1262.59	2.163	333.475
6770.00	91.000	119.400	5526.61	724.04 S	1073.17 E	1294.39	14.553	14.945
6802.00	92.300	119.400	5525.69	739.74 S	1101.04 E	1326.22	4.062	0.000
6834.00	93.300	119.200	5524.13	755.39 S	1128.91 E	1358.02	3.187	348.708
6865.00	93.700	119.400	5522.24	770.53 S	1155.90 E	1388.81	1.442	26.516
6894.00	93.800	119.400	5520.34	784.73 S	1181.11 E	1417.61	0.345	0.000
6927.00	93.800	119.400	5518.15	800.90 S	1209.79 E	1450.38		

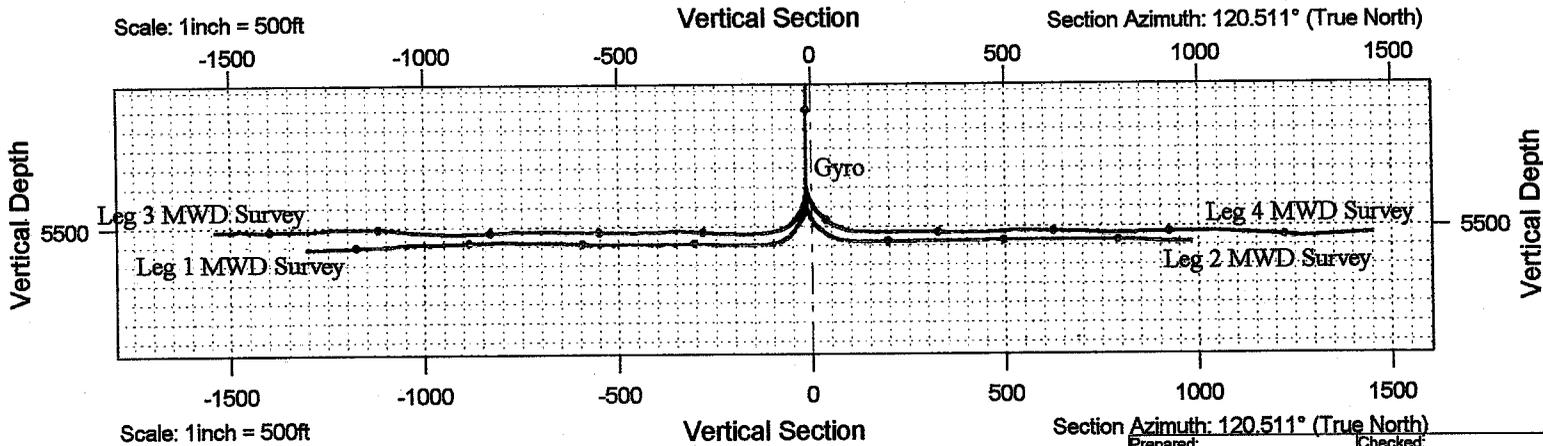
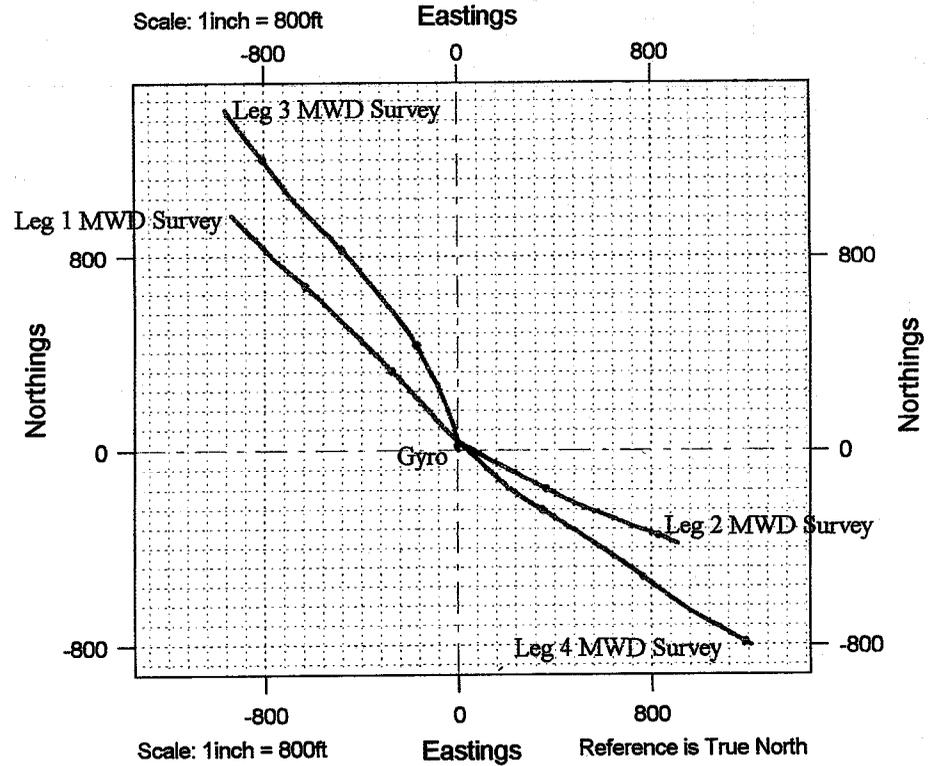
All data is in feet unless otherwise stated. Directions and coordinates are relative to True North.
Vertical depths are relative to Well. Northings and Eastings are relative to Well.

The Dogleg Severity is in Degrees per 100ft.
Vertical Section is from Well and calculated along an Azimuth of 125.000° (True).

Based upon Minimum Curvature type calculations, at a Measured Depth of 6927.00ft.,
The Bottom Hole Displacement is 1450.88ft., in the Direction of 123.505° (True).

San Juan County
Utah
Ratherford Unit
RU 17-13 Legs 1,2,3,& 4

Mobil



Prepared:

Checked:

Approved:

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

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

5. Lease Designation and Serial No.

14-20-603-353

6. If Indian, Allottee or Tribe Name

NAVAJO TRIBAL

7. If Unit or CA, Agreement Designation

RATHERFORD UNIT

8. Well Name and No.

RATHERFORD 17-13

9. API Well No.

43-037-31133

10. Field and Pool, or exploratory Area

GREATER ANETH

11. County or Parish, State

SAN JUAN UT

SUBMIT IN TRIPLICATE

1. Type of Well

Oil Well Gas Well Other

2. Name of Operator

MOBIL PRODUCING TX & NM INC.*
*MOBIL EXPLORATION & PRODUCING US INC. AS AGENT FOR MPTM

3. Address and Telephone No.

P.O. Box 633, Midland TX 79702 (915) 688-2585

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

SEC. 17, T41S, R24E
NW/SW 2100' FSL & 660' FWL

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

TYPE OF SUBMISSION

Notice of Intent
 Subsequent Report
 Final Abandonment Notice

TYPE OF ACTION

Abandonment
 Recompletion
 Plugging Back
 Casing Repair
 Altering Casing
 Other SIDETRACK

Change of Plans
 New Construction
 Non-Routine Fracturing
 Water Shut-Off
 Conversion to Injection
 Dispose Water
(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

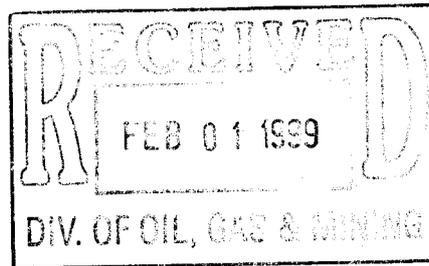
13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to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

BHL:

LATERAL #1, 975' NORTH & 940' WEST F/SURFACE SPOT
LATERAL #2, 383' SOUTH & 912' EAST F/SURFACE SPOT
LATERAL #3, 1402' NORTH & 962' WEST F/SURFACE SPOT
LATERAL #4, 801' SOUTH & 1210' EAST F/SURFACE SPOT

02-17-98 -- 5-14-98 HORIZONTAL RECOMPLETION

ATTACHED FORM 15



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

Signed Shirley Houchins

Title SHIRLEY HOUCHINS/ENV & REG TECH

Date 1-28-99

(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.

* See Instruction on Reverse Side

WTC
3-1-99
RTJ

OPERATOR CHANGE WORKSHEET

ROUTING

1. GLH
2. CDW ✓
3. FILE

Change of Operator (Well Sold)

Designation of Agent

X Operator Name Change

Merger

The operator of the well(s) listed below has changed, effective: **06-01-2001**

FROM: (Old Operator):	TO: (New Operator):
MOBIL EXPLORATION & PRODUCTION	EXXONMOBIL OIL CORPORATION
Address: P O BOX DRAWER "G"	Address: U S WEST P O BOX 4358
CORTEZ, CO 81321	HOUSTON, TX 77210-4358
Phone: 1-(970)-564-5212	Phone: 1-(713)-431-1010
Account No. N7370	Account No. N1855

CA No. Unit: RATHERFORD

WELL(S)

NAME	SEC TWN RNG	API NO	ENTITY NO	LEASE TYPE	WELL TYPE	WELL STATUS
9-34	09-41S-24E	43-037-15711	6280	INDIAN	OW	S
10-12	10-41S-24E	43-037-15712	6280	INDIAN	OW	P
10-14	10-41S-24E	43-037-15713	6280	INDIAN	OW	S
10-32	10-41S-24E	43-037-15714	6280	INDIAN	OW	S
10-44	10-41S-24E	43-037-30451	6280	INDIAN	OW	S
11-14	11-41S-24E	43-037-16167	6280	INDIAN	OW	P
E14-12	14-41S-24E	43-037-15998	6280	INDIAN	OW	S
RATHERFORD 15-12	15-41S-24E	43-037-15715	6280	INDIAN	OW	P
15-32	15-41S-24E	43-037-15717	6280	INDIAN	OW	S
15-33	15-41S-24E	43-037-15718	6280	INDIAN	OW	P
15-41	15-41S-24E	43-037-15719	6280	INDIAN	OW	S
15-42	15-41S-24E	43-037-30448	6280	INDIAN	OW	P
15-22	15-41S-24E	43-037-30449	6280	INDIAN	OW	P
16-32	16-41S-24E	43-037-15723	6280	INDIAN	OW	P
16-41	16-41S-24E	43-037-15725	6280	INDIAN	OW	P
RATHERFORD UNIT 16-13	16-41S-24E	43-037-31168	6280	INDIAN	OW	P
RATHERFORD 16-77	16-41S-24E	43-037-31768	6280	INDIAN	OW	P
17-44	17-41S-24E	43-037-15732	6280	INDIAN	OW	P
RATHERFORD UNIT 17-24	17-41S-24E	43-037-31044	6280	INDIAN	OW	P
RATHERFORD UNIT 17-13	17-41S-24E	43-037-31133	6280	INDIAN	OW	P

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: 06/29/2001
2. (R649-8-10) Sundry or legal documentation was received from the **NEW** operator on: 06/29/2001
3. The new company has been checked through the **Department of Commerce, Division of Corporations Database** on: 04/09/2002
4. Is the new operator registered in the State of Utah: YES Business Number: 579865-0143
5. If **NO**, the operator was contacted on: N/A

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: BIA-06/01/01

7. **Federal and Indian Units:**

The BLM or BIA has approved the successor of unit operator for wells listed on: 06/01/2001

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: 04/15/2002
2. Changes have been entered on the **Monthly Operator Change Spread Sheet** on: 04/15/2002
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: N/A

INDIAN WELL(S) BOND VERIFICATION:

1. Indian well(s) covered by Bond Number: 80273197

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:

June 27, 2001

ExxonMobil
Production

Mr. Jim Thompson
State of Utah, Division of Oil, Gas and Mining
1549 West North Temple
Suite 1210
Salt Lake City, UT 84114-5801

Change of Name – Mobil Oil Corporation to
ExxonMobil Oil Corporation

Dear Mr. Thompson

Effective June 1, 2001, Mobil Oil Corporation (MOC) changed its name to ExxonMobil Oil Corporation (EMOC). This was a name change only; EMOC is the same corporation as Mobil Oil Corporation, but with a new name. No facility or other asset was transferred from one corporation to another by virtue of the name change. Specifically, EMOC will remain the owner and operator of its existing exploration and production oil and gas properties and facilities, as well as relevant permits.

There is no change to the name of Exxon Mobil Corporation, the ultimate shareholder of EMOC.

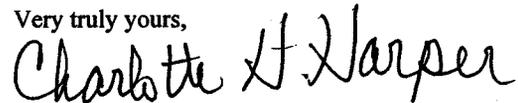
Please note the change of name of MOC to ExxonMobil Oil Corporation in your records pertaining to any MOC permits.

The Federal Identification Number for MOC (13-5401570) will remain the same for EMOC.

A copy of the Certification, Bond Rider and a list of wells are attached.

If you have any questions please feel free to call Joel Talavera at 713-431-1010

Very truly yours,



Charlotte H. Harper
Permitting Supervisor

ExxonMobil Production Company
a division of Exxon Mobil Corporation,
acting for ExxonMobil Oil Corporation

RECEIVED

JUN 29 2001

DIVISION OF
OIL, GAS AND MINING



United States Department of the Interior

BUREAU OF INDIAN AFFAIRS

Navajo Area Office
NAVAJO REGION

P.O. Box 1060
Gallup, New Mexico 87305-1060

AUG 30 2001

IN REPLY REFER TO:

RRES/543

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Charlotte H. Harper, Permitting Supervisor
Exxon Mobil Production Company
U. S. West
P. O. Box 4358
Houston, TX 77210-4358

Dear Ms. Harper:

This is to acknowledge receipt of your company's name change from Mobil Oil Corporation to ExxonMobil Oil Corporation effective June 1, 2001. The receipt of documents includes the Name Change Certification, current listing of Officers and Directors, Listing of Leases, Financial Statement, filing fees of \$75.00 and a copy of the Rider for Bond Number 8027 31 97. There are no other changes.

Please note that we will provide copies of these documents to other concerned parties. If you need further assistance, you may contact Ms. Bertha Spencer, Realty Specialist, at (928) 871-5938.

Sincerely,

DEMMI DENETSONE

Regional Realty Officer

cc: BLM, Farmington Field Office w/enclosures ✓
Navajo Nation Minerals Office, Attn: Mr. Akhtar Zaman, Director/w enclosures

MINERAL RESOURCES	
ADM	<u>DM</u>
NATV AM MIN COORD	_____
SOLID MIN TEAM	_____
PETRO MIN TEAM	<u>2</u>
O & G INSPECT TEAM	_____
ALL TEAM LEADERS	_____
LAND RESOURCES	_____
ENVIRONMENT	_____
FILES	_____

ExxonMobil Production Company
U.S. West
P.O. Box 4358
Houston, Texas 77210-4358

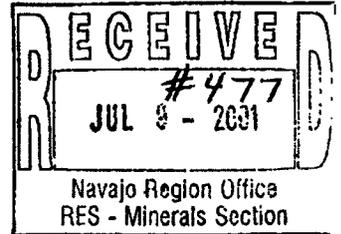
pb 7/12/001
JK
593
File

June 27, 2001

ExxonMobil
Production

Certified Mail
Return Receipt Requested

Ms. Genni Denetsone
United States Department of the Interior
Bureau of Indian Affairs, Navajo Region
Real Estate Services
P. O. Box 1060
Gallup, New Mexico 87305-1060
Mail Code 543



Change of Name -
Mobil Oil Corporation to
ExxonMobil Oil Corporation

Dear Ms. Denetsone:

Effective June 1, 2001, Mobil Oil Corporation (MOC) changed its name to ExxonMobil Oil Corporation (EMOC). This was a name change only; EMOC is the same corporation as Mobil Oil Corporation, but with a new name. No facility or other asset was transferred from one corporation to another by virtue of the name change. Specifically, EMOC will remain the owner and operator of its existing exploration and production oil and gas properties and facilities, as well as relevant permits.

There is no change to the name of Exxon Mobil Corporation, the ultimate shareholder of EMOC.

Please note the change of name of MOC to ExxonMobil Oil Corporation in your records pertaining to any MOC permits.

The Federal Identification Number for MOC (13-5401570) will remain the same for EMOC.

Attached is the Name Change Certification, Current listing of Officers and Directors, Filing Fee of \$75/-, Listing of Leases, Financial Statement and a copy of the Rider for Bond number 8027 31 97. The original Bond Rider has been sent to Ms. Barbar Davis at your Washington Office.

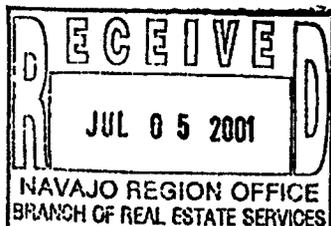
If you have any questions , please contact Alex Correa at (713) 431-1012.

Very truly yours,

Charlotte H. Harper

Charlotte H. Harper
Permitting Supervisor

Attachments



ExxonMobil Production Company
a division of Exxon Mobil Corporation,
acting for ExxonMobil Oil Corporation

NOTE: Check forwarded to Ella Issa

Bureau of Indian Affairs
Navajo Region Office
Attn: RRES - Mineral and Mining Section
P.O. Box 1060
Gallup, New Mexico 87305-1060

Gentlemen:

The current listing of officers and director of ExxonMobil Oil Corporation (Name of Corporation), of New York (State) is as follows:

OFFICERS

President	<u>F.A. Risch</u>	Address <u>5959 Las Colinas Blvd. Irving, TX 75039</u>
Vice President	<u>K.T. Koonce</u>	Address <u>800 Bell Street Houston, TX 77002</u>
Secretary	<u>F.L. Reid</u>	Address <u>5959 Las Colinas Blvd. Irving, TX 75039</u>
Treasure	<u>B.A. Maher</u>	Address <u>5959 Las Colinas Blvd. Irving, TX 75039</u>

DIRECTORS

Name	<u>D.D. Humphreys</u>	Address	<u>5959 Las Colinas Blvd. Irving, TX 75039</u>
Name	<u>P.A. Hanson</u>	Address	<u>5959 Las Colinas Blvd. Irving, TX 75039</u>
Name	<u>T.P. Townsend</u>	Address	<u>5959 Las Colinas Blvd. Irving, TX 75039</u>
Name	<u>B.A. Maher</u>	Address	<u>5959 Las Colinas Blvd. Irving, TX 75039</u>
Name	<u>F.A. Risch</u>	Address	<u>5959 Las Colinas Blvd. Irving, TX 75039</u>

Sincerely,

Alex Correa

This is to certify that the above information pertaining to ExxonMobil Oil Corporation (Corporation) is true and correct as evidenced by the records and accounts covering business for the State of Utah and in the custody of Corporation Service Company (Agent), Phone: 1 (800) 927-9800 whose business address is One Utah Center, 201 South Main Street, Salt Lake City, Utah 84111-2218



Signature

AGENT AND ATTORNEY IN FACT

Title

CERTIFICATION

I, the undersigned Assistant Secretary of ExxonMobil Oil Corporation. (formerly Mobil Oil Corporation), a corporation organized and existing under the laws of the State of New York, United States of America, DO HEREBY CERTIFY, That, the following is a true and exact copy of the resolutions adopted by the Board of Directors on May 22, 2001:

CHANGE OF COMPANY NAME

WHEREAS, the undersigned Directors of the Corporation deem it to be in the best interest of the Corporation to amend the Certificate of Incorporation of the Corporation to change the name and principal office of the Corporation:

NOW THEREFORE BE IT RESOLVED, That Article 1st relating to the corporate name is hereby amended to read as follows:

"1st The corporate name of said Company shall be,

ExxonMobil Oil Corporation",

FURTHER RESOLVED, That the amendment of the Corporation's Certificate of Incorporation referred to in the preceding resolutions be submitted to the sole shareholder of the Corporation entitled to vote thereon for its approval and, if such shareholder gives its written consent, pursuant to Section 803 of the Business Corporation Law of the State of New York, approving such amendment, the proper officers of the Corporation be, and they hereby are, authorized to execute in the name of the Corporation the Certificate of Amendment of Certificate of Incorporation, in the form attached hereto;

FURTHER RESOLVED, That the proper officers of the Corporation be and they hereby are authorized and directed to deliver, file and record in its behalf, the Certificate of Amendment of Certificate of Incorporation, and to take such action as may be deemed necessary or advisable to confirm and make effective in all respects the change of this Company's name to EXXONMOBIL OIL CORPORATION.

WITNESS, my hand and the seal of the Corporation at Irving, Texas, this 8th day of June, 2001.

S. A. Milligan
Assistant Secretary

COUNTY OF DALLAS)
STATE OF TEXAS)
UNITED STATES OF AMERICA)

Sworn to and subscribed before me at Irving, Texas, U. S. A. on this the 8th day of June, 2001.

Janice M. Phillips
Notary Public



LISTING OF LEASES OF MOBIL OIL CORPORATION**Lease Number**

- 1) 14-20-0603-6504
- 2) 14-20-0603-6505
- 3) 14-20-0603-6506
- 4) 14-20-0603-6508
- 5) 14-20-0603-6509
- 6) 14-20-0603-6510
- 7) 14-20-0603-7171
- 8) 14-20-0603-7172A
- 9) 14-20-600-3530
- 10) 14-20-603-359
- 11) 14-20-603-368
- 12) 14-20-603-370
- 13) 14-20-603-370A
- 14) 14-20-603-372
- 15) 14-20-603-372A
- 16) 14-20-603-4495
- 17) 14-20-603-5447
- 18) 14-20-603-5448
- 19) 14-20-603-5449
- 20) 14-20-603-5450
- 21) 14-20-603-5451

6/1/01

CHUBB GROUP OF INSURANCE COMPANIES

One Chubb Plaza, Suite 1900, Houston, Texas 77027-3307
Telephone: (713) 297-4600 • Facsimile: (713) 297-4750

NW Bond

FEDERAL INSURANCE COMPANY RIDER
to be attached to and form a part of

BOND NO 8027 31 97

wherein

Mobil Oil Corporation and Mobil Exploration and Producing U.S., Inc. is
named as Principal and

FEDERAL INSURANCE COMPANY AS SURETY,

in favor of **United States of America, Department of the Interior**
Bureau of Indian Affairs

in the amount of **\$150,000.00**

bond date: 11/01/65

IT IS HEREBY UNDERSTOOD AND AGREED THAT effective June 1, 2001
the name of the Principal is changed

FROM: Mobil Oil Corporation and Mobil Exploration and Producing U.S., Inc.

TO : ExxonMobil Oil Corporation

All other terms and conditions of this Bond are unchanged.

Signed, sealed and dated this 12th of June, 2001.

ExxonMobil Oil Corporation

By:



FEDERAL INSURANCE COMPANY

By:

Mary Pierson
Mary Pierson, Attorney-in-fact



POWER OF ATTORNEY

Federal Insurance Company
Vigilant Insurance Company
Pacific Indemnity Company

Attn.: Surety Department
15 Mountain View Road
Warren, NJ 07059

Know All by These Presents, That FEDERAL INSURANCE COMPANY, an Indiana corporation, VIGILANT INSURANCE COMPANY, a New York corporation, and PACIFIC INDEMNITY COMPANY, a Wisconsin corporation, do each hereby constitute and appoint Mary Pierson, Philana Berros, and Jody E. Specht of Houston, Texas-----

R.F. Bobo,

each as their true and lawful Attorney-in-Fact to execute under such designation in their names and to affix their corporate seals to and deliver for and on their behalf as surety thereon or otherwise, bonds and undertakings and other writings obligatory in the nature thereof (other than bail bonds) given or executed in the course of business, and any instruments amending or altering the same, and consents to the modification or alteration of any instrument referred to in said bonds or obligations.

In Witness Whereof, said FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, and PACIFIC INDEMNITY COMPANY have each executed and attested these presents and affixed their corporate seals on this 10th day of May, 2001.

Kenneth C. Wendel
Kenneth C. Wendel, Assistant Secretary

Frank E. Robertson
Frank E. Robertson, Vice President

STATE OF NEW JERSEY } ss.
County of Somerset

On this 10th day of May, 2001

before me, a Notary Public of New Jersey, personally came Kenneth C. Wendel, to me known to be Assistant Secretary of FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, and PACIFIC INDEMNITY COMPANY, the companies which executed the foregoing Power of Attorney, and the said Kenneth C. Wendel being by me duly sworn, did depose and say that he is Assistant Secretary of FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, and PACIFIC INDEMNITY COMPANY, and knows the corporate seals thereof, that the seals affixed to the foregoing Power of Attorney are such corporate seals and were thereto affixed by authority of the By-Laws of said Companies; and that he signed said Power of Attorney as Assistant Secretary of said Companies by like authority; and that he is acquainted with Frank E. Robertson, and knows him to be Vice President of said Companies; and that the signature of Frank E. Robertson, subscribed to said Power of Attorney is in the genuine handwriting of Frank E. Robertson, and was thereto subscribed by authority of said Robert E. Robertson in the presence of said Notary Public.



Notary Public State of New Jersey
No. 2231647

Karen A. Price
Notary Public

Commission Expires Oct 28, 2004

Extract from the By-Laws of FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, and PACIFIC INDEMNITY COMPANY:

"All powers of attorney for and on behalf of the Company may and shall be executed in the name and on behalf of the Company, either by the Chairman or the President or a Vice President or an Assistant Vice President, jointly with the Secretary or an Assistant Secretary, under their respective designations. The signature of such officers may be engraved, printed or lithographed. The signature of each of the following officers: Chairman, President, any Vice President, any Assistant Vice President, any Secretary, any Assistant Secretary and the seal of the Company may be affixed by facsimile to any power of attorney or to any certificate relating thereto appointing Assistant Secretaries or Attorneys-in-Fact for purposes only of executing and attesting bonds and undertakings and other writings obligatory in the nature thereof, and any such power of attorney or certificate bearing such facsimile signature or facsimile seal shall be valid and binding upon the Company and any such power so executed and certified by such facsimile signature and facsimile seal shall be valid and binding upon the Company with respect to any bond or undertaking to which it is attached."

I, Kenneth C. Wendel, Assistant Secretary of FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, and PACIFIC INDEMNITY COMPANY (the "Companies") do hereby certify that

- (i) the foregoing extract of the By-Laws of the Companies is true and correct,
- (ii) the Companies are duly licensed and authorized to transact surety business in all 50 of the United States of America and the District of Columbia and are authorized by the U. S. Treasury Department; further, Federal and Vigilant are licensed in Puerto Rico and the U. S. Virgin Islands, and Federal is licensed in American Samoa, Guam, and each of the Provinces of Canada except Prince Edward Island; and
- (iii) the foregoing Power of Attorney is true, correct and in full force and effect.

Given under my hand and seals of said Companies at Warren, NJ this 12th day of June, 2001



Kenneth C. Wendel
Kenneth C. Wendel, Assistant Secretary

IN THE EVENT YOU WISH TO NOTIFY US OF A CLAIM, VERIFY THE AUTHENTICITY OF THIS BOND OR NOTIFY US OF ANY OTHER MATTER, PLEASE CONTACT US AT ADDRESS LISTED ABOVE, OR BY Telephone (908) 903-3485 Fax (908) 903-3656 e-mail: surety@chubb.com

CSC

5184334741

06/01 '01 08:46 No.410 03/05

CSC

06/01 '01 09:06 No.135 02/04

F010601000187

CERTIFICATE OF AMENDMENT
OF
CERTIFICATE OF INCORPORATION
OF
MOBIL OIL CORPORATION

CSC 45

(Under Section 805 of the Business Corporation Law)

Pursuant to the provisions of Section 805 of the Business Corporation Law, the undersigned President and Secretary, respectively, of Mobil Oil Corporation hereby certify:

FIRST: That the name of the corporation is **MOBIL OIL CORPORATION** and that said corporation was incorporated under the name of Standard Oil Company of New York.

SECOND: That the Certificate of Incorporation of the corporation was filed by the Department of State, Albany, New York, on the 10th day of August, 1882.

THIRD: That the amendments to the Certificate of Incorporation effected by this Certificate are as follows:

(a) Article 1st of the Certificate of Incorporation, relating to the corporate name, is hereby amended to read as follows:

"1st: The corporate name of said Company shall be, **ExxonMobil Oil Corporation**".

(b) Article 7th of the Certificate of Incorporation, relating to the office of the corporation is hereby amended to read as follows:

The office of the corporation within the State of New York is to be located in the County of Albany. The Company shall have offices at such other places as the Board of Directors may from time to time determine.

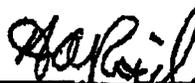
CSC
CSC

5184334741

06/01 '01 08:47 NO.410 04/05
06/01 '01 07:06 NO.133 03/04

FOURTH: That the amendments to the Certificate of Incorporation were authorized by the Board of Directors followed by the holder of all outstanding shares entitled to vote on amendments to the Certificate of Incorporation by written consent of the sole shareholder dated May 22, 2001.

IN WITNESS WHEREOF, this Certificate has been signed this 22nd Day of May, 2001.



F. A. Ritch, President 

STATE OF TEXAS)
COUNTY OF DALLAS)

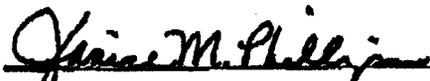
F. L. REID, being duly sworn, deposes and says that he is the Secretary of MOBIL OIL CORPORATION, the corporation mentioned and described in the foregoing instrument; that he has read and signed the same and that the statements contained therein are true.



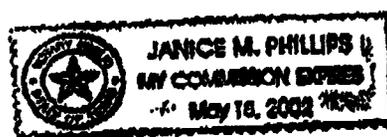
F. L. REID, Secretary

SUBSCRIBED AND SWORN TO before me, the undersigned authority, on this the 22nd day of May, 2001.

[SEAL]



NOTARY PUBLIC, STATE OF TEXAS



CSC
CSC

5184334741

06/01 '01 09:01 NO.411 02/02
06/01 '01 09:06 NO.152 04/04
F010601000187

CSC 45

CERTIFICATE OF AMENDMENT

OF

MOBIL OIL CORPORATION

Under Section 805 of the Business Corporation Law

SAC

100 cc
STATE OF NEW YORK
DEPARTMENT OF STATE

Filed by: EXXONMOBIL CORPORATION
(Name)

FILED JUN 01 2001

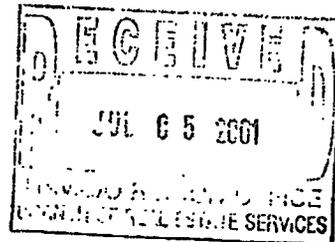
6949 Las Colinas Blvd.
(Mailing address)

TAX \$ _____
BY: *SAC*

Irving, TX 75039-2298
(City, State and Zip code)

ny Albany

Cost Ref # 165578 MPJ



010601000195

State of New York }
Department of State } ss:

I hereby certify that the annexed copy has been compared with the original document in the custody of the Secretary of State and that the same is a true copy of said original.

Witness my hand and seal of the Department of State on **JUN 01 2001**



A handwritten signature in black ink, appearing to read "J. H. ...", followed by a long horizontal line.

Special Deputy Secretary of State

Division of Oil, Gas and Mining
OPERATOR CHANGE WORKSHEET

ROUTING
1. DJJ
2. CDW

X Change of Operator (Well Sold)

Operator Name Change/Merger

The operator of the well(s) listed below has changed, effective: <u>6/1/2006</u>	
FROM: (Old Operator): N1855-ExxonMobil Oil Corporation PO Box 4358 Houston, TX 77210-4358 Phone: 1 (281) 654-1936	TO: (New Operator): N2700-Resolute Natural Resources Company 1675 Broadway, Suite 1950 Denver, CO 80202 Phone: 1 (303) 534-4600
CA No.	Unit: RATHERFORD

OPERATOR CHANGES DOCUMENTATION

Enter date after each listed item is completed

- (R649-8-10) Sundry or legal documentation was received from the **FORMER** operator on: 4/21/2006
- (R649-8-10) Sundry or legal documentation was received from the **NEW** operator on: 4/24/2006
- The new company was checked on the **Department of Commerce, Division of Corporations Database** on: 6/7/2006
- Is the new operator registered in the State of Utah: YES Business Number: 5733505-0143
- If **NO**, the operator was contacted on:
- (R649-9-2) Waste Management Plan has been received on: requested
- Inspections of LA PA state/fee well sites complete on: n/a
- Reports current for Production/Disposition & Sundries on: ok
- 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 n/a BIA not yet
- Federal and Indian Units:**
The BLM or BIA has approved the successor of unit operator for wells listed on: not yet
- Federal and Indian Communization Agreements ("CA"):**
The BLM or BIA has approved the operator for all wells listed within a CA on: n/a
- 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: 6/12/2006

DATA ENTRY:

- Changes entered in the **Oil and Gas Database** on: 6/22/2006
- Changes have been entered on the **Monthly Operator Change Spread Sheet** on: 6/22/2006
- Bond information entered in RBDMS on: n/a
- Fee/State wells attached to bond in RBDMS on: n/a
- Injection Projects to new operator in RBDMS on: 6/22/2006
- Receipt of Acceptance of Drilling Procedures for APD/New on: n/a

BOND VERIFICATION:

- Federal well(s) covered by Bond Number: n/a
- Indian well(s) covered by Bond Number: PA002769
- (R649-3-1) The **NEW** operator of any fee well(s) listed covered by Bond Number n/a
- 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:

- (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:

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.

1. TYPE OF WELL OIL WELL <input type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <u>Unit Agreement</u>		5. LEASE DESIGNATION AND SERIAL NUMBER: <u>See attached list</u>
2. NAME OF OPERATOR: <u>Resolute Natural Resources Company</u> <u>N2700</u>		6. IF INDIAN, ALLOTTEE OR TRIBE NAME: <u>Navajo Tribe</u>
3. ADDRESS OF OPERATOR: <u>1675 Broadway, Suite 1950</u> CITY <u>Denver</u> STATE <u>CO</u> ZIP <u>80202</u>		7. UNIT or CA AGREEMENT NAME: <u>Ratherford Unit</u>
4. LOCATION OF WELL FOOTAGES AT SURFACE: <u>See attached list</u>		8. WELL NAME and NUMBER: <u>See attached list</u>
QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: _____		9. API NUMBER: <u>Attached</u>
COUNTY: <u>San Juan</u>		10. FIELD AND POOL, OR WILDCAT: <u>Greater Aneth</u>
STATE: <u>UTAH</u>		

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

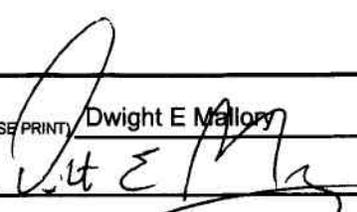
TYPE OF SUBMISSION	TYPE OF ACTION		
<input type="checkbox"/> NOTICE OF INTENT (Submit in Duplicate) Approximate date work will start: _____	<input type="checkbox"/> ACIDIZE	<input type="checkbox"/> DEEPEN	<input type="checkbox"/> REPERFORATE CURRENT FORMATION
	<input type="checkbox"/> ALTER CASING	<input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

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

Effective June 1, 2006 Exxon Mobil Oil Corporation resigns as operator of the Ratherford Unit. Also effective June 1, 2006 Resolute Natural Resources Company is designated as successor operator of the Ratherford Unit.

A list of affected producing and water source wells is attached. A separate of affected injection wells is being submitted with UIC Form 5, Transfer of Authority to Inject.

As of the effective date, bond coverage for the affected wells will transfer to BIA Bond # PA002769.

NAME (PLEASE PRINT) <u>Dwight E Mallory</u>	TITLE <u>Regulatory Coordinator</u>
SIGNATURE 	DATE <u>4/20/2006</u>

(This space for State use only)

APPROVED 6127106
Earlene Russell
Division of Oil, Gas and Mining
Earlene Russell, Engineering Technician

RECEIVED
APR 24 2006
DIV. OF OIL, GAS & MINING

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.

1. TYPE OF WELL OIL WELL <input checked="" type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER _____		5. LEASE DESIGNATION AND SERIAL NUMBER:
2. NAME OF OPERATOR: ExxonMobil Oil Corporation N1855		6. IF INDIAN, ALLOTTEE OR TRIBE NAME: Ship Rock
3. ADDRESS OF OPERATOR: P.O. Box 4358 CITY Houston STATE TX ZIP 77210-4358		7. UNIT or CA AGREEMENT NAME: UTU68931A
4. LOCATION OF WELL FOOTAGES AT SURFACE: QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:		8. WELL NAME and NUMBER: Ratherford 9. API NUMBER: attached
		10. FIELD AND POOL, OR WILDCAT: Aneth
		COUNTY: San Juan
		STATE: UTAH

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

TYPE OF SUBMISSION	TYPE OF ACTION		
<input checked="" type="checkbox"/> NOTICE OF INTENT (Submit in Duplicate) Approximate date work will start: <u>6/1/2006</u>	<input type="checkbox"/> ACIDIZE	<input type="checkbox"/> DEEPEN	<input type="checkbox"/> REPERFORATE CURRENT FORMATION
	<input type="checkbox"/> ALTER CASING	<input type="checkbox"/> FRACTURE TREAT	<input type="checkbox"/> SIDETRACK TO REPAIR WELL
<input type="checkbox"/> SUBSEQUENT REPORT (Submit Original Form Only) Date of work completion: _____	<input type="checkbox"/> CASING REPAIR	<input type="checkbox"/> NEW CONSTRUCTION	<input type="checkbox"/> TEMPORARILY ABANDON
	<input type="checkbox"/> CHANGE TO PREVIOUS PLANS	<input checked="" type="checkbox"/> OPERATOR CHANGE	<input type="checkbox"/> TUBING REPAIR
	<input type="checkbox"/> CHANGE TUBING	<input type="checkbox"/> PLUG AND ABANDON	<input type="checkbox"/> VENT OR FLARE
	<input type="checkbox"/> CHANGE WELL NAME	<input type="checkbox"/> PLUG BACK	<input type="checkbox"/> WATER DISPOSAL
	<input type="checkbox"/> CHANGE WELL STATUS	<input type="checkbox"/> PRODUCTION (START/RESUME)	<input type="checkbox"/> WATER SHUT-OFF
	<input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS	<input type="checkbox"/> RECLAMATION OF WELL SITE	<input type="checkbox"/> OTHER: _____
	<input type="checkbox"/> CONVERT WELL TYPE	<input type="checkbox"/> RECOMPLETE - DIFFERENT FORMATION	

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

ExxonMobil Oil Corporation is transferring operatorship of Greater Aneth field, Ratherford lease to Resolute Natural Resources Company. All change of operator notices should be made effective as of 7:00 AM MST on June 1, 2006.

Attached please find a listing of producers and water source wells included in the transfer.

NAME (PLEASE PRINT) <u>Laurie Kilbride</u>	TITLE <u>Permitting Supervisor</u>
SIGNATURE	DATE <u>4/19/2006</u>

(This space for State use only) **APPROVED** 6/13/06
Earlene Russell
Division of Oil, Gas and Mining
Earlene Russell, Engineering Technician

RECEIVED
APR 21 2006
DIV. OF OIL, GAS & MINING

Ratherford Unit - Producer Well List

minus P&A's

Lease	Number	API #	Status	Lease #	Location					
					Sec	T	R	QTR/QTR	NSFoot	EWFoot
Ratherford	01-14	430373116200S1	Producing	1420603246A	1	41S	23E	SWSW	0660FSL	0660FWL
Ratherford	01-34	430371638501S1	SI	1420603246A	1	41S	23E	SWSE	1133FSL	1980FEL
Ratherford	11-41	430373154400S1	Producing	1420603246A	11	41S	23E	NENE	0860FNL	0350FEL
Ratherford	11-43	430373162201S1	Producing	1420603246A	11	41S	23E	NESE	1980FSL	0660FEL
Ratherford	12-12	430373119000S1	Producing	1420603246A	12	41S	23E	SWNW	1850FNL	0660FWL
Ratherford	12-14	430371584400S1	SI	1420603246A	12	41S	23E	SWSW	0660FSL	4622FEL
Ratherford	12-21	430373120100S1	Producing	1420603246A	12	41S	23E	NENW	0660FNL	1980FWL
Ratherford	12-23	430371584601S1	Producing	1420603246A	12	41S	23E	NESW	1958FSL	3300FEL
Ratherford	12-32	430373120300S1	Producing	1420603246A	12	41S	23E	SWNE	1820FNL	1820FEL
Ratherford	12-34	430373112600S1	Producing	1420603246A	12	41S	23E	SWSE	0675FSL	1905FEL
Ratherford	12-43	430373120200S1	SI	1420603246A	12	41S	23E	NESE	2100FSL	0660FEL
Ratherford	13-12	430373112701S1	Producing	1420603247A	13	41S	23E	SWNW	1705FNL	0640FWL
Ratherford	13-14	430373158900S1	Producing	1420603247A	13	41S	23E	SWSW	0660FSL	0660FWL
Ratherford	13-21	430373112801S1	SI	1420603247A	13	41S	23E	NENW	0660FNL	1920FWL
Ratherford	13-23	430373112900S1	Producing	1420603247A	13	41S	23E	NESW	1980FSL	1930FWL
Ratherford	13-34	430373113001S1	Producing	1420603247A	13	41S	23E	SWSE	0660FSL	1980FEL
Ratherford	13-41	430371585601S1	Producing	1420603247A	13	41S	23E	NENE	660FNL	660FEL
Ratherford	13-43	430373113100S1	Producing	1420603247A	13	41S	23E	NESE	1700FSL	0960FEL
Ratherford	14-32	430371585801S1	Producing	1420603247A	14	41S	23E	SWNE	2130FNL	1830FEL
Ratherford	14-41	430373162300S1	Producing	1420603247A	14	41S	23E	NENE	0521FNL	0810FEL
Ratherford	24-32	430373159300S1	Producing	1420603247A	24	41S	23E	SWNE	2121FNL	1846FEL
Ratherford	24-41	430373113200S1	Producing	1420603247A	24	41S	23E	NENE	0660FNL	0710FEL
Ratherford	17-11	430373116900S1	Producing	1420603353	17	41S	24E	NWNW	1075FNL	0800FWL
Ratherford	17-13	430373113301S1	Producing	1420603353	17	41S	24E	NWSW	2100FSL	0660FWL
Ratherford	17-22	430373117001S1	Producing	1420603353	17	41S	24E	SENW	1882FNL	1910FWL
Ratherford	17-24	430373104400S1	Producing	1420603353	17	41S	24E	SESW	0720FSL	1980FWL
Ratherford	17-31	430373117800S1	Producing	1420603353	17	41S	24E	NWNE	0500FNL	1980FEL
Ratherford	17-33	430373113400S1	Producing	1420603353	17	41S	24E	NWSE	1980FSL	1845FEL
Ratherford	17-42	430373117700S1	Producing	1420603353	17	41S	24E	SENE	1980FNL	0660FEL
Ratherford	17-44	430371573201S1	Producing	1420603353	17	41S	24E	SESE	0660FSL	0660FEL
Ratherford	18-11	430371573300S1	SI	1420603353	18	41S	24E	NWNW	0720FNL	0730FWL
Ratherford	18-13	430371573401S1	Producing	1420603353	18	41S	24E	NWSW	1980FSL	0500FWL
Ratherford	18-22	430373123600S1	Producing	1420603353	18	41S	24E	SENW	2200FNL	2210FWL
Ratherford	18-24	430373107900S1	Producing	1420603353	18	41S	24E	SESW	0760FSL	1980FWL
Ratherford	18-31	430373118101S1	Producing	1420603353	18	41S	24E	NWNE	0795FNL	2090FEL
Ratherford	18-33	430373113501S1	Producing	1420603353	18	41S	24E	NWSE	1870FSL	1980FEL
Ratherford	18-42	430373118200S1	Producing	1420603353	18	41S	24E	SENE	2120FNL	0745FEL
Ratherford	18-44	430373104500S1	SI	1420603353	18	41S	24E	SESE	0660FSL	0660FEL
Ratherford	19-11	430373108000S1	Producing	1420603353	19	41S	24E	NWNW	0660FNL	0660FWL
Ratherford	19-13	430373171900S1	Producing	1420603353	19	41S	24E	NWSW	1980FSL	0660FWL
Ratherford	19-22	430373104601S1	Producing	1420603353	19	41S	24E	SENW	1840FNL	1980FWL
Ratherford	19-24	430373175401S1	Producing	1420603353	19	41S	24E	SESW	0600FSL	1980FWL
Ratherford	19-31	430373104701S1	Producing	1420603353	19	41S	24E	NWNE	510FNL	1980FEL
Ratherford	19-33	430373104800S1	Producing	1420603353	19	41S	24E	NWSE	1980FSL	1980FEL
Ratherford	19-42	430373091600S1	Producing	1420603353	19	41S	24E	SENE	1880FNL	0660FEL
Ratherford	19-44	430373108100S1	Producing	1420603353	19	41S	24E	SESE	0660FSL	0660FEL
Ratherford	19-97	430373159600S1	Producing	1420603353	19	41S	24E	SENE	2562FNL	0030FEL
Ratherford	20-11	430373104900S1	Producing	1420603353	20	41S	24E	NWNW	0500FNL	0660FWL
Ratherford	20-13	430373091700S1	Producing	1420603353	20	41S	24E	NWSW	2140FSL	0500FWL
Ratherford	20-22	430373093000S1	Producing	1420603353	20	41S	24E	SENW	2020FNL	2090FWL
Ratherford	20-24	430373091800S1	Producing	1420603353	20	41S	24E	SESW	0820FSL	1820FWL

Ratherford Unit - Producer Well List

minus P&A's

Lease	Number	API #	Status	Lease #	Location					
					Sec	T	R	QTR/QTR	NSFoot	EWFoot
Ratherford	20-31	430373105001S1	Producing	1420603353	20	41S	24E	NWNE	0660FNL	1880FEL
Ratherford	20-33	430373093100S1	Producing	1420603353	20	41S	24E	NWSE	1910FSL	2140FEL
Ratherford	20-42	430373105100S1	Producing	1420603353	20	41S	24E	SENE	1980FNL	0660FEL
Ratherford	20-44	430373091501S1	Producing	1420603353	20	41S	24E	SESE	0620FSL	0760FEL
Ratherford	20-66	430373159201S1	Producing	1420603353	20	41S	24E	SWNW	1369FNL	1221FWL
Ratherford	20-68	430373159100S1	Producing	1420603353	20	41S	24E	NWSW	1615FSL	1276FWL
Ratherford	15-12	430371571501S1	Producing	1420603355	15	41S	24E	SWNW	1820FNL	0500FWL
Ratherford	15-22	430373044900S1	SI	1420603355	15	41S	24E	SENE	1980FNL	2050FWL
Ratherford	15-32	430371571700S1	Producing	1420603355	15	41S	24E	SWNE	1980FNL	1980FEL
Ratherford	15-33	430371571800S1	Producing	1420603355	15	41S	24E	NWSE	1650FSL	1980FEL
Ratherford	15-41	430371571900S1	TA	1420603355	15	41S	24E	NENE	0660FNL	0660FEL
Ratherford	15-42	430373044800S1	Producing	1420603355	15	41S	24E	SENE	2020FNL	0820FEL
Ratherford	16-13	430373116801S1	Producing	1420603355	16	41S	24E	NWSW	1980FSL	660FWL
Ratherford	16-32	430371572300S1	Producing	1420603355	16	41S	24E	SWNE	1980FNL	1980FEL
Ratherford	16-41	430371572500S1	Producing	1420603355	16	41S	24E	NENE	0660FNL	0660FEL
Ratherford	16-77	430373176800S1	Producing	1420603355	16	41S	24E	NESW	2587FSL	2410FWL
Ratherford	21-23	430371375400S1	Producing	1420603355	21	41S	24E	NESW	1740FSL	1740FWL
Ratherford	21-24	430373172001S1	SI	1420603355	21	41S	24E	SESW	487FSL	2064FWL
Ratherford	21-32	430371575500S1	SI	1420603355	21	41S	24E	SWNE	1880FNL	1980FEL
Ratherford	21-77	430373175801S1	SI	1420603355	21	41S	24E	NWSE	2511FSL	2446FEL
Ratherford	07-11	430373116300S1	Producing	1420603368	7	41S	24E	NWNW	0660FNL	0710FWL
Ratherford	07-13	430373116400S1	Producing	1420603368	7	41S	24E	NWSW	2110FSL	0740FWL
Ratherford	07-22	430373116500S1	Producing	1420603368	7	41S	24E	SENE	1980FNL	1980FWL
Ratherford	07-24	430373116600S1	Producing	1420603368	7	41S	24E	SESW	0880FSL	2414FWL
Ratherford	07-44	430373118900S1	SI	1420603368	7	41S	24E	SESE	0737FSL	0555FEL
Ratherford	08-12	430371599100S1	Producing	1420603368	8	41S	24E	SWNW	1909FNL	0520FWL
Ratherford	08-21	430371599300S1	Producing	1420603368	8	41S	24E	NENW	0616FNL	1911FWL
Ratherford	08-23	430371599400S1	Producing	1420603368	8	41S	24E	NESW	1920FSL	2055FWL
Ratherford	08-32	430371599500S1	Producing	1420603368	8	41S	24E	SWNE	1980FNL	1980FEL
Ratherford	08-34	430371599600S1	Producing	1420603368	8	41S	24E	SWSE	0660FSL	1980FEL
Ratherford	04-34	430371616400S1	Producing	14206034035	4	41S	24E	SWSE	0660FSL	1980FEL
Ratherford	11-14	430371616700S1	Producing	14206034037	11	41S	24E	SWSW	0660FSL	0660FWL
Ratherford	09-34	430371571100S1	SI	14206034043	9	41S	24E	SWSE	0660FSL	1980FEL
Ratherford	10-12	430371571200S1	Producing	14206034043	10	41S	24E	SWNW	1980FNL	0660FWL
Ratherford	10-14	430371571300S1	Producing	14206034043	10	41S	24E	SWSW	0510FSL	0710FWL
Ratherford	10-32	430371571400S1	TA	14206034043	10	41S	24E	SWNE	2080FNL	1910FEL
Ratherford	10-44	430373045100S1	TA	14206034043	10	41S	24E	SESE	0820FSL	0510FEL
Ratherford	29-11	430373105300S1	Producing	1420603407	29	41S	24E	NWNW	0770FNL	0585FWL
Ratherford	29-22	430373108200S1	Producing	1420603407	29	41S	24E	SENE	2130FNL	1370FWL
Ratherford	29-31	430373091401S1	Producing	1420603407	29	41S	24E	NWNE	0700FNL	2140FEL
Ratherford	29-33	430373093200S1	SI	1420603407	29	41S	24E	NWSE	1860FSL	1820FEL
Ratherford	29-34	430371534000S1	SI	1420603407	29	41S	24E	SWSE	0817FSL	2096FEL
Ratherford	29-42	430373093700S1	SI	1420603407	29	41S	24E	SENE	1850FNL	0660FEL
Ratherford	30-32	430371534200S1	Producing	1420603407	30	41S	24E	SWNE	1975FNL	2010FEL
Ratherford	28-11	430373044600S1	Producing	1420603409	28	41S	24E	NWNW	0520FNL	0620FWL

Ratherford Unit - Producer Well List

minus P&A's

Lease	Number	API #	Status	Lease #	Location					
					Sec	T	R	QTR/QTR	NSFoot	EWFoot
Ratherford	09-12	430371512600S1	Producing	14206035045	9	41S	24E	SWNW	1865FNL	0780FWL
Ratherford	09-14	430371512700S1	Producing	14206035046	9	41S	24E	SWSW	0695FSL	0695FWL
Ratherford	04-14	430371616300S1	Producing	14206035446	4	41S	24E	SWSW	0500FSL	0660FWL
Ratherford	03-12	430371562000S1	Producing	14206036506	3	41S	24E	SWNW	2140FNL	0660FWL

Water Source Wells (Feb 2006)

RU	S1	4303700001	Active
RU	S2	4303700002	Active
RU	S3	4303700003	Active
RU	S4	4303700004	Active
RU	S5	4303700005	Active
RU	S6	4303700006	Active
RU	S7	4303700007	Active
RU	S8	4303700008	Active
RU	S9	4303700009	Active
RU	S10	4303700010	Active
RU	S11	4303700011	Active
RU	S12	4303700012	Active
RU	S13	4303700013	Active
RU	S14	4303700014	Active
RU	S16	4303700016	Active
RU	S17	4303700017	Active