

**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 SINGLE ZONE MULTIPLE ZONE

2. NAME OF OPERATOR
 Phillips Oil Company

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

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*)
 At surface 660' FNL, 1880' FEL (NW NE)
 At proposed prod. zone same

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

15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any)
 1880' West of Ratherford Unit Lease Line

18. DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.
 1220' West of #20-41

21. ELEVATIONS (Show whether DF, RT, GR, etc.)
 4755' ungraded ground

23. 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'	800 sx (Circ. to surface)
8-1/2"	7"	23#, & 26#	5700'	1000 sx est. (T.O.C. approx 2,000)

Approval is requested to drill Ratherford Unit #20-31, a Desert Creek Development oil well, to increase the ultimate recovery from the Ratherford Unit.

BOP equipment will be operated daily and tested weekly.

RECEIVED

JUL 23 1984

DIVISION OF OIL
GAS & MINING

**APPROVED BY THE STATE
OF UTAH DIVISION OF
OIL, GAS, AND MINING
DATE: 7/27/84
BY: John R. 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 July 16, 1984
 (This space for Federal or State office use)

PERMIT NO. _____ APPROVAL DATE _____

APPROVED BY _____ TITLE _____ DATE _____
 CONDITIONS OF APPROVAL, IF ANY:
 5-BLM, Farmington, NM 1-Chevron - Denver
 2-Utah O&GCC-S.L.C., Utah 1-Superior - Denver
 1-LeRoy Williamson (r) T.C. Doughty 1-Texaco - Denver
 1- G.W. Berk **See Instructions On Reverse Side**
 1-J.R. Weichbrodt Form 9-331C & Location Plat Only-B.C. Conner
 1-File R.M. Coffelt, P. J. Adamson

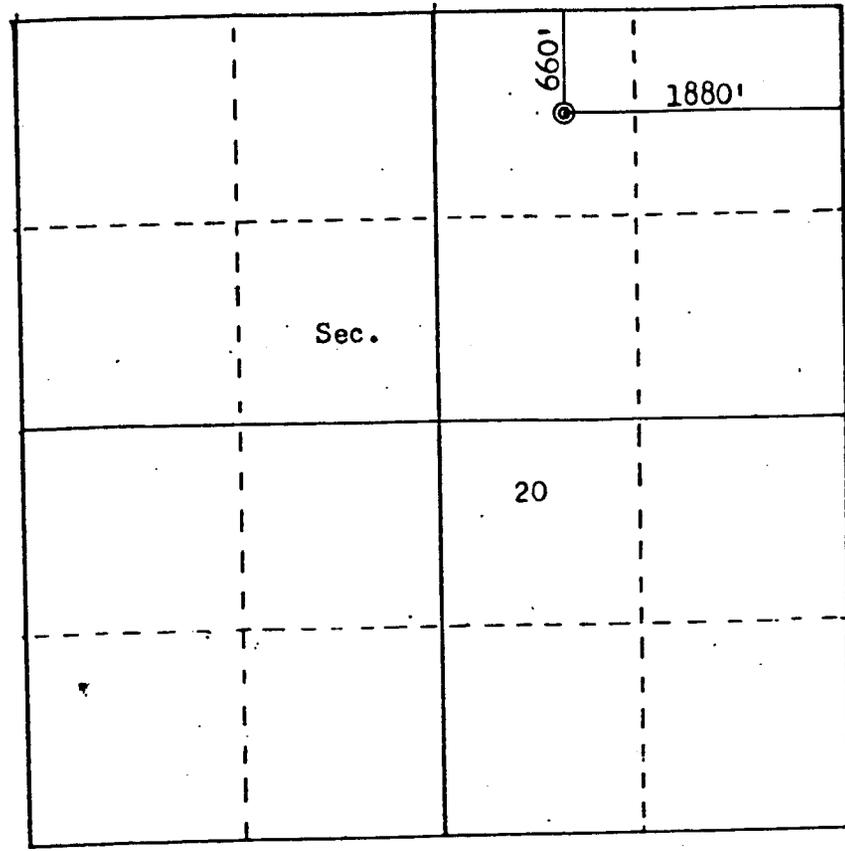
COMPANY PHILLIPS OIL COMPANY

LEASE RATHERFORD UNIT WELL NO. 20-31

SEC. 20, T. 41S, R. 24E
San Juan County, Utah

LOCATION 660'FNL, 1880'FEL

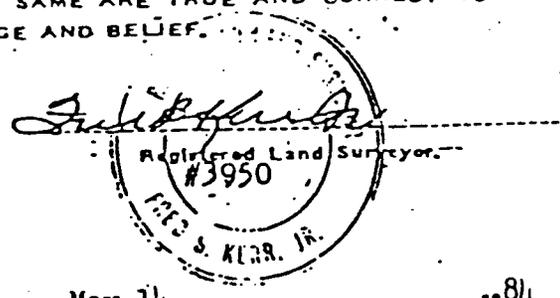
ELEVATION 4755 ungraded ground



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 11 1984

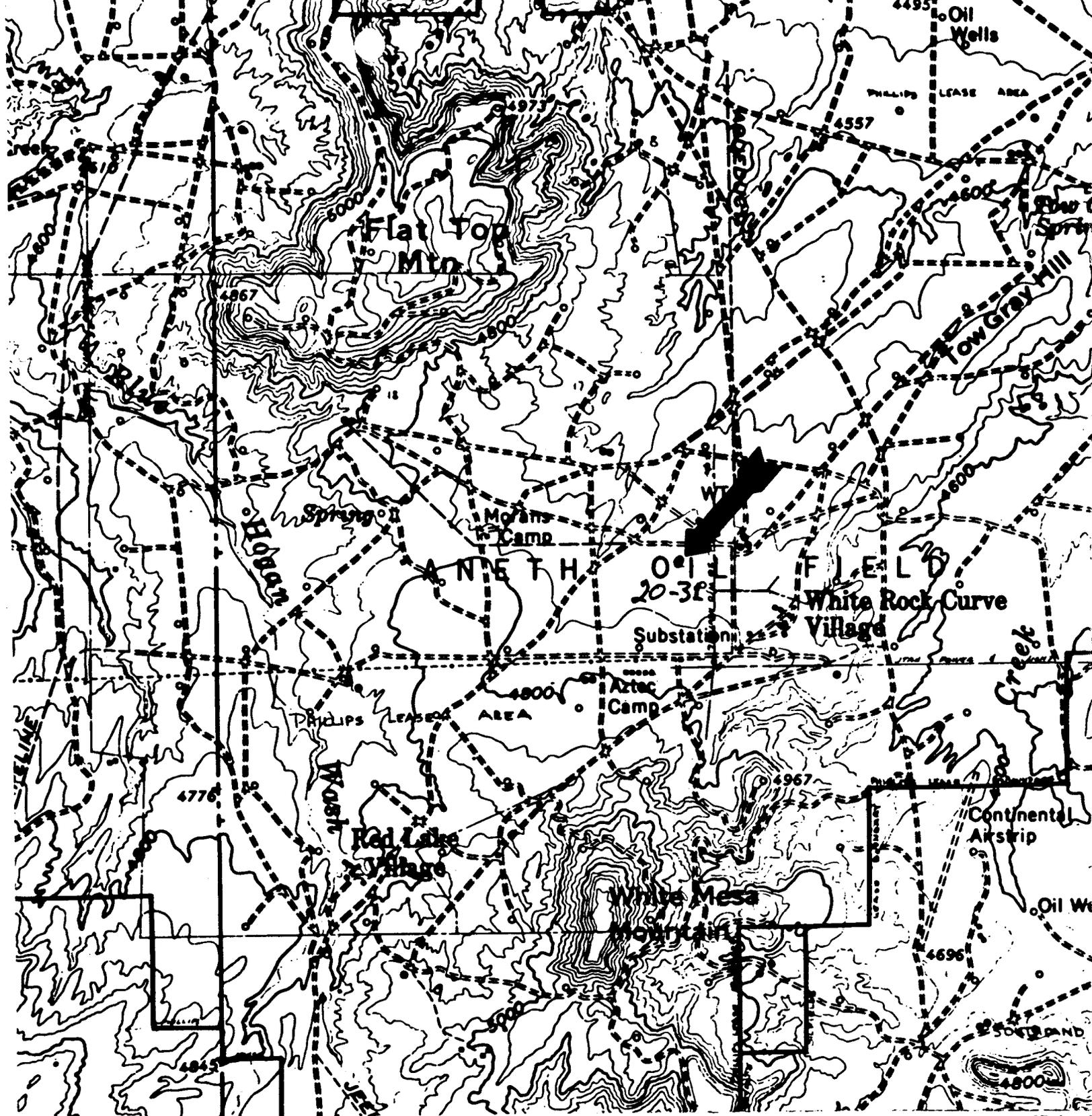
- #20-31 - MI Completion Unit 11/19/84. Drld out to PBTD 5621'. Perforated 5613-5617, 4 SPF, 4" HSC gun, 16 shots, 5586-5608', 2 SPF, 4" HSC gun, 44 shots, 5546-5568', 2 SPF, 4" HSC gun, 44 shots. Acidized 5613-17' w/600 gal 28% FE Acid, 5586-5608' w/2300 gal acid, 5546-5568' w/150 gal/ft acid. Set 2-7/8" tbg at 5446'. Completed as a flowing oil well 11/24/84 from Desert Creek Zone I perfs 5546-5617' with a final test of 157 BOPD, 63 MCFGPD, 193 BWPD.
- #21-11 - RURT 11/29/84. Spudded 12-1/4" hole at 10:45 p.m., 11/29/84, Drld to 1545'. As of 11/30/84 - Drlg at 1545'.
- #29-11 - RURT 11/6/84. Spudded 12-1/4" hole at 6:30 p.m., 11/6/84, Drld to 1610'. Set 9-5/8" csg at 1610', cmtd w/700 sx Class B. No cmt returns. Run 1" down backside, cmtd w/100 sx Class B neat. Drld 8-3/4" hole to 5613'. Core #1 5613-5668', cut 55', rec 53.4'. Core #2 5684-5744', cut & rec 60'. Core #3 5716-5726', cut & rec 10'. TD 5726', 11/27/84. Set 7" csg at 5720', cmtd w/700 sx Class B. Full returns. Released Rig at 6:00 a.m., 11/29/84. As of 11/30/84 - Waiting on completion unit.

Respectfully Submitted,

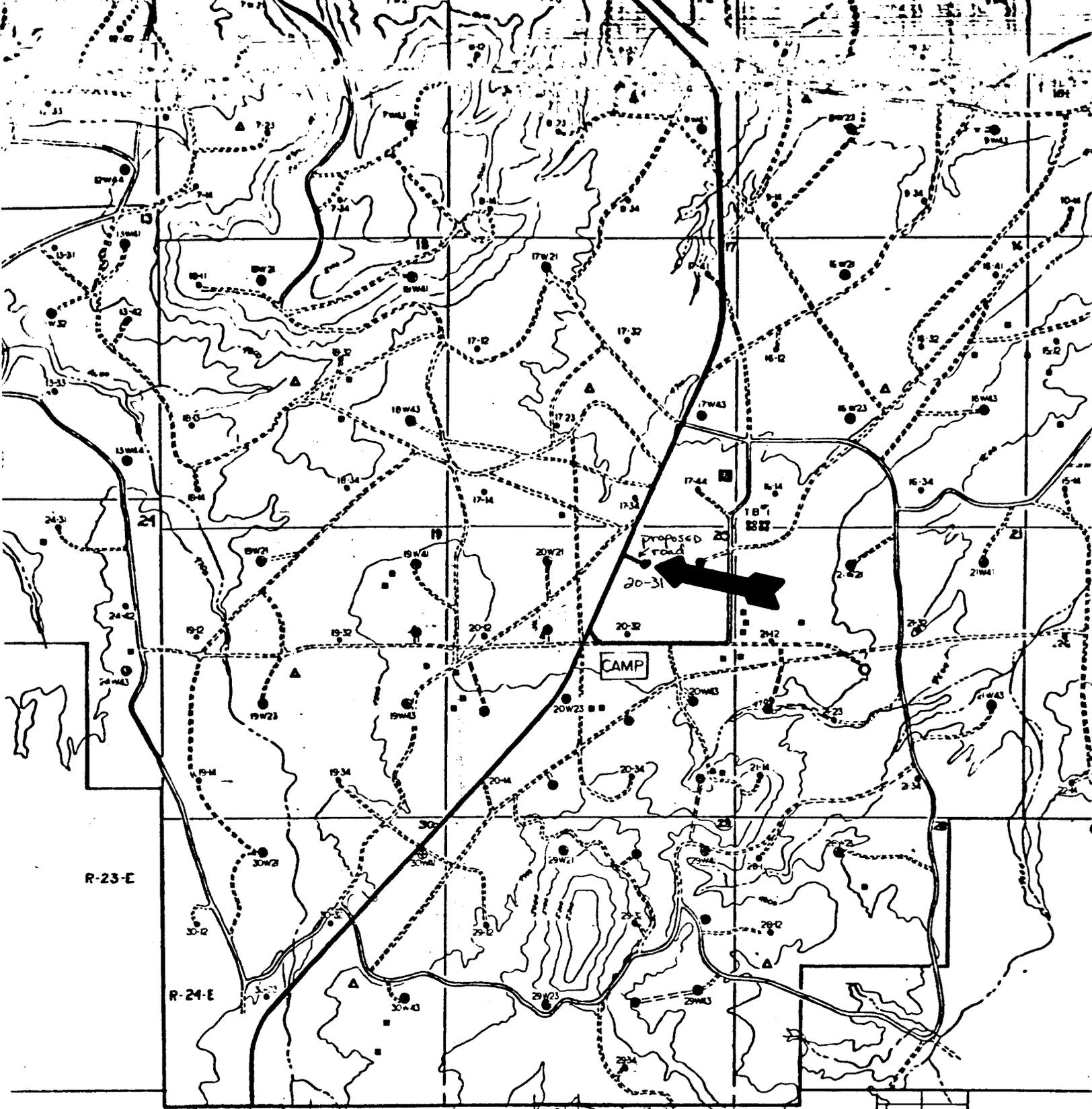
PHILLIPS OIL COMPANY


A. E. Stuart
Area Manager

PJA/fb (11)
Attachment
Casper RC



NO.	REVISION	BY	DATE	CHKD	APP'D
FOR BIDS	PHILLIPS PETROLEUM COMPANY			JA NO.	FILE CODE
FOR APPR	BARTLESVILLE, OKLAHOMA			AFE NO.	SCALE
FOR CONST	RATHERFORD UNIT WELL 20-31			DWG NO.	202 ^N /1/16
DRAWN 3-13-84 BJM	NW NE SEC 20 T41S-R24E			SH NO.	
CHECKED	SAN JUAN CO., UTAH				
APP'D					



NO.	REVISION	BY	DATE	CHKD	APP'D
FOR BIDS	 PHILLIPS PETROLEUM COMPANY BARTLESVILLE, OKLAHOMA		JA NO.	FILE CODE	
FOR APPR			AFE NO.	SCALE 20' = 1 mi	
FOR CONST			DWG NO.	SH NO.	
DRAWN 3-13-54 BJM	RATHERFORD UNIT WELL 20-31 PROPOSED ROAD PLAT NW NE SEC 20 T41S-R24E SAN JUAN CO., UTAH				
CHECKED					
APP'D					

RATHERFORD UNIT #20-31

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:

Chinle	1505'
Shinarump	2330'
DeChelly	2630'
Hermosa	4555'
Desert Creek Zone I	5530'

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

2. Surface casing:

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

3. Production casing:

5700' 7" 23# & 26#/ft K-55 ST&C new
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 400 sks "light" cement followed with 400 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 DILL from T.D. to the surface casing, and a FDC/CNL with G.R. and caliper from T.D. to 4300'. The caliper will be pulled to surface casing. 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 as soon as BLM approval is received. 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 south 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 access roads are 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 #1, located in the SW SW Sec. 16-T41S-R24E 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 unlined 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 unlined 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: The top 10 inches of topsoil will be removed and stockpiled. 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. The topsoil will be distributed evenly over the area and seeded in accordance with BLM requirements.
- c. Producing Well: Those areas not needed for production purposes will be recontoured to the surrounding topography. The topsoil will be distributed evenly over those areas not needed for production. Seeding will be in accordance with BLM requirements.

- d. Pipelines and flowlines: Flowlines will be above ground and follow 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

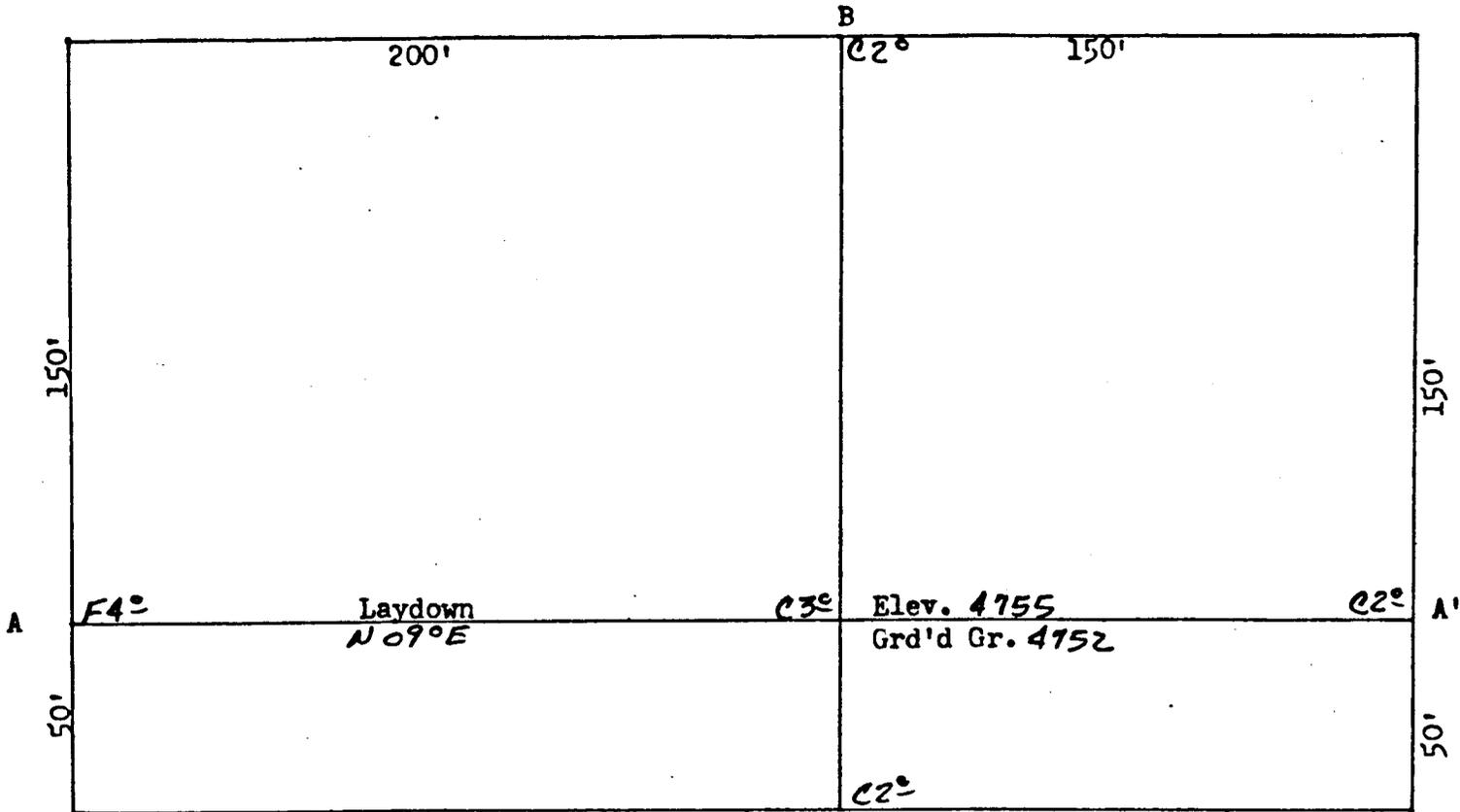
I hereby certify that I or persons under my direct supervision have inspected the proposed drill site and access route; and I am familiar with the conditions which currently exist; that the statements made in this plan are to the best of my knowledge true and correct; and that the work associated with 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 July 19, 1984

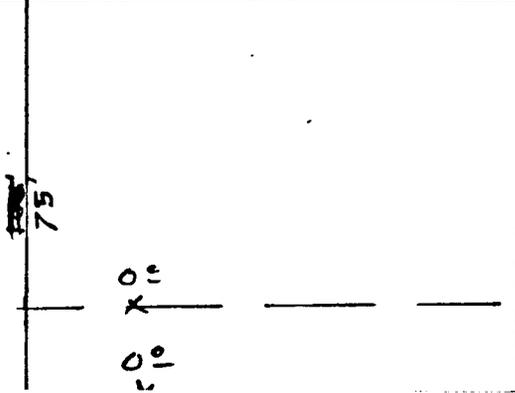

A. E. Stuart
Area Manager

BJM/fb (18)
Casper - RC

Profile for
 PHILLIPS OIL COMPANY #20-31 RATHERFORD UNIT
 660'FNL 1880'FEL Sec. 20-T41S-R24E
 SAN JUAN COUNTY, UTAH



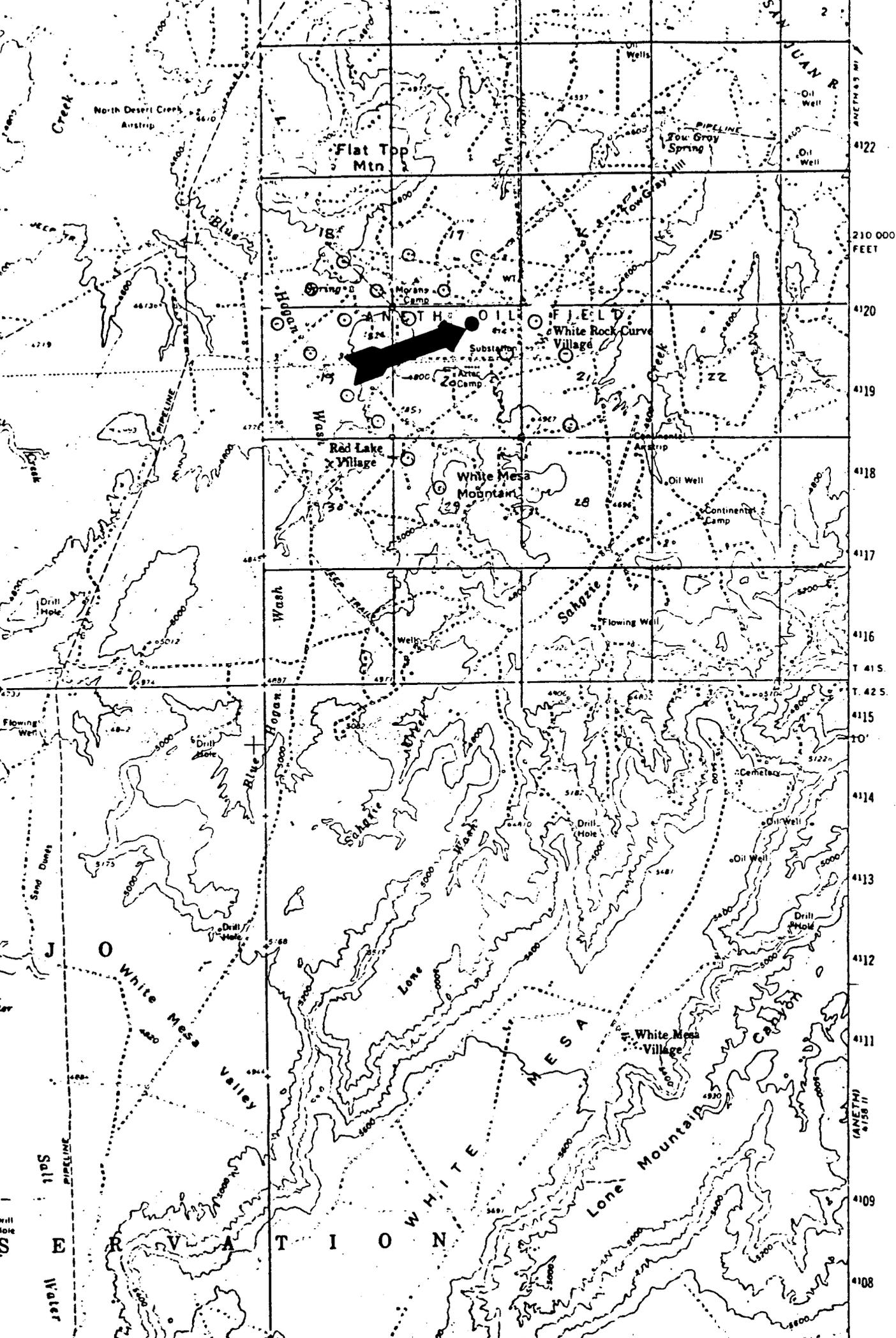
Scale: 1"=50'



WHITE MESA VILLAGE QUADRANGLE
UTAH
15 MINUTE SERIES (TOPOGRAPHIC)

11° 11' CAJON MESA

45 46 R 23 E 20 48 R 24 E MONTEZUMA CREEK 2 9 MI 51 52 53 2 650 000 FEET 109° 15' 37' 15"



Vicinity Map for
PHILLIPS OIL COMPANY #20-31 RATHERFORD UNIT
660'FNL 1880'FEL Sec. 20-T41S-R24E
SAN JUAN COUNTY, UTAH

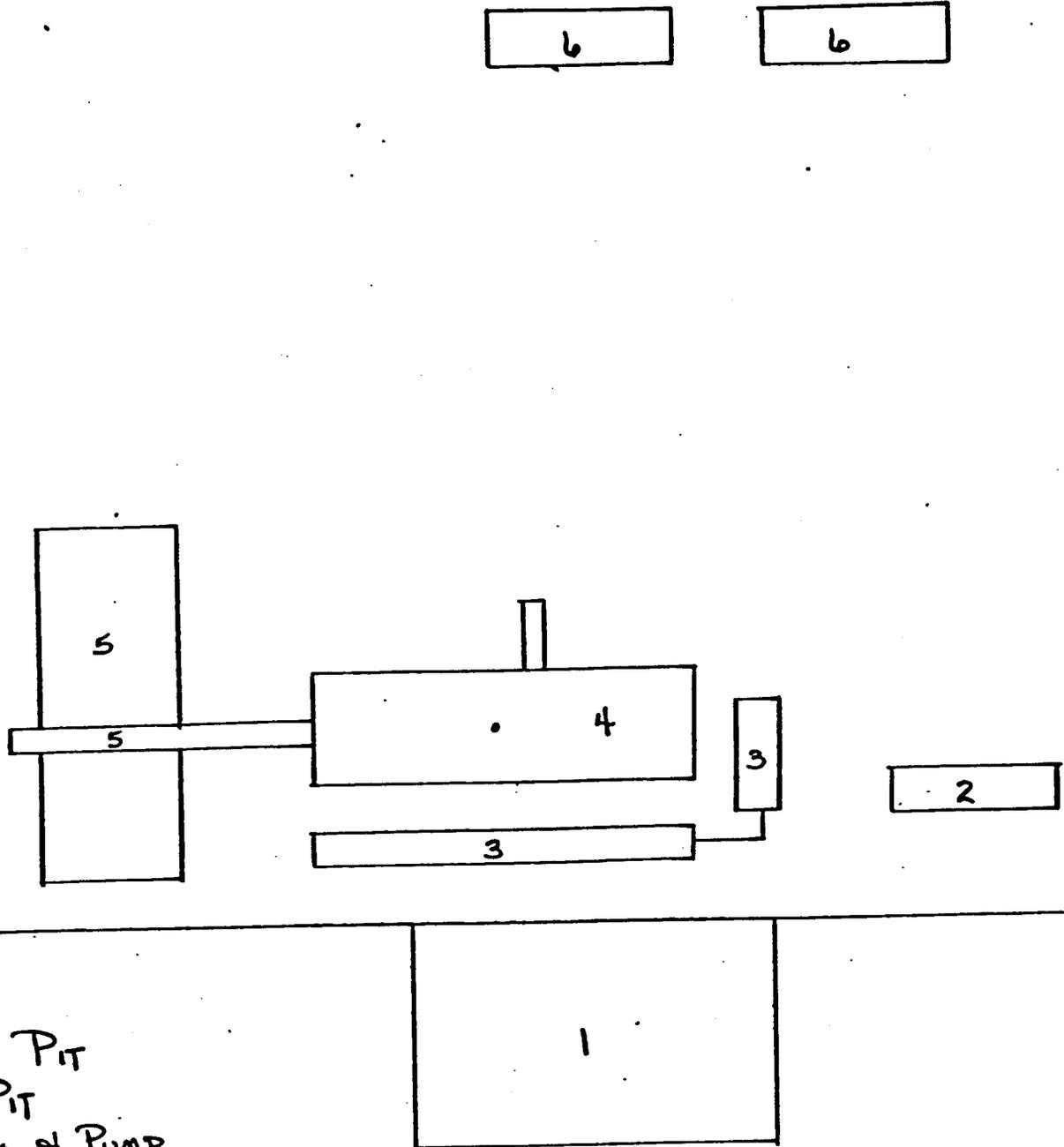
A
Drill Hole

T 43 S
5



RATHERFORD UNIT # 20-31

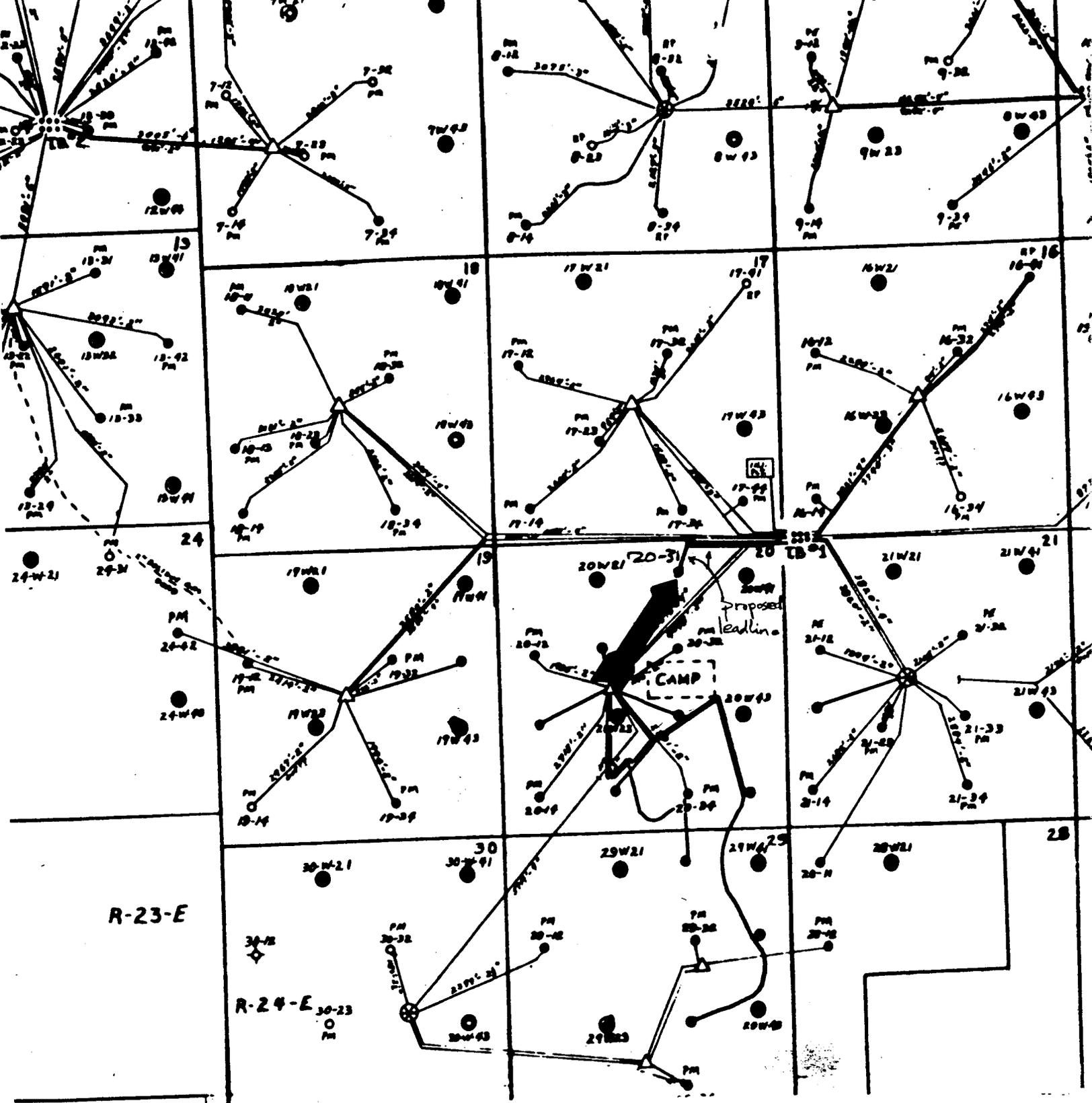
NW NE SEC. 20 T41S-R24E



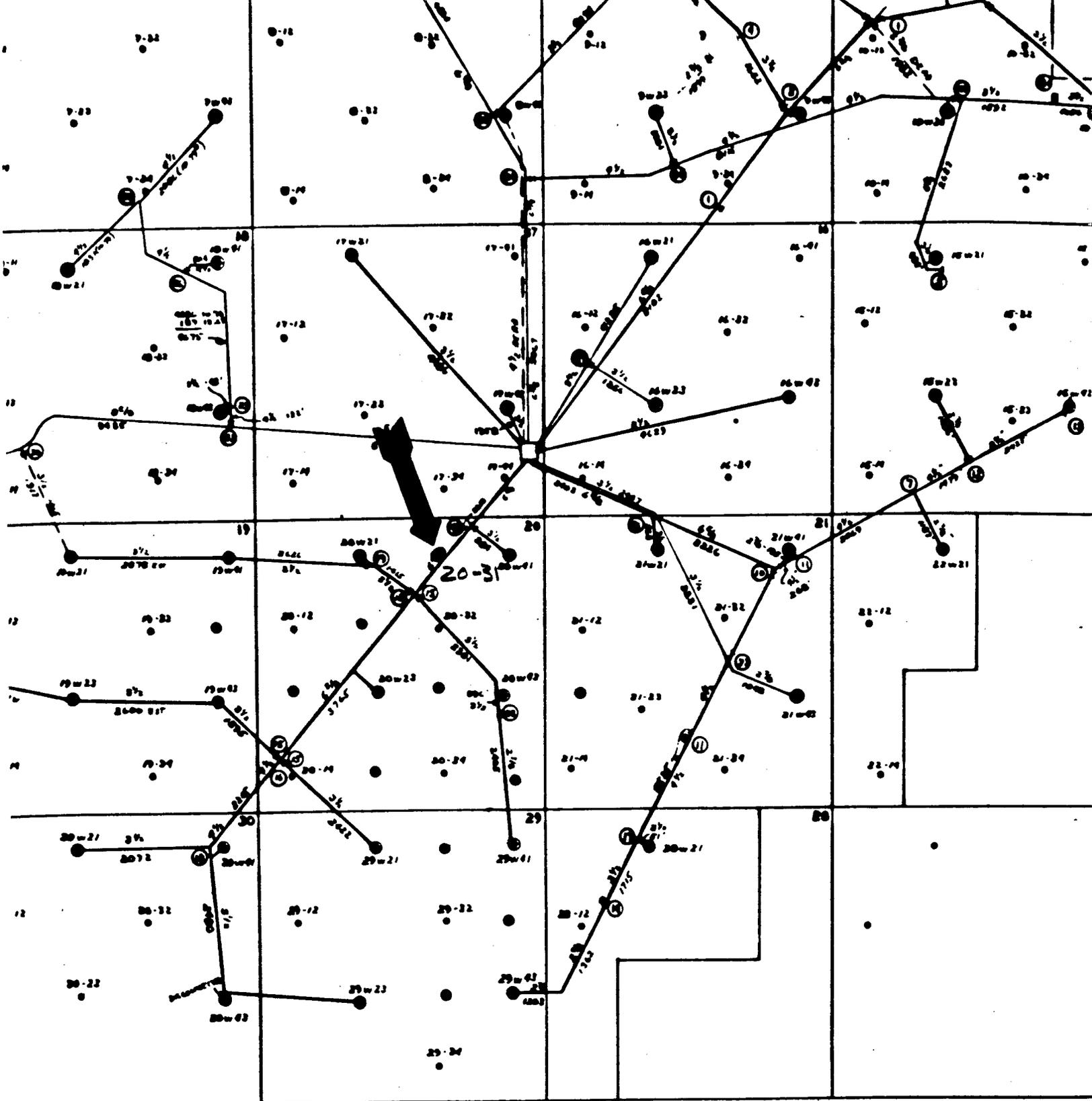
1. RESERVE PIT
2. TRASH PIT
3. CIR. PITS & PUMP
4. RIG
5. CAT WALK & PIPE RACKS
6. TRAILERS

DRILLING RIG LAYOUT

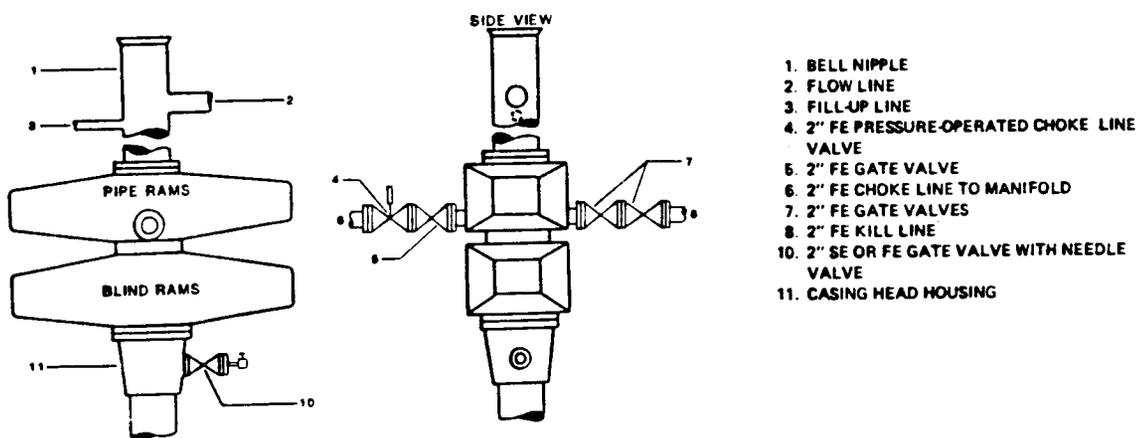
OUTLINE OF LOCATION APPROXIMATELY 275' x 350'
NOT TO SCALE.



1		Relocation of leadline		BJM		7-6-84			
NO.		REVISION		BY	DATE	CHKD	APP'D		
FOR BIDS		 PHILLIPS PETROLEUM COMPANY BARTLESVILLE, OKLAHOMA				JA NO.	FILE CODE		
FOR APPR						DATE NO.	SCALE		
FOR CONST		RATHERFORD UNIT WELLS 20-31 PROPOSED LEADLINE PLAT NW NE SEC 20 T41S-R24E SAN JUAN CO., UTAH		DWG NO.					
DRAWN	3-13-84	BJM		SH NO.					
CHECKED									
APP'D									



NO.	REVISION	BY	DATE	CHKD	APP'D	
FOR BIDS	<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;"> PHILLIPS PETROLEUM COMPANY BARTLESVILLE, OKLAHOMA </div> </div>				JA NO.	FILE CODE
FOR APPR					AFE NO.	SCALE 2.2" = 1 mi
FOR CONST					DWG NO.	SH NO.
DRAWN 7-6-84 BJM	RATHERFORD UNIT WELL 20-31 INJECTION LINES NW NE SEC. 20 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



Page 251
Section II

FIELD PRACTICES AND STANDARDS

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.



FIELD PRACTICES AND STANDARDS

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.



FIELD PRACTICES AND STANDARD

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.



FIELD PRACTICES AND STANDARDS

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

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



Scale 1: 250,000

Report 84-SJC-071A

Project Location

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

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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, graded 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:

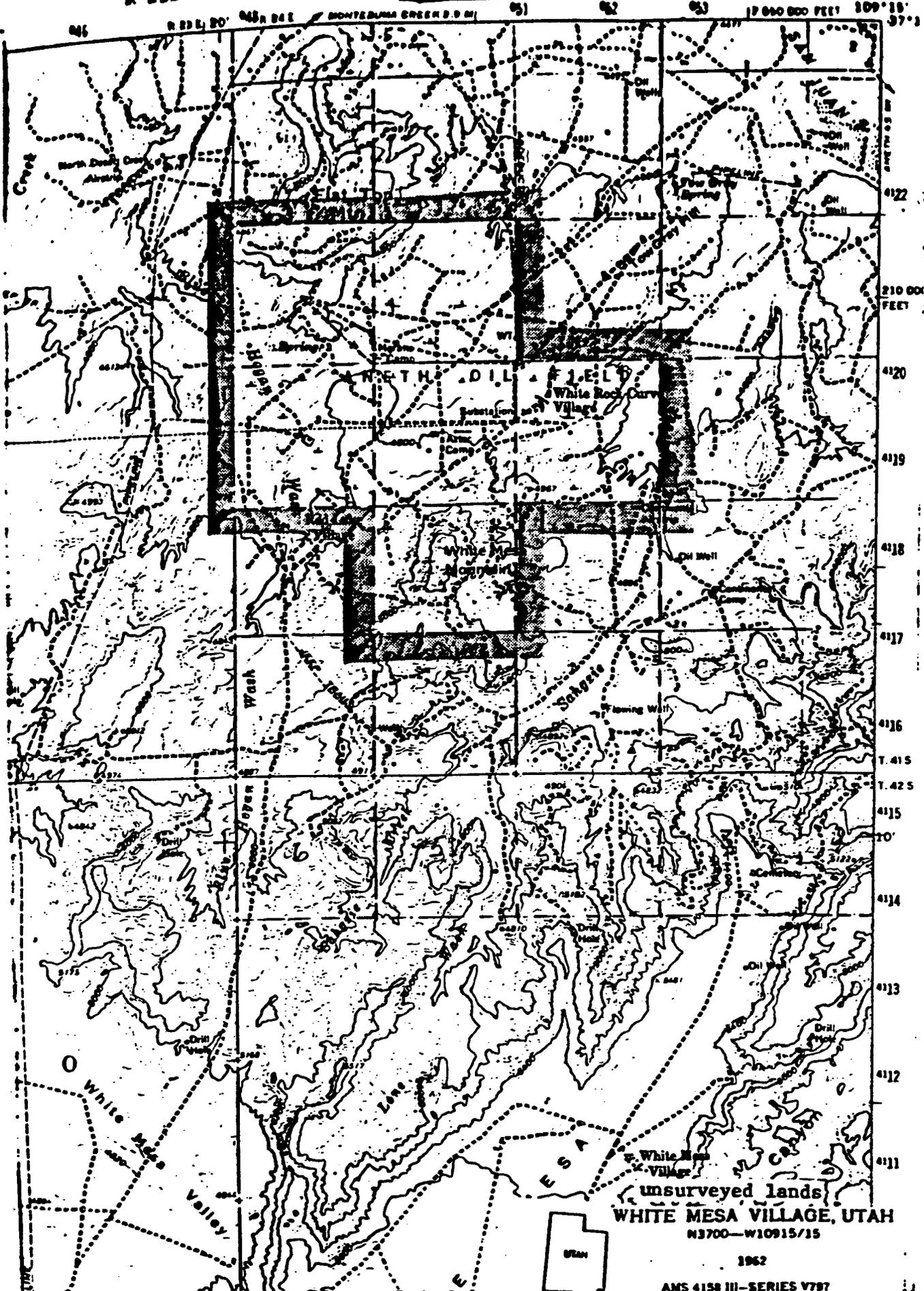
This zone is confined to the northern slopes of White Mesa Mountain. Terrain is broken and eroded with a slope of up to 32%. Soils are poorly developed and include locally sandy, shallow soils on narrow benches and clayey soils with bentonite deposits in badland formations. Sandstone outcrops and exposed 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

24E



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

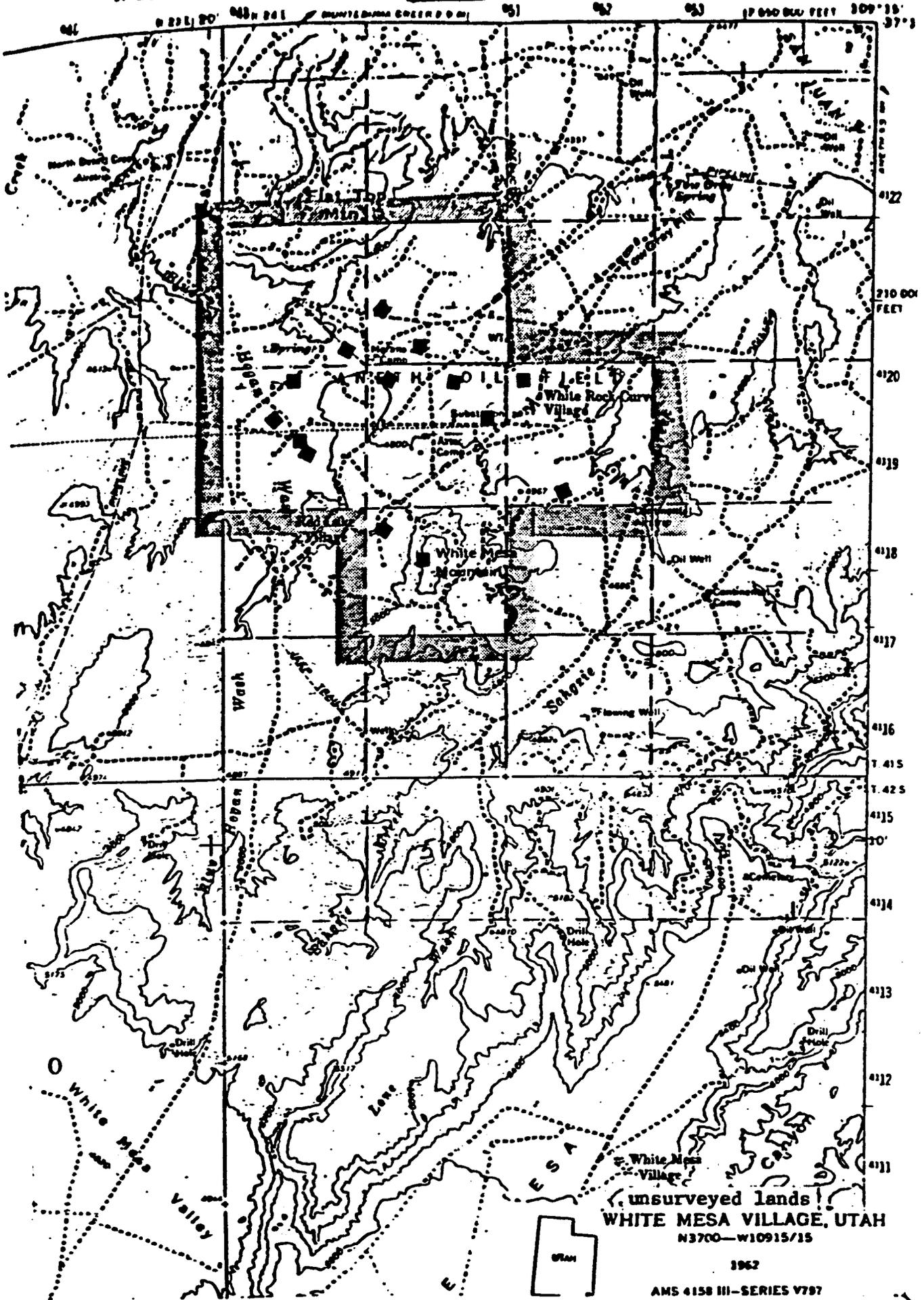


1962
 AMS 4158 III-SERIES V797

FIGURE 1
 Report 84-SJC-071A

R 23E

R 24E



T 41S
T 42S

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

1962

AMS 4158 III-SERIES V797

■ proposed wells

FIGURE 2
Report 84-SJC-071A

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.

Proposed Well: Ratherford Unit 20-31 (Figure 7)

Land Jurisdiction: Navajo Nation

Legal Description: The proposed well is located in the Center of the NW 1/4 of the NE 1/4 of Section 20, T. 41 S., R. 24 E., S.L.P.M., San Juan County, Utah. The center stake is 660 feet from the north line and 1,880 feet from the east line. The flow line will run from the well through the Center of the North 1/2 of the NW 1/4 of the NE 1/4, and eastward along the southern edge of a section line road between Sections 17 and 20.

Elevation: 1,450 meters (4,755 feet)

UTM Coordinates: Well = Zone 12; 650,620 mE; 4,119,685 mN.
Flow Line Turn = Zone 12; 650,600 mE; 4,119,900 mN.
E-O-L = Zone 12; 651,225 mE; 4,119,905 mN.

Access: Existing to west.

Actual Project Area: Well = 107 m. x 107 m. (350' x 350')
Flow Line = 3 m. x 702 m. (10' x 2,300')
TOTAL: 1.3 hectares (3.3 acres)

Actual Survey Area: 137 m. x 137 m. (450' x 450')
7.6 m. x 702 m. (25' x 2,300')
TOTAL: 2.4 hectares (6.0 acres)

Physiography and Environment:

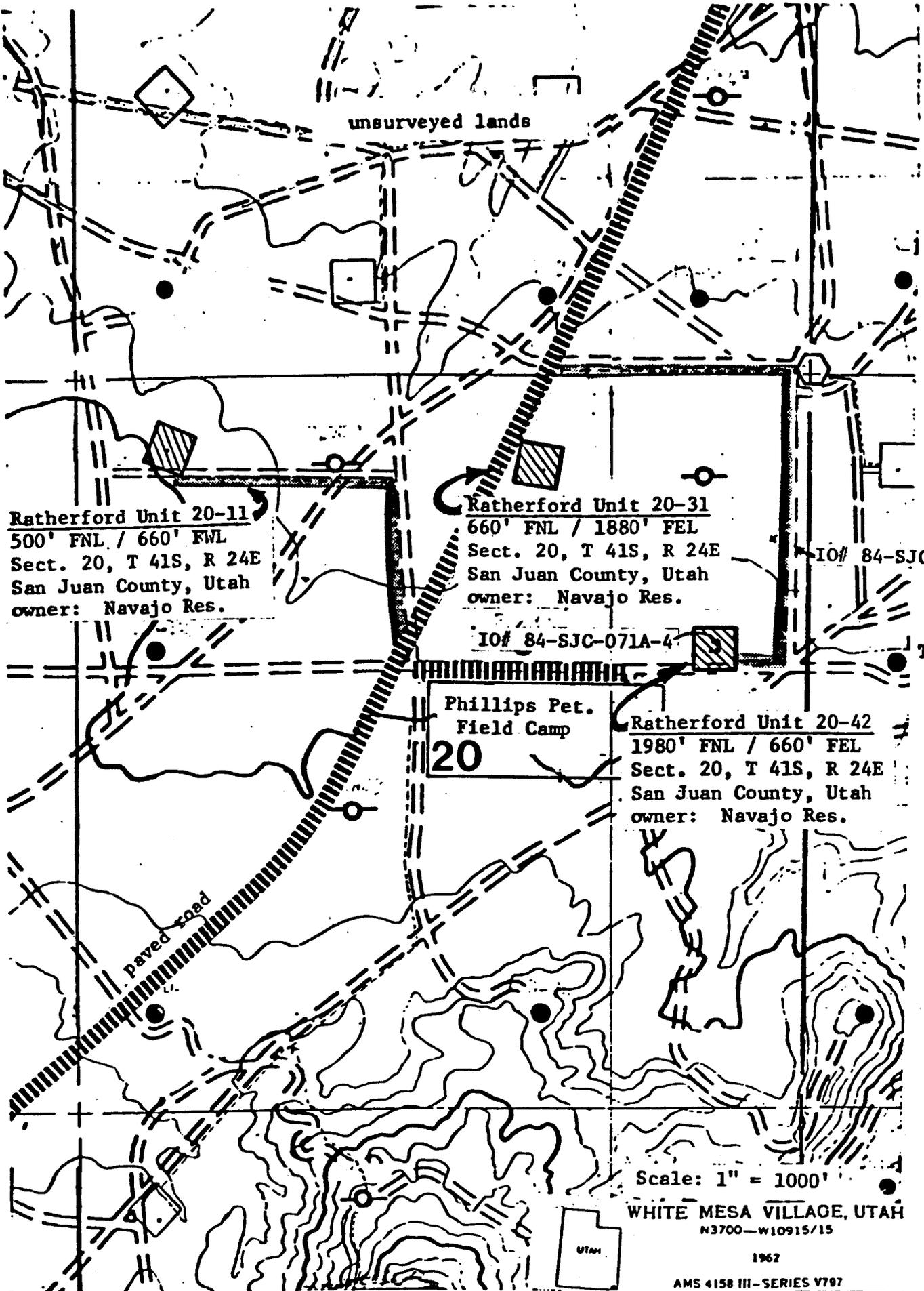
The project area is located in Zone C. The flow line parallels a paved road for most of its length.

Cultural Resources:

None.

Recommendations:

Archaeological clearance is recommended for the project area.



Ratherford Unit 20-11
 500' FNL / 660' FWL
 Sect. 20, T 41S, R 24E
 San Juan County, Utah
 owner: Navajo Res.

Ratherford Unit 20-31
 660' FNL / 1880' FEL
 Sect. 20, T 41S, R 24E
 San Juan County, Utah
 owner: Navajo Res.

IO# 84-SJC-071A-5

IO# 84-SJC-071A-4

T 41S

Phillips Pet.
 Field Camp
 20

Ratherford Unit 20-42
 1980' FNL / 660' FEL
 Sect. 20, T 41S, R 24E
 San Juan County, Utah
 owner: Navajo Res.

paved road

Scale: 1" = 1000'

WHITE MESA VILLAGE, UTAH
 N3700-W10915/15

1962

AMS 4158 III-SERIES V797

 proposed well
 proposed flow line

FIGURE 7
 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.

BIBLIOGRAPHY

- Fike, Richard E. and LaMar W. Lindsay
1976 Archaeological Survey of the Bluff Bench/San Juan River and White Mesa Areas, San Juan County, Utah, 1973-1974. In Antiquities Section Selected Papers Volume III, Numbers 9-11, Pgs. 1-23. Salt Lake City: Utah State Historical Society, Department of Development Services, Division of State History.
- Hewett, Nancy S., Margaret A. Powers and Meade F. Kemrer
1979 An Archaeological Survey and Evaluation of Resources Along the San Juan River Near Aneth, Utah. Division of Conservation Archaeology, Contributions to Anthropology Series 46.
- Langenfeld, Kristin
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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- Martin, Rena
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 7-26-84

WELL NAME Rutherford Unit #20-31

SEC NWNE 20 T. 41S R 24E COUNTY San Juan

43-037-31050
API NUMBER

Lease
TYPE OF LEASE

POSTING CHECK OFF:

<input type="checkbox"/>	INDEX	<input type="checkbox"/>	HL	<input type="checkbox"/>
<input type="checkbox"/>	NID	<input type="checkbox"/>	PI	<input type="checkbox"/>
<input type="checkbox"/>	MAP	<input type="checkbox"/>		<input type="checkbox"/>

PROCESSING COMMENTS:

Unit Well - & on P.O.D.
Need water

APPROVAL LETTER:

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

c-3-b c-3-c

SPECIAL LANGUAGE:

1- Water

RECONCILE WELL NAME AND LOCATION ON APD AGAINST SAME DATA ON PLAT MAP.

AUTHENTICATE LEASE AND OPERATOR INFORMATION

VERIFY ADEQUATE AND PROPER BONDING

AUTHENTICATE IF SITE IS IN A NAMED FIELD, ETC.

APPLY SPACING CONSIDERATION

ORDER _____

UNIT Rathford

c-3-b

c-3-c

CHECK DISTANCE TO NEAREST WELL.

CHECK OUTSTANDING OR OVERDUE REPORTS FOR OPERATOR'S OTHER WELLS.

IF POTASH DESIGNATED AREA, SPECIAL LANGUAGE ON APPROVAL LETTER

IF IN OIL SHALE DESIGNATED AREA, SPECIAL APPROVAL LANGUAGE.

July 27, 1984

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

RE: Well No. Ratherford Unit 20-31
NWNE Sec. 20, T. 41S, R. 24E
660' FNL, 1880' FEL
San Juan County, Utah

Gentlemen:

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:

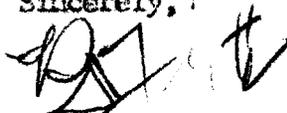
1. Spudding notification to the Division within 24 hours after drilling operations commence.
2. Submittal to the Division of completed Form OGC-8-X, Report of Water Encountered During Drilling.
3. Prompt notification to the Division should you determine that it is necessary to plug and abandon this well. Notify John R. Baza, Petroleum Engineer, (Office) (801) 533-5771, (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.

Page 2
Phillips Oil Company
Well No. Rutherford Unit 20-31
July 27, 1984

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 43-037-31050.

Sincerely,



R. J. Firth
Associate Director, Oil & Gas

RJF/as

cc: Branch of Fluid Minerals
Bureau of Indian Affairs

Enclosures

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUBMIT IN DUPLICATE

(See instructions on reverse side)

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

2

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. REVR. Other _____

2. NAME OF OPERATOR
Phillips Oil Company

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

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)*
At surface 660' FNL & 1880' FEL, NW NE
At top prod. interval reported below
At total depth

API #43-037-31050

14. PERMIT NO. 43 037-31050
DATE ISSUED 7-27-84

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.
20-31
10. FIELD AND POOL, OR WILDCAT
Greater Aneth
11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA
Sec. 20-T41S-R24E
12. COUNTY OR PARISH
San Juan
13. STATE
Utah

15. DATE SPUDDED 10/15/84
16. DATE T.D. REACHED 10/20/84
17. DATE COMPL. (Ready to prod.) 11/24/84
18. ELEVATIONS (DF, RKB, RT, GR, ETC.)* Graded GR 4752', RKB 4765'
19. ELEV. CASINGHEAD --

20. TOTAL DEPTH, MD & TVD 5635'
21. PLUG, BACK T.D., MD & TVD 5621'
22. IF MULTIPLE COMPL., HOW MANY* --
23. INTERVALS DRILLED BY --
ROTARY TOOLS 10 - 5635'
CABLE TOOLS --

24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)*
5546' - 5617' Desert Creek Zone I
25. WAS DIRECTIONAL SURVEY MADE
No

26. TYPE ELECTRIC AND OTHER LOGS RUN
DLL, Micro Log, Fo/Rxo Log, CDL/N
27. WAS WELL CORRED
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"	54.5#	120'	17-1/2"	177 cu.ft. Class "B"	--
9-5/8"	36#	1600'	12-1/4"	1079 cu.ft. Class B, cmtd thru 1" w/59 cu.ft. Class "B".	--
7"	23# & 26#	5635'	8-3/4"	1504 cu.ft. Class "B"	--

29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	BACKS CEMENT*	SCREEN (MD)	SIZE	DEPTH SET (MD)	PACKER SET (MD)
--	--	--	--	--	2-7/8"	5446'	--

31. PERFORATION RECORD (Interval, size and number)

5613-5617', 4 SPF, 4" HSC Gun, 16 shots
5586-5608', 2 SPF, 4" HSC Gun, 44 shots
5546-5568', 2 SPF, 4" HSC Gun, 44 shots

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

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
5613-5617' -	Sptd w/600 gal 28% FE Acid
w/ 2-1/2 gal/1000	1000 HC-2, 4 gal/1000 Lo-Surf 259
and 2 gal/1000	HAI-60.

(CONTINUED ON BACK)

33. PRODUCTION

DATE FIRST PRODUCTION	PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump)	WELL STATUS (Producing or shut-in)					
11/24/84	Swabbing	Producing					
DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FOR TEST PERIOD	OIL—BBL.	GAS—MCF.	WATER—BBL.	GAS-OIL RATIO
12/6/84	9-1/2	--	→	62.2	25 Est	76.4	401
FLOW. TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE	OIL—BBL.	GAS—MCF.	WATER—BBL.	OIL GRAVITY-API (CORR.)	
--	--	→	157	63 Est	193	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 A. E. Stuart TITLE Area Manager DATE December 7, 1984

SEE BACK FOR DIST. *(See Instructions and Spaces for Additional Data on Reverse Side)

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

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 CONTINUED NO. 32 -	TOP INTERVAL	BOTTOM MATERIAL USED	DESCRIPTION, CONTENTS, ETC.	GEOLOGIC MARKERS	
				NAME	TOP MEAS. DEPTH TRUE VERT. DEPTH
	5586-5608'	- Load tbg w/28% FE Acid w/2 gal/1000 HAI-60, 4 gal/1000 Lo-Surf 259. Break down w/50 gal acid/ft. Pump in 2300 gal acid. Drop 66, 1.1 sp grav, ball sealers evenly spaced throughout acid. Flushed w/40 bbls lease w/1.		Shinarump DeChelly Hermosa Desert Creek	LOG TOPS 2314' 2630' 4552' 5543'
	5546-5568'	- Break down w/150 gal/ft. of 28% FE Acid, w/2-1/2 gal/1000 HQ-2, 4 gal/1000 Lo-Surf 259, 2 gal/1000 HAI-60.			
4 - BLM, Farmington, NM 2 - Utah D&G CC, Salt Lake City, UT 1 - The Navajo Nation, Window Rock, AZ 1 - B. A. Conner, B'Ville 1 - L. R. Williamson, Denver 1 - R. M. Coffelt, Denver 1 - D. L. Fraser, Denver 1 - O. G. Poling, Denver 1 - WI Owners 1 - P. J. Adamson 1 - File RC					

38.



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

February 8, 1985

Phillips Oil Company
P O Box 2920
Casper, Wyoming 82602

Gentlemen:

Re: Well No. Ratherford Unit 20-31 - Sec. 20 T. 41S., R. 24E
San Juan County, Utah - API #43-037-31050

According to our records a "Well Completion Report" filed with this office December 7, 1984 on the above referred to well indicates the following electric logs were run: DLL and Micro Log. This office has not yet received these logs.

Please take care of this matter as soon as possible, but not later than March 7, 1985.

Your cooperation in this matter is appreciated.

Sincerely,

A handwritten signature in cursive script that reads "Claudia L. Jones".

Claudia L. Jones
Well Records Specialist

cc: Dianne R. Nielson
Ronald J. Firth
John R. Baza
File
0087S/35



PHILLIPS OIL COMPANY
A SUBSIDIARY OF PHILLIPS PETROLEUM COMPANY

DENVER, COLORADO 80237-2898
8055 EAST TUFTS AVENUE PARKWAY

RECEIVED

FEB 25 1985

DIVISION OF OIL
GAS & MINING

43-037-31050

DATA TRANSMITTAL February 20, 1985

TO: State of Utah
Natural Resources
4241 State Office Bldg.
Salt Lake City, Utah
84114
attn: Claudia L. Jones

RE: Phillips
Ratnerford Unit # 20-31
Sec 20-415 24E
San Juan county, Utah

ENCLOSED PLEASE FIND COPIES OF THE FOLLOWING:

1. Approved Well Permit
2. Core Analysis/Core Description
3. DST Chart/DST Report # _____
4. Fluid Analysis (Gas, Water, Oil)
5. Geological Prognosis and Drilling Program
6. Geological Well Report
7. Survey Plat
8. Well Completion Report
9. Well History
10. Well Permit Application
11. 1ea LOGS (Field Prints) see below RUN # 1 DATE: 10-21-84
12. LOGS (Final Prints) _____ RUN # _____ DATE: _____

contact caliper

comp. density dual spaced neutron

dual guard poroso

PLEASE ACKNOWLEDGE RECEIPT BY SIGNING AND RETURNING THE ENCLOSED COPY TO THE ABOVE ADDRESS. THANK YOU.

R.M. Coffelt
R. M. Coffelt
Manager, Geological Development
Western Division

*Clean signed
& returned
2/25/85 - Rm*

RECEIVED BY: _____
EGD.P36-2

DATE: _____

Mobil Oil Corporation

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

May 14, 1986

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

RECEIVED
MAY 16 1986

DIVISION OF
OIL, GAS & MINING

Attn: R. J. Firth
Associate Director

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIP
(Other instruction
verse side)

DATE
re

Form approved.
Budget Bureau No. 1004-0135
Expires August 31, 1985

3. 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.

#20-31

10. FIELD AND POOL, OR WILDCAT

Greater Aneth

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

Sec. 20, T41S, R24E

12. COUNTY OR PARISH 13. STATE

San Juan Utah

SUNDRY NOTICES AND REPORTS ON WELLS

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

APPROVED
JUN 10 1988

1. OIL WELL GAS WELL OTHER

2. NAME OF OPERATOR

Phillips Petroleum Company

3. ADDRESS OF OPERATOR

P. O. Box 1150, Cortez, CO 81321

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

1840' FNL. 1980' FWL

14. PERMIT NO.

43-307-31050

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

4769' RKB

COPY

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

NOTICE OF INTENTION TO:

TEST WATER SHUT-OFF

PULL OR ALTER CASING

MULTIPLE COMPLETE

ABANDON*

CHANGE PLANS

SUBSEQUENT REPORT OF:

WATER SHUT-OFF

FRACTURE 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.)

Approval was requested and received 5/23/88 (per telephone communication between Kenny Howell of Farmington BLM and Clarke A. Denney of Phillips Petroleum Company, Cortez, CO) to perforate and acidize the Ismay formation in Ratherford Unit Well #20-31.

Subject well will be acidized with 2000 gal HCl 28% in the Desert Creek Zone I. A retrievable bridge plug will then be used to isolate the Ismay during perforating/acidizing operations. New perforations (Ismay) will be from 5496' - 5518' and from 5522' - 5528', 4 shots per foot. The Ismay will be acidized with 3000 gal 28% HCl (100 gal./ft.).

COPY

- 4-BLM
- 2-Utah O & G
- 1-M. Williams, Bartlesville
- 1-R. J. Rundt (r) Engineering
- 1-D. C. Gill (r) Denver Files
- 1-Cortez Office - RC
- 1-Texaco, U.S.A., Casper, WY

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

SIGNED

J. Reno

TITLE District Superintendent DATE 6/6/88

(This space for Federal or State office use)

APPROVED BY

CONDITIONS OF APPROVAL, IF ANY:

ACCEPTED BY THE STATE

OF UTAH DIVISION OF OIL, GAS, AND MINING

DATE: 6-16-88

J. R. Bay

Federal approval of this activity is required before commencing operations

*See Instructions on Reverse Side

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

SUNDRY NOTICES AND REPORTS ON WELLS

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

SUBMIT IN TRIPLICATE

JUL 29 1991

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
SW-I-4192

8. Well Name and No.
Ratherford Unit #20-31

9. API Well No.
43-037-31050

10. Field and Pool, or Exploratory Area
Greater Aneth

11. County or Parish, State
San Juan, Utah

1. Type of Well
 Oil Well Gas Well Other

2. Name of Operator
Phillips Petroleum Company

3. Address and Telephone No.
5525 Hwy 64 NBU 3004, Farmington, NM 87401 (505) 599-3412

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
660' FNL & 1880' FEL Unit B
Sec. 20, T41S, R24E

DIVISION OF
OIL GAS & MINING

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 type="checkbox"/> Other _____
	<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.)*

6-6-88 thru 6-7-88

The Ratherford Unit #20-31 was perforated on 6/6/88. Ismay perforated as follows: 5522'-5527'; 5510'-5514'; 5497'-5505' with 4/spf.

The well was acidized on 6/7/88 as follows: 2500 gal 28% HCl gelled acid.

Production After Perforated/Acidized

	BOPD	BWPD
6/17	125	8

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

Signed [Signature] Title Sr. Drlg. & Prod. Engr. Date 7-22-91
ROBINSON

(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

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			Producing Zone	Well Status	Days Oper	Production Volumes		
API Number	Entry	Location				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

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

SUNDRY NOTICES AND REPORTS ON WELLS <small>(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.)</small>		5. LEASE DESIGNATION & SERIAL NO. 6. IF INDIAN ALLOTTEE OR TRIBE NAME NAVAJO TRIBAL
1. OIL WELL <input type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <input type="checkbox"/>	7. UNIT AGREEMENT NAME RATHERFORD UNIT	8. FARM OR LEASE NAME
2. NAME OF OPERATOR MOBIL OIL CORPORATION		9. WELL NO.
3. ADDRESS OF OPERATOR P. O. BOX 633 MIDLAND, TX 79702		10. FIELD AND POOL, OR WILDCAT GREATER ANETH
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		11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
14. API NO.	15. ELEVATIONS (Show whether DF, RT, GR, etc.)	12. COUNTY SAN JUAN
		13. STATE UTAH

RECEIVED

SEP 15 1993

DIVISION OF
OIL, GAS & MINING

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

NOTICE OF INTENTION TO:

TEST WATER SHUT-OFF <input type="checkbox"/> FRACTURE TREAT <input type="checkbox"/> SHOOT OR ACIDIZE <input type="checkbox"/> REPAIR WELL <input type="checkbox"/> (Other)	PULL OR ALTER CASING <input type="checkbox"/> MULTIPLE COMPLETE <input type="checkbox"/> ABANDON <input type="checkbox"/> CHANGE PLANS <input type="checkbox"/>
---	--

SUBSEQUENT REPORT OF:

WATER SHUT-OFF <input type="checkbox"/> FRACTURE TREATMENT <input type="checkbox"/> SHOOTING OR ACIDIZING <input type="checkbox"/> (Other) <u>CHANGE OF OPERATOR</u> <small>(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)</small>	REPAIRING WELL <input type="checkbox"/> ALTERING CASING <input type="checkbox"/> ABANDONMENT* <input type="checkbox"/>
---	--

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 JULY 1, 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 249031 1807A RENTWY~~ P.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. jee*

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: 303 865 2212
244 658 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.

Ratherford Unit (GC)

RECEIVED
BLM

JUL 27 AM 11:44
670 FARMINGTON, NM

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

ARES/543

JUL 26 1993

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

MINERALS DEPT.
NO. 1 198
DATE
TIME
BY
REMARKS
GPS
ALL SUPV.
FILED

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 Rutherford Unit,

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

JUN 27 01:11:44
070 FARMINGTON, NM

and, pursuant to the terms of the Rutherford 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 Rutherford 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 Rutherford 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 Rutherford 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] ACTING AREA DIRECTOR
APPROVED BY TITLE DATE
7/9/93

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	100.0000000

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).

Division of Oil, Gas and Mining
OPERATOR CHANGE WORKSHEET

Routing:

1-VLC/17-S
2-DTS/58-R
3-VLC
4-RJF
5-IB
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)	<u>M E P N A</u>	FROM (former operator)	<u>PHILLIPS PETROLEUM COMPANY</u>
(address)	<u>PO DRAWER G</u>	(address)	<u>5525 HWY 64 NBU 3004</u>
	<u>CORTEZ, CO 81321</u>		<u>FARMINGTON, NM 87401</u>
	<u>GLEN COX (915)688-2114</u>		<u>PAT KONKEL</u>
	phone <u>(303)565-2212</u>		phone <u>(505)599-3452</u>
	account no. <u>N7370</u>		account no. <u>N0772(A)</u>

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

Name: **SEE ATTACHED**	API: <u>43-037-31050</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

- 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).
- 2. State Lands and the Tax Commission have been notified through normal procedures of entity changes.

BOND VERIFICATION (Fee wells only)

- 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) no. Today's date 11-17 1993. If yes, division response was made by letter dated 11-17 1993.

LEASE INTEREST OWNER NOTIFICATION RESPONSIBILITY

- 1. (Rule R615-2-10) The former operator/lessee of any fee lease well listed above has been notified by letter dated 11-17 1993, 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.
- 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 1993.

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

931006 BIA/B/m Approved 7-9-93.

✓ 19W-21	43-037-15741	14-20-603-353	SEC. 19, T41S, R24E	NE/NW 660' FNL 1860' FWL
✓ 19-22	43-037-31046	14-20-603-353	SEC. 19, T41S, R24E	SE/NW 1840' FNL; 1980' FWL
✓ 19W-23	43-037-15742	14-20-603-353	SEC. 19, T41S, R24E	NE/SW 2080' FSL; 1860' FWL
✓ 19-31	43-037-31047	14-20-603-353	SEC. 19, T41S, R24E	NW/NE 510' FNL; 1980' FEL
✓ 19-32	43-037-15743	14-20-603-353	SEC. 19, T41S, R24E	SW/NE 1980' FNL; 1980' FEL
✓ 19-33	43-037-31048	14-20-603-353	SEC. 19, T41S, R24E	NW/SE 1980' FSL; 1980' FEL
✓ 19-34	43-037-15744	14-20-603-353	SEC. 19, T41S, R24E	SW/SE 660' FSL; 1980' FEL
✓ 19W-41	43-037-15745	14-20-603-353	SEC. 19, T41S, R24E	NE/NE 660' FNL; 660' FEL
✓ 19-42	43-037-30916	14-20-603-353	SEC. 19, T41S, R24E	SE/NE 1880' FNL, 660' FEL
✓ 19W-43	43-037-16420	14-20-603-353	SEC. 19, T41S, R24E	NE/SE 1980' FSL; 760' FEL
✓ 19-44	43-037-31081	14-20-603-353	SEC. 19, T41S, R24E	SE/SE 660' FSL; 660' FEL
✓ 19-97	43-037-31596	14-20-603-353	SEC. 19, T41S, R24E	2562' FNL, 30' FEL
✓ 20-11	43-037-31049	14-20-603-353	SEC. 20, T41S, R24E	NW/NW 500' FNL; 660' FWL
✓ 20-12	43-037-15746	14-20-603-353	SEC. 20, T41S, R24E	1980' FNL, 660' FWL
✓ 20-13	43-037-30917	14-20-603-353	SEC. 20, T41S, R24E	NW/SW 2140' FSL, 500' FWL
✓ 20-14	43-037-15747	14-20-603-353	SEC. 20, T41S, R24E	660' FSL; 660' FWL
✓ 20W-21	43-037-16423	14-20-603-353	SEC. 20, T41S, R24E	660' FNL; 1880' FWL
✓ 20-22	43-037-30930	14-20-603-353	SEC. 20, T41S, R24E	SE/NW 2020' FNL; 2090' FWL
✓ 20W-23	43-037-15748	14-20-603-353	SEC. 20, T41S, R24E	NW/SW 2080; 2120' FWL
✓ 20-24	43-037-30918	14-20-603-353	SEC. 20, T41S, R24E	SE/SW 820' FSL; 1820' FWL
✓ 20-31	43-037-31050	14-20-603-353	SEC. 20, T41S, R24E	NW/NE 660' FNL; 1880' FEL
✓ 20-32	43-037-15749	14-20-603-353	SEC. 20, T41S, R24E	SW/NE 1980' FNL, 1980' FEL
✓ 20-33	43-037-30931	14-20-603-353	SEC. 20, T41S, R24E	NW/SE 1910' FSL; 2140' FEL
✓ 20-34	43-037-15750	14-20-603-353	SEC. 20, T41S, R24E	660' FSL; 1850' FEL
✓ 20W-41	43-037-15751	14-20-603-353	SEC. 20, T41S, R24E	NE/NE 660' FNL; 660' FEL
✓ 20-42	43-037-31051	14-20-603-353	SEC. 20, T41S, R24E	SE/NE 1980' FNL; 660' FEL
✓ 20W-43	43-037-16424	14-20-603-353	SEC. 20, T41S, R24E	2070' FSL; 810' FEL
✓ 20-44	43-037-30915	14-20-603-353	SEC. 20, T41S, R24E	SE/SE 620' FSL; 760' FEL
✓ 20-66	43-037-31592	14-20-603-353	SEC. 20, T41S, R24E	SW/NW 1221' FWL; 1369' FNL
✓ 21-11	43-037-31052	14-20-603-355	SEC. 21, T41S, R24E	NW/NW 660' FNL; 660' FWL
✓ 21-12	43-037-15752	14-20-603-355	SEC. 21, T41S, R24E	2080' FNL; 660' FWL
✓ 21-13	43-037-30921	14-20-603-355	SEC. 21, T41S, R24E	NW/SW 2030' FSL; 515' FWL
✓ 21-14	43-037-15753	14-20-603-355	SEC. 21, T41S, R24E	SW/SW 660' FSL; 460' FWL
✓ 21W-21	43-037-16425	14-20-603-355	SEC. 21, T41S, R24E	NE/NW 660' FNL; 2030' FWL
✓ 21-32	43-037-15755	14-20-603-355	SEC. 21, T41S, R24E	SW/NE 1880' FNL; 1980' FEL
21-33	NA	14-20-603-355	SEC. 21, T41S, R24E	2000' FSL; 1860' FEL
✓ 21-34	43-037-15756	14-20-603-355	SEC. 21, T41S, R24E	SW/SE 660' FSL; 1980' FEL
✓ 21W-41	43-037-16426	14-20-603-355	SEC. 21, T41S, R24E	660' FNL; 810' FEL
✓ 21W-43	43-037-16427	14-20-603-355	SEC. 21, T41S, R24E	NE/NE 1980' FSL; 660' FEL
✓ 24-11	43-037-15861	14-20-603-247A	SEC. 24, T41S, R24E	510' FNL; 810' FWL
✓ 24W-21	43-037-16429	14-20-603-247	SEC. 24, T41S, R24E	4695' FSL; 3300' FEL
✓ 24W-43	43-037-16430	14-20-603-247	SEC. 24, T41S, R24E	2080' FSL; 660' FEL
✓ 24-31W	43-037-15862	14-20-603-247A	SEC. 24, T41S, R24E	NW/NE 560' FNL; 1830' FEL
✓ 24-32	43-037-31593	14-20-603-247A	SEC. 24, T41S, R24E	SW/NE 2121' FNL; 1846' FEL
✓ 24-41	43-037-31132	14-20-603-247A	SEC. 24, T41S, R24E	NE/NE 660' FNL; 710' FEL
✓ 24W-42	43-037-15863	14-20-603-247A	SEC. 24, T41S, R24E	660' FSL; 1980' FNL
✓ 28-11	43-037-30446	14-20-603-409	SEC. 28, T41S, R24E	NW/NW 520' FNL; 620' FWL
✓ 28-12	43-037-15336	14-20-603-409B	SEC. 28, T41S, R24E	SW/SE/NW 2121' FNL; 623' FWL
✓ 29-11	43-037-31053	14-20-603-407	SEC. 29, T41S, R24E	NW/NW 770' FNL; 585' FWL
✓ 29W-21	43-037-16432	14-20-603-407	SEC. 29, T41S, R24E	NE/NW 667' FNL; 2122' FWL
✓ 29-22	43-037-31082	14-20-603-407	SEC. 29, T41S, R24E	SE/NW 2130' FNL; 1370' FWL
✓ 29W-23	43-037-15338	14-20-603-407	SEC. 29, T41S, R24E	NE/SW 1846' FSL; 1832' FWL
✓ 29-31	43-037-30914	14-20-603-407	SEC. 29, T41S, R24E	NW/NE 700' FNL; 2140' FEL
✓ 29-32	43-037-15339	14-20-603-407	SEC. 29, T41S, R24E	1951' FNL; 1755' FEL
✓ 29-33	43-037-30932	14-20-603-407	SEC. 29, T41S, R24E	NW/SE 1860' FSL; 1820' FEL
✓ 29-34	43-037-15340	14-20-603-407	SEC. 29, T41S, R24E	817' FSL; 2096' FEL
✓ 29W-41	43-037-16433	14-20-603-407	SEC. 29, T41S, R24E	557' FNL; 591' FEL
✓ 29W-42	43-037-30937	14-20-603-407	SEC. 29, T41S, R24E	SE/NE 1850' FNL; 660' FEL
✓ 29W-43	43-037-16434	14-20-603-407	SEC. 29, T41S, R24E	NE/SE 1980' FSL; 660' FEL
✓ 30-21W	43-037-16435	14-20-603-407	SEC. 30, T41S, R24E	660' FNL; 1920' FWL
✓ 30-32	43-037-15342	14-20-603-407	SEC. 30, T41S, R24E	SW/NE 1975' FNL; 2010' FEL
✓ 30W-41	43-037-15343	14-20-603-407	SEC. 30, T41S, R24E	NE/NE 660' FNL; 660' FEL
✓ 3-34	NA 4302715711	NA 14206034043	NA Sec. 9, T. 41S, R. 24E	NA SWSE 660' FSL 1980' FEL
✓ 12-43	43-307-31202	14-20-603-246	SEC. 12, T41S, R23E	2100' FSL; 660' FEL
✓ 12W31	43-037-15847	14-20-603-246	SEC. 12, T41S, R23E	661' FNL; 1981' FEL
✓ 13W24	43-037-15853	14-20-603-247	SEC. 13, T41S, R23E	SE/SW 660' FSL; 3300' FEL
✓ 15W23	43-037-16412	14-20-603-355	SEC. 15, T41S, R24E	2140' FSL; 1820' FWL
✓ 17-24	43-037-31044	14-20-603-353	SEC. 17, T41S, R24E	SE/SW 720' FSL; 1980' FWL
✓ 18-13	43-037-15734	14-20-603-353	SEC. 18, T41S, R24E	NW/NW 1980' FSL; 500' FWL
✓ 18W32	43-037-15736	14-20-603-353	SEC. 18, T41S, R24E	SW/NE 2140' FNL; 1830' FEL
✓ 20-68	43-037-31591	14-20-603-353	SEC. 20, T41S, R24E	NW/SW 1276' FWL; 1615' FSL
✓ 21-23	43-037-13754	14-20-603-355	SEC. 21, T41S, R24E	NE/SW 1740' FSL 1740' FWL
✓ 28W21	43-037-16431	14-20-603-409	SEC. 29, T41S, R24E	660' FNL; 2022' FWL

PAID

PAID

PAID

PAID

STATE OF UTAH
DIVISION OF OIL, GAS AND MINING
 355 West North Temple, 3 Triad, Suite 350, Salt Lake City, UT 84180-1203

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 API Number	Entity	Location	Producing Zone	Well Status	Days Oper	Production Volumes		
						OIL(BBL)	GAS(MCF)	WATER(BBL)
RATHERFORD UNIT 20-31 4303731050	06280	41S 24E 20	ISMV					
RATHERFORD UNIT 20-42 4303731051	06280	41S 24E 20	DSCR					
RATHERFORD UNIT 21-11 4303731052	06280	41S 24E 21	DSCR					
RATHERFORD UNIT 29-11 4303731053	06280	41S 24E 29	DSCR					
RATHERFORD UNIT #18-24 4303731079	06280	41S 24E 18	DSCR					
RATHERFORD UNIT #19-11 4303731080	06280	41S 24E 19	DSCR					
RATHERFORD UNIT #19-44 4303731081	06280	41S 24E 19	DSCR					
RATHERFORD UNIT #29-22 4303731082	06280	41S 24E 29	DSCR					
RATHERFORD UNIT 12-34 4303731126	06280	41S 23E 12	DSCR					
RATHERFORD UNIT 13-12 4303731127	06280	41S 23E 13	DSCR					
RATHERFORD UNIT #13-21 4303731128	06280	41S 23E 13	DSCR					
RATHERFORD UNIT #13-23 4303731129	06280	41S 23E 13	DSCR					
RATHERFORD UNIT 13-34 (RE-ENTRY) 4303731130	06280	41S 23E 13	DSCR					
TOTALS								

REMARKS: _____

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

Date: _____

Name and Signature: _____

Telephone Number: _____

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
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).

Division of Oil, Gas and Mining
OPERATOR CHANGE WORKSHEET

1- LPC	7-PL ✓
2-LWP	8-SJ ✓
3- DTS	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) <u>MOBIL EXPLOR & PROD</u>	FROM (former operator) <u>M E P N A</u>
(address) <u>C/O MOBIL OIL CORP</u>	(address) <u>C/O MOBIL OIL CORP</u>
<u>PO DRAWER G</u>	<u>PO DRAWER G</u>
<u>CORTEZ CO 81321</u>	<u>CORTEZ CO 81321</u>
phone <u>(303) 564-5212</u>	phone <u>(303) 564-5212</u>
account no. <u>N7370</u>	account no. <u>N7370</u>

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

Name: ** SEE ATTACHED **	API: <u>Q3731650</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: _____

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.
- ✓ 5. Changes have been entered in the Oil and Gas Information System (Wang/IBM) for each well listed above. (8-3-95)
- ✓ 6. Cardex file has been updated for each well listed above. 8-21-95
- ✓ 7. Well file labels have been updated for each well listed above. 9-28-95
- ✓ 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)
- ✓ 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. *UTS 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 19 95.

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 UIC F5/Not necessary!

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 20-31

9. API Well No.

43-037-31050

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. 20, T41S, R24E
(NW/NE) 660' FNL & 1880' FEL

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.)*

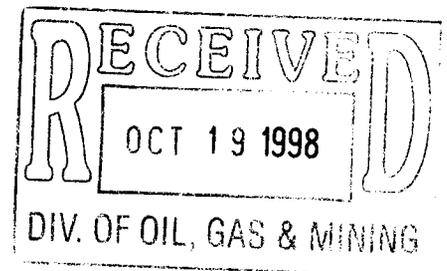
BHL: 650894.39 x 4117624.61

LATERAL #1: 738' SOUTH & 946' EAST FROM SURFACE SPOT (ZONE 1a).

LATERAL #2: 1477' NORTH & 1196' WEST FROM SURFACE SPOT (ZONE 1a). 805 FSL x 2112 FWL
650235.64 4120274.37 56C 17

SEE ATTACHED PROCEDURE.

Approved by the
Utah Division of
Oil, Gas and Mining



COPY SENT TO OPERATOR
Date: 11-5-98
Initials: CHD

Date: 11/4/98
By: *[Signature]*

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

Signed: *[Signature]*

Title SHIRLEY HOUCHINS/ENV & REG TECH

Date 10-14-98

(This space for Federal or State office use)

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

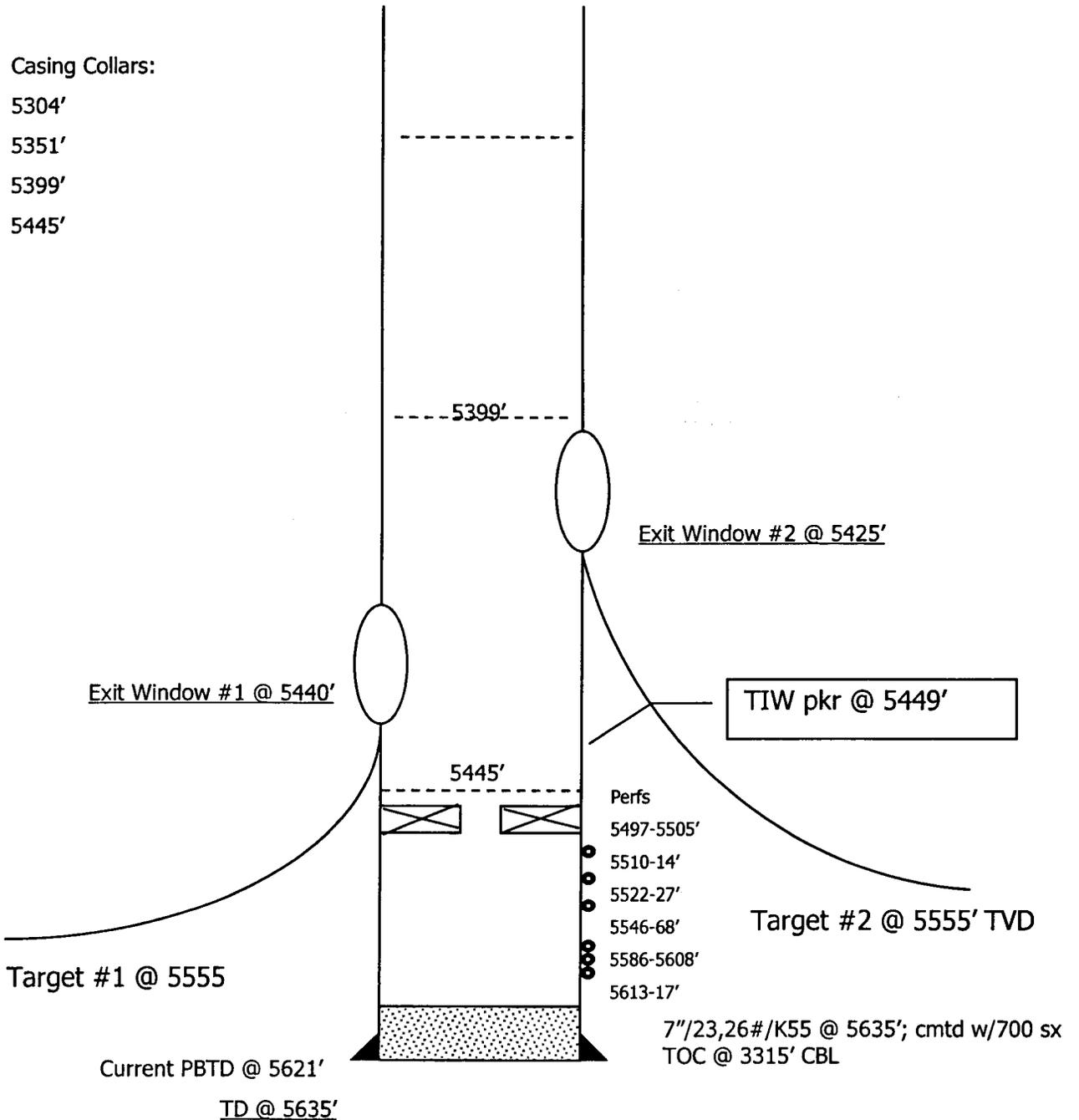
Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

Ratherford Unit Well #20-31 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 (1200-1900 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 retrievable bridge plug and pressure test casing to 1000 psi.
7. RDMO WSU.
8. MIRU 24 hr. WSU. NU BOP's and pressure test with chart.
9. PU tubing, drilling collars, and drill pipe in derrick and run in hole. Then POH and stand back.
10. Run packer on wireline and set using GR/CCL log to correlate with. RD wireline.
11. 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.
12. Orient whipstock on surface to desired bearing and RIH on drill pipe. Latch into packer. Shear starter mill bolt and make starter cut.
13. POH w/ starter mill and pick up window mill and watermelon mill and continue to mill window. Drill 1-2 ft of formation
14. POH w/ mills and PU curve building assembly and drill string with UBHO sub in string and RIH.
15. RU gyro to assist in time drilling and starting out of the casing window. POH w/ gyro when inclination dictates it must be pulled.
16. Finish drilling the curve using the MWD.
17. POH once curve is finished and PU lateral motor to drill the lateral using MWD.
18. Once lateral TD is reached, POH w/ directional equipment.
19. PU retrieving hook and RIH on drill pipe. Retrieve whipstock and PU new whipstock oriented for desired bearing to start in hole.
20. Repeat steps 12 through 19 for each subsequent lateral.

Ratherford Unit #20-31



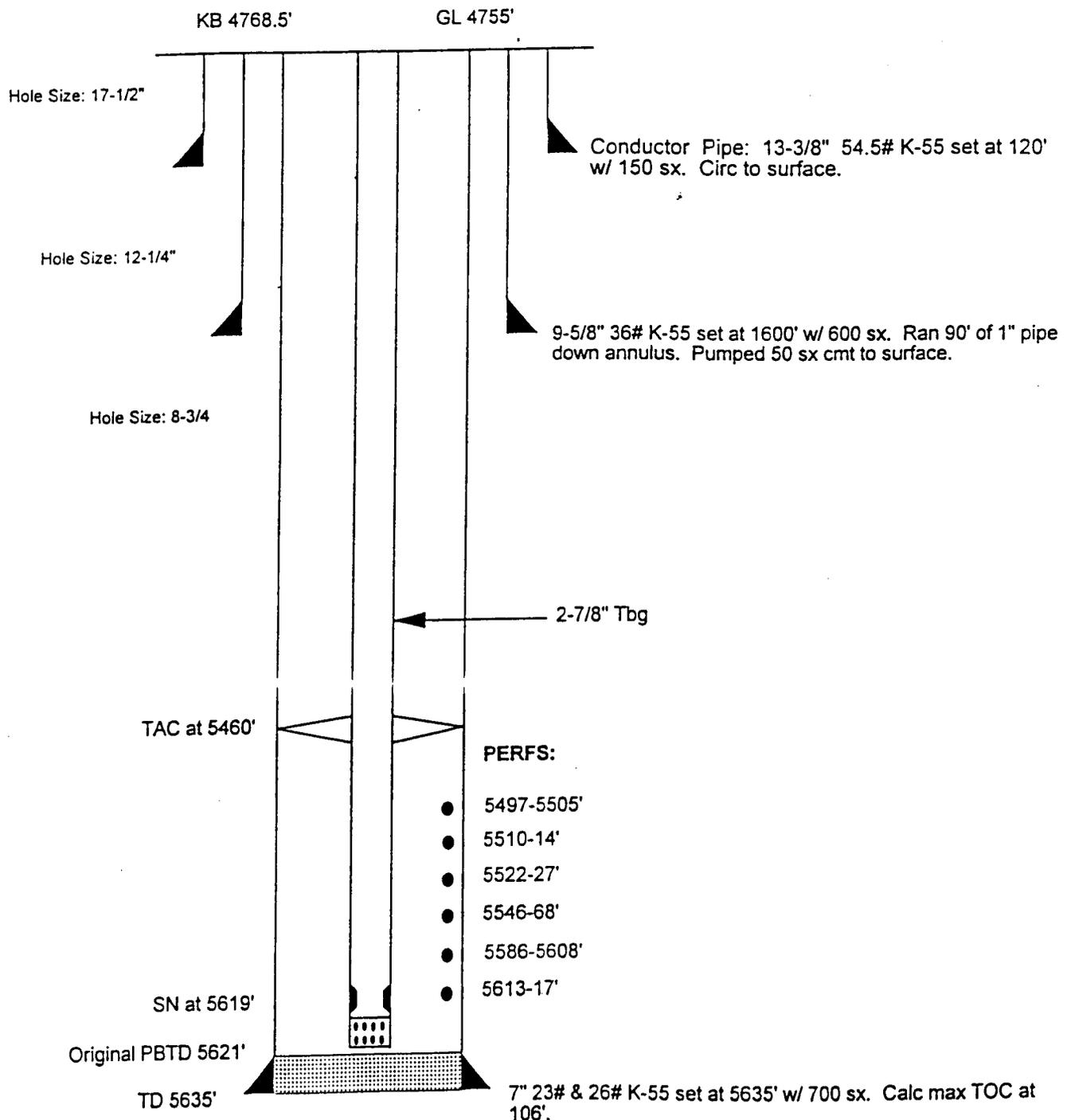
Window	Btm-Top of Window	Ext length	Curve Radius	Bearing	Horiz Displ
1	5440-32	-----	115	128	1200
2	5425-17	15	130	321	1900

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.

RATHERFORD UNIT # 20-31
GREATER ANETH FIELD
660' FNL & 1880' FEL
SEC 20-T41S-R24E
SAN JUAN COUNTY, UTAH
API 43-037-31050
PRISM 0043099

PRODUCER

Capacities:	bb/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



WORKSHEET
APPLICATION FOR PERMIT TO DRILL

APD RECEIVED: 10/19/98

API NO. ASSIGNED: 43-037-31050

WELL NAME: RATHERFORD 20-31 MULTI-LEG
 OPERATOR: MOBIL EXPL & PROD CO (N7370)
 CONTACT: _____

PROPOSED LOCATION:
 NWNE 20 - T41S - R24E
 SURFACE: 0660-FNL-1880-FEL
 BOTTOM: 0805-FSL-2112-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
 SURFACE OWNER: _____

PROPOSED FORMATION:

RECEIVED AND/OR REVIEWED:

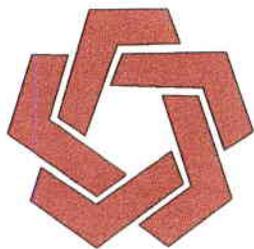
Plat
 Bond: Federal[] State[] Fee[]
 (No. Indian Bond In Place)
 Potash (Y/N)
 Oil Shale (Y/N) *190-5(B)
 Water Permit
 (No. Navajo Allotment)
 RDCC Review (Y/N)
 (Date: _____)
 Fee Surf Agreement (Y/N)

LOCATION AND SITING:

R649-2-3. Unit Ratherford
 R649-3-2. General
 R649-3-3. Exception
 Drilling Unit
 Board Cause No: _____
 Date: _____

COMMENTS: _____

STIPULATIONS: _____



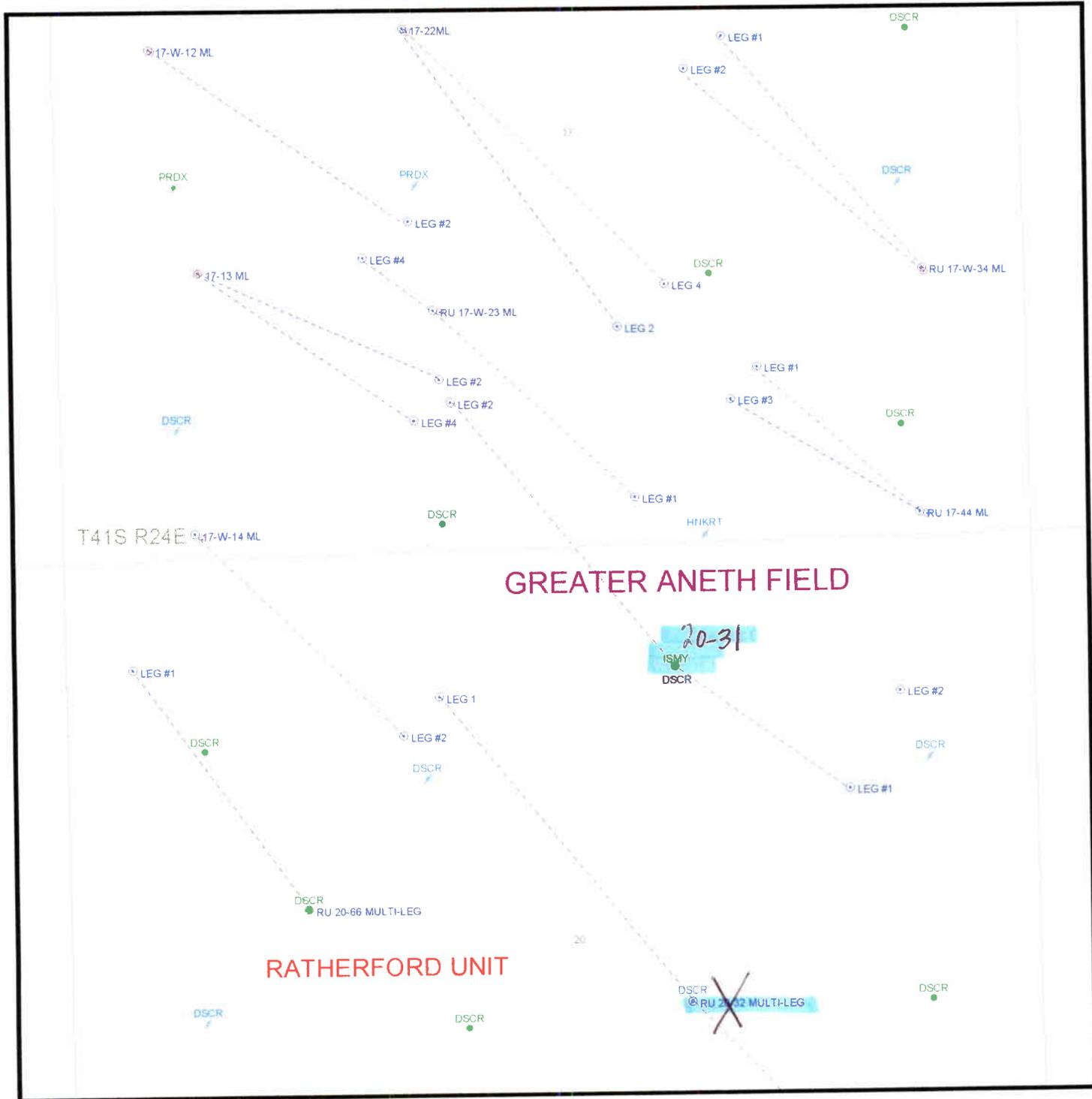
DIVISION OF OIL, GAS & MINING

OPERATOR: MOBIL EXPL & PROD INC (N7370)

FIELD: GREATER ANETH (365)

SEC. 17 & 20, TWP 41S, RNG 24E

COUNTY: SAN JUAN UNIT: RATHERFORD



DATE PREPARED:
2-NOV-1998

DIVISION OF OIL, GAS AND MINING

SPUDDING INFORMATION

Name of Company: MOBIL E&P

Well Name: RATHERFORD 20-31 (REENTRY)

Api No. 43-037-31050 Lease Type: INDIAN

Secton 20 Township 41S Range 24E County SAN JUAN

Drilling Contractor _____ RIG # BIG A 25

SPUDDED:

Date 11/24/98

Time 9:00 AM

How ROTARY

Drilling will commence _____

Reported by ALAN MOORE

Telephone # _____

Date 11/24/98 Signed: JLT

Pason

SYSTEMS USA CORP.

Electronic Rig Monitoring Systems • Well Logging • Consulting Geology • Coal Bed Methane Services
2450 INDUSTRIAL BLVD. • GRAND JUNCTION, CO 81505
(970) 243-3044 • (FAX) 241-1085

Monday, January 11, 1999

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 #20-31/Legs 1 & 2
Sec. 20, T41S, R24E
San Juan County, Utah

Dear Sirs:

Enclosed is the final computer colored log and geology report for the above referenced well.

Logs filed 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

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

MOBIL

**RATHERFORD UNIT #20-31
SE HORIZONTAL LATERAL LEG #1
UPPER 1-A POROSITY BENCH
DESERT CREEK MEMBER
PARADOX FORMATION
SECTION 20, T41S, R24E
SAN JUAN, UTAH**

GEOLOGY REPORT
prepared by
J.L. TITUS
PASON/ROCKY MOUNTAIN GEO-ENGINEERING CORP.
GRAND JUNCTION, COLORADO
(970) 243-3044

MICROFICHE

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WELL SUMMARY

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

NAME: RATHERFORD UNIT #20-31 SE HORIZONTAL LATERAL LEG #1
IN 1-A POROSITY ZONE OF DESERT CREEK

LOCATION: SECTION 20, T41S, R24E

COUNTY/STATE: SAN JUAN, UTAH

ELEVATION: KB:4791' GL:4780'

SPUD DATE: 11/24/98

COMPLETION DATE: 11/29 /98

DRILLING ENGINEER: SIMON BARRERA / BENNY BRIGGS

WELLSITE GEOLOGY: DAVE MEADE / MARVIN ROANHORSE

MUDLOGGING ENGINEERS: DAVE MEADE / MARVIN ROANHORSE

CONTRACTOR: BIG "A" RIG 25
TOOLPUSHER: J. DEES

HOLE SIZE: 4 3/4"

CASING RECORD: SIDETRACK IN WINDOW AT 5440' MEASURED DEPTH

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

DIRECTIONAL DRILLING CO: SPERRY-SUN

ELECTICAL LOGGING: NA

TOTAL DEPTH: 6796' MEASURED DEPTH; TRUE VERTICAL DEPTH-5555.33'

STATUS: PREPARING WELL FOR NW LATERAL LEG #2

DRILLING CHRONOLOGY
RATHERFORD UNIT #20-31
1-A SE HORIZONTAL LATERAL LEG #1

DATE	DEPTH	DAILY	ACTIVITY
11/23/98	0'	0'	RIG DOWN-MOVE & RIG UP @ RU #20-31-NIPPLE UP BOP-RIG UP-TEST BOP-P.U. RETRIEVING HOOK-P.U. 20 DRL COLLARS-P.U. & STRAP 152 JTS AOH PIPE
11/24/98	5449'	0'	P.U. & STRAP DRL PIPE-CUT 60' DRLG LINE-TIH-LATCH INTO & RELEASE RBP @ 5400'-PUSH RBP TO 5450' & TOH -L.D. RBP-NIPPLE DOWN GRANT HEAD-RIG UP HALIBURTON HEAD-TIH W/ANCHOR LATCH ASSEM. & PACKER-SET PACKER @ 5449'-R.U. & RUN GYRO DATA-PUMP 30 BBLS LCM-MIX 30 BBLS LCM-PUMP & SQUEEZE-CIR HOLE-TOH-L.D. UBHA-P.U. WHIPSTOCK #1 & STARTER MILL
11/25/98	5449'	2'	P.U. & ORIENT WHIPSTOCK #1-TIH-MILL 5431' TO 5433'-CIR-TOH-L.D. STARTER MILL-P.U. WINDOW MILLS-TIH-CIR & ATTEMPT TO MILL-TOH-L.D. WINDOW MILLS-P.U. TAPER MILL-TIH-MILL BACK SIDE OF WHIPSTOCK-L.D. 2 JT PIPE-TOH-SHUT IN WELL & DRAIN LINES-SHUT DOWN RIG FOR THANKSGIVING
11/26/98	5433'	0'	DRY WATCH RIG FOR HOLIDAY
11/27/98	5433'	7'	P.U. WINDOW MILLS-TIH-MILL F/5433' T/5437'-CIR OUT-L.D. 2 JTS PIPE-TOH-CHANGE OUT MILLS-TIH-MILL W/WINDOW MILLS 5437' TO 5440'-PUMP SWEEP & CIR OUT-L.D. 12 JTS DRL PIPE-TOH-P.U. CURVE ASSEM.-ORIENT & TEST-P.U. 10 JTS PH-6 PIPE-TIH
11/28/98	5440'	196'	TIH-R.U. GYRO & RUN GYRO DATA-TIME DRLG 5440' TO 5443'-DIR DRLG & WIRE LINE SURVEYS 5443' TO 5466'-R.D. GYRO DATA-INSTALL GRANT HEAD-DIR DRLG & SURVEYS TO 5636'(T.D. CURVE @ 5:00 PM)-PUMP SWEEP & CIR OUT-PUMP 15 BBLS BRINE-L.D. 36 JTS DRL PIPE-TOH-P.U. LATERAL ASSEM.-ORIENT & TEST-P.U. 36 JTS PH-6-TIH
11/29/98	5636'	1160'	TIH-WASH +/- 80' TO BTM-DIR DRLG & SURVEYS TO 6796' (TD LATERAL)-PUMP SWEEP & CIR OUT SPLS-L.D. 2 JTS DRL PIPE-TOH TO WINDOW-CIR OUT GAS & DISPLACE HOLE W/BRINE-TOH-L.D. LATERAL ASSEM.-P.U. RETRIEVING HOOK-TIH

DAILY ACTIVITY

Operator: MOBIL

Well Name: RATHERFORD UNIT #20-31 SE 1-A HORIZONTAL LATERAL LEG #1

DATE	DEPTH	DAILY	DATE	DEPTH	DAILY
11/23/98	0'	0'			
11/24/98	5449'	0'			
11/25/98	5449'	2'			
11/26/98	5433'	0'			
11/27/98	5433'	7'			
11/28/98	5440'	196'			
11/29/98	5636'	1160'			
	6796'	TD			

BIT RECORD

OPERATOR: MOBIL

WELL NAME: RATHERFORD UNIT #20-31 SE 1-A HORIZONTAL LATERAL LEG #1

RUN	SIZE	MAKE	TYPE	IN/OUT	FTG	HRS	FT/HR
#1 (RR)	4 3/4"	STC	MF-37P	5440'/ 5636'	196'	13.5	14.5'
#2	4 3/4"	STC	MF-3P	5636'/ 6796'	1160'	15.5	74.8'

MUD REPORT

OPERATOR: MOBIL

WELL NAME: RATHERFORD UNIT #20-31 NW 1-A HORIZONTAL LATERAL LEG #1

DATE	DEPT H	WT	VIS	PLS	YLD	GEL	PH	WL	CK	CHL	CA	SD	OIL	WTR
11/24/98	5400'	8.4	26	1	1	0/0	8.0	NC	NC	1800	120	0%	0%	100%
11/25/98	5449'	8.4	26	1	1	0/0	8.0	NC	NC	1800	120	0%	0%	100%
11/26/98	WELL	SHUT	IN											
11/27/98	5437'	8.4	26	1	1	0/0	8.0	NC	NC	1500	80	0%	0%	100%
11/28/98	5486'	8.4	26	1	1	0/0	12.5	NC	NC	4000	80	0%	0%	100%
11/29/98	6065'	8.6	26	1	1	0/0	12.0	NC	NC	20000	520	0%	0%	100%

SPERRY-SUN DRILLING SERVICES
SURVEY DATA

Customer ... : Mobil (Utah)
Platform ... : RATHERFORD UNIT
Slot/Well .. : BA25/20-31 1A1

MEASURED DEPTH	ANGLE DEG	DIRECTION DEG	TVD	NORTHINGS FEET	EASTINGS FEET	VERTICAL SECTION	DOG LEG
5300.00	0.70	279.27	5298.59	62.17 N	61.42 W	-86.68	0.00
5431.00	1.31	308.73	5429.57	63.24 N	63.38 W	-88.88	0.60
5440.00	3.80	128.00	5438.56	63.12 N	63.22 W	-88.68	56.78
5450.00	7.90	129.44	5448.51	62.48 N	62.43 W	-87.66	41.02
5460.00	12.70	129.87	5458.35	61.33 N	61.06 W	-85.87	48.01
5470.00	17.00	130.08	5468.01	59.69 N	59.09 W	-83.31	43.00
5480.00	21.50	130.21	5477.45	57.56 N	56.57 W	-80.02	45.00
5490.00	26.00	130.30	5486.60	54.96 N	53.50 W	-76.00	45.00
5500.00	30.90	129.60	5495.39	51.90 N	49.85 W	-71.24	49.11
5510.00	35.60	129.30	5503.75	48.42 N	45.62 W	-65.76	47.03
5520.00	40.20	129.00	5511.64	44.55 N	40.85 W	-59.62	46.04
5530.00	45.10	129.80	5518.99	40.24 N	35.62 W	-52.85	49.30
5540.00	49.30	131.60	5525.78	35.46 N	30.06 W	-45.52	44.02
5550.00	53.00	133.10	5532.06	30.21 N	24.31 W	-37.76	38.80
5560.00	56.90	134.10	5537.80	24.57 N	18.38 W	-29.61	39.85
5570.00	61.80	135.90	5542.90	18.48 N	12.31 W	-21.08	51.39
5580.00	66.50	137.60	5547.25	11.93 N	6.14 W	-12.18	49.43
5590.00	71.00	138.30	5550.88	5.01 N	0.10 E	-3.01	45.47
5600.00	75.60	138.70	5553.75	2.16 S	6.44 E	6.41	46.16
5610.00	79.90	138.60	5555.87	9.50 S	12.90 E	16.01	43.01
5636.00	88.70	136.90	5558.45	28.63 S	30.28 E	41.48	34.46
5668.00	90.30	134.00	5558.73	51.43 S	52.72 E	73.21	10.35
5700.00	91.40	131.70	5558.26	73.19 S	76.18 E	105.09	7.97
5732.00	91.30	131.50	5557.50	94.43 S	100.10 E	137.01	0.70
5763.00	91.40	131.00	5556.77	114.86 S	123.40 E	167.96	1.64
5795.00	91.60	129.90	5555.93	135.61 S	147.74 E	199.91	3.49
5826.00	91.40	129.70	5555.12	155.45 S	171.55 E	230.89	0.91
5858.00	90.90	129.00	5554.48	175.73 S	196.29 E	262.87	2.69
5889.00	91.40	128.90	5553.86	195.22 S	220.39 E	293.86	1.64
5921.00	88.80	128.30	5553.80	215.18 S	245.40 E	325.86	8.34
5953.00	86.20	127.30	5555.20	234.77 S	270.66 E	357.82	8.70
5985.00	85.90	127.10	5557.40	254.07 S	296.09 E	389.74	1.13
6017.00	87.40	126.90	5559.27	273.30 S	321.60 E	421.68	4.73
6048.00	88.90	126.90	5560.27	291.90 S	346.38 E	452.66	4.84
6080.00	89.40	126.60	5560.75	311.05 S	372.01 E	484.65	1.82
6111.00	90.10	126.20	5560.88	329.44 S	396.96 E	515.64	2.60
6143.00	91.30	125.70	5560.49	348.23 S	422.87 E	547.61	4.06
6175.00	91.70	125.20	5559.65	366.78 S	448.93 E	579.57	2.00

SPERRY-SUN DRILLING SERVICES
SURVEY DATA

Customer ... : Mobil (Utah)
Platform ... : RATHERFORD UNIT
Slot/Well .. : BA25/20-31 1A1

MEASURED DEPTH	ANGLE DEG	DIRECTION DEG	TVD	NORTHINGS FEET	EASTINGS FEET	VERTICAL SECTION	DOG LEG
6207.00	91.00	125.30	5558.90	385.24 S	475.05 E	611.53	2.21
6238.00	91.70	125.20	5558.17	403.13 S	500.36 E	642.48	2.28
6270.00	91.80	125.00	5557.19	421.52 S	526.53 E	674.42	0.70
6301.00	90.20	125.30	5556.65	439.37 S	551.87 E	705.38	5.25
6332.00	90.80	125.20	5556.38	457.26 S	577.19 E	736.34	1.96
6364.00	90.90	125.30	5555.91	475.72 S	603.32 E	768.30	0.44
6396.00	89.30	125.70	5555.85	494.30 S	629.37 E	800.27	5.15
6428.00	89.90	125.20	5556.08	512.86 S	655.43 E	832.24	2.44
6459.00	91.00	125.30	5555.83	530.75 S	680.75 E	863.20	3.56
6490.00	90.60	125.70	5555.40	548.75 S	705.98 E	894.17	1.82
6522.00	89.10	127.10	5555.48	567.74 S	731.74 E	926.15	6.41
6553.00	89.40	127.10	5555.89	586.44 S	756.46 E	957.15	0.97
6585.00	89.60	127.80	5556.17	605.90 S	781.86 E	989.15	2.27
6617.00	89.40	127.80	5556.45	625.51 S	807.15 E	1021.14	0.62
6648.00	89.70	128.70	5556.69	644.70 S	831.49 E	1052.14	3.06
6680.00	90.30	128.90	5556.69	664.75 S	856.43 E	1084.14	1.98
6712.00	90.50	129.00	5556.47	684.87 S	881.32 E	1116.13	0.70
6744.00	90.90	128.50	5556.08	704.90 S	906.27 E	1148.13	2.00
6763.00	90.80	128.70	5555.79	716.75 S	921.12 E	1167.13	1.18
* 6796.00	90.80	128.70	5555.33	737.38 S	946.87 E	1200.12	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 128.00 (TRUE).
CALCULATION METHOD: MINIMUM CURVATURE.

* PROJECTED to Bit @ TD *

SAMPLE DESCRIPTIONS

OPERATOR: MOBIL

WELL NAME: RATHERFORD UNIT #19-31 SE 1-A HORIZONTAL LATERAL LEG #1

DEPTH	LITHOLOGY
5440.00 5470.00	"LS crm-tan-brn, occ dkbrn, crpxl-micxl, rthy-cln, sl arg, occ anhy, chty-tr smky gy-tan-brn CHT frag, sl dol, tt, NFSOC, w/scat blk-dkgy sl carb plty mfrm calc-sl dol SH lams & mbrn-dkbrn crpxl-micxl lmy cln-arg sl anhy tt DOL incl NFSOC"
5470.00 5480.00	"LS AA, incr m-dkbrn crpxl, anhy-v rr ANHY stks, v sl fos, tt, NFSOC, w/DOL AA, bcmg incr dkbrn-dkgybrn v mrly-grdg to dol MRLST ip, tt, NFSOC, incr SH dkgy-blk scat Crin fos, carb-sl sooty AA, occ trnsi-clr CHT frag"
5480.00 5500.00	"LS wh-crm, occ ltgy-tan-brn, crpxl-micxl, occ cln, pred rthy-chk, slty-v slty, occ anhy-sl dol, rr dkgy-blk SH lams, scat arg-cln brn-mbrn DOL lams, NFSOC, w/LS occ grdg to v lmy-v sl sdy sl mica SLTST"
5500.00 5510.00	"LS AA, v rr intxl POR, NFSOC, decr slty mat & SLTST lams, rr SH lams & CHT frag, incr intbd ltbrn-tan-m-dkbrn DOL micxl rthy-chk, occ cln, lmy tt-v rr intxl POR, NFSOC"
5510.00 5530.00	"LS wh-crm, occ tan-brn, crpxl-vfxl, gran-v sl alg ip, occ cln, rthy-chk ip, sl slty, occ anhy-sl dol, rr ALG mat, tt tr intxl-sl alg POR, tr bri yel FLOR, v rr STN, tr slow dif-v rr slow stmg mlky CUT, scat thn arg-cln brn-mbrn DOL, tt, NFSOC & rr blk SH lams-CHT frag"
5530.00 5540.00	"LS AA, incr dns-rthy cln-sl arg anhy, decr ALG-intxl POR, FLOR-CUT AA, rr spty brn STN, scat ANHY xl-incl, sl tr CHT frag, rr dns-micxl arg DOL, tt, NFSOC"
5540.00 5550.00	"LS crm-brn-tan, crpxl, v rr vfxl AA, pred dns tt anhy w/n vis POR-FLOR-STN-CUT, thn brn-rr dkbrn crpxl-micxl, occ v mrly DOL & bcmg pred blk carb SH"
5550.00 5560.00	"SH blk-dkbrn sbblky-sbplty sft-mfr rthy-v sl slty mica ip calc-dol carb-sl sooty, w/v rr scat thn dns-sl mrly crm-brn LS & m-dkbrn micxl-v mrly tt DOL incl"
5550.00 5560.00	"LS tan-crm-wh, occ ltbrn, crpxl-micxl, rthy, occ chk, dns-cln ip, v sl dol-sl anhy, shy ip, tt, NFSOC, w/tr scat brn-mbrn micxl-crpxl DOL lams-incl, lmy ip, sl-v arg, mrly ip, tt, NFSOC, scat SH blk-dkgy, plty-fis, calc, mica, ABNT METAL frag & tr CMT "
5560.00 5570.00	"LS ltbrn-tan-crm, occ wh, micxl-crpxl, rr xln frag, rthy-sl slty, chky-sl mrly, sl anhy/rr xln ANHY, sl dol ip, tt-fr intxl POR/rr fl, fr-mg scat mod bri yel FLOR, fr lt brn STN, fr dif CUT"

DEPTH	LITHOLOGY
5570.00 5580.00	"DOL ltbrn-brn,micxl-sl gran,rthy-sl slty,calc-grdg to dol LS,fr intxl POR,fr mod bri yel FLOR,fr ltbrn STN,mg slow dif CUT w/LS AA,POR-FLOR-STN-CUT AA & tr SH cvgs"
5580.00 5600.00	"LS tan-crm-off wh,occ ltbrn,tr brn,micxl-vfxl-sl gran,occ crpxl,pred dns PKST/tr gran tex,tr ool-sl oom-agl GRNST frag,chky-sl anhy/tr POR fl-xln ANHY & rr plty prtgs,sl dol/tr DOL cmt,fr-mg intxl-tr scat ool-sl oom POR,g even bri-mod bri yel FLOR,mg ltbrn/fr pp blk dd o STN,g mod fast stmg mlky CUT"
5600.00 5620.00	"LS tan-ltbrn,occ crm-off wh,brn,vfxl-micxl-gran,occ crpxl,ool-sl oom-ool GRNST,tr scat-intcl PKST AA,sl chky-anhy/tr POR fl-rr plty prtgs,tr agl-mic fos,fr DOL cmt,g-mg ool-sl oom/tr intxl POR,FLOR AA,g ltbrn-brn/mg blk dd o STN,g fast stmg-blooming CUT"
5620.00 5636.00	"LS AA,vfxl-gran,occ micxl-crpxl,ool-sl oom-ool GRNST,tr dns sl ool-ool PKST/gran tex,sl chky-anhy AA,tr mic fos,rr agl mat,fr DOL cmt,g ool-oom/tr intxl POR,FLOR AA,g ltbrn-brn/mg blk dd o STN,CUT AA"
5636.00 5650.00	"LS AA,vfxl-micxl-gran,occ crpxl,ool-sl oom-ool GRNST/tr scat-intcl PKST AA,sl chky-anhy/tr POR fl-plty prtgs,tr agl-mic fos,fr DOL cmt,g-mg ool-oom/tr intxl POR,g-mg even mod bri-spty bri yel FLOR,g ltbrn-brn/fr blk dd o STN,g fast stmg mlky CUT"
5650.00 5670.00	"LS tan-crm-off wh,occ ltbrn-brn,vfxl-gran-micsuc,occ micxl-crpxl,xln ip,sl ool-oom GRNST,incr dns sl ooc-ool PKST frag-intcl/tr gran tex,chky-anhy/tr POR fl-prtgs-xln ANHY,sl dol/tr DOL cmt,fr-mg ool-oom-intxl POR,FLOR AA,fr-mg ltbrn/tr brn-blk dd o STN,g mod fast-fr slow stmg mlky CUT"
5670.00 5700.00	"LS tan-ltbrn,occ crm,brn,tr wh,vfxl-gran-sl micsuc,occ micxl-crpxl,pred ool-oom GRNST,decr PKST AA,sl chky-anhy/tr POR fl-rr prtgs,dol/fr DOL cmt,g-mg ool-oom/tr intxl POR,g even mod bri-bri yel FLOR,mg-g ltbrn-brn/fr blk dd o STN,CUT AA"
5700.00 5720.00	"LS ltbrn-tan,occ brn,tr crm,vfxl-gran-micsuc,tr micxl-crpxl,pred GRNST AA,tr PKST AA,v sl chky-anhy/rr POR fl-plty prtgs,dol/fr DOL cmt,g ool-oom/tr intxl POR,g even bri-mod bri yel FLOR,g ltbrn-brn/mg blk dd o STN,g fast stmg-blooming CUT"
5720.00 5750.00	"LS ltbrn-tan-brn,tr crm,rr wh,AA,pred ool-oom GRNST,tr dns sl ool PKST intcl-frag/tr gran tex,n-v sl chky-anhy/v rr POR fl-prtgs,dol/fr DOL cmt,g ool-oom/rr intxl POR,g even bri-mod bri yel FLOR,g ltbrn-brn/mg blk dd o STN,g fast stmg-blooming CUT"
5750.00 5770.00	"LS lt-mbrn,occ tan,micxl-vfxl,sl gran-micsuc,pred ooc-sl oom GRNST,rr scat dns-sl ool occ plty PKST intcl,v sl anhy-occ ANHY xl-POR fl,sl DOL cmt,mg ool-mfr intxl POR,fr-mg bri yel FLOR,fr brn STN,tr blk dd o STN,mfr-mg slow-mod fast stmg mlky CUT"

DEPTH	LITHOLOGY
5770.00 5790.00	"LS AA,mg POR-FLOR-STN-CUT"
5790.00 5820.00	"LS tan-brn,v rr ltgybrn,micxl-vfxl,occ gran-sl micsuc,pred ooc-sl oom GRST,scat dns crm-wh chk-sl plty sl ool PKST intcl,sl dol-anhy,occ ANHY fl POR,fr ool-intxl POR,fr-mg bri-dull yel FLOR,fr brn-tr blk dd o STN,mfr-mg mod slow-mod fast stmg mlky CUT"
5820.00 5850.00	"LS AA,w/sl incr PKST intcl,fr-mg bri-tr dull yel FLOR,mfr-fr ool-fr intxl POR,mfr-fr ltbrn-brn STN,tr blk dd o STN,mfr-mg slow-mod fast stmg CUT"
5850.00 5880.00	"LS pred tan-ltbrn,rr brn-v rr ltgybrn,pred ooc-sl oom GRNST,AA,incr dns plty-cky sl ool occ anhy PKST intcl,fr-mg intxl-ool POR,mg FLOR,fr ltbrn-tr brn STN,rr-sl tr blk dd o STN,mfr-mg stmg CUT"
5900.00 5920.00	"LS tan-ltbrn-ltgybrn,AA,pred ooc-sl oom GRST,scat dns sl ool PKST intcl,fr ool-intxl POR,fr-mg bri-dull yel FLOR,fr brn-tr blk dd o STN,mfr-mg mod slow-mod fast stmg mlky CUT"
5920.00 5950.00	"LS pred tan-ltbrn-rr brn,micxl-vfxl,occ gran-micsuc,pred ooc-sl oom GRNST,w/scat dns sl ool occ chk-plty PKST-tr ANHY fl POR,sl dol,fr-mg intxl-ool POR,fr bri-dull yel FLOR,fr-mfr ltbrn-rr brn STN-v rr spty blk dd o STN,mfr-fr slow-fast stmg mlky CUT"
5950.00 5980.00	"LS AA,sl incr dns trnsl ANHY xl-incl,fr ltbrn-tr blk STN,mfr-mg ool-fr intxl POR,fr bri-dull yel FLOR,mg slow-mod fast-tr fast stmg mlky CUT"
5980.00 6000.00	"LS AA,incr dns sl ool occ chk-plty PKST intcl-lams,sl decr POR-FLOR-STN-CUT"
6000.00 6020.00	"LS pred tan-ltbrn-rr brn,micxl-vfxl,occ gran-micsuc,pred ooc-sl oom GRNST,w/scat dns sl ool occ chk-plty PKST,rr ANHY xl-POR fl,sl dol,fr-mg intxl-ool POR,fr bri-dull yel FLOR,fr-mfr ltbrn-rr brn STN-v rr spty blk dd o STN,mfr-fr slow-fast stmg mlky CUT"
6020.00 6050.00	"LS sl incr brn,AA,occ incr DOL cmt,v rr trnsl CHT frag-sl incr trnsl ANHY xl,mg ool-intxl POR,fr dull-mfr bri yel FLOR,fr brn-ltbrn STN,tr blk dd o STN,fr-mg slow-mod fast-tr fast stmg mlky CUT"
6050.00 6080.00	"LS AA,n-v rr CHT frag-v rr ANHY xl-POR fl,POR-FLOR-STN-CUT AA"
6080.00 6110.00	"LS tan-ltbrn,occ ltgybrn-rr brn,micxl-vfxl,occ gran-sl suc,pred ooc-sl oom GRNST,rr dns sl ool PKST-anhy-ANHY xl-incl,occ DOL cmt,mg-g intxl-ool POR,fr dull-bri yel FLOR,mfr-fr ltbrn-brn STN,mf-mg slow-mod fast-tr fast stmg mlky CUT "
6110.00 6140.00	"LS AA,sl incr ANHY xl-incl,v rr scat trnsl-clr CHT frag,POR-FLOR-STN-CUT AA"

DEPTH	LITHOLOGY
6140.00	6170.00 "LS AA sl incr brn-blk STN,POR-FLOR-CUT AA"
6170.00	6240.00 "LS tan-ltbrn,occ ltgybrn-rr brn,micxl-vfxl,occ gran-sl suc,pred ooc-sl oom GRNST,rr dns sl ool PKST-anhy-ANHY xl-incl,occ DOL cmt,mg-g intxl-ool POR,fr dull-bri yel FLOR,mfr-fr ltbrn-brn STN,mfr-mg slow-mod fast-tr fast stmg mlky CUT "
6240.00	6270.00 "LS ltbrn-brn,ltgybrn ip,micxl-vfxl GRNST AA,sl incr ANHY incl-POR fl,scat DOL-tr ANHY cmt,n-v rr CHT frag,sl tr scat PKST intcl,mg-g intxl-fr-mg ool POR,fr bri-dull yel FLOR,fr-mg ltbrn STN,sl tr blk dd o STN,mg slow-mfr mod fast-tr fast stmg mlky CUT"
6270.00	6280.00 "LS AA,sl incr ANHY cmt,v rr CHT frag,mfr bri-mg dull yel FLOR,POR-STN-CUT AA"
6280.00	6290.00 "LS AA,incr dns anhy v ool-v sl ooc PKST intcl-lams,decr intxl POR,mg dull-mfr bri yel FLOR,incr blk dd o STN-mfr ltbrn STN,CUT AA"
6290.00	6310.00 "LS tan-ltbrn,rr ltgybrn-brn,crpxl-vfxl,occ gran-sl suc,pred ooc-sl oom GRNST,tr dns sl ool PKST intcl w/ ANHY xl-cmt,occ DOL cmt,fr-mg intxl-fr ool POR,fr-mg dull-mfr bri yel FLOR,fr ltbrn-tr blk STN,fr-mg slow-mod fast-sl tr fast stmg mlky CUT "
6310.00	6340.00 "LS AA,w/sl decr intxl-ool POR & sl incr ANHY cmt-POR FL,FLOR-STN-CUT AA"
6340.00	6370.00 "LS tan-ltbrn,rr ltgybrn,crpxl-vfxl,occ gran-v sl micsuc,pred ooc-sl oom GRNST,tr dns ool PKST intcl-ANHY cmt-incl,sl DOL cmt,fr-mg ool-fr intxl POR,fr dull-mfr bri yel FLOR,fr ltbrn-tr brn STN-tr blk dd o STN,mfr-fr slow-mod fast-tr fast stmg mlky CUT "
6370.00	6410.00 "LS AA,pred ooc-sl oom GRNST,w/tr dns sl ool v anhy PKST intcl,scat DOL & ANHY cmt,fr-mg intxl-mfr-fr ool POR,FLOR-STN-CUT AA"
6410.00	6460.00 "LS tan-ltbrn,rr ltgybrn,crpxl-vfxl,occ gran-sl micsuc,pred ooc-ool GRNST,sl tr dns sl ool-ool PKST,occ anhy-ANHY xl-incl,sl tr DOL cmt,fr-mg intxl-ool POR,fr-mg dull-mfr bri yel FLOR,mfr ltbrn-tr brn-rr blk STN,mf-mg slow-mod fast-tr fast stmg mlky CUT "
6460.00	6490.00 "LS AA,occ incr ANHY fl ool POR,v rr trnsl CHT frag,pred fr-mg ool-fr intxl POR,mg dull-mfr bri yel FLOR,STN-CUT AA"
6491.00	6510.00 "LS AA,pred fr-mg intxl-fr ool POR,fr bri-dull yel FLOR,fr ltbrn-tr brn STN-rr-tr blk dd o STN,fr-mg mod fast-fast stmg mlky CUT"
6510.00	6540.00 "LS tan-ltbrn,rr ltgybrn-brn,micxl-vfxl,occ gran-sl suc,pred ooc-sl oom GRNST,tr dns crpxl sl ool PKST w/tr ANHY xl-cmt,occ DOL cmt,mg intxl-ool POR,fr-mg bri-fr dull yel FLOR,fr ltbrn-tr brn-sl tr blk STN,fr-mg mod fast-fr fast stmg mlky CUT "

DEPTH	LITHOLOGY
6540.00 6560.00	"LS AA,incr chk PKST frag,incr intxl POR,fr dull-bri yel FLOR,mfr ltbrn-brn STN-sl tr blk dd o STN,fr-mg mod fast-fast stmg mlky CUT"
6560.00 6590.00	"LS tan-ltbrn,rr ltgybrn,micxl-vfxl,occ gran-micsuc,pred ooc-sl oom GRNST,sl tr dns crpxl anhy ip sl ool PKST w/occ ANHY incl-cmt,DOL cmt ip,mg intxl-fr ool POR,fr dull-bri yel FLOR,fr ltbrn-brn STN-sl tr blk dd o STN,mg mod fast-mfr fast stmg mlky CUT "
6590.00 6620.00	"LS tan-ltbrn,pred v sl ooc-oom GRNST,rr crm-tan PKST frag,v g intxl-tr ool POR,FLOR-STN-CUT AA"
6620.00 6650.00	"LS tan-ltbrn,rr ltgybrn,micxl-vfxl,occ gran-micsuc,pred ooc-sl oom GRNST,sl tr dns crpxl anhy ip sl ool PKST w/occ ANHY incl-cmt,DOL cmt ip,mg intxl-fr ool POR,fr dull-bri yel FLOR,fr ltbrn-brn STN-sl tr blk dd o STN,mg mod fast-mfr fast stmg mlky CUT "
6650.00 6680.00	"LS AA,pred ltbrn,scat dns crpxl ool v anhy PKST intcl,mfr-mg intxl-ool POR,FLOR-STN-CUT AA"
6680.00 6710.00	"LS AA,POR-FLOR-STN-CUT AA"
6710.00 6740.00	"LS tan-ltbrn,occ brn,micxl-vfxl,tr gran-micsuc,pred ooc-sl oom GRNST,scat dns crpxl anhy ip sl ool chk ip PKST w/tr ANHY incl-cmt,DOL cmt ip,mg intxl-fr ool POR,mg dull-bri yel FLOR,fr ltbrn-brn STN-rr blk dd o STN,mg slow-fr mod fast stmg mlky CUT "
6740.00 6770.00	"LS AA,pred ooc-sl oom GRNST,mg ool-fr intxl POR,mg dull-mfr-fr bri yel FLOR,fr brn-tr dkbrn STN,tr blk dd o STN,fr-mg slow-mod fast-mfr fast stmg mlky CUT"
6770.00 6796.00	"LS tan-ltbrn,tr brn,micxl-vfxl,tr gran-micsuc,pred ooc-sl oom GRNST,scat dns crpxl anhy ip sl ool chk ip PKST w/tr ANHY incl-cmt,DOL cmt ip,mg intxl-ool POR,fr dull-bri yel FLOR,mg ltbrn-fr brn STN-tr blk dd o STN,mg slow-fr mod fast stmg mlky CUT "

FORMATION TOPS

OPERATOR: MOBIL

WELL NAME: RATHERFORD UNIT #20-31 SE 1-A HORIZONTAL LATERAL LEG #1

FORMATION NAME		SAMPLES MEASURED DEPTH	SAMPLES TRUE VERTICAL DEPTH	DATUM KB:4769'
LOWER ISMAY		5473'	5470'	-701'
GOTHIC SHALE		5549'	5531'	-762'
DESERT CREEK		5562'	5538'	-769'
UPPER DC 1-A ZONE		5569'	5542'	-773'

GEOLOGICAL SUMMARY

AND

ZONES OF INTEREST

The Mobil Exploration and Production U.S., Inc., Ratherford Unit #20-31 Southeast Horizontal Lateral Leg #1 was a re-entry of the Mobil Ratherford Unit #20-31 located in Section 20, T41S, R24E, and was sidetracked in a southeasterly direction from 5440' measured depth, 5439' true vertical depth, on November 27, 1998. The lateral was terminated a measured depth of 6796', true vertical depth of 5555' at total depth, with a horizontal displacement of 1200' and true vertical plane of 129 degrees on November 29, 1998, in the 1-A porosity zone in the Upper Desert Creek Member of the Paradox Formation. The curve and lateral were drilled with fresh water and brine water with polymer sweeps as the drilling fluid. The proposed target line was used as a reference point throughout the lateral. The curve and lateral sections were drilled with no significant mechanical problems. There was no measurable flow or loss of fluid throughout the lateral and curve sections, and the drilling fluid was ran through the gas buster as soon as the lateral section was begun.

The purpose of the Ratherford Unit #20-31 southeast lateral Leg #1 was to penetrate and drill 1600' horizontally in the Desert Creek 1-A porosity bench. To evaluate the effective porosity and permeability, the hydrocarbon and gas potential, possible thickness of the carbonate facies and to define the lithology. In this southeasterly direction, the 1-A porosity bench appeared to have a very consistent, well-developed thickness and porosity. The curve kicked-off in the Upper Ismay carbonate cycle on November 26, 1998 before encountering the typical stratigraphic sections of the Lower Ismay carbonate cycle, Gothic Shale, Desert Creek transition zone and the Desert Creek 1-A porosity bench of the Upper Paradox Formation.

The curve section began at a measured depth of 5440', true vertical depth 5439' in the Upper Ismay carbonate cycle of the Upper Paradox Formation. The lower 43' of the Upper Ismay was dense to tight, light brown, tan, cream to off-white, dense limestone. This cryptocrystalline to microcrystalline limestone was slightly dolomitic, chalky and anhydritic, and had traces of earthy to argillaceous texture. Associated with this facies are traces anhydrite crystals, very rare fossil fragments, scattered buff to light brown chert fragments, very rare thin dark gray to black carbonaceous soft shale and trace light gray, gray to dark gray brown cryptocrystalline to microcrystalline, earthy very thinly interbedded lenses of dolomite. A facies change occurred at or approximately 5460' true vertical depth. The dense limestone and thin dolomites at the base of the Upper Ismay became increasingly marly and graded into the black to dark gray, slightly to very limey and dolomitic shale of the Hovenweep Shale. The Upper Ismay carbonate exhibited visible porosity and no sample show. The thin Hovenweep shale was seen as a minor increase in the penetration rate as well as a slight increase in dark gray to black shale. The Hovenweep Shale was noted from 5469' to 5473' measured depth, 5467' to 5470' true vertical depth, with the shale being poorly represented in the samples.

The top of the Lower Ismay member of the Upper Paradox Formation was picked at a measured depth of 5473', true vertical depth 5470', based primarily on sample identification and a very slight decrease in the rate of penetration. The upper 26' of the Lower Ismay was predominately a tan to cream, brown to dark gray brown, cryptocrystalline to microcrystalline, very slightly anhydritic to very rare thin anhydrite streaks, dense, slightly fossiliferous limestones. These limestones had thinly interbedded argillaceous to clean, brown to medium brown, microcrystalline dolomites, very thin black

carbonaceous shale partings and rare chert fragments. The Lower Ismay, from measured depths of 5499' to 5511', was a white to cream to tan, brown to light gray, crypto to microcrystalline, argillaceous to chalky, occasionally clean to dense, slightly silty to very silty streaks, and graded to a very limey, slightly sandy cream to light gray siltstone. These limestones had no visible porosity or sample show. This interval had very thinly interbedded tan to light to dark brown, microcrystalline, dense dolomites with an argillaceous texture. Scattered through out this interval were very thin, dark gray to black, slightly carbonaceous shale laminations and rare scattered brown to black chert fragments. As the curve continued in the Lower Ismay the limestones, from the measured depths of 5511' to 5535', were predominately white to cream to light gray, tan to brown, cryptocrystalline to microcrystalline, some very finely crystalline streaks, occasionally anhydritic, chalky and occasionally dolomitic, becoming slightly algal, with a marked decrease in the silty material. This limestone became increasingly dense with depth and had scattered streaks of microcrystalline, light to medium brown, earthy dolomites. Scattered through out this interval were rare microfossils and translucent to clear chert fragment, and very rare thin black carbonaceous shale partings. Associated with the limestones were very thin streaks of intercrystalline to very poor algal porosity, and had a very poor visible fluorescence, stain and hydrocarbon cut. The basal 14 feet of the Lower Ismay, from a measured depth of 5535' to a measured depth of 5549', was a very dense, slightly dolomitic limestone packstone and earthy limey dolomites. These limestones and dolomites became slightly to very marly with depth, and had scattered anhydrite interclasts and chert fragments. The basal limestones and thin dolomites were very tight with no visible porosity or sample show. The basal limestones and dolomites of the Lower Ismay carbonates graded into limey to dolomitic carbonaceous shales of the Gothic Shale.

The Gothic Shale was penetrated at a measured depth of 5549', true vertical depth 5531', and gradationally underlies the Lower Ismay. The top of the Gothic was picked by a gradual increase in the penetration rate and a significant increase in the amount of black carbonaceous shale in the cuttings. This shale member of the Upper Paradox Formation had a vertical thickness of 7 feet in this southeasterly direction. This shale is black to dark gray shale, carbonaceous, occasionally grainy to silty, soft to slightly firm, sooty, slightly fissile, subblocky to subplaty, calcareous to slightly dolomitic and slightly micaceous. Very thin partings of dense, very slightly argillaceous, occasionally dolomitic limestones and clean to very argillaceous limey dolomites were noted in this shale member. The Gothic overlays the top of the Desert Creek Member with a sharp contact.

The top of the Desert Creek Member of the Upper Paradox Formation was picked at a measured depth of 5562', 5538' true vertical depth, in a rather abrupt decrease in penetration rate and an increase in the amount of dense limestone packstone in the samples. This transition zone had a true vertical thickness of approximately four feet. The transition zone between the Gothic Shale and the top of the Upper Desert Creek 1-A porosity zone was predominately a dense limestone packstone, which had streaks of a very argillaceous texture and had thinly interbedded argillaceous to dense, slightly limey to marlstones dolomites. Also noted were very thin black carbonaceous shale partings and very rare anhydrite inclusions. The limestones of the transition zone are light brown to tan to cream, with some white, cryptocrystalline to microcrystalline, with very rare very finely crystalline streaks, dense to slightly silty, and very slightly dolomitic. Scattered in the limestones are very thin, dark brown, very argillaceous, very slightly marly, limey, dense dolomites and rare very thin black, slightly micaceous, calcareous, very slightly carbonaceous shales partings. The limestones of the transition zone had a streak of very poor intercrystalline porosity, with a very poor, weak sample show. Near the base of the transition zone the dense limestones became increasingly oolitic and graded in to the oolitic to oomoldic limestones of the upper 1-A porosity bench.

The top of the Desert Creek Upper 1-A porosity zone was encountered at a measured depth of 5569', true vertical depth of 5538'. The top was picked on the lithology becoming predominately a good oolitic to oomoldic limestone grainstone with a significant increase in the penetration rate, visible porosity and sample show. A significant increase in the background gas was noted due to the amount of oil and gas was noted in the drilling fluid, with a small flare as the drilling fluid was put through the gas buster. This oolitic to oomoldic, very slightly algal limestone grainstones marked

the 1-A porosity zone and were continuous through out the curve section. A slight increase in algal material with a slightly decrease in oomoldic material was noted near the base of the curve section. The 1-A zone has an apparent thickness of almost 20' in this southeasterly direction. The limestones grainstones are tan to light brown to cream, microcrystalline to very fine crystalline, with a granular to slightly microsugrosic texture and were very slightly dolomitic. The grainstones have a very minor amount of anhydrite crystal growth in the oolcasts and molds as well as in the intercrystalline matrix and had very rare, scattered light brown chert fragments. The grainstone facies had a moderately good oomoldic to oolcastic fabric, with a moderately fair to moderately good oolitic to intercrystalline to a trace of algal porosity development. The sample show was fair to moderately good, with a trace of brown to light brown oil stain and had minor traces of black bichimum stain* filling on the crystal faces and in the oolcasts and molds. The oolcastic to oomoldic to slightly algal grainstones had a fair bright to occasionally dull yellow fluorescence and a fair moderately fast to a trace fast streaming cut. Scattered within the porous limestone grainstone were thin very slightly oolitic dense limestone packstones. These packstone fragments and laminations are cream to tan, occasionally white, cryptocrystalline to very slightly microcrystalline, slightly chalky to occasionally platy, clean and very slightly anhydritic. These packstones have no visible porosity or sample show.

The curve portion of the lateral was completed at a measured depth of 5636', true vertical depth 5558', at a horizontal displacement of 41.5', bearing 139 degrees, with an inclination of 88.7°, on November 27, 1998, in the lower half of the 1-A porosity zone. At this point a trip was made to lay down the curve assembly and pickup the lateral assembly.

Drilling of the northwest lateral was resumed also on November 27, 1998, in the lower of the Upper Desert Creek 1-A porosity zone of the Upper Paradox Formation. The lateral was slid for the first 65' in order to slowly level and turn the lateral upward to the target line, to control the horizontal plane direction and to put the lateral assembly out far enough to begin rotating. The lateral was begun in the good oolcastic to oomoldic limestone grainstone facies. This limestone grainstone was a tan to light brown, some brown, microcrystalline to very fine crystalline, granular to microsugrosic, oolcastic to oomoldic, slightly dolomitic, with occasionally calcite and anhydrite cement and cast filling. These grainstones had a fair to good oolitic to intercrystalline porosity, a moderately good bright yellow fluorescence, a moderately fair light brown to brown oil stain, with trace to poor black bichimum* stain, and a moderate to moderately fair fast to slow streaming cut. Increases in dense, very slightly oolitic, and occasionally chalky to platy packstone was noted when very thin dense packstone streaks encountered.

As the well path was continued, the well path was turned upward at a shallow angle to reacquire the proposed target line. Upon reaching a measured depth of 5906', 5553.7' true vertical depth, with a horizontal displacement of 311' a zone of lower porosity or a very thin streak was encountered tuning the well path downward. The well path was continued downward and turned slowly level in the oolcastic to oomoldic limestone grainstones until reaching a measured depth of approximately 6120', a true vertical depth of 5560.7' and a horizontal displacement of 525', when the well path was forced upward by the formation at a slightly increased angle of 91.5°. No significant change in the rate of penetration or lithology was noted at this point. The well path was allowed to continue slowly upward in the good oolcastic to oomoldic limestone grainstone porosity, which had good visible porosity and a fair to moderately good sample show. As the lateral reached a measured depth of 6370', 5555.8' true vertical depth, with a horizontal displacement of 773', just as a slide was made to control the vertical climb and the horizontal direction, the top of the 1-A zone was approached or a zone of lower porosity was encountered. At this point the well path was forced downward, with only a minor change in the visible porosity, as a slight increase in the amount of scattered packstones was noted and a slight decrease in the amount of sample show noted. The well path continued to be rotated ahead with short slides to control the horizontal direction, along an almost horizontal path in the good oolcastic to oomoldic limestone grainstones, which had good visible oolitic to intercrystalline porosities and sample shows until the lateral's termination. Upon reaching a measured depth of 6796',

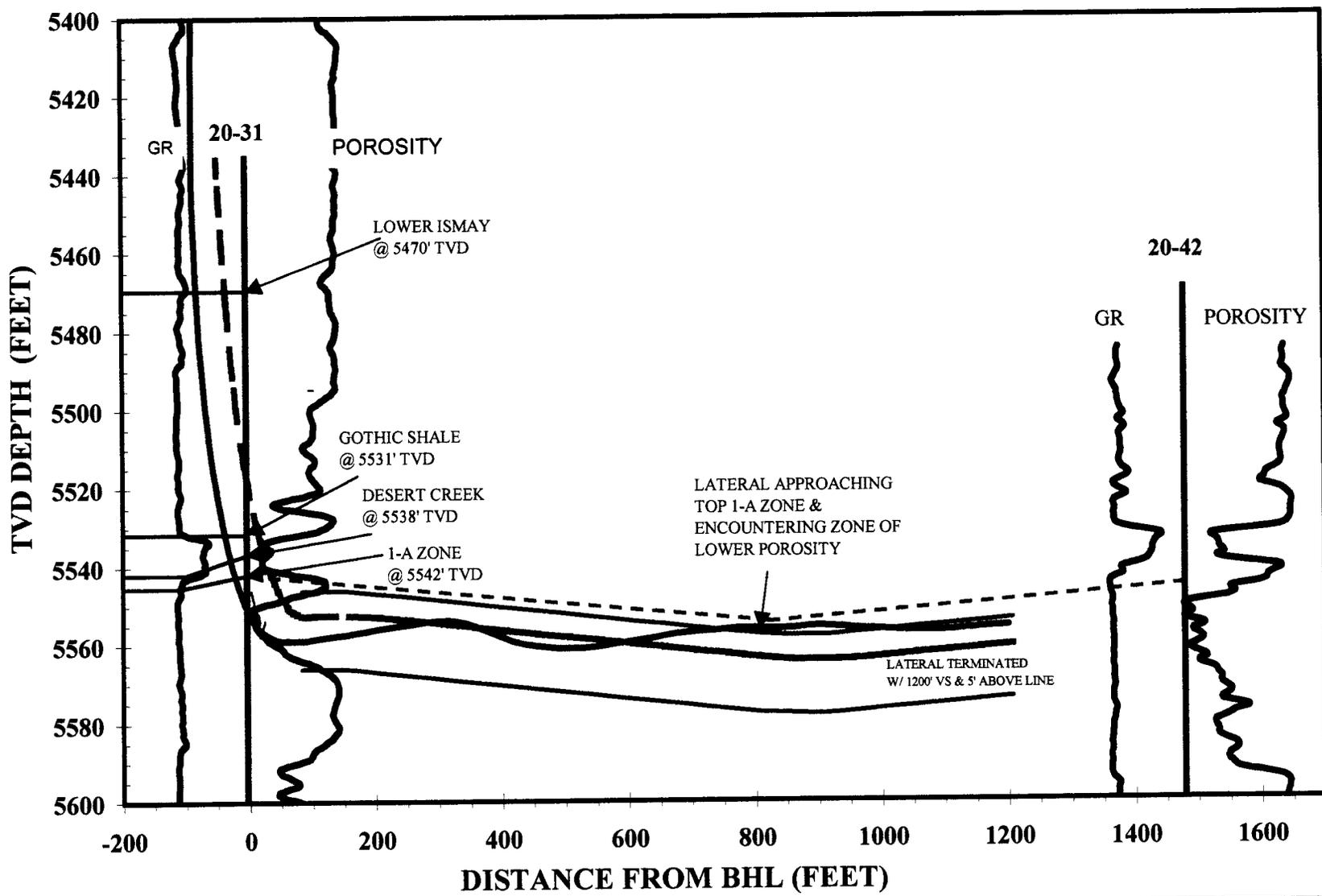
5556.3' true vertical depth, and a horizontal displacement of 1200', with an azimuth of 128.7 °, the lateral was terminated on November 29, 1998.

In tracking the lateral in this northwesterly direction, the oolitic to oomoldic limestone grainstone porosity had good sample shows, which remained very consistent through out the length of the lateral. Even when zones of lower porosity were encountered and the top 1-A zone was approached there were no significant change in penetration rate noted and only minor visible changes in the sample shows. The oolitic to oomoldic limestone grainstones of the upper 1-A porosity bench, showed predominately good oolitic to intergranular porosity, and a good sample show thorough out, and the lateral was terminated with a rather steady 10' flare. The lithology of the lateral showed with very minor decreases in the amount of visible porosity and increases in the tight dense limestone packstone, when the top was approached, as well as the very minor limestone packstone streaks were encountered. The lateral at its termination, was approximately 5' above proposed target line in the upper bench of Upper 1-A Desert Creek porosity zone. The well path was consistently above the proposed well path after reaching the midpoint of the lateral, as much as 9 feet.

From the beginning of the 20-31 southeast lateral Leg #1 to its termination on November 29, 1998, at a measured depth of 6796', 5555.3' true vertical depth and a horizontal displacement of 1200', the porosities are well enough developed to enhance the overall performance of the R. U. 20-31 production well. The lateral through its length, after acidization, will increase the overall production potential of the well.

*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 #20-31, Southeast Lateral Leg #1



MOBIL

**RATHERFORD UNIT #20-31
NW HORIZONTAL LATERAL LEG #2
UPPER 1-A POROSITY BENCH
DESERT CREEK MEMBER
PARADOX FORMATION
SECTION 20, T41S, R24E
SAN JUAN, UTAH**

**GEOLOGY REPORT
prepared by
DAVE MEADE
PASON/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 #20-31 NW HORIZONTAL LATERAL
LEG #2 IN 1-A POROSITY ZONE OF DESERT CREEK

LOCATION: SECTION 20, T41S, R24E

COUNTY/STATE: SAN JUAN, UTAH

ELEVATION: KB:4791' GL:4780'

SPUD DATE: 11/24/98

COMPLETION DATE: 12/03 /98

DRILLING ENGINEER: SIMON BARRERA / BENNY BRIGGS

WELLSITE GEOLOGY: DAVE MEADE / MARVIN ROANHORSE

MUDLOGGING ENGINEERS: DAVE MEADE / MARVIN ROANHORSE

CONTRACTOR: BIG "A" RIG 25
TOOLPUSHER: J. DEES

HOLE SIZE: 4 3/4"

CASING RECORD: SIDETRACK IN WINDOW AT 5425' MEASURED DEPTH

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

DIRECTIONAL DRILLING CO: SPERRY-SUN

ELECTICAL LOGGING: NA

TOTAL DEPTH: 5425' MEASURED DEPTH; TRUE VERTICAL DEPTH-5537.7'

STATUS: PREPARING WELL FOR RIG MOVE TO 19-32 LOCATION

DRILLING CHRONOLOGY
RATHERFORD UNIT #20-31
1-A NW HORIZONTAL LATERAL LEG #2

DATE	DEPTH	DAILY	ACTIVITY
11/30/98	6796'	2'	TIH W/RETRIEVING HOOK-FISH FOR WHIPSTOCK & SHEAR OFF-CIR OU-TOH-L.D. TOOLS & WHIPSTOCK #1-W.O. FISHING TOOLS-P.U. TOOLS-TIH W/OVERSOT & GRAPPLE-FISH OUT DEBRIS SUB & ANCHOR LATCH-TOH-L.D. FISHINGS-P.U. & ORIENT WHIPSTOCK #2-SET @ 5416'-MILL W/STARTER MILL 5416' TO 5418'-TOH-L. D. STARTER MILL-P.U. WINDOW MILLS-TIH
12/01/98	5416'	142'	CIR-MILL W/WINDOW MILLS 5418' TO 5425'-CIR OUT-PUMP 10 BBLS BRINE-L.D. 12 JTS PIPE-TOH-L.D. MILLS-P.U. CURVE ASSEM.-ORIENT & TEST-TIH-CIR TO CLEAN PIPE-R.U. GYRO DATA & RUN GYRO-TIME DRLG 5425' TO 5427'-DIR DRLG & WIRE LINE SURVEYS TO 5464'-PULL GYRO & RIG DOWN GYRO DATA-DIR DRLG & SURVEYS
12/02/98	5558'	561'	DIR DRLG & SURVEYS TO 5641'(T.D. CURVE @ 4:45 AM)-PUMP SWEEP & CIR OUT-PUMP 10 BBLS BRINE-L.D. 52 JTS DRL PIPE-TOH-L.D. CURVE ASSEM-P.U. LATERAL ASSEM.-ORIENT & TEST-TIH-CUT 60' DRLG LINE-TIH-DIR DRLG & SURVEYS
12/03/98	6119'	1187'	DIR DRLG & SURVEYS TO 7306'-PUMP 10 BBL SWEEP & CIR SPLS-TOH TO WINDOW-DISPLACE HOLD W/BRINE-TOH-L.D. LATERAL ASSEMBLY-P.U. RETRIEVING HOOK-TIH
12/04/98	7306'	0'	TIH-LATCH INTO WHIPSTOCK & RETRIEVE-L.D. WHIPSTOCK-TIH W/ RBP & SET PLUG-TOH-L.D. DRL PIPE & COLLARS-RIG DOWN & PREPARE TO MOVE TO 19-32 LOCATION

DAILY ACTIVITY

Operator: MOBIL

Well Name: RATHERFORD UNIT #20-31 NW 1-A HORIZONTAL LATERAL LEG #2

DATE	DEPTH	DAILY	DATE	DEPTH	DAILY
11/30/98	6796'	2'			
12/01/98	5416'	142'			
12/02/98	5558'	561'			
12/03/98	6119'	1187'			
12/04/98	7306'	TD			

BIT RECORD

OPERATOR: MOBIL

WELL NAME: RATHERFORD UNIT #20-31 NW 1-A HORIZONTAL LATERAL LEG #2

RUN	SIZE	MAKE	TYPE	IN/OUT	FTG	HRS	FT/HR
#1 (RR)	4 3/4"	STC	MF-37P	5425'/ 5641'	216'	17.5	12.34'
#2	4 3/4"	STC	MF-3P	5641'/ 7306'	1665'	28.0	59.5'

MUD REPORT

OPERATOR: MOBIL

WELL NAME: RATHERFORD UNIT #20-31 NW 1-A HORIZONTAL LATERAL LEG #2

DATE	DEPT H	WT	VIS	PLS	YLD	GEL	PH	WL	CK	CHL	CA	SD	OIL	WTR
11/30/98	6796'	8.8	26	1	1	0/0	11.0	NC	NC	48000	600	0%	0%	100%
12/01/98	5425'	9.0	26	1	1	0/0	10.0	NC	NC	69000	1800	0%	0%	100%
12/02/98	5641'	9.1	27	1	1	0/0	11.5	NC	NC	71000	1100	1%	0%	99%
12/03/98	6065'	9.4	28	1	1	0/0	10.0	NC	NC	107000	1840	1%	1%	98%

SPERRY-SUN DRILLING SERVICES
SURVEY DATA

Customer ... : Mobil (Utah)
Platform ... : RATHERFORD UNIT
Slot/Well .. : BA25/20-31 2A1

MEASURED DEPTH	ANGLE DEG	DIRECTION DEG	TVD	NORTHINGS FEET	EASTINGS FEET	VERTICAL SECTION	DOG LEG
5300.00	0.70	279.27	5298.59	62.17 N	61.42 W	86.97	0.00
5416.00	1.23	306.90	5414.57	63.03 N	63.12 W	88.71	0.60
5425.00	4.70	321.00	5423.56	63.38 N	63.43 W	89.17	39.11
5435.00	8.10	323.38	5433.50	64.26 N	64.10 W	90.28	34.10
5445.00	12.90	324.22	5443.33	65.73 N	65.18 W	92.10	48.02
5455.00	17.70	324.66	5452.97	67.88 N	66.71 W	94.73	48.01
5465.00	22.30	324.92	5462.36	70.67 N	68.68 W	98.15	46.01
5475.00	26.90	325.10	5471.45	74.08 N	71.07 W	102.30	46.01
5485.00	31.00	325.24	5480.20	78.06 N	73.83 W	107.12	41.01
5495.00	35.40	325.34	5488.57	82.56 N	76.95 W	112.58	44.00
5505.00	39.90	325.43	5496.48	87.58 N	80.42 W	118.67	45.00
5515.00	44.10	325.50	5503.91	93.09 N	84.21 W	125.34	42.00
5525.00	47.90	322.30	5510.86	98.90 N	88.45 W	132.52	44.42
5535.00	51.40	317.60	5517.33	104.72 N	93.36 W	140.14	50.06
5545.00	53.80	322.40	5523.41	110.81 N	98.46 W	148.08	45.05
5555.00	57.20	322.60	5529.07	117.35 N	103.47 W	156.31	34.04
5565.00	60.30	323.70	5534.26	124.19 N	108.60 W	164.86	32.39
5575.00	63.10	321.50	5539.00	131.18 N	113.95 W	173.65	34.05
5585.00	66.00	324.10	5543.30	138.37 N	119.40 W	182.68	37.31
5595.00	69.90	322.30	5547.05	145.79 N	124.95 W	191.94	42.42
5605.00	74.90	322.20	5550.08	153.33 N	130.79 W	201.46	50.01
5615.00	79.70	321.70	5552.27	161.01 N	136.80 W	211.22	48.25
5641.00	88.50	318.20	5554.94	180.78 N	153.43 W	237.04	36.39
5676.00	90.30	320.40	5555.31	207.31 N	176.25 W	272.02	8.12
5707.00	89.30	321.30	5555.42	231.35 N	195.82 W	303.02	4.34
5738.00	88.90	321.40	5555.91	255.55 N	215.18 W	334.02	1.33
5770.00	89.60	322.00	5556.32	280.66 N	235.01 W	366.01	2.88
5802.00	90.30	321.90	5556.35	305.86 N	254.73 W	398.01	2.21
5834.00	90.40	321.50	5556.16	330.97 N	274.56 W	430.00	1.29
5865.00	91.90	322.20	5555.54	355.35 N	293.71 W	460.99	5.34
5897.00	89.60	321.90	5555.12	380.58 N	313.38 W	492.98	7.25
5929.00	90.70	322.70	5555.03	405.90 N	332.95 W	524.97	4.25
5961.00	91.50	323.10	5554.42	431.41 N	352.25 W	556.95	2.79
5992.00	91.30	323.10	5553.66	456.20 N	370.86 W	587.92	0.65
6023.00	91.70	322.90	5552.85	480.95 N	389.51 W	618.89	1.44
6054.00	92.10	322.60	5551.82	505.61 N	408.26 W	649.86	1.61
6086.00	91.80	322.60	5550.73	531.01 N	427.69 W	681.83	0.94
6118.00	92.30	322.00	5549.59	556.32 N	447.24 W	713.80	2.44

SPERRY-SUN DRILLING SERVICES
SURVEY DATA

Customer ... : Mobil (Utah)
Platform ... : RATHERFORD UNIT
Slot/Well .. : BA25/20-31 2A1

MEASURED DEPTH	ANGLE DEG	DIRECTION DEG	TVD	NORTHINGS FEET	EASTINGS FEET	VERTICAL SECTION	DOG LEG
6150.00	92.30	320.80	5548.30	581.30 N	467.19 W	745.77	3.75
6181.00	92.20	321.00	5547.09	605.34 N	486.73 W	776.75	0.72
6213.00	92.20	320.80	5545.86	630.16 N	506.89 W	808.72	0.62
6244.00	91.80	319.20	5544.78	653.89 N	526.81 W	839.70	5.32
6275.00	91.90	319.60	5543.77	677.42 N	546.97 W	870.67	1.33
6307.00	91.40	319.60	5542.85	701.78 N	567.70 W	902.65	1.56
6339.00	90.40	318.70	5542.35	725.98 N	588.63 W	934.63	4.20
6371.00	90.40	319.60	5542.13	750.18 N	609.56 W	966.61	2.81
6402.00	90.00	319.60	5542.02	773.79 N	629.65 W	997.60	1.29
6434.00	90.10	319.90	5541.99	798.21 N	650.33 W	1029.59	0.99
6466.00	90.40	320.50	5541.85	822.80 N	670.81 W	1061.59	2.10
6498.00	91.10	321.30	5541.43	847.63 N	690.99 W	1093.58	3.32
6529.00	91.30	321.30	5540.78	871.82 N	710.37 W	1124.58	0.65
6560.00	91.90	321.30	5539.92	896.00 N	729.74 W	1155.57	1.94
6592.00	91.80	321.50	5538.88	921.00 N	749.70 W	1187.55	0.70
6624.00	90.10	321.00	5538.35	945.95 N	769.72 W	1219.54	5.54
6656.00	89.90	321.50	5538.35	970.90 N	789.75 W	1251.54	1.68
6688.00	93.50	322.00	5537.40	996.02 N	809.55 W	1283.52	11.36
6719.00	94.00	323.10	5535.38	1020.58 N	828.36 W	1314.44	3.89
6751.00	91.70	321.50	5533.79	1045.86 N	847.90 W	1346.39	8.75
6783.00	89.30	321.90	5533.51	1070.97 N	867.73 W	1378.38	7.60
6815.00	88.40	320.80	5534.15	1095.96 N	887.72 W	1410.38	4.44
6847.00	88.60	321.50	5534.99	1120.87 N	907.78 W	1442.36	2.27
6878.00	88.40	320.60	5535.80	1144.97 N	927.26 W	1473.35	2.97
6910.00	86.60	320.10	5537.19	1169.58 N	947.66 W	1505.32	5.84
6941.00	86.70	320.10	5539.01	1193.32 N	967.51 W	1536.26	0.32
6972.00	88.90	321.00	5540.20	1217.24 N	987.19 W	1567.24	7.67
7003.00	87.70	320.30	5541.11	1241.20 N	1006.84 W	1598.22	4.48
7035.00	88.00	319.80	5542.32	1265.72 N	1027.37 W	1630.19	1.82
7066.00	89.90	318.70	5542.88	1289.20 N	1047.60 W	1661.17	7.08
7098.00	90.60	318.70	5542.74	1313.24 N	1068.72 W	1693.15	2.19
7130.00	91.40	319.80	5542.19	1337.47 N	1089.61 W	1725.13	4.25
7161.00	93.30	320.50	5540.91	1361.25 N	1109.46 W	1756.10	6.53
7193.00	93.40	320.30	5539.04	1385.87 N	1129.82 W	1788.04	0.70
7225.00	90.20	319.00	5538.04	1410.24 N	1150.52 W	1820.01	10.79
7256.00	90.40	319.20	5537.88	1433.67 N	1170.82 W	1850.99	0.91
7273.00	90.20	319.60	5537.79	1446.58 N	1181.88 W	1867.98	2.63
* 7306.00	90.20	319.60	5537.67	1471.71 N	1203.27 W	1900.97	0.00 *

SAMPLE DESCRIPTIONS

OPERATOR: MOBIL

WELL NAME: RATHERFORD UNIT #20-31 NW 1-A HORIZONTAL LATERAL LEG #2

DEPTH	LITHOLOGY
5425.00 5430.00	"LS tan-ltbrn,occ crm-rr wh,crpxl-micxl,rthy-chk ip,pred cln-dns,v sl arg,occ dol,tt-NFSOC,w/scat thn blk carb SH lams,tr CMT & METAL FRAG"
5430.00 5440.00	"LS AA,decr CMT & METAL FRAG,incr SH lams & v rr tan-ltbrn CHT frag"
5440.00 5450.00	"LS crm-tan-brn,crpxl-micxl,rthy-chk ip,pred cln-dns,sl dol,tt,NFSOC,scat blk-dkgy sbblky calc-sl dol carb SH lams,rr brn-mbrn micxl-crpxl rthy-cln sl lmy DOL incl tt NFSOC & dkgy-dkbrn CHT frag"
5450.00 5470.00	"LS lt-mbrn,tan,occ ltgybrn-ltgy,crm-off wh,crpxl-micxl,pred cln-dns,occ rthy-chky-sl mrly ip,sl dol,tt,NFSOC,tr SH blk-dkgy,sbblky-sbplty,calc-sl dol,carb & tr DOL,mbrn-dkbrn,micxl-crpxl,cln,sl rthy,sl lmy-grdg to dol LS,tt,NFSOC & tr CHT AA"
5470.00 5480.00	"LS AA,crpxl-micxl,rthy-chky-sl mrly ip,occ cln-dns,sl dol,tr blk SH lam,tt-rr intxl POR,NFSOC/tr DOL,mbrn-dkbrn,micxl-crpxl,rthy-arg,sl lmy-grdg to dol LS,tt,NFSOC & tr CHT dkbrn-brnblk"
5480.00 5500.00	"LS lt-mgybrn-ltgy,occ crm-off wh,ltbrn-tan,crpxl-micxl,rthy-chk-sl mrly ip,tr slty-sdy frag,rr fos,tt-tr intxl POR,tr dull yel FLOR,no vis STN,fr slow dif/fnt res ring CUT,w/scat-occ intbd DOL,brn-dkbrn,crpxl-micxl,rthy-arg-sl shy ip,dns,tt-rr intxl POR,tr dull yel FLOR,tr brn STN,tr slow dif/fnt res ring CUT"
5500.00 5520.00	"LS crm-ltgy-wh,occ tan,ltgybrn,tr m-dkbrn,micxl-crpxl,occ xln,cln-occ rthy,chk-sl mrly-anhy/tr xln ANHY strks,occ sl-v slty-sl sdy & occ grdg to vf gr SS/lmy mtx & LS incl,tr frac-intxl POR,g-fr scat mod bri-dull yel FLOR,rr ltbrn-blk dd o STN,tr slow stmg mlky CUT,w/DOL AA"
5520.00 5530.00	"LS AA bcmg incr xln,cln-occ rthy,chk-sl mrly-anhy/tr xln ANHY,tr sl-v slty frag AA,fr frac-intxl POR,g scat mod bri-dull yel FLOR,tr dkbrn & incr pp blk dd o STN,mg slow stmg mlky CUT"
5530.00 5550.00	"DOL ltbrn-bf,micxl-vfxl-sl gran,rthy-sl slty,arg,pred cln-dns,sl calc-occ lmy ip & grdg to dol LS,tr pp LS incl-rr xln ANHY incl,tt-tr intxl POR,g even bri-mod bri yel FLOR,fr ltbrn STN,g mod fast-slow stmg mlky CUT,w/LS AA,POR-FLOR-STN-CUT AA"
5550.00 5560.00	"LS tan-crm-ltgy-wh,occ ltgybrn,rr brn,crpxl-micxl,rr xln intcl,cln,chk-sl mrly,sl anhy/rr xln ANHY,fos,dns,tt-tr intxl-rr frac POR,fr scat mod bri-dull yel FLOR,no vis STN,fr dif/v fnt res ring CUT,w/ DOL AA,POR-FLOR-STN-CUT AA"

DEPTH	LITHOLOGY
5560.00	5580.00 "SH dkbrnblk-blk-dkgyblk, frm-mfrm-sft, sbblky-blky-plty, carb, calc-sl lmy, slty ip, rr pp mica, sooty, w/scat DOL & LS AA "
5580.00	5590.00 "SH AA, bcmg LS tan-brn, gybrn-crm, crpxl-micxl, rthy-cln, dns, sl anhy-ANHY incl, dns, tt, NFSOC & v thn brn-gybrn-dkbrn micxl rthy-cln lmy sl arg tt DOL incl-lams, NFSOC"
5590.00	5600.00 "LS crm-tan-brn, occ gy, crpxl-micxl, v rr vfxl, gran-slty ip, rr sl oom-oom GRNST, cln-dns, occ rthy, scat ANHY cmt-ANHY incl, tt-rr intxl-ool POR, tr-mfr dull-bri yel FLOR, v rr spty brn STN, n-tr slow dif-rr slow stmg CUT, w/thn DOL AA & scat blk SH lam AA"
5600.00	5620.00 "LS crm-tan, occ ltgy, ltbrn-brn ip, crpxl-micxl, occ gran-misuc, rthy-chk, occ cln-dns, bcmg sl ooc-oom GRNST, sl anhy-rr ANHY incl-sl DOL cmt, scat dns PKST intcl, tr-mfr inxl-tr ool POR, mfr brn-tr dull yel FLOR, rr-tr brn-v rr blk STN, fr slow dif-mfr stmg CUT"
5620.00	5641.00 "LS pred tan-ltbrn, occ crm-ltgy, crpxl-vfxl, gran-micsuc ip, pred ooc-oom GRNST w/scat dns occ chk sl ool PKST intcl, sl anhy-dol AA, incr ool-intxl POR, fr bri-tr dull yel FLOR, fr ltbrn STN, sl tr blk dd o STN, fr-mg slow-fast stmg mlky CUT, decr DOL & SH frag"
5641.00	5660.00 "LS tan-ltbrn, occ brn, crpxl-vfxl, gran-micsuc ip, pred ooc-sl oom GRNST, scat dns occ chk anhy sl ool PKST intcl, sl tr ANHY-DOL cmt, v rr ANHY incl, fr-mg ool-fr intxl POR, mg bri-rr dull yel FLOR, fr brn STN-tr blk dd o STN, mg mod fast-tr fast stmg mlky CUT"
5660.00	5670.00 "LS AA, pred ooc-sl oom GRNST, w/tr dns sl ool PKST intcl, POR-FLOR-STN-CUT AA"
5670.00	5700.00 "LS tan-crm-off wh, occ ltbrn, tr brn, vfxl-gran-micsuc, tr micxl-crppl, pred ool-oom GRNST, tr dns sl ool-oom PKST frag-intcl, sl chky-anhy/tr-occ fr POR fl, rr xln ANHY-plty ptgs, rr agl mat, dol/tr DOL cmt, mg-g ool-oom/tr intxl POR, mg scat bri-mod bri yel FLOR, mg-fr ltbrn/tr brn-rr blk dd o STN, mg-fr mod fast-slow stmg mlky CUT"
5700.00	5710.00 "LS AA, pred ool-oom GRNST/sl incr dns scat-intcl sl ool-oom PKST, bcmg incr chk-sl anhy/tr POR fl-rr ptgs & xln ANHY, POR AA, incr scat bri-mod bri yel FLOR, mg-fr ltbrn-tr brn/incr pp blk dd o STN, g fast-sl blooming mlky CUT"
5710.00	5740.00 "LS tan-ltbrn-crm, occ off wh, tr brn, vfxl-gran-micsuc, micxl-crppl, pred ool-oom GRNST, incr dns sl ool-oom/tr agl mat chk PKST frag-intcl/tr gran tex, sl anhy, tr POR fl, rr xln ANHY-plty ptgs, sl dol/tr DOL cmt, mg-g ool-oom/fr intxl POR, g even bri-mod bri yel FLOR, mg ltbrn-tr brn-sl incr blk dd o STN, g mod fast-slow stmg mlky CUT"
5740.00	5770.00 "LS AA, vfxl-gran-micsuc, micxl-crppl, pred GRNST AA, fr amt dns sl ool-oom chk PKST frag-intcl/tr agl incl & gran tex, sl anhy/tr POR fl-rr xln ANHY & ptgs, sl dol/tr DOL cmt, POR AA, g even mod bri-scat spty bri yel FLOR, STN AA, g fast-mod afst stmg mlky CUT"

DEPTH	LITHOLOGY
5770.00 5780.00	"LS AA,pred ool-oom GRNST,tr-fr amt PKST AA,chky-sl anhy/tr-fr POR fl-rr xln ANHY & ptgs,rr agl mat,dol/tr DOL cmt,POR-FLOR-STN-CUT AA"
5780.00 5810.00	"LS tan-crm,occ ltbrn,tr brn,off wh,vfxl-micxl,gran-sl micsuc,crpxl ip,ool-sl oom GRNST,tr dns sl ool-oom PKSTfrag-intcl/tr gran tex,chky-sl anhy/fr POR fl-tr xln ANHY-rr ptgs,sl dol,mg-fr ool-sl oom POR,mg scat bri-mod bri yel FLOR,fr-mg ltbrm-tr brn-rr blk dd o STN,mg slow-tr mod fast stmg mlky CUT"
5810.00 5840.00	"LS tan-ltbrn-crm,tr brn,wh,vfxl-gran-micxl,sl micsuc,micxl-crpxl,pred ool-oom GRNST,tr dns sl ool-oom PKST frag-intcl,tr agl mat,chky-anhy/fr POR fl-tr xln ANHY-rr ptgs,sl dol,POR-FLOR AA,fr-mg ltbrn-tr brn/rr blk dd o STN,CUT AA"
5840.00 5870.00	"LS AA,vfxl-gran-micsuc,micxl-crpxl,pred ool-oom GRNST,tr dns sl ool-oom PKST frag-intcl,chky-sl anhy/tr POR fl-rr xln ANHY & ptgs,tr agl mat & mic fos,sl dol,mg-g ool-oom/tr intxl POR,mg scat bri-mod bri yel FLOR,mg ltbrn-fr brn-tr blk dd o STN,CUT AA"
5870.00 5900.00	"LS tan-ltbrn-crm,occ brn,tr wh,vfxl-gran-micsuc,micxl-crpxl,pred ool-oom GRNST,tr dns sl ool-oom PKST frag-intcl/tr gran tex,sl chky-anhy/tr POR fl-rr xln ANHY-ptgs,rr agl mat,sl dol/tr DOL cmt,mg-g ool-oom/tr intxl POR,mg bri-mod bri yel FLOR,CUT AA"
5900.00 5930.00	"LS AA,vfxl-gran-sl micsuc,micxl-crpxl,pred ool-oom-sl ooc GRNST,tr PKST AA,sl-occ v chk-sl anhy/tr POR fl-rr xln ANHY-ptgs,tr agl mat-rr mic fos,sl dol/tr DOL cmt,mg-g ool-oom POR,mg bri-mod bri yel FLOR,g fast-mod fast stmg mlky CUT"
5930.00 5960.00	"LS tan-ltbrn-crm,occ brn,tr wh,vfxl-gran-micsuc,micxl-crpxl,pred ool-oom-sl ooc GRNST,tr dns sl ool-oom PKST frag-intcl/tr gran tex,bcmg incr chk-sl anhy/tr POR fl-rr xln ANHY & ptgs,sl dol/tr DOL cmt,mg-g ool-oom/tr intxl POR,mg-g bri-mod bri yel FLOR,mg-fr ltbrn-tr brn-blk dd o STN,g mod fast-fast stmg mlky CUT"
5960.00 5990.00	"LS AA,vfxl-gran-sl micsuc,micxl-crpxl,pred ool-oom-sl ooc GRNST,tr dns sl ool-oom PKST frag-intcl/tr gran tex,chky-sl anhy/tr-fr POR fl-rr xln ANHY & ptgs,rr agl mat,sl dol/tr DOL cmt,g-mg ool-oom/tr intxl POR,g bri-mod bri yel FLOR,g mod fast-slow stmg mlky CUT"
5990.00 6030.00	"LS tan-ltbrn,occ brn,crm,tr wh,vfxl-gran-micsuc,micxl-crpxl,pred ool-oom GRNST,tr dns sl ool-oom PKST frag-intcl/tr gran tex,chky-sl anhy/tr POR fl-xln ANHY-rr ptgs,v rr agl mat,sl dol,mg-g ool-tr oom-intxl POR,mg-fr mod bri-spty bri yel FLOR,g mod fast-slow stmg mlky CUT"
6030.00 6060.00	"LS AA,vfxl-gran-micsuc,micxl-crpxl,pred ool-sl oom-oom GRNST,tr-fr amt dns sl ool-oom PKST frag-intcl/tr gran tex,chky-sl anhy/tr POR fl-xln ANHY & rr ptgs,rr mic fos,sl dol/tr DOL cmt,mg-g ool-sl oom-tr intxl POR,mg-fr even mod bri-bri yel FLOR,g mod fast-fast stmg mlky CUT"
6060.00 6100.00	"LS tan-ltbrn-crm,occ brn,tr wh,AA,pred ool-oom GRNST,tr PKST AA,sl-occ v chky-sl anhy/tr POR fl-xln ANHY-rr ptgs,tr mic fos-rr agl mat,dol/tr DOL cmt,mg-g ool-sl oom-tr intxl POR,mg-g scat bri-mod bri yel FLOR,mg ltbrn-tr brn/incr blk dd o STN,g mod fast-fast stmg mlky CUT"

DEPTH	LITHOLOGY
6100.00 6130.00	"LS tan-ltbrn, occ brn, crm, rr wh, vfxl-gran-micsuc, micxl-crpxl, pred ool-oom GRNST, tr dns sl ool-oom PKST frag-intcl/tr gran tex, sl chky-anhy/tr POR fl-xln ANHY-v rr ptgs, v rr agl mat & mic fos, dol/tr DOL cmt, mg-g ool-oom-tr intxl POR, g even bri-mod bri yel FLOR, mg-fr ltbrn-fr brn & blk dd o STN, g mod fast-fast stmg mlky CUT "
6130.00 6170.00	"LS tan-ltbrn-crm, occ brn, tr wh, vfxl-gran-micsuc, micxl-crpxl, pred ool-oom GRNST, tr dns sl ool-oom PKST frag-intcl/tr gran tex, sl chky-anhy/tr POR fl-rr xln ANHY-ptgs, rr agl mat, sl dol/tr DOL cmt, mg-g ool-oom/tr intxl POR, mg bri-mod bri yel FLOR, CUT AA"
6170.00 6200.00	"LS tan-ltbrn-crm, occ brn, rr wh, vfxl-gran-micsuc, micxl-crpxl, pred ool-oom GRNST, tr PKST AA/tr gran tex, sl chky-anhy/rr POR fl-xln ANHY & ptgs, v rr agl mat & mic fos, sl dol/tr DOL cmt, g-mg ool-sl oom POR, mg ltbrn-fr brn-blk dd o STN, FLOR AA, g fast stmg mlky CUT"
6200.00 6230.00	6205.34 0 "LS tan-ltbrn, occ brn, crm, rr wh, vfxl-gran-micsuc, micxl-crpxl, pred ool-oom GRNST, tr dns sl ool-oom PKST frag-intcl/tr gran tex, sl chky-anhy/tr POR fl-rr xln ANHY-ptgs, dol/tr DOL cmt, g-mg ool-oom/tr intxl POR, g even bri-mod bri yel FLOR, g-mg ltbrn-brn-fr blk dd o STN, g fast-mod fast stmg mlky CUT "
6230.00 6260.00	"LS AA, vfxl-gran-micsuc, micxl-crpxl, pred ool-oom GRNST, tr dns sl ool-oom PKST frag-intcl/tr gran tex, sl chky-anhy/tr POR fl-rr xln ANHY-ptgs, rr agl mat, sl dol/tr DOL cmt, POR-FLOR-STN-CUT AA"
6260.00 6290.00	"LS tan-brn, occ gybrn, micxl-vfxl, occ gran-micsuc, pred ool-sl oom GRNST, rr dns sl ool PKST intcl, rr ANHY-tr DOL cmt, occ ANHY fl POR, fr-g ool-tr intxl POR, g bri-tr dull yel FLOR, mg brn STN-mfr blk dd o STN, mg mod fast-fr fast stmg mlky CUT"
6290.00 6310.00	"LS AA, pred ooc-sl oom GRNST, v sl incr PKST intcl, tr blk dd o STN-mg brn STN, POR-FLOR-CUT AA"
6310.00 6340.00	"LS AA, scat dns sl ool occ anhy PKST intcl, scat trnsd ANHY incl, mg POR-FLOR-STN, mg mod fast-fast stmg mlky CUT"
6340.00 6360.00	"LS tan-brn, occ gybrn, micxl-vfxl, occ gran-micsuc, pred ool-sl oom GRNST, rr dns sl ool PKST intcl, rr ANHY-tr DOL cmt, occ ANHY fl POR, fr-g ool-tr intxl POR, g bri-tr dull yel FLOR, mg brn STN-mfr blk dd o STN, mg mod fast-fr fast stmg mlky CUT"
6360.00 6370.00	"LS AA, POR-FLOR-STN-CUT AA"
6370.00 6400.00	"LS tan-brn, rr gybrn, micxl-vfxl, occ gran-micsuc, pred ool-sl oom GRNST, tr dns crpxl sl ool occ chk PKST intcl, tr ANHY-DOL cmt, rr ANHY fl POR, fr-g ool-tr intxl POR, mg bri-rr dull yel FLOR, mg brn STN-mfr blk dd o STN, mg mod fast-fast stmg mlky CUT"
6400.00 6440.00	"LS AA, scat dns crpxl v sl ool occ anhy PKST intcl, pred fr-mg ool-tr intxl POR, mg bri yel FLOR, fr ltbrn-brn STN-tr-mfr blk dd o STN, mg mod fast-fast stmg mlky CUT"

DEPTH	LITHOLOGY
6440.00 6460.00	"LS AA,mg ool-sl tr intxl POR,mg bri-tr dull yel FLOR,mfr ltbrn-fr brn STN-mfr blk dd o STN,mg mod fast-fr fast stmg mlky CUT"
6460.00 6500.00	"LS tan-brn,rr gybrn,micxl-vfxl,occ gran-micsuc,pred ool-sl oom GRNST,sl tr dns crpxl sl ool occ chk PKST intcl,tr ANHY-DOL cmt,rr ANHY fl POR,mg ool-rr intxl POR,mg bri-sl tr dull yel FLOR,mg brn STN-tr blk dd o STN,mg mod fast-fast stmg mlky CUT"
6500.00 6540.00	"LS AA,sl incr intxl POR,ool POR AA,mg bri yel FLOR,mfr-fr ltbrn-tr brn STN-mfr blk dd o STN,mg mod fast-fast stmg mlky CUT"
6540.00 6580.00	"LS AA,scat dns crpxl v sl ool occ anhy PKST intcl,pred fr-mg ool-tr intxl POR,mg bri yel FLOR,fr ltbrn-brn STN-tr-mfr blk dd o STN,mg mod fast-fast stmg mlky CUT"
6580.00 6600.00	"LS tan-ltbrn,v rr brn-gybrn,micxl-vfxl,occ gran-micsuc,pred ool-sl oom GRNST,scat dns crpxl sl ool PKST intcl,rr ANHY-tr DOL cmt,v rr ANHY fl POR,mg ool-mfr intxl POR,mg bri-rr dull yel FLOR,fr brn STN-tr blk dd o STN,mg mod fast-fast stmg mlky CUT"
6600.00 6620.00	"LS AA,sl incr dns anhy ool PKST ,fr intxl-mg ool POR ,mg bri-sl tr dull yel FLOR,mfr ltbrn-brn STN-tr blk dd o STN,mg mod fast-fast stmg mlky CUT"
6620.00 6670.00	"LS tan-ltbrn,v rr brn-gybrn,micxl-vfxl,occ gran-micsuc,pred ool-sl oom GRNST,scat dns crpxl sl ool PKST intcl,rr ANHY-tr DOL cmt,v rr ANHY fl POR,mg ool-mfr intxl POR,mg bri-rr dull yel FLOR,fr brn STN-rr blk dd o STN,mg mod fast-fast stmg mlky CUT"
6670.00 6720.00	"LS AA,pred ooc-sl oom GRNST,w/v sl incr dns ool anhy PKST intcl,POR-FLOR-CUT AA,mfr ltbrn-rr brn STN-rr-sl tr blk dd o STN"
6720.00 6740.00	"LS tan-ltbrn,v rr brn-gybrn,micxl-vfxl,occ gran-micsuc,pred ool-sl oom GRNST,scat dns crpxl sl ool PKST intcl,rr ANHY-tr DOL cmt,v rr ANHY fl POR,mg ool-mfr intxl POR,mg bri-rr dull yel FLOR,fr brn STN-tr blk dd o STN,mg mod fast-fast stmg mlky CUT"
6740.00 6770.00	"LS AA,pred ooc-sl oom GRNST,incr dns ool anhy PKST intcl-poss lams,incr intxl POR-FLOR-STN-CUT AA"
6770.00 6790.00	"LS tan-ltbrn,occ ltgybrn-sl tr brn,micxl-vfxl,occ micsuc-gran,pred ooc-sl oom GRNST,w/scat crpxl sl ool ltbrn-gy anhy PKST intcl,rr ANHY-tr DOL cmt,mg ool-mfr intxl POR,mg bri-rr dull yel FLOR,fr ltbrn-tr brn STN,tr blk dd o STN,mg mod fast stmg mlky CUT"
6790.00 6810.00	"LS pred tan-ltbrn ooc-sl oom GRNST AA,tr dns crpxl sl ool PKST w/ANHY xl-incl,sl tr DOL cmt,rr ANHY fl POR,mg ool-fr intxl POR,mfr-fr ltbrn-brn STN,sl tr blk dd o STN,fr-mg mod fast-fast stmg mlky CUT"
6810.00 6831.00	"LS AA decr dns PKST intcl-frag,POR-FLOR-STN-CUT AA"

DEPTH	LITHOLOGY
6830.00 6850.00	"LS AA,pred ooc-sl oom GRNST AA,w/v rr scat dns occ plty-sl chk anhy PKST intcl,mg POR-FLOR-STN-CUT AA"
6850.00 6900.00	"LS tan-ltbrn,occ ltgybrn-sl tr brn,micxl-vfxl,micsuc-gran ip,pred ooc-sl oom GRNST,rr crpxl dns sl ool chk-plty anhy PKST intcl,tr ANHY-DOL cmt,mg ool-fr intxl POR,mg bri-rr dull yel FLOR,fr ltbrn-tr brn STN,tr blk dd o STN,mg mod fast stmg mlky CUT"
6900.00 6930.00	"LS AA,decr PKST intcl,incr lt-mbrn STN-tr-mfr blk dd o STN,mg ool-fr intxl POR,mg bri-tr dull yel FLOR,mg mod fast-fast stmg mlky CUT"
6930.00 6950.00	"LS AA,w/incr amnt intxl POR,FLOR-STN-CUT AA"
6950.00 6970.00	"LS tan-ltbrn,occ ltgybrn-sl tr brn,micxl-vfxl,occ micsuc-gran,pred ooc-sl oom GRNST,rr crpxl sl ool brn-crm sl anhy PKST intcl,rr ANHY-DOL cmt,mg ool-mfr intxl POR,mg bri-rr dull yel FLOR,fr ltbrn-brn STN,tr blk dd o STN,mg mod fast-fast stmg mlky CUT"
6970.00 7020.00	"LS tan-ltbrn,tr brn-rr gybrn-crm,micxl-vfxl,occ micsuc-gran,pred ooc-sl oom GRNST,rr dns sl ool sl anhy chk ip PKST intcl,tr ANHY-DOL cmt,mg ool-fr intxl POR,mg bri-rr dull yel FLOR,fr ltbrn-brn STN,mfr blk dd o STN,mg mod fast-fast stmg mlky CUT"
7020.00 7040.00	"LS tan-ltbrn,tr brn-dkbrn,rr crm-off wh,ltgybrn,micxl-vfxl,occ micsuc-gran,oc-sl oom GRNST,rr dns sl ool sl anhy chk ip PKST intcl-frag,tr POR fl,g DOL cmt,mg ool-oom-tr intxl POR,g even bri-mod bri yel FLOR,fr-mg ltbrn-brn-fr dkbrn/mg blk dd o STN,g fast stmg-blooming mlky CUT"
7040.00 7060.00	"LS ltbrn-tan,occ m-dkbrn,tr crm-off wh,micxl-vfxl,occ gran-micsuc,tr crpxl,oc-sl ool-oom GRNST,tr dns sl ool-oc sl chky-anhy PKST frag-intcl/tr gran tex & rr agl mat,rr mic fos,dol/fr DOL cmt,mg-g ool-sl oom POR,FLOR-STN-CUT AA"
7060.00 7090.00	"LS AA,vfxl-gran-micsuc,micxl,tr crpxl,oc-oom-sl ool GRNST,tr dns sl ool sl chky-anhy PKST frag-intcl/fr gran tex & rr agl mat,rr mic fos & ANHY xl,dol/fr DOL cmt,mg-g ool-sl oom POR,g evem bri-mod bri yel FLOR,g m-dkbrn-fr ltbrn/mg blk dd o STN,CUT AA"
7090.00 7140.00	"LS ltbrn-tan,occ brn-mbrn,tr dkbrn,crm-off wh,vfxl-micxl-gran,occ micsuc,tr crpxl,oc-sl oom GRNST,tr dns sl ool sl chky-anhy PKST frag-intcl/tr vfxl tex,rr mic fos,dol/mg DOL cmt,g ool-sl oom-rr intxl POR,g even bri-mod bri yel FLOR,g brn-m brn- tr dkbrn-ltbrn STN,fr-tr blk dd o STN,g fast stmg-blooming mlky CUT"
7140.00 7180.00	"LS ltbrn-tan,occ brn-mbrn,crm,tr dkbrn,off wh,vfxl-micxl-gran,occ micsuc-tr crpxl,oc-sl oom GRNST,tr dns sl ool sl chky-anhy PKST frag-intcl/tr vfxl tex,rr xln incl,dol/fr DOL cmt,POR-FLOR AA,mg ltrbn-fr mbrn-brn-tr dkbrn & blk dd o STN,g fast stmg-sl blooming mlky CUT"

DEPTH

LITHOLOGY

7180.00 7200.00 "LS tan-ltbrn-mbrn, tr dkbrn, crm, rr off wh, vfxl-micxl-gran, occ sl micsuc, tr crpxl, pred GRNST AA, tr dns sl ooc sl chky-anhy PKST frag-intcl/tr vfxl tex, tr xl ANHY, v rr mic fos, dol/fr DOL cmt, g ool-sl oom POR, g even bri-mod bri FLOR, mg-fr ltbrn-brn-tr dkbrn STN, mg-fr blk dd o STN, g fast stmg-fr blooming mlky CUT"

7200.00 7230.00 "LS tan-crm-ltbrn, occ brn, tr m-dkbrn, off wh-rr wh, micxl-vfxl-gran, crpxl, tr micsuc, pred ooc-sl ool-oom GRNST, tr dns sl ool sl chky-anhy PKST frag-intcl/tr gran tex, tr xln ANHY & POR fl, dol/mg DOL cmt, rr mic fos-agl mat, g ooc-sl oom POR, g even mod bri-scat spty bri yel FLOR, mg ltbrn-fr brn-tr dkbrn STN, fr-tr blk dd o STN, g fast-mod fast/tr sl blooming mlky CUT"

7230.00 7260.00 "LS tan-ltbrn-crm, occ brn, tr dkbrn, rr off wh, micxl-vfxl-gran, sl incr crpxl, tr micsuc, pred ooc-sl ool-oom GRNST, incr dns sl ool sl chky-anhy PKST frag-tr intcl, rr xln ANHY, dol/mg DOL cmt, rr mic fos-agl mat, g ooc-sl oom-tr inxl POR/tr POR fl, mg-g even mod bri-fr scat spty bri yel FLOR, g mod fast-slow stmg mlky CUT"

7260.00 7290.00 "LS AA, micxl-vfxl-gran, crpxl, tr micsuc, pred ooc-sl ool-oom GRNST, fr amt dns sl ool chky-sl anhy PKST frag-tr intcl, rr xln ANHY, dol/mg DOL cmt, rr mic fos-agl mat, g ooc-sl oom-fr intxl POR/sl incr POR fl, mg-fr dull-mod bri-fr scat spty bri yel FLOR, mg ltbrn-fr brn-rr dkbrn STN, rr-tr blk dd o STN, g fast-fr sl blooming mlky CUT"

7290.00 7306.00 "LS tan-ltbrn-crm, tr brn, off wh, rr dkbrn, micxl-vfxl-gran, crpxl, pred ooc-sl ool-oom GRNST, fr-tr amt dns sl ool PKST frag-intcl, bcmg chk-sl anhy/tr POR fl-rr xln ANHY, dol/mg DOL cmt, tr mic fos-rr agl mat, mg-g ool-sl oom-tr intxl POR, g even mod bri-dull-tr scat spty bri yel FLOR, mg ltbrn-fr brn-tr dkbrn & blk blk dd o STN, g mod fast-slow stmg mlky CUT"

FORMATION TOPS

OPERATOR: MOBIL

WELL NAME: RATHERFORD UNIT #20-31 NW 1-A HORIZONTAL LATERAL LEG #2

FORMATION NAME		SAMPLES	SAMPLES	DATUM
		MEASURED DEPTH	TRUE VERTICAL DEPTH	KB:4769'
LOWER ISMAY		5473'	5470'	-701'
GOTHIC SHALE		5560'	5531'	-762'
DESERT CREEK		5583'	5542'	-773'
UPPER DC 1-A ZONE		5598'	5548'	-779'

GEOLOGICAL SUMMARY

AND

ZONES OF INTEREST

The Mobil Exploration and Production U.S., Inc., Ratherford Unit #20-31 Northwest Horizontal Lateral Leg #2 was a re-entry of the Mobil Ratherford Unit #20-31 located in Section 20, T41S, R24E, and was sidetracked in a northwesterly direction from 5425' measured depth, 5423.6' true vertical depth, on December 1, 1998. The lateral reached a measured depth of 7306', true vertical depth of 5537.7' at total depth, with a horizontal displacement of 1901' and true vertical plane of 319.6 degrees on December 3, 1998. The lateral was terminated in the 1-A porosity zone in the Upper Desert Creek Member of the Paradox Formation. The curve and lateral were drilled with fresh water and brine water with polymer sweeps as the drilling fluid. The proposed target line was used as a reference point throughout the lateral. The curve and lateral sections were drilled with no significant mechanical problems. There was no measurable flow or loss of fluid through out the lateral and curve sections.

The purpose of the Ratherford Unit #20-31 northwest lateral Leg #2 was to penetrate and drill 1900' horizontally in the Desert Creek 1-A porosity bench. To evaluate the effective porosity and permeability, the hydrocarbon and gas potential, if possible to estimate the thickness of the carbonate facies and to define the lithology of the Desert Creek 1-A zone of the Paradox Formation. In this northwesterly direction, the 1-A porosity bench appeared to have a very consistent, well-developed thickness and porosity. The curve kicked-off in the Upper Ismay carbonate cycle on December 1, 1998 before encountering the typical stratigraphic sections of the Lower Ismay carbonate cycle, Gothic Shale, Desert Creek transition zone and the Desert Creek 1-A porosity bench of the Upper Paradox Formation.

The curve section began at a measured depth of 5425', true vertical depth 5423.6' in the Upper Ismay carbonate cycle of the Upper Paradox Formation. The lower 48' of the Upper Ismay was dense, light brown to tan, cream to off-white, tight limestone. This cryptocrystalline to microcrystalline limestone was slightly dolomitic, anhydritic, and had traces of a chalky to argillaceous texture. Associated with this facies are traces anhydrite crystals, very rare fossil fragments, very rare thin dark gray to black carbonaceous soft shale and trace light gray, gray to dark gray brown cryptocrystalline to microcrystalline, earthy very thinly interbedded lenses of dolomite. Scattered throughout this lower portion of the Upper Ismay were light to dark brown to dark gray chert fragments. The dense limestone and thin dolomites at the base of the Upper Ismay, beginning at a measured depth of 5464', became increasingly marly and graded into the black to dark gray, slightly to very limey and dolomitic shale of the Hovenweep Shale. The Upper Ismay carbonate had no visible porosity and no sample show. The thin Hovenweep shale was seen as a very minor increase in the penetration rate as well as a slight increase in dark gray to black, very dolomitic shale. The Hovenweep Shale was noted from 5469' to 5473' measured depth, 5467' to 5470' true vertical depth, with the shale being poorly represented in the samples.

The top of the Lower Ismay member of the Upper Paradox Formation was picked at a measured depth of 5473', true vertical depth 5470', based primarily on sample identification and a very slight decrease in the rate of penetration. The upper 20' of the Lower Ismay was predominately a tan to cream, light to medium brown to medium gray brown, some light gray, cryptocrystalline to microcrystalline, very slightly anhydritic, with very rare thin anhydrite streaks, dense, very slightly

fossiliferous limestones. These limestones had thinly interbedded argillaceous to clean, brown to dark brown, microcrystalline dolomites, very thin black carbonaceous shale partings and scattered dark chert fragments. The Lower Ismay, from measured depths of 5493' to 5500', was a white to cream to tan; brown to light gray, crypto to microcrystalline, argillaceous to chalky, occasionally clean to dense, slightly silty to rare very silty streaks. This limestone graded to very rare thin streaks of limey, slightly sandy cream to light gray siltstone. Thinly interbedded in this interval were very thinly interbedded tan to light to dark brown, microcrystalline, dense dolomites with an argillaceous texture. Scattered through out this interval were very thin, dark gray to black, slightly carbonaceous shale laminations and rare scattered brown to black chert fragments. As the curve continued in the Lower Ismay the limestones, from the measured depths of 5500' to 5547', were predominately white to cream to light gray, tan to brown, cryptocrystalline to microcrystalline, limestone grainstones and packstones. These limestones had some very finely crystalline streaks, were occasionally anhydritic, chalky and occasionally dolomitic, and had a marked decrease in the silty material. This limestone became increasingly dense with depth and had scattered streaks of microcrystalline, light to medium brown, earthy dolomites. Scattered throughout this interval were rare microfossils and translucent to clear chert fragment, and very rare thin black carbonaceous shale partings. Associated with the limestones were very thin streaks of intercrystalline to very poor fracture porosity, with a very poor visible fluorescence, stain and hydrocarbon cut. The basal 13 feet of the Lower Ismay, from a measured depth of 5547' to a measured depth of 5560', was a very dense, slightly dolomitic limestone packstone and earthy limey dolomites. These limestones and dolomites became slightly to very marly with depth, and had scattered anhydrite interclasts and chert fragments. The basal limestones and thin dolomites were very tight with no visible porosity or sample show. These basal Lower Ismay carbonates graded into limey to dolomitic carbonaceous shales of the Gothic Shale.

The Gothic Shale was penetrated at a measured depth of 5560', true vertical depth 5531', and gradationally underlies the Lower Ismay. The top of the Gothic was picked at a gradual increase in the penetration rate and a significant increase in the amount of black carbonaceous shale in the cuttings. This shale member of the Upper Paradox Formation was seen have a vertical thickness of 11 feet in this northwesterly direction. This shale is black to dark gray shale, carbonaceous, occasionally grainy to silty, soft to slightly firm, sooty, slightly fissile, subblocky to subplaty, calcareous to slightly dolomitic and slightly micaceous. Very thin partings of dense, very slightly argillaceous, occasionally dolomitic limestones and clean to very argillaceous limey dolomites were noted in this shale member. The Gothic overlays the top of the Desert Creek Member with a sharp contact.

The top of the Desert Creek Member of the Upper Paradox Formation was picked at a measured depth of 5583', 5542' true vertical depth, in an rather abrupt decrease in penetration rate and an increase in the amount of dense limestone packstone in the samples. This transition zone had a true vertical thickness of approximately six feet. The transition zone between the Gothic Shale and the top of the Upper Desert Creek 1-A porosity zone was predominately a dense limestone packstone, which had streaks of a very argillaceous texture and had thinly interbedded argillaceous to dense, slightly limey to marly dolomites. Also noted were very thin black carbonaceous shale partings and very rare anhydrite inclusions. The limestones of the transition zone are light brown to tan to cream, with some white, cryptocrystalline to microcrystalline, with very rare very finely crystalline streaks, dense to slightly silty, and very slightly dolomitic. Scattered in the limestones are very thin, dark brown, very argillaceous, and slightly marly, limey, dense dolomites, with rare, very thin black, slightly micaceous, calcareous, very slightly carbonaceous shale partings. The limestones of the transition zone had a streak of very poor intercrystalline porosity, with a very poor, weak sample show. The basal two (2) feet of the transition zone the dense limestones became increasingly oolitic and graded in to the oolitic to oomoldic limestones of the upper 1-A porosity bench.

The top of the Desert Creek Upper 1-A porosity zone was encountered at a measured depth of 5598', true vertical depth of 5548'. The top was picked on the lithology becoming predominately a good oolitic to oomoldic limestone grainstone with a significant increase in the penetration rate, visible porosity and sample show. A slight increase in the background gas was noted due to the

amount of oil and gas was noted in the drilling fluid, with a small to moderate 4' to 7' flare as the drilling fluid was put through the gas buster. This oolitic to oomoldic, very slightly algal limestone grainstones marked the 1-A porosity zone and were continuous through out the curve section. A slight amount of algal material with a slightly decrease in oomoldic material was noted near the base of the curve section. The 1-A zone has an apparent thickness of almost 20' in this northwesterly direction. The limestone grainstones are tan to light brown to cream, microcrystalline to very fine crystalline, with a granular to slightly microsugrosic texture and were very slightly dolomitic. The grainstones have a very minor amount of anhydrite crystal growth in the oolitic casts and molds as well as in the intercrystalline matrix and had very rare, scattered translucent anhydrite inclusions. This grainstone facies had a moderately good oolitic to intercrystalline porosity with a very minor amount of possible algal development. The sample show was moderately fair and increased to moderately good, with a trace to fair amount of brown to light brown oil stain and had minor traces of black bitchimum staining* on the crystal faces and in the oolitic casts and molds. The oolitic to oomoldic to slightly algal grainstones had a fair to moderately good bright to occasionally dull yellow fluorescence and a fair moderately fast to a trace fast streaming cut. Scattered with in the porous limestone grainstone were rare very slightly oolitic dense limestone packstones interclasts and laminations. These packstone fragments and laminations are cream to tan, occasionally white, crypto to very slightly microcrystalline, slightly chalky to occasionally platy, clean and very slightly anhydritic. These packstones have no visible porosity or sample show.

The curve portion of the lateral was completed at a measured depth of 5641', true vertical depth 5555', with a horizontal displacement of 237', bearing 318 degrees, with an inclination of 88.5°, on December 2, 1998, near the middle of the 1-A porosity zone. At this point a trip was made to lay down the curve assembly and pickup the lateral assembly.

Drilling of the northwest lateral was resumed also on December 2, 1998, in the Upper Desert Creek 1-A porosity zone of the Upper Paradox Formation. The lateral was slid for the first 55' in order to slowly level and turn the lateral upward to the target line, to control the horizontal plane direction and to put the lateral assembly out far enough to begin rotating. The lateral was begun in the good oolitic to oomoldic limestone grainstone facies. This limestone grainstone, as noted above, was a tan to light brown, some brown, microcrystalline to very fine crystalline, granular to microsugrosic, oolitic to oomoldic, slightly dolomitic to some dolomite rich cement, with occasionally calcite and anhydrite cement and very rare inclusions. These grainstones had a fair to good oolitic to intercrystalline porosity, some very minor algal porosity, moderately good bright yellow florescence, a moderately fair light brown to brown oil stain, with trace to poor black bitchimum* stain, and a moderate to moderately fair fast to slow streaming cut. Traces of dense, very slightly oolitic, and occasionally chalky to platy packstone was noted as the well bore was attempted to be turned upward.

As the well path was continued, the well path was attempted to be turned upward, but was slowly forced downward by the formation. Upon reaching a measured depth of 5800', 5556.4' true vertical depth, with a horizontal displacement of 398' a zone of lower porosity or a very thin streak was encountered tuning the well path upward. The well path was continued upward at an average angle of 91° until reaching a measured depth of measured depth of approximately 6370', a true vertical depth of 5542' and a horizontal displacement of 967', in the oolitic to oomoldic limestone grainstones. At this point the well path was leveled along the proposed target line. The well path was continued in the good oolitic to oomoldic limestone grainstone porosity, which had good visible porosity and a fair to moderately good sample show. As the lateral reached a measured depth of 6498', 5541.4' true vertical depth, with a horizontal displacement of 1093', the lateral was forced upward by the formation, although there was no apparent change in lithology or penetration rate. As the lateral was continued upward at an average angle of 90.7°, a slight increase in the amount of scattered packstones with no noticeable decrease in the amount of sample show noted, when the well path encountered a random hard streak. This random streak of dense, platy, occasionally chalky limestone packstone was bumped at a measured depth of 6680', 5538' true vertical depth, and a

horizontal displacement of 1275'. Upon encountering the thin hard streak, the well path was forced upward and an angle of 93.5 degrees, until the top of the 1-A porosity zone was bumped at a measured depth of 6783', 5533.5' true vertical depth, and a horizontal displacement of 1379', turning the well path sharply downward. The well path was continued with short slides to the rate of drop and to try to bring the well path level, as the true vertical depth increased due to the well path being pull downward by very thin streaks of packstone. At a measured depth of 7040', 5543', a horizontal displacement of 1635', the base of the laterally thinning 1-A porosity zone was approached. The lateral showed no visible decrease in oolitic to intercrystalline porosity or sample show as the well path was leveled near the base of the 1-A zone.

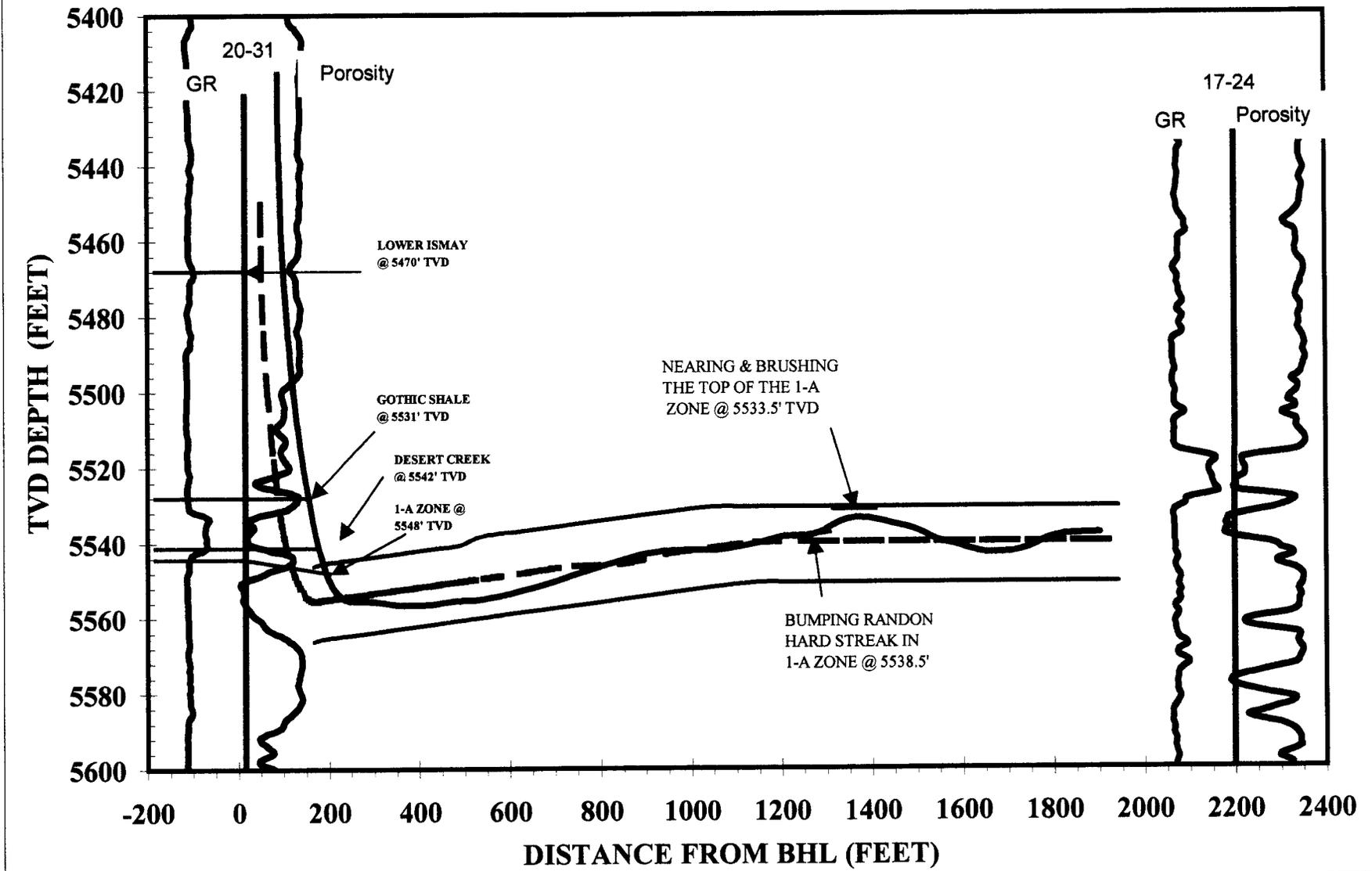
As the lateral was rotated ahead it was allowed to slowly drift upward with minor slides to control the horizontal direction, a very thin upward dipping zone of lower porosity was encountered at a measured depth of 7145', 5541' true vertical depth, and a horizontal displacement of 1741'. The well path continued upward at an average angle of 93.3° in the good oolitic to very slightly oomoldic limestone grainstone, until reaching a measured depth of 7200'. At 7200, 5539' true vertical depth, with a horizontal displacement of 1795', the lateral was turned rather sharply level as a thin packstone streak or zone of lower porosity was encountered. With the lateral oriented at an angle of approximately 90.3° in the good oolitic to oomoldic limestone grainstones, which had good visible oolitic to intercrystalline porosities and sample shows, the lateral was rotated to termination. Upon reaching a measured depth of 7306', 5537.7' true vertical depth, and a horizontal displacement of 1901', with an azimuth of 319.6 °, the lateral was terminated on December 3, 1998.

In tracking the lateral in this northwesterly direction, the oolitic to oomoldic limestone grainstone porosity had good sample shows, which remained very consistent through out the length of the lateral. Even when zones of lower porosity, thin random packstones, the top or base of the 1-A zone was approached the was no significant to very minor changes in penetration rate noted and only minor visible changes in the sample shows. The oolitic to oomoldic limestone grainstones of the upper 1-A porosity bench had predominately good oolitic to intergranular porosity, with a good sample show thorough out, and the lateral was terminated with a rather steady 25' flare. The lateral at its termination, was approximately 2.5' above proposed target line in the upper bench of Upper 1-A Desert Creek porosity zone. The well path was consistently above the proposed well path after reaching the midpoint of the lateral, as much as 9 feet.

From the beginning of the 20-31 northwest lateral Leg #2 to its termination on December 3, 1998, at a measured depth of 7306', 5537.7' true vertical depth and a horizontal displacement of 1901', the porosities encountered in the lateral were very well developed. This lateral should enhance the overall production performance of the R. U. 20-31 production well, especially after acidization.

*The black residual staining has been called by Dr. Dave Eby & others as "bitchimum" and is also known as "dead oil" ("dd o str" 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 Unit #20-31, Northwest Laterals



**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 MPTM**

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/NE) 660' FNL & 1880' FEL
At top prod. interval reported below
LAT 1; 736' SOUTH & 948' EAST/SURF SPOT
At total depth
LAT 1; 1473' NORTH & 1202' WEST/SURF

14. PERMIT NO. _____ DATE ISSUED _____

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

6. IF INDIAN, ALLOTTEE OR TRIBE NAME
NAVAJO TRIBAL

7. UNIT AGREEMENT NAME
RATHERFORD UNIT

8. FARM OR LEASE NAME, WELL NO.
RATHERFORD 20-31

9. API WELL NO.
43-037-31050

10. FIELD AND POOL, OR WILDCAT
GREATER ANETH

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
SEC. 20, T41S, R24E

12. COUNTY OR PARISH
SAN JUAN

13. STATE
UT

15. DATE SPUDED **11-12-98** 16. DATE T.D. REACHED **12-04-98** 17. DATE COMPL. (Ready to prod.) **02-06-99** 18. ELEVATIONS (DF, RKB, RT, GR, ETC.)* **4752' GRADED GR; 4765' RKB** 19. ELEV. CASINGHEAD _____

20. TOTAL DEPTH, MD & TVD **#24** 21. PLUG, BACK T.D., MD & TVD **#24** 22. IF MULTIPLE COMPL., HOW MANY* _____ 23. INTERVALS DRILLED BY _____ ROTARY TOOLS **X** CABLE TOOLS _____

24. PRODUCING INTERVAL(S), OF THIS COMPLETION - TOP, BOTTOM, NAME (MD AND TVD)*
LAT 1; (5430-5555' TVD)(5440-6796' TMD) LAT 2; (5424-5538'TVD)(5425-7306' TMD)

25. WAS DIRECTIONAL SURVEY MADE
YES

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"	54.5#	120'	17 1/2"	SURFACE 177 cu ft	
9 5/8"	36#	1600'	12 1/4"	SURFACE 1138 cu ft	
7"	23 & 26#	5635'	8 3/4"	106' CALC 1504 cu ft	

29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)	SIZE	DEPTH SET (MD)	PACKER SET (MD)
					2 7/8"	5134'	

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)
2 7/8"	5134'	

31. PERFORATION RECORD (Interval, size and number)
5546-5617' ORIGINAL PERFS

RECEIVED
MAR 05 1999

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

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
5425-7306'	LAT #2 ACIDIZE W/23310 GALS 15% HCL ACID
5636-6796'	LAT #1 ACIDIZE W/11935 GALS 15% HCL ACID

33.* PRODUCTION

DATE FIRST PRODUCTION **02-06-99** PRODUCTION METHOD (Flowing, gas lift, pumping - size and type of pump) **2.5" X 2" X 24' PUMP** WELL STATUS (Producing or shut-in) **PRODUCING**

DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FOR TEST PERIOD	OIL - BBL.	GAS - MCF.	WATER - BBL.	GAS - OIL RATIO
02-09-99	24			578	147	86	254

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 **3-02-99**

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

OPERATOR MOBIL PRODUCING TX & NM INC
 ADDRESS P. O. BOX 633
MIDLAND, TX 79702

OPERATOR ACCT. NO. N 7370

ACTION CODE	CURRENT ENTITY NO.	NEW ENTITY NO.	API NUMBER	WELL NAME	WELL LOCATION					SPUD DATE	EFFECTIVE DATE
					QQ	SC	TP	RG	COUNTY		
E	6280 →		43-037-31050	RATHERFORD 20-31	NW/NE	20	41S	24E	SAN JUAN	11-12-98	02-06-99
WELL 1 COMMENTS: <i>990325 Entity already added. KMR</i> HORIZONTAL RE-COMPLETION											
WELL 2 COMMENTS:											
WELL 3 COMMENTS:											
WELL 4 COMMENTS:											
WELL 5 COMMENTS:											

- ACTION CODES (See instructions on back of form)
- A - Establish new entity for new well (single well only)
 - D - Add new well to existing entity (group or unit well)
 - C - Re-assign well from one existing entity to another existing entity
 - D - Re-assign well from one existing entity to a new entity
 - E - Other (explain in comments section)

NOTE: Use COMMENT section to explain why each Action Code was selected.

(3/89)

RECEIVED
 MAR 05 1999

Shirley Houchins
 Signature SHIRLEY HOUCHINS
 ENV & REG TECHNICIAN 2-23-99
 Title Date
 Phone No. (915) 688-2585

DRILLED FOOTAGE CALCULATION FOR DIRECTIONAL AND HORIZONTAL WELLS

Unit, Well Name: Ratherford Unit, Well 20-31
API Well #: 43-037-31050
Well Completion: Horizontal, Producer, 2 Laterals

First leg description:	Lateral #1
KOP MD:	5431.00
EOL MD:	6796.00
Footage drilled:	1365.00
Max. TVD Recorded	5560.89

Second leg description:	Lateral #2
KOP MD:	5416.00
EOL MD:	7306.00
Footage drilled:	1890.00
Max. TVD Recorded	5556.36

Total Footage Drilled (MD):	3255.00
Deepest point (TVD):	5560.89

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 20-31

9. API Well No.

43-037-31050

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. 20, T41S, R24E
(NW/NE) 660' FNL & 1880' FEL

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 <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

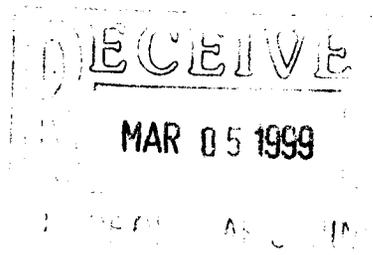
(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

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: 736' SOUTH & 948' EAST FROM SURFACE SPOT (ZONE 1a).
LATERAL #2: 1473' NORTH & 1202' WEST FROM SURFACE SPOT (ZONE 1a).

SEE ATTACHED PROCEDURE (11-12-98 -- 02-06-99).



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

Signed Shirley Houchins

Title SHIRLEY HOUCHINS/ENV & REG TECH

Date 02-23-99

(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.

ATTACHMENT - FORM 3160-5
RATHERFORD UNIT - WELL #20-31
14-20-603-353
NAVAJO TRIBAL
SAN JUAN, UTAH

RECORDED
MAR 11 1999

- 11-12-98 MIRU MONTEZUMA RIG 15. LEFT MESSAGE W/BLM @ 9:45 & CHARMAINE HESTON, NAVAJO EPA @ 11:15 (11-12-98) OF INTENT TO MIRU & DIG/LINE PIT.
- 11-13-98 SPOT EQP/PUMP, SET ANCHOR, RU DDP, C/O EQP TO PULL RODS, POOH & LD RODS/PUMP.
- 11-14-98 SITP @ 0 PSI, SICP @ 270 PSI. TEST CSG TO 1000 PSI F/30 MIN. GOOD TEST.SWI, SDFN & SUNDAY.
- 11-16-98 CIRC 130 BBLS FRESH WATER, POOH/LD TBG, ND BOPS, C/O CSG HEAD/WELLHEAD, NU WELLHEAD FLANGE. SI & SDFN.
- 11-17-98 FIN WH & PT WH/1000# F/30 MIN/OK. RD EQUIP & MONTEZUMA RIG #36.
- 11-23-98 NOTIFIED JIM THOMPSON W/STATE OF UTAH.
- 11-24-98 MIRU MONTEZUMA RIG #25, NU BOPS, TEST TO 2000# HIGH, 250# LOW. HOWCO RAN & SET PKR @ 5449', RD WL, TIH W/ANCHOR LATCH ASSY, UBHO SUB & LATCH INTO PKR @ 5449'.
- 11-25-98 RIH W/WHIPSTOCK, STARTING MILL, AOHDP, LATCH INTO BIG BORE PKR @ 5449' W/GTF @ 224, TOP OF WHIPSTOCK @ 5431' W/FACE @ 128 DEG. CUT WINDOW F/5431-5433' W/STARTER MILL, POH W/MILL, RIH W/WINDOW & WATERMELLON MILLS, ATTEMPT TO CUT WINDOW, CUTTING WHIPSTOCK, POOH W/MILLS.
- 11-25-98 RU GYRO DATA, RUN GYRO, GTF @ 224 DEG. R/GYRO SURVEY, PLUGGED OFF PERS, POOH W/ANCHOR LATCH ASSY, FINAL REPORT FOR REENTRY.
- 11-26-98 RIH W/TAPERED MILL, CUT WINDOW F/5431-5434'. POOH W/MILL, CLOSE & LOCK BLANK RAMS. SDF/HOLIDAY.
- 11-27-98 RIH W/WINDOW & WATERMELLON MILLS, CUT WINDOW F/5431-5439'.
- 11-28-98 FIN CUT WINDOW F/5431-5439' & FORMATION TO 5440'. PUMP SWEEP & CIRC HOLE CLEAN, POOH W/MILLS. RIH W/MUD MOTOR, PH6 TBG, AOHDP, GYRO DATA'S GYRO, DRILLED CURVE F/5439-5464' W/GYRO, POOH W/GYRO, DRILL CURVE F/5464-5561'.
- 11-29-98 TD CURVE 5636' TMD, POOH W/CURVE ASSY. RIH W/MUD MOTOR, PH6 TBG, SLIDE & ROTATE DRILL LATERAL 1A1 F/5636-6540',
- 11-30-98 SLIDE & ROTATE DRILLED LATERAL 1A1 F/6540-6796' TMD, TD, 90.8 ANGLE 128 AZ, 5555' TVD, PUMP SWEEP & CIRC HOLE CLEAN. PULL TO WINDOW @ 5431', POOH & LD MWD & MUD MOTOR, RIH W/SUPERHOOK, RECOVER WHIPSTOCK, LEFT BOTTOM HALF SHEAR TOOL, WO/FISHING TOOLS, POOH W/OS, RECOVER ALL OF FISH. FINAL REPORT FOR LATERAL 1A1.
- 12-01-98 FINISH OUT OF HOLE W/FISHING TOOLS, MAKE UP WHIPSTOCK #2. LATCH INTO TIW PKR @ 5449' W/KEWAY @ 224 GTF & FACE OF WHIPSTOCK @ 321 GTF. SHEAR OFF, MILL W/STARTER MILL F/5416-5418', CIRC BOTTOM UP. TOO H W/STARTER MILL & LD, TIH W/CSG & WATERMELON MILL. MILL F/5415-5425', (1' FORMATION). POOH LD DP & MILLS.
- 12-01-99 PU & RIH W/PH6 TBG, DP TO TOP OF WHIPSTOCK. LATCH INTO TIW PKR @ 5449', W/KEWAY @ 224 GTF & WHIPSTOCK @ 321 GTF. RU GYRO DATA, TIME DRILL F/5425-5427'.
- 12-02-98 SLIDE/DRILL & SURVEY F/5645 TO CURVE TD @ 5641' TMD & 5555' TVD., LD DP & CURVE BLDG ASSY. SLIDE/DRILL F/5641-5670'
- 12-03-98 SLIDE/ROTATE DRILL & SURVEY F/5670-7100' TMD. LAST SURVEY @ 7003' TMD, 5541.11' TVD.

ATTACHMENT – FORM 3160-5
RATHERFORD UNIT – WELL #19-31
14-20-603-353
NAVAJO TRIBAL
SAN JUAN, UTAH
PAGE 2

- 12-04-98 SLIDE/ROTATE DRILL & SURVEY F/7100 TO TD OF 7306' (PROJECTED SURVEY @ 7306', TMD 5537.67' TVD, 90.20 ANGLE, 319.60 AZ., 1900.97 VERTICAL SECTION). CIRC SWEEP TO SURFACE. POOH & LD LATERAL MTR. TIH W/PKR @ 5337' (WINDOW @ 5415') TAILPIPE @ 5643' END OF CURVE @ 5641'. RELEASE ON/OFF TOOL. PRESSURE TEST PLUG & CSG TO 500#. OK. POOH LD DS. ND BOP STACK & SECURE WELLHD. PREPARE TO RIG DOWN.
- 12-05-98 FINISH RIGGING DOWN, FINAL REPORT PENDING COMPLETION.

COMPLETION:

- 01-25-99 MIRU MONTEZUMA #36, SICP @ 1430 WAS 0 PSI. ND WH CAP. NU BOPE, RIG UP PUMP, PIT & FLOW LINES.
- 01-26-99 SICP @ 7:30 WAS 0 PSI. PICK-UP RIH W/ ON/OFF TOOL & PG6 TBG TO 5337'. RU & CIRC ON TOP OF PKR. LATCH ONTO PKR. RIG UP & RIH W/SLICKLINE. PULL 'F' PLUG. SIFN.
- 01-27-99 MIRU DOWELL COILED TBG UT. RIH W/CT TO 7306', ACIDIZE LATERAL 2A1 W/23310 GALS OF 15% HCL ACID. WELL SI, POH W/CT, PRESSURE OF 1100 PSI, FTP 1100 PSI TO 250 PSI. SIFN.
- 01-28-99 REL. PKR, POOH, MAKE UP RETV TOOL FOR WHIPSTOCK. RIH TO 5416', LATCH ONTO WHIPSTOCK. REL. POOH. LD WHIPSTOCK. MAKE-UP RETV. WHIPSTOCK & RUNNING TOOLS. ORIENT WHIPSTOCK, SET @ 5449'. SIFN.
- 01-29-99 SIP @ 7:30 WAS 500 PSI. RU, KILL WELL. RIH W/TAILPIPE, PKR TBG. COULD NOT WORK INTO CURVE. POOH. RIH W/RETV TOOLS. COULD NOT LATCH UP. POOH, SIFN.
- 01-30-99 SIP @ 7:30 WAS 500 PSI. RU & KILL WELL. LATCH ONTO WHIPSTOCK. POOH. LD WHIPSTOCK, SET RETV WHIPSTOCK @ 5449'. LD RUNNING TOOLS. RIH W/TAILPIPE, PKR, & PH6 TBG TO 5437'. COULD NOT WORK INTO WINDOW, POOH F/5438-5406'. SIFN
- 01-31-99 SIF WEEKEND.
- 02-01-99 SIP @ 300#. RU & KILL WELL. RIH LATCH ONTO WHIPSTOCK REL. & POOH W/TOOLS. SET PKR @ 5331' EOT @ 5642'. W/O DS EQUIP. SIFN.
- 02-02-99 SITP 800#. KILL TBG, REL PKR. , WORKED TBG TO TAG TIW PKR, SET @ 5331', EOT @ 5642', TEST PKR/CSG 250#. OK. PREPARE FLOOR FOR DS. SIFN.
- 02-03-99 SITP 75#. MIRU D/S TREATING EQUIP. ACIDIZE LATERAL 1A1 F/5636-6796' W/11935 GALS 15% HCL ACID. POOH W/CT UNIT, RD. RU TO FLOW SITP 1050#, SIFN.
- 02-04-99 SITP 500#, CSG 150#, BLED OFF OIL/GAS, KILL TBG. REL PKR POOH LD TALLY PROD TBG ASSM FOR ROD PUMP, NIP DN/NIP UP WELL HEAD. SWISDFN.
- 02-05-99 TBG @ 5134', PROD ASSY 5370', ROD PUMP 2.5" X 2" X 24" SWISDFN.
- 02-06-99 FIN. RD EQUIP & UNIT, CLEAN LOCATION, FINAL REPORT WELL TURNED TO PRODUCTION. INSTALL FLOW LINE & PUMPING UT.

LATERAL #1 5636-6796' TMD
LATERAL #2 5643-7306' TMD

Mobil

***San Juan County
Utah
Ratherford Unit
RU 20-31 - MWD Survey Leg #1***

SURVEY REPORT

18 December, 1998

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

Survey Ref: svy3383

Sperry-Sun Drilling Services

Survey Report for RU 20-31



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)
0.00	0.000	0.000	0.00	0.00 N	0.00 E	0.00	
100.00	0.560	54.677	100.00	0.28 N	0.40 E	0.14	0.560
300.00	0.530	4.927	299.99	1.77 N	1.28 E	-0.08	0.230
500.00	0.620	352.987	499.98	3.76 N	1.22 E	-1.35	0.075
700.00	0.930	350.767	699.96	6.44 N	0.83 E	-3.31	0.156
900.00	1.520	340.827	899.92	10.55 N	0.30 W	-6.73	0.312
1100.00	2.110	319.537	1099.82	15.86 N	3.56 W	-12.57	0.443
1300.00	2.640	308.617	1299.65	21.53 N	9.55 W	-20.78	0.347
1500.00	2.910	305.147	1499.41	27.33 N	17.30 W	-30.46	0.159
1700.00	2.300	303.577	1699.20	32.47 N	24.79 W	-39.53	0.307
1900.00	2.160	302.547	1899.05	36.72 N	31.32 W	-47.28	0.073
2100.00	1.540	305.247	2098.95	40.30 N	36.69 W	-53.72	0.313
2300.00	1.040	296.677	2298.90	42.66 N	40.50 W	-58.18	0.267
2500.00	1.030	299.997	2498.86	44.38 N	43.68 W	-61.74	0.030
2700.00	1.320	334.127	2698.82	47.35 N	46.25 W	-65.59	0.372
2900.00	1.450	342.377	2898.76	51.83 N	48.02 W	-69.75	0.119
3100.00	1.250	340.057	3098.71	56.29 N	49.53 W	-73.69	0.104
3300.00	1.220	343.457	3298.66	60.39 N	50.88 W	-77.27	0.040
3500.00	0.660	345.187	3498.63	63.54 N	51.78 W	-79.92	0.280
3700.00	0.290	328.687	3698.63	65.09 N	52.34 W	-81.31	0.195
3900.00	0.370	308.287	3898.62	65.92 N	53.11 W	-82.43	0.070
4100.00	0.330	286.227	4098.62	66.48 N	54.17 W	-83.61	0.070
4300.00	0.270	273.257	4298.62	66.67 N	55.19 W	-84.53	0.045
4500.00	0.240	215.927	4498.62	66.36 N	55.90 W	-84.91	0.123
4700.00	0.310	186.957	4698.61	65.48 N	56.22 W	-84.61	0.077
4900.00	0.360	210.677	4898.61	64.40 N	56.60 W	-84.25	0.073
5100.00	0.540	255.077	5098.60	63.62 N	57.83 W	-84.74	0.189
5300.00	0.700	280.617	5298.59	63.60 N	59.94 W	-86.39	0.158

MWD Survey Leg #1

5431.00	1.310	308.730	5429.57	64.69 N	61.90 W	-88.60	0.586
5440.00	3.800	128.000	5438.57	64.57 N	61.74 W	-88.41	56.777
5450.00	7.900	129.440	5448.51	63.92 N	60.95 W	-87.39	41.023
5460.00	12.700	129.870	5458.35	62.78 N	59.58 W	-85.60	48.006
5470.00	17.000	130.080	5468.01	61.14 N	57.61 W	-83.04	43.003
5480.00	21.500	130.210	5477.45	59.01 N	55.10 W	-79.75	45.002
5490.00	26.000	130.300	5486.60	56.41 N	52.02 W	-75.72	45.001
5500.00	30.900	129.600	5495.39	53.35 N	48.37 W	-70.96	49.113
5510.00	35.600	129.300	5503.75	49.87 N	44.14 W	-65.48	47.029
5520.00	40.200	129.000	5511.64	45.99 N	39.37 W	-59.34	46.037

Continued...

Sperry-Sun Drilling Services

Survey Report for RU 20-31



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)
5530.00	45.100	129.800	5518.99	41.69 N	34.14 W	-52.57	49.298
5540.00	49.300	131.600	5525.79	36.91 N	28.58 W	-45.25	44.024
5550.00	53.000	133.100	5532.06	31.66 N	22.83 W	-37.48	38.798
5560.00	56.900	134.100	5537.80	26.01 N	16.90 W	-29.34	39.849
5570.00	61.800	135.900	5542.90	19.93 N	10.83 W	-20.80	51.386
5580.00	66.500	137.600	5547.26	13.38 N	4.66 W	-11.91	49.425
5590.00	71.000	138.300	5550.88	6.46 N	1.58 E	-2.73	45.470
5600.00	75.600	138.700	5553.75	0.72 S	7.92 E	6.68	46.159
5610.00	79.900	138.600	5555.88	8.05 S	14.38 E	16.28	43.011
5636.00	88.700	136.900	5558.46	27.18 S	31.76 E	41.76	34.465
5668.00	90.300	134.000	5558.73	49.98 S	54.20 E	73.48	10.350
5700.00	91.400	131.700	5558.26	71.74 S	77.66 E	105.36	7.966
5732.00	91.300	131.500	5557.51	92.98 S	101.58 E	137.29	0.699
5763.00	91.400	131.000	5556.78	113.41 S	124.88 E	168.23	1.644
5795.00	91.600	129.900	5555.94	134.16 S	149.22 E	200.19	3.493
5826.00	91.400	129.700	5555.13	154.00 S	173.03 E	231.16	0.912
5858.00	90.900	129.000	5554.48	174.29 S	197.77 E	263.15	2.688
5889.00	91.400	128.900	5553.86	193.77 S	221.87 E	294.14	1.645
5921.00	88.800	128.300	5553.81	213.73 S	246.88 E	326.13	8.339
5953.00	86.200	127.300	5555.20	233.33 S	272.14 E	358.10	8.704
5985.00	85.900	127.100	5557.41	252.63 S	297.57 E	390.02	1.126
6017.00	87.400	126.900	5559.28	271.85 S	323.08 E	421.96	4.729
6048.00	88.900	126.900	5560.28	290.45 S	347.86 E	452.94	4.839
6080.00	89.400	126.600	5560.75	309.60 S	373.49 E	484.92	1.822
6111.00	90.100	126.200	5560.89	327.99 S	398.44 E	515.91	2.601
6143.00	91.300	125.700	5560.50	346.78 S	424.35 E	547.89	4.062
6175.00	91.700	125.200	5559.66	365.33 S	450.41 E	579.85	2.001
6207.00	91.000	125.300	5558.90	383.80 S	476.53 E	611.80	2.210
6238.00	91.700	125.200	5558.17	401.68 S	501.84 E	642.75	2.281
6270.00	91.800	125.000	5557.20	420.07 S	528.01 E	674.70	0.699
6301.00	90.200	125.300	5556.66	437.92 S	553.35 E	705.65	5.251
6332.00	90.800	125.200	5556.39	455.81 S	578.66 E	736.62	1.962
6364.00	90.900	125.300	5555.91	474.27 S	604.79 E	768.58	0.442
6396.00	89.300	125.700	5555.85	492.86 S	630.85 E	800.55	5.154
6428.00	89.900	125.200	5556.08	511.42 S	656.91 E	832.51	2.441
6459.00	91.000	125.300	5555.83	529.31 S	682.23 E	863.48	3.563
6490.00	90.600	125.700	5555.40	547.31 S	707.46 E	894.44	1.825
6522.00	89.100	127.100	5555.49	566.29 S	733.22 E	926.43	6.412
6553.00	89.400	127.100	5555.89	584.99 S	757.94 E	957.42	0.968
6585.00	89.600	127.800	5556.17	604.45 S	783.34 E	989.42	2.275

Continued...

Sperry-Sun Drilling Services

Survey Report for RU 20-31



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)
6617.00	89.400	127.800	5556.45	624.06 S	808.63 E	1021.42	0.625
6648.00	89.700	128.700	5556.69	643.25 S	832.97 E	1052.42	3.060
6680.00	90.300	128.900	5556.69	663.30 S	857.91 E	1084.41	1.976
6712.00	90.500	129.000	5556.47	683.42 S	882.80 E	1116.41	0.699
6744.00	90.900	128.500	5556.08	703.45 S	907.75 E	1148.40	2.001
6763.00	90.800	128.700	5555.80	715.30 S	922.60 E	1167.40	1.177
6796.00	90.800	128.700	5555.34	735.93 S	948.35 E	1200.39	0.000

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 128.000° (True).

Based upon Minimum Curvature type calculations, at a Measured Depth of 6796.00ft.,
The Bottom Hole Displacement is 1200.40ft., in the Direction of 127.812° (True).

Mobil

***San Juan County
Utah
Ratherford Unit
RU 20-31 - MWD Survey Leg #2***

SURVEY REPORT

18 December, 1998

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

Survey Ref: svy3385

Sperry-Sun Drilling Services

Survey Report for RU 20-31



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	
	100.00	0.560	54.677	100.00	0.28 N	0.40 E	-0.03	0.560
	300.00	0.530	4.927	299.99	1.77 N	1.28 E	0.57	0.230
	500.00	0.620	352.987	499.98	3.76 N	1.22 E	2.16	0.075
	700.00	0.930	350.767	699.96	6.44 N	0.83 E	4.48	0.156
	900.00	1.520	340.827	899.92	10.55 N	0.30 W	8.39	0.312
	1100.00	2.110	319.537	1099.82	15.86 N	3.56 W	14.56	0.443
	1300.00	2.640	308.617	1299.65	21.53 N	9.55 W	22.74	0.347
	1500.00	2.910	305.147	1499.41	27.33 N	17.30 W	32.13	0.159
	1700.00	2.300	303.577	1699.20	32.47 N	24.79 W	40.84	0.307
	1900.00	2.160	302.547	1899.05	36.72 N	31.32 W	48.24	0.073
	2100.00	1.540	305.247	2098.95	40.30 N	36.69 W	54.40	0.313
	2300.00	1.040	296.677	2298.90	42.66 N	40.50 W	58.64	0.267
	2500.00	1.030	299.997	2498.86	44.38 N	43.68 W	61.96	0.030
	2700.00	1.320	334.127	2698.82	47.35 N	46.25 W	65.90	0.372
	2900.00	1.450	342.377	2898.76	51.83 N	48.02 W	70.50	0.119
	3100.00	1.250	340.057	3098.71	56.29 N	49.53 W	74.92	0.104
	3300.00	1.220	343.457	3298.66	60.39 N	50.88 W	78.95	0.040
	3500.00	0.660	345.187	3498.63	63.54 N	51.78 W	81.96	0.280
	3700.00	0.290	328.687	3698.63	65.09 N	52.34 W	83.52	0.195
	3900.00	0.370	308.287	3898.62	65.92 N	53.11 W	84.65	0.070
	4100.00	0.330	286.227	4098.62	66.48 N	54.17 W	85.75	0.070
	4300.00	0.270	273.257	4298.62	66.67 N	55.19 W	86.54	0.045
	4500.00	0.240	215.927	4498.62	66.36 N	55.90 W	86.75	0.123
	4700.00	0.310	186.957	4698.61	65.48 N	56.22 W	86.26	0.077
	4900.00	0.360	210.677	4898.61	64.40 N	56.60 W	85.67	0.073
	5100.00	0.540	255.077	5098.60	63.62 N	57.83 W	85.84	0.189
	5300.00	0.700	280.617	5298.59	63.60 N	59.94 W	87.15	0.158
MWD Survey Leg #2								
	5416.00	1.230	306.900	5414.58	64.48 N	61.64 W	88.90	0.584
	5425.00	4.700	321.000	5423.56	64.82 N	61.95 W	89.36	39.109
	5435.00	8.100	323.380	5433.50	65.71 N	62.62 W	90.48	34.096
	5445.00	12.900	324.220	5443.33	67.18 N	63.70 W	92.29	48.023
	5455.00	17.700	324.660	5452.97	69.33 N	65.23 W	94.93	48.014
	5465.00	22.300	324.920	5462.37	72.12 N	67.20 W	98.34	46.008
	5475.00	26.900	325.100	5471.46	75.53 N	69.59 W	102.49	46.006
	5485.00	31.000	325.240	5480.21	79.50 N	72.35 W	107.32	41.006
	5495.00	35.400	325.340	5488.57	84.00 N	75.47 W	112.78	44.003
	5505.00	39.900	325.430	5496.49	89.03 N	78.94 W	118.87	45.003

Continued...

Sperry-Sun Drilling Services

Survey Report for RU 20-31



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)
5515.00	44.100	325.500	5503.92	94.54 N	82.73 W	125.54	42.003
5525.00	47.900	322.300	5510.86	100.35 N	86.97 W	132.72	44.419
5535.00	51.400	317.600	5517.34	106.17 N	91.88 W	140.33	50.064
5545.00	53.800	322.400	5523.41	112.26 N	96.98 W	148.27	45.046
5555.00	57.200	322.600	5529.08	118.79 N	101.99 W	156.51	34.040
5565.00	60.300	323.700	5534.26	125.63 N	107.12 W	165.05	32.394
5575.00	63.100	321.500	5539.00	132.63 N	112.47 W	173.85	34.045
5585.00	66.000	324.100	5543.30	139.82 N	117.92 W	182.87	37.309
5595.00	69.900	322.300	5547.06	147.24 N	123.48 W	192.13	42.417
5605.00	74.900	322.200	5550.08	154.77 N	129.31 W	201.66	50.009
5615.00	79.700	321.700	5552.28	162.45 N	135.32 W	211.41	48.247
5641.00	88.500	318.200	5554.95	182.22 N	151.95 W	237.24	36.394
5676.00	90.300	320.400	5555.31	208.75 N	174.77 W	272.22	8.121
5707.00	89.300	321.300	5555.42	232.79 N	194.34 W	303.21	4.340
5738.00	88.900	321.400	5555.91	257.00 N	213.70 W	334.21	1.330
5770.00	89.600	322.000	5556.33	282.11 N	233.53 W	366.20	2.881
5802.00	90.300	321.900	5556.36	307.31 N	253.25 W	398.20	2.210
5834.00	90.400	321.500	5556.16	332.42 N	273.08 W	430.20	1.288
5865.00	91.900	322.200	5555.54	356.79 N	292.23 W	461.19	5.339
5897.00	89.600	321.900	5555.12	382.02 N	311.91 W	493.18	7.248
5929.00	90.700	322.700	5555.04	407.34 N	331.47 W	525.17	4.250
5961.00	91.500	323.100	5554.42	432.86 N	350.77 W	557.14	2.795
5992.00	91.300	323.100	5553.66	457.64 N	369.38 W	588.11	0.645
6023.00	91.700	322.900	5552.85	482.39 N	388.03 W	619.08	1.443
6054.00	92.100	322.600	5551.82	507.05 N	406.78 W	650.05	1.613
6086.00	91.800	322.600	5550.74	532.46 N	426.21 W	682.02	0.938
6118.00	92.300	322.000	5549.59	557.76 N	445.76 W	713.99	2.440
6150.00	92.300	320.800	5548.31	582.75 N	465.71 W	745.96	3.747
6181.00	92.200	321.000	5547.09	606.79 N	485.25 W	776.94	0.721
6213.00	92.200	320.800	5545.86	631.60 N	505.42 W	808.92	0.625
6244.00	91.800	319.200	5544.78	655.34 N	525.33 W	839.89	5.317
6275.00	91.900	319.600	5543.78	678.86 N	545.49 W	870.86	1.329
6307.00	91.400	319.600	5542.86	703.22 N	566.22 W	902.84	1.562
6339.00	90.400	318.700	5542.35	727.42 N	587.15 W	934.82	4.204
6371.00	90.400	319.600	5542.13	751.63 N	608.08 W	966.80	2.812
6402.00	90.000	319.600	5542.02	775.24 N	628.17 W	997.79	1.290
6434.00	90.100	319.900	5541.99	799.66 N	648.85 W	1029.78	0.988
6466.00	90.400	320.500	5541.86	824.24 N	669.33 W	1061.78	2.096
6498.00	91.100	321.300	5541.44	849.07 N	689.51 W	1093.78	3.322
6529.00	91.300	321.300	5540.79	873.26 N	708.89 W	1124.77	0.645

Continued...

Sperry-Sun Drilling Services

Survey Report for RU 20-31



Mobil
San Juan County

Utah
Rutherford Unit

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
6560.00	91.900	321.300	5539.92	897.45 N	728.26 W	1155.76	1.935
6592.00	91.800	321.500	5538.89	922.44 N	748.22 W	1187.74	0.698
6624.00	90.100	321.000	5538.36	947.39 N	768.24 W	1219.73	5.537
6656.00	89.900	321.500	5538.36	972.35 N	788.27 W	1251.73	1.683
6688.00	93.500	322.000	5537.41	997.46 N	808.07 W	1283.71	11.358
6719.00	94.000	323.100	5535.38	1022.02 N	826.88 W	1314.63	3.891
6751.00	91.700	321.500	5533.79	1047.31 N	846.42 W	1346.58	8.752
6783.00	89.300	321.900	5533.51	1072.42 N	866.26 W	1378.58	7.603
6815.00	88.400	320.800	5534.15	1097.40 N	886.24 W	1410.57	4.441
6847.00	88.600	321.500	5534.99	1122.32 N	906.30 W	1442.56	2.274
6878.00	88.400	320.600	5535.80	1146.42 N	925.78 W	1473.55	2.973
6910.00	86.600	320.100	5537.20	1171.03 N	946.18 W	1505.51	5.838
6941.00	86.700	320.100	5539.01	1194.77 N	966.03 W	1536.46	0.323
6972.00	88.900	321.000	5540.20	1218.69 N	985.72 W	1567.43	7.667
7003.00	87.700	320.300	5541.12	1242.65 N	1005.36 W	1598.42	4.481
7035.00	88.000	319.800	5542.32	1267.16 N	1025.89 W	1630.39	1.821
7066.00	89.900	318.700	5542.89	1290.64 N	1046.13 W	1661.37	7.082
7098.00	90.600	318.700	5542.75	1314.68 N	1067.25 W	1693.34	2.187
7130.00	91.400	319.800	5542.19	1338.92 N	1088.13 W	1725.32	4.250
7161.00	93.300	320.500	5540.92	1362.70 N	1107.98 W	1756.29	6.531
7193.00	93.400	320.300	5539.05	1387.31 N	1128.34 W	1788.23	0.698
7225.00	90.200	319.000	5538.04	1411.68 N	1149.05 W	1820.20	10.793
7256.00	90.400	319.200	5537.88	1435.12 N	1169.34 W	1851.19	0.912
7273.00	90.200	319.600	5537.79	1448.02 N	1180.40 W	1868.18	2.631
7306.00	90.200	319.600	5537.68	1473.15 N	1201.79 W	1901.17	0.000

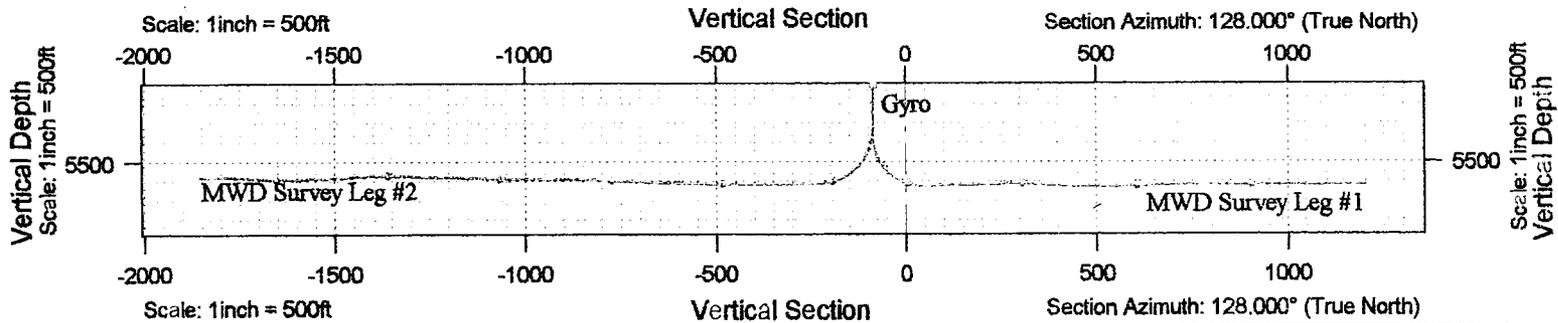
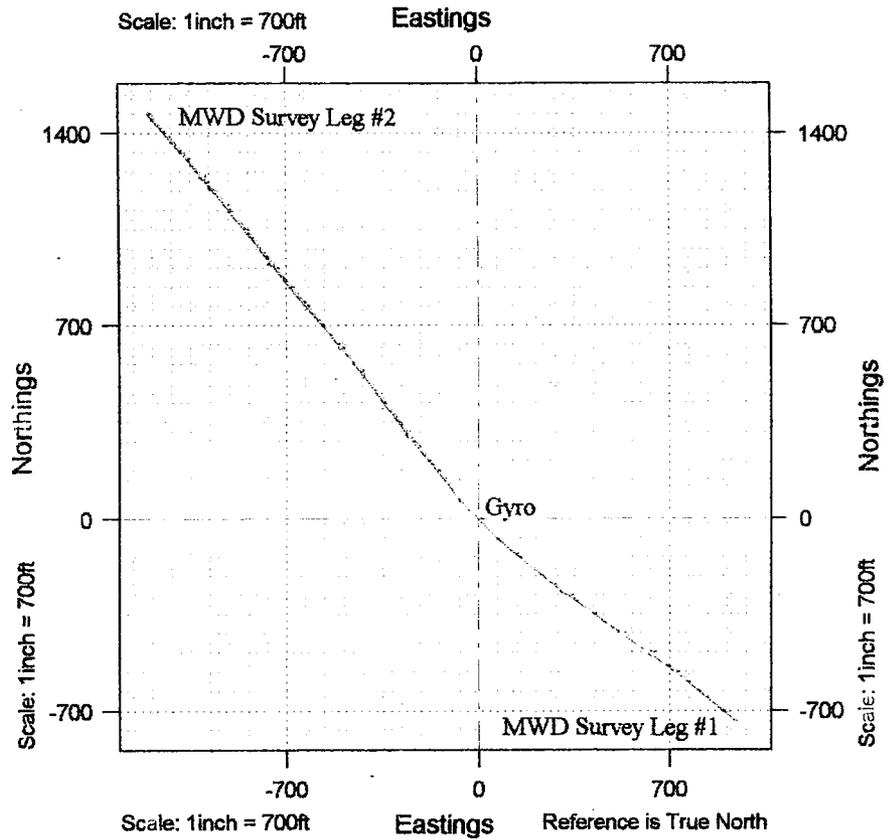
All data is in feet unless otherwise stated. Directions and coordinates are relative to True North. Vertical depths are relative to Well. Northings and Eastings are relative to Well.

The Dogleg Severity is in Degrees per 100ft.
Vertical Section is from Well and calculated along an Azimuth of 321.000° (True).

Based upon Minimum Curvature type calculations, at a Measured Depth of 7306.00ft.,
The Bottom Hole Displacement is 1901.18ft., in the Direction of 320.793° (True).

**San Juan County
Utah
Rutherford Unit
RU 20-31**

RECEIVED
MAR 05 1999



Prepared: _____ Checked: _____ Approved: _____

ExxonMobil Production Compa.

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

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.

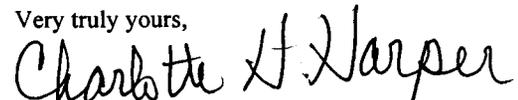
Please note the change of name of MOC to ExxonMobil Oil Corporation in your records pertaining to any MOC permits.

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 27 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 1	<i>DM</i>
NATV AM MIN COORD	_____
SOLID MIN TEAM	_____
PETRO MIN TEAM	<i>2</i>
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

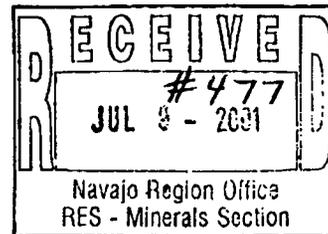
AS 7/12/2001
SH
543
File

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.

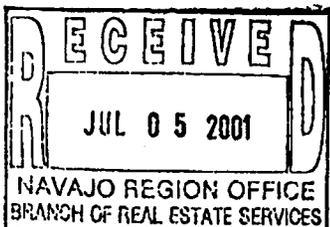
If you have any questions , please contact Alex Correa at (713) 431-1012.

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 Isaac

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.

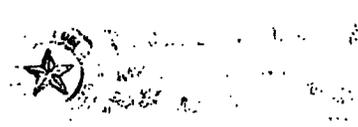
WITNESS, my hand and the seal of the Corporation at Irving, Texas, this 8th day of June, 2001.

S. A. Sullivan
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, South Tower, Suite 1900, Houston, Texas 77027-3301
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, 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 R.F. Bobo, Mary Pierson, Philana Berros, and Jody E. Specht of Houston, Texas-----

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 }
County of Somerset } ss.

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 Companies in the deponent's presence.



Notary Public State of New Jersey
No. 2231647
Commission Expires Oct 28, 2004

Karen A. Price
Notary Public

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 09:00 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. Risch, 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.



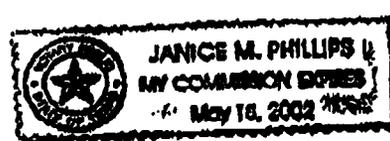
F. L. REID, Secretary

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

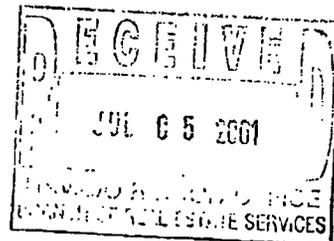
6959 Las Colinas Blvd.
(Mailing address)

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. Heub", with a long horizontal line extending to the right.

Special Deputy Secretary of State

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
RATHERFORD UNIT 19-13	19-41S-24E	43-037-31719	6280	INDIAN	OW	P
RATHERFORD UNIT 19-24 (MULTI-LEG)	19-41S-24E	43-037-31754	6280	INDIAN	OW	P
RATHERFORD UNIT 20-44	20-41S-24E	43-037-30915	6280	INDIAN	OW	P
20-13	20-41S-24E	43-037-30917	6280	INDIAN	OW	P
20-24	20-41S-24E	43-037-30918	6280	INDIAN	OW	P
20-22	20-41S-24E	43-037-30930	6280	INDIAN	OW	P
RATHERFORD UNIT 20-33	20-41S-24E	43-037-30931	6280	INDIAN	OW	S
RATHERFORD UNIT 20-11	20-41S-24E	43-037-31049	6280	INDIAN	OW	S
RATHERFORD UNIT 20-31	20-41S-24E	43-037-31050	6280	INDIAN	OW	P
RATHERFORD UNIT 20-42	20-41S-24E	43-037-31051	6280	INDIAN	OW	P
RATHERFORD 20-68	20-41S-24E	43-037-31591	6280	INDIAN	OW	P
RATHERFORD 20-66	20-41S-24E	43-037-31592	6280	INDIAN	OW	P
21-23	21-41S-24E	43-037-13754	6280	INDIAN	OW	S
21-32	21-41S-24E	43-037-15755	6280	INDIAN	OW	S
21-34	21-41S-24E	43-037-15756	6280	INDIAN	OW	S
RATHERFORD UNIT 21-11	21-41S-24E	43-037-31052	6280	INDIAN	OW	S
RATHERFORD UNIT 21-24	21-41S-24E	43-037-31720	6280	INDIAN	OW	P
RATHERFORD UNIT 21-77	21-41S-24E	43-037-31758	6280	INDIAN	OW	S
RATHERFORD UNIT 28-11	28-41S-24E	43-037-30446	6280	INDIAN	OW	P
29-34	29-41S-24E	43-037-15340	6280	INDIAN	OW	P

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: 06/29/2001
- (R649-8-10) Sundry or legal documentation was received from the **NEW** operator on: 06/29/2001
- The new company has been checked through the **Department of Commerce, Division of Corporations Database** on: 04/09/2002
- Is the new operator registered in the State of Utah: YES Business Number: 579865-0143
- 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:

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: 6/1/2006	
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>
PHONE NUMBER: <u>(303) 534-4600</u>		9. API NUMBER: <u>Attached</u>
10. FIELD AND POOL, OR WILDCAT: <u>Greater Aneth</u>		COUNTY: <u>San Juan</u>
QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:		STATE: <u>UTAH</u>

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

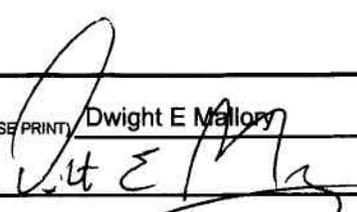
TYPE OF SUBMISSION	TYPE OF ACTION		
<input type="checkbox"/> NOTICE OF INTENT (Submit in Duplicate) Approximate date work will start: _____	<input type="checkbox"/> ACIDIZE	<input type="checkbox"/> DEEPEN	<input type="checkbox"/> REPERFORATE CURRENT FORMATION
<input checked="" type="checkbox"/> SUBSEQUENT REPORT (Submit Original Form Only) Date of work completion: _____	<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 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
PHONE NUMBER: (281) 654-1936		8. WELL NAME and NUMBER: Ratherford
4. LOCATION OF WELL FOOTAGES AT SURFACE: QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:		9. API NUMBER: attached
COUNTY: San Juan		10. FIELD AND POOL, OR WILDCAT: Aneth
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 <u><i>Laurie B. Kilbride</i></u>	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	SENE	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	SENE	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	SENE	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	SENE	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

STATE OF UTAH DEPARTMENT OF NATURAL RESOURCES DIVISION OF OIL, GAS, AND MINING	FORM 9 5. LEASE DESIGNATION AND SERIAL NUMBER: 14-20-603-353
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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.	6. IF INDIAN, ALLOTTEE OR TRIBE NAME: NAVAJO 7. UNIT or CA AGREEMENT NAME: RATHERFORD
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1. TYPE OF WELL Oil Well	8. WELL NAME and NUMBER: RATHERFORD UNIT 20-31
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2. NAME OF OPERATOR: RESOLUTE NATURAL RESOURCES	9. API NUMBER: 43037310500000
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3. ADDRESS OF OPERATOR: 1675 Boradway Ste 1950 , Denver, CO, 80202	PHONE NUMBER: 303 534-4600 Ext	9. FIELD and POOL or WILDCAT: GREATER ANETH
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4. LOCATION OF WELL FOOTAGES AT SURFACE: 0660 FNL 1880 FEL QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: Qtr/Qtr: NWNE Section: 20 Township: 41.0S Range: 24.0E Meridian: S	COUNTY: SAN JUAN STATE: UTAH
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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 Approximate date work will start: 2/4/2014 <input type="checkbox"/> SUBSEQUENT REPORT Date of Work Completion: <input type="checkbox"/> SPUD REPORT Date of Spud: <input type="checkbox"/> DRILLING REPORT Report Date:	<input type="checkbox"/> ACIDIZE <input type="checkbox"/> CHANGE TO PREVIOUS PLANS <input type="checkbox"/> CHANGE WELL STATUS <input type="checkbox"/> DEEPEN <input type="checkbox"/> OPERATOR CHANGE <input type="checkbox"/> PRODUCTION START OR RESUME <input type="checkbox"/> REPERFORATE CURRENT FORMATION <input checked="" type="checkbox"/> TUBING REPAIR <input type="checkbox"/> WATER SHUTOFF <input type="checkbox"/> WILDCAT WELL DETERMINATION	<input type="checkbox"/> ALTER CASING <input type="checkbox"/> CHANGE TUBING <input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS <input type="checkbox"/> FRACTURE TREAT <input type="checkbox"/> PLUG AND ABANDON <input type="checkbox"/> RECLAMATION OF WELL SITE <input type="checkbox"/> SIDETRACK TO REPAIR WELL <input type="checkbox"/> VENT OR FLARE <input type="checkbox"/> SI TA STATUS EXTENSION <input type="checkbox"/> OTHER	<input type="checkbox"/> CASING REPAIR <input type="checkbox"/> CHANGE WELL NAME <input type="checkbox"/> CONVERT WELL TYPE <input type="checkbox"/> NEW CONSTRUCTION <input type="checkbox"/> PLUG BACK <input type="checkbox"/> RECOMPLETE DIFFERENT FORMATION <input type="checkbox"/> TEMPORARY ABANDON <input type="checkbox"/> WATER DISPOSAL <input type="checkbox"/> APD EXTENSION OTHER: <input style="width: 100px;" type="text"/>

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

Resolute proposes to attempt to repair a tubing leak in the subject well to enhance oil production. The proposed procedure and a well bore schematic are attached.

Accepted by the Utah Division of Oil, Gas and Mining

Date: February 04, 2014

By: *Derek Quist*

NAME (PLEASE PRINT) Sherry Glass	PHONE NUMBER 303 573-4886	TITLE Sr Regulatory Technician
SIGNATURE N/A		DATE 2/3/2014

RESOLUTE

NATURAL RESOURCES

RU 20-31
660' FNL, 1880' FEL
NWNE section 20-T40S-R24E
43-037-31050

Tubing Leak Repair

Job Scope

Job Scope includes: LO/TO, PT tbg, POOH and inspect rods, POOH & LD Tubing, Make bit & scraper trip, RIH new tubing, then new insert pump and rods.

(Acid planned? /N; Change of tubing size? /N; Paraffin expected? /N)

Work History

8/20/2003: Rod & Pump replacement - Pulled rods & found #32 backed off. Fished rods & pump; bottom 30 rods worn out. Ran back new 2" insert pump, re-ran rods & added 58 new S88 3/4 rods.

1/23/2004: Rod Repair - Pulled rods, found 1" x 20th break; Fished rods & pump; Ran back new pump & same rods.

9/16/2004: Pump Replacement - Pulled rods, found pump pull rod parted; Fished & recovered pump, tools dragging. Pumped 25 gal acid 7 55 gal paraffin solvent down tbg w/35 bbls water. Ran back new 2" pump & re-ran the rods.

8/10/2007: Tubing Repair - Pulled rods & tubing, found HIT in pump joint (#172); Ran bit & scraper to 5415' = 1' above upper window. Ran new tubing & bha, ran new rods + new 2" insert pump.

5/17/2011: Rod Repair - Pulled & LD rods, Found 7/8" pin break on #16 at 402'; Fished remaining rods & pump; Ran back new 2" insert pump and new T-66 rods.

Procedure

Horsley Witten: No

1. MIRU WSU, LOTO,
2. Pressure test tubing to 1000 psig.
3. Kill well as necessary
4. POOH with rods and pump. Stand back rods in derrick. Call and notify Bill Albert (970) 371-9682 to inspect rods. If unavailable, contact Tech Support (Virgil Holly (435) 444-0020, or Julius Claw (435) 444-0156. Replace rods per inspection results.
5. NU BOPE to pull & LD tubing.
6. Release the TAC @ 5343.9' KB. Install a packer & pressure test BOPE.
7. RIH with bit & scraper to top of upper window at 5415'. POOH, run bit only to 5449' PBD below the two laterals. If any fill is encountered, CO w/Global N2.
8. TOO H with tubing, laying down for inspection/reconditioning.
9. Call and notify Bill Albert to inspect tubing. If unavailable, contact Virgil H. or Julius C.
10. Replace tubing with new 2-7/8" J-55 FBNAU Seamless tubing.
11. TIH with 3-1/2" slotted mud anchor joint, 2-7/8 carbon steel SN, 3-1/2" blast joint w/changeovers, TAC and 2-7/8 tubing to surface.
12. NDBOP, NUWH. Change over for rods.
13. RIH with 1-1/4" x 16' gas anchor and new insert pump. Contact Tech Support for pump and rod details.
14. Long stroke pump to test for good pumping action.
15. Leave enough polished rod for operators to correctly space pump as required.
16. Notify the Area Production Supervisor Alfred Redhouse (435) 619-7227 that well is ready.
17. RDMOL. Hook up appropriate chemical treatment.

