Scout Report sent out	☑
Noted in the NID File	☑
Location map pinned	☑
Approval or Disapproval Letter	☑
Date Completed, P. & A. or operations suspended	
Pin changed on location map	☐
Affidavit and Record of A & P	☐
Water Shut-Off Test	☐
Gas-Oil Ratio Test	☐
Well Log Filed	☑

Converted to water injection: Started injecting in April 1962

FILE NOTATIONS

Entered in N I D File	✓	Checked by Chief	
Entered On S R Sheet	✓	Copy N I D to Field Office	
Location Map Pinned	✓	Approval Letter	✓
Card Indexed	✓	Disapproval Letter	
I W R for State or Fee Land			

COMPLETION DATA:

Date Well Completed 3-16-58

OW ✓ WW TA

GW OS PA

Location Inspected

Bond released

State of Fee Land

LOGS FILED

Driller's Log 4-28-58

Electric Logs (No.) 4

E I E-I ✓ GR GR-N Micro ✓

Lat Mi-L Sonic ✓ Others Radiation Sonic

Form 9-331 b
(April 1952)

(SUBMIT IN TRIPLICATE)

Budget Bureau No. 42-R359.4.
Approval expires 12-31-60.

Indian Agency Navajo

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Allottee Tribal

Lease No. 14-20-603-355

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL	X	SUBSEQUENT REPORT OF WATER SHUT-OFF	
NOTICE OF INTENTION TO CHANGE PLANS		SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING	
NOTICE OF INTENTION TO TEST WATER SHUT-OFF		SUBSEQUENT REPORT OF ALTERING CASING	
NOTICE OF INTENTION TO REDRILL OR REPAIR WELL		SUBSEQUENT REPORT OF REDRILLING OR REPAIR	
NOTICE OF INTENTION TO SHOOT OR ACIDIZE		SUBSEQUENT REPORT OF ABANDONMENT	
NOTICE OF INTENTION TO PULL OR ALTER CASING		SUPPLEMENTARY WELL HISTORY	
NOTICE OF INTENTION TO ABANDON WELL			

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

Denver, Colorado February 5, 19 58

Navajo "A"
Well No. 8 is located 2140 ft. from {N/S} line and 820 ft. from {E/W} line of sec. 16

NW/4 NW/4 Sec. 16 (¼ Sec. and Sec. No.) | 41 S (Twp.) | 24 E (Range) | S.L.M. (Meridian)

White Mesa (Field) | San Juan (County or Subdivision) | Utah (State or Territory)

The elevation of the ground above sea level is 4685 ft.

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

Drill 17-1/4" hole to approximately 150', set 150' of 13-3/8" conductor pipe and cement to surface. Drill 11" hole to approximately 1400', set 8-5/8" casing and cement to surface. Drill 7-7/8" hole to total depth of approximately 5800', run 5-1/2" casing and cement with approximately 600 sacks. Complete in Paradox formation.

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company Phillips Petroleum Company

Address 1200 Denver Club Building

Denver 2, Colorado

By W. E. Schul

Title Division Superintendent

U. S. GOVERNMENT PRINTING OFFICE 16—8437b-8

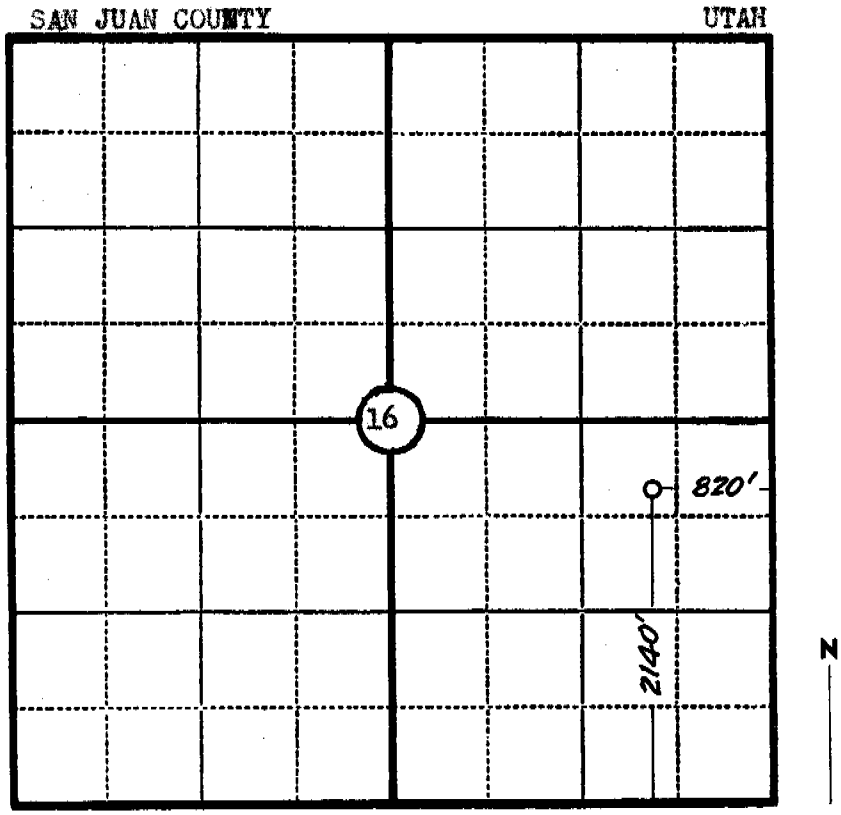
Company PHILLIPS PETROLEUM COMPANY

Lease NAVAJO Well No.

Sec. 16, T. 41 SOUTH, R. 24 EAST S.L.M.

Location 214

Elevation



Scale—4 inches equal 1 mile.

This is to certify that the above plat was prepared from field notes of actual surveys made by me or under my supervision and that the same are true and correct to the best of my knowledge and belief.

James P. Leese

Seal:

Registered Land Surveyor.
JAMES P. LEESE
UTAH REG. NO. 1472

Surveyed 15 DECEMBER, 19 57

SAN JUAN ENGINEERING COMPANY, FARMINGTON, N. M.

February 10, 1958

Phillips Petroleum Company
1200 Denver Club Building
Denver 2, Colorado

Attention: W. M. Schul, Division Superintendent

Gentlemen:

This is to acknowledge receipt of your notice of intention to drill Well No. Navajo A-8, which is to be located 2140 feet from the south line and 820 feet from the east line of Section 16, Township 41 South, Range 24 East, SLBM, San Juan County, Utah.

Please be advised that insofar as this office is concerned, approval to drill said well is hereby granted.

This approval terminates within 90 days if the above mentioned well is not spudded in within said period.

Yours very truly,

OIL & GAS CONSERVATION COMMISSION

CLEON B. FEIGHT
SECRETARY

CBF:cn

cc: Phil McGrath
USGS, Farmington,
New Mexico

Form 9-331 b
(April 1952)

Budget Bureau No. 42-R359.4.
Approval expires 12-31-60.

(SUBMIT IN TRIPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Indian Agency Navajo

Allottee Tribal

Lease No. 14-20-603-355

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL		SUBSEQUENT REPORT OF WATER SHUT-OFF	X
NOTICE OF INTENTION TO CHANGE PLANS		SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING	
NOTICE OF INTENTION TO TEST WATER SHUT-OFF		SUBSEQUENT REPORT OF ALTERING CASING	
NOTICE OF INTENTION TO REDRILL OR REPAIR WELL		SUBSEQUENT REPORT OF REDRILLING OR REPAIR	
NOTICE OF INTENTION TO SHOOT OR ACIDIZE		SUBSEQUENT REPORT OF ABANDONMENT	
NOTICE OF INTENTION TO PULL OR ALTER CASING		SUPPLEMENTARY WELL HISTORY	
NOTICE OF INTENTION TO ABANDON WELL			

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

Denver, Colorado February 21, 1958

Navajo "A"
Well No. 8 is located 2140 ft. from {N/S} line and 820 ft. from {E/W} line of sec. 16

NE/4 SE/4 Sec. 16 (¼ Sec. and Sec. No.) | 41 S (Twp.) | 22 E (Range) | S.L.M. (Meridian)

White Mesa (Field) | San Juan (County or Subdivision) | Utah (State or Territory)

The elevation of the ground above sea level is 4685 ft.

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

Drilled to 1485', ran 8-5/8" OD 24# J-55 casing set at 1483' KB and cemented with 242 sac s neat regular cement, 120 sacks Flocel "1", 6#/ calcium chloride, 1.6# Flocele, 6#/ Tuf Plug, followed by 100 sacks neat. Bumped plug to 1192' at 7:55 . . February 14. WOC 8 hours, ran 250' of 1" pipe on outside of 8-5/8" casing and cemented with 115 sacks. WOC 1 hour, cement fell 15', recemented to surface by pumping 5 sacks on outside of 8-5/8". Drilled plug at 3:00 A.M. February 15, tested casing with 500# for 30 minutes, held OK.

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company Phillips Petroleum Company

Address 1200 Denver Club Building

Denver 2, Colorado

By W. H. Schul

Title Division Superintendent

U. S. GOVERNMENT PRINTING OFFICE 16--84376-8

Form 9-331 b
(April 1952)

Budget Bureau No. 42-R359.4.
Approval expires 12-31-60.

(SUBMIT IN TRIPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Indian Agency Navajo

Allottee Tribal

Lease No. 14-20-603-355

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL		SUBSEQUENT REPORT OF WATER SHUT-OFF	X
NOTICE OF INTENTION TO CHANGE PLANS		SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING	
NOTICE OF INTENTION TO TEST WATER SHUT-OFF		SUBSEQUENT REPORT OF ALTERING CASING	
NOTICE OF INTENTION TO REDRILL OR REPAIR WELL		SUBSEQUENT REPORT OF REDRILLING OR REPAIR	
NOTICE OF INTENTION TO SHOOT OR ACIDIZE		SUBSEQUENT REPORT OF ABANDONMENT	
NOTICE OF INTENTION TO PULL OR ALTER CASING		SUPPLEMENTARY WELL HISTORY	
NOTICE OF INTENTION TO ABANDON WELL			

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

Denver, Colorado February 21, 1959

Well No. Navajo "A" 8 is located 2140 ft. from {N/S} line and 820 ft. from {E/W} line of sec. 16

NE/4 SE/4 Sec. 16 (¼ Sec. and Sec. No.) | 41 S (Twp.) | 24E (Range) | S.L.M. (Meridian)

White Mesa (Field) | San Juan (County or Subdivision) | Utah (State or Territory)

The elevation of the ~~derrick floor~~ ground above sea level is 4685 ft.

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

Spudded well at 5:00 P.M. February 11, 1959. Drilled to 176', ran 13-3/8" Armco ST SJ 27.1# casing set at 175' RKB, cemented with 175 sacks regular cement. Plug bumped to 144' at 10:45 A.M. February 12, cement circulated. Tested casing with 800# for 30 minutes, held OK.

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company Phillips Petroleum Company

Address 1200 Denver Club Building

Denver 2, Colorado

By W. M. Schul

Title Division Superintendent

U. S. GOVERNMENT PRINTING OFFICE 16—84376-8

Form 9-331 b
(April 1952)

Budget Bureau No. 42-R359.4.
Approval expires 12-31-60.

(SUBMIT IN TRIPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Indian Agency Navajo

Allottee Tribal

Lease No. 14-20-603-355

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL		SUBSEQUENT REPORT OF WATER SHUT-OFF	X
NOTICE OF INTENTION TO CHANGE PLANS		SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING	
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NOTICE OF INTENTION TO SHOOT OR ACIDIZE		SUBSEQUENT REPORT OF ABANDONMENT	
NOTICE OF INTENTION TO PULL OR ALTER CASING		SUPPLEMENTARY WELL HISTORY	
NOTICE OF INTENTION TO ABANDON WELL			

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

Denver, Colorado March 18, 19 58

Navajo "A"
Well No. 8 is located 2140 ft. from {N/S} line and 820 ft. from {E/W} line of sec. 16

NE/4 SE/4 Sec. 16 (¼ Sec. and Sec. No.) | 41S (Twp.) | 24E (Range) | S.L.M. (Meridian)

White Mesa (Field) | San Juan (County or Subdivision) | Utah (State or Territory)

The elevation of the derrick floor above sea level is 4698 ft.

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

Drilled to 5761'. Ran 5-1/2" OD 14# and 15.5# J-55 casing set at 5758' RKB. Cemented with 132 sacks regular cement, 100 sacks Diacel "D" and 49# calcium chloride. Plugged plug to 5722" at 3:55 P.M. March 6, 1958. Ran B. & R. temperature survey, showed top cement 4075'. Tested casing with 500# for 30 minutes, held OK.

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company Phillips Petroleum Company

Address 1200 Denver Club Building

Denver 2, Colorado

By W. M. Schul

Title Division Superintendent

U. S. GOVERNMENT PRINTING OFFICE 16—8437b-8

Form 9-330

Budget Bureau No. 42-R355.4.
Approval expires 12-31-60.

U. S. LAND OFFICE Navajo
SERIAL NUMBER 14-20-603-355
LEASE OR PERMIT TO PROSPECT Tribal

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

LOG OF OIL OR GAS WELL

LOCATE WELL CORRECTLY

Company Phillips Petroleum Company - Aztec Oil & Gas Co. Address 1200 Denver Club Bldg. Denver 2, Colorado

Lessor or Tract Navajo "A" Field White Mesa State Utah

Well No. 8 Sec. 16 T. 41S R. 24E Meridian SLM County San Juan

Location 2140 ft. [N.] of S Line and 820 ft. [W.] of E Line of Sec. 16 Elevation 4698
(Derrick floor relative to sea level)

The information given herewith is a complete and correct record of the well and all work done thereon so far as can be determined from all available records.

Signed [signature]

Date April 24, 1958 Title Division Superintendent

The summary on this page is for the condition of the well at above date.

Commenced drilling February 11, 19 58 Finished drilling March 6, 19 58

OIL OR GAS SANDS OR ZONES

(*Denote gas by G*)

No. 1, from 5540 to 5606 No. 4, from ____ to ____

No. 2, from ____ to ____ No. 5, from ____ to ____

No. 3, from ____ to ____ No. 6, from ____ to ____

IMPORTANT WATER SANDS

No. 1, from ____ to ____ No. 3, from ____ to ____

No. 2, from ____ to ____ No. 4, from ____ to ____

CASING RECORD

Size casing	Weight per foot	Threads per inch	Make	Amount	Kind of shoe	Cut and pulled from	Perforated From—	Perforated To—	Purpose
13-3/8"	27.1#	8rd	Armco	160'	Baker				
8-5/8"	24#	8rd	J55	1478'	Baker				
5-1/2"	15.5#	8rd	J55	1973'	Baker		5510-15, 5548-58, 5565-72,		
5-1/2"	14#	8rd	J55	5609'			5587-94, 5598-5606		
				HISTORY OF OIL OR GAS WELL					Production

MUDDING AND CEMENTING RECORD

Size casing	Where set	Number sacks of cement	Method used	Mud gravity	Amount of mud used
13-3/8"	175'	175	Circ.		
8-5/8"	1483'	500	Halliburton		
5-1/2"	5598'	250	Halliburton		

PLUGS AND ADAPTERS

Heaving plug—Material ____ Length ____ Depth set ____

Adapters—Material ____ Size ____

SHOOTING RECORD

FOLD | MARK

13-3/8"	175'	175	Circ.			
8-5/8"	1483'	500	Halliburton			
5-1/2"	5758'	252	Halliburton			

FOLD | MARK

PLUGS AND ADAPTERS

Heaving plug—Material ..... Length ..... Depth set .....

Adapters—Material ..... Size .....

SHOOTING RECORD

Size	Shell used	Explosive used	Quantity	Date	Depth shot	Depth cleaned out

TOOLS USED

Rotary tools were used from 0 feet to 5761 feet, and from ..... feet to ..... feet

Cable tools were used from ..... feet to ..... feet, and from ..... feet to ..... feet

DATES

April 24, 1958 — Put to producing March 16, 1958

The production for the first 24 hours was 204 barrels of fluid of which 100% was oil; ...% emulsion; ...% water; and ...% sediment.

Gravity, °Bé. 41

If gas well, cu. ft. per 24 hours ..... Gallons gasoline per 1,000 cu. ft. of gas .....

Rock pressure, lbs. per sq. in. 220

EMPLOYEES

....., Driller ....., Driller

....., Driller ....., Driller

FORMATION RECORD

FROM—	TO—	TOTAL FEET	FORMATION
1487	2350	863	Chinle
2350	2415	65	Shinarump
2415	2576	161	Moenkopi
2576	2618	42	Upper Cutler
2618	2795	177	De Chelly
2795	4020	1225	Organ Rock
4020	4559	539	Rico
4559	5532	973	Upper Hermosa
5532	5764	232	Paradox

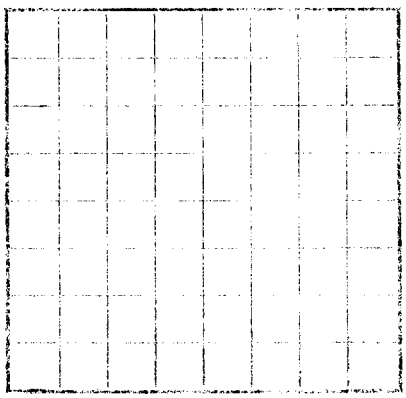
16—43094-2 U. S. GOVERNMENT PRINTING OFFICE

HISTORY OF OIL OR GAS WELL

It is of the greatest importance to have a complete history of the well. Please state in detail the dates of redrilling, together with the reasons for the work and its results. If there were any changes made in the casing, state fully, and if any casing was "sidetracked" or left in the well, give its size and location. If the well has been dynamited, give date, size, position, and number of shots. If plugs or bridges were put in to test for water, state kind of material used, position, and results of pumping or bailing.

Spudded at 5:00 p.m. February 11, 1958. Drilled 17½" hole to 176', ran 13-3/8" OD 27.1# Armco S[illegible] CJ casing set 175' KB, cemented with 175 sacks regular cement. Plug pumped to 144' at 10:45 a.m. 2-12-58, cement circulated. Tested casing with 800# for 30 minutes, OK. Drilled to 1485', ran 8-5/8" OD 25# J55 casing set 1483' KB and cemented with 242 sacks regular cement, 126 sacks Diacel "D", 6[illegible]# calcium chloride, 16#/ Flocele, [illegible] followed by 100 sacks neat cement. Plug pumped to 1192'. WOC 8 hours, ran 250' of 1" pipe on outside of 8-5/8" and cemented with 115 sacks. Cement fell 15', re-cemented to surface by dumping 5 sacks on outside of 8-5/8". Drilled plug, tested casing with 500# 30 minutes, OK. Drilled to 5721', ran 5½" OD 15.5# and 14# J55 casing set 5758' KB. Cemented with 132 sacks regular cement, 100 sacks Diacel "D" and 49#/ calcium chloride. Pumped plug to 5722'. Ran temperature survey, top cement 4075'. Tested casing 750# 30 minutes, OK. Perforated with [illegible] 4 holes per foot, 5540-45', 5563-58', 5565-72', 5567-94', 5598-5600'. Ran 2-7/8" OD EUE tubing with packer set 5502'. Moved out rotary. Moved in double drum unit. Acidised with 6,000 gallons [illegible] 1500, flushed with 20 barrels oil. Average treating rate of acid 7 BPM and flush 4 BPM, maximum treating pressure 4400#, minimum 3600#. Well kicked off and flowed to pits to clean up. Opened to tanks through 3/4" choke, flowed 204 BO in 4 hours, GOR 643. Producing rate 1224 BOPD. Shut in for tank room.

LOCATE WELL CORRECTLY



LOG OF OIL OR GAS WELL

GEOLOGICAL SURVEY

DEPARTMENT OF THE INTERIOR

UNITED STATES

APR 28 1958

PHILLIPS PETROLEUM COMPANY

1200 Denver Club Building
Denver 2, Colorado

April 24, 1958

Mr. Cleon B. Feight
Secretary
Utah Oil & Gas Conservation Commission
State Capitol Building
Salt Lake City, Utah

Dear Mr. Feight:

Enclosed herewith you will find two copies of each of the following logs run on Phillips Petroleum - Aztec Oil and Gas Company's Navajo "A" #8, San Juan County, Utah.

1. Schlumberger Induction-Electric Log
2. Schlumberger Micro Log
3. P.G.A.C. Gamma-Ray Neutron Log
4. Schlumberger Sonic Log

Very truly yours,

PHILLIPS PETROLEUM COMPANY

W. M. Schul
Division Superintendent

CCK:lb

Enclosures

Cert. as of 4-30-58

July 28, 1958

Mr. W. M. Schul,
Division Superintendent
Phillips Petroleum Company
1200 Denver Club Building
Denver, Colorado

Dear Sir:

This Commission has been receiving requests from your office to keep certain information "Confidential". Said requests have been in the form of letters stating that all information pertaining to a specific well be kept "Confidential.".

When received at a later date, the reports to be kept confidential were not so marked.

In order to aid this Commission in carrying out your request, may we suggest that in the future, each and every report that is to be kept "Confidential" be marked "Confidential" in some conspicuous place.

Thank you very much.

Yours very truly,

OIL & GAS CONSERVATION COMMISSION

CLEON B. FEIGHT
SECRETARY

CBF:en

Form 9-331 b
(April 1952)

Budget Bureau No. 42-R359.4.
Approval expires 12-31-60.

(SUBMIT IN TRIPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Indian Agency Navajo

Allottee Tribal

Lease No. 14-20-603-355

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL		SUBSEQUENT REPORT OF WATER SHUT-OFF	
NOTICE OF INTENTION TO CHANGE PLANS		SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING	
NOTICE OF INTENTION TO TEST WATER SHUT-OFF		SUBSEQUENT REPORT OF ALTERING CASING	
NOTICE OF INTENTION TO REDRILL OR REPAIR WELL		SUBSEQUENT REPORT OF REDRILLING OR REPAIR	
NOTICE OF INTENTION TO SHOOT OR ACIDIZE		SUBSEQUENT REPORT OF ABANDONMENT	
NOTICE OF INTENTION TO PULL OR ALTER CASING		SUPPLEMENTARY WELL HISTORY	
NOTICE OF INTENTION TO ABANDON WELL		Conversion of well to water Injection	X

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

May 2, 19 62

Ratherford Unit
Well No. 16W43 is located 2140 ft. from {N/S} line and 820 ft. from {E/W} line of sec. 16
(Formerly Phillips' Navajo "A"-8, then Ratherford Unit 16-43, See Note)

NE/4 SE/4 Sec. 16 | 41S | 24E | SLBM
(¼ Sec. and Sec. No.) | (Twp.) | (Range) | (Meridian)

White Mesa | San Juan County | Utah
(Field) | (County or Subdivision) | (State or Territory)

The elevation of the derrick floor above sea level is 4698 ft.

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

1-20-62 Moved in R&R Well Service Unit to kill well, pull rods and tubing, cement line rerun and convert to water injection. Previous Production 77 BO, 59 MCFPD, 0 water.

1-21-62 Pulled tubing.

1-22-62 through 2-1-62 Idle

2-2-62 Moved in and rigged up R&R Well Service Unit to run cement lined tubing.

2-3-62 Ran 2-1/2" EUE cement lined tubing with Baker EOJ Hookwall Packer.

2-4-62 through 4-29-62 Waiting on completion of Ratherford Unit Waterflood Pump Station.

4-30-62 Started water injection into Paradox 2:45 PM 4/30/62. Injected 590 BW in 5 hours. Tubing Pressure 950# to 0#.

NOTE: Well number changed from 16-43 to 16W43 to indicate change from oil well to water injection well.

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company PHILLIPS PETROLEUM COMPANY

Address P. O. Drawer 1150

Cortez, Colorado

By C. M. Boles

Title District Superintendent

U. S. GOVERNMENT PRINTING OFFICE 16—8437b-8

Form 9-331
(May 1963)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN TRIPLICATE* (Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1424.

SUNDRY NOTICES AND REPORTS ON WELLS

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

1. OIL WELL ☐ GAS WELL ☐ OTHER Water Injection Well

2. NAME OF OPERATOR
Phillips Petroleum Company

3. ADDRESS OF OPERATOR
Drawer 1150, Cortez, Colorado

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.)
At surface
2140' FNL, 820' FEL, Section 16

5. LEASE DESIGNATION AND SERIAL NO.
14-20-603-355

6. IF INDIAN, ALLOTTEE OR TRIBE NAME
Navajo Indian

7. UNIT AGREEMENT NAME
Rutherford I-149-IND-8192

8. FARM OR LEASE NAME
Rutherford Unit

9. WELL NO.
16W43

10. FIELD AND POOL, OR WILDCAT
Greater Aneth Field

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
16-41S-24E, S.L.B.&M.

12. COUNTY OR PARISH
San Juan

13. STATE
Utah

14. PERMIT NO.

15. ELEVATIONS (Show whether DF, RT, GR, etc.)
4693' DF

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

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	☐	PULL OR ALTER CASING	☐	WATER SHUT-OFF	☐	REPAIRING WELL	☐
FRACTURE TREAT	☐	MULTIPLE COMPLETE	☐	FRACTURE TREATMENT	☐	ALTERING CASING	☐
SHOOT OR ACIDIZE	X	ABANDON*	☐	SHOOTING OR ACIDIZING	☐	ABANDONMENT*	☐
REPAIR WELL	☐	CHANGE PLANS	☐				
(Other)				(Other)			

(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.) *

In attempt to increase injection rate, treat injection well with 2000 gallons of 15% regular with 2 gallons of I-5 additive per 1000 gallons of acid, 250 gallons Sal Block, and 2000 gallons of 15% regular acid with 2 gallons of I-5 additive per 1000 gallons of acid.

Present Injection Rate: 134 BWPD at 2525#.

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

SIGNED C. M. Boles TITLE District Superintendent DATE 10-13-65

(This space for Federal or State office use)

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

*See Instructions on Reverse Side

December 15, 1965

Phillips Petroleum Company
Drawer 1150
Cortez, Colorado

Gentlemen:

Upon checking our files we note that we have not received subsequent reports for the following wells:

RATHERFORD UNIT #9W21, Sec. 9, T. 41 S., R. 24 E.	Shoot or Amidize
RATHERFORD UNIT #12-31, Sec. 12, T. 41 S., R. 23 E.	Perforate Ismay & Acidize
RATHERFORD UNIT #18W43, Sec. 18, T. 41 S., R. 24 E.	Shoot or acidize
RATHERFORD UNIT #18W21, Sec. 18, T. 41 S., R. 24 E.	Shoot or acidize
RATHERFORD UNIT #12W44, Sec. 12, T. 41 S., R. 23 E.	Shoot or acidize
RATHERFORD UNIT #21W41, Sec. 21, T. 41 S., R. 24 E.	Shoot or acidize
RATHERFORD UNIT #21W21, Sec. 21, T. 41 S., R. 24 E.	Shoot or acidize

Phillips Petroleum Company
Drawer 1150
Cortez, Colorado

(2)

RATHERFORD UNIT #15W23,
Sec. 15, T. 41 S., R. 24 E, Shoot or acidize

RATHERFORD UNIT #16W43,
Sec. 16, T. 41 S., R. 24 E. Shoot or acidize

Your attention to this matter will be greatly appreciated.

Very truly yours,

OIL & GAS CONSERVATION COMMISSION

ANNETTE R. HANSEN
RECORDS CLERK

arh

Enclosures: OGCC-1b

Form 9-331
(May 1963)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN TRIPLICATE* (Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1424.

SUNDRY NOTICES AND REPORTS ON WELLS

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

5. LEASE DESIGNATION AND SERIAL NO.: 14-20-603-355

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: Navajo Indian

1. OIL WELL ☐ GAS WELL ☐ OTHER Water Injection Well

7. UNIT AGREEMENT NAME: 58-I-4192

2. NAME OF OPERATOR: Phillips Petroleum Co.

8. FARM OR LEASE NAME: Rutherford Unit

3. ADDRESS OF OPERATOR: Drawer 1150, Cortez, Colorado 81321

9. WELL NO.: 1643

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface: 2140' FNL, 820' FEL, Section 16

10. FIELD AND POOL, OR WILDCAT: Greater Aneth Field

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: 16-41S-24E, S.L.B.&M.

14. PERMIT NO.

15. ELEVATIONS (Show whether DF, RT, GR, etc.): 4698' DF

12. COUNTY OR PARISH: San Juan

13. STATE: Utah

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

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	☐	PULL OR ALTER CASING	☐	WATER SHUT-OFF	☐	REPAIRING WELL	☐
FRACTURE TREAT	☐	MULTIPLE COMPLETE	☐	FRACTURE TREATMENT	☐	ALTERING CASING	☐
SHOOT OR ACIDIZE	X*	ABANDON*	☐	SHOOTING OR ACIDIZING	☐	ABANDONMENT*	☐
REPAIR WELL	☐	CHANGE PLANS	☐	(Other)			
(Other)				(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.) *

In attempt to increase injection rate, treat injection well as follows:

Pull cement lined tubing, run string of 2⅜" bare tubing, treat Submone I perforations 5540-45, 5548-58, 5565-72, 5587-94 and 5598-5606' in the Desert Creek Formation with 15,000 gallons of 15% acid, pull bare tubing, rerun cement lined tubing and return well to injection service.

Present Injection Rate: 130 BWPD @ 2540#.

*This Notice of Intention to Acidize well cancels and supercedes Intention to Acidize this well dated 10-13-65.

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

SIGNED C. H. Boles TITLE District Superintendent DATE 12-15-65

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

*See Instructions on Reverse Side

Phillips

Ratherford Unit 16W43 (Acid Job)

On January 19, 1966 acidized well through 2⅞" flare tubing and packer with 15,000 gallons 15% regular acid, 15,000 gallons fresh water, 400 gallons temporary block with 72 ball sealers in 3 stages as follows: First stage 5000 gallons 15% acid followed by 5000 gallons fresh water, 200 gallons block, 40 ball sealers. Second stage 5000 gallons 15% acid followed by 5000 gallons fresh water, 200 gallons block, 30 ball sealers. Third stage 5000 gallons 15% acid followed by 6000 gallons fresh water. Injectivity was 117 BWPD at 2520# before the treatment and 150 BWPD at 2450# following the treatment.

Ratherford Unit 18W43 (Acid Job)

On January 19, 1966 acidized well through 2⅞" tubing with Marlex liner and packer with 2000 gallons 15% regular acid, 250 gallons temporary block, and 2000 gallons 15% regular acid. Injectivity increased from 1081 BWPD at 480# before the treatment to 1638 BWPD at 490# following the treatment.

Ratherford Unit 21W41 (Acid Job)

On January 5, 1966 acidized well through 2" tubing and Marlex liner and packer with 15,000 gallons 28% acid, 15,000 gallons fresh water, and 1000 gallons salt plug in three stages as follows: First stage 5000 gallons 28% acid followed by 5000 gallons fresh water and 300 gallons salt plug. Second stage 5000 gallons 28% acid followed by 5000 gallons fresh water and 300 gallons salt plug. Third stage 5000 gallons 28% acid followed by 5000 gallons fresh water. Injectivity increased from 48 BWPD at 2535# before the treatment to 798 BWPD at 2425# following the treatment.

(Cont'd page 4)

Form 9-331
(May 1963)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN TRIPLICATE* (Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1424.

SUNDRY NOTICES AND REPORTS ON WELLS

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

1. OIL WELL ☐ GAS WELL ☐ OTHER Water Injection Well

2. NAME OF OPERATOR
Phillips Petroleum Company

3. ADDRESS OF OPERATOR
Drawer 1150, Cortez, Colorado 81321

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.)
At surface
2140' FSL, 620' FEL, Section 16

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

6. IF INDIAN, ALLOTTEE OR TRIBE NAME
Navajo Indian

7. UNIT AGREEMENT NAME
I-149

8. FARM OR LEASE NAME
Rutherford Unit

9. WELL NO.
164-3

10. FIELD AND POOL, OR WILDCAT
Greater Aneth Field

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
16-41S-24E, S.L.B.&M.

14. PERMIT NO.

15. ELEVATIONS (Show whether DF, RT, GR, etc.)
4693' DF

12. COUNTY OR PARISH
San Juan

13. STATE
Utah

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

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	☐	PULL OR ALTER CASING	☐	WATER SHUT-OFF	☐	REPAIRING WELL	☐
FRACTURE TREAT	☐	MULTIPLE COMPLETE	☐	FRACTURE TREATMENT	☐	ALTERING CASING	☐
SHOOT OR ACIDIZE	☐	ABANDON*	☐	SHOOTING OR ACIDIZING	X	ABANDONMENT*	☐
REPAIR WELL	☐	CHANGE PLANS	☐				
(Other)				(Other)			

(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.) *

Acid Job (1-19-66):

Acidized Desert Creek perforations through 2⅜" bare tubing with packer with 15,000 gallons 15% regular acid in three 5000 gallon stages with first 2 stages followed with 5000 gallons fresh water, 800 gallons Sol Block and ball sealers and third stage followed with 6000 gallons fresh water. Overall treating rate 9.9 BPM. Instantaneous SIP 4400#. Maintained 2000# on annulus during entire treatment. Resumed injection.

PRIOR INJECTION RATE: 117 BWPD at 2520#.

PRESENT INJECTION RATE: 150 BWPD at 2450#.

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

SIGNED C. M. Miller TITLE District Superintendent DATE 2-7-66

(This space for Federal or State office use)

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

*See Instructions on Reverse Side

Form 9-331
(May 1963)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN TRIPLICATE* (Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1424.

SUNDRY NOTICES AND REPORTS ON WELLS

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

1. OIL WELL ☐ GAS WELL ☐ OTHER

2. NAME OF OPERATOR

3. ADDRESS OF OPERATOR

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

2140' from South Line; 800' from East Line
820' from East Line Section 16

5. LEASE DESIGNATION AND SERIAL NO.
14-20-603-355

6. IF INDIAN, ALLOTTEE OR TRIBE NAME
Navajo Indian

7. UNIT AGREEMENT NAME 96-I-4192
Ratherford Unit

8. FARM OR LEASE NAME
Ratherford Unit

9. WELL NO.
16W43

10. FIELD AND POOL, OR WILDCAT
Greater Aneth

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
16-41S-24E, S.L.B.M.

14. PERMIT NO.

15. ELEVATIONS (Show whether DF, RT, GR, etc.)
4698' D.F.

12. COUNTY OR PARISH

13. STATE

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

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	☐	PULL OR ALTER CASING	☐	WATER SHUT-OFF	☐	REPAIRING WELL	☐
FRACTURE TREAT	☐	MULTIPLE COMPLETE	☐	FRACTURE TREATMENT	☐	ALTERING CASING	☐
SHOOT OR ACIDIZE	☒	ABANDON*	☐	SHOOTING OR ACIDIZING	☐	ABANDONMENT*	☐
REPAIR WELL	☐	CHANGE PLANS	☐	(Other)			
(Other)				(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.) *

Pull cement lined tubing and run bare tubing, acidize with 15,000 gallons 28% acid in 3 stages separated with salt plugs, pull bare tubing and rerun cement lined tubing, return to injection.

Present Injection Rate: 118 BWPD at 2225#.

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

SIGNED C. M. Boles TITLE District Superintendent DATE 9-28-66

(This space for Federal or State office use)

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

*See Instructions on Reverse Side

Form 9-331
(May 1963)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN TRIPLICATE*
(Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1424.

SUNDRY NOTICES AND REPORTS ON WELLS

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

1. OIL WELL ☐ GAS WELL ☐ OTHER Water Injection Well

2. NAME OF OPERATOR: Phillips Petroleum Co.

3. ADDRESS OF OPERATOR: Drawer 1150, Cortez, Colorado 81321

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface: 2140' from South Line, 800' from East Line 820' from East Line Section 16

5. LEASE DESIGNATION AND SERIAL NO.: 14-20-603-355

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: Navajo Indian

7. UNIT AGREEMENT NAME: SW-I-4192

8. FARM OR LEASE NAME: Rutherford Unit

9. WELL NO.: 16W43

10. FIELD AND POOL, OR WILDCAT: Greater Aneth

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: 16-41S-24E S.L.B.M.

14. PERMIT NO.

15. ELEVATIONS (Show whether DF, RT, GR, etc.): 4698 DF

12. COUNTY OR PARISH: San Juan

13. STATE: Utah

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

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	☐	PULL OR ALTER CASING	☐	WATER SHUT-OFF	☐	REPAIRING WELL	☐
FRACTURE TREAT	☐	MULTIPLE COMPLETE	☐	FRACTURE TREATMENT	☐	ALTERING CASING	☐
SHOOT OR ACIDIZE	☐	ABANDON*	☐	SHOOTING OR ACIDIZING	X	ABANDONMENT*	☐
REPAIR WELL	☐	CHANGE PLANS	☐	(Other)			
(Other)				(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.) *

On October 22, 1966 pulled 2½" cement lined tubing and reran bare tubing with packer set at 5469'. Shut down waiting on injection plant to start up. On November 17, 1966 acidized Desert Creek Zone I perforations 5540-5606' OA with 15,000 gallons 28% acid and 2000 gallons salt plug in 3 stages. Resumed injection.

PREVIOUS INJECTION RATE: 118 BWPD at 2225#.

PRESENT INJECTION RATE: 210 BWPD at 2400#.

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

SIGNED C. N. Boles TITLE District Superintendent DATE 12-3-66

(This space for Federal or State office use)

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

*See Instructions on Reverse Side

PHILLIPS PETROLEUM COMPANY
P. O. Drawer 1150
Cortez, Colorado 81321

December 31, 1966

In re: Ratherford Unit Monthly Operating Report
November 1966

Swabbed well, pulled tubing with packer, reran tubing and rods and started well pumping on November 25, 1966. Daily production was 18 BO and 690 BW before the treatment, and nine days following the treatment, production was 108 BO and 1 BW.

Ratherford Unit 16W43 (Acid Job) Sec 16 - 41S-24E Phillips water inj.

On October 22, 1966 pulled cement lined tubing, reran 2½" tubing with retrievamatic packer and set at 5469'. Unable to acidize due to high pressure injection system being down. On November 16 acidized Desert Creek Zone I through 2½" bare tubing and packer with 15,000 gallons 28% acid in three stages, each stage separated by 1000 gallons salt plug mixed 3.4#/gallon. Hooked back up for injection. Daily injection rate was 118 BW at 2225# before the treatment and six days following the treatment, the injection rate was 210 BW at 2400#.

Ratherford Unit 17W21 (Acid Job)

On November 21, 1966 pulled cement lined tubing, ran 2½" tubing and retrievamatic packer, set at 5480'. Acidized Desert Creek Zone II through 2½" bare tubing and packer with 5000 gallons 15% acid in two stages separated by 1000 gallons salt plug mixed 3#/gallon. Hooked back up for injection. On November 30, 1966 pulled 2½" tubing with packer, reran 2½" cement lined tubing, resumed injection. Daily injection rate was 593 BW at 535# before the treatment, and nine days following the treatment, the injection rate was 3500 BW on vacuum.

Ratherford Unit 29W21 (Acid Job)

On November 4, 1966 acidized Desert Creek Zone II perforations through 2½" bare tubing and packer with 5000 gallons 15% acid in two stages separated by 1000 gallons salt plug mixed 3#/gallon. Resumed injection. Daily injection rate was 518 BW at 445# before the treatment and 4 days following the treatment, the injection rate was 3456 BW on vacuum.

Respectfully submitted,
PHILLIPS PETROLEUM COMPANY

C M Boles

C. M. Boles
District Superintendent

HFS:bh

STATE OF UTAH
DIVISION OF OIL, GAS, AND MINING
ROOM 4241 STATE OFFICE BUILDING
SALT LAKE CITY, UTAH 84114
(801) 533-5771
(RULE I-5 & RULE I-4)

FORM NO. DOGM-UIC-1
(Revised 1982)

IN THE MATTER OF THE APPLICATION OF
PHILLIPS PETROLEUM COMPANY
ADDRESS P.O. BOX 2920
CASPER, WYOMING ZIP 82602
INDIVIDUAL ___ PARTNERSHIP X CORPORATION ___
FOR ADMINISTRATIVE APPROVAL TO DISPOSE OR
INJECT FLUID INTO THE 16W43 WELL
SEC. 16 TWP. 41S RANGE 24E
SAN JUAN COUNTY, UTAH

CAUSE NO. C-3(B)

ENHANCED RECOVERY INJ. WELL	☒
DISPOSAL WELL	☐
LP GAS STORAGE	☐
EXISTING WELL (RULE I-4)	☒

APPLICATION

Comes now the applicant and shows the Corporation Commission the following:
1. That Rule I-5 (g) (iv) authorizes administrative approval of enhanced rcovery injections, disposal or LP Gas storage operations.
2. That the applicant submits the following information.

Lease Name: Ratherford Unit	Well No.: 16W43	Field: Greater Aneth	County: San Juan
Location of Enhanced Recovery Injection or Disposal Well: 16W43	Sec.: 16	Twp.: 41S	Rge.: 24E
New Well To Be Drilled: Yes ☐ No ☒	Old Well To Be Converted: Yes ☐ No ☒	Casing Test: Yes ☒ No ☐ Date 5-83	
Depth-Base Lowest Known Fresh Water Within ½ Mile: Wingate 1550'	Does Injection Zone Contain Oil-Gas-Fresh Water Within ½ Mile: YES ☒ NO ☐	State What: Oil & Gas	
Location of Injection Source(s): Desert Creek Paradox I & II, San Juan River	Geologic Name(s) and Depth of Source(s): Desert Creek (5567'), San Juan River (Surface)		
Geologic Name of Injection Zone: Desert Creek I	Depth of Injection Interval: 5540 to 5606		
a. Top of the Perforated Interval: 5540	b. Base of Fresh Water: 1550'	c. Intervening Thickness (a minus b): 3990	
Is the intervening thickness sufficient to show fresh water will be protected without additional data? YES NO	See Attachment #4		
Lithology of Intervening Zones: See Attachment #1			
Injection Rates and Pressures: Maximum 181 (12.82) B/D; 2550 PSI			

The Names and Addresses of Those to Whom Notice of Application Should be Sent.

Navajo Tribe, Minerals Dept., P.O. Box 146, Window Rock, AZ 86515
Superior Oil, P.O. Box 4530, The Woodlands, TX 77380
Texaco Inc., P.O. Box 2100, Denver, CO 80201
Southland Royalty, 1000 Fort Worth Club Tower, Fort Worth, TX 76102

State of Wyoming)
County of Natrona)

PHILLIPS PETROLEUM COMPANY
Applicant

Before me, the undersigned authority, on this day personally appeared A. E. Stuart known to me to be the person whose name is subscribed to the above instrument, who being by me duly sworn on oath states, that he is duly authorized to make the above report and that he has knowledge of the facts stated therein, and that said report is true and correct.

Suscribed and sworn to before me this 21st day of Sept, 19 83

SEAL

DONALD L. HUDSON - Notary Public
County of Natrona State of Wyoming
My Commission Expires Nov. 3, 1986

Donald L. Hudson
Notary Public in and for Natrona Co., Wyoming

My commission expires Nov 3, 1986

(OVER)

FORM DOGM-UIC-1 (continued) INSTRUCTIONS

1. Attach qualitative and quantitative analysis of representative sample of water to be injected and a qualitative and quantitive analysis of the injection formation of water.

2. Attach plat showing subject well and all known oil and gas wells, abandoned, drilling and dry holes within one-half mile, together and with the name of the operator(s).

3. Attach Drillers Log (Form DOGM-UIC-2). (Appropriate Surety must be on file with Conservation Division or appropriate government agencies.)

4. Attach Electric or Radioactivity Log of Subject well (if released).

5. Attach schematic drawing of subsurface facilities including; Size, setting depth, amount of cement used measured or calculated tops of cement surface, intermediate (if any) and production casings; size and setting depth of tubing; type and setting depth of packer; geologic name of injection zone showing top and bottom of injection interval.

6. If the application is for a NEW well the original and six (6) copies of the application and three (3) complete sets of attachments shall be mailed to the Division. For EXISTING well applications (Rule I-4) only ONE copy of the application and ONE complete set of attachments are required to be mailed to the Division.

7. The Division is required to send notice of application to he surface owner of the land within one-half mile of the injection well and to each operator of a producing leasehole within one-half mile of the injection well. List all required names and addresses in the appropriate space provided on the front of this form.

8. Notice that an application has been filed shall be published by the Division in a newspaper of general circulation in the county of publication before the application is approved. The notice shall include the name and address of applicant, location of proposed injection or disposal well, injection zone, injection pressure and volume. If no written objection is received within 15 days from date of publication the application may be approved administratively.

9. A well shall not be used for injection or disposal unless completed machine accounting Form DOGM-UIC-3b is filed by January 31st each year.

10. Approval of this application, if granted, is valid only as long as there is no substantial change in the operations set forth in the application. A substantial operation change requires the approval of a new application.

11. If there is less intervening thickness required by Rule I-5 (b) 4, attach sworn evidence and data.

12. For enhanced recovery projects, information required by Rule I-4 which is common to more than one well, need be reported only once on the application.

CASING AND TUBING DATA

NAME OF STRING	SIZE	SETTING DEPTH	SACKS CEMENT	TOP OF CEMENT	TOP DETERMINED BY
Surface	13 3/8	175	175	Surface	Returns
Intermediate	8 5/8	1483	588	Surface	Returns
Production	5 1/2	5758	232	4075	Temp Survey
Tubing	2 1/2	5496	Name - Type - Depth of Tubing Packer: Baker PKR 5496		
Total Depth: 5761	Geologic Name - Inj. Zone: Desert Creek I	Depth - Top of Inj. Interval: 5540	Depth - Base of Inj. Interval: 5606		

FORM DOGM-UIC-2
(Rule I-5 (b) 2
(Revised 1982)

PLEASE TYPE OR USE BLACK INK ONLY

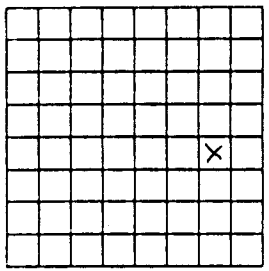
(To be filed within 30 days after drilling is completed)

14-20-603- 355
LEASE NO.

DEPARTMENT OF NATURAL RESOURCES AND ENERGY
DIVISION OF OIL, GAS, AND MINING
Room 4241 State Office Building
Salt Lake City, Utah 84114

API NO. 43-037-16415

640 Acres
N



Locate Well Correctly and Outline Lease

COUNTY San Juan SEC. 16 TWP. 41S RGE. 24E
COMPANY OPERATING Phillips Petroleum Company
OFFICE ADDRESS P.O. Box 2920
TOWN Casper STATE ZIP Wyoming 82602
FARM NAME --- WELL NO. 16W43
DRILLING STARTED 2-11 19 58 DRILLING FINISHED 3-6 19 58
DATE OF FIRST PRODUCTION 3-16-58 COMPLETED 3-16-58
WELL LOCATED NE ¼ SE ¼ ¼
2140 FT. FROM SL OF ¼ SEC. & 880 FT. FROM EL WL OF ¼ SEC.
RKB ELEVATION ~~DERRICK FLOOR~~ 4698 GROUND 4688

TYPE COMPLETION
Single Zone X
Multiple Zone
Comingled

LOCATION EXCEPTION

OIL OR GAS ZONES

Name	From	To	Name	From	To
Desert Creek I	5540	5606			

CASING & CEMENT

Casing Set				Csg. Test	Cement		
Size	Wgt.	Grade	Feet	Psi	Sax	Fillup	Top
13 3/8	27.1	H-40	160	800	175		Surface
8 5/8	24	J-55	1478	500	588		Surface
5 1/2	15.5	J-55	173 }	750	232		4075
	14	J-55	5609 }				

TOTAL DEPTH 5761

PACKERS SET DEPTH Baker PKR at 5496

NOTE: THIS FORM MUST ALSO BE ATTACHED WHEN FILING PLUGGING FORM DOGM-UIC-6

COMPLETION & TEST DATA BY PRODUCING FORMATION

	1	2	3
FORMATION	Desert Creek I		
SPACING & SPACING ORDER NO.	40 acre Cause #C-3(B)		
CLASSIFICATION (DISPOSAL WELL, ENHANCED RECOVERY, LP GAS STORAGE)	Enhanced Recovery		
PERFORATED	5540-45	5598-5606	
	5548-58		
INTERVALS	5565-72		
	5587-94		
ACIDIZED?	4-28-79 1200 gal.		
	F.E. Acid		
FRACTURE TREATED?	No		

INITIAL TEST DATA — Converted to Injector

Date	5-7-62		
Oil, bbl./day	--		
Oil Gravity	--		
Gas, Cu. Ft./day	-- CF	CF	CF
Gas-Oil Ratio Cu. Ft./Bbl.	--		
Water-Bbl./day	1188		
Pumping or Flowing	Pumping		
CHOKE SIZE	---		
FLOW TUBING PRESSURE	2200#		

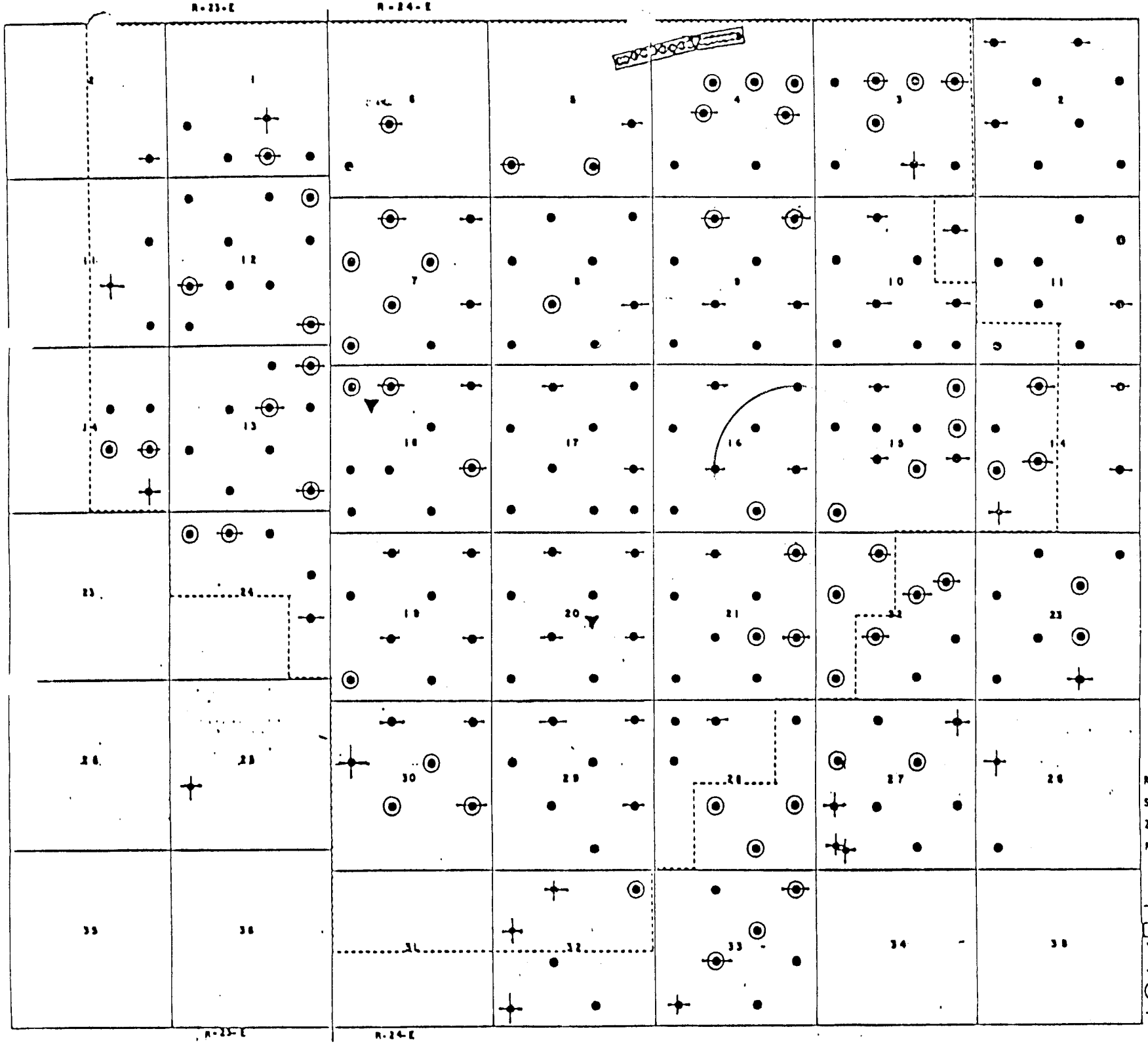
A record of the formations drilled through, and pertinent remarks are presented on the reverse. (use reverse side)

I, the undersigned, being first duly sworn upon oath, state that this well record is true, correct and complete according to the records of this office and to the best of my knowledge and belief.

Telephone 307-237-3791 A.E. Stuart, Area Manager
Name and title of representative of company

Subscribed and sworn before me this - day of SEP 22 '88 19

Casper


R-23-E
R-24-E
T 41 S
RATHERFORD UNIT
SAN JUAN COUNTY, UTAH
2" = 1 mile
RCT 3-83
oil producer
water injector
water supply
domestic water
plugged & abandoned
shut in well
unit boundry

WELL: 16043

LOCATION: NESE Sec. 14 - T41S - R24E

FIELD: GREATER ANETH

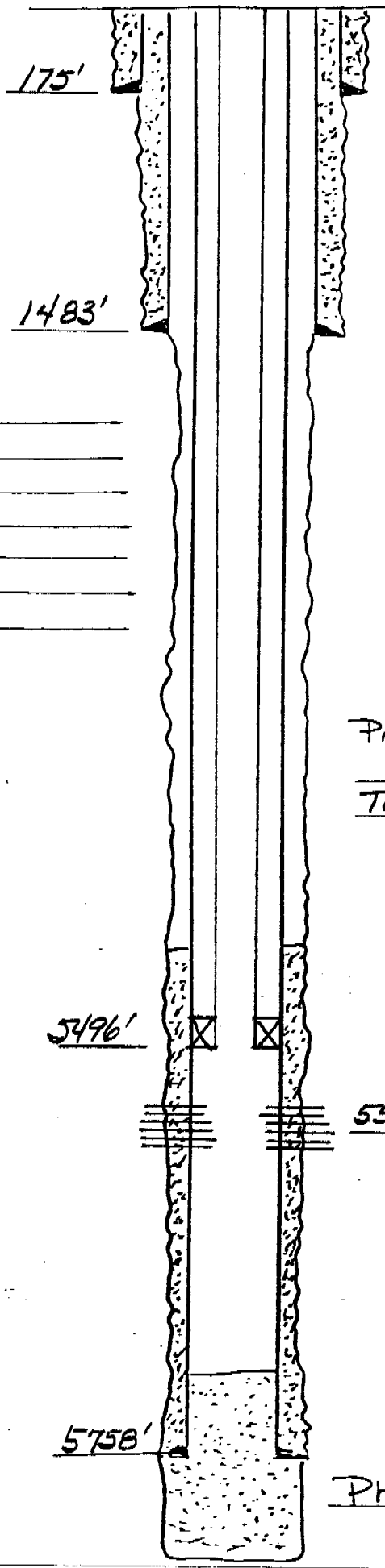
RESERVOIR: Desert Creek I

COMPLETION: 5.7.62

PRESENT STATUS: W.I.

RKB 4698'

GL 4689'



SURFACE CASING: 13 3/8" 27.1# H-40

INTERMEDIATE CASING: 8 5/8" 24# J-55

PRODUCTION CASING: 5 1/2" : 15.5# J-55 173' ; 14# J-55 5609'.

PERFORATIONS:

5540-45

5548-58

5587-94

5565-72

5598-5606

PACKER: Baker Pkr @ 5496'

Tubing: 2 1/2 @ 5496'

PBTD: 5758'

OTD: 5761'

Phillips Petroleum Company

ATTACHMENT 3a:

Wtr Injection Well

CL1-12A (REV. 1964)

CHEMICAL & GEOLOGICAL LABORATORIES

P. O. Box 2794
Casper, Wyoming

WATER ANALYSIS REPORT

OPERATOR Phillips Petroleum Co. DATE 5-27-83 LAB NO. W30480
WELL NO Rutherford Unit LOCATION
FIELD FORMATION
COUNTY San Juan INTERVAL
STATE Utah SAMPLE FROM

REMARKS & CONCLUSIONS:

Specific gravity @68°F	1.0646
Oil and grease, mg/l	2.5
Aluminum (Al), mg/l	0.90
Iron (Fe), mg/l	0.3
Total Sulfides, mg/l	ND(0.1)

Cations	mg/l	meq/l	Anions	mg/l	meq/l
Sodium	24574	1068.99	Sulfate	1190	24.75
Potassium	396	10.14	Chloride	52000	1466.40
Lithium	-	-	Carbonate	0	0.00
Calcium	5982	298.50	Bicarbonate	190	3.12
Magnesium	1419	116.64	Hydroxide	-	-
Iron	-	-	Hydrogen sulfide	-	-
Total Cations		1494.27	Total Anions		1494.27

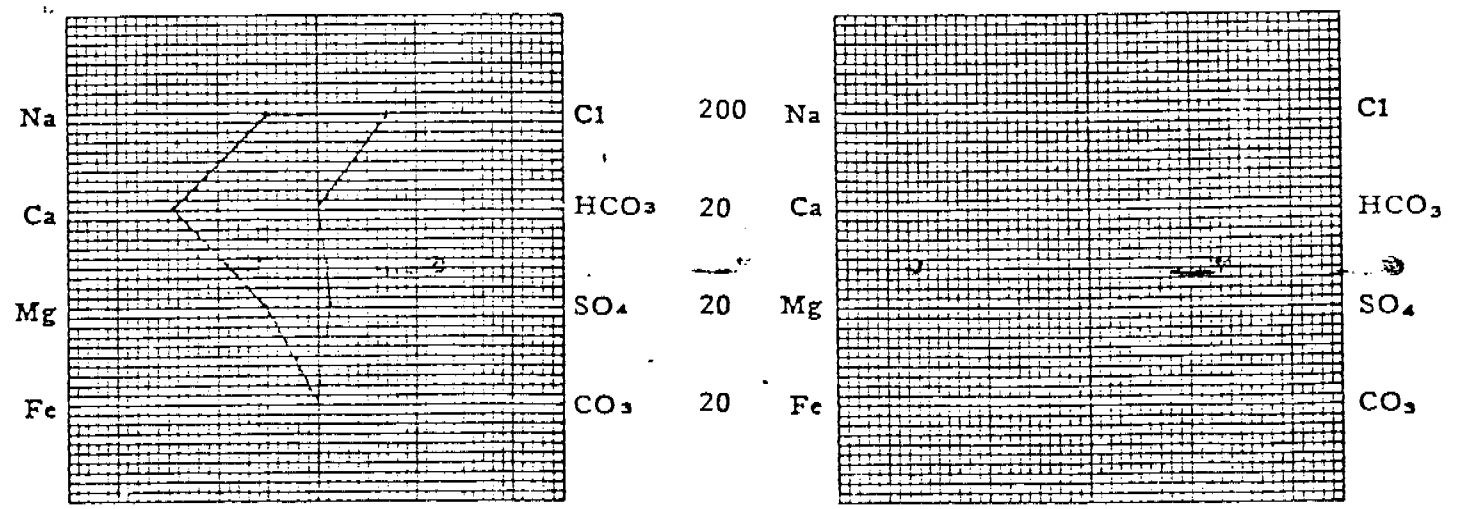
Total dissolved solids, mg/l 85655
NaCl equivalent, mg/l 86344
Observed pH 7.4

Specific resistance @ 68°F.:
Observed 0.095 ohm-meters
Calculated 0.086 ohm-meters

WATER ANALYSIS PATTERN

Sample above described

Scale
MEQ per Unit



(Na value in above graphs includes Na, K, and Li)
NOTE: Mg/l = Milligrams per liter Meq/l = Milligram equivalents per liter
Sodium chloride equivalent = by Dunlap & Hawthorne calculation from components

ATTACHMENT 3b:

Formation Water

CL1-12A (REV. 1964)

CHEMICAL & GEOLOGICAL LABORATORIES

P. O. Box 2794
Casper, Wyoming

WATER ANALYSIS REPORT

OPERATOR Phillips Petroleum Company
WELL NO. Ratherford Unit
FIELD
COUNTY San Juan
STATE Utah

DATE 7-22-83 LAB NO. W30636
LOCATION
FORMATION
INTERVAL
SAMPLE FROM Battery #1 Free water knockout (7-5-83) @ 10:35 S/N 28568

REMARKS & CONCLUSIONS:

Cations	mg/l	meq/l
Sodium	30147	1311.38
Potassium	429	10.98
Lithium	--	--
Calcium	6865	342.56
Magnesium	1738	124.86
Iron	--	--
Total Cations		1807.78

Anions	mg/l	meq/l
Sulfate	1380	28.70
Chloride	63000	1776.60
Carbonate	0	0.00
Bicarbonate	151	2.48
Hydroxide	--	--
Hydrogen sulfide	--	--
Total Anions		1807.78

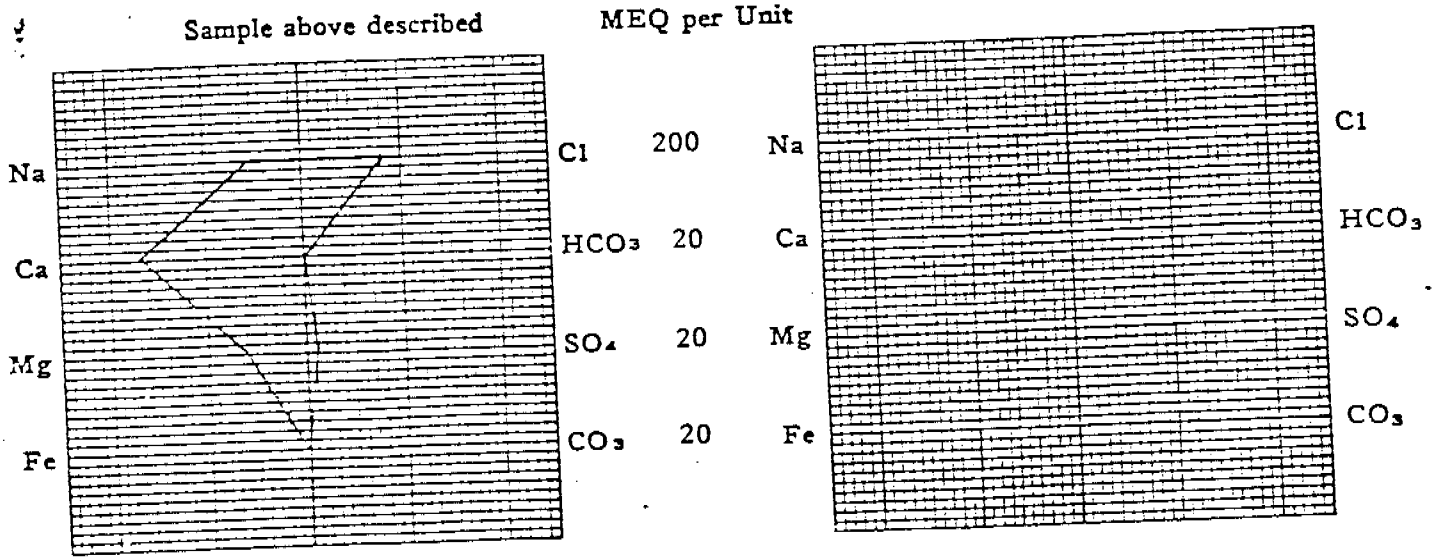
Total dissolved solids, mg/l	103633
NaCl equivalent, mg/l	104549
Observed pH	7.3

Specific resistance @ 68°F.:
Observed 0.087 ohm-meters
Calculated 0.078 ohm-meters

WATER ANALYSIS PATTERN

Sample above described

Scale
MEQ per Unit



(Na value in above graphs includes Na, K, and Li)
NOTE: Mg/l = Milligrams per liter Meq/l = Milligram equivalents per liter
Sodium chloride equivalent = by Dunlap & Hawthorne calculations from components

CHECKLIST FOR INJECTION WELL APPLICATION AND FILE REVIEW

Operator: Phillips Well No. Rattlesnake Unit 16W42

County: San Juan T 41S R 24E Sec. 16 API# 43-037-16415

New Well ___ Conversion ___ Disposal Well ___ Enhanced Recovery Well X

	YES	NO
UIC Forms Completed	✓	
Plat including Surface Owners, Leaseholders, and wells of available record	✓	
Schematic Diagram	✓	
Fracture Information	✓	
Pressure and Rate Control	✓	
Adequate Geologic Information	✓	
Fluid Source	Desert Creek	

Analysis of Injection Fluid — Yes ✓ No ___ TDS 85665

Analysis of Water in Formation to be injected into — Yes ✓ No ___ TDS 103683

Known USDW in area Wingate Depth 1550

Number of wells in area of review 7 Prod. 4 P&A 0

Water 0 Inj. 3

Aquifer Exemption — Yes ___ NA ✓

Mechanical Integrity Test — Yes ___ No ✓

Date ___ Type ___

Comments: UIC 4075

Reviewed by: [signature]

UTAH DIVISION OF OIL, GAS AND MINING
CASING-BRADENHEAD TEST

OPERATOR: Phillips Petroleum

FIELD: Greater Aneth LEASE: Rutherford

WELL # 16W43 SEC. 16 TOWNSHIP 41S RANGE 24E

STATE (FED.) FEE DEPTH 5761 TYPE WELL INJW MAX. INJ. PRESS. 2550

TEST DATE 6/17/86

CASING STRING	SIZE	SET AT	CMT	PRESSURE READINGS	REMARKS	FUTURE
SURFACE	13 3/8	175	175			
INTERMEDIATE	8 5/8	1483	588			
PRODUCTION	5 1/2	5758	232	100	Small blow Black crude	OK
TUBING	2 1/2	5496		2680 Baker	Packer	

CASING STRING	SIZE	SET AT	CMT	PRESSURE READINGS	REMARKS	FUTURE
SURFACE						
INTERMEDIATE						
PRODUCTION						
TUBING						

CASING STRING	SIZE	SET AT	CMT	PRESSURE READINGS	REMARKS	FUTURE
SURFACE						
INTERMEDIATE						
PRODUCTION						
TUBING						

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

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,

R. D. Baker
Environmental Regulatory Manager

CNE/rd
CNE8661

Form 3160-5
(November 1983)
(Formerly 9-331)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPLICATE* (Other instructions on reverse side)

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

SUNDRY NOTICES AND REPORTS ON WELLS

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

5. LEASE DESIGNATION AND SERIAL NO.

6. IF INDIAN, ALLOTTEE OR TRIBE NAME
SW-I-4192

1. OIL WELL ☐ GAS WELL ☐ OTHER WATER INJECTION & WATER SUPPLY WELLS

7. UNIT AGREEMENT NAME
RATHERFORD UNIT #7960041920

2. NAME OF OPERATOR
PHILLIPS PETROLEUM COMPANY

8. FARM OR LEASE NAME

3. ADDRESS OF OPERATOR
152 N. DURBIN, 2ND FLOOR, CASPER, WYOMING 82601

9. WELL NO.
VARIOUS (see attached)

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

MAR 20 1989

10. FIELD AND POOL, OR WILDCAT
GREATER ANETH

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sections 1 thru 30
T41S - R23E & 24E

14. PERMIT NO.

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

12. COUNTY OR PARISH
San Juan

13. STATE
Utah

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

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	☐	PULL OR ALTER CASING	☐	WATER SHUT-OFF	☐	REPAIRING WELL	☐
FRACTURE TREAT	☐	MULTIPLE COMPLETE	☐	FRACTURE TREATMENT	☐	ALTERING CASING	☐
SHOOT OR ACIDIZE	☐	ABANDON*	☐	SHOOTING OR ACIDIZING	☐	ABANDONMENT*	☐
REPAIR WELL	☐	CHANGE PLANS	☐	(Other) CHANGE OF OWNERSHIP			XX
(Other)				(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.)*

This is to advise all Water Injection and Water Supply Wells on the Ratherford Unit, listed on the attached sheet, were sold to Phillips Petroleum Company, effective August 1, 1985.

(former Operator - Phillips Oil Company)

3 - BLM, Farmington, NM
2 - Utah O&G CC, SLC, UT
1 - File

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

SIGNED S. H. Oden TITLE District Superintendent DATE March 17, 1989

(This space for Federal or State office use)

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

*See Instructions on Reverse Side

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

DOWNHOLE SCHEMATIC

Date: 8/6/87

RATHERFORD Unit # 16W43

RKB Elev. 4698'

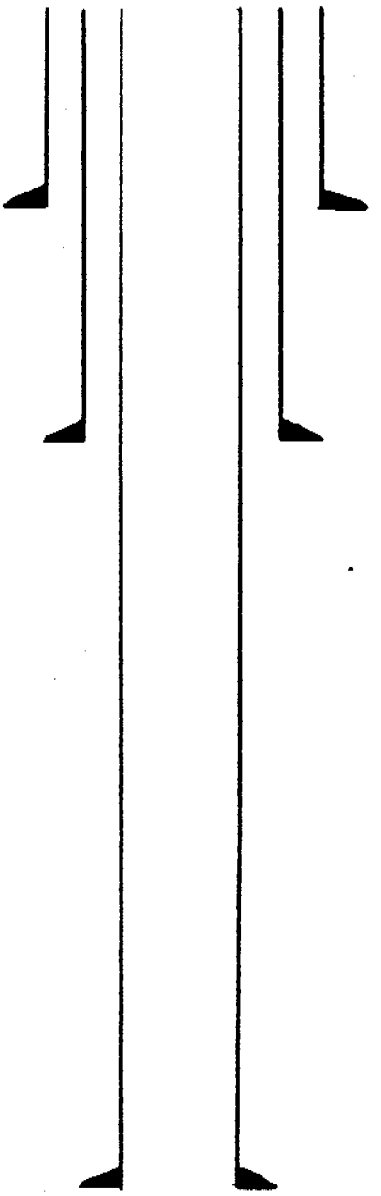
GL Elev. 4688'

RKB Above GL' 10'

Location NE SE sec. 16
T41S- R24E

Well Drld 3/6/58

Well Converted to injector 1/29/62



CONDUCTOR Csg 13 3/8 @ 175'

SURFACE Csg. 8 5/8 @ 1483'

TOC 4178' CALC

Tubing 2 1/2 @ 5492'

PACKER BAKER TENSION SET @ 5492

PERFS 5,540 - 45 | 5598 - 5606
5,587 - 94 | - -
5,548 - 58 | - -
5,565 - 72 | - -

PBTD 5720'

PRODUCTION Csg. 5 1/2 @ 5758'
J-55, 14#, 15.5#

All Perfs Zone I Unless noted

Form 3160-5
(November 1983)
(Formerly 9-331)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPLICATE* (Other instructions on reverse side)

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

5. LEASE DESIGNATION AND SERIAL NO.: 14-20-603-355

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.: 16W43

10. FIELD AND POOL, OR WILDCAT: Greater Aneth

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: Sec. 16-T41S-R24E

12. COUNTY OR PARISH: San Juan

13. STATE: Utah

SUNDRY NOTICES AND REPORTS ON WELLS

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

RECEIVED
APR 03 1990
DIVISION OF OIL, GAS & MINING

1. OIL WELL ☐ GAS WELL ☐ OTHER Water Injection

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: 2140' FSL & 820' FEL, NE SE

14. PERMIT NO.: 43-037-16415

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

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

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	☐	PULL OR ALTER CASING	☐	WATER SHUT-OFF	☐	REPAIRING WELL	☐
FRACTURE TREAT	☐	MULTIPLE COMPLETE	☐	FRACTURE TREATMENT	☐	ALTERING CASING	☐
SHOOT OR ACIDIZE	☐	ABANDON*	☐	SHOOTING OR ACIDIZING	☐	ABANDONMENT*	☐
REPAIR WELL	☐	CHANGE PLANS	☐	(Other) Clean out well, UIC Test			X
(Other)				(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.)*

March 9, 1990 Through March 14, 1990

MI & RU well service unit 3/9/90. ND Wellhead, NU BOP. Rel 5-1/2" Baker Lok-set pkr and COOH w/177 jts 2-3/8" plastic lined tbg. GIH w/4-3/4" bit, 5-1/2" csg scraper, and 2-3/8" tbg workstring. Cleaned out well to 5685'. COOH w/bit, scraper, and workstring. GIH w/5-1/2" Baker Lok-set pkr w/on-off tool and 175 jts 2-3/8" internal plastic coated inj tbg, testing to 3000 psi. Set pkr at 5449'. Tested annulus to 1200 psi, OK. Disengaged on/off tool. Pmpd 128 bbls pkr fluid with 1/2 drum Well-Chem WA-840. Engaged on/off tool. ND BOP, NU Wellhead. Pressured annulus to 1000 psi for 30 min for UIC test. OK. Connected well to inj line. RD & MO well service unit and returned well to injection 3/14/90.

Distribution:

5 - BLM, Farmington	1 - Chieftain
2 - Utah O&GCC	1 - Mobil Oil
1 - EPA, Denver	1 - Texaco, Inc.
1 - N. Anstine	1 - Chevron
1 - V. S. Shaw	1 - PPCo, Houston
1 - S. H. Oden	1 - PPCo, Cortez, RC
1 - P. J. Konkel	

UIC	
GLH	✓
DJJ	
BGH	
COMPUTER	
MICROFILM	
FILE	

OIL A...
DPN
JRB 1-
DTS
2-TAS
3- MICROFILM
4-

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

SIGNED S. H. Oden TITLE District Superintendent DATE March 26, 1990

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

*See Instructions on Reverse Side

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

FORM 10

STATE OF UTAH
DIVISION OF OIL, GAS AND MINING

MONTHLY OIL AND GAS PRODUCTION REPORT

OPERATOR NAME AND ADDRESS:

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

RECEIVED
AUG 16 1993
DIVISION OF
OIL, GAS & MINING

UTAH ACCOUNT NUMBER: N0772

REPORT PERIOD (MONTH/YEAR): 6 / 93

AMENDED REPORT ☐ (Highlight Changes)

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

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 Konkel Telephone Number: 505 599-3452

(6/93)

FORM 9

STATE OF UTAH
DIVISION OF OIL, GAS AND MINING

	5. LEASE DESIGNATION & SERIAL NO.
SUNDRY NOTICES AND REPORTS ON WELLS (Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use "APPLICATION FOR PERMIT—" for such proposals.)	6. IF INDIAN, ALLOTTEE OR TRIBE NAME NAVAJO TRIBAL
1. OIL WELL ☐ GAS WELL ☐ OTHER	7. UNIT AGREEMENT NAME RATHERFORD UNIT
2. NAME OF OPERATOR MOBIL OIL CORPORATION	8. FARM OR LEASE NAME
3. ADDRESS OF OPERATOR P. O. BOX 633 MIDLAND, TX 79702	9. WELL NO.
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements. See also space 17 below.) At surface At proposed prod. zone	10. FIELD AND POOL, OR WILDCAT GREATER ANETH 11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
14. API NO.	15. ELEVATIONS (Show whether DF, RT, GR, etc.)
	12. COUNTY: SAN JUAN — 13. STATE: UTAH

RECEIVED
SEP 13 1993
DIVISION OF
OIL, GAS & MINING

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

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	☐	PULL OR ALTER CASING	☐	WATER SHUT-OFF	☐	REPAIRING WELL	☐
FRACTURE TREAT	☐	MULTIPLE COMPLETE	☐	FRACTURE TREATMENT	☐	ALTERING CASING	☐
SHOOT OR ACIDIZE	☐	ABANDON	☐	SHOOTING OR ACIDIZING	☐	ABANDONMENT*	☐
REPAIR WELL	☐	CHANGE PLANS	☐	(Other) CHANGE OF OPERATOR			
(Other)				(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)			
APPROX. DATE WORK WILL START _____				DATE OF COMPLETION _____			

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

* Must be accompanied by a cement verification report.

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

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

SIGNED Shirley Todd TITLE ENV. & REG TECHNICIAN DATE 9-8-93

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

See Instructions On Reverse Side

(3/89)

STATE OF UTAH
DIVISION OF OIL, GAS AND MINING

OCT 25 1993

TRANSFER OF AUTHORITY TO INJECT - UIC FORM 5

Well name and number: _____

Field or Unit name: RATHERFORD UNIT API no. _____

Well location: QQ ____ section ___ township ___ range ___ county _____

Effective Date of Transfer: July 1, 1993

CURRENT OPERATOR

Transfer approved by:

Name Ed Hasely Company Phillips Petroleum Company

Signature Ed Hasely Address 5525 HWY. 64

Title Environmental Engineer Farmington, NM 87401

Date October 22, 1993 Phone (505) 599-3460

Comments:

NEW OPERATOR

Transfer approved by:

Name Shirley Todd Company Mobil Exploration & Producing North America

Signature Shirley Todd Address P O Box 633

Title Env. & Reg. Technician Midland, TX 79702

Date October 7, 1993 Phone (915) 688-2585

Comments:

(State use only)
Transfer approved by _____ Title UIC MANAGER

Approval Date 10-27-93

Lisha Cordova (801) 538-5340

(3/89)

BEFORE THE OIL AND GAS CONSERVATION COMMISSION OF THE STATE OF UTAH

APPLICATION OF PHILLIPS PETROLEUM COMPANY FOR THE APPROVAL OF THE UNIT OPERATIONS AND PRESSURE MAINTENANCE PROGRAM FOR THE RATHERFORD UNIT IN THE GREATER ANETH AREA, SAN JUAN COUNTY, UTAH	)	CAUSE NO. 63

ORDER

This Cause came on for hearing before the Oil and Gas Conservation Commission of the State of Utah at 10 o'clock a. m. on Wednesday, September 13, 1961, in the Crystal Room, Hotel Newhouse, Fourth South at Main Street, Salt Lake City, Utah, pursuant to notice duly and regularly given. The entire Commission, except Walter G. Mann, was present, Edward W. Clyde presiding. Appearances were made as follows: Cecil C. Hamilton, attorney, on behalf of Phillips Petroleum Company; Clair M. Senior, attorney, on behalf of Texaco, Inc.; Gordon Mayberry, attorney, on behalf of Continental Oil Company; R. R. Robison on behalf of Shell Oil Company. Others present included Carl Trawick, on behalf of United States Geological Survey; and J. R. White, on behalf of Texaco, Inc.

Evidence in support of the application was introduced by Phillips Petroleum Company, the applicant and Unit Operator of the Ratherford Unit, which embraces as the unit area the following described land in San Juan County, State of Utah, to wit:

TOWNSHIP 41 SOUTH, RANGE 23 EAST, SLBM

Section 1:	All	Sections 12 and 13:	All
Section 2:	S/2	Section 14:	S/2
Section 11:	E/2	Section 24:	All

TOWNSHIP 41 SOUTH, RANGE 24 EAST, SLBM

Section 3:	SW/4	Sections 15 through 21:	All
Section 4:	S/2	Section 22:	NW/4 and W/2 of the SW/4
Sections 5 through 9:	All		
Section 10:	S/2 and NW/4 and W/2 of NE/4	Section 23:	W/4 and W/2 of NE/4 and W/2 of SW/
Section 11:	S/2 of SW/4		
Section 14:	W/2	Section 29 and 30:	All
		Section 31:	N/2
		Section 32:	E/2

R. R. Robison on behalf of Shell Oil Company stated that (as contemplated by paragraph No. 5 of the Commission's order of February 24, 1959, in Cause No. 17 authorizing the drilling of certain test wells) Shell would submit to the Commission, as arbiter, the question as between Shell and Superior Oil Company

of the monetary value, if any, to be attributed to three test wells drilled within the Ratherford Unit area pursuant to said order of February 24, 1959.

No objection to the granting of the application was filed or expressed. The Shell Oil Company, Texaco, Inc. and Continental Oil Company expressed their support of the application of Phillips Petroleum Company.

FINDINGS OF FACT

The Commission finds that:

1. The unitized operation of the Ratherford Unit Area will enable pressure maintenance operations to be initiated and permit such Area to be operated in a manner which will prevent waste, protect correlative rights and result in greater ultimate recovery of oil and gas.

2. The Ratherford Unit Agreement has been approved by the various signatory parties as fair, reasonable and acceptable.

3. The water injection pressure maintenance program proposed by the applicant appears to be proper and designed to result in the greatest economic recovery of oil and gas to the end that all concerned, including the general public, may realize and enjoy the greatest good from the oil and gas resources of the unitized lands.

O R D E R

THEREFORE, IT IS ORDERED BY THE COMMISSION, and subject to its continuing jurisdiction, that:

1. Unit operation of the Ratherford Unit Area under the Ratherford Unit Agreement is approved.

2. The plan and program of water injection pressure maintenance operations proposed by applicant in its application filed herein should be and the same is hereby approved and the unit operator is authorized to proceed with and under such plan and program as soon as the Ratherford Unit Agreement becomes effective and operative.

3. If, at any time or from time to time, it appears necessary or desirable to the unit operator to alter or modify the hereby approved plan of pressure maintenance, any such alteration or modification shall be submitted for

and shall be subject to approval by the Commission or its delegated representative, which approval may be given without notice or hearing, unless otherwise ordered or directed by the Commission.

Dated this 13th day of September, 1961.

THE OIL AND GAS CONSERVATION
COMMISSION OF THE STATE OF UTAH

Edward W. Clyde, Commissioner presiding

C. R. Henderson, Chairman

M. V. Hatch, Commissioner

C. S. Thomson, Commissioner

Walter G. Mann, Commissioner

FORM 11

STATE OF UTAH
DIVISION OF OIL, GAS AND MINING

MONTHLY OIL AND GAS DISPOSITION REPORT

OPERATOR NAME AND ADDRESS:

~~BRIAN BERRY~~
~~M E P N A~~ MOBIL
~~POB 219031 1807A RENTWR~~ 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)**

*931001 updated. fee

ENTITY NUMBER	PRODUCT	GRAVITY BTU	BEGINNING INVENTORY	VOLUME PRODUCED	DISPOSITIONS TRANSPORTED	DISPOSITIONS USED ON SITE	DISPOSITIONS FLARED/VENTED	DISPOSITIONS OTHER	ENDING INVENTORY
05980	OIL			177609	177609	0			
	GAS			72101	66216	5885			
11174	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 ~~E&P~~ 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: 9/6/93

Name and Signature: Lowell B Sheffield

Telephone Number: ~~214 658 2528~~ 303 565 2212

(6/93)

FORM=NR0003.FRM 07/2

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)

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

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

DESIGNATION OF OPERATOR

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

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

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

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

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

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

Attached hereto as Exhibit "A"

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

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

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

Attached is the appropriate documentation relevant to this document.

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

Phillips Petroleum Company

June 17, 1993 By: M. B. Smith, J.
Attorney-in-Fact

Mobil Exploration and Producing
North America Inc.

June 11, 1993 By: B. D. Martiny
Attorney-in-Fact B.D. MARTINY

ACTING AREA DIRECTOR 7/9/93
APPROVED BY TITLE DATE

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

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

EXHIBIT "A"

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

EXHIBIT "C"

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

Tract Number	Description of Land	Serial Number and Effective Date of Lease	Tract Percentage Participation
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) _____

[XX] Other

OPERATOR CHANGE

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

2. DOGM Employee (name) L. CORDOVA (Initiated Call [XX])

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 OPERATORED BY MEPNA, CURRENTLY REPORTED OUT OF DALLAS (MCELMO CREEK).

Division of Oil, Gas and Mining
OPERATOR CHANGE WORKSHEET

Routing:
1-VLC/7-SJ
2-DTS/8-FILE
3-VLC
4-RJF
5-LEC
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.

XX 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) MEPNA
(address) PO DRAWER G
CORTEZ, CO 81321
GLEN COX (915)688-2114
phone (303) 565-2212
account no. N7370

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

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

Name: **SEE ATTACHED**	API: 43-037-16415	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

Lec 1. (Rule R615-8-10) Sundry or other legal documentation has been received from former operator (Attach to this form). (Req. 8-20-93) (6/93 Prod. Rpt. 8-16-93)

Lec 2. (Rule R615-8-10) Sundry or other legal documentation has been received from new operator (Attach to this form). (Req. 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: _____.

Lec 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.

Lec 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)

Lec 6. Cardex file has been updated for each well listed above. (O&G wells 10-6-93) (WIW's 10-26-93)

Lec 7. Well file labels have been updated for each well listed above. (O&G wells 10-6-93) (WIW's 10-26-93)

Lec 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)

Lec 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.

– OVER –

PERATOR CHANGE WORKSHEET (CONTINUED) Initial each item when completed. Write N/A if item is not applicable.

NTITY REVIEW

Yes 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.

OND VERIFICATION (Fee wells only)

Yes/N/A 1. (Rule R615-3-1) The new operator of any fee lease well listed above has furnished a proper bond.

__ 2. A copy of this form has been placed in the new and former operators' bond files.

__ 3. The former operator has requested a release of liability from their bond (yes/no) ___. Today's date _____ 19___. If yes, division response was made by letter dated _____ 19___.

LEASE INTEREST OWNER NOTIFICATION RESPONSIBILITY

N/A 1. (Rule R615-2-10) The former operator/lessee of any **fee lease** well listed above has been notified by letter dated _____ 19___, of their responsibility to notify any person with an interest in such lease of the change of operator. Documentation of such notification has been requested.

N/A 2. Copies of documents have been sent to State Lands for changes involving **State leases.**

FILMING

1. All attachments to this form have been microfilmed. Date: 11-17 1993.

FILING

Yes 1. Copies of all attachments to this form have been filed in each well file.

Yes 2. The original of this form and the original attachments have been filed in the Operator Change file.

COMMENTS

931006 BIA/Bhm Approved 7-9-93.

12W-44	43-037-16405	14-20-603-246A	SEC. 12, T41S, R23E	SE/SE 660 FSL; 660 FEL	PA'd
12W-44A	43-037-31543	14-20-603-246A	SEC. 12, T41S, R23E	SE/SE 807 FEL; 772 FSL	
13-11W	43-037-31152	14-20-603-247A	SEC. 13, T41S, R23E	NW/NW 500 FNL; 660 FWL	
13-12	43-037-31127	14-20-603-247A	SEC. 13, T41S, R23E	SW/NW 1705 FNL; 640 FWL	
13W-13	43-037-15851	14-20-603-247A	SEC. 13, T41S, R23E	NW/SW 1980 FSL; 4620 FEL	
13-14	43-037-31589	14-20-603-247A	SEC. 13, T41S, R23E	660 FSL; 660 FWL	
13-21	43-037-31128	14-20-603-247A	SEC. 13, T41S, R23E	NE/NW 660 FNL; 1920 FWL	
13W-22	43-037-15852	14-20-603-247A	SEC. 13, T41S, R23E	SE/NW 1988 FNL; 3300 FEL	
13-23	43-037-31129	14-20-603-247A	SEC. 13, T41S, R23E	NE/SW 1980 FSL; 1930 FWL	
~~13W-44~~	~~43-037-15853~~	~~14-20-603-247~~	~~SEC. 13, T41S, R23E~~	~~660 FSL; 3300 FEL~~	
13W-32	43-037-16406	14-20-603-247A	SEC. 13, T41S, R23E	1881 FNL; 1979 FEL	
13W-33	43-037-15855	14-20-603-247A	SEC. 13, T41S, R23E	NW/SE 1970 FSL; 1979 FEL	
13W-34	43-037-31130	14-20-603-247A	SEC. 13, T41S, R23E	SW/SE 660 FSL; 1980 FEL	
13-41	43-037-15856	14-20-603-247A	SEC. 13, T41S, R23E	NE/NE 660 FNL; 660 FEL	
13W-42	43-037-15857	14-20-603-247A	SEC. 13, T41S, R23E	SE/NE 2139; 585 FEL	
13-43	43-037-31131	14-20-603-247A	SEC. 13, T41S, R23E	NE/SE 1700 FSL; 960 FEL	
13W-44	43-037-16407	14-20-603-247A	SEC. 13, T41S, R23E	SE/SE 635 FSL; 659 FEL	
~~14-03~~	~~NA~~	~~14-20-603-4037~~	~~SEC. 11, T41S, R23E~~	~~SW/SW 660 FSL; 660 FEL~~	
14-32	43-037-15858	14-20-603-247A	SEC. 14, T41S, R23E	2130 FNL; 1830 FEL	
14-41	43-037-31623	14-20-603-247A	SEC. 14, T41S, R23E	NE/NE 521 FEL; 810 FNL	
14W-42	43-037-15860	14-20-603-247A	SEC. 14, T41S, R23E	SE/NE 1976 FNL; 653 FEL	
14W-43	43-037-16410	14-20-603-247A	SEC. 14, T41S, R23E	3300 FSL; 4770 FEL	
14-33	43-037-15859	14-20-603-247	SEC. 14, T41S, R23E	2130 FSL; 1830 FEL	
15-12	43-037-15715	14-20-603-355	SEC. 15, T41S, R24E	1820 FNL; 500 FWL	
15W-21	43-037-16411	14-20-603-355	SEC. 15, T41S, R24E	660 FNL; 1820 FWL	
15-22	43-037-30449	14-20-603-355	SEC. 15, T41S, R24E	SE/NW, 1980 FNL; 2050 FWL	
15-32	43-037-15717	14-20-603-355A	SEC. 15, T41S, R24E	1980 FNL; 1980 FEL	
15-33	43-037-15718	14-20-603-355	SEC. 15, T41S, R24E	NW/SE 1650 FSL; 1980 FEL	
15-41	43-037-15719	14-20-603-355	SEC. 15, T41S, R24E	660 FNL; 660' FEL	
15-42	43-037-30448	14-20-603-355	SEC. 15, T41S, R24E	SE/NE 2020 FNL; 820 FEL	
16W-12	43-037-15720	14-20-603-355	SEC. 16, T41S, R24E	SW/NW 1880 FNL; 660 FWL	
16-13	43-037-31168	14-20-603-355	SEC. 16, T41S, R24E	1980 FSL; 660 FWL	
16W-14	43-037-15721	14-20-603-355	SEC. 16, T41S, R24E	SW/SW 660 FSL; 660 FWL	
16W-21	43-037-16414	14-20-603-355	SEC. 16, T41S, R24E	NE/NW 660 FNL; 1880 FWL	
16W-23	43-037-15722	14-20-603-355	SEC. 16, T41S, R24E	NE/SW 1980 FSL; 1980 FWL	
16-32	43-037-15723	14-20-603-355	SEC. 16, T41S, R24E	1980 FNL; 1980' FEL	
16-34	43-037-15724	14-20-603-355	SEC. 16, T41S, R24E	660 FNL; 1980' FEL	
16-41	43-037-15725	14-20-603-355	SEC. 16, T41S, R24E	660 FNL; 660 FEL	
16W-43	43-037-16415	14-20-603-355	SEC. 16, T41S, R24E	NE/SE 2140 FSL; 820 FEL	
17-11	43-037-31169	14-20-603-353	SEC. 17, T41S, R24E	NW/NW 1075' FNL; 800' FWL	
17W-12	43-037-15726	14-20-603-353	SEC. 17, T41S, R24E	SW/NW 1980' FNL; 510' FWL	
17-13	43-037-31133	14-20-603-353	SEC. 17, T41S, R24E	NW/SW 2100' FSL; 660' FWL	
17W-14	43-037-15727	14-20-603-353	SEC. 17, T41S, R24E	SW/SW 660' FSL; 660' FWL	
17W-21	43-037-16416	14-20-603-353	SEC. 17, T41S, R24E	510' FNL; 1830' FWL	
17-22	43-037-31170	14-20-603-353	SEC. 17, T41S, R24E	1980' FNL; 1980' FWL	
17W-23	43-037-15728	14-20-603-353	SEC. 17, T41S, R24E	NE/SW 1980' FWL; 1880' FSL	
17-31	43-037-31178	14-20-603-353	SEC. 17, T41S, R24E	NW/NE 500' FNL; 1980' FEL	
17-32W	43-037-15729	14-20-603-353	SEC. 17, T41S, R24E	SW/NE 1830' FNL; 2030' FEL	
17-33	43-037-31134	14-20-603-353	SEC. 17, T41S, R24E	NW/SE 1980' FSL; 1845' FEL	
17-34W	43-037-15730	14-20-603-353	SEC. 17, T41S, R24E	SW/SE 560' FSL; 1880' FEL	
17W-41	43-037-15731	14-20-603-353	SEC. 17, T41S, R24E	610' FNL; 510' FEL	
17-42	43-037-31177	14-20-603-353	SEC. 17, T41S, R24E	SE/NE 1980; FNL, 660' FEL	
17-44	43-037-15732	14-20-603-353	SEC. 17, T41S, R24E	660 FSL; 660' FEL	
17W-43	43-037-16417	14-20-603-353	SEC. 17, T41S, R24E	NE/SE 1980' FSL; 660' FEL	
18-11	43-037-15733	14-20-603-353	SEC. 18, T41S, R24E	NW/NW 720' FNL; 730' FWL	
18-12W	43-037-31153	14-20-603-353	SEC. 18, T41S, R24E	SW/NW 1980' FNL; 560' FWL	
18W-21	43-037-16418	14-20-603-353	SEC. 18, T41S, R24E	NE/NW 660' FNL; 1882' FWL	
18-22	43-037-31236	14-20-603-353	SEC. 18, T41S, R24E	SW/NW 2200' FNL; 2210' FWL	
18W-23	43-037-30244	14-20-603-353	SEC. 18, T41S, R24E	NE/SW 2385' FSL; 2040' FWL	
18W-14	43-037-15735	14-20-603-353	SEC. 18, T41S, R24E	SW/SW 810' FSL; 600' FWL	
18-24	43-037-31079	14-20-603-353	SEC. 18, T41S, R24E	SE/SW 760' FSL; 1980' FWL	
18-31	43-037-31181	14-20-603-353	SEC. 18, T41S, R24E	NW/NE 795' FNL; 2090; FEL	
~~18W-32~~	~~43-037-15736~~	~~14-20-603-353~~	~~SEC. 18, T41S, R24E~~	~~SW/NE 2140' FNL; 1830' FEL~~	
18-33	43-037-31135	14-20-603-353	SEC. 18, T41S, R24E	NW/SE 1870' FSL; 1980' FEL	
18-34W	43-037-15737	14-20-603-353	SEC. 18, T41S, R24E	SW/SE 780' FSL; 1860 FEL	
18W-41	43-037-15738	14-20-603-353	SEC. 18, T41S, R24E	NE/NE 660' FNL; 660' FEL	
18-42	43-037-31182	14-20-603-353	SEC. 18, T41S, R24E	SE/NE 2120' FNL; 745' FEL	
18W-43	43-037-16419	14-20-603-353	SEC. 18, T41S, R24E	NE/SE 1980' FSL; 660' FEL	PA'd
18-44	43-037-31045	14-20-603-353	SEC. 18, T41S, R24E	SE/SE 660' FSL; 660' FEL	
19-11	43-037-31080	14-20-603-353	SEC. 19, T41S, R24E	NW/NW 660' FNL; 660' FWL	
19-12	43-037-15739	14-20-603-353	SEC. 19, T41S, R24E	600' FWL; 1980' FNL	
19-14	43-037-15740	14-20-603-353	SEC. 19, T41S, R24E	600' FSL; 660' FEL	

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) _____

XXX **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 XX) - 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

Routing:

1-LEC	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 XXX Operator Name Change Only

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

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

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

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

Name: ** SEE ATTACHED **	API: 037-16415	Entity:	Sec	Twp	Rng	Lease Type:
Name:	API:	Entity:	Sec	Twp	Rng	Lease Type:
Name:	API:	Entity:	Sec	Twp	Rng	Lease Type:
Name:	API:	Entity:	Sec	Twp	Rng	Lease Type:
Name:	API:	Entity:	Sec	Twp	Rng	Lease Type:
Name:	API:	Entity:	Sec	Twp	Rng	Lease Type:
Name:	API:	Entity:	Sec	Twp	Rng	Lease Type:

OPERATOR CHANGE DOCUMENTATION

N/A 1. (Rule R615-8-10) Sundry or other legal documentation has been received from former operator (Attach to this form).

N/A 2. (Rule R615-8-10) Sundry or other legal documentation has been received from new operator (Attach to this form).

N/A 3. The Department of Commerce has been contacted if the new operator above is not currently operating any wells in Utah. Is company registered with the state? (yes/no) _____ If yes, show company file number: _____.

N/A 4. **(For Indian and Federal Wells ONLY)** The BLM has been contacted regarding this change (attach Telephone Documentation Form to this report). Make note of BLM status in comments section of this form. Management review of **Federal and Indian** well operator changes should take place prior to completion of steps 5 through 9 below.

Lec 5. Changes have been entered in the Oil and Gas Information System (Wang/IBM) for each well listed above. (8-3-95)

LWP 6. Cardex file has been updated for each well listed above. 8-31-95

LWP 7. Well file labels have been updated for each well listed above. 9-28-95

Lec 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)

Lec 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.

– OVER –

OPERATOR CHANGE WORKSHEET (CONTINUED) Initial each item when completed. Write N/A if item is not applicable.

ENTITY REVIEW

LEC 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/LEC 1. (Rule R615-3-1) The new operator of any fee lease well listed above has furnished a proper bond.

___ 2. A copy of this form has been placed in the new and former operators' bond files.

___ 3. The former operator has requested a release of liability from their bond (yes/no) ___. Today's date _____ 19___. If yes, division response was made by letter dated _____ 19___.

LEASE INTEREST OWNER NOTIFICATION RESPONSIBILITY

N/A 1. (Rule R615-2-10) The former operator/lessee of any **fee lease** well listed above has been notified by letter dated _____ 19___, of their responsibility to notify any person with an interest in such lease of the change of operator. Documentation of such notification has been requested.

N/A 2. Copies of documents have been sent to State Lands for changes involving **State leases.**

FILMING

✓ 1. All attachments to this form have been microfilmed. Date: October 4 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 WIC F5 / Not necessary!

WE71/34-35

STATE OF UTAH
INVENTORY OF INJECTION WELLS

OPERATOR	API NO.	WELL	TNS	RGE	SE	WELLTYPE	INDIAN COUNT
MEPNA (MOBIL	43-037-15506	L-21	41S	25E	18	INJW	Y
MEPNA (MOBIL	43-037-16358	K-24	41S	25E	18	INJW	Y
MEPNA (MOBIL	43-037-30400	K-22X	41S	25E	18	INJI	Y
MEPNA (MOBIL	43-037-15499	J-21	41S	25E	18	INJW	Y
MEPNA (MOBIL	43-037-15508	L-25	41S	25E	19	INJW	Y
MEPNA (MOBIL	43-037-15839	1W24	41S	23E	1	INJW	Y
MEPNA (MOBIL	43-037-15838	1W13	41S	23E	1	INJW	Y
MEPNA (MOBIL	43-037-16386	2W44	41S	23E	2	INJW	Y
MEPNA (MOBIL	43-037-15842	11W44	41S	23E	11	INJW	Y
MEPNA (MOBIL	43-037-15841	11W42	41S	23E	11	INJW	Y
MEPNA (MOBIL	43-037-15848	12W33	41S	23E	12	INJW	Y
MEPNA (MOBIL	43-037-15850	12W42	41S	23E	12	INJW	Y
MEPNA (MOBIL	43-037-15847	12W31	41S	23E	12	INJW	Y
MEPNA (MOBIL	43-037-16404	12W13	41S	23E	12	INJW	Y
MEPNA (MOBIL	43-037-15845	12W22	41S	23E	12	INJW	Y
MEPNA (MOBIL	43-037-15843	12W11	41S	23E	12	INJW	Y
MEPNA (MOBIL	43-037-31151	12W24	41S	23E	12	INJW	Y
MEPNA (MOBIL	43-037-31543	RATERFORD 12	41S	23E	12	INJW	Y
MEPNA (MOBIL	43-037-15854	13W31	41S	23E	13	INJW	Y
MEPNA (MOBIL	43-037-15851	13W13	41S	23E	13	INJW	Y
MEPNA (MOBIL	43-037-15857	13W42	41S	23E	13	INJW	Y
MEPNA (MOBIL	43-037-16407	13W44	41S	23E	13	INJW	Y
MEPNA (MOBIL	43-037-15855	13W33	41S	23E	13	INJW	Y
MEPNA (MOBIL	43-037-31152	13W11	41S	23E	13	INJW	Y
MEPNA (MOBIL	43-037-15852	13W22	41S	23E	13	INJW	Y
MEPNA (MOBIL	43-037-15853	13W24	41S	23E	13	INJW	Y
MEPNA (MOBIL	43-037-16410	14W43	41S	23E	14	INJI	Y
MEPNA (MOBIL	43-037-15860	14W43	41S	23E	14	INJW	Y
MEPNA (MOBIL	43-037-15863	24W42	41S	23E	24	INJW	Y
MEPNA (MOBIL	43-037-15862	24W31	41S	23E	24	INJW	Y
MEPNA (MOBIL	43-037-15984	6W14	41S	24E	6	INJW	Y
MEPNA (MOBIL	43-037-15988	7W32	41S	24E	7	INJW	Y
MEPNA (MOBIL	43-037-15990	7W41	41S	24E	7	INJW	Y
MEPNA (MOBIL	43-037-16394	7W21	41S	24E	7	INJW	Y
MEPNA (MOBIL	43-037-15985	7W12	41S	24E	7	INJW	Y
MEPNA (MOBIL	43-037-15989	7W34	41S	24E	7	INJW	Y
MEPNA (MOBIL	43-037-15986	7W14	41S	24E	7	INJW	Y
MEPNA (MOBIL	43-037-15987	7W23	41S	24E	7	INJW	Y
MEPNA (MOBIL	43-037-16395	7W43	41S	24E	7	INJW	Y
MEPNA (MOBIL	43-037-16396	8W43	41S	24E	8	INJI	Y
MEPNA (MOBIL	43-037-15992	8W14	41S	24E	8	INJW	Y
MEPNA (MOBIL	43-037-16398	9W23	41S	24E	9	INJW	Y
MEPNA (MOBIL	43-037-16400	9W43	41S	24E	9	INJI	Y
MEPNA (MOBIL	43-037-16397	9W21	41S	24E	9	INJW	Y
MEPNA (MOBIL	43-037-16402	10W23	41S	24E	10	INJW	Y
MEPNA (MOBIL	43-037-16401	10W21	41S	24E	10	INJI	Y
MEPNA (MOBIL	43-037-16403	10W43	41S	24E	10	INJW	Y
MEPNA (MOBIL	43-037-16413	15W43	41S	24E	15	INJI	Y
MEPNA (MOBIL	43-037-16411	15W21	41S	24E	15	INJW	Y
MEPNA (MOBIL	43-037-16412	15W23	41S	24E	15	INJI	Y
MEPNA (MOBIL	43-037-16415	16W43	41S	24E	16	INJW	Y
MEPNA (MOBIL	43-037-15720	16W12	41S	24E	16	INJW	Y
MEPNA (MOBIL	43-037-15721	16W14	41S	24E	16	INJW	Y

Form 3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

SUNDRY NOTICES AND REPORTS ON WELLS

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

SUBMIT IN TRIPLICATE

5. Lease Designation and Serial No.: 14-20-603-355
6. If Indian, Allottee or Tribe Name: NAVAJO TRIBAL
7. If Unit or CA, Agreement Designation: RATHERFORD UNIT
8. Well Name and No.: RATHERFORD 16-W-43
9. API Well No.: 43-037-16415
10. Field and Pool, or exploratory Area: GREATER ANETH
11. County or Parish, State: SAN JUAN UT

1. Type of Well: [ ] Oil Well [ ] Gas Well [X] 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. 16, T41S, R24E
(NE/SE) 2140' FSL & 820' FEL

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

TYPE OF SUBMISSION	TYPE OF ACTION	
[X] Notice of Intent	[ ] Abandonment	[ ] Change of Plans
[ ] Subsequent Report	[ ] Recompletion	[ ] New Construction
[ ] Final Abandonment Notice	[ ] Plugging Back	[ ] Non-Routine Fracturing
	[ ] Casing Repair	[ ] Water Shut-Off
	[ ] Altering Casing	[ ] Conversion to Injection
	[X] Other INJECTOR/SIDETRACK	[ ] 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; 1414' SOUTH & 1414' EAST FROM SURFACE SPOT (ZONE 1b/1c).
LATERAL #2; 2819' NORTH & 1026' WEST FROM SURFACE SPOT (ZONE 1a).

SEE ATTACHED PROCEDURE.

RECEIVED
JUN 08 1998
DIV. OF OIL, GAS & MINING

14. I hereby certify that the foregoing is true and correct
Signed [signature] for Title SHIRLEY HOUCHINS/ENV & REG TECH Date 6-03-98

(This space for Federal or State office use)
Approved by [signature] Title BRADLEY G. HILL RECLAMATION SPECIALIST III Date 6/23/98
Conditions of approval, if any: Federal Approval of this Action is Necessary

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

Ratherford Unit Well #16-43
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 (2000-3000 feet).

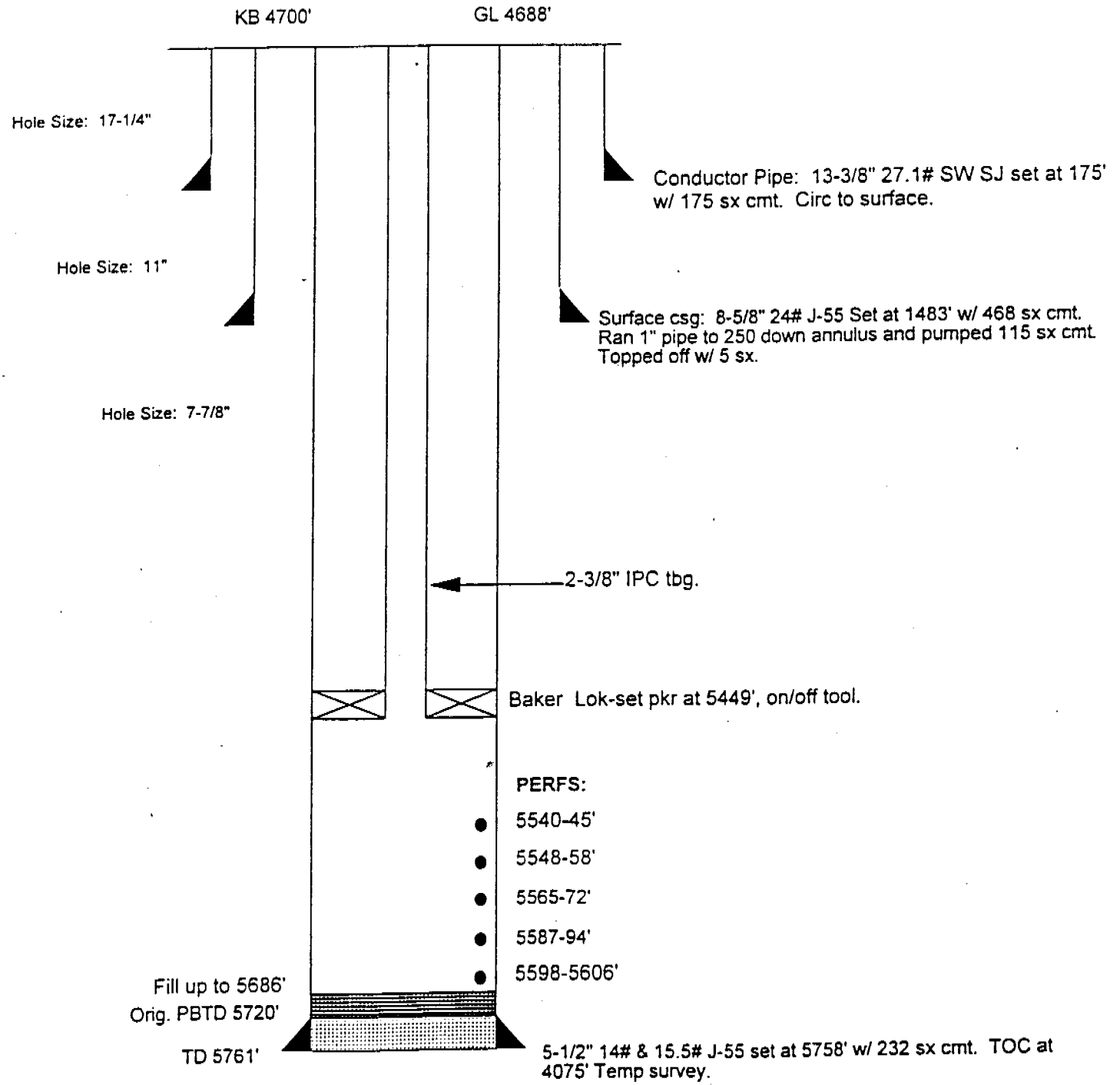
1. Prepare location and dig working pit.
2. MIRU WSU, reverse unit, and H2S equipment. Bullhead kill weight fluid down tubing.
3. ND wellhead and NU BOP's. Pressure test BOP's to working pressure.
4. Continue to POH with related equipment (tubing and rods for producers or tubing and packer for injectors).
5. RU wireline to run any logs desired and run gage ring for casing size and weight.
6. Set cement retainer at approximately 5500' and pressure test casing to 1000 psi.
7. Squeeze existing perforations. 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 # 16W-43

GREATER ANETH FIELD
2140' FSL & 820' FEL
SEC 16-T41S-R24E
SAN JUAN COUNTY, UTAH
API 43-037-16415
PRISM 0043044

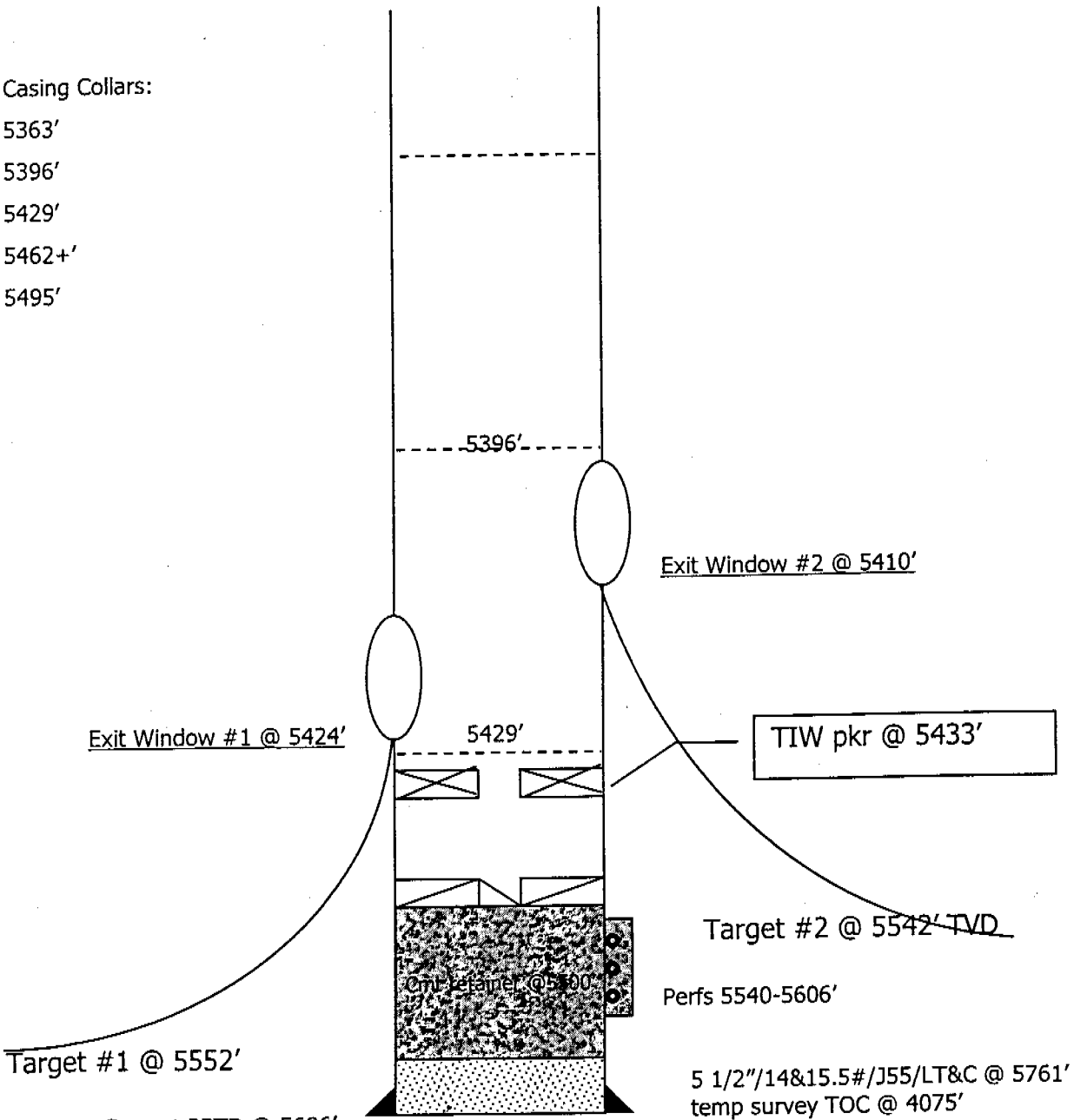
INJECTOR

Capacities:	bbl/ft	gal/ft	cuft/ft
2-7/8" 6.5#	.00579	.2431	.0325
5-1/2" 14#	.0244	1.0249	.1370
5-1/2" 15.5#	.0238	.9997	.1336
2-7/8x5.5"14# .0919	.0164	.6877	
2-7/8x5.5"15.5# .0886	.0158	.6625	



L. A. TUCKER 6-4-96 R.U. # 16W-43

Ratherford Unit #16-43



Window	Btm-Top of Window	Ext length	Curve Radius	Bearing	Horiz Displ
1	5424-18	------	128	135	2000
2	5410-04	14	132	340	3000

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.

WORKSHEET
APPLICATION FOR PERMIT TO DRILL

APD RECEIVED: 06/08/98

API NO. ASSIGNED: 43-037-16415

WELL NAME: RATHERFORD 16-W-43 MULTI-LEG
OPERATOR: MOBIL PRODUCING INC (N7370)
CONTACT: _____

PROPOSED LOCATION:
NESE 16 - T41S - R24E
SURFACE: 2140-FSL-0820-FEL } Multi-Lateral
BOTTOM: 0168-FSL-0719-FWL }
SAN JUAN COUNTY
GREATER ANETH FIELD (365)

LEASE TYPE: IND
LEASE NUMBER: 14-20-603-355
SURFACE OWNER: _____

PROPOSED FORMATION: DSCR

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

RECEIVED AND/OR REVIEWED:

✓ Plat
✓ Bond: Federal [✓] State [] Fee []
(No. ALREADY BONDED)
N/A Potash (Y/N)
✓ Oil Shale (Y/N) *190-5(B)
✓ Water Permit
(No. NAVAJO ALLOTMENT)
N/A RDCC Review (Y/N)
(Date: _____)

NA St/Fee Surf Agreement (Y/N)

LOCATION AND SITING:

✓ R649-2-3. Unit RATHERFORD U MU

___ R649-3-2. General

___ R649-3-3. Exception

___ Drilling Unit
Board Cause No: _____
Date: _____

COMMENTS: _____

STIPULATIONS: (1) Federal Approval
(5) Directional Drilling

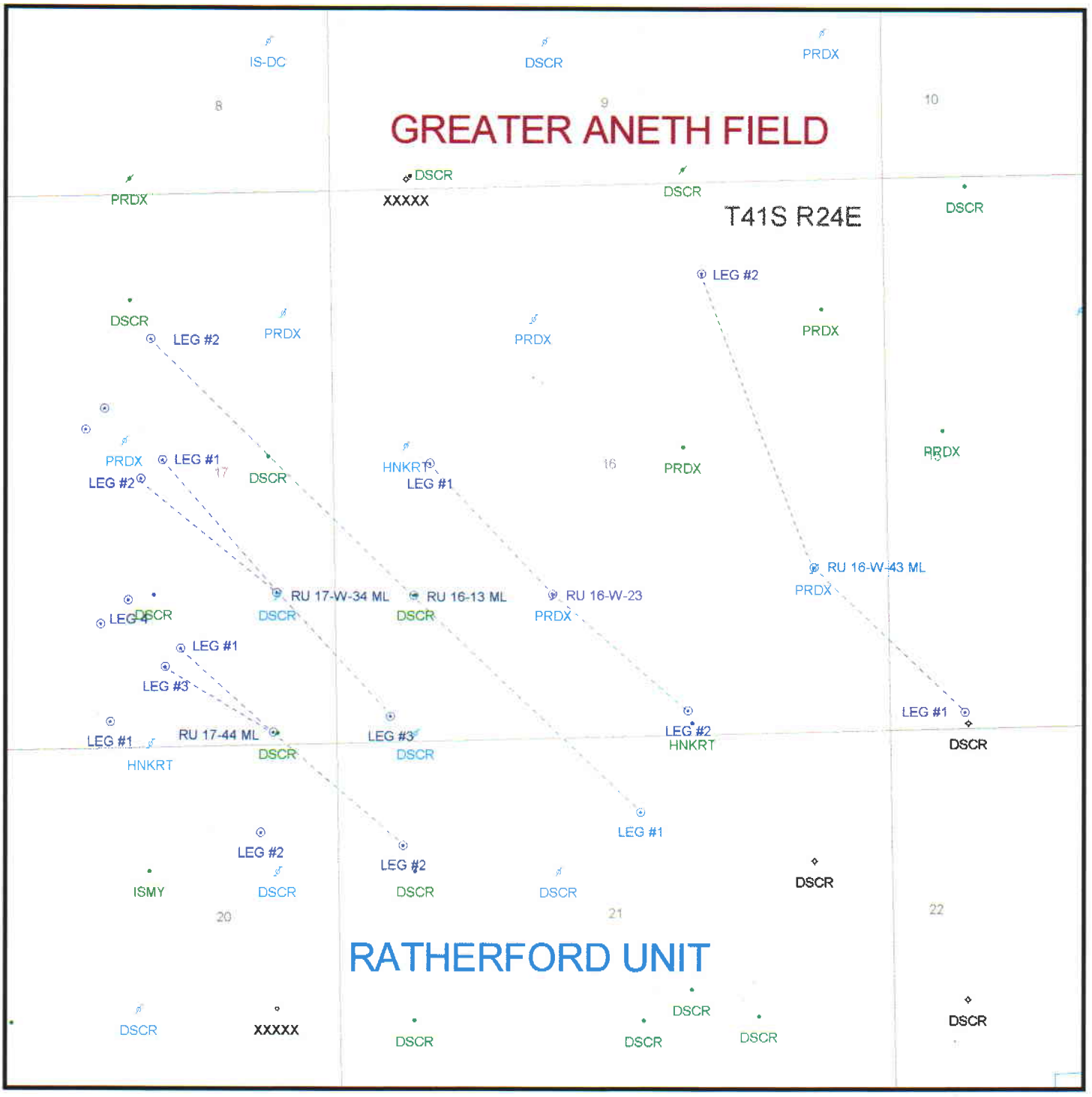
DIVISION OF OIL, GAS & MINING

OPERATOR: MOBIL PRODUCTION INC (N7370)

FIELD: GREATER ANETH (365)

SEC., 16 TWP 41S, RNG 24E

COUNTY: SAN JUAN UAC: R649-2-3RATHERFORD UNIT



DATE PREPARED:
11-JUNE-1998

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

State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

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

June 23, 1998

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

Re: Ratherford 16-W-43, 2140' FSL, 820' FEL, NE SE, Sec. 16, T. 41 S., R. 24 E., San Juan County, Utah

Gentlemen:

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

This approval shall expire one year from the above date unless substantial and continuous operation is underway, or a request for extension is made prior to the expiration date. The API identification number assigned to this well is 43-037-16415.

Sincerely,

John R. Baza
Associate Director

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

Operator: Mobil Exploration & Producing

Well Name & Number: Ratherford 16-W-43

API Number: 43-037-16415

Lease: 14-20-603-355

Location: NE SE **Sec.** 16 **T.** 41 S. **R.** 24 E.

Conditions of Approval

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

2. Notification Requirements
   Notify the Division within 24 hours prior to spudding the well or commencing drilling operations. Contact Jim Thompson at (801)538-5336.

   Notify the Division prior to commencing operations to plug and abandon the well. Contact Dan Jarvis at (801) 538-5338 or Robert Krueger at (801) 538-5274.

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

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

5. In accordance with Utah Admin. R.649-3-11, Directional Drilling, submittal of a complete angular deviation and directional drilling survey report is required.

Pason

ROCKY MOUNTAIN GEO-ENGINEERING

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

PASON ROCKY MOUNTAIN GEO-ENGINEERING CORP.

2450 INDUSTRIAL BLVD. • GRAND JUNCTION, CO 81505

(970) 243-3044 • (FAX) 241-1085

Monday, September 21, 1998

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

Re: Ratherford Unit #16-43 , Legs 1 & 2
Sec. 16, T41S, R24E
San Juan County, Utah

43-037-16415

Dear Sirs:

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

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

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

Sincerely,

Bill Nagel
Senior Geologist

BN/dn

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

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

MOBIL

RATHERFORD UNIT #16-43
NW HORIZONTAL LATERAL LEG #1
UPPER 1-A POROSITY BENCH
DESERT CREEK MEMBER
PARADOX FORMATION
SECTION 16, T41S, R24E
SAN JUAN, UTAH

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

TABLE OF CONTENTS

WELL SUMMARY

OPERATOR:	MOBIL EXPLORATION & PRODUCTION U.S. INC.
NAME:	RATHERFORD UNIT #16-43 NW HORIZONTAL LATERAL LEG #1 IN 1-A LOWER POROSITY BENCH, DESERT CREEK
LOCATION:	SECTION 16, T41S, R24E
COUNTY/STATE:	SAN JUAN, UTAH
ELEVATION:	KB:4699' GL:4688'
SPUD DATE:	8/10/98
COMPLETION DATE:	8/17/98
DRILLING ENGINEER:	BENNY BRIGGS / SIMON BARRERA
WELLSITE GEOLOGY:	DAVE MEADE / LUKE TITUS
MUDLOGGING ENGINEERS:	DAVE MEADE / LUKE TITUS
CONTRACTOR: **TOOLPUSHER:**	BIG "A" RIG 25 J. DEES
HOLE SIZE:	4 ¾"
CASING RECORD:	SIDETRACK IN WINDOW AT 5423' MEASURED DEPTH
DRILLING MUD: **ENGINEER:** **MUD TYPE:**	M-I RON WESTENBERG FRESH WATER & BRINE WATER W/ POLYMER SWEEPS
DIRECTIONAL DRILLING CO:	SPERRY-SUN
ELECTICAL LOGGING:	NA
TOTAL DEPTH:	8298' MEASURED DEPTH; TRUE VERTICAL DEPTH-5551.3'
STATUS:	PREPARING WELL FOR SE LATERAL #2

DRILLING CHRONOLOGY
RATHERFORD UNIT #16-43
1-A NW HORIZONTAL LATERAL LEG #1

DATE	DEPTH	DAILY	ACTIVITY
8/09/98	5232'	0'	LAY DOWN DRILL STRING & NIPPLE DOWN-RIG DOWN
8/10/98	5431'	0'	MOVE RIG TO R.U. #16-43 LOCATION-RIG UP-NIPPLE UP BOP-PRESURE TEST-RIG UP WIRELINE & SET BRIDGE PLUG @ 5431'-RIG DOWN WIRE LINE-PICK UP ANCHOR LATCH & DRL COLLARS-TIH
8/11/98	5431'	7'	P.U. 144 JTS AOH-LATCH ANCHOR-R.U. GYRO DATA-RIH & ORIENT PACKER-SHEAR ANCHOR-TOH-L.D. TOOL-P.U. WHIPSTOCK #1 & STARTER MILL-ORIENT-TIH-SET WHIPSTOCK @ 5416'- MILL W/STARTER MILL 5416' TO 5418'-TOH-L.D. STARTER MILL-P.U. WINDOW MILL & WATER MELON MILLS-TIH-MILL W/WINDOW MILLS 5416' TO 5423'
8/12/98	5423'	132'	PUMP SWEEP & CIR OUT-L.D. 12 JTS AOH PIPE-TOH-L.D. MILLS-P.U. CURVE ASSEM.-ORIENT & TEST-P. U. 10 JTS PH-6 PIPE-TIH-R.U. GYRO DATA & RIH W/ GYRO-TIME DRLG 5423' TO 5426'-DIR DRLG & WIRELINE SURVEYS TO 5452'-PULL GYRO & RIG DOWN GYRO DATA-DIR DRLG & SURVEYS
8/13/98	5555'	696'	DIR DRLG & SURVEYS TO 5639' (T.D. CURVE)-PUMP SWEEP & CIR OUT-PUMP 10 BBLS BRINE-L.D. 92 JTS AOH-TOH-L.D. CURVE ASSEM.-P.U. LATERAL ASSEMBLY- ORIENT & TEST-P.U. 96 JTS PH-6 PIPE-TIH-DIR DRLG & SURVEYS
8/14/98	6251'	874'	DIR DRLG & SURVEYS
8/15/98	7125'	535'	DIR DRLG & SURVEYS
8/16/98	7660'	553'	DIR DRLG & SURVEYS
8/17/98	8213'	85'	DIR DRLG & SURVEYS TO 8298'-PUMP SWEEP & CIR SPLS-L.D. 3 JTS D.P-TOH-L.D. LATERAL ASSEM.-PICK UP RETRIEVING HOOK-TIH-RETRIEVE WHIPSTOCK #1-CIR-TOH-L.D. WHIPSTOCK-PU. & ORIENT WHIPSTOCK #2-TOH-SET WHIPSTOCK @ 5408'-MILL W/STARTER MILL 5401' TO 5403'-CIR-TOH

DAILY ACTIVITY

Operator: MOBIL
Well Name: RATHERFORD UNIT #16-43 NW 1-A HORIZONTAL LATERAL LEG #1

DATE	DEPTH	DAILY	DATE	DEPTH	DAILY
8/09/98	5232'	0'			
8/10/98	5431'	0'			
8/11/98	5431'	7'			
8/12/98	5423'	132'			
8/13/98	5555'	696'			
8/14/98	6251'	874'			
8/15/98	7125'	535'			
8/16/98	7660'	553'			
8/17/98	8213'	85'			
	8298'	TD			

BIT RECORD

OPERATOR: MOBIL
WELL NAME: RATHERFORD UNIT #16-43 NW 1-A HORIZONTAL LATERAL LEG #1

RUN	SIZE	MAKE	TYPE	IN/OUT	FTG	HRS	FT/HR
#1	4 3/4"	STC	MF-3P	5423'/ 5639'	212'	20.5	10.3
(RR) #2	4 3/4"	STC	MF-3P	5639'/ 8298'	2651'	85	31.2

MUD REPORT

OPERATOR: MOBIL
WELL NAME: RATHERFORD UNIT #16-43 NW 1-A HORIZONTAL LATERAL LEG #1

DATE	DEPTH	WT	VIS	PLS	YLD	GEL	PH	WL	CK	CHL	CA	SD	OIL	WTR
8/09/98	0'	NO	CHECK	-	-	-	-	-	-	-	-	-	-	-
8/10/98	0'	NO	CHECK	-	-	-	-	-	-	-	-	-	-	-
8/11/98	0'	NO	CHECK	-	-	-	-	-	-	-	-	-	-	-
8/12/98	5447'	8.4	26	1	1	0/0	11.0	NC	NC	2800	280	TR	0%	100%
8/13/98	5639'	8.4	26	1	1	0/0	12.5	NC	NC	3500	160	TR	0%	100%
8/14/98	6613'	8.6	26	1	1	0/0	11.0	NC	NC	21500	2000	1%	TR	99%
8/15/98	7253'	8.4	27	2	1	0/0	11.0	NC	NC	33000	2800	4%	9%	87%
8/16/98	7802'	8.5	27	2	1	0/0	10.5	NC	NC	36000	3200	3%	6%	91%
8/17/98	8298'	8.5	27	2	1	0/0	11.0	NC	NC	32000	3000	3%	5%	92%

SPERRY-SUN DRILLING SERVICES
SURVEY DATA

Customer ... : Mobil (Utah)
Platform ... : RATHERFORD UNITH
Slot/Well .. : BA25/16-43, 1A1

MEASURED DEPTH	ANGLE DEG	DIRECTION DEG	TVD	NORTHINGS FEET	EASTINGS FEET	VERTICAL SECTION	DOG LEG
5400.00	0.23	353.08	5399.16	66.17 N	26.29 W	71.17	0.00
5416.00	0.33	3.51	5415.16	66.25 N	26.29 W	71.25	0.70
5423.00	4.40	340.00	5422.15	66.52 N	26.38 W	71.53	58.56
5433.00	9.00	355.56	5432.08	67.66 N	26.58 W	72.67	49.04
5443.00	14.20	0.91	5441.88	69.67 N	26.62 W	74.57	53.05
5453.00	18.90	3.59	5451.46	72.51 N	26.50 W	77.20	47.60
5463.00	22.30	5.21	5460.82	76.02 N	26.22 W	80.41	34.47
5473.00	25.80	6.30	5469.95	80.08 N	25.81 W	84.07	35.28
5483.00	30.80	3.10	5478.75	84.80 N	25.43 W	88.38	52.23
5493.00	35.80	2.00	5487.11	90.28 N	25.19 W	93.45	50.36
5503.00	40.60	359.30	5494.96	96.46 N	25.13 W	99.24	50.81
5513.00	44.50	356.10	5502.33	103.22 N	25.41 W	105.68	44.59
5523.00	48.40	351.30	5509.22	110.41 N	26.21 W	112.72	52.24
5533.00	52.40	347.70	5515.59	117.98 N	27.62 W	120.32	48.67
5543.00	56.10	344.80	5521.44	125.86 N	29.56 W	128.38	43.85
5553.00	59.70	341.40	5526.75	133.96 N	32.02 W	136.84	46.10
5563.00	62.90	338.00	5531.55	142.19 N	35.07 W	145.61	43.74
5573.00	64.50	341.80	5535.98	150.60 N	38.15 W	154.57	37.63
5583.00	67.10	346.40	5540.09	159.37 N	40.64 W	163.66	49.35
5593.00	71.80	347.20	5543.60	168.49 N	42.78 W	172.96	47.59
5603.00	75.60	344.70	5546.40	177.79 N	45.11 W	182.50	44.94
5613.00	80.20	345.00	5548.50	187.23 N	47.66 W	192.24	46.09
5639.00	90.10	343.70	5550.69	212.14 N	54.64 W	218.04	38.40
5667.00	88.00	340.90	5551.16	238.81 N	63.16 W	246.01	12.50
5698.00	89.20	342.30	5551.91	268.22 N	72.94 W	276.99	5.95
5730.00	91.70	342.80	5551.66	298.74 N	82.53 W	308.95	7.97
5762.00	94.10	343.40	5550.04	329.32 N	91.82 W	340.86	7.73
5794.00	92.60	341.10	5548.17	359.74 N	101.56 W	372.78	8.57
5825.00	89.40	340.20	5547.63	388.98 N	111.83 W	403.77	10.72
5857.00	89.60	340.50	5547.91	419.11 N	122.59 W	435.77	1.13
5889.00	89.50	340.40	5548.16	449.27 N	133.30 W	467.76	0.44
5921.00	89.60	339.70	5548.42	479.35 N	144.21 W	499.76	2.21
5953.00	91.00	339.80	5548.25	509.37 N	155.29 W	531.76	4.39
5984.00	93.50	340.20	5547.03	538.47 N	165.88 W	562.73	8.17
6016.00	93.40	340.40	5545.10	568.54 N	176.65 W	594.68	0.70
6048.00	92.00	341.20	5543.60	598.73 N	187.16 W	626.64	5.04
6080.00	93.40	341.60	5542.09	629.02 N	197.36 W	658.59	4.55
6111.00	93.40	341.40	5540.25	658.37 N	207.18 W	689.53	0.64

SPERRY-SUN DRILLING SERVICES
SURVEY DATA

Customer ... : Mobil (Utah)
Platform ... : RATHERFORD UNITH
Slot/Well .. : BA25/16-43, 1A1

MEASURED DEPTH	ANGLE DEG	DIRECTION DEG	TVD	NORTHINGS FEET	EASTINGS FEET	VERTICAL SECTION	DOG LEG
6143.00	88.90	341.20	5539.61	688.67 N	217.43 W	721.50	14.08
6175.00	89.60	341.40	5540.03	718.98 N	227.69 W	753.49	2.27
6207.00	91.40	342.30	5539.75	749.38 N	237.66 W	785.47	6.29
6239.00	89.50	341.20	5539.50	779.77 N	247.68 W	817.45	6.86
6270.00	85.90	340.00	5540.74	808.98 N	257.97 W	848.42	12.24
6302.00	84.90	340.00	5543.31	838.95 N	268.87 W	880.32	3.13
6333.00	86.00	339.50	5545.77	867.94 N	279.57 W	911.22	3.90
6364.00	86.80	339.30	5547.71	896.90 N	290.46 W	942.16	2.66
6396.00	87.60	338.60	5549.28	926.73 N	301.94 W	974.11	3.32
6428.00	88.30	337.90	5550.42	956.44 N	313.79 W	1006.08	3.09
6460.00	93.10	338.60	5550.03	986.15 N	325.64 W	1038.05	15.16
6492.00	92.40	338.40	5548.50	1015.88 N	337.35 W	1070.00	2.27
6523.00	88.20	337.70	5548.33	1044.63 N	348.94 W	1100.98	13.74
6555.00	88.50	336.50	5549.25	1074.10 N	361.39 W	1132.92	3.86
6587.00	90.40	336.30	5549.56	1103.42 N	374.20 W	1164.85	5.97
6618.00	85.90	334.60	5550.56	1131.59 N	387.06 W	1195.73	15.52
6650.00	85.50	334.20	5552.96	1160.37 N	400.85 W	1227.49	1.77
6682.00	87.40	334.60	5554.94	1189.17 N	414.65 W	1259.27	6.07
6713.00	87.20	334.40	5556.40	1217.12 N	427.98 W	1290.10	0.91
6744.00	89.30	334.70	5557.35	1245.10 N	441.30 W	1320.94	6.84
6775.00	91.10	336.70	5557.24	1273.35 N	454.05 W	1351.85	8.68
6807.00	90.70	338.40	5556.74	1302.92 N	466.27 W	1383.82	5.46
6839.00	90.20	337.60	5556.49	1332.59 N	478.26 W	1415.80	2.95
6871.00	90.40	337.70	5556.32	1362.18 N	490.43 W	1447.77	0.70
6903.00	91.60	339.00	5555.76	1391.92 N	502.23 W	1479.75	5.53
6935.00	92.10	338.80	5554.73	1421.76 N	513.74 W	1511.73	1.68
6966.00	88.10	336.70	5554.67	1450.44 N	525.48 W	1542.69	14.57
6998.00	88.90	335.40	5555.51	1479.68 N	538.46 W	1574.61	4.77
7030.00	89.60	335.30	5555.93	1508.76 N	551.81 W	1606.50	2.21
7062.00	90.40	334.70	5555.93	1537.76 N	565.33 W	1638.38	3.12
7093.00	88.90	333.20	5556.12	1565.61 N	578.95 W	1669.20	6.84
7125.00	90.70	333.30	5556.23	1594.18 N	593.35 W	1700.98	5.63
7156.00	88.90	333.90	5556.34	1621.95 N	607.13 W	1731.78	6.12
7188.00	86.40	332.80	5557.65	1650.52 N	621.47 W	1763.54	8.53
7220.00	89.60	333.00	5558.77	1678.99 N	636.04 W	1795.27	10.02
7252.00	93.00	333.30	5558.04	1707.53 N	650.48 W	1827.03	10.67
7284.00	94.00	333.50	5556.09	1736.08 N	664.79 W	1858.76	3.19
7315.00	93.40	336.20	5554.09	1764.08 N	677.93 W	1889.56	8.90

SPERRY-SUN DRILLING SERVICES
SURVEY DATA

Customer ... : Mobil (Utah)
Platform ... : RATHERFORD UNITH
Slot/Well .. : BA25/16-43, 1A1

MEASURED DEPTH	ANGLE DEG	DIRECTION DEG	TVD	NORTHINGS FEET	EASTINGS FEET	VERTICAL SECTION	DOG LEG
7347.00	91.80	337.00	5552.64	1793.42 N	690.63 W	1921.47	5.59
7379.00	92.10	338.80	5551.55	1823.05 N	702.66 W	1953.43	5.70
7411.00	91.80	340.00	5550.46	1852.99 N	713.91 W	1985.41	3.86
7443.00	90.80	341.10	5549.73	1883.15 N	724.56 W	2017.40	4.64
7474.00	91.40	341.40	5549.14	1912.50 N	734.53 W	2048.39	2.16
7506.00	89.60	340.50	5548.86	1942.75 N	744.97 W	2080.38	6.29
7538.00	89.80	340.20	5549.03	1972.88 N	755.73 W	2112.38	1.13
7570.00	90.50	339.80	5548.94	2002.95 N	766.67 W	2144.38	2.52
7601.00	90.70	339.80	5548.62	2032.04 N	777.38 W	2175.38	0.65
7632.00	89.30	341.40	5548.62	2061.28 N	787.67 W	2206.37	6.86
7663.00	88.70	340.90	5549.16	2090.62 N	797.69 W	2237.36	2.52
7695.00	86.70	341.80	5550.44	2120.91 N	807.91 W	2269.32	6.85
7726.00	88.30	342.30	5551.80	2150.37 N	817.46 W	2300.27	5.41
7758.00	89.40	342.70	5552.44	2180.88 N	827.08 W	2332.24	3.66
7790.00	88.90	342.10	5552.91	2211.38 N	836.75 W	2364.21	2.44
7822.00	89.10	343.00	5553.47	2241.90 N	846.35 W	2396.17	2.88
7853.00	89.40	343.50	5553.88	2271.59 N	855.28 W	2427.12	1.88
7885.00	89.70	344.10	5554.13	2302.31 N	864.21 W	2459.04	2.10
7916.00	89.20	343.90	5554.43	2332.11 N	872.75 W	2489.97	1.74
7948.00	90.30	344.20	5554.57	2362.88 N	881.54 W	2521.89	3.56
7980.00	91.30	344.90	5554.12	2393.72 N	890.07 W	2553.78	3.81
8011.00	91.00	344.40	5553.50	2423.61 N	898.27 W	2584.67	1.88
8043.00	90.40	345.50	5553.11	2454.51 N	906.58 W	2616.55	3.92
8075.00	90.10	347.60	5552.97	2485.63 N	914.02 W	2648.34	6.63
8107.00	89.60	345.80	5553.05	2516.77 N	921.39 W	2680.12	5.84
8138.00	89.20	345.60	5553.37	2546.80 N	929.04 W	2710.96	1.44
8169.00	88.80	344.80	5553.92	2576.77 N	936.96 W	2741.83	2.88
8200.00	90.40	344.90	5554.13	2606.69 N	945.06 W	2772.72	5.17
8231.00	91.30	344.90	5553.67	2636.62 N	953.14 W	2803.60	2.90
8263.00	92.30	344.60	5552.67	2667.48 N	961.55 W	2835.48	3.26
* 8298.00	92.30	344.60	5551.26	2701.19 N	970.83 W	2870.34	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 340.00 (TRUE).
CALCULATION METHOD: MINIMUM CURVATURE.

* 8298 EXTRAPOLATED TO BIT

SAMPLE DESCRIPTIONS

OPERATOR: MOBIL
WELL NAME: RATHERFORD UNIT #16-43 NW 1-A HORIZONTAL LATERAL LEG #1

DEPTH	LITHOLOGY

5423.00 5430.00 "LS tan-crm-wh,occ ltgy,crpxl,chky-sl anhy,w/rr ANHY xl-rr frac fl,tr trnsl-bf CHT,v rr blk sl carb SH lams,v rr sl mrly ptrgs,tt-v rr frac POR,NFSOC"

5430.00 5440.00 "LS AA,sl anhy,tt-v rr frac POR,NFSOC,bcmg sl mrly grdg to dkgybrn arg v lmy MRLST,tr dkbrn-bf-smky gy CHT frag,scat DOL lams brn-mbrn,micxl,arg-rthy,lmy,tt,NFSOC"

5440.00 5450.00 "LS AA,w/v thn scat DOL incl AA,occ rr MRLST & DOL MRLST frag AA,CHT AA,"

5450.00 5460.00 "SH m-dkgy-blk,sbblky-sbplty,rthy,slty,calc-dol,v sl carb,grdg to v shy MRLST,scat Crin fos,w/thn LS crm-tan crpxl arg v mrly ip & DOL m-dkbrn-dkgybrn micxl rthy-arg anhy ip tt,NFSOC,v rr thn trnsl-wh ANHY xl-incl,occ smky gy-brn CHT frag"

5460.00 5470.00 "LS crm-tan-wh,crpxl-micxl,rthy-chk,occ arg,v rr mic fos,anhy-rr ANHY xl,v sl mrly,tt-v rr intxl POR,NFSOC,v rr thn DOL AA & SH AA incl-ptgs,rr trnsl-ltbrn CHT frag "

5470.00 5480.00 "LS,ltbn-mbn-gybn,rr crypt,mic-vf xl,rthy-sl arg,occ sl slty,tr bn-transl CHT frgs,tr bn DOL grdg to DOL LS ip;rthy p-intrxlfab POR,rr mbri FLOR,no CUT,no o STN"

5480.00 5500.00 "LS,ofwht-crm-bn,mic-vf xln,grn-rthy-cln-tt mtx,tr CHT,rr dkgy sl slty SH,sl slty,v sl arg ip-cln,v spty mbri yelgld FLOR,no CUT,no o STN"

5500.00 5510.00 "LS AA,grn-slty,cln-sl rthy,sl chlky,mdns mtx, v-rr tt mtx,sl dolo to dolo ip,rr trnsl-ltbn CHT frgs,sl anhy-v rr ANHY xls,v-spty dul-mbri yelgld FLOR,no CUT,no o STN"

5510.00 5520.00 "DOL LS,ltgy-gy-ltgybn,pred vf xln,tr mic xln,mdns-grn-slty mtx,occ sl dolo,tr ANHY xls,v rr CHT frgs AA,v rr dkbn DOL;dul yelgld FLOR,wk slo strmg CUT,no vis o STN"

5520.00 5530.00 "LS,crm-tn-ltbn,ltgy,mic-vf xln,tr crypt xln,dns-tt mtx,sl plty,sl rthy,rr slty mtxsl chlky/anhy,sl dolo;pred intrxl fab POR,dul yelgld FLOR,no CUT,no o STN"

5530.00 5540.00 "LS,ltgy-tn-crm-bn,mic-vf xln,mdns-tt mtx,occ slty-grn mtx,sl plty-plty,rr calc frac flgs,sl anhy/chlky,rthy,sl dolo;pred intrxl to rthy fab POR,even dul yel FLOR,no CUT,no o STN"

DEPTH	LITHOLOGY

5540.00 5550.00 "LS grdg to SH,blk-dkbn,rthy-arg,v sl slty,sbblky-sbplty,sft-frm,sl fiss,carb,intrbd w/DOL-ltbn to DOL LS-crm;NFSOC"

5550.00 5560.00 "SH,dkbn-blk,sft-mfrm,rthy to arg,sl plty,sbblky,v sl fiss,carb,calc,tr micro pyr,rr LS to ARG LS"

5560.00 5570.00 "LS,ltbn-tn-crm-dkgy,v sl mott,crypt-mic-vf xl,dns-tt mtx,tr grn-slty mtx,rthy,sl arg,tr SH prtgs AA,sl ool,sl anhy/chlky,pr-dul yel FLOR,no CUT,pr dkbn o STN"

5570.00 5580.00 "LS,ltbn-bn-tn-crm,crypt-mic xln,dns-tt mtx,sl plty,rthy/occ arg grdg to MRLY LS,occ slty-grn mtx,chlky,rr transl CHT frgs,tr SH AA,wk slo strmg CUT,pr dul FLOR,pr dkbn o STN"

5580.00 5590.00 "LS,ltbn-tn-crm,mott,mic-vf xln,pred ool oom/ooc GRNST thnly intrbd w/sl ool dns PCKST,v rr blk SH prtgs,pred oom/ooc to mf-f intrxln fab POR,dul-mbri yel FLOR,m-slo strmg sl dif CUT,m-mf ltbn -tr blk dd o STN"

5590.00 5600.00 "LS AA,sl incr in dns sl ool PCKST,mdns-grn mtx,pred reduced to m oom/ooc to mfr-fr intrxln fab POR,mbri-bri yelgld FLOR,fr fast to mfr slow strmg dif CUT,m-mfr ltrbn-mbrn o STN"

5600.00 5610.00 "LS tan,wh-crm,occ ltbrn,crpxl-vfxl,pred dns occ chk sl anhy PKST,w/thn intbd gran-micsuc ooc-oom GRNST,sl anhy-v sl dol w/v rr crpxl brn DOL frag,tt-fr intxl-ool POR,mfr-fr dull-bri yel FLOR,mfr ltbrn-brn-rr blk STN,fr slow dif-mfr mod fast stmg CUT"

5610.00 5630.00 "LS pred ltbrn-brn-tan,occ wh-crm,micxl-vfxl,micsuc-suc ip,ooc-oom GRNST,w/decr dns cprxl sl ool PKST AA,scat ANHY xl,rr blk-dkgy sl carb SH lams,tt-mg intxl-ool POR,fr bri-tr dull yel FLOR,fr ltbrn-rr blk STN,fr slow-mfr mod fast stmg mlky CUT "

5630.00 5639.00 "LS AA,pred ooc-oom GRNST,scat PKST frag-pred CVGS,fr-mg POR-FLOR-STN-CUT"

5639.00 5650.00 "LS tan-ltbrn,occ brn,rr wh-crm,micxl-vfxl,gran,occ suc,pred ooc-oom GRNST,rr dns crpxl occ chky-plty sl ool PKST frag,sl dol-occ anhy,rr ANHY xl-POR fl,tt-mg intxl-ool POR,mfr-mg dull-bri yel FLOR,fr ltbrn STN,rr blk dd o STN,mfr-fr mod fast stmg CUT"

5650.00 5670.00 "LS AA,pred ooc-oom GRNST,scat tr dns sl ool PKST AA,v sl incr ANHY fl POR,POR-FLOR-STN-CUT AA"

5670.00 5690.00 "LS tan-ltbrn,occ brn,rr wh-crm,micxl-vfxl,gran,suc ip,pred ooc-oom GRNST,scat dns crpxl occ chky-plty sl ool PKST frag,sl DOL-ANHY cmt,rr ANHY xl-POR fl,fr-mg intxl-ool POR,fr-mg dull-bri yel FLOR,fr ltbrn STN,tr blk dd o STN,fr mod fast-fast stmg CUT"

DEPTH	LITHOLOGY

5690.00 5710.00 "LS AA,sl incr dns anhy sl ool PKST,w/mg-fr intxl-ool POR,mfr-mg dull-bri yel FLOR,fr ltbrn-rr brn STN,tr blk dd o STN,mfr-mg mod fast-fast stmg mlky CUT"

5710.00 5720.00 "LS tan-ltbrn,occ brn,rr wh-crm,micxl-vfxl,gran,suc ip,pred ooc-oom GRNST,scat dns crpxl occ chky-plty sl ool PKST frag,sl DOL-ANHY cmt,tr ANHY xl-POR fl,mg intxl-ool POR,fr dull-bri yel FLOR,mfr ltbrn STN,tr blk dd o STN,fr-mg mod fast-fast stmg CUT"

5720.00 5730.00 "LS AA,POR-FLOR-STN-CUT AA"

5730.00 5750.00 "LS tan-ltbrn,occ brn-wh-crm,micxl-vfxl,gran-micsuc,rr suc tex,pred ooc-oom GRNST,rr sl ool dns PKST frag,occ DOL cmt,scat ANHY xl-incl,v rr trnsl CHT frag,fr ool-mg intxl POR,mg bri-tr dull yel FLOR,fr ltbrn-tr blk STN,fr-mg mod fast-fast stmg mlky CUT"

5750.00 5790.00 "LS tan-ltbrn,v rr brn-crm,micxl-vfxl,occ crpxl,gran-micsuc,pred ooc-oom GRNST,w/scat dns v sl ool occ v anhy chk ip v sl chty PKST,rr-tr ANHY xl-rr POR fl,v sl DOL,POR-FLOR-STN-CUT AA"

5790.00 5820.00 "LS,ltbn-tn,mott,pred vf xln,occ mic xln,grn-microsuc-mdns mtx,pred oom/ooc ool ric GRNST,tr foss frgs,sl dolo;pred oom/ooc fab POR to g-intrxl fab POR,m slo sl dif CUT,pred dkbn-bn-ltbn tr blk dd o STN,spty mbri-bri yelgld FLOR"

5820.00 5850.00 "LS AA,pred mf-f oomoldic to oolicastic w f-intrxln fab POR,v rr ltbn trnsl CHt frgs,ool rich, poss sme pel,even dul yelgld FLOR,spty mbri-bri yelgld FLOR,slo strmg sl dif milky ring CUT"

5850.00 5880.00 "LS,ltbn-tn-cm,mott,mic-pred vf xln,grn-microsuc-mdns mtx,pred ool rich oom/ooc GRNSt, v r sl ool dens chlky PCKST,v sl dolo,tr calc fld casts;pred mf-f oom/ooc fab POR w intrexln fab POR,dul-bri yelgld FLOR,mbrn-bn tr blk dd o STN res"

5880.00 5910.00 "LS AA,FLOR AA, o STN AA, CUT AA,tr blk dd cast fld o STN res,v rr ltbn-transl CHT frgs,v rr blk carb mat"

5910.00 5930.00 "LS,ltbn-tn-crm,mott,mic-vf xln,grn mtx,microsuc-mdns mtx,pred oom/ooc ool GRNST,v rr sl ool PCKST,sl chlky/rr anhy xls;pred oomoldic to oolicastic to intrxln fab POR,mbri-spty bri yelgld FLOR,slo strmg sl dif milky CUT"

5930.00 5960.00 "LS,ltbn-tn-crm,mott,mic-pred vf xln,mdns-grn mtx,microsuc mtx,pred ool oom/ooc GRNST,sl chlky,sme calc/chlky fld casts,pred mf-f oom/ooc to f-g intrxln fab POR,FLOR AA,o STN AA,tr blk dd cast fld o STN res"

DEPTH	LITHOLOGY

5960.00 5990.00 "LS,ltbn-tn-bn,mott,mic-pred vf xln,gran-microsuc-mdns mtx,pred ool rich oom/ooc GRNST,v rr sl ool PCKST,sl chlky,calc fld casts;pred mf-f oom/ooc fab POR w/g-intrxln fab POR,dul-spty mbri-bri yelgld FLOR,mf-slo strmg sl dif milky ring CUT,o STN AA"

5990.00 6020.00 "LS,ltbn-tn-cm,mott,mic-pred vf xln,grn-microsuc-mdns mtx,pred ool rich oom/ooc GRNSt, v r sl ool dens chlky PCKST,v sl dolo,tr calc fld casts;pred mf-f oom/ooc fab POR w intrexln fab POR,dul-bri yelgld FLOR,mbrn-bn tr blk dd o STN res"

6020.00 6050.00 "LS,ltbn-tn-cm,mott,mic-pred vf xln,grn-microsuc-mdns mtx,pred ool oom/ooc GRNSt, v r sl ool dens chlky PCKST,v sl dolo,tr calc/chlky fld casts, v rr cht;pred mf-f oom/ooc fab POR w intrexln fab POR,dul-spty mbri yelgld FLOR,mbrn-bn tr blk dd o STN res"

6050.00 6080.00 "LS AA,sl incr in dens ool rich to sl ool PCKST,mf-f ltbn-bn-occ dkbn o STN,tr cast fls blk dd o STN res,even dul-spty mbri-bri yelgld FLOR,m fst to m-mf slo strmg CUT"

6080.00 6110.00 "LS,ltbn-tn,mott,pred vf xln,occ mic xln,grn-microsuc-mdns mtx,pred oom/ooc ool ric GRNST,rr foss frgs,sl dolo;pred oom/ooc fab POR to g-intrxl fab POR,m slo sl dif CUT,pred dkbn-bn-ltbn tr blk dd o STN,spty mbri-bri yelgld FLOR,even dul yelgld FLOR"

6110.00 6140.00 "LS,ltbn-tn-crm,mott,mic-vf xln,grn mtx,microsuc-mdns mtx,pred oom/ooc ool GRNST, rr sl ool to ool PCKST,sl chlky/rr anhy xls;pred oom to oom to intrxln fab POR,mbri-spty bri yelgld FLOR,slo strmg sl dif milky CUT"

6140.00 6170.00 "LS,ltbn-tn,mott,pred vf xln,occ mic xln,grn-microsuc-mdns mtx,pred oom/ooc ool ric GRNST,tr foss frgs,sl dolo;pred oom/ooc fab POR to g-intrxl fab POR,m slo sl dif CUT,pred dkbn-bn-ltbn tr blk dd o STN,spty mbri-bri yelgld FLOR"

6170.00 6200.00 "LS,ltbn-tn-crm,mott,pred vf xln to mic xln,grn-microsuc mtx,mdns mtx,pred oom/ooc ool rich GRNST, v-sl dolo, sl chlky/anhy,rr calc frac;pred oom/ooc fab POR to g-intrxl fab POR,m slo sl dif CUT,pred dkbn-bn-ltbn tr blk dd o STN,spty mbri-bri yelgld FLOR"

6200.00 6220.00 "LS,ltbn-tn-crm,sl mott-mott,mic-vf xln,tr crypt xln,gran-mdns-dns mtx,pred ool oom/ooc ool GRNST w/sme chlky sl ool to ool dns PCKST,rr chlky mat;pred mf-f intrxln to m oom/ooc fab POR,spty mbri-bri yelgld FLOR,wk-m slo strmg CUT,mbn-ltbn o STN"

6220.00 6240.00 "LS AA,sl incr in dns sl ool to occ ool rich PCKST occ sl chlky ip;pred mf-f intrxln to reduced-m oom/ooc fab POR,spty mbri yel FLOR,m-mf ltbn-bn o STN,rr blko STN res,wk-m slo strmg sl milky ring CUT"

DEPTH	LITHOLOGY

6240.00 6260.00 "LS,ltbn-tn-occ bn,sl mott-mott,mic-vf xln,gran-mdns-tr dns mtx,v sl dolo,rr chlky offwht mat,sl anhy,pred GRNSt w/tr PCKST;FLOR AA, CUT AA,o STN AA,POR AA"

6260.00 6290.00 "LS,ltbn-tn-bn,mott,mic-pred vf xln,gran-microsuc-mdns mtx,pred ool rich oom/ooc GRNST,v rr sl ool PCKST,sl chlky,calc fld casts;pred mf-f oom/ooc fab POR w/g-intrxln fab POR,dul-spty mbri-bri yelgld FLOR,mf-slo strmg sl dif milky ring CUT,o STN AA"

6290.00 6320.00 "LS,ltbn-tn-cm,mott,mic-pred vf xln,grn-microsuc-mdns mtx,pred ool oom/ooc GRNST, v r sl ool dens chlky PCKST,v sl dolo,tr calc fld casts, v rr cht;pred mf-f oom/ooc fab POR w intrexln fab POR,dul-spty mbri yelgld FLOR,mbrn-bn tr blk dd o STN res"

6320.00 6340.00 "LS,ltbn-tn-bn,sl mott-mott,crypt-vf xln,mdns-dns mtx,grn-microsuc mtx,ool oom/ooc GRNST to sl ool dns PCKST,ltbn-bn o STN res,tr blk d o STN res,tr-m slo strmg CUT,spty mbri yelgld FLOR"

6340.00 6360.00 "LS AA,pred sl ool dns PCKST w/sme ool oom/ooc GRNST,pr-mf oom/ooc fab POR to mf intrxl fab POR,m-spty mbri yel FLOR,wk-m slo strmg sl dif sl milky ring CUT,m-mf ltbn-bn o STN w/sme blk dd o STN res"

6360.00 6380.00 "LS,ltbn-bn-tn-crm,sl mott,crypt-mic xln to vf xln,mdns-dns mtx,tr grn-microsuc mtx,dns sl ool occ sl plty PCKST to sl ool to ool mdns GRNST,tr slo strmg CUT,spty mbri yel FLOR,tr-m ltbn-bn o STN,spty blk o STN res"

6380.00 6400.00 "LS tan-ltbrn,occ crm-rr ltgy,crpxl-vfxl,gran-micsuc ip,pred ooc-oom GRNST,w/thn sl ool dns anhy occ chk PKST,v rr bf CHT frag,rr DOL cmt,scat ANHY xl-incl,tt-fr intxl-mfr ool POR,mfr dull-bri yel FLOR,tr ltbrn-rr spty blk STN,fr slow-mfr mod fast CUT"

6400.00 6410.00 "LS AA,incr dns PKST frag,incr ANHY fl POR,v rr trnsl-bf CHT frag,v sl dol,tt-mg intxl-mfr ool POR,mfr bri-fr dull yel FLOR,tr-mfr ltbrn STN,rr spty blk dd o STN,mfr-fr slow-tr mod fast stmg mlky CUT"

6410.00 6440.00 "LS pred tan-crm,occ ltbrn-wh,crpxl-vfxl,occ gran-micsuc,pred ooc-oom GRNST,w/tt dns PKST mtx,v rr ANHY xl-occ POR fl,rr DOL cmt,v rr trnsl CHT frag-CALC xl,tt-mg intxl-fr ool POR,mfr dull-tr bri yel FLOR,rr-tr ltbrn STN,rr spty blk dd o STN,tr-mfr slow-rr mod fast stmg CUT"

6440.00 6460.00 "LS AA,sl incr dns sl ool occ chk PKST AA,pred sl ooc-oom GRNST,mfr-mg intxl-mfr ool POR,fr bri-tr dull yel FLOR,rr-tr ltbrn-rr blk STN,fr slow-mfr mod fast-rr fast stmg mlky CUT"

6460.00 6490.00 "LS pred sl ooc-oom GRNST AA,w/scat dns occ ool sl chk anhy PKST frag,incr trnsl CHT frag-ANHY fl POR,POR-FLOR-CUT AA,tr-mfr ltbrn STN-rr blk dd o STN"

DEPTH	LITHOLOGY

6490.00 6510.00 "LS tan-ltbrn,occ brn-crm,micxl-vfxl,gran-micsuc,pred ooc-oom GRNST,w/tt dns sl ool occ anhy PKST mtx,rr ANHY xl-v rr POR fl,sl DOL cmt,v rr CHT frag-CALC xl,tt-mg intxl-fr ool POR,fr bri-tr dull yel FLOR,tr ltbrn STN-blk dd o STN,fr slow-mfr mod fast CUT"

6510.00 6520.00 "LS AA,pred ooc-oom GRNST,w/scat tr sl ool occ chky dns anhy PKST,mg intxl-fr ool POR,fr-mg bri-dull yel FLOR,tr-mfr ltbrn STN-rr-tr blk dd o STN,mg slow stmg-slow dif-rr mod fast stmg CUT"

6520.00 6550.00 "LS tan-ltbrn,occ crm,crpxl-vfxl,gran-micsuc ip,pred ooc-oom GRNST,w/thn dns sl ool chk anhy PKST frag,rr ANHY xl-incl,sl DOL cmt,v rr CHT frag-CALC xl,rr mic fos,fr-mg intxl-ool POR,fr bri-dull yel FLOR,tr ltbrn STN-blk dd o STN,mg slow-fr mod fast CUT"

6550.00 6590.00 "LS ltbrn-tan,rr crm-wh,crpxl-vfxl,occ gran-micsuc,pred ooc-oom GRNST,w/scat sl ool PKST AA,tr mic fos,anhy-tr ANHY fl POR,v rr scat CALC xl,v rr CHT frag,v rr styol,fr-mg intxl-fr ool POR,fr bri-tr dull yel FLOR,tr ltbrn STN-rr blk dd o STN,mfr-fr slow-mod fast stmg mlky CUT "

6590.00 6630.00 "LS ltbrn-tan,rr crm,micxl-vfxl,occ gran-micsuc,pred ooc-oom GRNST,tr crpxl sl ool dns chk ip PKST,rr mic fos,sl anhy-tr ANHY fl POR,rr CALC xl,v rr CHT frag,v sl DOL cmt,fr intxl-ool POR,fr bri-tr dull yel FLOR,fr brn-rr blk STN,mfr-fr slow-mod fast CUT"

6630.00 6660.00 "LS AA,incr dns occ chky sl ool tt PKST,w/s incr ANHY fl POR,n-v rr trnsl-bf CHT frag,scat mic fos,decr POR-FLOR-STN-CUT"

6660.00 6670.00 "LS ltbrn-tan,rr crm,micxl-vfxl,occ gran-micsuc,intrbd ooc-oom GRNST crpxl & sl ool dns chk ip PKST,rr mic fos,anhy-tr ANHY fl POR,rr CALC xl,v rr CHT frag,sl DOL cmt,tt-fr intxl-ool POR,fr bri-tr dull yel FLOR,tr brn-rr blk STN,mfr-fr slow-mod fast CUT"

6670.00 6700.00 "LS AA,pred ooc-oom GRNST,decr dns occ chk sl ool anhy PKST frag,v rr CHT frag,tt-mg intxl-fr ool POR,fr-mg bri-tr dull yel FLOR,tr ltbrn-rr brn STN,v rr spty blk dd o STN,fr slow stmg-tr-mfr mod fast stmg mlky CUT"

6700.00 6720.00 "LS AA,v sl incr dns sl ool PKST AA w/tr mic fos,occ ANHY fl intxl POR,tt-fr occ mg intxl-ool POR,fr bri-rr dull yel FLOR,tr-mfr ltbrn-v rr brn STN,spty blk dd o STN,fr slow stmg-tr mod fast stmg CUT"

6720.00 6740.00 "LS tan-ltbrn,rr crm,micxl-vfxl,gran,sl micsuc-v rr suc,pred sl ooc-oom GRNST,rr-tr dns sl ool occ anhy rr chk-plty PKST,fr amnt mic fos,sl anhy-dol cmt,rr bf-trnsl CHT frag,mfr ool-mg intxl POR,mg bri-rr dull yel FLOR,fr ltbrn-rr blk STN,mfr-mg slow-mod fast stmg mlky CUT "

6740.00 6760.00 "LS AA,sl incr dns PKST frag-occ chky-plty,v rr trnsl-bf CHT frag,sl decr ool POR,mfr-mg intxl-tr-fr ool POR,mg dull-tr bri yel FLOR,tr ltbrn-rr brn STN,rr blk dd o STN,mg slow stmg-rr mod fast stmg mlky CUT"

DEPTH		LITHOLOGY

6760.00 6780.00 "LS tan,occ crm-ltbrn,rr brn,micxl-vfxl,gran-micsuc,pred ooc-oom GRNST,tr dns occ chky-plty ool-rr mic fos anhy ip PKST,v sl dol-anhy cmt,v rr CHT frag-trnsl CALC xl,fr-mg intxl-fr ool POR,mg bri-dull yel FLOR,fr ltbrn-rr blk STN,fr-mg mod fast-slow CUT"

6780.00 6800.00 "LS AA,pred GRNST AA,w/v rr scat PKST frag AA,v rr scat dkbrn-bf CHT frag,POR-FLOR-STN-CUT AA"

6800.00 6830.00 "LS tan,rr crm-wh,micxl-vfxl,gran-micsuc,v sl suc,pred sl ooc-oom GRNST,rr scat dns occ chk-plty sl anhy PKST,v rr ANHY-CALC xl,v rr CHT frag,v sl dol cmt,mfr-mg intxl-tr ool POR,mg bri-tr dull yel FLOR,tr ltbrn-rr blk STN,mfr-mg mod fast-fast stmg CUT"

6830.00 6870.00 "LS AA,sl incr crm-rr wh crpxl dns sl ool occ chk sl anhy PKST w/v rr mic fos,ooc-oom GRNST AA,tt-fr intxl-tr ool POR,fr-mg bri-tr dull yel FLOR,tr-mfr ltbrn STN-rr spty blk dd o STN,fr-mg slow-tr mod fast stmg mlky CUT"

6870.00 6900.00 "LS,ltbn-tan-crn,sl mott,mic-vf xln,mdns-dns mtx,sl grn mtx,sl ooc/oom GRNST w/tr dns sl chlky PKST,rr calc xls;pred mf-f intrxln to pr-oom/ooc fab POR,m-mf slo strmg CUT,g-even mbri yelgld FLOR,mf-g ltbn-bn o STN, tr blk dd o STN res"

6900.00 6930.00 "LS.ltbn-tn-crm,occ bn,sl mott,mic-vf xln,mdns-dns mtx,occ grn mtx ip,pred intrbd dns sl ool occ sl chlky PCKST to sl ool v sl oom/ooc GRNST,rr ANHY xls;pred m-mf intrxln to pr-oom/ooc fab POR,m-even mbri yelgld FLOR,mslo strmg sl dif CUT,pred bn o STN"

6930.00 6960.00 "LS,ltbn-tn-crm,sl mott,mic-vf xln,mdns-dns mtx,grn mtx ip,pred dns sl ool sl chlky PCKST to sl ool sl oom/ooc GRNST,sl anhy to rr ANHY xls;pred m-mf intrxln to pr-oom/ooc fab POR,m-even mbri yelgld FLOR,mslo strmg sl dif CUT,pred bn o STN"

6960.00 6990.00 "LS AA,ltbn-tn-crm,sl mott,mic-vf xln,rr crypt xl,mdns-dns mtx,sl ool chlky dns PCKST to sl ool pr oom/ooc GRNST,rr calc frac flgs;pred m-mf intrxln to pr-oom/ooc fab POR,m-even mbri yelgld FLOR,mf slo strmg sl dif CUT,o STN bn-ltbn o STN,tr dd blk o STN"

6990.00 7010.00 "LS,ltbn-tn-crm,mott,pred mic xln,occ vf xln,mdns-dns mtx,pred ool rich sl ool PCKST,rr carb mat,rr calc frac flgs;pred mf-f intrxln to pr-oom/ooc fab POR,mbri-spty bri yelgld FLOR,slo mf strmg sl dif milky ring CUT,m-mf ltbn o STN"

7010.00 7030.00 "LS AA,mf- even dul-mbri to bri yelgld FLOR,ltbn-occ bn m-mf o STN,rr dd blk o STN,pr-, slo strmg dif milky ring CUT"

7030.00 7060.00 "LS,ltbn-tn-crm,sl mott-mott,mic-occ vf xln,mdns-nds mtx,v rr grn mtx-microsuc,pred ool rich to sl oolitic dns PCKST,FLOR AA,o STN AA,pred m-mf intrxln FAB POR"

DEPTH	LITHOLOGY

7060.00 7090.00 "LS,ltbn-tn-crm,sl mott,mic-vf xln,mdns-dns mtx,grn mtx ip,pred dns sl ool PCKST rr ool v sl oom/ooc GRNST,sl chlky,rr calc frac flgs;pred m-mf intrxlnw v rr pr-oom/ooc fab POR,m-even dul- mbri yelgld FLOR,tr-m slo strmg sl dif CUT, m ltbn o STN,rr blk"

7090.00 7110.00 "LS AA,pred dens sl ool to ool PCKST,sl chlky;pred m intrxln to tt xln fab POR,dul-mbri yel FLOR,tr-m slo strmg v sl dif CUT,m-mf ltbn o STN w/rr blk dd o STN res"

7110.00 7130.00 "LS,ltbn-tn-occ crm,sl mott,mic-vf xln,occ crypt xln,dns-mdns mtx,pred dns PCKST,sl chlky,v sl anhy,rr anhy xls,rr carb mat;pred m-intrxln to tt xln fab POR,FLOR AA,CUT AA,o STN AA"

7130.00 7160.00 "LS,ltbn-tn-crm,sl mott,crypt-vf xln,mdns-dns-occ tt mtx,rr sl plty to dns sl ool PCKST,rr GRNST,sl anhy,sl chlky,rr foss frgs;pred m-mf intrxln to compact xln fab POR,dul-mbri spty bri yelgld FLOR,tr-m slo strmg sl dif CUT,ltbn o STN w/tr blk dd o STN re"

7160.00 7180.00 "LS,ltbn-tn-crm,mott-sl mott,crypt-mic xln,vf xln,mdns-dns-occ tt mtx,pred ool to sl ool occ sl plty to plty PCKST,v rr ool GRNST,rr offwht chlky mat,v sl chlky ip;pred interxln to tt xln fab POR,f-mbri-bri yelgld FLOR,slo strmg sl dif CUT,m ltbn o STN"

7180.00 7200.00 "LS AA,pred dns sl ool PCKST,dul-mbri yelgld FLOR,spty bri yelgld FLOR,tr-m slo strmg sl dif CUT,tr-m ltbn o STN,rr blk dd o STN,pred intrxln fab POR"

7200.00 7220.00 "LS,ltbn-tn-crm,sl mott,crypt mic xln,occ vf xln,mdns-tt mtx,pred sl ool dns PCKST,rr chlky mat,v sl anhy,rr carb mat;pred m-interxln to compact xln fab POR, FLOR AA,o STN AA,CUT AA,milky ring CUT"

7220.00 7230.00 "LS tan-ltbrn,occ crm-wh,crpxl-vfxl,dns-gran,occ micsuc,intbd ool GRNST w/occ ooc-oom-pel txt & chk-plty sl ool anhy PKST,v sl dol-occ anhy,v rr CHT frag,tt-mg intxl-ool POR,mg bri-tr dull yel FLOR,tr ltbrn-rr blk STN,mg slow-fr mod fast stmg mlky CUT"

7230.00 7250.00 "LS AA,decr ool pkty-chk PKST,incr ool-sl pel GRNST w/tr-fr ooc-oom tex,mfr-mg POR AA,FLOR-STN AA,mfr-mg slow-fr mod fast stmg mlky CUT"

7250.00 7280.00 "LS tan-ltbrn,occ crm-wh,tr ltgy,micxl-vfxl,gran,occ micsuc,pred ool GRNST w/occ ooc-oom-pel txt,w/tr dns crpxl chk-plty sl ool anhy PKST,v sl dol-occ anhy,scat ANHY fl POR,v rr CHT frag,tt-mg intxl-mfr ool POR,mg bri-dull yel FLOR,fr ltbrn-tr blk STN,mg slow-mfr-fr mod fast-tr fast stmg mlky CUT "

7280.00 7290.00 "LS AA,pred sl ooc-oom pel ool GRNST,decr dns ool pel PKST,mg POR-FLOR-STN-CUT AA"

7290.00 7300.00 "LS AA,w/rr-sl tr PKST AA,POR-FLOR-STN-CUT AA"

DEPTH	LITHOLOGY

7300.00 7310.00 "LS tan-ltbrn,rr crm-wh,,micxl-vfxl,gran-micsuc ip,pred ool-pel GRNST w/ooc-oom txtip,w/rr dns crpxl chk-plty sl ool anhy PKST,v sl dol-occ anhy,scat ANHY fl POR,rr CHT frag,tr-mg intxl-mfr ool POR,mg bri-dull yel FLOR,tr ltbrn-rr blk STN,mg mod fast CUT"

7310.00 7321.00 "LS pred GRNST AA,rr-tr PKST AA,v rr CHT frag,incr intool-intxl POR,mg bri-rr dull yel FLOR,mfr ltbrn-rr brn STN-rr-tr blk dd o STN,fr slow-mfr mod fast stmg CUT"

7320.00 7330.00 "LS AA,occ ANHY fl POR-v sl incr PKST incl-frag,POR-FLOR-STN-CUT AA"

7330.00 7350.00 "LS AA,pred GRNST AA,w/incr ooc-oom mat-tex,rr-sl tr PKST frag-incl,v rr trnsl-bf CHT frag,fr-mg intxl-tr ool POR,mg bri-rr dull yel FLOR,tr-mfr ltbrn STN-tr blk dd o STN,mg-mfr slow-fast stmg mlky CUT"

7350.00 7380.00 "LS tan-ltbrn,occ ltgy,rr crm-wh,micxl-vfxl,gran-micsuc,sl suc,pred ooc-oom GRNST,v rr dns occ chk-plty PKST,v sl anhy-sl dol,v rr CHT frag,n-v p ANHY fl POR,fr-mg intxl-ool POR,mg bri-v rr dull yel FLOR,tr-mfr ltbrn-blk STN,mfr-mg slow-mod fast stmg CUT"

7380.00 7410.00 "LS AA,pred ooc-oom GRNST,tr scat thn ool crpxl-micxl v sl pel v anhy chty PKST,occ DOL rich cmt,n-v rr scat ANHY fl POR,fr-mg intxl-ool POR,mg bri-dull yel FLOR,fr ltbrn STN-tr blk dd o STN,mfr-mg slow-modfast stmg mlky CUT"

7410.00 7420.00 "LS AA,sl incr thn-scat PKST AA,v sl decr POR,FLOR-STN-CUT AA"

7420.00 7460.00 "LS tan-ltbrn,rr ltgy-crm-wh,micxl-vfxl,gran-micsuc,sl suc,pred ooc-oom GRNST,rr-tr dns v sl chk-plty PKST,v sl ANHY-DOL cmt,v rr CHT frag,rr ANHY fl POR,tt-fr-mg intxl-ool POR,mg bri-v rr dull yel FLOR,mfr ltbrn-rr blk STN,fr slow-tr mod fast stmg CUT"

7460.00 7490.00 "LS AA,v rr PKST frag-incl,pred mg ool-fr intxl POR,FLOR-STN-CUT AA"

7490.00 7520.00 "LS tan-ltbrn,occ ltgy-rr crm-wh,micxl-vfxl,gran-micsuc,pred ooc-oom GRNST,rr dns crpxl sl ool occ chk anhy PKST frag,rr trnsl-bf CHT frag,anhy-dol ip,fr-mg intxl-fr ool POR,mg bri-tr dull yel FLOR,tr ltbrn-blk STN,mg mod fast stmg mlky CUT"

7520.00 7550.00 "LS AA,v sl incr CHT frag,incr dns ool anhy PKST-ANHY fl POR,sl decr intxl-ool POR,mg bri-rr dull yel FLOR,tr-mfr ltbrn STN-tr blk dd o STN,CUT AA"

7550.00 7570.00 "LS tan-ltbrn,occ ltgy,rr crm-wh,micxl-vfxl,gran-micsuc,sl suc,pred ooc-oom GRNST,tr dns chk-plty ip PKST,sl anhy-dol,rr trnsl-bf CHT frag,rr ANHY fl POR,tr-fr intxl-fr ool POR,fr bri-tr dull yel FLOR,tr-mfr ltbrn-tr blk STN,fr slow-mfr mod fast stmg CUT"

DEPTH	LITHOLOGY

7570.00 7600.00 "LS,ltbn-tn-crm,occ offwht,mic-vf xln,dns-dns mtx,occ grn-microsuc mtx,pred intrbd ool oom/ooc GRNST w/chlky dns sl ool PCKST,v sl dolo to sl chlky ip;pred mf-f intrxln to fr ool POR,f-mbri yelgld FLOR,g- fast to mf slo strmg dif CUT,pred ltbn o STN"

7600.00 7620.00 "LS,ltbn-tn-crm-occ ofwht,sl mot,mic-vf xln,rr crypt xln,mdns-occ tt mtx,scat grn-microsuc mtx,pred sl ool dens PCKST to ool GRNST,tr chlky ofwht mat,sl chalky-sl sanhy-tr ANHY xls;pred mf-f intrxln to ool fab POR,mbri-bri yelgld FLOR,pred ltbn o STN"

7620.00 7640.00 "LS,ltbn-tn-crm,occ offwht,sl mott,rr crypt-sl plty PCKST to sl ool dns PCKST to ool oom/ooc GRNST,rr carb mat,ool,sl pel,rr foss frgs;pred interxln to ool fab POR,m-ltbn o STN tr blk dd o STN res,spty bri to pred mbri yelgld FLOR,mf-slo strmg dif CUT"

7640.00 7660.00 "LS,ltbn-tn-crm-ofwht,crypt-mic xln,occ vf xln,dns0mnds mtx,sl grn mtx,pred sl ool to ool dns PCKST w/ ool oom/ooc GRNST,tr carb matl;pred mf-f intrxln to ool fab POR w/ pr-mf oom/ooc fab POR,m-slo strmg CUT,even mbri yelgld FLOR,pred tr-m ltbn o STN"

7660.00 7680.00 "LS AA,tr ANHY xls,occ sl plty PCKST;pred pr-mf intrxln to ool fab POR w/tr oom/ooc fab POR,tr slo strmg CUT,pred ltbn o STN,spty blk o STN res"

7680.00 7700.00 "LS,ltbn-tn-crm,sl mott,mic vf xln,occ crypt xln,pred dns sl ool sl chlky PKST to ool sl oom/ooc GRNST,v sl dol-chlky,tr carb mat,tr ANHY xls,v rr buf CHT frgs;pred intrxln to ool fab POR,mbri even yel FLOR,tr slo strmg dif CUT,pred tr-m ltbn o STN"

7700.00 7710.00 "LS tan,occ wh-crm,rr ltbrn,crpxl-vfxl,occ gran-micsuc,intbd sl ooc-oom GRNST & dns sl ool occ chky-plty anhy PKST,v rr scat CHT frag,rr DOL cmt,tt-mfr ool-fr intxl POR,tr bri-dull yel FLOR,n-v rr brn-blk STN,tr slow stmg-mfr slow dif CUT"

7710.00 7720.00 "LS AA,sl incr dns plty PKST,incr trnsl-bf CHT frag,tt-fr intxl-tr ool POR,rr-tr bri-rr dull yel FLOR,n-mfr ltbrn-rr spty blk dd o STN,tr-mfr slow stmg-mfr slow dif CUT"

7720.00 7750.00 "LS tan-ltbrn,occ wh-crm-trnsl,micxl-vfxl,gran,micsuc ip,pred sl ooc-oom GRNST,tr dns occ plty-chk v sl ool PKST,occ anhy-v sl dol,v rr CHT frag,mfr-mg intxl-mfr ool POR,mg bri-tr dull yel FLOR,mfr ltbrn STN-rr blk dd o STN,mg slow-mfr mod fast stmg CUT"

7750.00 7760.00 "LS AA,scat plty-chk PKST frag,tr CHT frag,mfr-mg intxl-tr ool POR,mg bri-rr dull yel FLOR,tr-mfr ltbrn STN-rr-tr blk dd o STN,mfr-fr mod fast stmg mlky CUT"

7770.00 7790.00 "LS AA,pred sl ooc-oom GRNST,w/sl tr PKST AA,fr-mg intxl-fr ool POR,mg bri yel FLOR,mfr ltbrn-sl tr blk dd o STN,mfr-fr mod fast-fr-mg slow stmg CUT"

DEPTH	LITHOLOGY

8040.00 8060.00 "LS,ltbn-tn-crm,sl mott,mic-vf xln,grn-microsuc,mdns mtx,pred ool oom/ooc GRNSt w/tr sl ool sl chlky PCKST,sl anhy-rr ANHY xls,v sl dol;pred mf-f interxln to oom/ooc fab POR w/sme ool POR,mg-bri yelgld FLOR,mf-fast dtrmg dif CUT,pred mf-f ltbn o STN"

8060.00 8080.00 "LS AA,pred interxln to ool fab POR, tr pr-m oom/ooc fab POR,g-mbri-bri yelgld FLOR,pred mf-g ltbn o STN w/tr blk dd o STN flg casts"

8080.00 8100.00 "LS,ltbn-tn-crm,mott,mic-vf xln,mdns-grn-microsuc mtx,v sl dolo-chlky,rr ANHY xls-sl anhy,rr carb mat,pred oom ooc ool rich GRNST;pred g-intrxln to ool fab POR w/sme oom/ooc fab POR,g-bri yelgld FLOR,mg-fast trmg dif CUT,pred ltbn o STN, tr blk dd o STN "

8100.00 8120.00 "LS,ltbn-tn-crm,sl mott,mic-vf xln,mdns-grn-microsuc mtx,pred oom ooc ool GRNST to tr sl chlky dns PCKST,v sl dolo ip,sl chlky,sl anhy;pred mf-f intrxln to ool fab POR,mbri-bri yelgld FLOR,pred ltbn o STN,tr res"

8120.00 8140.00 "LS AA,g-mbri-bri yelgld FLOR,mf-fast strmg CUT,dif/milky ring CUT,mf-g ltbn o STN w/tr blk dd o STN res,POR AA"

8140.00 8160.00 "LS,ltbn-tn-crm,sl mott,crypt-mic xln,vf xln,mdns-dns-occ tt mtx,pred ool to sl ool occ sl plty to plty PCKST,tr ool GRNST,rr offwht chlky mat,v sl chlky ip;pred interxln to tt xln to ool fab POR,f-mbri-bri yelgld FLOR,slo strmg sl dif CUT,m ltbn o STN"

8160.00 8180.00 "LS tan-ltbrn,occ crm-wh,crpxl-vfxl,dns-gran,intbd ool GRNST w/plty sl ool anhy/chlky PCKST,v sl dol-occ anhy,rr cht frag,ttmg intxl to ool fab POR,mg bri-bri yel FLOR,tr-m ltbrn to tr blk dd o STN,mg slow-fr mod fast stmg milky CUT"

8180.00 8200.00 "LS AA,pred interxln to ool fab POR, tr pr-m oom/ooc fab POR,g-mbri-bri yelgld FLOR,pred m-ltbn o STN, rr dd blk o STN res"

8200.00 8220.00 "LS,ltbn-tn-crm,mic-vf xln,grn-mdns-dns mtx,poss intrbd ool GRNST intrbd dns sl ool PCKST,tr ANHY xls,sl chlky,tr calc frac flgs;pred pr-mf intrxln to ool POR,even mbri-spty bri yelgld FLOR,tr-m fast strmg dif milky CUT,pred ltbn o STN"

8220.00 8240.00 "LS,ltbn-tn-crm,sl mott,mic-vf xln,mdns-dns mtx,grn-microsuc mtx,pred oo GRNST to sl ool dns PCKST,rl anhy-tr ANHY xls,v sl dolo,rr buf cht frgs;pred intrxln to ool fab POR,mbri yelgld FLOR,mf fast dif CUT,ltbn o STN"

8240.00 8260.00 "LS AA,pred m-interxln to ool fab POR,even mbri yelgld FLOR,tr-f ltbn o STN,sme blkdd o STN res,f-fast strmg dif/milky CUT"

DEPTH	LITHOLOGY

8260.00 8280.00 "LS tan-crm-wh,occ trnsl,crpxl-vfxl,occ gran-sl micsuc,bcmg pred v sl ooc-oom GRNST w/thn v sl ool dns chk-plty sl anhy PKST,v rr CHT frag,v sl anhy-dol cmt,tt-fr intxl-v rr ool POR,mfr-fr bri-tr dull yel FLOR,sl tr ltbrn STN- n-v rr spty blk dd o STN,mfr-fr slow stmg-sl tr mod fast stmg-pred slow dif CUT"

8280.00 8298.00 "LS AA,incr wh-crm,bcmg pred dns tt PKST,w/v rr scat GRNST stks,v p vis POR-FLOR-STN-CUT"

FORMATION TOPS

OPERATOR: MOBIL
WELL NAME: RATHERFORD UNIT #16-43 NW 1-A HORIZONTAL LATERAL LEG #1

FORMATION NAME		SAMPLES MEASURED DEPTH	SAMPLES TRUE VERTICAL DEPTH	DATUM KB:4699'
LOWER ISMAY		5461'	5459'	-760'
GOTHIC SHALE		5538'	5518'	-819'
DESERT CREEK		5556'	5528'	-829'
UPPER DC 1-A ZONE		5582'	5539'	-840'
LOWER DC 1-A ZONE		5608'	5547'	-848'

GEOLOGICAL SUMMARY

AND

ZONES OF INTEREST

The Mobil Exploration and Production U.S., Inc., Ratherford Unit #16-43 Northwest Horizontal Lateral Leg #1 was a re-entry of the Mobil Ratherford Unit #16-43 located in Section 16, T41S, R24E, and was sidetracked in a northwesterly direction from 5423' measured depth, 5422' true vertical depth, on August 12, 1998. The lateral reached a measured depth of 8298', true vertical depth of 5451', with a horizontal displacement of 2870' and true vertical plane of 344.6 degrees, when reaching total depth on August 17, 1998. The lateral was terminated in what appeared to be the transition zone between the Lower and Upper 1-A porosity zones 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.

The objective of the Ratherford Unit #16-43 southeast lateral Leg #1 was to penetrate and drill 3000' horizontally in the lower bench of the Desert Creek 1-A porosity zone; to identify and define its lithology, and to evaluate the effective porosity and permeability of the zone. In this northwesterly direction, the lower 1-A porosity zone appeared to have a more consistent, as well as better developed porosity, thus was targeted for drilling for this lateral. These objectives were met in this lower pay zone of the Desert Creek 1-A porosity bench, until reaching a measured depth of 8146', when the well path neared and bumped the base of a hard streak at the top of what appeared to be the lower portion of the 1-A porosity zone. At the measured depth of 8185', 5554' true vertical depth, the lateral was turned upward at a shallow angle to try to either reacquire the upper most porosity of lower portion of the 1-A zone or the lower porosity of the upper 1-A porosity bench. The porosity penetrated in predominately the lower 1-A zone, with one section possibly in the upper 1-A zone, in this northwesterly lateral had consistent lithology until reaching the measured depth of 8146'. The lithology of the porosity penetrated in this northwesterly lateral was predominately an oolicastic to oomoldic limestone grainstone facies, and had a fair hydrocarbon and gas show, with good visible effective porosity and permeability. As the lateral bumped or penetrated the hard streaks within the 1-A zone, a minor to significant increase in the dense, very slightly oolitic, occasionally platy and chalky limestone packstone was noted. These packstones had no, to very minor, porosities and no, to extremely poor, sample and gas shows.

The curve portion of the lateral was completed on August 13, 1998 at a measured depth of 5639', true vertical depth of 5550.7', with a horizontal displacement of 218', in the lower porosity bench of the Desert Creek 1-A porosity zone. The curve was started in the lower portion of the Upper Ismay before encountering the Lower Ismay, Gothic Shale, and Desert Creek members of the Upper Paradox Formation and the 1-A carbonate cycle of the Upper Desert Creek.

The curve section was began in the lower half of the Upper Ismay carbonate cycle of the Upper Paradox Formation and was penetrated from a measured depth of 5423', true vertical depth 5422', to a measured depth of 5461', true vertical depth 5459'. This lower 38' of the Upper Ismay Formation was a predominately clean to dense, occasionally argillaceous, tight limestones, with scattered interbeds of earthy to argillaceous dolomites, very thin black carbonaceous shale partings and scattered chert fragments. The limestones were cream to white, some light gray to medium gray

brown to brown, cryptocrystalline to microcrystalline, clean and dense, with streaks having textures ranging from earthy to argillaceous to chalky. These limestones had very rare streaks of fracture to very minor intercrystalline porosity, but had no visible sample shows. The thin interbedded dolomites were brown to medium brown, cryptocrystalline to microcrystalline, earthy to argillaceous, limey, becoming marly with depth, and had scattered Crinoid fossils. The dolomites had traces of minor intercrystalline to earthy porosity, but as with the limestones, had no visible porosity and no sample shows. The shale parting were black to dark gray, some light gray, subblocky to subplaty, occasionally fissile, very slightly silty, micaceous, and calcareous to slightly dolomitic, and had very minor Crinoid fossils. Scattered throughout the Upper Ismay carbonates were translucent to buff to dark brown chert fragments. The basal carbonates became increasingly marly and graded into the thin, very fossiliferous, carbonaceous Hovenweep Shale. The Hovenweep Shale, which defines the Upper and Lower Ismay contact, was represented by an moderate increase in the black carbonaceous, dolomitic to calcareous, occasionally silty shale. This contact is moderately well represented in the samples from measured depths of 5458' to 5461', true vertical depths 5457' to 5459'.

The top of the Lower Ismay member of the Upper Paradox Formation was picked at a measured depth of 5461', true vertical depth 5459', based primarily on sample identification, as well as a decrease in the rate of penetration. The upper 14' of the Lower Ismay was thinly interbedded tan to light gray dense, very slightly anhydritic, fossiliferous limestones, some argillaceous, brown to medium brown dolomites, with very thin black carbonaceous shale partings and rare chert fragments. The Lower Ismay, from measured depths of 5475' to 5522', became a white to cream to light gray, cryptocrystalline to microcrystalline limestone, with granular streaks, chalky, slightly to very silty, occasionally anhydritic, chalky and occasionally dolomitic in part. This limestone has streaks of well cemented very silty limestone grainstones, some scattered translucent to light to dark brown chert fragments, and very rare thin brown, earthy dolomites. It was also noted that these limestones occasionally graded to very limey siltstones. Associated with the limestones were very rare streaks of intercrystalline porosity, but had no visible sample show. The basal 16 feet of the Lower Ismay, from a measured depth of 5522' to a measured depth of 5538', 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 had thin streaks of intercrystalline porosity, with no visible sample show. The basal limestones and dolomites of the Lower Ismay carbonates graded into the limey to dolomitic carbonaceous shales of the Gothic Shale.

The Gothic Shale was penetrated at a measured depth of 5538', true vertical depth 5518', and gradationally underlies the Lower Ismay. The top of the Gothic was picked by a decrease 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 to be ten feet thick in this northwesterly direction. This shale is black to dark gray shale, slightly fissile, subblocky to subplaty, soft to slightly firm, carbonaceous, occasionally grainy to silty, sooty, 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 5556', 5528' true vertical depth, with an increase in penetration rate and an increase in the amount of dense limestone packstone in the samples. 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 became very argillaceous and very slightly oolitic in part and had thinly interbedded argillaceous limey marlstones and very thin black carbonaceous shale partings. The limestones of the transition zone are light brown to cream to white to light gray, some medium brown, 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 shalely, limey marlstones; some black, dolomitic, slightly micaceous, calcareous,

very slightly carbonaceous shales and rare brown, microcrystalline, limey, argillaceous dolomite fragments. The transition zone had poor to a slight trace of 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 oolicastic to oomoldic limestones of the upper 1-A porosity bench. This transition zone had a true vertical thickness of approximately ten feet.

The top of the Desert Creek Upper 1-A porosity zone was encountered at a measured depth of 5582', true vertical depth of 5538', with a horizontal displacement of approximately 162'. The top was picked on a change in the lithology, which become predominately an oolicastic to oomoldic limestone grainstone with a significant increase in the penetration rate and an increase in the background gas. This oolicastic to oomoldic limestone grainstone marked the upper 1-A porosity zone, which was split in to two benches in this northwesterly curve section. The upper porosity streak was only three vertical feet thick in this northwesterly direction. These limestone grainstones are tan to light brown to cream, microcrystalline to very fine crystalline, with a granular to slightly microsucrosic matrix and were very slightly dolomitic. The grainstones have a very minor amount of anhydrite crystal growth in the oolicasts and molds as well as in the intercrystalline matrix, with very rare scattered light brown chert fragments. The grainstone facies had a moderately fair oolitic to fair intercrystalline porosity development. The associated sample show was moderately fair to fair with a trace of brown to light brown oil stain and had minor traces of black bitchimum stain* on the crystal faces and in the oolicasts and molds. The grainstones had a spotty trace of bright to occasionally dull yellow fluorescence and a moderately fair slow streaming to trace fast streaming cut. The approximately one and one-half foot thick hard streak that split the Upper 1-A zone was noted at a measured depth of 5504', with a true vertical depth 5545.5'. This dense, slightly oolitic limestone packstone facies was cream to tan, occasionally white, cryptocrystalline to very slightly microcrystalline, slightly chalky to occasionally platy, clean and very slightly anhydritic. These packstones had very minor streaks of very slightly oolicastic to oomoldic limestone grainstone, with very poor porosity and sample shows.

The top of the lower bench of the Upper 1-A porosity zone was penetrated at a measured depth of 5608', true vertical depth 5547', with a horizontal displacement of approximately 188'. The lithology of this lower bench was a very good oolicastic to oomoldic limestone grainstone, very much like the upper bench described above. However, porosity was better developed, with a fair to moderately good sample show. As soon as the 1-A zone was penetrated a slight increase in the background gases and an intermittent flare was noted. This lower zone in the Upper 1-A was the target zone for the entire northwest lateral, as it appeared to be better developed, and much thicker than the upper zone on the vertical well log for the Ratherford #16-W-43 well, as well as on the offset logs.

The curve portion of the lateral was completed at a measured depth of 5639', true vertical depth 5551', at a horizontal displacement of 218', bearing 343.7 degrees, with an inclination of 90.1 degrees, on August 13, 1998, in the lower bench of the Upper 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 August 13, 1998, in the lower pay zone of the Upper Desert Creek 1-A porosity bench of the Upper Paradox Formation. The lateral was slid for the first 70' in order to control the vertical depth, horizontal plane direction and to put the lateral assembly out far enough to begin rotating. The lateral was begun in the good oolicastic to oomoldic limestone grainstone facies. This limestone grainstone was a tan to light brown, some brown, microcrystalline to very fine crystalline, granular to microsucrosic, oolicastic 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 bitchimum* 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 in the samples when hard steaks were bumped and "glanced" off of, or penetrated.

As the well path was rotated ahead, the well path dipped downward at a shallow angle until glancing off a hard streak at a measured depth of 5700', 5552.5' true vertical depth, tuning the well path upward. The well path continued upward and was being leveled just as the well bore glanced off the base of hard streak at the top of the lower 1-A porosity bench, at a measured depth of 5800', 5548' true vertical depth, turning the well path downward. After leveling the well path, another hard streak was encountered, at a measured depth of 5930', 5548.5' true vertical depth, which turned the well path again upward. As the well path was allowed to continue upward at a shallow angle, the oolicastic to oomoldic limestone porosity and sample shows were very good, as well as the zone having a very good rate of penetration rate. Upon reaching a measured depth of 6127', 5539' true vertical depth the well bore appeared to approach and bump off the top of the 1-A porosity bench. At this point it appeared that the hard streak splitting the 1-A porosity zone, noted in the curve, had either thinned laterally or the top of the lower bench had turned sharply upward. As the lateral was continued it was interpreted that the hard streak had indeed thinned laterally. After bumping and scraping along the top of the 1-A zone from measured depths of 6127' to 6253', 5539.5 true vertical depth, the well path again turned sharply downward.

As the well path trended downward, reaching a true vertical depth of 5548', 6376' measured depth, 945' of vertical section, a slight decrease in the rate of penetration and an increase in dense, tight limestone packstone was noted. This slightly downward dipping hard streak was scraped along until reaching a measured depth of 6403', 5550' true vertical depth, at which time the well path was turned upward at a shallow angle. As the well path moved away from the hard streak, the lithology returned to the predominately good oolicastic to oomoldic limestone grainstone, with very minor amounts of packstone. As the lithology returned to predominately oolicastic to oomoldic limestone grainstone, the intercrystalline to oolitic porosity increased, as did the sample shows. The lateral continued upward at a shallow angle in this good oolicastic to oomoldic limestone until reaching another slightly downward dipping hard streak at a measured depth of 6490', 5548.5' true vertical depth, as the well path was being turned toward the horizontal. The well path was forced downward by the formation, away from the hard streak at an increasingly sharp angle, but still remaining in the oolicastic to oomoldic limestones. The zone showed a slight decrease in the sample show as the zone became slightly flushed, with porosity remaining predominately good, but the staining decreasing, as the lateral neared the R.U. 16-32 well which off-set the lateral to the west.

As the lateral slowly and then rapidly dropped to a true vertical depth of 5557', 6730' measured depth, the base of the lower 1-A porosity zone was bumped. As the well path was again slowly turned upward away from the base of the lower 1-A zone, a slight increase in dense limestone packstone was noted as the well approached and glanced upward off the base of the lower 1-A zone. The lateral was continued upward at a very shallow angle through predominately good oolicastic to oomoldic limestone grainstones with minor to trace amounts of dense, slightly oolitic limestone packstone, to a measured depth of 6940', 5554.7' true vertical depth. Upon reaching 6940', increases in amount of dense limestone packstones were noted when another shallowly downward dipping hard streak was encountered. This hard streak had an apparent dip of 89 degrees, and was continually encountered until reaching a measured depth of 7135', 5556' true vertical depth. At the measured depth of 7135', the well path was turned downward away from the downward dipping hard streak, to the base of the thinning porosity streak. The base of the porosity was encountered at approximately 7210' measured depth with a true vertical depth of 5559' and a horizontal displacement of 1785'. From 7190' to 7253' measured depths, the well bore was slid upward to penetrate the overlaying hard streak. The hard streak had an apparent true thickness of only six (6) inches, and was a very dense, tight, very slightly oolitic limestone packstone with no visible porosity or sample show.

After penetrating the thin hard streak, the well path was continued upward with a series of slides to slowly bring the well path horizontal level. Upon reaching a measured depth of 7486', 5548.7', with a horizontal displacement of 2060', another hard streak or possibly the top of the lower 1-A porosity zone was encountered. This slightly downward dipping hard streak was shallowly

penetrated beginning at approximately 7589' measured depth, 5548.7' true vertical depth, to a measured depth of 7688', 5550' true vertical depth. Throughout this 100 foot interval the lithology was predominately a tight, dense, very slightly oolicastic limestone packstone with very rare, thin streaks of oolicastic to oomoldic grainstone, with very poor sample shows. As the well bore was turned downward with a series of slides, the good oolicastic to oomoldic limestone grainstone was reacquired at the measured depth of 7688'. The well path was continued downward at a very shallow angle until reaching a measured depth of 7878', with a true vertical depth of 5554'. From the measured depth of 7878' to a measured depth of 7920', 5554.5' true vertical depth the base of the lower porosity zone was scraped. This interval showed a slight increase in dense limestone packstone and a slight decrease in the amount of sample show.

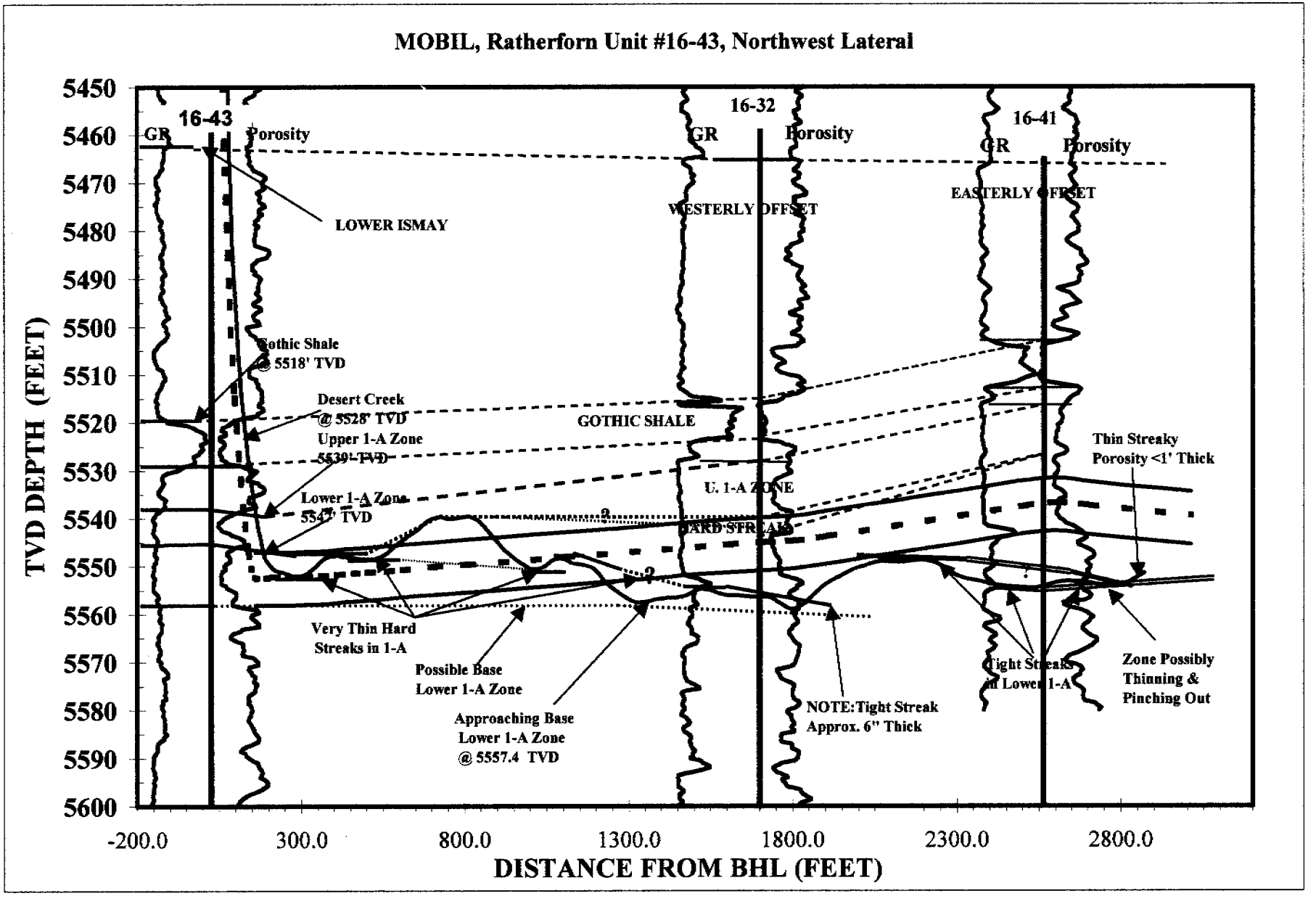
At the measured depth of 7920', with a horizontal displacement of 2494' after the base of the lower 1-A zone was encountered, the formation, as well as a short slide turned the well path upward away from the base of the zone. As the well path reached a true vertical depth of 5553', a hard streak was again encountered, as the porosity appeared to be thinning. The hard streak was a new streak or a continuation of the hard streak previously encountered at the true vertical depth of 5550. As the well path was continued slowly downward at a very shallow angle, the porosity streak appeared to thin, as the penetration rate began to slowly decrease starting at a measured depth of 8110', 5553' true vertical depth. As the penetration rate decreased so did the sample show, and a slight increase in the amount of dense limestone was noted. A significant decrease in the penetration rate was noted at a measured depth of 8143', 5553.4' true vertical depth and a horizontal displacement of 2715'. At this point a significant increase in packstone was noted, as well as decreasing amounts of sample show.

The decision to turn the well path upward, was made at the measured depth of 8185', with a true vertical depth of 5554', to try to acquire either; better and thicker porosity near the top of the Lower 1-A bench or the lower porosity of the Upper 1-A porosity bench. As the well path was continued upward the lithology was predominately very dense, very slightly oolitic, occasionally chalky to platy, tight limestone packstone, with less than one (1) foot thick streaks of good oolicastic to oomoldic limestone grainstones. The sample shows were poor to occasionally fair. Upon reaching a measured depth of 8298', 5551.3' true vertical depth, and a horizontal displacement of 2870.3', the decision was made to terminate the lateral on August 17,1998.

In tracking the lateral in this northwesterly direction, the oolicastic to oomoldic limestone grainstone had very good porosity, with good sample shows, which remained fairly consistent until reaching the measured depth of 8143', as the formation appeared to be thinning and trending slightly downward. The lower 1-A oolicastic to oomoldic limestone grainstones showed predominately good oolitic to intergranular porosity, with decreases in the amount of porosity and increases in the tight dense limestone packstone. Random tight streaks were also encountered when nearing the top or base of the zone. The lateral at its termination, was approximately 13' below the proposed target and in very streaky porosity, possibly between the lower and upper benches of Upper 1-A Desert Creek porosity zone. The well path was consistently above the proposed well path, as much as 10 feet, until reaching a horizontal displacement of approximately 950', when the well path dropped below the proposed well and remained below the proposed well path to the laterals termination. Of note was the thinning of the tight streak between the Upper and Lower 1-A benches, noted in the curve portion of the lateral and bumped in the lateral. This tight streak appeared to thin and disappear laterally away from the well bore, allowing the lateral to climb up to a true vertical depth of 5539' which was flat with the sample pick for the top of the Upper 1-A zone in curve section. From this it appears that the 1-A zone was not split into definitive Upper and Lower 1-A zones from the horizontal distances of 650' to 1100' away from the vertical well bore. The tight streak separating the Upper and Lower 1-A benches appeared to develop again at a horizontal distance to 1100' from the R. U. 16-43 vertical well bore.

From the beginning of the 16-43 northwest lateral leg #1 to its termination on August 17, 1998, at a measured depth of 8298', 5552.7 true vertical depth and a horizontal displacement of 2870', the porosities appear to be well enough developed to enhance the overall performance of the R. U. 16-43 injection well. The interval from the measured depth of 8143' to the laterals termination at 8298', even though the porosities are very thin, may also contribute to the overall performance, after acidization and returned to water flood.

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


MOBIL, Ratherforn Unit #16-43, Northwest Lateral
16-43
GR
Porosity
16-32
GR
Porosity
16-41
GR
Porosity
LOWER ISMAY
WESTERLY OFFSET
EASTERLY OFFSET
Gothic Shale
@ 5518' TVD
Desert Creek
@ 5528' TVD
Upper 1-A Zone
5539' TVD
GOTHIC SHALE
U. 1-A ZONE
Lower 1-A Zone
5547' TVD
HARD STREAKS
Thin Streaky
Porosity <1' Thick
Very Thin Hard
Streaks in 1-A
Possible Base
Lower 1-A Zone
Approaching Base
Lower 1-A Zone
@ 5557.4 TVD
NOTE:Tight Streak
Approx. 6" Thick
Tight Streaks
in Lower 1-A
Zone Possibly
Thinning &
Pinching Out
TVD DEPTH (FEET)
5450
5460
5470
5480
5490
5500
5510
5520
5530
5540
5550
5560
5570
5580
5590
5600
-200.0
300.0
800.0
1300.0
1800.0
2300.0
2800.0
DISTANCE FROM BHL (FEET)

MOBIL

RATHERFORD UNIT #16-43
SE HORIZONTAL LATERAL LEG #2
UPPER 1-A POROSITY BENCH
DESERT CREEK MEMBER
PARADOX FORMATION
SECTION 16, T41S, R24E
SAN JUAN, UTAH

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

TABLE OF CONTENTS

WELL SUMMARY

OPERATOR:	MOBIL EXPLORATION & PRODUCTION U.S. INC.
NAME:	RATHERFORD UNIT #16-43 SE HORIZONTAL LATERAL LEG #2 IN 1-A LOWER POROSITY BENCH, DESERT CREEK
LOCATION:	SECTION 16, T41S, R24E
COUNTY/STATE:	SAN JUAN, UTAH
ELEVATION:	KB:4699' GL:4688'
SPUD DATE:	8/10/98
COMPLETION DATE:	8/20/98
DRILLING ENGINEER:	BENNY BRIGGS / SIMON BARRERA
WELLSITE GEOLOGY:	DAVE MEADE / LUKE TITUS
MUDLOGGING ENGINEERS:	DAVE MEADE / LUKE TITUS
CONTRACTOR:	BIG "A" RIG 25
TOOLPUSHER:	J. DEES
HOLE SIZE:	4 ¾"
CASING RECORD:	SIDETRACK IN WINDOW AT 5409' MEASURED DEPTH
DRILLING MUD:	M-I
ENGINEER:	RON WESTENBERG
MUD TYPE:	FRESH WATER & BRINE WATER W/ POLYMER SWEEPS
DIRECTIONAL DRILLING CO:	SPERRY-SUN
ELECTICAL LOGGING:	NA
TOTAL DEPTH:	8298' MEASURED DEPTH; TRUE VERTICAL DEPTH-5551.3'
STATUS:	PREPARING WELL FOR COMPLETION & RIG MOVE TO R.U. #15-12 LOCATION

DRILLING CHRONOLOGY
RATHERFORD UNIT #16-43
1-A SE HORIZONTAL LATERAL LEG #2

DATE	DEPTH	DAILY	ACTIVITY
8/18/98	5403'	90'	L.D. STARTER MILL-P.U. WINDOW MILL & WATERMELON MILLS-TIH-MILL W/WINDOW MILLS 5401' TO 5409'-PUMP SWEEP & CIR. OUT-L. D. 12 JTS PIPE-TOH-L. D. MILLS-P.U. CURVE ASSEMBLY-ORIENT & TEST-TIH-R. U. GYRO DATA & RIH W/ GYRO-TIME DRILLING 5409' TO 5411' - DIR DRLG & WIRELINE SURVEYS TO 5437'-PULL GYRO & RIG DOWN GYRO DATA-DIR DRLG & SURVEYS
8/19/98	5493'	633'	DIR DRLG & SURVEYS TO 5625' (T.D. CURVE)-PUMP SWEEP & CIR OUT SPLS-PUMP BBLS BRINE-L.D. 64 JTS AOH-TOH-L.D. CURVE ASSEM.-P.U. LATERAL ASSEMBLY- ORIENT & TEST-P.U. JTS PH-6 PIPE-TIH-DIR DRLG & SURVEYS
8/20/98	6126'	1425'	DIR DRLG & SURVEYS TO 7551'-PUMP SWEEP & CIR OUT SPLS-DISPLACE HOLE W/140 BBLS BRINE-TOH
8/21/98	7551'	TD	TOH-TO TUBING-WELL FLOWING-TIH TO WINDOW-SHUT IN WELL & W.O. MUD-PUMP 13+ MUD & KILL WELL-TOH & L.D. LATERAL ASSEMBLY-P.U. RETRIEVING BRIDGE PLUG-TIH-CIR & SET @ 5270'-DISPLACE W/BRING-TOH & L.D. DRLG STRING-NIPPLE DOWN & RIG DOWN

DAILY ACTIVITY

Operator: MOBIL
Well Name: RATHERFORD UNIT #16-43 SE 1-A HORIZONTAL LATERAL LEG #2

8/18/98	5403'	90'
8/19/98	5493'	633'
8/20/98	6126'	1425'
8/21/98	7551'	TD

BIT RECORD

OPERATOR: MOBIL
WELL NAME: RATHERFORD UNIT #16-43 SE 1-A HORIZONTAL LATERAL LEG #2

RUN	SIZE	MAKE	TYPE	IN/OUT	FTG	HRS	FT/HR
#1	4 3/4"	STC	MF-3P	5409'/ 5625'	216'	18	12.0
(RR) #2	4 3/4"	STC	MF-2GP	5625'/ 7551'	1926'	26.5	72.7

MUD REPORT

OPERATOR: MOBIL
WELL NAME: RATHERFORD UNIT #16-43 SE 1-A HORIZONTAL LATERAL LEG #2

DATE	DEPTH	WT	VIS	PLS	YLD	GEL	PH	WL	CK	CHL	CA	SD	OIL	WTR
8/18/98	5409'	8.5	27	2	1	0/0	10.0	NC	NC	38000	3200	2%	5%	93%
8/19/98	5579'	8.6	27	2	1	0/0	12.0	NC	NC	43000	2400	1%	3%	96%
8/20/98	6744'	8.3	27	2	1	0/0	11.0	NC	NC	46000	3200	7%	16%	77%
8/21/98	7551'	NOT	AVIL.											

SPERRY-SUN DRILLING SERVICES
SURVEY DATA

Customer ... : Mobil (Utah)
Platform ... : RATHERFORD UNITH
Slot/Well .. : BA25/16-43, 2A1

MEASURED DEPTH	ANGLE DEG	DIRECTION DEG	TVD	NORTHINGS FEET	EASTINGS FEET	VERTICAL SECTION	DOG LEG
5400.00	0.23	353.10	5399.16	66.17 N	26.29 W	-65.38	0.00
5402.00	0.24	354.90	5401.16	66.18 N	26.29 W	-65.39	0.62
5409.00	3.90	135.00	5408.15	66.03 N	26.13 W	-65.16	58.39
5419.00	7.70	149.80	5418.10	65.21 N	25.55 W	-64.17	40.53
5429.00	11.90	154.56	5427.95	63.69 N	24.77 W	-62.55	42.74
5439.00	16.30	156.90	5437.65	61.47 N	23.77 W	-60.28	44.36
5449.00	20.40	153.60	5447.14	58.62 N	22.45 W	-57.32	42.28
5459.00	24.40	154.20	5456.38	55.20 N	20.77 W	-53.72	40.06
5469.00	28.70	152.60	5465.33	51.20 N	18.77 W	-49.48	43.59
5479.00	32.60	151.60	5473.93	46.70 N	16.38 W	-44.61	39.33
5489.00	37.00	150.20	5482.14	41.72 N	13.60 W	-39.12	44.72
5499.00	41.10	148.60	5489.90	36.30 N	10.39 W	-33.02	42.22
5509.00	45.20	147.90	5497.20	30.48 N	6.79 W	-26.36	41.28
5519.00	49.30	146.60	5503.98	24.31 N	2.82 W	-19.18	42.09
5529.00	53.50	144.70	5510.22	17.86 N	1.59 E	-11.51	44.54
5539.00	57.20	141.80	5515.91	11.28 N	6.52 E	-3.37	44.02
5549.00	60.00	138.80	5521.12	4.71 N	11.97 E	5.13	37.94
5559.00	62.40	135.90	5525.94	1.73 S	17.91 E	13.88	34.95
5569.00	65.80	137.70	5530.30	8.29 S	24.06 E	22.87	37.66
5579.00	69.30	135.10	5534.12	14.98 S	30.44 E	32.11	42.45
5589.00	74.00	136.60	5537.27	21.78 S	37.04 E	41.60	49.11
5599.00	80.20	138.10	5539.50	28.95 S	43.64 E	51.33	63.70
5625.00	89.80	142.20	5541.77	48.81 S	60.21 E	77.09	40.12
5650.00	88.90	136.90	5542.05	67.83 S	76.42 E	102.00	21.50
5682.00	89.40	134.00	5542.52	90.63 S	98.87 E	133.99	9.20
5714.00	88.10	133.10	5543.22	112.67 S	122.05 E	165.98	4.94
5745.00	88.50	133.10	5544.14	133.84 S	144.68 E	196.94	1.29
5776.00	89.30	134.80	5544.74	155.35 S	166.99 E	227.93	6.06
5807.00	89.60	134.70	5545.03	177.18 S	189.01 E	258.93	1.02
5838.00	89.80	134.50	5545.20	198.94 S	211.08 E	289.93	0.91
5870.00	89.90	135.00	5545.28	221.47 S	233.81 E	321.93	1.59
5902.00	90.50	135.50	5545.17	244.20 S	256.33 E	353.93	2.44
5934.00	88.50	135.20	5545.45	266.96 S	278.82 E	385.92	6.32
5966.00	88.50	135.50	5546.29	289.72 S	301.30 E	417.91	0.94
5998.00	89.60	136.20	5546.82	312.67 S	323.59 E	449.90	4.07
6029.00	90.00	136.60	5546.92	335.12 S	344.97 E	480.90	1.82
6061.00	90.90	136.80	5546.67	358.41 S	366.91 E	512.88	2.88
6093.00	91.50	136.60	5546.00	381.69 S	388.85 E	544.86	1.98

SPERRY-SUN DRILLING SERVICES
SURVEY DATA

Customer ... : Mobil (Utah)
Platform ... : RATHERFORD UNITH
Slot/Well .. : BA25/16-43, 2A1

MEASURED DEPTH	ANGLE DEG	DIRECTION DEG	TVD	NORTHINGS FEET	EASTINGS FEET	VERTICAL SECTION	DOG LEG
6125.00	89.40	134.30	5545.75	404.50 S	411.30 E	576.85	9.73
6156.00	87.90	133.80	5546.48	426.04 S	433.57 E	607.84	5.10
6188.00	88.10	133.40	5547.60	448.10 S	456.73 E	639.81	1.40
6219.00	88.60	133.30	5548.49	469.37 S	479.26 E	670.78	1.64
6251.00	88.20	132.70	5549.38	491.18 S	502.66 E	702.75	2.25
6283.00	88.90	132.60	5550.19	512.86 S	526.19 E	734.71	2.21
6314.00	88.70	132.60	5550.84	533.84 S	549.00 E	765.68	0.65
6346.00	88.40	132.90	5551.65	555.55 S	572.49 E	797.65	1.33
6378.00	88.50	133.80	5552.52	577.51 S	595.75 E	829.62	2.83
6409.00	88.50	134.10	5553.33	599.02 S	618.06 E	860.60	0.97
6440.00	88.30	134.70	5554.20	620.70 S	640.20 E	891.59	2.04
6472.00	88.40	134.80	5555.12	643.22 S	662.92 E	923.58	0.44
6504.00	88.60	134.80	5555.96	665.76 S	685.62 E	955.57	0.62
6536.00	87.80	134.70	5556.96	688.27 S	708.33 E	987.55	2.52
6568.00	88.30	135.40	5558.05	710.91 S	730.93 E	1019.53	2.69
6599.00	89.60	135.70	5558.62	733.03 S	752.63 E	1050.52	4.30
6631.00	90.10	135.90	5558.70	755.97 S	774.94 E	1082.52	1.68
6663.00	90.30	136.10	5558.59	778.99 S	797.17 E	1114.51	0.88
6695.00	90.80	135.90	5558.28	802.01 S	819.40 E	1146.51	1.68
6727.00	90.90	135.50	5557.81	824.91 S	841.74 E	1178.50	1.29
6758.00	90.50	135.20	5557.43	846.96 S	863.53 E	1209.50	1.61
6790.00	89.50	135.40	5557.43	869.71 S	886.04 E	1241.50	3.19
6822.00	89.70	133.80	5557.65	892.17 S	908.82 E	1273.50	5.04
6854.00	89.60	133.60	5557.85	914.28 S	931.95 E	1305.49	0.70
6885.00	90.20	133.40	5557.90	935.62 S	954.44 E	1336.48	2.04
6916.00	90.10	132.90	5557.82	956.82 S	977.06 E	1367.46	1.64
6948.00	90.40	132.90	5557.68	978.61 S	1000.50 E	1399.44	0.94
6980.00	88.90	131.90	5557.88	1000.18 S	1024.13 E	1431.40	5.63
7012.00	88.10	131.00	5558.71	1021.36 S	1048.10 E	1463.33	3.76
7044.00	87.70	129.90	5559.89	1042.10 S	1072.44 E	1495.21	3.66
7075.00	87.50	129.70	5561.19	1061.93 S	1096.23 E	1526.05	0.91
7106.00	88.20	131.70	5562.35	1082.13 S	1119.72 E	1556.94	6.83
7138.00	88.20	131.30	5563.35	1103.32 S	1143.67 E	1588.87	1.25
7169.00	88.00	131.00	5564.38	1123.71 S	1167.00 E	1619.78	1.16
7200.00	87.80	130.40	5565.52	1143.91 S	1190.49 E	1650.67	2.04
7232.00	88.90	132.60	5566.44	1165.11 S	1214.44 E	1682.60	7.68
7264.00	89.30	131.90	5566.94	1186.62 S	1238.13 E	1714.55	2.52
7295.00	87.50	130.40	5567.81	1207.01 S	1261.46 E	1745.47	7.56

SPERRY-SUN DRILLING SERVICES
SURVEY DATA

Customer ... : Mobil (Utah)
Platform ... : RATHERFORD UNITH
Slot/Well .. : BA25/16-43, 2A1

MEASURED DEPTH	ANGLE DEG	DIRECTION DEG	TVD	NORTHINGS FEET	EASTINGS FEET	VERTICAL SECTION	DOG LEG
7326.00	88.40	129.60	5568.92	1226.92 S	1285.19 E	1776.33	3.88
7358.00	87.50	129.20	5570.06	1247.22 S	1309.90 E	1808.16	3.08
7390.00	89.50	129.70	5570.90	1267.54 S	1334.60 E	1840.00	6.44
7422.00	91.00	130.10	5570.76	1288.07 S	1359.15 E	1871.87	4.85
7454.00	92.90	130.40	5569.67	1308.73 S	1383.56 E	1903.74	6.01
7485.00	92.00	130.40	5568.34	1328.81 S	1407.14 E	1934.61	2.90
7516.00	90.40	129.40	5567.69	1348.69 S	1430.92 E	1965.48	6.09
* 7551.00	90.40	129.40	5567.45	1370.90 S	1457.97 E	2000.31	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 135.00 (TRUE).
CALCULATION METHOD: MINIMUM CURVATURE.

* 7551 EXTRAPOLATED TO BIT

SAMPLE DESCRIPTIONS

OPERATOR: MOBIL
WELL NAME: RATHERFORD UNIT #16-43 SE 1-A HORIZONTAL LATERAL LEG #2

DEPTH	LITHOLOGY

5408.00 5420.00 "LS crm-tan-wh,crpxl-micxl,v rr vfxl-gran,occ chk-plty,sl anhy,occ dol,chty,rr mic fos,tt-dns,rr intxl POR,n-v spty dull-bri yel FLOR,n vis STN-CUT,v rr ltbrn micxl lmy DOL lams-scat trnsl-smky gy CHT frag,rr ltgy CMT cvgs"

5420.00 5430.00 "LS,tn-crm-ofwht,mic-vf xln,tr crypt xln,plty-chlky,cln to sl rthy,sl anhy-tr incl,tr ANHY xls,scat CHT frgs-ltgy / transl pred tt xln fab POR,spty yel FLOR,no CUT,pr o STN"

5430.00 5440.00 "LS,bn-ltbn-crm,mic-vf xln,sl rthy-occ arggrdg to MRLY LS,sl dolo to dolo ip,tr slty mtx,mdns-dns mtx,tr CHT frgs AA-incr in brn frgs,rthy to intrxl fab POR,spty pr FLOR,rr blk dd o STN res,no CUT"

5440.00 5456.00 "LS,ltgy-bn-dkgybn-dkbn,mic-vf xln,occ slty-tr grn mtx,pred mdns/dns-rthy mtx,sl arg grdg to MARLY LS,dkbn DOL grdg to DOL LS,tr CHT AA;pred rthy to tt intrxln fab POR,v spty dul yel FLOR,no CUT, no o STN"

5450.00 5460.00 "LS AA,tr blk-dkbn SH prtgs,tr foss frgs,arg/rthy grdg to MARL LS,sl dolo to dolo"

5460.00 5480.00 "LS,dkbn-tn-crm-ltbn,crypt-vf xln,slty-sl arg-arg,mdns-tt mtx,occ sl plty,dkbn DOL,ltbn-crm slty ARG LS grdg to sft MRLY LS,tr dkbn-bn CHT frgs;tr dd blko STN res,tr intrxln to rthy fab POR,spty dul-mbri FLOR,no wk CUT"

5480.00 5490.00 "LS.ltgy-ltgybn-ltbn,mic-vf xln,slty-grn mtx,mdns mtx,chky,sl arg,sl dolo to dolo ip;pred intrxln,no vis o STN,spty pr-dul FLOR,no CUT"

5490.00 5500.00 "LS,bn-ltbn-cn,crypt-vf xln,mdns-tt mtx,sl rthy-arg,slty,rthy,sl plty,tr dkbn CHT,anhy;pred rthy to intrxln fab POR,NFSOC"

5500.00 5510.00 "LS,ltgy-ltgybn-gy,mic-vf xln,mdns mtx,slty-grn,chlkt-anhy,sl dolo to dolo,rr blk SH prtgs,rr CHT frgs;pred intrxln fab POR,spty dul yel FLOR,no vis o STN,no-wk strmg CUT"

5510.00 5520.00 "LS,ltgy-gy-lygybn,mic-vf xln,slty-grn,chlky,rr crm CHT frgs,sl anhy-rr ANHY xls,sl dolo to dol ip,occ rthy,rr dkbn DOL ;predintrxln fab POR,no vis o STN,pr scat yel FLOR,no CUT"

DEPTH	LITHOLOGY

5690.00 5720.00 "LS,ltbn-tn,mott,mic-vf,grn-micrsuc mtx,mdns mtx,pred ool oom/ooc GRNST w/rr sl ool PCKST,sme calc/chlky fld casts,rr ANHY xls,rr CHT frgs,sl dolo;pred intrxln to mg-oom/ooc fab POR,g-mbri yelgld FLOR,spty bri FLOR,mf-g slo strmg dif CUT,pred mg-ltbn oSTN"

5720.00 5750.00 "LS,ltbn-tn,mic-vf xln,mott,mdns-grn-microsuc mtx,sl dolo,rr buf ltbn CHT frgs,pred ool oom/ooc mdns GRNST,v rr dns sl ool PCKST,sl chlky,occ calc flgs;pred mf-g intrxln to g-oom/ooc fab POR,g-mbri-bri yelgld FLOR,f fst strmg to g slo strmg CUT,g-ltbn STN"

5750.00 5780.00 "LS AA,g mbri-spty bri yelgld FLOR,mf-mg ltbn w/scat blk dd o STN fld casts,f-fst strmg CUT to g-slo dif strmg CUT;pred mf-g intrxln to mg oomoldic to oolicastic fab POR"

5780.00 5810.00 "LS,ltbn-tn-occ crm,mott,mic-vf xln,mdns-grn-microsuc mtx,pred ool rich mdns GRNSt ro v rr sl ool sl plty dns PCKST,sl dolo,sl chlky;pred mf-f intrxlnt o mg oom/ooc fab POR,even mbri-spty bri yelgld FLOR,mf-fst to mg slo strmg CUT.mg ltbn o STN,tr blk STN"

5810.00 5830.00 "LS,ltbn-tn,mott,mic-vf xln,mdns-grn-microsuc mtx,pred ool rich oom/ooc GRNSt,sl dolo,rr ltbn-buf CHT frgs,tr chlky mat;pred interxln to oom/ooc fab POR,FLOR AA,CUT AA,pred ltbn o STN w.tr blk o STN"

5830.00 5850.00 "LS,ltbn-tn-crm,mott,mic-pred vf xln,mdns-grn-microsuc mtx,rr foss frgs,sl chlky,rr cht frgs,v rr carb mat,ool rich,pred GRNST;pred mf-g intrxln to mf-g oom/ooc fab POR,even mbri-spty bri yelgld FLOR,g-strmg dif CUT,pred ltbn o STN w/tr blk dd o STN"

5850.00 5880.00 "LS,ltbn-tn,mott,mic-vf,grn-micrsuc mtx,mdns mtx,ool oom/ooc GRNST w/rr sl ool PCKST,sme calc/chlky fld casts,rr ANHY xls,rr CHT frgs,sl dolo;pred intrxln to mg-oom/ooc fab POR,g-mbri yelgld FLOR,spty bri FLOR,g slo strmg dif CUT,pred mg-ltbn o STN"

5880.00 5910.00 "LS AA,pred ool rich GRNST,f-mg oom/ooc fab POR w/sme g-intrxln fab POR,f-mbri-spty bri yelgld FLOR,pred mf-g ltbn o STn w/tr blk dd o STn fld casts"

5910.00 5940.00 "LS,ltbn-tn,mott,mic-vf xln,grn-microsuc mtx,mdns mtx,pred ool rich oom/ooc GRNST w/v rr sl ool dns chlky PCKST;pred mg intrxln to g oom/ooc fab POR,g-mbri-bri yelgld FLOR,mg-g fast to slo strmg CUT,pred ltbn-bn o STN w/tr blk dd o STN res"

5940.00 5970.00 "LS,ltbn-tn,mott,mic-vf xln,mdns-grn mtx,tr microsuc mtx,pred ool rich oom/ooc mdns GRNST,rr sl ool dns PCKST,sl chlky/rthy,rr ANHY xls-rr CHT frgs;pred mf-g oom/ooc fab POR w/sme f-intrxln fab POR,mbri0bri yelgld FLOR,g slo strmg dif CUT,pred mf-mg o STN"

DEPTH	LITHOLOGY

5965.00 6000.00 "LS AA,pred ool rich oomoldic to oolicastic GRNST w/rr sl oolitic dns PCKST;mf-g ltbn o STN w/tr blk dd o STN fld casts,f-mbri-g spty bri yelgld FLOR,mf fast to g slo strmg dif CUT"

6000.00 6030.00 "LS,ltbn-tn-crm,mott,mic-vf xln,mdns-grn-microsuc mtx,sl dolo ip,rr CHT frgs,sl chlky,pred ool rich oom/ooc GRNSt w/rr sl ool PCKSt;pred mg-g oom/ooc fab POR w/scat mf-f intrxln fab POR,mbri-bri yelgld FLOR,f-fast to mf-g slo strmg dif CUT,mf-g ltbn STN"

6030.00 6060.00 "LS,ltbn-tn-crm,mott,mic-vf xln,mdns-grn-microsuc mtx,pred ool rich oom/ooc fab POR,v rr sl plty dns PCKST,sl dol,rr CHT frgs,tr calc/chlky fld casts;pred interxln to oom/ooc fab POR,bei yelgld FLOR,mf slo dif strmg CUT,pred ltbn o STN tr blk dd o STn res"

6060.00 6090.00 "LS,ltbn-tn,mott,mic-vf xln,mdns-grn mtx,tr microsuc mtx,pred ool rich oom/ooc mdns GRNST,rr sl ool dns PCKST,sl chlky,rr ANHY xls-rr CHT frgs;pred mf-g oom/ooc fab POR w/sme f-intrxln fab POR,mbri0bri yelgld FLOR,g slo strmg dif CUT,mf-mg o STN,tr blkres"

6090.00 6120.00 "LS AA,sl incr in dns sl ool PCKST,sl chlky,sl anhy-rr ANHY xls,v sl rthy,vr sl plty PCKST;pred interxln to oom/ooc fab POR,mf-f ltbn o STN w/blk dd o STN,mbri-bri yelgld FLOR,mf-f slo strmg dif CUT"

6120.00 6150.00 "LS,ltbn-crm,mott,mic-pred vf xln,mdns-grn mtx,pred ool oom/ooc GRNST,tr sl ool dns sl plty PCKST,sl dolo,rr CHT frgs,sl anhy-rr ANHY xls;pred mf-f oom/ooc fab POR to f-intrxln fab POR,bri yelgld FLOR,fst to f-slo strmg CUT,mf-mg ltbn o STN,tr blk res"

6150.00 6180.00 "LS,ltbn-tn-crm,mott,mic-vf xln,grn-micrsuc-mdns mtx,ool oom ooc GRNST,tr calc fld casts,rr anhy xls,rr foss frgs,ool/pel;pred mf-f intrxln to mf-mg oom/ooc fab POR,g-mbri-bri yelgld FLOR,mf-fast to mg slo strmg dif CUT,mf-mg ltbn o STN"

6180.00 6210.00 "LS AA,pred ool rich oomoldic to oolicastic GRNST,mf-f interxln to reduced to g-oom/ooc fab POR,g-even mbri-bri yelgld FLOR,fst to f-slow strmg dif CUT,mf-mg ltbn o STN w/tr blk dd o STN res"

6210.00 6240.00 "LS,ltbn-tn,mott,mic-vf xln,mdns mtx,pred grn mtx-microsuc mtx,v slo dol,sl anhy-rr ANHY xls,tr calc fld casts,rr offwht chlky carb mat,pred ool rich oom/ooc GRNSt;pred mf-f intrxln to f-mg oom/ooc fab POR,bri yelgld FLOR,mf-mg ltbn o STN,tr blk do STN"

6240.00 6270.00 "LS,ltbn-tn,mott,mic-vf xln,mdns-grn mtx,tr microsuc mtx,pred ool rich oom/ooc mdns GRNST,rr dns PCKST,sl chlky,rr ANHY xls-rr CHT frgs;pred mf-g oom/ooc fab POR w/sme f-intrxln fab POR,mbri-bri yelgld FLOR,g slo strmg dif CUT,mf-mg o STN,tr blk dd res"

DEPTH	LITHOLOGY

6270.00 6300.00 "LS,ltbn-tn-occ crm,mott,mic-vf xln,mdns mtx,pred grn-microsuc mtx,sl dolo,v rr ltbn CHT frgs,rr ofwht chlky mat,sl anhy,ool rich GRNST;pred mg-g oom/ooc fab POR w/tr mf-f intrxln fab POR,mg-ltbn o STN,tr blk dd o STN res,g-even bri yelgld FLOR,g CUT"

6300.00 6330.00 "LS AA,pred ool rich GRNST,reduced to g oom/ooc fab POR w/mf-f intrxln fab POR,g-bri yelgld FLOR,g-fst to mg- slo strmg dif CUT,pred mg-ltbn o STN,tr blk o STN res"

6330.00 6360.00 "LS,ltbn-tn-crm,mott,mic-vf xln,mdns-grn-microsuc mtx,sl dolo ip,rr CHT frgs,pred ool rich oom/ooc GRNSt w/rr sl ool PCKSt;pred mg-g oom/ooc fab POR w/scat mf-f intrxln fab POR,mbri-bri yelgld FLOR,f-fast to mf-g slo strmg dif CUT,mf-g ltbn-bn o STN,trblk"

6360.00 6390.00 "LS,ltbn-tn,mott,mic-vf xln,mdns-grn mtx,tr microsuc mtx,pred ool rich oom/ooc mdns GRNST,rr sl ool dns PCKST,sl chlky/rthy,rr ANHY xls-rr CHT frgs;pred mf-g oom/ooc fab POR to f-intrxln fab POR,g-bri yelgld FLOR,g slo strmg dif CUT,pred mf-mg bn o STN"

6390.00 6420.00 "LS,bn-ltbn-tn,mott,mic-vf xln,pred grn-microsuc-mdns mtx,pred ool rich oom/ooc GRNST,sl dolo,rr CHT frgs,sl anhy;pred mf-f interxln to f-mg oom/ooc gab POR,bri yelgld FLOR,mg-ltbn-bn o STN w/tr blk dd o STn res,mf-mg fst to slo strmg CUT"

6420.00 6440.00 642"LS tan-ltbrn,occ ltgybrn-rr wh-crm,micxl-vfxl,gran-micsuc,rr suc,pred ooc-oom GRNST,w/rr dns sl chk-plty ool sl anhy PKST,occ ANHY fl POR,sl DOL cmt,v rr trnsl CHT frag,fr-mg intxl-ool POR,mg bri yel FLOR,tr-mfr ltbrn STN-rr blk dd o STN,mg mod fast CUT"

6440.00 6470.00 "LS AA,sl incr intxl POR,FLOR-CUT AA,mfr-fr ltbrn-brn STN,tr blk dd o STN"

6470.00 6490.00 "LS AA,pred ooc-oom GRNST,n-v rr scat dns micxl-crpxl anhy sl chk-v sl plty occ ool PKST,mg intxl-ool POR,mg bri yel FLOR,fr ltbrn-tr brn STN-tr blk dd o STN,mg mod fast-fast stmg mlky CUT"

6510.00 6540.00 "LS tan-ltbrn,occ ltgybrn-rr crm,micxl-vfxl,gran-micsuc,rr suc,pred ooc-oom GRNST,w/v rr dns sl chk-plty ool sl anhy PKST,sl tr ANHY fl POR,DOL cmt ip,v rr trnsl CHT frag,mg intxl-ool POR,mg bri yel FLOR,mfr ltbrn STN-rr blk dd o STN,mg mod fast-fast CUT"

6540.00 6570.00 "LS tan-ltbrn-occ gybrn,v rr brn,pred ooc-oom GRNST AA,rr PKST frag AA,sl incr ANHY fl POR,sl incr dns mtx,POR-FLOR-STN-CUT AA"

6570.00 6590.00 "LS pred tan-ltbrn,v rr brn-ltgybrn-crm-wh,pred ooc-oom GRNST,v rr sl ool rr anhy PKST frag AA,mg-g intxl-mg ool POR,mg-g bri yel FLOR,mfr ltbrn-rr blk STN,mfr-fr mod fast-tr fast stmg mlky CUT"

DEPTH		LITHOLOGY

6590.00 6620.00 "LS tan-ltbrn,rr ltgybrn-brn,micxl-vfxl,gran-micsuc-rr suc,pred ooc-oom GRNST,v rr dns sl ool occ anhy PKST,rr ANHY xl-POR fl,v sl DOL cmt,fr-mg ool-fr intxl POR,mg bri yel FLOR,tr ltbrn STN-rr spty blk dd o STN,mg mod fast-tr fast stmg mlky CUT"

6620.00 6650.00 "LS AA,fr-g intxl-ool POR,FLOR-STN-CUT AA"

6650.00 6670.00 "LS AA,pred ltbrn ooc-oom GRNST,PKST AA,POR-FLOR-STN-CUT AA"

6670.00 6690.00 "LS AA,v sl incr PKST frag,pred ooc-oom GRNST AA,POR-FLOR-STN-CUT AA"

6690.00 6730.00 "LS tan-ltbrn,rr ltgybrn,micxl-vfxl,gran-micsuc-v sl suc,pred ooc-oom GRNST,scat dns v sl ool sl chty occ anhy PKST,rr ANHY xl-POR fl,sl DOL cmt,fr-mg ool-intxl POR,mg bri yel FLOR,tr-mfr ltbrn STN-tr spty blk dd o STN,mg mod fast-mfr fast stmg mlky CUT"

6730.00 6760.00 "LS bcmg brn-gybrn ip,pred ooc-oom GRNST AA,POR-FLOR-CUT AA,mfr ltbrn-v rr brn STN-tr blk dd o STN"

6760.00 6780.00 "LS AA,v rr trnsl CHT frag,POR-FLOR-STN-CUT AA"

6780.00 6800.00 "LS tan-ltbrn,rr ltgybrn-brn,micxl-vfxl,gran-micsuc,pred ooc-oom GRNST,rr dns v sl ool sl chty occ anhy PKST,rr ANHY xl-POR fl,sl DOL cmt,fr-mg ool-intxl POR,mg bri yel FLOR,tr-mfr ltbrn STN-tr spty blk dd o STN,mg mod fast-mfr fast stmg mlky CUT"

6800.00 6830.00 "LS tan-ltbrn-ltgybrn,occ brn,AA,pred ooc-oom GRNST,w/v rr dns ool PKST AA,mg intxl-ool POR,fr-mg bri yel FLOR,mfr ltbrn-rr brn STN-rr-tr blk dd o STN,mg mod fast-fr fast stmg CUT"

6830.00 6850.00 "LS AA,g intxl-fr ool POR,occ ANHY incl-POR fl,FLOR-STN-CUT AA"

6850.00 6880.00 "LS tan-ltbrn,occ ltgybrn-rr crm-wh-brn,micxl-vfxl,gran-mic suc,suc ip,pred ooc-oom GRNST,rr dns sl ool anhy tt PKST,rr ANHY xl-POR fl,sl dol cmt,v rr CHT frag,g intxl-fr ool POR,g bri-tr dull yel FLOR,rr-mfr lbrn STN-rr blk dd o STN,mg mod fast-fast CUT"

6880.00 6920.00 "LS AA,fr intxl-g ool POR,mg bri-tr dull yel FLOR,mfr ltbrn STN-tr blk dd o STN,mg mod fast-tr fast stmg CUT"

6920.00 6950.00 "LS pred tan-ltbrn ooc-oom GRNST AA,rr scat dns PKST AA,fr-mg ool-intxl POR,mg dull-fr bri yel FLOR,tr-mfr ltbrn-rr blk STN,fr-mg mod fast-fast stmg mlky CUT"

6950.00 6990.00 "LS tan-ltbrn,rr ltgybrn,micxl-vfxl,gran-micsuc-v sl suc,pred ooc-oom GRNST,scat dns v sl ool sl chty occ anhy PKST,rr ANHY xl-POR fl,sl DOL cmt,fr-mg ool-intxl POR,mg bri yel FLOR,tr-mfr ltbrn STN-tr spty blk dd o STN,mg mod fast-mfr fast stmg mlky CUT"

DEPTH	LITHOLOGY

6990.00 7040.00 "LS pred tan-ltbrn ooc-oom GRNST AA,sl incr dns sl ool chty anhy PKST frag,scat trnsl-bf CHT frag,fr-g intxl-ool POR,mg dull-fr bri yel FLOR,tr-mfr ltbrn-rr brn STN,sl tr blk dd o STN,mg slow-mod fast-tr fast stmg CUT"

7040.00 7070.00 "LS pred tan,occ ltbrn,rr ltgybrn-brn-crm,ooc-oom GRNST AA,rr chty dns sl ool anhy PKST frag,POR-FLOR-STN-CUT AA"

7070.00 7080.00 "LS AA,v ooc-oom GRNST,sl tr PKST AA,fr-mg dull-mfr bri yel FLOR,tr-mfr ltbn STN,tr blk dd o STN,mfr-mg slow-fast stmg CUT"

7080.00 7100.00 "LS tan,occ ltbrn-rr ltgybrn,micxl-vfxl,gran-micsuc,v sl suc,pred sl ooc-oom GRNST,sl incr dns sl ool chty PKST,scat ANHY xl-POR fl,rr CHT frag,sl dol,fr-g intxl-fr ool POR,mg dull-fr bri yel FLOR,tr-mfr ltbrn-rr blk STN,mg slow-mod fast-tr fast stmg CUT"

7100.00 7150.00 "LS tan,occ ltbrn-rr ltgybrn,micxl-vfxl,gran-micsuc,sl suc,pred ooc-oom GRNST,w/rr dns sl ool chty PKST frag,rr ANHY xl-POR fl,v rr CHT frag,sl dol,fr-g intxl-fr ool POR,fr-g dull-bri yel FLOR,mfr ltbrn-rr blk STN,mg slow-mod fast-tr fast stmg CUT"

7150.00 7200.00 "LS AA,g ooc-oom GRNST,pred gran-micsuc txt-sl tr suc txt,rr scat dns sl ool anhy occ chty PKST frag,mg ool-intxl POR,mg-g bri-dull yel FLOR,mfr ltbrn-rr brn STN,sl tr blk dd o STN,mg mod fast-fr fast stmg mlky CUT"

7200.00 7220.00 "LS AA,pred ooc-oom GRNST,w/scat dns PKST AA,g ool-fr intxl POR,mg-g bri yel FLOR,tr-mfr ltbrn-rr brn STN,sl tr blk dd o STN,mg slow-mod fast-mfr fast stmg mlky CUT"

7220.00 7250.00 "LS AA,v sl incr plty-chk PKST frag,g intxl-fr ool POR,FLOR-STN-CUT AA"

7250.00 7280.00 "LS tan,occ ltbrn-rr crm-wh,micxl-vfxl,gran-micsuc,sl suc,pred ooc-oom GRNST,w/tr dns chk-plty sl ool PKST frag,rr ANHY xl-POR fl,tr bf CHT frag,sl dol,fr-mg intxl-fr ool POR,fr-g bri-dull yel FLOR,tr ltbrn-rr blk STN,mg slow-fr mod fast-tr fast stmg CUT"

7280.00 7310.00 "LS AA,bcmg intbd ooc-oom GRNST & dns v sl ool incr plty-chk anhy sl chty PKST,tt-mg intxl-tr ool POR,mg dull-mfr bri yel FLOR,rr ltbrn-blk STN,mg slow-mfr mod fast-rr fast stmg mlky CUT"

7310.00 7340.00 "LS ltbrn-tan,tr crm-wh,crpxl-vfxl,occ gran-micsuc,intbd sl ooc-oom GRNST-sl anhy v sl ool occ chk-plty tt PKST,tr trnsl-bf CHT frag,v sl dol,rr ANHY xl-POR fl,tt-mg intxl-mfr ool POR,mg dull-mfr bri yel FLOR,rr spty ltbrn-blk STN,tr mod fast-fr slow CUT"

DEPTH	LITHOLOGY

7340.00 7380.00 "LS tan-crm,wh ip,occ ltbrn AA,incr PKST AA w/depth,incr ANHY fl POR,scat trnsl-bf CHT frag,tt-fr intxl-tr ool POR,fr dull-tr bri yel FLOR,sl tr ltbrn-rr spty blk STN,mfr slow-tr mod fast stmg mlky CUT"

7380.00 7410.00 "LS,ltbn-tn-crm,sl mott-mott,occ crypt xln,mic-vf xln,sl anhy,pred ool mdns sl oom/ooc GRNST,tr dns sl ool sl chlky PCKST,v sl dolo,rr foss frgs,rr pel;pred mf-f intrxln to reduced to mf oom/ooc fab POR,m-f slo strmg CUT,m-mf ltbn-bn oSTN,mbri-bri yelFLOR"

7410.00 7440.00 "LS AA,sl incr in dns PCKST-sl ool,chlky,occ sl plty;pred mf- intrxln to reduced to mf- oom/ooc fab POR,mg mbri-bri yelgld FLOR,mf-slo strmg dif/milky ring CUT,pred mf-f ltbn-bn o STN w/tr blk dd o STN res"

7440.00 7470.00 "LS,ltbn-tn-crm,sl mott,mic-vf xln,occ crypt xln,pred mdns sl ool to ool GRNST w/scat dns sl ool PCKST,sl chlky/anhy-rr ANHY xls,v-rr buf CHT frgs;pred mf-f intrxln to pr-f oom/ooc fab POR,even bri yelgld FLOR,mf-f slo strmg dif CUT,pred mf-f ltbno STN"

7470.00 7500.00 "LS AA,sl incr in dns sl ool sl chlky occ plty PCKST,pred sl ool to ool rich mdns GRNST,FLOR AA,o STN AA,CUT AA,pred mf-f intrxln to pr-mg oom/ooc fab POR"

7500.00 7530.00 "LS,ltbn-tn-crm,sl mott,mic-vf xln,mnds-dns-grn-microsuc mtx,pred ool sl oom/ooc GRNST to sl ool dns PCKST,v rr CHT frgs,sl dolo,sl anhy-rr ANHY xls;pred mf-f intrxln to pr-f oom/ooc fab POR,even mbri-bri yelgld FLOR,mf-f slo strmg dif CUT,pred ltbn-bnSTN"

7530.00 7551.00 "LS AA,pred sl ool PCKST to ool sl oom/ooc GRNST,mbri-bri yel FLOR,mf-f slo strmg dif CUT,mf-f ltbn o STN w/tr blk dd o STN res,POR AA"

FORMATION TOPS

OPERATOR: MOBIL
WELL NAME: RATHERFORD UNIT #16-43 SE 1-A HORIZONTAL LATERAL LEG #2

FORMATION NAME		SAMPLES MEASURED DEPTH	SAMPLES TRUE VERTICAL DEPTH	DATUM KB:4699'
LOWER ISMAY		5462'	5459'	-760'
GOTHIC SHALE		5546'	5518'	-819'
DESERT CREEK		5566'	5528'	-829'
UPPER DC 1-A ZONE		5589'	5537'	-838'

GEOLOGICAL SUMMARY

AND

ZONES OF INTEREST

The Mobil Exploration and Production U.S., Inc., Ratherford Unit #16-43 Southeast Horizontal Lateral Leg #2 was a re-entry of the Mobil Ratherford Unit #16-43 located in Section 16, T41S, R24E, and was sidetracked in a southeasterly direction from 5409' measured depth, 5408' true vertical depth, on August 18, 1998. The lateral reached a measured depth of 7551', true vertical depth of 5567.5' at total depth, with a horizontal displacement of 2000.3' and true vertical plane of 129.4 degrees on August 20, 1998. The lateral was terminated near the top of the upper Desert Creek 1-A porosity bench. 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. Of note was the very minor flow of fluid throughout the lateral.

The objective of the Ratherford Unit #16-43 southeast lateral Leg #2 was to penetrate and drill 2000' horizontally in the upper the Desert Creek 1-A porosity bench, identify and define its lithology, and to evaluate the effective porosity and permeability. In this southeasterly direction the upper pay zone appeared to have more consistent and better-developed porosity, than the lower 1-A zone near the end of the lateral and thus was the target for this lateral. These objectives were met in this upper pay zone of the Desert Creek 1-A porosity bench. The lateral was projected to be approximately level for the first 1000' and then turn downward at an angle of 88° to the lateral's termination. The 1-A zone in this southeasterly lateral began dipping almost immediately, and stair stepped downward to the laterals termination. The zone appeared to thin at a horizontal displacement of 350' and again at 1750'. The lateral remained in the Upper 1-A zone throughout its length, with the porosity zone having predominately a consistent lithology. The lithology of the porosity in this southeasterly lateral was in an oolicastic to oomoldic limestone grainstone facies, and had a fair to good hydrocarbon sample show and gas show, with good visible effective porosity and permeability. The lateral varied from the target line as little as 1 foot to as much as 23' near the middle of the lateral.

The curve section was begun in the lower portion of the Upper Ismay before encountering the typical sections of the Lower Ismay, Gothic Shale, Desert Creek and the 1-A porosity bench carbonate cycle of the Upper Paradox Formation.

The lower half of the Upper Ismay carbonate cycle of the Upper Paradox Formation was penetrated from a measured depth of 5409', true vertical depth 5408', to a measured depth of 5465', true vertical depth 5462.' The lower 63' of the Upper Ismay Formation was a predominately earthy to clean limestone, with scattered interbeds of earthy to argillaceous dolomites and very thin black carbonaceous shale partings. The limestones were cream to white, some brown to medium, cryptocrystalline to microcrystalline in part, clean and dense, with streaks of an earthy to argillaceous to chalky texture. These limestones had rare streaks of fracture to intercrystalline porosity, but only very rare, poor, spotty sample shows. The thin interbedded dolomites were brown to medium brown, cryptocrystalline to microcrystalline, earthy to argillaceous, limey, becoming marly with depth, and had scattered crinoid fossils. The dolomites had traces of minor intercrystalline to earthy porosity, but as with the limestones, no to only a very poor visible porosity and no to very poor, minor sample shows. Scattered throughout the Upper Ismay carbonates were translucent to buff to dark brown chert

fragments. The basal carbonates became increasingly marly and graded into the thin, very fossiliferous, carbonaceous Hovenweep Shale. The Hovenweep Shale, which defines the Upper and Lower Ismay contact, was represented by an slight increase in the black carbonaceous, dolomitic to calcareous, occasionally silty shale. This contact was poorly represented in the samples from measured depths of 5457' and 5462', true vertical depths 5455' to 5458'.

The top of the Lower Ismay member of the Upper Paradox Formation was picked at a measured depth of 5462', true vertical depth 5458', based primarily on sample identification and a decrease in the rate of penetration. The upper 24' of the Lower Ismay was predominately a tan to light gray dense, very slightly anhydritic limestone, and some thinly interbedded argillaceous, brown to medium brown dolomites, with very thin black carbonaceous shale partings and rare chert fragments. The Lower Ismay, from measured depths of 5486' to 5523', became a white to cream to light gray, crypto to microcrystalline, becoming granular, chalky, slightly to very silty, occasionally anhydritic, chalkycrystalline and occasionally dolomitic in part. This limestone had very rare streaks of algal material, scattered light chert fragments, and very rare thin brown, earthy dolomites. It was noted that these limestones occasionally graded to very limey siltstones. Associated with the limestones were very thin streaks of intercrystalline porosity but no visible sample show. There were trace amounts of calcite fracture filling, rare anhydrite crystals and light brown to dark brown chert fragments. The basal 23 feet of the Lower Ismay was a dense, slightly dolomitic limestone packstone and thin earthy dolomites. These limestones and dolomites became slightly to very marly with depth, and had scattered light chert fragments. The limestones and thin dolomites had thin streaks of intercrystalline porosity, but again had no visible sample shows. The limestones and very thin dolomites decreased as the Lower Ismay carbonates became increasingly dense and marly and graded into limey to dolomitic carbonaceous shales of the Gothic Shale.

The Gothic Shale was penetrated at a measured depth of 5546', true vertical depth 5518' and continued to a measured depth of 5566', true vertical depth 5528'. The top of the Gothic was picked by a decrease 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 to be eight feet thick 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 5566', with a slight decrease in penetration rate and an increase in the amount of dense limestone packstone in the samples. This transition zone has a true vertical thickness of approximately nine feet thick. The transition zone between the Gothic Shale and the top of the Desert Creek was predominately a dense limestone packstone and had thinly interbedded argillaceous limey dolomites and very thin black carbonaceous shale partings. The limestone of the transition zone are cream to white to light gray, brown to medium brown, cryptocrystalline to microcrystalline, with very rare very fine crystalline streaks, dense to slightly silty, and very slightly dolomitic. Scattered in the limestones are very thin, brown, slightly argillaceous, earthy, limey dolomites. The transition zone had no visible porosity or sample shows in the southeasterly direction. Near the base of the transition zone the dense limestones became increasingly oolitic and graded in to the oolicastic to oomoldic limestones of the upper 1-A porosity bench.

The top of the Desert Creek Upper 1-A porosity zone was penetrated at a measured depth of 5589', true vertical depth of 5537', and a horizontal displacement of approximately 42'. The top was picked on the lithology becoming predominately a good oolicastic to oomoldic limestone grainstone and a significant increase in the penetration rate. These limestone grainstones marked the upper pay zone, which was split in to two zones. The Upper1-A porosity zone had an apparent true vertical

thickness of 10 feet in this southeasterly direction, based on the electric log for the vertical well. The oolicastic to oomoldic limestone grainstones are tan to light brown to cream, microcrystalline to very fine crystalline, with a granular to slightly microsucrosic matrix and were very slightly dolomitic. The grainstones have a very minor amount of anhydrite crystals in the oolicastic matrix and very rare light brown chert fragments. The good oomoldic to oolicastic grainstone facies had fair oolitic and fair to good intercrystalline porosity development. The sample show was moderately fair and became moderately good as the lateral continued, with a trace of brown to light brown oil stain and had minor traces of black bitchimum stain* on the crystal faces and in the oolicasts and molds. The grainstones had a moderately fair becoming good bright to occasionally dull yellow fluorescence and a moderately good slow streaming to moderately fast streaming cut. The upper 1.5 vertical feet showed only moderate porosity and sample shows. Thin hard streaks were noted from a measured depth of 5589', with a true vertical depth 5537'. This dense slightly oolitic limestone packstone facies was cream to tan, occasionally white, cryptocrystalline to very slightly microcrystalline, slightly chalky to occasionally platy, clean and very slightly anhydritic. These packstones were moderately oolicastic to oomoldic limestone grainstones and dense slightly oolitic limestone packstones, with a trace to moderate porosity and a trace to moderately fair sample show. The best porosity of the Upper 1-A porosity zone was penetrated at a measured depth of 5596', true vertical depth 5538.5', and was in a very good oolicastic limestone grainstone as described above, with a better developed and a much better sample show. As the curve continued in the 1-A zone an increase in the background gases was noted. This best porosity zone in the Upper 1-A was the target zone for the entire southeast lateral, as it appeared to be better developed as well as thicker on the vertical well log for the 16-43 well and on the offsetting well logs.

The curve portion of the lateral was completed at a measured depth of 5625', true vertical depth 5541', at a horizontal displacement of 77', bearing 142 degrees, with an inclination of 89.8 degrees, on August 19, 1998, near the base of the Upper 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 August 19, 1998, near the base of the Upper 1-A porosity bench of the Desert Creek member of the Upper Paradox Formation. The lateral was slid for the first 60' of the lateral to control the vertical depth, horizontal plane direction and to put the lateral assembly out far enough to begin rotating. Starting at the measured depth of 5625', true vertical depth 5541' to a measured depth of 7275', true vertical depth 5568', and a horizontal displacement of 1746', the 1-A porosity bench was an oolicastic to oomoldic limestone grainstone facies. This limestone grainstone was a tan to light brown, very slightly brown, microcrystalline to very fine crystalline, granular to microsucrosic, oolicastic to oomoldic, slightly dolomitic, with occasionally calcite and anhydrite filled casts to cement. 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 bitchimum* stain, and a moderate to moderately fair fast to slow streaming cut. Throughout the first 1746' of the lateral section, there were scattered dense limestone packstone within the limestone grainstones, also when the base and top of the Upper 1-A zone was encountered. These dense packstones were cream to tan, occasionally white, cryptocrystalline to microcrystalline, slightly oolitic, some chalky to platy, with some anhydrite inclusions. Throughout the Upper 1-A zone were translucent to light brown chert fragments. The thickness of the 1-A zone in the southeasterly direction ranged in apparent thickness from as thin as 1 foot thick to an apparent maximum thickness of 10 feet. In this southeasterly leg, the 1-A zone had an overall apparent dip of 89°

Beginning at a horizontal displacement of 300', approximately 5850' measured depth, 5545' true vertical depth, to a horizontal displacement of approximately 475', with a measured of 6025', 5546.5' true vertical depth, the 1-A zone appeared to thin to approximately 1.5 foot thick. This interpretation is based on encountering the base of the zone at a true vertical depth of 5545', with a horizontal displacement of 300', the top of the zone at a true vertical depth of 5545', with a horizontal displacement of 350', and the base of the zone again at true vertical depth of 5547', with a horizontal

displacement of 450'. The zone appeared to again thin to almost 1 foot in thickness, from a horizontal displacement of 1700' to a horizontal displacement of 1800'. This is again based on where the top and base of the zone was encountered. Even with the zone thinning the amount of packstone noted in the samples was minor, as the base and top of the zone was only bumped and scraped but never penetrated.

As the lateral approached a measured depth of 6950', 5558' true vertical depth, with a horizontal displacement of 1390', the top of the 1-A zone was bumped and the well path turned downward. This downward trend continued with a dip of 88°, through the second thin 1-A porosity zone, to a measured depth of 7380', 5571' true vertical depth, with a horizontal displacement of 1830' when the base of the 1-A zone was bumped, turning the well path upward. Throughout this steeper downward dipping section of the lateral, the well path was on or just below the proposed target line. The well path was continued upward and leveled just prior to the lateral's termination.

At the measured depth of 7295', with a horizontal displacement of 1745' as the 1-A zone appeared to thin, a moderate decrease in penetration was noted, as the top and base of the 1-A zone was encountered as the zone thinned. This decrease in penetration rate continued to the lateral's termination at 7551', and was possibly due to a decrease in good effective porosity, as an increase in dense limestone matrix and anhydrite filling was noted in the samples with a slight decrease in the amount of sample show. Also noted was a slight decrease in the associated background gas.

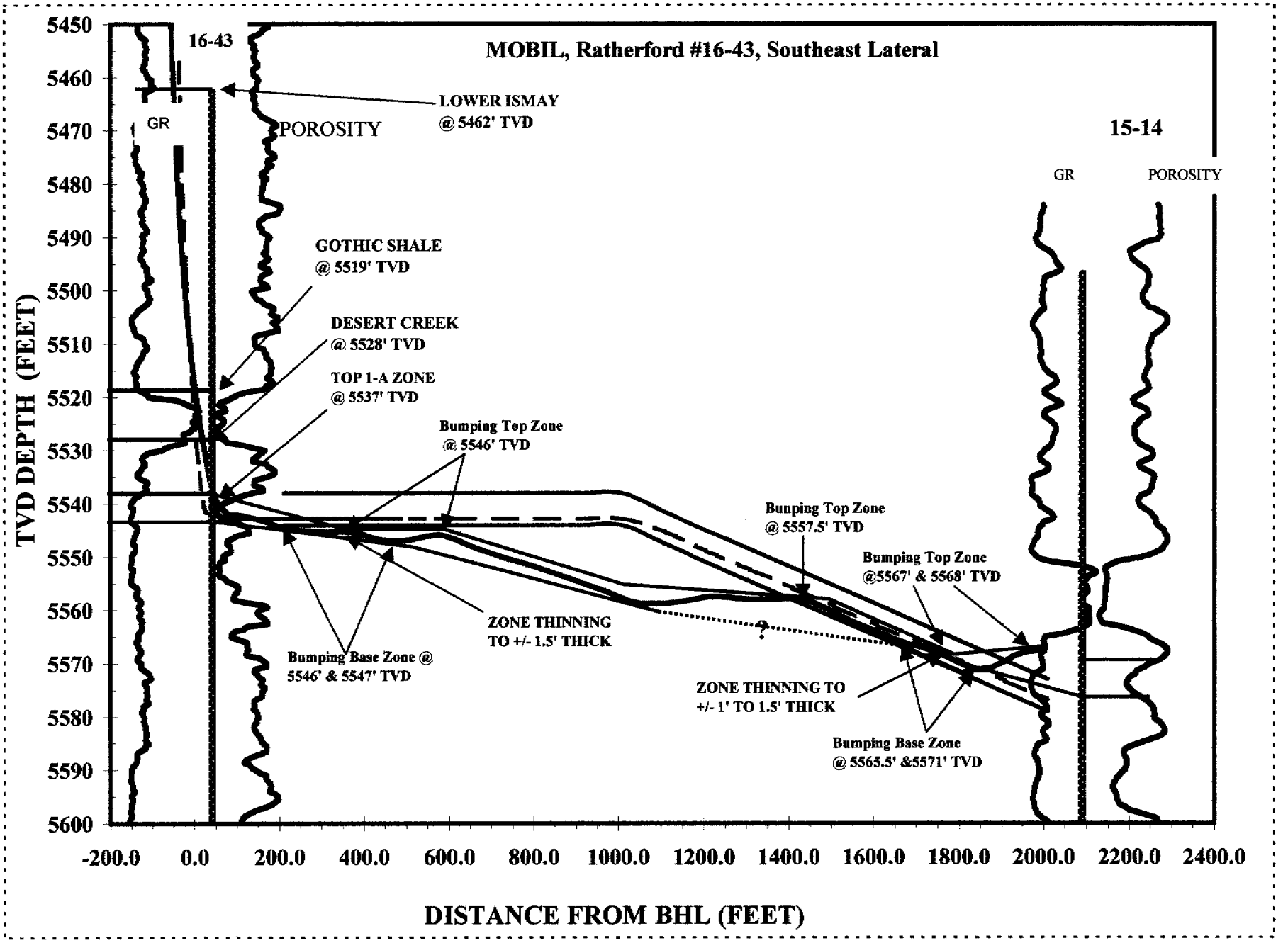
Beginning at a measured depth of 5762', 5544.5' true vertical depth, and a horizontal displacement of 223', a steady increase in the background was noted, with very minor traces of oil noted in the possum belly, and a small flare. As the lateral continued the traces of oil increased, as did the background gas and the flare.

In tracking the lateral in this southeasterly direction, the good oolicastic to oomoldic limestone grainstones had good sample shows, which remained very consistent until reaching the measured depth of 7295', as the porosity zone began thickening, just prior the well path glancing off the base of the 1-A zone and turning upward. The oolicastic to oomoldic limestone grainstones were very consistent. These limestone grainstones remained predominately tan to light brown, rare traces of brown, microcrystalline to very fine crystalline, granular to microsucrosic, oolicastic to oomoldic, slightly dolomitic, with rare calcite and anhydrite filled casts to cement. These grainstones had a predominately 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 bitchimum* stain, and a moderate to moderately fair fast to slow streaming cut. Beginning at the measured depth of 7295' a slight increase in the amount of white to cream to tan, cryptocrystalline, dense, occasionally chalky to platy, slightly oolitic limestone packstone was noted in the samples. This decrease in penetration rate with increased amounts of packstone and an associated slow decrease in the background gas continued to the lateral's termination at a measured depth of 7551'.

From the beginning of the 16-43 southeast lateral leg #2 to its termination on August 20, 1998, at a measured depth of 7551', 5567.5' true vertical depth and a horizontal displacement of 2000.3', the lateral remain in the Upper Desert Creek Upper 1-A zone. The lithology of the lateral remained consistent for what is defined as the Upper Desert Creek upper 1-A porosity bench. Even after encountering the two zones of very thin porosity and the slightly tighter oolicastic to oomoldic limestone grainstone, over the last 256' of the lateral, this southeasterly lateral showed predominately good oolitic to intercrystalline porosities, with predominately good sample shows. The lateral in this southeasterly lateral showed porosities that are well enough developed to enhance the overall performance of the 16-43 injection well. The thin zones and the possibly lower porosity in the last 256', after acidization, will contribute to the overall performance, when returned to water flood.

*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.

ROCKY MOUNTAIN GEO-ENGINEERING CORP. 2450 INDUSTRIAL BLVD. GRAND JUNCTION, CO 81505 (970) 243-3044



Form 3160-4
(July 1992)

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*

5. LEASE DESIGNATION AND SERIAL NO.: 14-20-603-355

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: NAVAJO TRIBAL

7. UNIT AGREEMENT NAME: RATHERFORD UNIT

8. FARM OR LEASE NAME, WELL NO.: RATHERFORD 16-W-43

9. API WELL NO.: 43-037-16415

10. FIELD AND POOL, OR WILDCAT: GREATER ANETH

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: SEC. 16, T41S, R24E

1a. TYPE OF WELL: OIL WELL [X] GAS WELL [ ] DRY [ ] Other X INJECTOR

b. TYPE OF COMPLETION: NEW WELL [ ] WORK OVER [ ] DEEP-EN [ ] PLUG BACK [ ] DIFF. RESVR. [ ] Other X 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: (NE/SE) 2140' FSL & 820' FEL
At top prod. interval reported below: *#37
At total depth: *#37

14. PERMIT NO.	DATE ISSUED	12. COUNTY OR PARISH	13. STATE
NA	NA	SAN JUAN	UT

15. DATE SPUDDED	16. DATE T.D. REACHED	17. DATE COMPL. (*Ready to prod.*)	18. ELEVATIONS (DF, RKB, RT, GR, ETC.)*	19. ELEV. CASINGHEAD
7-27-98	8-22-98	9-04-98	4698' GR	

20. TOTAL DEPTH, MD & TVD	21. PLUG, BACK T.D., MD & TVD	22. IF MULTIPLE COMPL., HOW MANY*	23. INTERVALS DRILLED BY	ROTARY TOOLS	CABLE TOOLS
**#37	**#37		→	X	

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

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"	27.1#	175'	17 1/4"	175 SXS CMT / CIRC SURFACE	
8 5/8"	24#	1483'	11"	468 SXS. 1"PIPE/115 SXS/TOP 5	
5 1/2"	14 & 15.5#	5758'	7 7/8"	232 SXS / 4075' TS	
ORIGINAL	CASING	UNDISTURBED			

29. LINER RECORD

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

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)
2 3/8"		5319'

31. PERFORATION RECORD (*Interval, size and number*): 5469-5470 (4 SPF)

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

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
5469-5606'	SQZ PERFS W/50 SXS CLASS G & 50 SXS CLASS B NEAT CEMENT
***#37	

33.* PRODUCTION

DATE FIRST PRODUCTION	PRODUCTION METHOD (*Flowing, gas lift, pumping - size and type of pump*)	WELL STATUS (*Producing or shut-in*)
9-30-98		INJECTOR

DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FOR TEST PERIOD →	OIL - BBL.	GAS - MCF.	WATER - BBL.	GAS - OIL RATIO
9-30-98						500 BBLS	

FLOW. TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE →	OIL - BBL.	GAS - MCF.	WATER - BBL.	OIL GRAVITY - API (CORR.)
1200						

RECEIVED
NOV 03 1998
DIV. OF OIL, GAS & MINING

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 for TITLE SHIRLEY HOUCHINS/ENV & REG TECH DATE 10-30-98

*(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):

38. GEOLOGIC MARKERS

FORMATION	TOP	BOTTOM	DESCRIPTION, CONTENTS, ETC.	NAME	TOP	
					MEAS. DEPTH	TRUE VERT. DEPTH
*#4		LAT #1A1	2701' FNL & 971' FWL			
		LAT #2A1	1371' FSL & 1458' FEL			
**#20 & 21		LAT #1A1	(5415-5551' TVD)(5416-8298' TMD)			
		LAT #2A1	(5408-5567' TVD)(5409-7551' TMD)			
***#32		LAT #1A1	5582-8298' ACIDIZE W/37800 GALS 15% HCL ACID			
		LAT #2A1	5638-7551' ACIDIZE W/27300 GALS 15% HCL ACID			

U.S. GOVERNMENT PRINTING OFFICE: 1992-774-672

Form 3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

SUNDRY NOTICES AND REPORTS ON WELLS

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

SUBMIT IN TRIPLICATE

5. Lease Designation and Serial No.: 14-20-603-355
6. If Indian, Allottee or Tribe Name: NAVAJO TRIBAL
7. If Unit or CA, Agreement Designation: RATHERFORD UNIT
8. Well Name and No.: RATHERFORD 16-W-43
9. API Well No.: 43-037-16415
10. Field and Pool, or exploratory Area: GREATER ANETH
11. County or Parish, State: SAN JUAN UT

1. Type of Well: [ ] Oil Well [ ] Gas Well [X] 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. 16, T41S, R24E
(NE/SE) 2140' FSL & 820' FEL

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

TYPE OF SUBMISSION	TYPE OF ACTION	
[ ] Notice of Intent	[ ] Abandonment	[ ] Change of Plans
[X] Subsequent Report	[ ] Recompletion	[ ] New Construction
[ ] Final Abandonment Notice	[ ] Plugging Back	[ ] Non-Routine Fracturing
	[ ] Casing Repair	[ ] Water Shut-Off
	[ ] Altering Casing	[ ] Conversion to Injection
	[X] Other INJECTOR/SIDETRACK	[ ] 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; 2701' NORTH & 971' WEST FROM SURFACE SPOT (ZONE 1b/1c).
LATERAL #2; 1371' SOUTH & 1458' EAST FROM SURFACE SPOT (ZONE 1a).

SEE ATTACHED PROCEDURE. (7-27-98 -- 9-04-98)

14. I hereby certify that the foregoing is true and correct
Signed Sue Moseley for Title SHIRLEY HOUCHINS/ENV & REG TECH Date 10-30-98

(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.

*** See Instruction on Reverse Side**

ATTACHMENT - FORM 3160-5
RATHERFORD UNIT #16-13
14-20-603-355
NAVAJO TRIBAL
SAN JUAN, UTAH

07-13-98	NOTIFIED CHARMINE W/ NAVAJO EPA @ 16:40 OF THE INTENT TO PREP WELL FOR HORIZ 7/13/98. NOTIFIED BLM WAYNE TOWNSEND NO ANSWER LEFT WORD ON ANSWER MACHINE ON THE INTENT TO PREP WELL FOR HORIZ. @ 16:45. MIRU NAVAJO WEST RIG #15. BLED DN TBG. UNSEAT PUMP POH LAY DN RODS/PUMP, KILL CSG, NIP DN WELL HEAD INSTALLED WELL CONTROL EQUIP, REL TAC POH W/ 120-JTS TALLY OUT SWISDFN.
07-14-98	SITP 75# CSG 15#. RIH W/GUIB. 7" RBP ON 2.875" TBG. SET RBP @ 5407' REL OFF ON/OFF TOOL. RU STEEL LINE REV. PIT/PUMP/TANK, CIRC 230 BBLS BRINE WTR SI TEST 7" CSG TO 1000# 30 MIN OK, BLED OFF. SWISDFN.
07-15-98	SITP 75" CSG 350#, BLED OFF CSG TBG., CIRC TO CLEAR UP, WOULDN'T CLEAN UP, DISPL. W/ F-WTR. TEST 7" CSG/RBP TO 1000# 30 MIN HELD OK. POOH LAY DN 2.875" TBG. & RBP SETTING TOOL. RIG DN FLOOR TOOLS. LOAD HOLE W/ F/WTR SWISDFN.
07-16-98	SICP 0#, NIP DN WELL HEAD, SPEARED 7" CSG PULLED, CHANGED OUT WELL HEADS TEST OK. WELL BORE PREP FOR HORIZ. DRILLIING (FINAL PREP WORK REPORT).
07-24-98	MOVING IN AND RIGGING UP ROTARY RIG. NAVAJO WEST 25.
07-25-98	FINISH RIGGING, RIH W/ RETRIEVING HEAD, AND AOHDP TO RBP AT 5409'. LATCH ONTO RBP. EQUALIZE, RELEASE AND POOH. RU SCHLUMBERGER. WL SET TIW BIG BORE PKR. @ 5419'. RIH W/ANCHOR LATCH ASSY, AND AOHDP. LATCH INTO TIW PKR. @ 5419'. RU GYRODATA. RIH AND TOOK READINGS. PKR KEYWAY AT 2 DEG. GTF. SURVEY TO SURFACE. RDWL.
07-26-98	PU ANCHOR LATCH, WHIPSTOCK. TIH. LATCH INTO TIW PKR. AT 5419'. PKR. AT 2 DEGREE GTF AND WHIPSTOCK AT 135 DEGREE. MILL FROM 5401-5403'. LAY DN STARTER MILL AND PU CSG. MILL. MILL WINDOW FROM 5401-5409'/PLUS 6" FORMATION. UNABLE TO DRILL DEEPER. CIRC SWEEP. **FINAL REPORT THIS OPERATION**
07-26-98	PU CURVE ASSY. AND AOHDP TO TOP OF WINDOW AT 5400' PU SWIVEL, BREAK CIRC., RU GYRODATA TO ORIENT ASSY.
07-26-98	MIX AND PUMP 30 BBLS. 12 PPB MAGNA FIBER AND GAIN CIRC. POOH AND LAY DOWN LATCH ASSY. **FINAL REPORT THIS OPERATION**
07-27-98	ORIENT CURVE BUILDING MOTOR. TIME DRILL FROM 5410-5412'. SLIDE DRILL AND SURVEYS W/GYRO FROM 5412-5445'. RIG DOWN GYRODATA. SLIDE DRILL AND SURVEYS FROM 5445' TO END OF CURVE SECTION AT 5606'. (PROJECTED AT TD OF 5606' MD, 90 ANGLE, 139.60 AZ., 5527.39' TVD, 40.74 VS) POOH LAYING DOWN DP, AND CURVE BUILDING MOTOR. PREPARE TO PU LAT. BUILDING ASSY.
07-28-98	LATERAL 1A1. PU LATERAL BUILDING ASSY. DP TO END OF CURVE AT 5606'. SLIDE/ROTATE DRILL AND SURVEYS FROM 5606-6300'. @ 6235' TMD, 88.90 ANGLE, 136.30 AZ., 5537.73' TVD, 669.09 VERTICAL SECTION.
07-29-98	SLIDE/DRILL ROTATE AND SURVEYS FROM 6300'-6665'.
07-30-98	SLIDE/DRILL AND SURVEYS FROM 6665-7100'
07-31-98	SLIDE/ROTATE DRILL AND SURVEYS FROM 7100-7750' LAST SURVEY AT 7660' TMD, 89.80 ANGLE, 132.20' AZ., 5550.87 TVD, 2092.42' VERTICAL SECTION.
08-01-98	SLIDE/ROTATE DRILL AND SURVEYS FROM 7750' - 8569' TD LATERAL 1A1. LAST SURVEY AT 8535' TMD, 89.60 ANGLE, 135.20 AZ., 5562.03' TVD, 2966.85' VS. (PROJECTED AT BIT 8569' MD, 89.60 ANGLE, 135.20 AZ., 5562.27' TVD, 3000.85' VERTICAL SECTION.) MIX AND PUMP SWEEP TO SURFACE. HANG SWIVEL BACK. START OUT OF LATERAL 1A1.

ATTACHMENT - FORM 3160-5
RATHERFORD UNIT #16-13
14-20-603-355
NAVAJO TRIBAL
SAN JUAN, UTAH

08-02-98	FINISH OUT OF HOLE INTO CSG. WELL FLOWING. DISPLACE HOLE W/10# BRINE. WELL DEAD. FINISH OUT OF HOLE W/BHA AND LAY DOWN SPERRY SUN'S TOOLS. W/SUPER HOOK AND LATCH INTO WHIPSTOCK #1 AT 5401'. POOH W/WHIPSTOCK AND LAY DOWN SAME. **FINAL REPORT LATERAL 1A1**
08-02-98	PU LATCH ASSY. EXTENSION. WHIPSTOCK #2. ORIENT WHIPSTOCK. TIH AND LATCH INTO TIW PKR. AT 5419'. SHEAR OFF WHIPSTOCK AND MILL 7" CSG. FROM 5382-5384'. W/CSG. AND WATERMELON MILL. CIRC. HOLE USING CHOKE. MILL WINDOW FROM 5382-87'.
08-03-98	FINISH MILLING WINDOW PLUS 1' FORMATION TO 5391' (TOP WINDOW AT 5381', TOP OF WHIPSTOCK AT 5382'. BTM. WINDOW AT 5390', FORMATION TO 5391'.) POOH LAYING DOWN MILLS. **FINAL REPORT LAT. 1**
08-03-98	PU CURVE BUILDING ASSY. RU GYRODATA. TIH ORIENT TOOLFACE TO 315 AZ., TIME DRILL FROM 5391-5394'. DRILL W/ WT. USING GYRO FROM 5394-5427'. RD GYRO DATA. SLIDE/DRILL AND SURVEYS W/MWD FROM 5427-5500'.
08-04-98	SLIDE DRILLED CURVE 2A1 FROM 5500-5603' MD, 5519' TVD. PUMPED POLYMER SWEEP, DISPLACED HOLE W/ 10# BRINE & KILLED WELL. POH LD 2.875" AOHDP POH LD MWD & MM RIH W/ MUD MOTOR, PH6 TBG, 2.875" AOHDP. SLIDE & ROTATE DRILLED LATERAL 2A1 FROM 5603-5850'.
08-05-98	SLIDE & ROTATE DRILLED LATERAL 2A1 FROM 5850-7243'.
08-06-98	SLIDE & ROTATE DRILLED LATERAL 2A1 FROM 7243-7558'.
08-07-98	SLIDE & ROTATE DRILLED LATERAL 2A1 FROM 7558-7798'.
08-08-98	SLIDE & ROTATE DRILLED LATERAL 2A1 FROM 7798-8081' TD, 5494' TVD. PUMPED HEC POLYMER SWEEP & CIRC HOLE CLEAN.
08-09-98	PUMPED HEC POLYMER SWEEP & CIRC HOLE CLEAN. PULLED BIT TO WINDOW 5380', DISPLACED HOLE W/ 10# BRINE & KILLED WELL. POH & LD MWD & MUD MOTOR. RIH W/ 7" GUIBERSON UNI-6 PKR. ON/OFF TOOL 2.875" PH6 & AOHDP, SET EOT @ 5625', TOP OF PKR @ 5252', REL ON/OFF TOOL. PRESS TESTED CSG & PKR TO 1000#, HELD OK. POH & LD 2.875" PH6 & AOHDP & DC'S ND BOP, CHOKE MANIFOLD, MUD GAS SEPARATOR. RD
08-10-98	RIG DOWN & WAIT ON DAYLIGHT TO MOVE RIG TO RU #16-43**FINAL REPORT FOR LATERAL 2A1**

COMPLETION

08-12-98	MIRU NAVAJO WEST RIG #36 & REV. EQUIP. NIP DN WELL HEAD INSTALLED HYDRIL PU 7" GUIB. ON/OFF TOOL ON 2.875" PH-6 HYDRIL WORKSTRING TBG. SWISDFN.
08-13-98	FINISHED P/U TALLY IN TBG. TO PKR @ 5252'. SPACE OUT. CIRC OIL. MOSTLY GAS OUT WELL BORE W/ 10# KILL FLUID TEST TO 500# OK. MIRU TEFTELLER SL TRUCK FISHED 1.87 "F" PLUG RIG DN SAME . MIRU DOWELL COIL TBG. SWISDFN.
08-14-98	STARTED IN HOLE W/ COIL TBG. WASH FROM 5625-8064' CIRC 1. CLEAN UP ACIDIZE LATERAL 2A1, 7652-8064' W/ 150 BBLS 15% HCL ACID & 5625-7515' W/ 650 BBLS 15% HCL ACID TOTAL OF 33000 GALS ACID.
08-15-98	FLOWING TBG. PRESSURE 220# KILLED W/10# KILL FLUID. REL PKR POH W/ PKR TP. RIH W/ WEATHERFORD SUPERHOOK. & RELEASE LATERAL 2A1 REENTRY GUIDE. RIH W/ ASSM. LATCHED INTO TIW PKR @5419' POH W/ SETTING TOOL RIH W/ 7" GUIB PKR ON 2.875". SET PKR @ 5262' EOT @ 5538' LOAD & TEST PKR/BACKSIDE TO 500# OK SWISDFN & SUNDAY.

ATTACHMENT - FORM 3160-5
RATHERFORD UNIT #16-13
14-20-603-355
NAVAJO TRIBAL
SAN JUAN, UTAH

08-16-98	MIRU DOWELL ACID AND COILED TBG. UNIT. RIH W/COILED TBG. ACIDIZE LATERAL 1A1 FROM 5538-8570' WITH 42,000 GAL. OF 15% HCL ACID. SIFN.
08-18-98	SHUT IN TBG. PRESSURE AT 07:30 WAS O PSI. RIG UP TO SWAB. RIG DN SWAB EQUIPMENT. RIG UP AND PUMP 10# BRINE DOWN TBG. WELL DEAD. RELEASE PACKER, POH. LAY DN TBG. TAIL PIPE. RETURN TO DRLG. RIG. MAKE-UP RETV. TOOLS FOR RETV. WHIPSTOCK. RIH TO 5382'. ONTO WHIPSTOCK, RELEASE, POH. LAY DN WORKSTRING, RUNNING TOOLS, AND RETV. WHIPSTOCK. SIFN.
08-19-98	SHUT IN CSG. PRESSURE AT 07:30 WAS 450 PSI. OPEN TO TEST TANK. BLEED CSG. PRESSURE FROM 450 PSI. TO 175 PSI. IN 5 MIN. RIG UP AND KILL WELL WITH 70 BBLS OF 10# BRINE, WELL DEAD. SHUT DOWN OPERATIONS FOR ROD AND PUMP EQUIPMENT CLASS. RIG UP AND RIH WITH 2.875" TBG. AND BHA FOR PUMP EQUIPMENT TO 5371.53'. SIFN.
08-20-98	SHUT IN PRESSURE AT 07:30 WAS 450 PSI.. RIG UP AND KILL WELL. WELL DEAD. NIPPLE DN BOPE. SET TBG. ANCHOR AT 5149'. PUMP WELL HEAD AND TBG. HEAD. RIG UP AND PUMP AND RODS TO 5335'. RIG UP POLISH ROD. TEST TO 400 PSI. RIG DOWN. SHUT IN. RIG DN NAVAJO WEST RIG #36. SI.

Mobil

San Juan County
Utah
Ratherford Unit
RU 16-13 - MWD Survey Leg 1

SURVEY REPORT

14 August, 1998

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

Survey Ref: svy3064

Sperry-Sun Drilling Services

Survey Report for RU 16-13 - MWD Survey Leg 1

Mobil **Utah**
San Juan County **Ratherford Unit**

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
5400.00	0.290	206.270	5397.94	44.16 N	84.07 W	-90.67	
5401.00	0.320	308.350	5398.94	44.16 N	84.07 W	-90.67	47.470
5410.00	4.900	135.000	5407.93	43.90 N	83.82 W	-90.31	57.978
5420.00	9.200	144.890	5417.85	42.95 N	83.06 W	-89.10	44.524
5430.00	14.600	148.490	5427.63	41.22 N	81.94 W	-87.08	54.482
5440.00	19.900	150.350	5437.18	38.66 N	80.44 W	-84.22	53.280
5450.00	24.600	151.490	5446.43	35.35 N	78.60 W	-80.58	47.196
5460.00	28.800	152.270	5455.37	31.39 N	76.49 W	-76.28	42.145
5470.00	32.300	152.850	5463.98	26.88 N	74.15 W	-71.43	35.124
5480.00	35.700	153.300	5472.26	21.89 N	71.61 W	-66.12	34.093
5490.00	40.000	151.700	5480.16	16.45 N	68.78 W	-60.27	44.103
5500.00	44.400	149.300	5487.57	10.61 N	65.47 W	-53.80	46.854
5510.00	48.600	143.500	5494.45	4.58 N	61.45 W	-46.69	59.417
5520.00	52.100	139.400	5500.83	1.43 S	56.65 W	-39.04	47.121
5530.00	55.800	136.200	5506.72	7.41 S	51.21 W	-30.97	45.141
5540.00	60.500	136.500	5511.99	13.56 S	45.35 W	-22.48	47.069
5550.00	65.700	137.100	5516.52	20.06 S	39.25 W	-13.57	52.274
5560.00	71.200	139.800	5520.19	27.02 S	33.09 W	-4.29	60.456
5570.00	75.800	142.700	5523.03	34.49 S	27.09 W	5.24	53.746
5580.00	80.000	139.600	5525.12	42.11 S	20.96 W	14.95	51.791
5606.00	89.200	131.500	5527.57	60.54 S	2.85 W	40.79	47.031
5633.00	88.000	128.200	5528.23	77.83 S	17.86 E	67.67	13.002
5664.00	89.500	130.800	5528.91	97.54 S	41.78 E	98.51	9.681
5696.00	89.100	131.900	5529.30	118.68 S	65.80 E	130.45	3.657
5728.00	89.300	132.600	5529.75	140.20 S	89.48 E	162.41	2.275
5759.00	89.700	132.800	5530.02	161.22 S	112.26 E	193.38	1.443
5791.00	89.900	132.900	5530.13	182.98 S	135.72 E	225.36	0.699
5823.00	88.500	132.900	5530.58	204.76 S	159.16 E	257.33	4.375
5854.00	87.300	132.900	5531.71	225.85 S	181.85 E	288.29	3.871
5886.00	87.600	132.800	5533.14	247.59 S	205.29 E	320.23	0.988
5917.00	87.800	133.700	5534.38	268.81 S	227.85 E	351.19	2.972
5949.00	89.800	134.500	5535.05	291.08 S	250.83 E	383.18	6.731
5981.00	89.900	135.100	5535.13	313.62 S	273.53 E	415.18	1.901
6013.00	89.400	134.500	5535.33	336.17 S	296.24 E	447.18	2.441
6045.00	89.400	134.000	5535.66	358.50 S	319.16 E	479.18	1.562
6076.00	90.000	133.500	5535.83	379.94 S	341.55 E	510.17	2.519
6108.00	91.800	133.300	5535.32	401.92 S	364.80 E	542.15	5.660
6140.00	88.900	133.500	5535.13	423.90 S	388.04 E	574.13	9.084
6172.00	88.100	134.700	5535.97	446.16 S	411.02 E	606.12	4.506
6204.00	88.300	135.600	5536.97	468.84 S	433.57 E	638.10	2.880
6235.00	88.900	136.300	5537.73	491.11 S	455.12 E	669.09	2.974
6267.00	90.500	137.000	5537.90	514.38 S	477.08 E	701.07	5.458
6299.00	89.800	136.800	5537.81	537.75 S	498.95 E	733.05	2.275
6331.00	90.400	135.800	5537.76	560.88 S	521.06 E	765.05	3.644
6362.00	91.100	135.900	5537.35	583.12 S	542.65 E	796.04	2.281

Continued...

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)
6394.00	91.500	135.600	5536.62	606.04 S	564.97 E	828.03	1.562
6425.00	87.900	135.600	5536.79	628.18 S	586.66 E	859.02	11.613
6457.00	87.200	135.400	5538.15	650.99 S	609.07 E	890.99	2.275
6489.00	87.800	135.900	5539.55	673.85 S	631.41 E	922.96	2.440
6521.00	88.900	137.200	5540.47	697.07 S	653.41 E	954.93	5.320
6553.00	90.200	137.300	5540.72	720.56 S	675.13 E	986.91	4.075
6584.00	88.000	137.000	5541.21	743.29 S	696.21 E	1017.88	7.162
6616.00	86.800	136.800	5542.66	766.63 S	718.05 E	1049.83	3.802
6648.00	88.300	137.500	5544.03	790.07 S	739.79 E	1081.77	5.172
6680.00	90.700	137.300	5544.31	813.62 S	761.45 E	1113.74	7.526
6712.00	91.400	137.700	5543.72	837.21 S	783.07 E	1145.71	2.519
6743.00	92.000	137.500	5542.80	860.09 S	803.96 E	1176.66	2.040
6775.00	92.000	137.900	5541.69	883.74 S	825.48 E	1208.61	1.249
6807.00	92.100	137.700	5540.54	907.43 S	846.96 E	1240.55	0.698
6839.00	92.700	137.700	5539.20	931.08 S	868.48 E	1272.48	1.875
6870.00	90.000	137.500	5538.47	953.96 S	889.38 E	1303.44	8.734
6902.00	91.100	137.700	5538.16	977.59 S	910.95 E	1335.40	3.494
6933.00	90.100	137.200	5537.84	1000.43 S	931.92 E	1366.37	3.607
6965.00	87.500	136.100	5538.51	1023.69 S	953.88 E	1398.35	8.822
6996.00	86.000	135.900	5540.27	1045.95 S	975.37 E	1429.30	4.881
7027.00	86.700	135.900	5542.24	1068.17 S	996.90 E	1460.23	2.258
7059.00	86.600	135.800	5544.11	1091.09 S	1019.15 E	1492.17	0.442
7091.00	88.700	134.900	5545.42	1113.84 S	1041.62 E	1524.14	7.139
7123.00	90.100	134.400	5545.76	1136.32 S	1064.39 E	1556.14	4.646
7154.00	90.300	134.500	5545.65	1158.03 S	1086.52 E	1587.14	0.721
7185.00	91.600	134.000	5545.14	1179.66 S	1108.72 E	1618.13	4.493
7217.00	92.100	133.500	5544.10	1201.78 S	1131.82 E	1650.10	2.209
7249.00	92.600	133.700	5542.79	1223.83 S	1154.98 E	1682.07	1.683
7281.00	92.200	132.800	5541.45	1245.73 S	1178.26 E	1714.02	3.076
7313.00	89.200	132.800	5541.06	1267.47 S	1201.74 E	1745.99	9.375
7344.00	88.700	132.600	5541.63	1288.49 S	1224.52 E	1776.96	1.737
7376.00	86.400	131.500	5543.00	1309.90 S	1248.25 E	1808.89	7.966
7408.00	86.800	131.900	5544.77	1329.32 S	1270.61 E	1838.79	1.664
7438.00	88.200	133.700	5546.17	1351.54 S	1294.07 E	1870.73	7.122
7469.00	88.200	133.700	5547.14	1372.95 S	1316.47 E	1901.71	0.000
7501.00	88.900	132.900	5547.95	1394.89 S	1339.75 E	1933.68	3.321
7533.00	88.500	132.100	5548.68	1416.50 S	1363.34 E	1965.64	2.795
7565.00	88.700	131.500	5549.46	1437.83 S	1387.19 E	1997.58	1.976
7597.00	88.700	131.000	5550.19	1458.92 S	1411.24 E	2029.51	1.562
7628.00	89.500	132.600	5550.67	1479.58 S	1434.34 E	2060.45	5.770
7660.00	89.800	132.200	5550.87	1501.16 S	1457.97 E	2092.42	1.562
7691.00	90.300	131.200	5550.84	1521.78 S	1481.12 E	2123.37	3.607
7723.00	89.500	130.800	5550.90	1542.77 S	1505.27 E	2155.29	2.795
7754.00	89.700	130.700	5551.12	1563.01 S	1528.75 E	2186.20	0.721
7785.00	90.100	132.400	5551.17	1583.57 S	1551.95 E	2217.15	5.634

Continued...

Sperry-Sun Drilling Services

Survey Report for RU 16-13 - MWD Survey Leg 1

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)
7817.00	89.600	133.300	5551.25	1605.33 S	1575.41 E	2249.12	3.217
7849.00	90.200	133.300	5551.31	1627.27 S	1598.70 E	2281.11	1.875
7881.00	90.100	133.100	5551.23	1649.18 S	1622.03 E	2313.09	0.699
7912.00	89.100	133.300	5551.44	1670.40 S	1644.62 E	2344.08	3.290
7944.00	88.300	134.700	5552.17	1692.62 S	1667.64 E	2376.06	5.038
7976.00	86.800	134.900	5553.54	1715.15 S	1690.32 E	2408.03	4.729
8008.00	86.800	134.500	5555.32	1737.62 S	1713.03 E	2439.98	1.248
8040.00	87.200	134.200	5557.00	1759.96 S	1735.88 E	2471.94	1.562
8072.00	88.100	135.200	5558.31	1782.45 S	1758.61 E	2503.91	4.202
8103.00	89.200	135.200	5559.04	1804.44 S	1780.45 E	2534.90	3.548
8135.00	89.700	135.200	5559.35	1827.15 S	1802.99 E	2566.90	1.562
8167.00	90.200	135.100	5559.37	1849.83 S	1825.56 E	2598.90	1.593
8198.00	89.100	134.700	5559.56	1871.71 S	1847.52 E	2629.90	3.776
8230.00	88.800	134.500	5560.15	1894.18 S	1870.30 E	2661.89	1.127
8262.00	89.900	135.100	5560.51	1916.73 S	1893.00 E	2693.89	3.916
8294.00	89.700	135.100	5560.62	1939.39 S	1915.59 E	2725.89	0.625
8326.00	90.300	134.400	5560.62	1961.92 S	1938.32 E	2757.89	2.881
8358.00	90.300	134.500	5560.46	1984.33 S	1961.16 E	2789.88	0.312
8389.00	90.500	134.400	5560.24	2006.04 S	1983.29 E	2820.88	0.721
8421.00	90.300	134.000	5560.02	2028.35 S	2006.23 E	2852.88	1.398
8453.00	89.100	134.500	5560.18	2050.67 S	2029.15 E	2884.87	4.062
8485.00	88.200	134.400	5560.94	2073.08 S	2051.99 E	2916.86	2.830
8517.00	88.800	134.900	5561.78	2095.56 S	2074.75 E	2948.85	2.440
8535.00	89.600	135.200	5562.03	2108.30 S	2087.46 E	2966.85	4.747
8569.00	89.600	135.200	5562.26	2132.42 S	2111.42 E	3000.85	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 135.000° (True).

Based upon Minimum Curvature type calculations, at a Measured Depth of 8569.00ft.,
The Bottom Hole Displacement is 3000.88ft., in the Direction of 135.284° (True).

Mobil

San Juan County
Utah
Ratherford Unit
RU 16-13 - MWD Survey Leg 2

SURVEY REPORT

14 August, 1998

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

Survey Ref: svy3066

Sperry-Sun Drilling Services

Survey Report for RU 16-13 - MWD Survey Leg 2

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)
5200.00	0.320	218.740	5197.94	45.05 N	83.94 W	91.21	
5382.00	0.290	207.490	5379.94	44.24 N	84.47 W	91.02	0.037
5391.00	3.600	315.000	5388.93	44.42 N	84.68 W	91.29	41.084
5401.00	7.300	327.710	5398.89	45.18 N	85.24 W	92.23	38.697
5411.00	12.000	331.410	5408.74	46.63 N	86.08 W	93.84	47.383
5421.00	16.800	333.170	5418.42	48.84 N	87.23 W	96.22	48.194
5431.00	21.500	334.210	5427.87	51.78 N	88.68 W	99.32	47.122
5441.00	26.100	334.900	5437.02	55.42 N	90.41 W	103.12	46.083
5451.00	30.300	335.400	5445.83	59.71 N	92.40 W	107.56	42.066
5461.00	34.400	338.500	5454.27	64.64 N	94.48 W	112.51	44.217
5471.00	38.300	335.400	5462.33	70.08 N	96.81 W	118.01	43.101
5481.00	42.700	331.400	5469.93	75.88 N	99.72 W	124.17	51.078
5491.00	47.000	330.800	5477.02	82.05 N	103.13 W	130.95	43.207
5501.00	51.500	326.100	5483.55	88.50 N	107.10 W	138.31	57.362
5511.00	54.900	322.200	5489.54	94.98 N	111.79 W	146.21	46.155
5521.00	58.200	317.700	5495.05	101.36 N	117.17 W	154.52	49.976
5531.00	59.000	321.400	5500.26	107.86 N	122.70 W	163.03	32.577
5541.00	62.400	321.900	5505.15	114.70 N	128.11 W	171.69	34.278
5551.00	66.900	321.000	5509.43	121.76 N	133.74 W	180.67	45.728
5561.00	71.400	322.000	5512.99	129.07 N	139.56 W	189.95	45.959
5571.00	76.500	322.200	5515.76	136.65 N	145.46 W	199.48	51.036
5603.00	90.300	321.300	5519.43	161.55 N	165.09 W	230.97	43.215
5645.00	90.100	315.800	5519.28	193.02 N	192.88 W	272.88	13.104
5677.00	90.600	314.500	5519.08	215.71 N	215.45 W	304.88	4.353
5709.00	91.400	314.200	5518.53	238.07 N	238.33 W	336.87	2.670
5741.00	90.600	313.800	5517.97	260.30 N	261.35 W	368.86	2.795
5773.00	90.700	313.100	5517.60	282.31 N	284.58 W	400.84	2.210
5804.00	90.400	313.500	5517.31	303.56 N	307.14 W	431.83	1.613
5836.00	89.700	314.200	5517.28	325.73 N	330.21 W	463.82	3.094
5868.00	89.800	314.400	5517.42	348.08 N	353.11 W	495.82	0.699
5900.00	90.100	313.800	5517.45	370.35 N	376.09 W	527.82	2.096
5931.00	90.400	313.500	5517.31	391.75 N	398.52 W	558.81	1.369
5963.00	90.900	313.300	5516.95	413.73 N	421.77 W	590.79	1.683
5994.00	91.600	312.800	5516.27	434.89 N	444.42 W	621.77	2.775
6026.00	92.400	312.100	5515.15	456.48 N	468.02 W	653.72	3.321
6058.00	89.600	310.800	5514.60	477.65 N	492.00 W	685.65	9.647
6090.00	90.200	312.800	5514.65	498.98 N	515.85 W	717.59	6.525
6122.00	90.400	312.800	5514.48	520.72 N	539.33 W	749.57	0.625
6153.00	89.500	314.700	5514.51	542.16 N	561.72 W	780.56	6.782
6185.00	88.900	314.200	5514.96	564.56 N	584.56 W	812.56	2.441
6217.00	91.100	314.000	5514.96	586.83 N	607.54 W	844.55	6.903
6249.00	90.600	313.800	5514.48	609.02 N	630.60 W	876.54	1.683
6280.00	90.700	314.000	5514.13	630.51 N	652.93 W	907.53	0.721
6312.00	90.900	313.100	5513.69	652.56 N	676.12 W	939.52	2.881
6344.00	90.100	312.100	5513.41	674.22 N	699.68 W	971.49	4.002

Continued...

Sperry-Sun Drilling Services

Survey Report for RU 16-13 - MWD Survey Leg 2

Mobil **Utah**
San Juan County **Ratherford Unit**

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
6375.00	89.400	312.100	5513.54	695.00 N	722.68 W	1002.45	2.258
6407.00	89.200	313.700	5513.93	716.78 N	746.12 W	1034.42	5.039
6439.00	88.300	313.300	5514.63	738.80 N	769.32 W	1066.40	3.078
6471.00	86.900	312.800	5515.97	760.63 N	792.68 W	1098.36	4.645
6502.00	89.200	313.300	5517.02	781.77 N	815.32 W	1129.32	7.592
6534.00	92.300	317.000	5516.61	804.45 N	837.88 W	1161.31	15.083
6565.00	91.700	317.700	5515.52	827.24 N	858.87 W	1192.26	2.973
6597.00	91.000	317.500	5514.77	850.86 N	880.44 W	1224.22	2.275
6628.00	90.400	317.000	5514.39	873.62 N	901.49 W	1255.19	2.519
6660.00	90.800	317.500	5514.06	897.12 N	923.21 W	1287.17	2.001
6692.00	91.100	317.900	5513.53	920.79 N	944.74 W	1319.13	1.562
6724.00	91.200	317.500	5512.88	944.45 N	966.27 W	1351.08	1.288
6755.00	89.600	317.500	5512.67	967.30 N	987.21 W	1382.05	5.161
6787.00	88.600	317.200	5513.17	990.84 N	1008.89 W	1414.02	3.263
6818.00	89.500	316.800	5513.68	1013.51 N	1030.03 W	1445.00	3.177
6850.00	89.400	316.800	5513.99	1036.83 N	1051.93 W	1476.98	0.313
6881.00	89.800	317.000	5514.21	1059.47 N	1073.12 W	1507.96	1.443
6913.00	92.200	317.500	5513.65	1082.96 N	1094.83 W	1539.93	7.661
6945.00	90.900	315.200	5512.78	1106.10 N	1116.91 W	1571.91	8.254
6977.00	90.400	315.100	5512.42	1128.79 N	1139.48 W	1603.91	1.593
7008.00	90.600	315.100	5512.15	1150.75 N	1161.36 W	1634.90	0.645
7039.00	90.900	315.200	5511.74	1172.72 N	1183.22 W	1665.90	1.020
7070.00	92.200	314.500	5510.91	1194.58 N	1205.19 W	1696.89	4.762
7102.00	93.400	315.800	5509.34	1217.23 N	1227.73 W	1728.85	5.525
7134.00	93.000	315.600	5507.56	1240.10 N	1250.04 W	1760.80	1.397
7166.00	93.200	316.100	5505.83	1263.03 N	1272.30 W	1792.75	1.681
7198.00	91.100	315.600	5504.62	1285.97 N	1294.57 W	1824.72	6.746
7229.00	88.600	314.700	5504.71	1307.95 N	1316.43 W	1855.72	8.571
7260.00	87.600	313.800	5505.73	1329.56 N	1338.62 W	1886.70	4.339
7292.00	88.500	314.000	5506.82	1351.74 N	1361.67 W	1918.67	2.881
7323.00	89.600	314.000	5507.34	1373.27 N	1383.97 W	1949.66	3.548
7355.00	90.600	314.000	5507.28	1395.50 N	1406.98 W	1981.66	3.125
7387.00	88.200	313.700	5507.62	1417.67 N	1430.06 W	2013.64	7.558
7418.00	89.200	313.100	5508.32	1438.96 N	1452.58 W	2044.62	3.762
7450.00	90.900	313.100	5508.29	1460.82 N	1475.94 W	2076.61	5.312
7482.00	91.100	312.600	5507.73	1482.58 N	1499.40 W	2108.58	1.683
7514.00	91.700	312.800	5506.95	1504.28 N	1522.91 W	2140.54	1.976
7545.00	91.700	312.200	5506.03	1525.21 N	1545.75 W	2171.50	1.935
7577.00	92.300	312.100	5504.91	1546.67 N	1569.46 W	2203.44	1.901
7609.00	91.500	312.600	5503.85	1568.22 N	1593.10 W	2235.39	2.948
7641.00	91.300	312.400	5503.07	1589.83 N	1616.68 W	2267.35	0.884
7672.00	92.500	312.400	5502.04	1610.72 N	1639.56 W	2298.30	3.871
7704.00	90.500	312.200	5501.21	1632.25 N	1663.22 W	2330.25	6.281
7735.00	91.100	313.300	5500.77	1653.29 N	1685.98 W	2361.22	4.042
7767.00	90.300	312.200	5500.38	1675.01 N	1709.48 W	2393.19	4.250

Continued...

Sperry-Sun Drilling Services

Survey Report for RU 16-13 - MWD Survey Leg 2

Mobil **Utah**
San Juan County **Ratherford Unit**

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
7799.00	89.900	311.500	5500.33	1696.36 N	1733.32 W	2425.15	2.519
7831.00	91.800	311.900	5499.85	1717.64 N	1757.20 W	2457.09	6.068
7863.00	91.800	311.400	5498.85	1738.90 N	1781.10 W	2489.02	1.562
7894.00	91.800	311.000	5497.87	1759.31 N	1804.42 W	2519.93	1.290
7925.00	90.400	310.800	5497.28	1779.60 N	1827.84 W	2550.85	4.562
7957.00	92.100	311.500	5496.58	1800.65 N	1851.93 W	2582.77	5.745
7988.00	92.200	311.900	5495.42	1821.26 N	1875.06 W	2613.69	1.329
8020.00	91.500	311.900	5494.38	1842.62 N	1898.87 W	2645.63	2.187
8047.00	90.100	311.700	5494.01	1860.61 N	1918.99 W	2672.58	5.238
8081.00	90.100	311.700	5493.95	1883.23 N	1944.36 W	2706.53	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 315.000° (True).

Based upon Minimum Curvature type calculations, at a Measured Depth of 8081.00ft.,
The Bottom Hole Displacement is 2706.87ft., in the Direction of 314.085° (True).

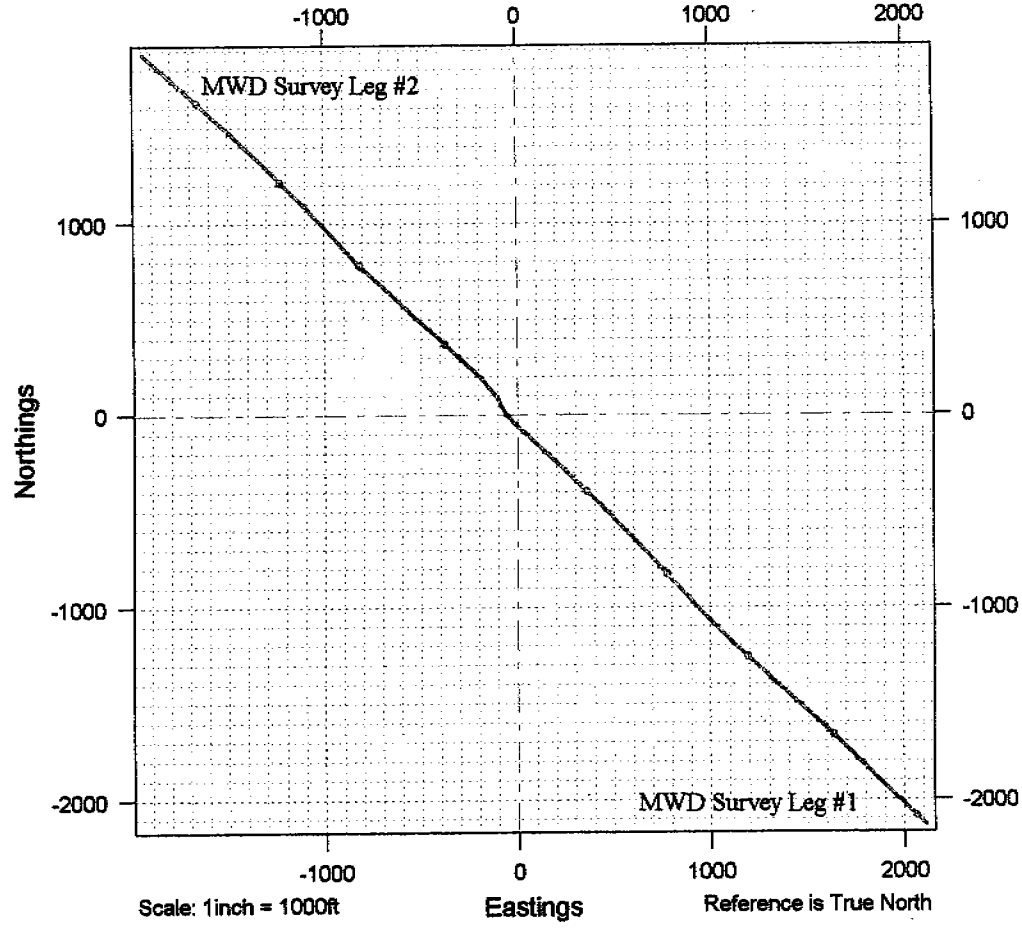
sperry-sun DRILLING SERVICES

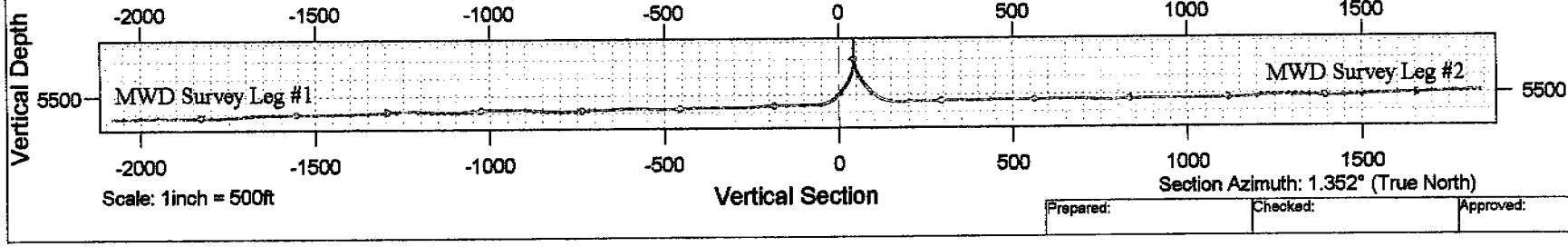
Mobil

DrillQuest

San Juan County
Utah
Ratherford Unit
RU 16-13 Legs #1 & #2

Mobil





Prepared:	Checked:	Approved:

DIVISION OF OIL, GAS AND MINING

ENTITY ACTION FORM - FORM 6

OPERATOR MOBIL PRODUCING TX & NM INC

OPERATOR ACCT. NO. N

ADDRESS P. O. BOX 633

MIDLAND, TEXAS 79702

ACTION CODE	CURRENT ENTITY NO.	NEW ENTITY NO.	API NUMBER	WELL NAME	WELL LOCATION					SPUD DATE	EFFECTIVE DATE
					QQ	SC	TP	RG	COUNTY		
			43-037-31168	RATHERFORD 16-13		16	41S	24E	SAN JUAN	7-13-98	8-27-98
WELL 1 COMMENTS:											
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)
B - Add new well to existing entity (group or unit well)
C - Re-assign well from one existing entity to another existing entity
D - Re-assign well from one existing entity to a new entity
E - Other (explain in comments section)

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

(3/89)

Signature SHIRLEY HOUCHINS

ENV & REG TECHNICIAN

Title

11-05-98

Date

Phone No. (915) 688-2585

DRILLED FOOTAGE CALCULATION FOR DIRECTIONAL AND HORIZONTAL WELLS

Unit, Well Name:	Ratherford Unit, Well 16-W-43
API Well #:	43-037-16415
Well Completion:	Horizontal, Injector, 2 Laterals

First leg description:	Lateral #1
KOP MD:	5416.00
EOL MD:	8298.00
Footage drilled:	2882.00
Max. TVD Recorded	5558.77

Second leg description:	Lateral #2
KOP MD:	5402.00
EOL MD:	7551.00
Footage drilled:	2149.00
Max. TVD Recorded	5570.9

Total Footage Drilled (MD):	***5031.00***
Deepest point (TVD):	***5570.90***

Form 3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

SUNDRY NOTICES AND REPORTS ON WELLS

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

SUBMIT IN TRIPLICATE

5. Lease Designation and Serial No.: 14-20-603-355
6. If Indian, Allottee or Tribe Name: NAVAJO TRIBAL
7. If Unit or CA, Agreement Designation: RATHERFORD UNIT
8. Well Name and No.: RATHERFORD 16-W-43
9. API Well No.: 43-037-16415
10. Field and Pool, or exploratory Area: GREATER ANETH
11. County or Parish, State: SAN JUAN UT

1. Type of Well: [ ] Oil Well [ ] Gas Well [X] 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. 16, T41S, R24E
(NE/SE) 2140' FSL & 820' FEL

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

TYPE OF SUBMISSION	TYPE OF ACTION	
[ ] Notice of Intent	[ ] Abandonment	[ ] Change of Plans
[X] Subsequent Report	[ ] Recompletion	[ ] New Construction
[ ] Final Abandonment Notice	[ ] Plugging Back	[ ] Non-Routine Fracturing
	[ ] Casing Repair	[ ] Water Shut-Off
	[ ] Altering Casing	[ ] Conversion to Injection
	[X] Other INJECTOR/SIDETRACK	[ ] 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: 2701' NORTH & 971' WEST FROM SURFACE SPOT (ZONE 1b/1c).
LATERAL #2: 1371' SOUTH & 1458' EAST FROM SURFACE SPOT (ZONE 1a).

7-27-98 -- 9-04-98 HORIZONTAL RECOMPLETION.

SEE ATTACHED FORM 15.

RECEIVED
FEB 01 1999
DIV. OF OIL, GAS & MINING

14. I hereby certify that the foregoing is true and correct
Signed Joe Moseley for Title SHIRLEY HOUCHINS/ENV & REG TECH Date 1-28-99

(This space for Federal or State office use)

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

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

* See Instruction on Reverse Side

WTC 2-25-99 RJK

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

Charlotte H. Harper
Permitting Supervisor

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

United States Department of the Interior

BUREAU OF INDIAN AFFAIRS
XXXXXXXXXXXXXX
Navajo Area Office
NAVAJO REGION
P.O. Box 1060
Gallup, New Mexico 87305-1060

IN REPLY REFER TO:

RRES/543

AUG 30 2001

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,

DENNIS 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
NATV AM MIN COORD
SOLID MIN TEAM
PETRO MGMT TEAM
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

PBR 7/12/2001
GH
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 Jose

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

DIRECTORS

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

Sincerely,

Alex Correa

This is to certify that the above information pertaining to ExxonMobil Oil Corporation (Corporation) is trust 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

(CORPORATE SEAL)

Signature

AGENT AND ATTORNEY IN FACT
Title

SAL

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. Millican
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

[illegible] South, Suite 1400, Houston, Texas 77027-3301
[illegible] 713 297-4600 • Facsimile (713) 297-4750

NW Bond

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

BOND NO 8027 31 97
wherein
Mobil Oil Corporation and Mobil Exploration and Producing U.S., Inc. is named as Principal and

FEDERAL INSURANCE COMPANY AS SURETY,

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

in the amount of **$150,000.00**
bond date: 11/01/65

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

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

TO : **ExxonMobil Oil Corporation**

All other terms and conditions of this Bond are unchanged.

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

ExxonMobil Oil Corporation

By : _____

FEDERAL INSURANCE COMPANY

By: Mary Pierson
Mary Pierson, Attorney-in-fact

Chubb Surety | **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, Assistant Secretary

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 that he signed his name thereto subscribed by authority of said Karen A. Price deponent's presence.

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

Karen A. Price
Notary Public

CERTIFICATION

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, 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

CERTIFICATE OF AMENDMENT

OF

CERTIFICATE OF INCORPORATION

OF

MOBIL OIL CORPORATION

(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.

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

JANICE M. PHILLIPS
MY COMMISSION EXPIRES
May 16, 2002

F010601000187

CSC 45

CERTIFICATE OF AMENDMENT

OF

MOBIL OIL CORPORATION

Under Section 805 of the Business Corporation Law

SRC

100 cc

STATE OF NEW YORK
DEPARTMENT OF STATE
FILED JUN 01 2001
TAX $
BY: SRC

Filed by: EXXONMOBIL CORPORATION
(Name)

5959 Las Colinas Blvd.
(Mailing address)

Irving, TX 75039-2298
(City, State and Zip code)

Cust Ref # 1655781MPT

RECEIVED
JUL 05 2001
REAL ESTATE SERVICES

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

STATE OF NEW YORK ★ DEPARTMENT OF STATE ★

Special Deputy Secretary of State

DOS-1266 (7/00)

Division of Oil, Gas and Mining

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
NAVAJO A-9 (RATHERFORD 16W23)	16-41S-24E	43-037-15722	99990	INDIAN	WI	A
NAVAJO A-12 (RATHERFORD 16W21)	16-41S-24E	43-037-16414	99990	INDIAN	WI	A
RATHERFORD 16W43	16-41S-24E	43-037-16415	99990	INDIAN	WI	A
RATHERFORD 17-W-12	17-41S-24E	43-037-15726	6280	INDIAN	WI	A
17-14	17-41S-24E	43-037-15727	6280	INDIAN	WI	A
RATHERFORD 17-W-23	17-41S-24E	43-037-15728	6280	INDIAN	WI	A
17-32	17-41S-24E	43-037-15729	6280	INDIAN	WI	A
17-34	17-41S-24E	43-037-15730	6280	INDIAN	WI	A
17-41	17-41S-24E	43-037-15731	6280	INDIAN	WI	I
RATHERFORD 17-W-21	17-41S-24E	43-037-16416	99990	INDIAN	WI	A
RATHERFORD 17W43	17-41S-24E	43-037-16417	99990	INDIAN	WI	A
RATHERFORD 18-W-14	18-41S-24E	43-037-15735	6280	INDIAN	WI	A
18-W-32	18-41S-24E	43-037-15736	6280	INDIAN	WI	A
RATHERFORD 18-W-34	18-41S-24E	43-037-15737	6280	INDIAN	WI	A
DESERT A-4 (RATHERFORD 18W41)	18-41S-24E	43-037-15738	99990	INDIAN	WI	A
DESERT A-3 (RATHERFORD 18-W-21)	18-41S-24E	43-037-16418	99990	INDIAN	WI	A
18-23	18-41S-24E	43-037-30244	6280	INDIAN	WI	A
RATHERFORD U 18-W-12 (SDTRK)	18-41S-24E	43-037-31153	6280	INDIAN	WI	A
RATHERFORD UNIT 18-W-43B	18-41S-24E	43-037-31718	6280	INDIAN	WI	A
RATHERFORD U 19-W-12	19-41S-24E	43-037-15739	6280	INDIAN	WI	A

OPERATOR CHANGES DOCUMENTATION

Enter date after each listed item is completed

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

DATA ENTRY:

1. Changes entered in the **Oil and Gas Database on:** 04/11/2002
2. Changes have been entered on the **Monthly Operator Change Spread Sheet on:** 04/11/2002
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):	**TO:** (New Operator):
N1855-ExxonMobil Oil Corporation	N2700-Resolute Natural Resources Company
PO Box 4358	1675 Broadway, Suite 1950
Houston, TX 77210-4358	Denver, CO 80202
Phone: 1 (281) 654-1936	Phone: 1 (303) 534-4600

CA No. **Unit:** **RATHERFORD (UIC)**

OPERATOR CHANGES DOCUMENTATION

Enter date after each listed item is completed

1. (R649-8-10) Sundry or legal documentation was received from the **FORMER** operator on: 4/21/2006
2. (R649-8-10) Sundry or legal documentation was received from the **NEW** operator on: 4/24/2006
3. The new company was checked on the **Department of Commerce, Division of Corporations Database on:** 6/7/2006
4. Is the new operator registered in the State of Utah: YES Business Number: 5733505-0143
5. If **NO**, the operator was contacted contacted on:

6a. (R649-9-2)Waste Management Plan has been received on: requested

6b. Inspections of LA PA state/fee well sites complete on: n/a

6c. Reports current for Production/Disposition & Sundries on: ok

7. **Federal and Indian Lease Wells:** The BLM and or the BIA has approved the merger, name change, or operator change for all wells listed on Federal or Indian leases on: BLM n/a BIA not yet
8. **Federal and Indian Units:** The BLM or BIA has approved the successor of unit operator for wells listed on: not yet
9. **Federal and Indian Communization Agreements ("CA"):** The BLM or BIA has approved the operator for all wells listed within a CA on: n/a
10. **Underground Injection Control ("UIC")** The Division has approved UIC Form 5, **Transfer of Authority to Inject,** for the enhanced/secondary recovery unit/project for the water disposal well(s) listed on: 6/12/2006

DATA ENTRY:

1. Changes entered in the **Oil and Gas Database on:** 6/22/2006
2. Changes have been entered on the **Monthly Operator Change Spread Sheet on:** 6/22/2006
3. Bond information entered in RBDMS on: n/a
4. Fee/State wells attached to bond in RBDMS on: n/a
5. Injection Projects to new operator in RBDMS on: 6/22/2006
6. Receipt of Acceptance of Drilling Procedures for APD/New on: n/a

BOND VERIFICATION:

1. Federal well(s) covered by Bond Number: n/a
2. Indian well(s) covered by Bond Number: PA002769
3. (R649-3-1) The **NEW** operator of any fee well(s) listed covered by Bond Number n/a

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:

4. (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

UIC FORM 5

TRANSFER OF AUTHORITY TO INJECT

Well Name and Number	API Number
See attached list	Attached
Location of Well	**Field or Unit Name**
Footage : See attached list County : San Juan	Ratherford Unit
QQ, Section, Township, Range: State : UTAH	**Lease Designation and Number** See attached list

EFFECTIVE DATE OF TRANSFER: 6/1/2006

CURRENT OPERATOR

Company: Exxon Mobil Oil Corporation
Address: PO Box 4358
city Houston state TX zip 77210-4358
Phone: (281) 654-1936
Name:
Signature:
Title:
Date:
Comments: Exxon Mobil has submitted a separate, signed copy of UIC Form 5

NEW OPERATOR

Company: Resolute Natural Resources Company
Address: 1675 Broadway, Suite 1950
city Denver state CO zip 80202
Phone: (303) 534-4600
Name: Dwight E Mallory
Signature:
Title: Regulatory Coordinator
Date: 4/20/2006
Comments: A list of affected UIC wells is attached.
New bond numbers for these wells are:
BIA Bond # PA002769 and US EPA Bond # B001252

(This space for State use only)

Transfer approved by:
Title: Field Operations Manager
Approval Date: 6/12/06

Comments:

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DIV. OF OIL, GAS & MINING

(5/2000)

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

FORM 9

SUNDRY NOTICES AND REPORTS ON WELLS

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

5. LEASE DESIGNATION AND SERIAL NUMBER: See attached list
6. IF INDIAN, ALLOTTEE OR TRIBE NAME: Navajo Tribe
7. UNIT or CA AGREEMENT NAME: Ratherford Unit
8. WELL NAME and NUMBER: See attached list
9. API NUMBER: Attached
10. FIELD AND POOL, OR WILDCAT: Greater Aneth

1. TYPE OF WELL: OIL WELL ☐ GAS WELL ☐ OTHER Unit Agreement

2. NAME OF OPERATOR: Resolute Natural Resources Company N2700

3. ADDRESS OF OPERATOR: 1675 Broadway, Suite 1950 CITY Denver STATE CO ZIP 80202 PHONE NUMBER: (303) 534-4600

4. LOCATION OF WELL
FOOTAGES AT SURFACE: See attached list COUNTY: San Juan
QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: STATE: UTAH

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

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

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

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) Dwight E Mallory TITLE Regulatory Coordinator

SIGNATURE D.E. Mallory DATE 4/20/2006

(This space for State use only)

APPROVED 6/27/06
Earlene Russell
Division of Oil, Gas and Mining
Earlene Russell, Engineering Technician

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APR 24 2006
DIV. OF OIL, GAS & MINING

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

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

FORM 9

SUNDRY NOTICES AND REPORTS ON WELLS

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

5. LEASE DESIGNATION AND SERIAL NUMBER:

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: Ship Rock

7. UNIT or CA AGREEMENT NAME: UTU68931A

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

8. WELL NAME and NUMBER: Ratherford

2. NAME OF OPERATOR: ExxonMobil Oil Corporation N1855

9. API NUMBER: attached

3. ADDRESS OF OPERATOR: P.O. Box 4358 CITY Houston STATE TX ZIP 77210-4358

PHONE NUMBER: (281) 654-1936

10. FIELD AND POOL, OR WILDCAT: Aneth

4. LOCATION OF WELL

FOOTAGES AT SURFACE:

COUNTY: San Juan

QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:

STATE: UTAH

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

TYPE OF SUBMISSION	TYPE OF ACTION		
☑ NOTICE OF INTENT (Submit in Duplicate)	☐ ACIDIZE	☐ DEEPEN	☐ REPERFORATE CURRENT FORMATION
Approximate date work will start: 6/1/2006	☐ ALTER CASING	☐ FRACTURE TREAT	☐ SIDETRACK TO REPAIR WELL
	☐ CASING REPAIR	☐ NEW CONSTRUCTION	☐ TEMPORARILY ABANDON
	☐ CHANGE TO PREVIOUS PLANS	☑ OPERATOR CHANGE	☐ TUBING REPAIR
	☐ CHANGE TUBING	☐ PLUG AND ABANDON	☐ VENT OR FLARE
☐ SUBSEQUENT REPORT (Submit Original Form Only)	☐ CHANGE WELL NAME	☐ PLUG BACK	☐ WATER DISPOSAL
Date of work completion:	☐ CHANGE WELL STATUS	☐ PRODUCTION (START/RESUME)	☐ WATER SHUT-OFF
	☐ COMMINGLE PRODUCING FORMATIONS	☐ RECLAMATION OF WELL SITE	☐ OTHER:
	☐ CONVERT WELL TYPE	☐ RECOMPLETE - DIFFERENT FORMATION	

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

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 injection wells included in the transfer.

NAME (PLEASE PRINT) Laurie Kilbride TITLE Permitting Supervisor

SIGNATURE Laurie S. Kilbride DATE 4/19/2006

(This space for State use only) APPROVED 6/27/06

Earlene Russell

Division of Oil, Gas and Mining

Earlene Russell, Engineering Technician

(See Instructions on Reverse Side)

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APR 21 2006

DIV. OF OIL, GAS & MINING

(5/2000)

GREATER ANETH FIELD UIC WELL LIST
Ratherford lease, San Juan County, Utah

Reg Lease Name	Well ID	API Num	Status	Reg Lease #	Surface Location						
					Qtr 1	Qtr 2	Sec	TN	RNG	NS Foot	EW Foot
RATHERFORD UNIT	1W24	430371583900S1	Shut-in	14-20-603-246A	NE	SE	1	41S	23E	0651FSL	3300FEL
RATHERFORD UNIT	2W44	430371638600S1	Active	14-20-603-246A	SE	SE	2	41S	23E	0810FSL	0510FEL
RATHERFORD UNIT	11W42	430371584100S1	Active	14-20-603-246A	SE	NE	11	41S	23E	3290FSL	4617FWL
RATHERFORD UNIT	11W44	430371584200S1	Shut-in	14-20-603-246A	SE	SE	11	41S	23E	0660FSL	0558FEL
RATHERFORD UNIT	12W11	430371584300S1	Active	14-20-603-246A	NW	NW	12	41S	23E	0678FNL	4620FEL
RATHERFORD UNIT	12W13	430371640400S1	Active	14-20-603-246A	NW	SW	12	41S	23E	1980FSL	4620FEL
RATHERFORD UNIT	12W22	430371584501S1	Active	14-20-603-246A	SE	NW	12	41S	23E	1920FNL	2080FWL
RATHERFORD UNIT	12W24	430373115101S1	Active	14-20-603-246A	SE	SW	12	41S	23E	0775FSL	1980FWL
RATHERFORD UNIT	12W31	430371584700S1	Active	14-20-603-246A	NW	NE	12	41S	23E	0661FNL	1981FEL
RATHERFORD UNIT	12W33	430371584800S1	Active	14-20-603-246A	NW	SE	12	41S	23E	1958FSL	3300FEL
RATHERFORD UNIT	12W42	430371585000S1	Active	14-20-603-246A	SE	NE	12	41S	23E	3275FSL	0662FEL
RATHERFORD UNIT	12W44A	430373154300S1	Shut-in	14-20-603-246A	SE	SE	12	41S	23E	0772FSL	0807FEL
RATHERFORD UNIT	13W11	430373115201S1	Active	14-20-603-247A	NW	NW	13	41S	23E	0500FNL	0660FWL
RATHERFORD UNIT	13W13	430371585100S1	Active	14-20-603-247A	NW	SW	13	41S	23E	1980FSL	4620FEL
RATHERFORD UNIT	13W22	430371585200S1	Active	14-20-603-247A	SE	NW	13	41S	23E	1988FNL	3300FEL
RATHERFORD UNIT	13W24	430371585300S1	Active	14-20-603-247A	SE	SW	13	41S	23E	0660FSL	3300FEL
RATHERFORD UNIT	13W33	430371585501S1	Active	14-20-603-247A	NW	SE	13	41S	23E	1970FSL	1979FEL
RATHERFORD UNIT	13W42	430371585700S1	Shut-in	14-20-603-247A	SE	NE	13	41S	23E	2139FNL	0585FEL
RATHERFORD UNIT	13W44	430371640700S1	Active	14-20-603-247A	SE	SE	13	41S	23E	0653FSL	0659FEL
RATHERFORD UNIT	14-31	430373171700S1	Active	14-20-603-247A	NW	NE	14	41S	23E	0754FNL	1604FEL
RATHERFORD UNIT	14W42	430371586001S1	Active	14-20-603-247A	SE	NE	14	41S	23E	1976FNL	653FEL
RATHERFORD UNIT	24W31	430371586200S1	Shut-in	14-20-603-247A	NW	NE	24	41S	24E	0560FNL	1830FEL
RATHERFORD UNIT	24W42	430371586300S1	Shut-in	14-20-603-247A	SE	NE	24	41S	24E	1980FNL	0660FEL
RATHERFORD UNIT	17W12	430371572601S1	Active	14-20-603-353	SW	NW	17	41S	24E	1980FNL	510FWL
RATHERFORD UNIT	17W14	430371572700S1	Active	14-20-603-353	SW	SW	17	41S	24E	0610FSL	0510FWL
RATHERFORD UNIT	17W21	430371641601S1	Active	14-20-603-353	NE	NW	17	41S	24E	0510FNL	1830FWL
RATHERFORD UNIT	17W23	430371572801S1	Active	14-20-603-353	NE	SW	17	41S	24E	1880FSL	1980FWL
RATHERFORD UNIT	17W32	430371572900S1	TA'd	14-20-603-353	SW	NE	17	41S	24E	1830FNL	2030FEL
RATHERFORD UNIT	17W34	430371573000S1	Active	14-20-603-353	SW	SE	17	41S	24E	0560FSL	1880FEL
RATHERFORD UNIT	17W41	430371573100S1	Shut-in	14-20-603-353	NE	NE	17	41S	24E	0610FNL	0510FEL
RATHERFORD UNIT	17W43	430371641701S1	Active	14-20-603-353	NE	SE	17	41S	24E	1980FSL	0660FEL
RATHERFORD UNIT	18-43B	430373171801S1	Active	14-20-603-353	NE	SE	18	41S	24E	2023FSL	0651FEL
RATHERFORD UNIT	18W12	430373115301S1	Active	14-20-603-353	SW	NW	18	41S	24E	1980FNL	560FWL
RATHERFORD UNIT	18W14	430371573501S1	Active	14-20-603-353	SW	SW	18	41S	24E	0810FSL	0600FWL
RATHERFORD UNIT	18W21	430371641801S1	Active	14-20-603-353	NE	NW	18	41S	24E	660FNL	1882FWL
RATHERFORD UNIT	18W23	430373024400S1	Shut-in	14-20-603-353	NE	SW	18	41S	24E	2385FSL	2040FWL
RATHERFORD UNIT	18W32	430371573601S1	Active	14-20-603-353	SW	NE	18	41S	24E	2140FNL	1830FEL
RATHERFORD UNIT	18W34	430371573701S1	Active	14-20-603-353	SW	SE	18	41S	24E	780FSL	1860FEL
RATHERFORD UNIT	18W41	430371573800S1	TA'd	14-20-603-353	NE	NE	18	41S	24E	0660FNL	0660FEL
RATHERFORD UNIT	19-12	430371573901S1	Active	14-20-603-353	SW	NW	19	41S	24E	1980FNL	0600FWL
RATHERFORD UNIT	19-32	430371574301S1	Active	14-20-603-353	SW	NE	19	41S	24E	2717FNL	2802FEL
RATHERFORD UNIT	19-34	430371574401S1	Active	14-20-603-353	SW	SE	19	41S	24E	0660FSL	1980FEL
RATHERFORD UNIT	19W21	430371574100S1	Shut-in	14-20-603-353	NE	NW	19	41S	24E	0660FNL	1860FWL
RATHERFORD UNIT	19W23	430371574200S1	Shut-in	14-20-603-353	NE	SW	19	41S	24E	2080FSL	1860FWL
RATHERFORD UNIT	19W43	430371642000S1	Shut-in	14-20-603-353	NE	SE	19	41S	24E	1980FSL	0760FEL
RATHERFORD UNIT	20-12	430371574601S1	Active	14-20-603-353	SW	NW	20	41S	24E	0709FNL	0748FEL
RATHERFORD UNIT	20-14	430371574701S1	Active	14-20-603-353	SW	SW	20	41S	24E	0660FSL	0660FWL
RATHERFORD UNIT	20-32	430371574901S1	Active	14-20-603-353	SW	NE	20	41S	24E	0037FNL	0035FWL
RATHERFORD UNIT	20-34	430371575001S1	Active	14-20-603-353	SW	SE	20	41S	24E	0774FNL	0617FWL
RATHERFORD UNIT	20-67	430373159000S1	Active	14-20-603-353	NE	SW	20	41S	24E	2629FSL	1412FWL
RATHERFORD UNIT	20W21	430371642300S1	Active	14-20-603-353	NE	NW	20	41S	24E	0660FNL	1880FWL
RATHERFORD UNIT	20W23	430371574800S1	Active	14-20-603-353	NW	SW	20	41S	24E	2080FSL	2120FWL
RATHERFORD UNIT	20W41	430371575100S1	Active	14-20-603-353	NE	NE	20	41S	24E	0660FNL	0660FEL
RATHERFORD UNIT	20W43	430371642400S1	TA'd	14-20-603-353	NE	SE	20	41S	24E	2070FSL	0810FEL
RATHERFORD UNIT	16W12	430371572000S1	Active	14-20-603-355	SW	NW	16	41S	24E	1880FNL	0660FWL

GREATER ANETH FIELD UIC WELL LIST
Ratherford lease, San Juan County, Utah

Reg Lease Name	Well ID	API Num	Status	Reg Lease #	Surface Location						
					Qtr 1	Qtr 2	Sec	TN	RNG	NS Foot	EW Foot
RATHERFORD UNIT	16W14	430371572100S1	Shut-in	14-20-603-355	SW	SW	16	41S	24E	0660FSL	0660FWL
RATHERFORD UNIT	16W21	430371641400S1	Active	14-20-603-355	NE	NW	16	41S	24E	0660FNL	1880FWL
RATHERFORD UNIT	16W23	430371572201S1	Active	14-20-603-355	NE	SW	16	41S	24E	1980FSL	1980FWL
RATHERFORD UNIT	16W43	430371641501S1	Active	14-20-603-355	NE	SE	16	41S	24E	2140FSL	0820FEL
RATHERFORD UNIT	21-14	430371575301S1	Active	14-20-603-355	SW	SW	21	41S	24E	0660FSL	0460FWL
RATHERFORD UNIT	21-67	430373175301S1	Active	14-20-603-355	NE	SW	21	41S	24E	2560FSL	1325FWL
RATHERFORD UNIT	21W21	430371642501S1	Active	14-20-603-355	NE	NW	21	41S	24E	0660FNL	2030FWL
RATHERFORD UNIT	**6W14**	430371598400S1	Active	14-20-603-368	NE	SE	6	41S	24E	0660FSL	0660FWL
RATHERFORD UNIT	7W12	430371598500S1	Active	14-20-603-368	NE	SE	7	41S	24E	2140FNL	0585FWL
RATHERFORD UNIT	7W14	430371598600S1	Active	14-20-603-368	NE	SE	7	41S	24E	1065FSL	0660FWL
RATHERFORD UNIT	7W21	430371639400S1	Active	14-20-603-368	NE	NW	7	41S	24E	0710FNL	1820FWL
RATHERFORD UNIT	7W34	430371598900S1	Active	14-20-603-368	SW	SE	7	41S	24E	0710FSL	2003FEL
RATHERFORD UNIT	7W43	430371639500S1	Active	14-20-603-368	NE	SE	7	41S	24E	2110FSL	0660FEL
RATHERFORD UNIT	**8W14**	430371599200S1	Active	14-20-603-368	SW	NE	8	41S	24E	0745FSL	0575FWL
RATHERFORD UNIT	10W43	430371640300S1	TA'd	14-20-603-4037	NE	SE	10	41S	24E	1980FSL	0550FEL
RATHERFORD UNIT	29-12	430371533701S1	Active	14-20-603-407	SW	**NW**	29	41S	24E	2870FNL	1422FWL
RATHERFORD UNIT	29-32	430371533901S1	Active	14-20-603-407	SW	NE	29	41S	24E	0694FNL	0685FWL
RATHERFORD UNIT	29W21	430371643200S1	Active	14-20-603-407	NE	NW	29	41S	24E	0667FNL	2122FWL
RATHERFORD UNIT	29W41	430371643300S1	Active	14-20-603-407	NE	NE	29	41S	24E	0557FNL	0591FEL
RATHERFORD UNIT	29W43	430371643400S1	Shut-in	14-20-603-407	NE	SE	29	41S	24E	1980FSL	0660FEL
RATHERFORD UNIT	30W41	430371534300S1	Shut-in	14-20-603-407	NE	NE	30	41S	24E	0660FNL	0660FEL
RATHERFORD UNIT	28-12	430371533601S1	Active	14-20-603-409	SW	SE	28	41S	24E	2121FNL	0623FWL
RATHERFORD UNIT	28W21	430371643100S1	Shut-in	14-20-603-409	NE	NW	28	41S	24E	0660FNL	2022FWL
RATHERFORD UNIT	9W23	430371639800S1	Active	14-20-603-5046	NW	SE	9	41S	24E	1980FSL	1980FWL