

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  
 Report and Record of A & P  
 Water Shut-Off Test  
 Gas Oil Ratio Test  
 Well Log Filed

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*Converted to water injections started injecting April, 1962*

FILE NOTATIONS

Entered in NID File	<input checked="" type="checkbox"/>	Checked by Chief	_____
Entered On S R Sheet	<input checked="" type="checkbox"/>	Copy NID to Field Office	_____
Location Map Pinned	<input checked="" type="checkbox"/>	Approval Letter	<i>1-16-59</i>
Card Indexed	<input checked="" type="checkbox"/>	Disapproval Letter	_____
IWR for State or Fee Land	_____		

COMPLETION DATA:

Date Well Completed	<i>2-21-59</i>	Location Inspected	_____
OW <input checked="" type="checkbox"/>	WW _____	Ta _____	
Bond released		State of Fee Land	_____
GW _____	OS _____	PA _____	

LOGS FILED

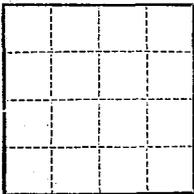
Driller's Log *4-20-59*

Electric Logs (No. ) *3*

E _____	I _____	E-I <input checked="" type="checkbox"/>	GR _____	GR-N _____	Micro <input checked="" type="checkbox"/>
Lat _____	Mi-L _____	Senio _____	Other	<i>2 Radiation</i>	

(SUBMIT IN TRIPLICATE)

Indian Agency Navajo



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

Allottee Tribal

Lease No. 14-20-603-353

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL.....	<input checked="" type="checkbox"/>	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)

Cortez, Colorado January 14, 1959

Desert "A"

Well No. 20 is located 1980 ft. from S line and 660 ft. from E line of sec. 17

NE SE Sec. 17 41S 24E S.I.M.  
(¼ Sec. and Sec. No.) (Twp.) (Range) (Meridian)

Ratherford San Juan Utah  
(Field) (County or Subdivision) (State or Territory)

The elevation of the Ungraded Ground above sea level is 4704.15 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 17-1/2" hole to approximately 160', set 160' of 1 3/8" conductor pipe and cement to surface. Drill 11" hole to approximately 1600', set 8-5/8" casing and cement to surface. Drill 7-7/8" hole to total depth of approximately 5700', run 5-1/2" casing and cement with approximately 250 sx. cement. 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 Box 548

Cortez, Colorado

By C. M. Boles

Title Dist. Supt.

OIL & GAS CONSERVATION COMMISSION

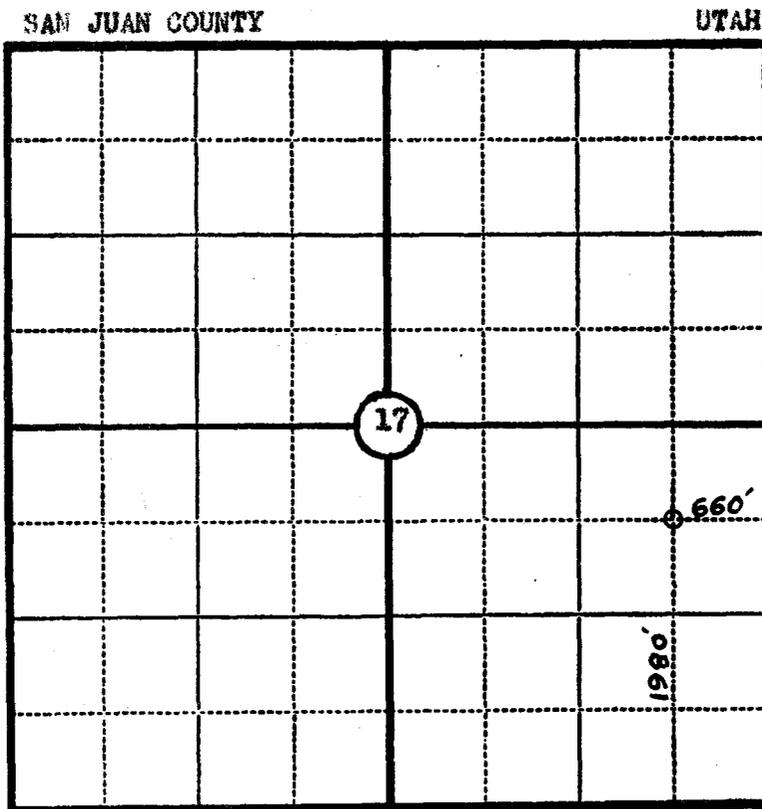
Company PHILLIPS PETROLEUM COMPANY

Lease NKYAJO DESERT "A" Well No. 20

Sec. 17, T41 SOUTH, R24 EAST S.L.M.

Location 1980' FROM THE SOUTH LINE AND 660' FROM THE EAST LINE.

Elevation 4704.15 UNGRADED GROUND



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.

Seal:

*James P. Lese*

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

Surveyed 26 DECEMBER, 1957

SAN JUAN ENGINEERING COMPANY, FARMINGTON, N. M.

January 16, 1959

Phillips Petroleum Company  
P. O. Box 348  
Cortez, Colorado

Attention: C. M. Boles, District Superintendent

Gentlemen:

This is to acknowledge receipt of your notice of intention to drill Well No. Desert A-20, which is to be located 1980 feet from the south line and 660 feet from the east line of Section 17, Township 41 South, Range 24 East, NLM, 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

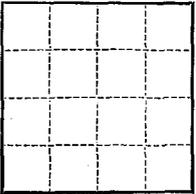
CLEON B. FREIGHT  
EXECUTIVE SECRETARY

CBF:cc

cc: Phil McGrath, Dist. Eng.  
USGS, Farmington,  
New Mexico

(SUBMIT IN TRIPLICATE)

Indian Agency Navajo



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

Allotted Tribal

Lease No. 14-20-603-353

71-4  
3-10

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)

Cortez, Colorado February 26, 1959

Desert "A"

Well No. 20 is located 1980 ft. from <sup>XXY</sup><sub>S</sub> line and 660 ft. from <sup>E</sup><sub>XXY</sub> line of sec. 17

NE SE Sec. 17 41S 24E SLM

(1/4 Sec. and Sec. No.)

(Twp.)

(Range)

(Meridian)

Ratherford

San Juan County

Utah

(Field)

(County or Subdivision)

(State or Territory)

ungraded ground

The elevation of the ~~derrick floor~~ derrick floor above sea level is 4704.15 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 7:30 PM 1/24/59. Drilled 17-1/4" hole to 175'. Set and cemented 4 jts 13-3/8" OD Armoco SWSJ 27.1# casing at 175' with 175 ex regular cement, 2% calcium chloride. Pumped plug to 146' at 12:45 PM 1/25/59. Cement circulated. WOC 24 hours. Tested casing with 750# for 30 minutes -o.k.

Drilled 11" hole to 1482'. Set and cemented 49 jts 8-5/8" OD 24# J-55 ST&C casing at 1481.34' with 330 sacks cement, 120 sacks Diacel "D", 620# calcium chloride, 165# Flocele, 660# tuff plug, followed with 125 sacks neat cement on bottom. Pumped plug to 1448' at 2:28 PM 1/27/59. Lost returns. Cement did not circulate. Filled annulus with 75 sacks cement. WOC 24 hours - tested casing with 750# for 30 minutes - o.k.

Drilled 7-7/8" hole to 5508'. Cored from 5508-68, 5568-74, 5574 to 5633, 5633-85. Reamed core hole to 7-7/8" and drilled 7-7/8" hole to 5717'. (Continued on back)

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 Box 548

Cortez, Colorado

By C. H. Boles

Title District Superintendent

(Continued)

Run Schlumberger Induction Micro and Micro Caliper Logs to 5714'. Set and cemented 171 jts 5-1/2" OD 1 1/4" J-55 ST&C Rg 2 and 3 casing at 5717.40' with 132 sacks cement, 100 sacks Diacel "D", 496# calcium chloride. Pumped plug to 5687' at 11:15 A.M. 2/16/59. Waited on cement 24 hours. Tested casing with 750# for 30 minutes - tested o.k.

U. S. LAND OFFICE Navajo  
SERIAL NUMBER 14-20-603-353

LEASE OR PERMIT TO PROSPECT Tribal


LOCATE WELL CORRECTLY

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

LOG OF OIL OR GAS WELL

Company Phillips Petroleum Address P. O. Drawer 1150, Cortez, Colorado  
Lessor or Tract Desert "A" Field Hatherford State Utah  
Well No. 20 Sec. 17 T. 41S R. 24E Meridian 31M County San Juan  
Location 1980 ft. <sup>[N.]</sup> of S Line and 660 ft. <sup>[W.]</sup> of E Line of Section 17 Elevation 4702  
(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 \_\_\_\_\_  
Date April 14, 1959 Title District Superintendent

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

Commenced drilling January 24, 1959 Finished drilling February 15, 1959

OIL OR GAS SANDS OR ZONES

(Denote gas by G)

No. 1, from \_\_\_\_\_ to \_\_\_\_\_ No. 4, from \_\_\_\_\_ to \_\_\_\_\_  
No. 2, from \_\_\_\_\_ to \_\_\_\_\_ No. 5, from \_\_\_\_\_ to \_\_\_\_\_  
No. 3, from \_\_\_\_\_ to \_\_\_\_\_ No. 6, from \_\_\_\_\_ to \_\_\_\_\_

IMPORTANT WATER SANDS

Sands of the San Rafael & Glen Canyon Groups - the Shinarump and the De Chelly Formations

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		Purpose
							From-	To-	
13-3/8	27.7	8 rd	Amaco	762	Weller	5495	5521	Oil	
8-5/8	24	8 rd	J-55	1492	Hopco	5530	5568	Water	
5-1/2	14	8 rd	J-55	5716	Victor	5581	5590	Water	
						5614	5633	H H	

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	1481	800 cu ft	B.J.		Filled annulus with 75 sacks
5-1/2	5717	550 cu ft	B.J.		

PLUGS AND ADAPTERS

Heaving plug—Material \_\_\_\_\_ Length \_\_\_\_\_ Depth set \_\_\_\_\_  
Adapters—Material \_\_\_\_\_ Size \_\_\_\_\_

FOLD MARK

**SHOOTING RECORD**

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

**TOOLS USED**

Rotary tools were used from 0 feet to 5717 feet, and from \_\_\_\_\_ feet to \_\_\_\_\_ feet  
 Cable tools were used from \_\_\_\_\_ feet to \_\_\_\_\_ feet, and from \_\_\_\_\_ feet to \_\_\_\_\_ feet

**DATES**

April 14, 1959 Put to producing February 21, 1959  
 The production for the first 24 hours was 959 barrels of fluid of which 100 % was oil; \_\_\_\_\_ %  
 emulsion; \_\_\_\_\_ % water; and \_\_\_\_\_ % sediment. Gravity, °Bé. \_\_\_\_\_  
 If gas well, cu. ft. per 24 hours \_\_\_\_\_ Gallons gasoline per 1,000 cu. ft. of gas \_\_\_\_\_  
 Rock pressure, lbs. per sq. in. 395 - 220

**EMPLOYEES**

Moran Bros., Inc., Driller \_\_\_\_\_, Driller  
 \_\_\_\_\_, Driller \_\_\_\_\_, Driller

**FORMATION RECORD**

FROM-	TO-	TOTAL FEET	FORMATION
2335	2382	47	Shinarump
2382	2537	155	Moenkopi
2537	2600	73	Cutler - Hoakinini Equivalent
2600	2775	175	Cutler - De Chelly
2775	4523	1748	Cutler - Organ Rock
4523	5492	969	Honaker Trail
5492	5717	225	Desert Creek (Paradox)

[OVER]

16-43094-4



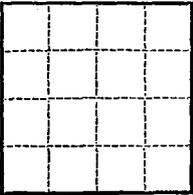
(SUBMIT IN TRIPLICATE)

Indian Agency Navajo

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

Allottee Tribal

Lease No. 14-20-603-353



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	<u>Conversion of well to Water Injection X</u>

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

May 2, 1962

Ratherford Unit

Well No. 17W43 is located 1980 ft. from DKS line and 660 ft. from E line of sec. 17  
(Formerly Phillips' Desert "A" #20, then Ratherford Unit #17-43 See NOTE)  
NE SE Sec. 17 41S 24E S.L.M.  
(1/4 Sec. and Sec. No.) (Twp.) (Range) (Meridian)  
Ratherford San Juan County Utah  
(Field) (County or Subdivision) (State or Territory)

ungraded ground

The elevation of the ~~surface~~ above sea level is 4704.15 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)

- 1-16-62 Moved in R&R Well Service Unit to kill well, pull rods and tubing, cement line tubing, rerun and convert to water injection. Previous production: 75 BW, 426 BW, GOR 1267.
- 1-17-62 Pulled tubing.
- 1-18-62 through 2/3/62 - Idle
- 2-4-62 Moved in R&R Well Service Unit. Ran 2-1/2" EUE cement lined tubing with Baker Hookwall BW packer.
- 2-5-62 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 397 BW in 5 hours. Tubing pressure 775# to Off.

NOTE: Well number changed from #17-43 to 17W43 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

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

SUBMIT IN TRIPlicate\*  
(Other instructions on re-  
verse side)

Form approved.  
Budget Bureau No. 42-R1424.

5. LEASE DESIGNATION AND SERIAL NO.

14-20-603-393

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.

17443

10. FIELD AND POOL, OR WILDCAT

Greater Aneth

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

17-418-24E, 81M

12. COUNTY ~~NEW MEXICO~~ 13. STATE

San Juan

Utah

SUNDRY NOTICES AND REPORTS ON WELLS

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

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

1980' F8L, 660' F8L, NE, SE Sec. 17

14. PERMIT NO.

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

4700.15 ungraded ground

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)

(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.)\*

Acidize water injection well with 1000 gallons regular acid in attempt to increase water injection rates.

Present Injection rate: 962 BWPD at 360#.

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

SIGNED

C. M. Boles

TITLE

Area Supt.

DATE

3-2-65

(This space for Federal or State office use)

APPROVED BY

CONDITIONS OF APPROVAL, IF ANY:

TITLE

DATE

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

SUBMIT IN THIS MANNER\*  
(Other instructions on reverse side)

Form approved.  
Budget Bureau No. 42-R1424.

5. LEASE DESIGNATION AND SERIAL NO.

~~11-20-603-353~~

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

Navajo

7. UNIT AGREEMENT NAME

~~SW-1-4192~~

8. FARM OR LEASE NAME

Ratherford Unit

9. WELL NO.

1743

10. FIELD AND POOL, OR WILDCAT

Greater Aneth

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

17-41S-24E, SIM

12. COUNTY OR PARISH 13. STATE

~~xxx~~  
San Juan

Utah

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

1930' FSL, 660' FEL, NE, SE Sec. 17

14. PERMIT NO.

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

4704.15 ungraded ground

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.)\*

On June 3, 1965, unseated packer, acidized down annulus with 1000 gallons 15% regular acid. Overflushed casing with 25 BW. Reset packer, resumed water injection down tubing.

Previous Injection Rate into Desert Creek Zone of Paradox Formation, Greater Aneth Field:  
Injected 742 BWPD at 455#.

Present Injection Rate into Desert Creek Zone of Paradox Formation, Greater Aneth Field:  
Injected 3600 BWPD on vacuum.

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

SIGNED

*C. H. Boles*

TITLE

District Superintendent

DATE

6-23-65

(This space for Federal or State use)

APPROVED BY

TITLE

DATE

CONDITIONS OF APPROVAL, IF ANY:

\*See Instructions on Reverse Side

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

SUBMIT IN TRIPlicate\*  
(Other instructions on re-  
verse side)

Form approved.  
Budget Bureau No. 42-R1424.

5. LEASE DESIGNATION AND SERIAL NO.

14-20-603-353

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

Navajo

7. UNIT AGREEMENT NAME

SN-I-4192

8. FARM OR LEASE NAME

Rutherford Unit

9. WELL NO.

17W43

10. FIELD AND POOL, OR WILDCAT

Greater Aneth

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

17-418-24E, S1M

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

1980' FSL, 660' FEL, Sec. 17

14. PERMIT NO.

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

4704.15 ungraded ground

12. COUNTY OR ~~SECTION~~ 13. STATE

San Juan

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)

(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.)\*

Acidize water injection well with 3000 gallons 15% acid and return to injection.

Present Injection Rate: 827 BWPD at 1256#.

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

SIGNED

C. M. Boles

TITLE

District Superintendent

DATE

3-17-70

(This space for Federal or State office use)

APPROVED BY

TITLE

DATE

CONDITIONS OF APPROVAL, IF ANY:

Orig. & 2 cc: USGS, Farmington, NM  
2 cc: Utah O&GCC, Salt Lake City, Utah  
1 cc: Denver  
1 cc: File

\*See Instructions on Reverse Side

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

SUBMIT IN TRIPPLICATE\*  
(Other instructions on re-verse side)

Form approved.  
Budget Bureau No. 42-R1424.

5. LEASE DESIGNATION AND SERIAL NO.

11-20-603-353

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

Navajo Tribal

7. UNIT AGREEMENT NAME

SN-I-4192

8. FARM OR LEASE NAME

Ratherford Unit

9. WELL NO.

17WA3

10. FIELD AND POOL, OR WILDCAT

Greater Aneth

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

Sec. 17-418-24E

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.)

1.

OIL WELL  GAS WELL  OTHER Water Injection Well

2. NAME OF OPERATOR

Phillips Petroleum Company

3. ADDRESS OF OPERATOR

P. O. Box 2920 Casper, Wyoming 82601

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

1980' FSL and 660' FFL (NE SE)

14. PERMIT NO.

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

4704 RCB

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.)\*

SEE ATTACHED

*R*

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

SIGNED

F. G. Morgan

TITLE

Area Superintendent

DATE

8/26/75

(This space for Federal or State office use)

APPROVED BY \_\_\_\_\_

TITLE \_\_\_\_\_

DATE \_\_\_\_\_

CONDITIONS OF APPROVAL, IF ANY:

- 3 - USGS Farmington, NM
- 2 - Utah O&G CC Salt Lake City, UT
- 1 - File
- 1 - Superior Oil Co. - Cortez, CO

\*See Instructions on Reverse Side

REPORT INDIVIDUAL WELL ST

Lease Ratherford Unit Well No. 17W43 Authorization No. \_\_\_\_\_ Expense \_\_\_\_\_

Summary of Work Performed:

On 12/19/74 ran 1" coiled tubing to 5633, acidized with 2000 gals. 15% acid.

AVERAGE DAILY PRODUCTION

	Field and Formation	Oil	Gas	Water
Before Work	Greater Aneth - Paradox Desert Creek Zone I & II	Injected	710 BWPD at 1775#.	
After Work	" " " "	Injected	1950 BWPD at 0#.	
Before Work				
After Work				

DATE P.T.D.

DAILY REPORT OF WORK PERFORMED

1975  
Jan.  
23

RATHERFORD UNIT NO. 17W43 PTD 5687. INITIAL REPORT TO ACIDIZE WELL AS FOLLOWS/ RU NOESCO 12/19/74, RAN 1 IN. OD COILED TBG TO 5633 FT. DOWELL ACIDIZED W/2000 GAL. 15 PERCENT HCL DN 1 IN. TBG. FLUSHED W/35 BW. IP 3/4 BPM AT 4000 LB. PRESS. BETWEEN 1 IN. AND 2 1/2 IN. CNT. LINED TBG BROKE FROM 250 LB. TO 0 LB. WHEN ACID HIT FORMATION. PL/D COILED TBG. AND STARTED INJ. WTP. INJ. RATE BEFORE ACID JOB, 710 BWPD AT 1775 LB. INJ RATE AFTER ACID JOB, 1950 BWPD AT 0 LB. PRESS. NO AFE ISSUE. LOCATION/ 1980 FSL, 660 FEL, SEC. 17-41S-24E, SAN JUAN CO., UTAH. ELEV. 4703.5 FT. RE. GREATER ANETH FIELD. PARADOX FORMATION. DESERT CREEK ZONE. FINAL REPORT..

- 1-Bville E&P
- 1-Denver E&P
- 1-R. N. Hughes
- 1-G. R. Hudson
- 1-File

August 26, 1975  
Date Prepared

*F. M. Morgan*  
District Approval

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  CORPORATION             
FOR ADMINISTRATIVE APPROVAL TO DISPOSE OR  
INJECT FLUID INTO THE 17W43 WELL  
SEC. 17 TWP. 41S RANGE 24E  
SAN JUAN COUNTY, UTAH

CAUSE NO. C-3(B)

ENHANCED RECOVERY INJ. WELL	<input checked="" type="checkbox"/>
DISPOSAL WELL	<input type="checkbox"/>
LP GAS STORAGE	<input type="checkbox"/>
EXISTING WELL (RULE I-4)	<input checked="" type="checkbox"/>

**APPLICATION**

Comes now the applicant and shows the Corporation Commission the following:

1. That Rule I-5 (g) (iv) authorizes administrative approval of enhanced recovery injections, disposal or LP Gas storage operations.
2. That the applicant submits the following information.

Lease Name <u>Ratherford Unit</u>	Well No. <u>17W43</u>	Field <u>Greater Aneth</u>	County <u>San Juan</u>
Location of Enhanced Recovery Injection or Disposal Well <u>17W43</u> Sec. <u>17</u> Twp. <u>41S</u> Rge. <u>24E</u>			
New Well To Be Drilled Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Old Well To Be Converted Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Casing Test Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Date <u>5-83</u>	
Depth-Base Lowest Known Fresh Water Within 1/2 Mile <u>Wingate 1550'</u>	Does Injection Zone Contain Oil-Gas-Fresh Water Within 1/2 Mile YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	State What Oil & Gas	
Location of Injection Source(s) <u>Desert Creek Paradox I &amp; II San Juan River</u>	Geologic Name(s) and Depth of Source(s) <u>Desert Creek (5567') San Juan River (Surface)</u>		
Geologic Name of Injection Zone <u>Desert Creek I &amp; II</u>	Depth of Injection Interval <u>5499</u> to <u>5633</u>		
a. Top of the Perforated Interval: <u>5499</u>	b. Base of Fresh Water: <u>1550'</u>	c. Intervening Thickness (a minus b) <u>3899</u>	
Is the intervening thickness sufficient to show fresh water will be protected without additional data? YES NO See Attachment #4			
Lithology of Intervening Zones <u>See Attachment #1</u>			
Injection Rates and Pressures Maximum <u>1062 (12-82)</u> B/D <u>1700</u> PSI			
The Names and Addresses of Those to Whom Notice of Application Should be Sent.			
<u>Navajo Tribe, Minerals Dept., P.O. Box 146, Window Rock, AZ 86515</u>			
<u>Superior Oil, P.O. Box 4530, The Woodlands, TX 77380</u>			
<u>Texaco Inc., P.O. Box 2100, Denver, CO 80201</u>			
<u>Southland Royalty, 1000 Fort Worth Club Tower, Fort Worth, TX 76102</u>			

State of Wyoming

PHILLIPS PETROLEUM COMPANY

County of Natrona

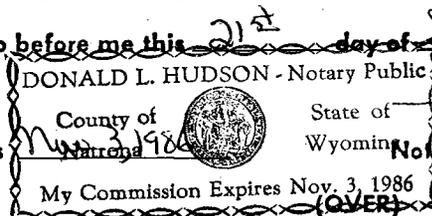
Applicant

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 21<sup>st</sup> day of Sept, 19 83

SEAL

My commission expires



State of Wyoming

Notary Public in and for Natrona Co., Wyoming

1. Attach qualitative and quantitative analysis of representative sample of water to be injected and a qualitative and quantitative 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 the surface owner of the land within one-half mile of the injection well and to each operator of a producing leasehold 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	1469.69	656 +	Surface	CIRCULATED
Production	5 1/2	5717.40	232 +	5016	CALCULATED
Tubing	2 7/8	5425.15	Baker EGS PKR	Name - Type - Depth of Tubing Packer 5425.15	
<b>Total Depth</b> 5687	<b>Geologic Name - Inj. Zone</b> Desert Creet I & II		<b>Depth - Top of Inj. Interval</b> 5499		<b>Depth - Base of Inj. Interval</b> 5633



WELL: 17 W43  
LOCATION: NESE SAC: 17-415-24E  
FIELD: GREATER ANETH  
RESERVOIR: Desert Creek I+II

● I COMPLETION: 2.4.62  
PRESENT STATUS: W. I.

RKB 4714'  
GL 4704.15'

175'

SURFACE CASING: 13 3/8" 27.1#  
5WSU

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

PRODUCTION CASING: 5 1/2" 14#  
J-55

1469.7'

PERFORATIONS: \_\_\_\_\_  
5499-5521  
\_\_\_\_\_  
5530-68  
\_\_\_\_\_  
5581-90  
\_\_\_\_\_  
5614-33  
\_\_\_\_\_  
\_\_\_\_\_

PACKER: Baker EGJ Pkr  
@ 5425  
Tubing: 2 7/8" @ 5425

5425'

5499- 5633

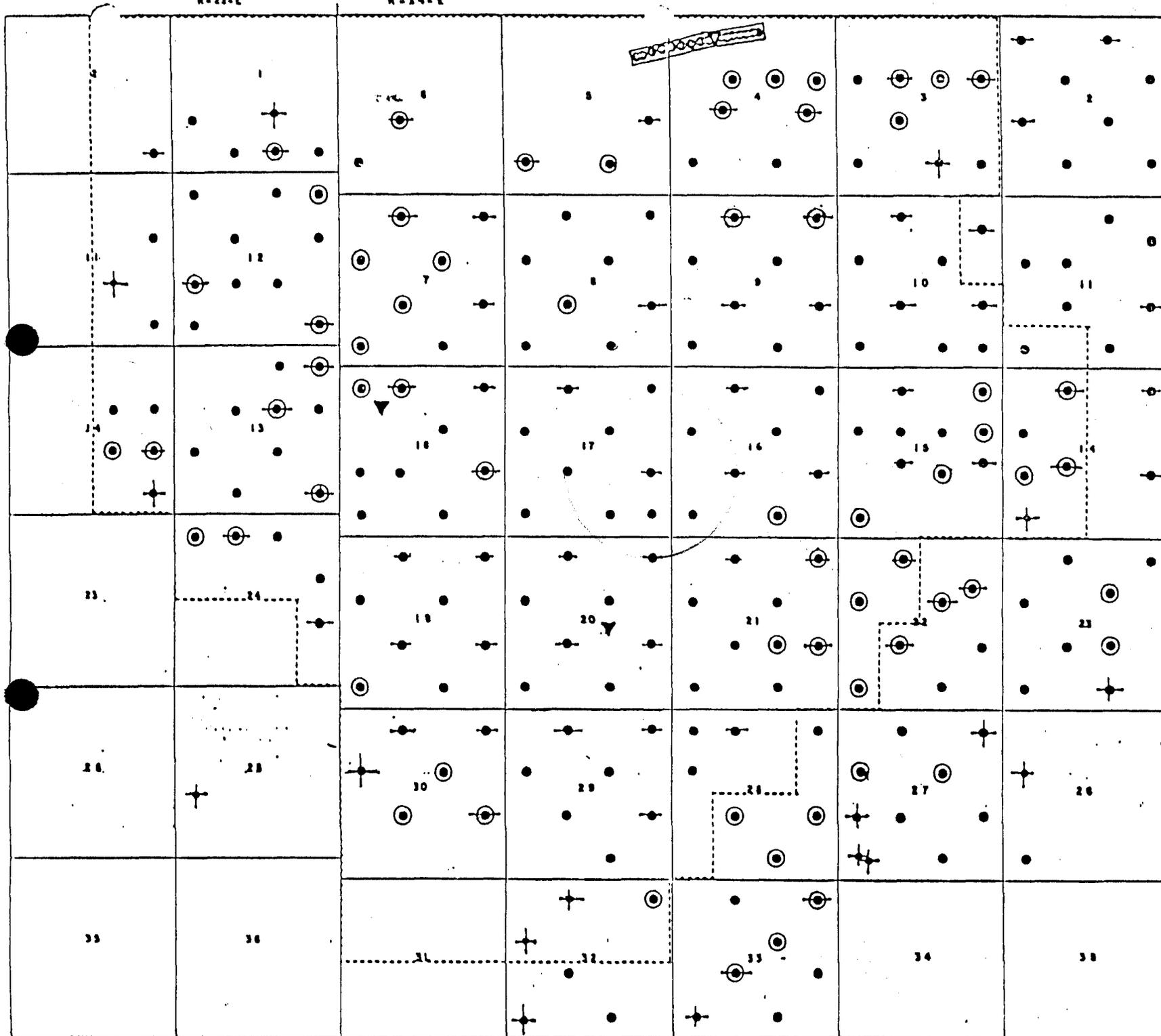
PBTD: 5607'  
OTD: 5717.4'

5717.4

Phillips Petroleum Company

R-23-E

R-24-E



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 boundary

R-23-E

R-24-E

Formation Water

# CHEMICAL & GEOLOGICAL LABORATORIES

P. O. Box 2794  
Casper, Wyoming

## WATER ANALYSIS REPORT

OPERATOR Phillips Petroleum Company DATE 7-22-83 LAB NO. W30636  
 WELL NO. Ratherford Unit LOCATION \_\_\_\_\_  
 FIELD \_\_\_\_\_ FORMATION \_\_\_\_\_  
 COUNTY San Juan INTERVAL \_\_\_\_\_  
 STATE Utah SAMPLE FROM Battery #1 Free water knockout  
(7-5-83) @ 10:35  
S/N 28568

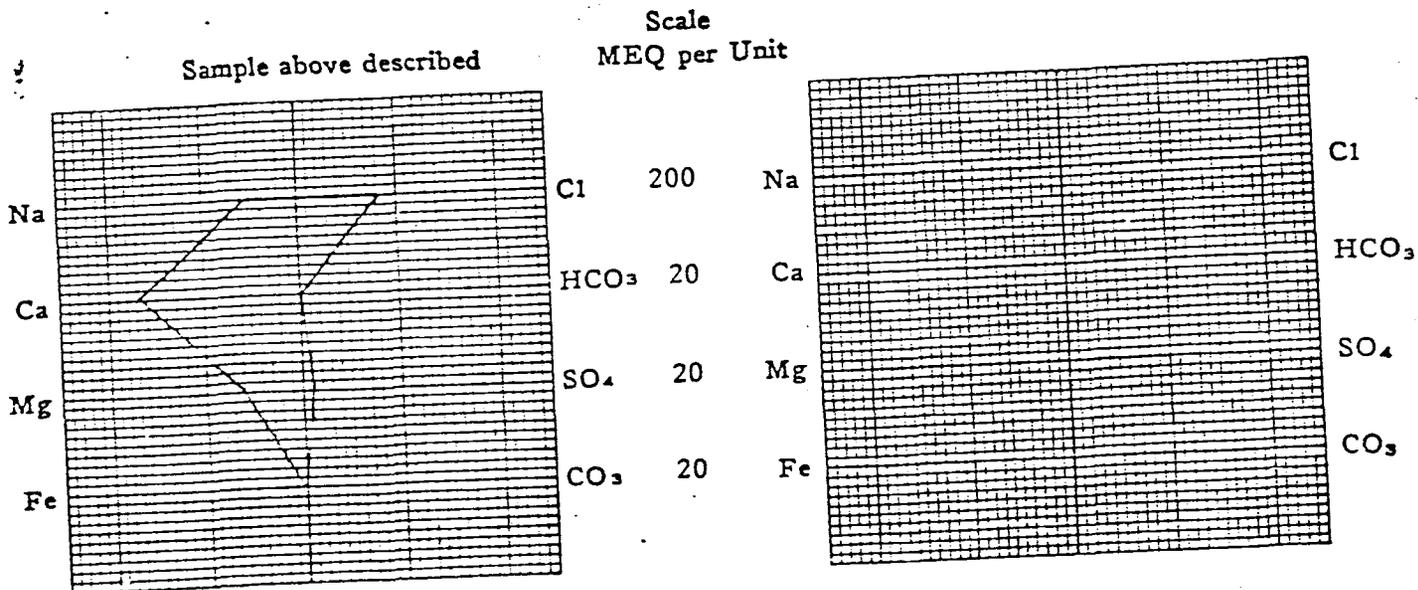
REMARKS & CONCLUSIONS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Cations			Anions		
	mg/l	meq/l		mg/l	meq/l
Sodium	30147	1311.38	Sulfate	1380	28.70
Potassium	429	10.98	Chloride	63000	1776.60
Lithium	--	--	Carbonate	0	0.00
Calcium	6865	342.56	Bicarbonate	151	2.48
Magnesium	1738	124.86	Hydroxide	--	--
Iron	--	--	Hydrogen sulfide	--	--
<b>Total Cations</b>		<b>1807.78</b>	<b>Total Anions</b>		<b>1807.78</b>

Total dissolved solids, mg/l	103633	Specific resistance @ 68°F.:	
NaCl equivalent, mg/l	104549	Observed	0.087 ohm-meters
Observed pH	7.3	Calculated	0.078 ohm-meters

### WATER ANALYSIS PATTERN



(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

WTR INJECTION WELL

CL1-12A (REV. 1964)

CHEMICAL & GEOLOGICAL LABORATORIES

P. O. Box 2794  
Casper, Wyoming

WATER ANALYSIS REPORT

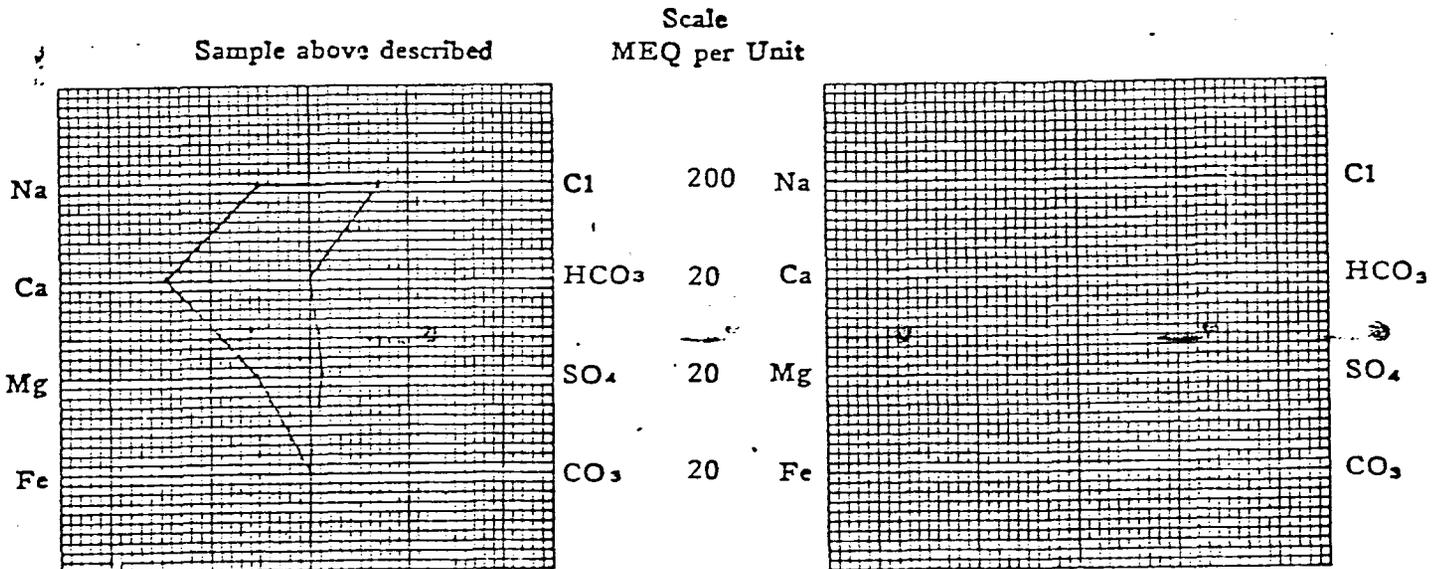
OPERATOR Phillips Petroleum Co. DATE 5-27-83 LAB NO. W30480  
 WELL NO. Rutherford Unit LOCATION \_\_\_\_\_  
 FIELD \_\_\_\_\_ FORMATION \_\_\_\_\_  
 COUNTY San Juan INTERVAL \_\_\_\_\_  
 STATE Utah SAMPLE FROM \_\_\_\_\_

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			Anions		
	mg/l	meq/l		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



(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

CHECKLIST FOR INJECTION WELL APPLICATION AND FILE REVIEW

Operator: Phillips Well No. Ratherton 17W43  
 County: San Juan T 41S R 24E Sec. 17 API# 43-039-10417  
 New Well  Conversion  Disposal Well  Enhanced Recovery Well

	YES	NO
UIC Forms Completed	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Plat including Surface Owners, Leaseholders, and wells of available record	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Schematic Diagram	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Fracture Information	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Pressure and Rate Control	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Adequate Geologic Information	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Fluid Source Desert Creek

Analysis of Injection Fluid	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	TDS <u>85655</u>
Analysis of Water in Formation to be injected into	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	TDS <u>103633</u>

Known USDW in area Wingate Depth 1550

Number of wells in area of review	<u>7</u> Prod.	<u>7</u> P&A
	Water <u>0</u>	Inj. <u>2</u>

Aquifer Exemption	Yes <input type="checkbox"/>	NA <input checked="" type="checkbox"/>
Mechanical Integrity Test	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Date	<input type="checkbox"/>	Type <input type="checkbox"/>

Comments: TOC 5016

---



---

Reviewed by: [Signature]

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

OPERATOR: Phillips Petroleum  
 FIELD: Greater Aneth LEASE: Rafter Ford  
 WELL # 17W 43 SEC. 17 TOWNSHIP 41S RANGE 24E  
 STATE FEB. FEE DEPTH 5687 TYPE WELL INJW MAX. INJ. PRESS. 1700  
 TEST DATE 6/17/86

CASING STRING	SIZE	SET AT	CMT	PRESSURE READINGS	REMARKS	FUTURE
<u>SURFACE</u>	<u>13<sup>3</sup>/<sub>8</sub></u>	<u>175</u>	<u>175</u>		<u>SE</u>	
<u>INTERMEDIATE</u>	<u>8<sup>5</sup>/<sub>8</sub></u>	<u>1469</u>	<u>656</u>			
<u>PRODUCTION</u>	<u>5<sup>1</sup>/<sub>2</sub></u>	<u>5717</u>	<u>232</u>			
<u>TUBING</u>	<u>2<sup>7</sup>/<sub>8</sub></u>	<u>5425</u>			<u>Baker Packer EGJ</u>	

CASING STRING	SIZE	SET AT	CMT	PRESSURE READINGS	REMARKS	FUTURE
<u>SURFACE</u>						
<u>INTERMEDIATE</u>						
<u>PRODUCTION</u>						
<u>TUBING</u>						

CASING STRING	SIZE	SET AT	CMT	PRESSURE READINGS	REMARKS	FUTURE
<u>SURFACE</u>						
<u>INTERMEDIATE</u>						
<u>PRODUCTION</u>						
<u>TUBING</u>						

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

SUBMIT IN REVERSE SIDE  
(Other instructions on reverse side)

Form approved, Budget Bureau No. 1004-0135  
Expires August 31, 1985  
*sent 5-6-85*

**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. <input type="checkbox"/> OIL WELL <input type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <input type="checkbox"/> Water Injection Well		5. LEASE DESIGNATION AND SERIAL NO. 14-20-603-353
2. NAME OF OPERATOR Phillips Oil Company		6. IF INDIAN, ALLOTTEE OR TRIBE NAME Navajo
3. ADDRESS OF OPERATOR P. O. Box 2920 Casper, WY 82601		7. UNIT AGREEMENT NAME SW-I-4192
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements. See also space 17 below.) At surface  1980' FSL, 660' FEL, NE SE Sec.17		8. FARM OR LEASE NAME Ratherford Unit
RECEIVED MAY 03 1985		9. WELL NO. 17W43
		10. FIELD AND POOL, OR WILDCAT Greater Aneth
14. PERMIT NO. 43-037-16417		11. SEC., T., R., E., OR SLM, AND SURVEY OR AREA 17-41S-24E, SLM
15. ELEVATIONS (Show whether on, at, or below ground surface) 4704 RKB	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 <input type="checkbox"/>	PULL OR ALTER CASING <input type="checkbox"/>	WATER SHUT-OFF <input type="checkbox"/>	REPAIRING WELL <input type="checkbox"/>
FRACTURE TREAT <input type="checkbox"/>	MULTIPLE COMPLETE <input type="checkbox"/>	FRACTURE TREATMENT <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
SHOOT OR ACIDIZE <input type="checkbox"/>	ABANDON* <input type="checkbox"/>	SHOOTING OR ACIDIZING <input type="checkbox"/>	ABANDONMENT* <input type="checkbox"/>
REPAIR WELL <input type="checkbox"/>	CHANGE PLANS <input type="checkbox"/>	(Other) _____	
(Other) Plug Back to Zone I <input checked="" type="checkbox"/>			

(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.)

It is proposed to convert Ratherford Unit #17W43 from Zone I and II to Zone I Water Injector. After squeeze cementing off Zone II perforation interval 5614-5633 and plugging back to Zone I at 5605', the well will be acidized with 5000 gals of 28% HCL, and returned to injection.

A 10' x 8' x 6' fenced pit will be constructed on location in a previously disturbed area. Upon completion of the workover, the pit will be dried and recovered.

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

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

SIGNED

*A. E. Stuart*

TITLE

Area Manager

DATE

April 24, 1985

(This space for Federal or State office use)

APPROVED BY

*Alton B. ...*

TITLE

VIC Manager

DATE

5/6/85

CONDITIONS OF APPROVAL, IF ANY:

\*See Instructions on Reverse Side

# 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

RECEIVED  
MAY 16 1986

DIVISION OF  
OIL, GAS & MINING

## SUPERIOR OIL COMPANY MERGER

Dear Mr. Firth:

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

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

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

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

Very truly yours,



CNE/rd  
CNE8661

R. D. Baker  
Environmental Regulatory Manager

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

SUBMIT IN TRIPlicate  
(Other instructions on re-  
verse 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.)

1. <input type="checkbox"/> OIL WELL <input type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER    Water Injector		7. UNIT AGREEMENT NAME SW-I-4192
2. NAME OF OPERATOR Phillips Petroleum Company		8. FARM OR LEASE NAME Ratherford Unit
3. ADDRESS OF OPERATOR P. O. Box 2920, Casper, Wyoming 82602		9. WELL NO. 17W43
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements. See also space 17 below.) At surface      1980' FSL & 660' FEL, NE SE		10. FIELD AND POOL, OR WILDCAT Greater Aneth
14. PERMIT NO. API #43-037-16417		11. SEC., T., R., M., OR BLM. AND SUBST OR AREA Sec. 17-T41S-R24E
15. ELEVATIONS (Show whether DP, ST, OR, etc.) RKB 4704'		12. COUNTY OR PARISH    13. STATE San Juan                    Utah

RECEIVED

JUN 16 1986

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 <input type="checkbox"/>	PCLL OR ALTER CASING <input type="checkbox"/>	WATER SHUT-OFF <input type="checkbox"/>	REPAIRING WELL <input type="checkbox"/>
FRACTURE TREAT <input type="checkbox"/>	MULTIPLE COMPLETE <input type="checkbox"/>	FRACTURE TREATMENT <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
SHOOT OR ACIDIZE <input type="checkbox"/>	ABANDON* <input type="checkbox"/>	SHOOTING OR ACIDIZING <input type="checkbox"/>	ABANDONMENT* <input type="checkbox"/>
REPAIR WELL <input type="checkbox"/>	CHANGE PLANE <input type="checkbox"/>	(Other) <u>Plugback to Zone I</u>	

(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.)  
August 21, 1985 through August 30, 1985 -

OLD PBD 5687, NEW PBD 5600.  
MI WS Unit 8/21/85. Cleaned out fill from 5621-5687'. Set cement retainer at 5603'. Tested for communication, found communication between tbg and backside. Squeezed Zone II (5614-5633') w/200 sx Class "B" Cmt. Tagged top of cmt retainer at 5600', New PBD. Pressure test squeeze to 2000 psi, OK. Acidized Zone I (5499-5590' OA) w/4000 gal 28% HCL. Set 2-3/8" Duo-Lined Tbg w/Pkr at 5362'. Opened to Injection 8/30/85 from Zone I Perfs 5499-5590' OA.

Injection Before - 27 BWPD  
Injection After - 226 BWPD at 1500 psi.

- |                         |                |
|-------------------------|----------------|
| 4-BLM, Farmington, NM   | 1-Chieftain    |
| 2-Utah O&G CC, SLC, UT  | 1-Mobil Oil    |
| 1-M. Williams, B'Ville  | 1-Texaco, Inc. |
| 1-L. Williamson, Denver | 1-Chevron USA  |
| 1-J. Weichbrodt, Cortez | 1-File RC      |

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

SIGNED D. C. Gill TITLE Area Manager DATE June 12, 1986

(This space for Federal or State office use)

APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_

CONDITIONS OF APPROVAL, IF ANY:

\*See Instructions on Reverse Side

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPlicate  
(Other instructions on re-  
verse side)

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

9

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  
MAY 27 1988

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 law. See also space 17 below.)  
At surface  
1980' FSL & 660' FEL, NE SE

14. PERMIT NO.  
43-037-16417

15. ELEVATIONS (Show whether DP, RT, GR, etc.)  
RKB: 4704'

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

6. IF INDIAN, ALLOTTEE OR TRIBE NAME  
Navajo

7. UNIT AGREEMENT NAME  
SW-I-4192

8. FARM OR LEASE NAME  
Ratherford Unit

9. WELL NO.  
#17W43

10. FIELD AND POOL, OR WILDCAT  
Greater Aneth

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

12. COUNTY OR PARISH  
San Juan

13. STATE  
Utah

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

NOTICE OF INTENTION TO:

SUBSEQUENT REPORT OF:

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

WATER SHUT-OFF <input type="checkbox"/>	REPAIRING WELL <input type="checkbox"/>
FRACTURE TREATMENT <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
SHOOTING OR ACIDIZING <input checked="" type="checkbox"/>	ABANDONMENT* <input type="checkbox"/>
(Other) <input type="checkbox"/>	

(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.)\*

April 16, 1988 through May 1, 1988

Move in, Rig up Well Service Unit. POOH with injection tubing. RIH with bit and scraper to 5600'. POOH. RIH with packer, set @ 5479'. Pressure up annulus to 1000 psi. Establish injection rate, acidize with 2700 gal. HCl gelled acid. Swab to recover load. Release packer, POOH. RIH with injection packer and tubing. Set packer @ 5379'. Pressure test casing to 1000 psi, no leakoff in pressure observed. Load hole with inhibited fresh water. Return well to injection. Release rig 5/1/88.

Injection Before: 0 BWIPD @ 2550#  
Injection After: 25 BWIPD @ 2375#

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

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

SIGNED J. Reno TITLE District Superintendent DATE 5/18/88

(This space for Federal or State office use)

APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_  
CONDITIONS OF APPROVAL, IF ANY:

\*See Instructions on Reverse Side

# DOWN HOLE SCHEMATIC

Date: 8/6/87

RATHERFORD Unit # 17W43

Location NE SE Sec. 17

RKB Elev. 4702'

T41S-R24E

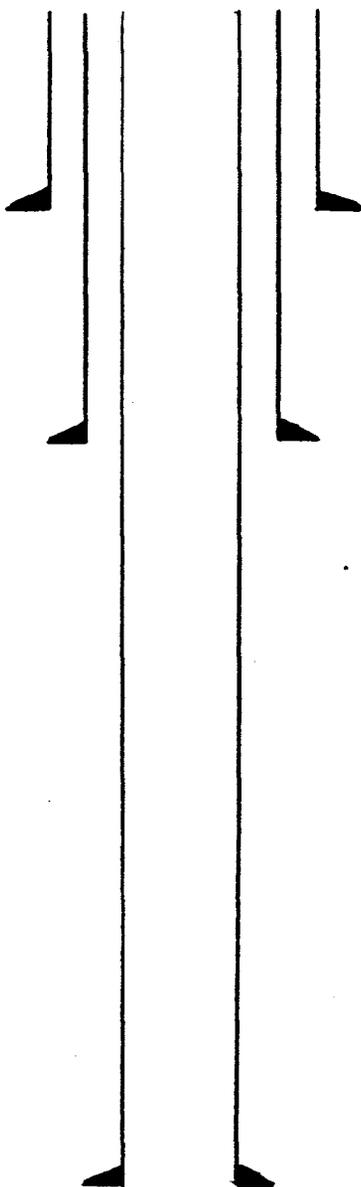
GL Elev. 4691'

Well Drld 2/15/59

RKB Above GL' 11'

Well converted to injector 11/16/62

42, 78, 50 SHEETS 5 SQUARE  
42, 382, 100 SHEETS 5 SQUARE  
42, 789, 200 SHEETS 5 SQUARE



CONDUCTOR Csg. 13 3/8 @ 175'

SURFACE Csg. 8 5/8 @ 1481'

TOC 3500' CALL

Tubing 2 3/8 @ 5,362' Duoline HT2

PACKER BAKER Lock-set PKR.  
@ 5362'

PERFS	<u>5499 - 5521</u>	<u>          </u>	<u>          </u>
	<u>5530 - 68</u>	<u>          </u>	<u>          </u>
	<u>5581 - 98</u>	<u>          </u>	<u>          </u>
	<u>          </u>	<u>          </u>	<u>          </u>

PBTD 5600'

PRODUCTION Csg. 5 1/2 @ 5717'  
J-55, 14#

All PERFS. Zone I unless noted

**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.)

<p>1. <input type="checkbox"/> OIL WELL    <input type="checkbox"/> GAS WELL    <input type="checkbox"/> OTHER    WATER INJECTION &amp; WATER SUPPLY WELLS</p> <p>2. NAME OF OPERATOR PHILLIPS PETROLEUM COMPANY</p> <p>3. ADDRESS OF OPERATOR 152 N. DURBIN, 2ND FLOOR, CASPER, WYOMING 82601</p> <p>4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface  <u>SEE ATTACHED</u></p>		<p>5. LEASE DESIGNATION AND SERIAL NO.</p> <p>6. IF INDIAN, ALLOTTEE OR TRIBE NAME  SW-I-4192</p> <p>7. UNIT AGREEMENT NAME RATHERFORD UNIT #7960041920</p> <p>8. FARM OR LEASE NAME</p> <p>9. WELL NO. VARIOUS (see attached)</p> <p>10. FIELD AND POOL, OR WILDCAT GREATER ANETH</p> <p>11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA Sections 1 thru 30 T41S - R23E &amp; 24E</p> <p>12. COUNTY OR PARISH    13. STATE San Juan                      Utah</p>
<p>14. PERMIT NO.</p>	<p>15. ELEVATIONS (Show whether DF, ST, CR, etc.)  OIL, GAS &amp; MINING</p>	

RECEIVED  
 MAR 20 1989

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

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

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**

NOV 15 1990

1. Type of Well  
 Oil Well     Gas Well     Other    **Injector**

2. Name of Operator  
**Phillips Petroleum Company**

3. Address and Telephone No.  
**P. O. Box 1150, Cortez, CO 81321    (303) 565-3426**

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)  
**1980' FSL & 660' FEL, NE SE, Sec. 17-T41S-R24E**

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

6. If Indian, Allottee or Tribe Name  
**Navajo Tribal**

7. If Unit or CA, Agreement Designation  
**SW-I-4192**  
**Ratherford Unit**

8. Well Name and No.  
**Ratherford Unit #17W43**

9. API Well No.  
**43-037-16417**

10. Field and Pool, or Exploratory Area  
**Greater Aneth**

11. County or Parish, State  
**San Juan County, Utah**

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

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

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

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

October 29, 1990 Through November 2, 1990

MI & RU well service unit 10/29/90. ND wellhead, NU BOP. Rel Lok-set pkr. COOH w/2-7/8" Rice tbg and pkr. GIH w/bit & scraper on workstring & drill and clean out well to PBD 5600'. GIH w/5-1/2" Baker Lok-set pkr w/tbg test plug & on-off tool and 172 jts 2-7/8" Drisco lined tbg, drifting barrier rings and pressure testing tbg. Set pkr at 5375'. Tested tbg to 3000 psi and pressure tested annulus to 1200 psi. OK. Circ inhibitor fluid consisting of 130 bbls fresh wtr and 27 gals Wellchem WA-840. ND BOP, NU wellhead. Pressured annulus to 1100 psi for 45 min for UIC test, OK. RD & MO well service unit and returned well to injection 11/2/90 ✓

Injection Rate Prior to Work - 81 BWPD @ 2650 psi  
 Injection Rate After Work - 94 BWPD @ 2575 psi

Distribution

- |                        |                   |                      |
|------------------------|-------------------|----------------------|
| 5 - BLM, Farmington    | 1 - P. J. Konkell | 1 - PPCO, Houston    |
| 2 - Utah O&GCC         | 1 - Chieftain     | 1 - PPCO, Cortez, RC |
| 1 - EPA, San Francisco | 1 - Mobil Oil     |                      |
| 1 - N. Anstine         | 1 - Texaco, Inc.  |                      |
| 1 - S. H. Oden         | 1 - Chevron       |                      |

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

Signed S. H. Oden S. H. Oden Title District Superintendent Date November 12, 1990

(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.

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

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

**SUNDRY NOTICES AND REPORTS ON WELLS**

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

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

6. If Indian, Allottee or Tribe Name  
Navajo Tribal

7. If Unit or CA, Agreement Designation  
SW-I-4192  
Ratherford Unit

8. Well Name and No.  
Ratherford Unit #17W43

9. API Well No.  
43-037-16417

10. Field and Pool, or Exploratory Area  
Greater Aneth

11. County or Parish, State  
San Juan County, Utah

**SUBMIT IN TRIPLICATE**

1. Type of Well  
 Oil Well  Gas Well  Other Water Injector

2. Name of Operator  
Phillips Petroleum Company

3. Address and Telephone No.  
P. O. Box 1150, Cortez, CO 81321 (303) 565-3426

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)  
1980' FSL & 660' FEL, NE SE, Sec. 17-T41S-R24E

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

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

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

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

November 9, 1990 Through November 13, 1990

MI & RU well service unit 11/9/90 to repair suspected pkr leak. ND wellhead, NU BOP. Rel & COOH w/Baker Lok-set pkr. GIH w/Baker 5-1/2" inverted Lok-set pkr w/tbg test plug and on-off tool and 171 jts 2-7/8" Drisco lined tbg. Pressure tested tbg to 3000 psi, OK. Set pkr at 5345'. Performed initial pressure test on annulus, OK. Circ pkr fluid (130 bbls wtr w/27 gals Welchem WA-840). ND BOP, NU wellhead. Performed UIC test, 1050 psi for 30 min. RD & MO well service unit & returned well to injection 11/13/90 ✓

Injection Rate Prior to Work - 87 BWPD @ 2575 psi  
Injection Rate After Work - 61 BWPD @ 2750 psi

- Distribution
- 5 - BLM, Farmington
  - 2 - Utah O&GCC
  - 1 - EPA, San Francisco
  - 1 - N. Anstine
  - 1 - S. H. Oden
  - 1 - P. J. Konkkel
  - 1 - Chieftain
  - 1 - Mobil Oil
  - 1 - Texaco, Inc.
  - 1 - PPCo, Houston
  - 1 - PPCo, Cortez, RC

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

Signed S. H. Oden S. H. Oden Title District Superintendent Date December 6, 1990

(This space for Federal or State office use)

Approved by \_\_\_\_\_ Title \_\_\_\_\_ Date \_\_\_\_\_  
Conditions of approval, if any:

# MONTHLY OIL AND GAS PRODUCTION REPORT

OPERATOR NAME AND ADDRESS:

ACCOUNT NUMBER: N0772

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

**RECEIVED**

AUG 16 1993

REPORT PERIOD (MONTH/YEAR): 6 / 93

DIVISION OF  
OIL, GAS & MINING

AMENDED REPORT  (Highlight Changes)

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

*USRA  
8-18-93*

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

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

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

STATE OF UTAH  
DIVISION OF OIL, GAS AND MINING

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 OIL 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

RECEIVED  
SEP 13 1993

DIVISION OF  
OIL, GAS & MINING

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

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   
 FRACTURE TREAT  MULTIPLE COMPLETE   
 SHOOT OR ACIDIZE  ABANDON   
 REPAIR WELL  CHANGE PLANS   
 (Other)

WATER SHUT-OFF  REPAIRING WELL   
 FRACTURE TREATMENT  ALTERING CASING   
 SHOOTING OR ACIDIZING  ABANDONMENT\*   
 (Other) CHANGE OF OPERATOR   
 (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:

MONTHLY OIL AND GAS DISPOSITION REPORT

OPERATOR NAME AND ADDRESS:

*L.S. SHEFFIELD*  
~~BRIAN BERRY~~  
~~M E P N A MOBIL~~  
~~POB 219031 1807A RENTW~~ *F.O. DRAWER G*  
 DALLAS TX 75221-9031 *CORTEZ, CO. 81321*

UTAH ACCOUNT NUMBER: N7370

REPORT PERIOD (MONTH/YEAR): 7 / 93

AMENDED REPORT  (Highlight Changes)

*\*931006 updated.  
 Jie*

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

**RECEIVED**

SEP 13 1993

DIVISION OF  
OIL, GAS & MINING

COMMENTS: *PLEASE NOTE ADDRESS CHANGE. MOBIL ~~NEW~~ PRODUCTION REPORTS WILL BE COMPILED AND SENT FROM THE CORTEZ, CO. OFFICE IN THE FUTURE.*

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

Date: 9/5/93

Name and Signature: L. S. Sheffield

Telephone Number: 303.865.2212  
244.658.2578

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.

*Like Rutherford Unit (GC)*

RECEIVED  
BLM

JUL 27 AM 11:44

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

070 FARMINGTON, NM

ARES/543

JUL 28 1993

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

MINERAL RIGHTS	
DATE	1/9/93
BY	
REVIEWED	
DATE	8/13
BY	
ALL SUPPLY	
FILE	

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 Rutherford Unit.

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

Sincerely,

ACTING Area Director

Enclosure

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

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF INDIAN AFFAIRS

RECEIVED  
BLM

DESIGNATION OF OPERATOR

Phillips Petroleum Company is, on the records of the Bureau of Indian Affairs, operator of the Rutherford Unit, <sup>27 JUL 1993</sup>

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

070 FARMINGTON, NM

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

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

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

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

Attached hereto as Exhibit "A"

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

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

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

Attached is the appropriate documentation relevant to this document.

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

Phillips Petroleum Company

June 17, 1993

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

Mobil Exploration and Producing  
North America Inc.

June 11, 1993

By: B. D. Martiny  
Attorney-in-Fact B.D. MARTINY

[Signature] 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

<u>Tract Number</u>	<u>Description of Land</u>	<u>Serial Number and Effective Date of Lease</u>	<u>Tract Percentage Participation</u>
1	S/2 Sec. 1, E/2 SE/4 Sec. 2, E/4 Sec. 11, and all of Sec. 12, T-41-S, R-23-E, S.L.H. 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.H., 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.H., 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.H. 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.H., San Juan County, Utah	14-20-603-247-A Oct. 5, 1953	10.3108861
11	Sections 17, 18, 19 and 20, T-41-S, R-24-E, San Juan County Utah	14-20-603-353 Oct. 27, 1953	27.3389265
12	Sections 15, 16, 21, and NW/4, and W/2 SW/4 Sec. 22, T-41-S, R-24-E, San Juan County, Utah	14-20-603-355 Oct. 27, 1953	14.2819339
13	W/2 Section 14, T-41-S, R-24-E, San Juan County, Utah	14-20-603-370 Oct. 26, 1953	1.8500847
14	N/2 and SE/4, and E/2 SW/4 Sec. 29, NE/4 and E/2 SE/4 and E/2 W/2 Irregular Sec. 30, and E/2 NE/4 Sec. 32, T-41-S, R-24-E, San Juan County, Utah	14-20-603-407 Dec. 10, 1953	6.9924969
15	NW/4 Sec. 28, T-41-S, R24-E San Juan County, Utah	14-20-603-409 Dec. 10, 1953	.9416393
16	SE/4 Sec. 3, T-41-S, R-24-E San Juan County, Utah	14-20-0603-6504 July 11, 1961	.5750254
17	NE/4 Sec. 3, T-41-S, R-24-E San Juan County, Utah	14-20-0603-6505 July 11, 1961	.5449292
18	NW/4 Sec. 3, T-41-S, R-24-E San Juan County, Utah	14-20-0603-6506 July 11, 1961	.5482788
19	NE/4 Sec. 4, T-41-S, R24-E San Juan County, Utah	14-20-0603-7171 June 11, 1962	.4720628
20	E/2 NW/4 Sec. 4, T-41-S, R-24-E San Juan County, Utah	14-20-0603-7172 June 11, 1962	.0992482

100% Indian Lands

TOTAL 12,909.74

100.0000000

Division of Oil, Gas and Mining  
PHONE CONVERSATION DOCUMENTATION FORM

Route original/copy to:

Well File \_\_\_\_\_  
\_\_\_\_\_  
(Location) Sec \_\_\_ Twp \_\_\_ Rng \_\_\_  
(API No.) \_\_\_\_\_

Suspense  
(Return Date) \_\_\_\_\_  
(To - Initials) \_\_\_\_\_

Other  
OPERATOR CHANGE

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

2. DOGM Employee (name) L. CORDOVA (Initiated Call   
Talked to:  
Name GLEN COX (Initiated Call  - Phone No. (915) 688-2114  
of (Company/Organization) MOBIL

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

4. Highlights of Conversation: \_\_\_\_\_  
MR. COX CONFIRMED THAT THE WELLS SHOULD BE SET UNDER ACCOUNT N7370/MEPNA AS  
PER BIA APPROVAL, ALSO CONFIRMED THAT PRODUCTION & DISPOSITION REPORTS WILL NOW  
BE HANDLED OUT OF THEIR CORTEZ OFFICE RATHER THAN DALLAS.  
MEPNA-  
PO DRAWER G  
CORTEZ, CO 81321  
(303)565-2212  
\*ADDRESS CHANGE AFFECTS ALL WELLS CURRENTLY OPERATED BY MEPNA, CURRENTLY  
REPORTED OUT OF DALLAS (MCELMO CREEK).

OCT 25 1993

TRANSFER OF AUTHORITY TO INJECT - UIC FORM 5

OIL, GAS & MINING

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 Farlington, 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 [Signature] Title UIC Manager  
Approval Date 10-27-93

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 MAIN- ) CAUSE NO. 63  
 TENANCE PROGRAM FOR THE RATHERFORD )  
 UNIT IN THE GREATER ANETH AREA, )  
 SAN JUAN COUNTY, UTAH )

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, SEEM

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, SEEM

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

#### ORDER

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.

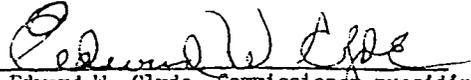
2. The plan and program of water injection pressure maintenance operations proposed by applicant in its application filed herein should be and the same is hereby approved and the unit operator is authorized to proceed with and under such plan and program as soon as the Ratherford Unit Agreement becomes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

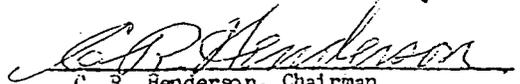
3. If, at any time or from time to time, it appears necessary or desirable to the unit operator to alter or modify the hereby approved plan of pressure maintenance, any such alteration or modification shall be submitted for

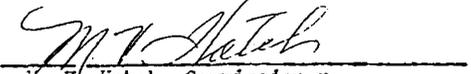
and shall be subject to approval by the Commission or its delegated representative, which approval may be given without notice or hearing, unless otherwise ordered or directed by the Commission.

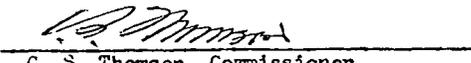
Dated this 13th day of September, 1961.

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

Division of Oil, Gas and Mining  
**OPERATOR CHANGE WORKSHEET**

Routing:

1-VLC/417-SJ
2-DTS/58-AJE
3-VLC
4-RJF
5-IEC
6-PL

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

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

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

TO (new operator)	<u>M E P N A</u>	FROM (former operator)	<u>PHILLIPS PETROLEUM COMPANY</u>
(address)	<u>PO DRAWER G</u>	(address)	<u>5525 HWY 64 NBU 3004</u>
	<u>CORTEZ, CO 81321</u>		<u>FARMINGTON, NM 87401</u>
	<u>GLEN COX (915)688-2114</u>		<u>PAT KONKEL</u>
	phone <u>(303)565-2212</u>		phone <u>(505)599-3452</u>
	account no. <u>N7370</u>		account no. <u>N0772(A)</u>

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

Name: <b>**SEE ATTACHED**</b>	API: <u>43037-16417</u>	Entity: _____	Sec _____	Twp _____	Rng _____	Lease Type: _____
Name: _____	API: _____	Entity: _____	Sec _____	Twp _____	Rng _____	Lease Type: _____
Name: _____	API: _____	Entity: _____	Sec _____	Twp _____	Rng _____	Lease Type: _____
Name: _____	API: _____	Entity: _____	Sec _____	Twp _____	Rng _____	Lease Type: _____
Name: _____	API: _____	Entity: _____	Sec _____	Twp _____	Rng _____	Lease Type: _____
Name: _____	API: _____	Entity: _____	Sec _____	Twp _____	Rng _____	Lease Type: _____
Name: _____	API: _____	Entity: _____	Sec _____	Twp _____	Rng _____	Lease Type: _____

**OPERATOR CHANGE DOCUMENTATION**

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

**ENTITY REVIEW**

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

**BOND VERIFICATION (Fee wells only)**

1. (Rule R615-3-1) The new operator of any fee lease well listed above has furnished a proper bond.
2. A copy of this form has been placed in the new and former operators' bond files.
3. The former operator has requested a release of liability from their bond (yes/no) no. Today's date \_\_\_\_\_ 1993. If yes, division response was made by letter dated \_\_\_\_\_ 1993.

**LEASE INTEREST OWNER NOTIFICATION RESPONSIBILITY**

1. (Rule R615-2-10) The former operator/lessee of any fee lease well listed above has been notified by letter dated \_\_\_\_\_ 1993, of their responsibility to notify any person with an interest in such lease of the change of operator. Documentation of such notification has been requested.
2. Copies of documents have been sent to State Lands for changes involving State leases.

**FILMING**

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

**FILING**

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

**COMMENTS**

931006 BIA/Btm Approved 7-9-93.

✓ 12W-44	43-037-16405	14-20-603-246A	SEC. 12, T41S, R23E	SE/SE 660 FSL; 660 FEL
✓ 12W-44A	43-037-31543	14-20-603-246A	SEC. 12, T41S, R23E	SE/SE 807 FSL; 772 FSL
✓ 13-11W	43-037-31152	14-20-603-247A	SEC. 13, T41S, R23E	NW/NW 500 FNL; 660 FWL
✓ 13-12	43-037-31127	14-20-603-247A	SEC. 13, T41S, R23E	SW/NW 1705 FNL; 640 FWL
✓ 13W-13	43-037-15851	14-20-603-247A	SEC. 13, T41S, R23E	NW/SW 1980 FSL; 4620 FEL
✓ 13-14	43-037-31589	14-20-603-247A	SEC. 13, T41S, R23E	660 FSL; 660 FWL
✓ 13-21	43-037-31128	14-20-603-247A	SEC. 13, T41S, R23E	NE/NW 660 FNL; 1920 FWL
✓ 13W-22	43-037-15852	14-20-603-247A	SEC. 13, T41S, R23E	SE/NW 1988 FNL; 3300 FEL
✓ 13-23	43-037-31129	14-20-603-247A	SEC. 13, T41S, R23E	NE/SW 1980 FSL; 1930 FWL
✓ 13W-44	43-037-15853	14-20-603-247	SEC. 13, T41S, R23E	600 FSL; 3300 FEL
✓ 13W-32	43-037-16406	14-20-603-247A	SEC. 13, T41S, R23E	1881 FNL; 1979 FEL
✓ 13W-33	43-037-15855	14-20-603-247A	SEC. 13, T41S, R23E	NW/SE 1970 FSL; 1979 FEL
✓ 13W-34	43-037-31130	14-20-603-247A	SEC. 13, T41S, R23E	SW/SE 660 FSL; 1980 FEL
✓ 13-41	43-037-15856	14-20-603-247A	SEC. 13, T41S, R23E	NE/NE 660 FNL; 660 FEL
✓ 13W-42	43-037-15857	14-20-603-247A	SEC. 13, T41S, R23E	SE/NE 2139; 585 FEL
✓ 13-43	43-037-31131	14-20-603-247A	SEC. 13, T41S, R23E	NE/SE 1700 FSL; 960 FEL
✓ 13W-44	43-037-16407	14-20-603-247A	SEC. 13, T41S, R23E	SE/SE 635 FSL; 659 FEL
✓ 14-03	NA	14-20-603-4037	SEC. 11, T41S, R23E	SW/SW 660 FSL; 660 FEL
✓ 14-32	43-037-15858	14-20-603-247A	SEC. 14, T41S, R23E	2130 FNL; 1830 FEL
✓ 14-41	43-037-31623	14-20-603-247A	SEC. 14, T41S, R23E	NE/NE 521 FEL; 810 FNL
✓ 14W-42	43-037-15860	14-20-603-247A	SEC. 14, T41S, R23E	SE/NE 1976 FNL; 653 FEL
✓ 14W-43	43-037-16410	14-20-603-247A	SEC. 14, T41S, R23E	3300 FSL; 4770 FEL
✓ 14-33	43-037-15859	14-20-603-247	SEC. 14, T41S, R23E	2130 FSL; 1830 FEL
✓ 15-12	43-037-15715	14-20-603-355	SEC. 15, T41S, R24E	1820 FNL; 500 FWL
✓ 15W-21	43-037-16411	14-20-603-355	SEC. 15, T41S, R24E	660 FNL; 1820 FWL
✓ 15-22	43-037-30449	14-20-603-355	SEC. 15, T41S, R24E	SE/NW, 1980 FNL; 2050 FWL
✓ 15-32	43-037-15717	14-20-603-355A	SEC. 15, T41S, R24E	1980 FNL; 1980 FEL
✓ 15-33	43-037-15718	14-20-603-355	SEC. 15, T41S, R24E	NW/SE 1650 FSL; 1980 FEL
✓ 15-41	43-037-15719	14-20-603-355	SEC. 15, T41S, R24E	660 FNL; 660' FEL
✓ 15-42	43-037-30448	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
✓ 18-44	43-037-31045	14-20-603-353	SEC. 18, T41S, R24E	SE/SE 660' FSL; 660' FEL
✓ 19-11	43-037-31080	14-20-603-353	SEC. 19, T41S, R24E	NW/NW 660' FNL; 660' FWL
✓ 19-12	43-037-15739	14-20-603-353	SEC. 19, T41S, R24E	600' FWL; 1980' FNL
✓ 19-14	43-037-15740	14-20-603-353	SEC. 19, T41S, R24E	600' FSL; 660' FEL

PA'd

PA'd

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

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 TRIPPLICATE

1. Type of Well

Oil Well  Gas Well  Other

2. Name of Operator

MOBIL EXPLORATION & PRODUCING US, AS AGENT FOR MEPNA

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)

1980' FSL, 660' FEL; SEC 17, T41S, R24E

5. Lease Designation and Serial No.

14-20-603-353

6. If Indian, Allottee or Tribe Name

NAVAJO TRIBAL

7. If Unit or CA, Agreement Designation

RATHERFORD UNIT

8. Well Name and No.

RATHERFORD UNIT 17W-43

9. API Well No.

43-037-16417

10. Field and Pool, or exploratory Area

GREATER ANETH

11. County or Parish, State

SAN JUAN, UT

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

TYPE OF SUBMISSION

Notice of Intent  
 Subsequent Report  
 Final Abandonment Notice

TYPE OF ACTION

Abandonment  
 Recompletion  
 Plugging Back  
 Casing Repair  
 Altering Casing  
 Other WORKOVER

Change of Plans  
 New Construction  
 Non-Routine Fracturing  
 Water Shut-Off  
 Conversion to Injection  
 Dispose Water

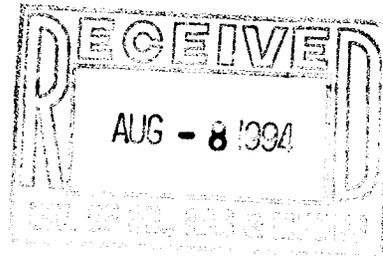
(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

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

07/11/94 MIRU. ATTEMPTED TO ND WELLHEAD. FROZE UP. NU INJECTION VALVE.

07/12/94 GIH W/BROACH & FOUND 9 JTS TBG, SEND PKR IN FOR REDRESS.

07/13/94 TIH W/PKR & TBG, RUN TBG BROACH TO CHECK TBG OK, PUMP PKR FLUID. SET PKR & PRESS TST ANNULUS @ 1000 PSI, RETURN WELL TO INJECTION. RDMO.



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

Signed \_\_\_\_\_ Title ENV. & REG. TECHNICIAN Date 08/03/94

(This space for Federal or State office use)

Approved by \_\_\_\_\_ Title \_\_\_\_\_ Date tax credit

Conditions of approval, if any:

8/6/94

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.

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

APR 11 1994

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

SUNDRY NOTICES AND REPORTS ON WELLS

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Use "APPLICATION FOR PERMIT - " for such proposals

SUBMIT IN TRIPLICATE

1. Type of Well

Oil Well  Gas Well  Other

2. Name of Operator

MOBIL EXPLORATION & PRODUCING US, AS AGENT FOR MEPNA

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)

1980' FSL, 660' FEL; SEC. 17, T41S, R24E

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

6. If Indian, Allottee or Tribe Name  
NAVAJO TRIBAL

7. If Unit or CA, Agreement Designation  
RATHERFORD UNIT

8. Well Name and No.  
RATHERFORD UNIT 17-W-43

9. API Well No.  
43-037-16417

10. Field and Pool, or exploratory Area  
GREATER ANETH

11. County or Parish, State  
SAN JUAN, UT

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

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

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

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

03-04-94 MIRU. PRESS TEST BOP & COIL TBG. TO 5000 PSI/HELD/OK. RIH W/COIL TBG - TAG PBTD 5600'. ACIDIZE W/5000 GALS 15% HCL. FILL AT 5528'.

03-05-94 RIH W/COIL TBG - TAG FILL @ 5517'. CIRC FILL TO PBTD 5600'. CIRC HOLE CLEAN. RDMO.

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

Signed D. Davis for Shirley Todd

Title ENV. & REG. TECHNICIAN

Date 04/01/94

(This space for Federal or State office use)

Approved by \_\_\_\_\_ Title \_\_\_\_\_

Date [Signature]

Conditions of approval, if any:

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Form 3160-5  
(June 1990)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT  
DIV. OF OIL, GAS & MINING

RECEIVED  
JUL 27 1995

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

SUNDRY NOTICES AND REPORTS ON WELLS

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

SUBMIT IN TRIPLICATE

1. Type of Well <input type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input checked="" type="checkbox"/> Other <u>Injector</u>	5. Lease Designation and Serial No. <u>14-20-603-353</u>
2. Name of Operator <u>MOBIL OIL CORPORATION</u>	6. If Indian, Allottee or Tribe Name <u>NAVAJO Tribal</u>
3. Address and Telephone No. <u>P.O. BOX 633, MIDLAND, TX 79702</u> (915)688-2585	7. If Unit or CA, Agreement Designation <u>Ratherford Unit</u>
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) <u>1980' FSL, 660' FEL</u> <u>Sec. 17, T41S, R24E</u>	8. Well Name and No. <u>Ratherford 17W43</u>
	9. API Well No. <u>43-037-16417</u>
	10. Field and Pool, or Exploratory Area <u>Greater Aneth</u>
	11. County or Parish, State <u>SAN JUAN, UT</u>

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

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

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

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.)\*  
MIT Failure due to mechanical or casing leak. A procedure will be submitted if the well has a casing leak.

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

Signed Shuley Robertson Title Environmental & Reg Technician Date 7-22-95

(This space for Federal or State office use)

Approved by \_\_\_\_\_ Title \_\_\_\_\_ Date \_\_\_\_\_  
Conditions of approval, if any:

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

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

SUNDRY NOTICES AND REPORTS ON WELLS

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SUBMIT IN TRIPLICATE

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

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

6. If Indian, Allottee or Tribe Name  
NAVAJO TRIBAL

7. If Unit or CA, Agreement Designation  
RATHERFORD UNIT

8. Well Name and No.  
RATHERFORD 17W43

9. API Well No.  
43-037-16417

10. Field and Pool, or exploratory Area  
GREATER ANETH

11. County or Parish, State  
SAN JUAN UT

1. Type of Well

Oil Well  Gas Well  Other NJECTOR

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

3. Address and Telephone No.  
P.O. Box 633, Midland, TX 79702 915-688-2585

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)  
1980' FSL, 660' FEL  
SEC. 17, T41S, R24E

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

TYPE OF SUBMISSION

- Notice of Intent  
 Subsequent Report  
 Final Abandonment Notice

TYPE OF ACTION

- Abandonment  Change of Plans  
 Recompletion  New Construction  
 Plugging Back  Non-Routine Fracturing  
 Casing Repair  Water Shut-Off  
 Altering Casing  Conversion to Injection  
 Other MIT FAILURE REPAIR  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.)\*

MIT FAILURE WAS CAUSED BY A CASING VALVE LEAK WHICH HAS BEEN REPAIRED.

AUG 31 1995

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

Signed Shuley Robinson Title ENV. & REG. TECHNICIAN Date 8-14-95

(This space for Federal or State office use)

Approved by \_\_\_\_\_ Title \_\_\_\_\_ Date \_\_\_\_\_  
Conditions of approval, if any:

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UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

SUNDRY NOTICES AND REPORTS ON WELLS

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

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

6. If Indian, Allottee or Tribe Name  
**NAVAJO TRIBAL**

7. If Unit or CA, Agreement Designation  
**RATHERFORD UNIT**

8. Well Name and No.  
**RATHERFORD 17W43**

9. API Well No.  
**43-037-16417**

10. Field and Pool, or exploratory Area  
**GREATER ANETH**

11. County or Parish, State  
**SAN JUAN UT**

**SUBMIT IN TRIPLICATE**

1. Type of Well  
 Oil Well     Gas Well     Other **NJECTOR**

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

3. Address and Telephone No.  
**P.O. Box 633, Midland, TX 79702                      915-688-2585**

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)  
**1980' FSL, 660' FEL  
SEC. 17, T41S, R24E**

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

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

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

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)\*  
**MIT FAILURE WAS CAUSED BY A CASING VALVE LEAK WHICH HAS BEEN REPAIRED.**

AUG 21 1995

14. I hereby certify that the foregoing is true and correct  
Signed Shuley Robinson Title ENV. & REG. TECHNICIAN Date 8-14-95

(This space for Federal or State office use)  
Approved by \_\_\_\_\_ Title \_\_\_\_\_ Date \_\_\_\_\_  
Conditions of approval, if any:

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PHONE CONVERSATION DOCUMENTATION FORM

Route original/copy to:

Well File \_\_\_\_\_  
(Location) Sec \_\_\_ Twp \_\_\_ Rng \_\_\_  
(API No.) \_\_\_\_\_

Suspense  
(Return Date) \_\_\_\_\_  
(To - Initials) \_\_\_\_\_

Other  
OPER NM CHG OF

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

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

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

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

4. Highlights of Conversation: \_\_\_\_\_

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

Division of Oil, Gas and Mining  
**OPERATOR CHANGE WORKSHEET**

1- <input checked="" type="checkbox"/> VLC	7- <input checked="" type="checkbox"/> PL
2- <input checked="" type="checkbox"/> LWP	8- <input checked="" type="checkbox"/> SJ
3- <input checked="" type="checkbox"/> DT	9- <input checked="" type="checkbox"/> FILE
4- <input checked="" type="checkbox"/> VLC	
5- <input checked="" type="checkbox"/> RJF	
6- <input checked="" type="checkbox"/> LWP	

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

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

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

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

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

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

Name: <u>** SEE ATTACHED **</u>	API: <u>037-16417</u>	Entity: _____	Sec _____	Twp _____	Rng _____	Lease Type: _____
Name: _____	API: _____	Entity: _____	Sec _____	Twp _____	Rng _____	Lease Type: _____
Name: _____	API: _____	Entity: _____	Sec _____	Twp _____	Rng _____	Lease Type: _____
Name: _____	API: _____	Entity: _____	Sec _____	Twp _____	Rng _____	Lease Type: _____
Name: _____	API: _____	Entity: _____	Sec _____	Twp _____	Rng _____	Lease Type: _____
Name: _____	API: _____	Entity: _____	Sec _____	Twp _____	Rng _____	Lease Type: _____
Name: _____	API: _____	Entity: _____	Sec _____	Twp _____	Rng _____	Lease Type: _____

**OPERATOR CHANGE DOCUMENTATION**

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

**ENTITY REVIEW**

- See* 1. (Rule R615-8-7) Entity assignments have been reviewed for all wells listed above. Were entity changes made? (yes/no) \_\_\_\_ (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* / *See* 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. *OTS 8/5/95*
- N/A* 2. Copies of documents have been sent to State Lands for changes involving State leases.

**FILMING**

1. All attachments to this form have been microfilmed. Date: October 4 1995.

**FILING**

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

**COMMENTS**

*950803 UIC F5/Not necessary!*

STATE OF UTAH  
INVENTORY OF INJECTION WELLS

OPERATOR	API NO.	WELL	TNS	RGE	SE	WELLTYPE	INDIAN COUNT
*****	*****	*****	***	***	**	*****	*****
✓MEPNA (MOBIL	43-037-15722	16W23	41S	24E	16	INJW	Y
✓MEPNA (MOBIL	43-037-16414	16W21	41S	24E	16	INJW	Y
✓MEPNA (MOBIL	43-037-16416	17W21	41S	24E	17	INJW	Y
✓MEPNA (MOBIL	43-037-15726	17W12	41S	24E	17	INJW	Y
✓MEPNA (MOBIL	43-037-15731	17W41	41S	24E	17	INJW	Y
✓MEPNA (MOBIL	43-037-16417	17W43	41S	24E	17	INJW	Y
✓MEPNA (MOBIL	43-037-15728	17W23	41S	24E	17	INJW	Y
✓MEPNA (MOBIL	43-037-15730	17W34	41S	24E	17	INJW	Y
✓MEPNA (MOBIL	43-037-15729	17W32	41S	24E	17	INJW	Y
✓MEPNA (MOBIL	43-037-15727	17W14	41S	24E	17	INJW	Y
✓MEPNA (MOBIL	43-037-31153	18W12	41S	24E	18	INJW	Y
✓MEPNA (MOBIL	43-037-15737	18W34	41S	24E	18	INJW	Y
✓MEPNA (MOBIL	43-037-15736	18W32	41S	24E	18	INJW	Y
✓MEPNA (MOBIL	43-037-30244	18W23	41S	24E	18	INJW	Y
✓MEPNA (MOBIL	43-037-15735	18W14	41S	24E	18	INJW	Y
✓MEPNA (MOBIL	43-037-16418	18W21	41S	24E	18	INJW	Y
✓MEPNA (MOBIL	43-037-15738	18W41	41S	24E	18	INJW	Y
✓MEPNA (MOBIL	43-037-15741	19W21	41S	24E	19	INJW	Y
✓MEPNA (MOBIL	43-037-15742	19W23	41S	24E	19	INJW	Y
✓MEPNA (MOBIL	43-037-15745	19W41	41S	24E	19	INJW	Y
✓MEPNA (MOBIL	43-037-16420	19W43	41S	24E	19	INJW	Y
✓MEPNA (MOBIL	43-037-15748	20W23	41S	24E	20	INJW	Y
✓MEPNA (MOBIL	43-037-15751	20W41	41S	24E	20	INJW	Y
✓MEPNA (MOBIL	43-037-16423	20W21	41S	24E	20	INJW	Y
✓MEPNA (MOBIL	43-037-16424	20W43	41S	24E	20	INJW	Y
✓MEPNA (MOBIL	43-037-16427	21W43	41S	24E	21	INJW	Y
✓MEPNA (MOBIL	43-037-16425	21W21	41S	24E	21	INJW	Y
✓MEPNA (MOBIL	43-037-16431	28W21	41S	24E	28	INJI	Y
✓MEPNA (MOBIL	43-037-16433	29W41	41S	24E	29	INJW	Y
✓MEPNA (MOBIL	43-037-16432	29W21	41S	24E	29	INJW	Y
✓MEPNA (MOBIL	43-037-15338	29W23	41S	24E	29	INJI	Y
✓MEPNA (MOBIL	43-037-16434	29W43	41S	24E	29	INJW	Y
✓MEPNA (MOBIL	43-037-15343	30-41	41S	24E	30	INJW	Y
✓MEPNA (MOBIL	43-037-16435	30W21	41S	24E	30	INJI	--

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

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

SUNDRY NOTICES AND REPORTS ON WELLS

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

5. Lease Designation and Serial No.

14-20-603-353

6. If Indian, Allottee or Tribe Name

NAVAJO TRIBAL

7. If Unit or CA, Agreement Designation

RATHERFORD UNIT

8. Well Name and No.

RATHERFORD 17-W-43

9. API Well No.

43-037-16417

10. Field and Pool, or exploratory Area

GREATER ANETH

11. County or Parish, State

SAN JUAN UT

SUBMIT IN TRIPLICATE

1. Type of Well

Oil Well  Gas Well  Other

2. Name of Operator

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

3. Address and Telephone No.

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

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

SEC. 17, T41S, R24E  
(NE/SE) 1980' FSL & 660' FEL

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

TYPE OF SUBMISSION

Notice of Intent  
 Subsequent Report  
 Final Abandonment Notice

TYPE OF ACTION

Abandonment  Change of Plans  
 Recompletion  New Construction  
 Plugging Back  Non-Routine Fracturing  
 Casing Repair  Water Shut-Off  
 Altering Casing  Conversion to Injection  
 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: 1302' NORTH & 1093' WEST FROM SURFACE SPOT (ZONE 1b/1c)  
LATERAL #2: 1093' NORTH & 1302' WEST FROM SURFACE SPOT (ZONE 1a)  
LATERAL #3: 1130' SOUTH & 1130' EAST FROM SURFACE SPOT (ZONE 1a)

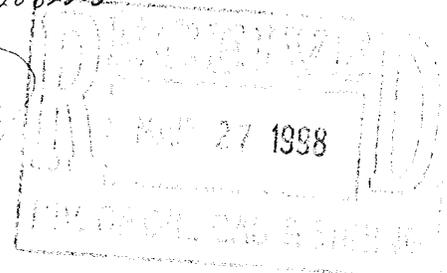
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4120491.1

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349 333  
345 345

651358.4  
4120131.8

295 FSL  
501 FWL  
Subswd  
16 1115 24E  
THIS ONE



SEE ATTACHED PROCEDURE.

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

Signed Shirley Houchins Accepted by the State

Title SHIRLEY HOUCHINS/ENV. & REG. TECH.

Date 3-24-98

(This space for Federal or State office use)

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

Approved by [Signature] Title [Signature]

Date

Conditions of approval, if any:

DATE: 4/22/98

Date:

Title 18 U.S.C. Section 1001 makes it a crime for any person knowingly and willfully to make any statement or representation as to any matter within its jurisdiction.

\* See Instruction on Reverse Side

Federal Approval of this  
Action is Necessary

## **Rutherford Unit Well #17-43 Horizontal Drilling Procedure**

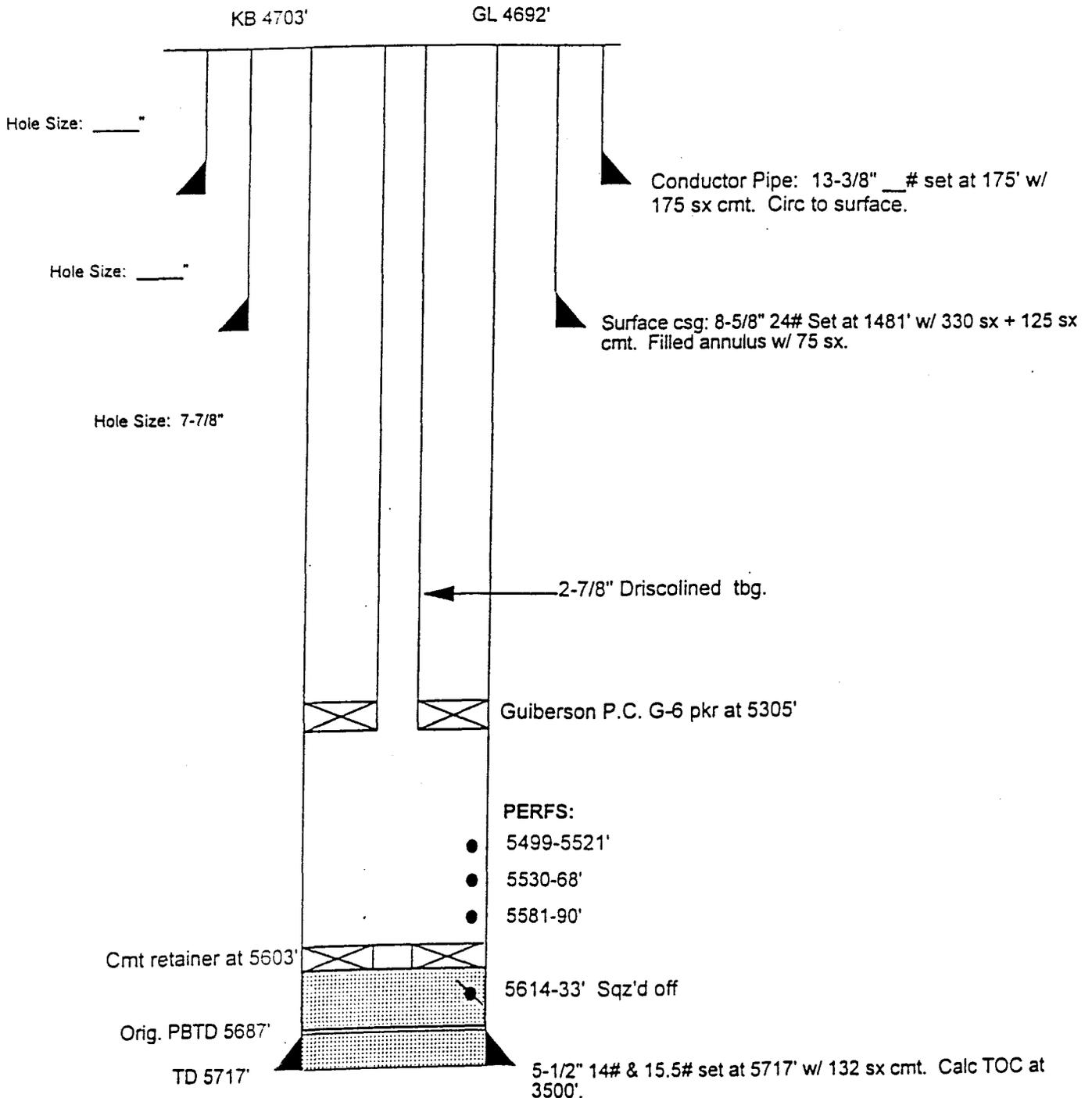
The objective of this procedure is to prepare this wellbore for sidetracking, sidetrack the subject well and drill multilateral short radius horizontal laterals (1600-1700 feet).

1. Prepare location and dig working pit.
2. MIRU WSU, reverse unit, and H2S equipment. Bullhead kill weight fluid down tubing.
3. ND wellhead and NU BOP's. Pressure test BOP's to working pressure.
4. Continue to POH with related equipment (tubing and rods for producers or tubing and packer for injectors).
5. RU wireline to run any logs desired and run gage ring for casing size and weight.
6. Set cement retainer at 5450' to squeeze existing perforations.
7. Pressure test casing to 1000 psi. 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 # 17W-43  
 GREATER ANETH FIELD  
 1980' FSL & 660' FEL  
 SEC 17-T41S-R24E  
 SAN JUAN COUNTY, UTAH  
 API 43-037-16417  
 PRISM 0043058

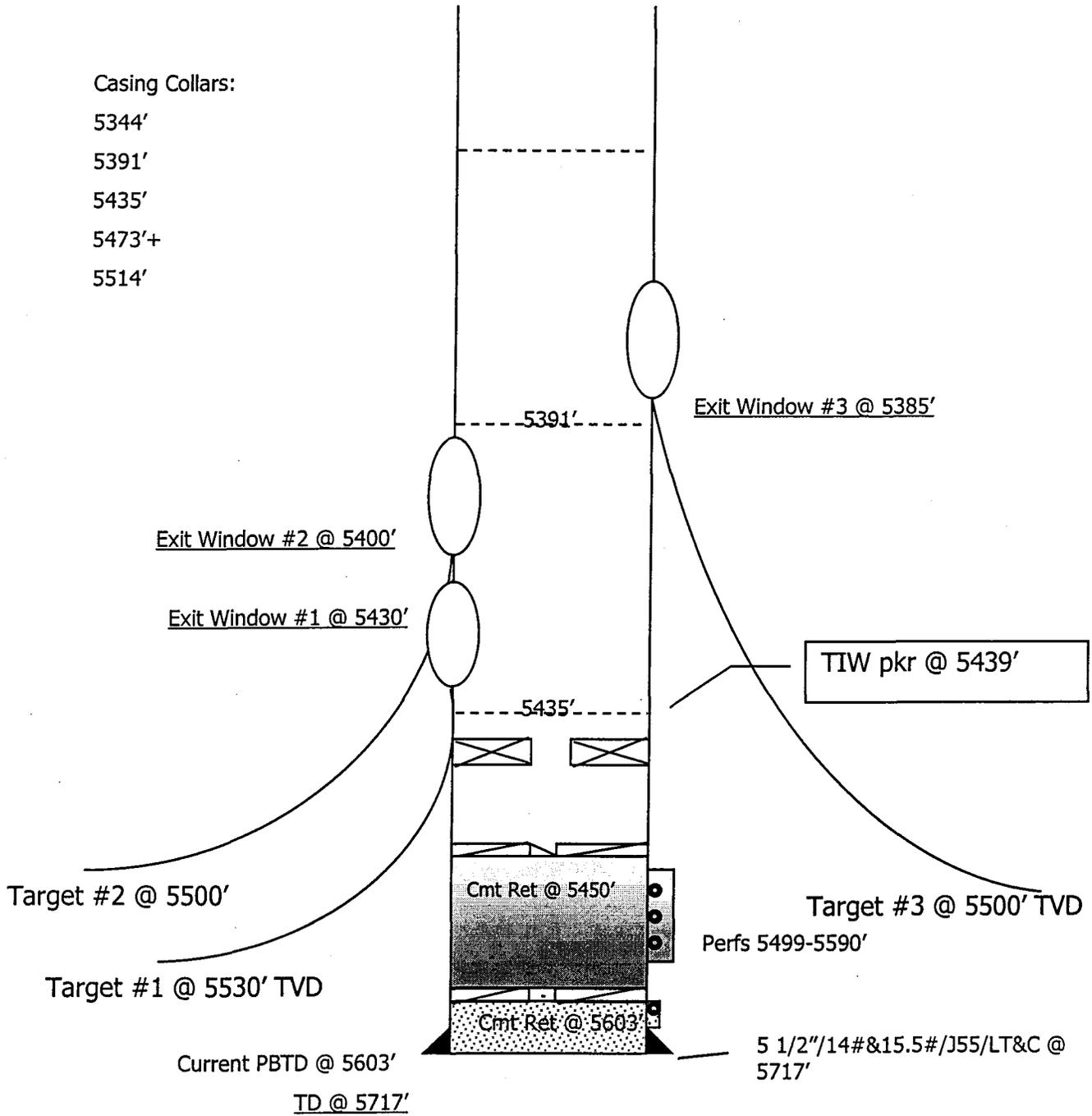
INJECTOR

Capacities:	bbl/ft	gal/ft	cuff/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#	.0164	.6877	
.0919			
2-7/8x5.5"15.5#	.0158	.6625	
.0886			



# Ratherford Unit #17-43

Casing Collars:  
 5344'  
 5391'  
 5435'  
 5473'+  
 5514'



Window	Btm-Top of Window	Ext length	Curve Radius	Bearing	Horiz Displ
1	5430-24	-----	100	320	1700
2	5400-5394	30	100	310	1700
3	5385-79	43	115	135	1600

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: 03/27/98

API NO. ASSIGNED: 43-037-16417

WELL NAME: RATHERFORD 17W43 (MULTI-LEG)  
 OPERATOR: MOBIL EXPLOR & PROD (N7370)  
 CONTACT: \_\_\_\_\_

PROPOSED LOCATION:  
 NESE 17 - T41S - R24E  
 SURFACE: 1980-FSL-0660-FEL  
 BOTTOM: 0295-FSL-0501-FWL  
 SAN JUAN COUNTY  
 GREATER ANETH FIELD (365)

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

LEASE TYPE: IND  
 LEASE NUMBER: 14-20-603-353  
 SURFACE OWNER: \_\_\_\_\_

PROPOSED FORMATION: DSCR

RECEIVED AND/OR REVIEWED:

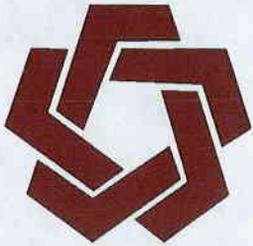
- Plat
- Bond: Federal  State  Fee   
 (No. ALREADY BONDED)
- Potash (Y/N)
- Oil Shale (Y/N) \*190-5(B)
- Water Permit  
 (No. NAVASO ALLOCATION)
- RDCC Review (Y/N)  
 (Date: \_\_\_\_\_)
- St/Fee Surf Agreement (Y/N)

LOCATION AND SITING:

- R649-2-3. Unit RATHERFORD
- R649-3-2. General
- R649-3-3. Exception
- Drilling Unit  
 Board Cause No: \_\_\_\_\_  
 Date: \_\_\_\_\_

COMMENTS: \_\_\_\_\_

STIPULATIONS: ① FEDERAL APPROVAL  
 ② DIRECTIONAL DRILLING



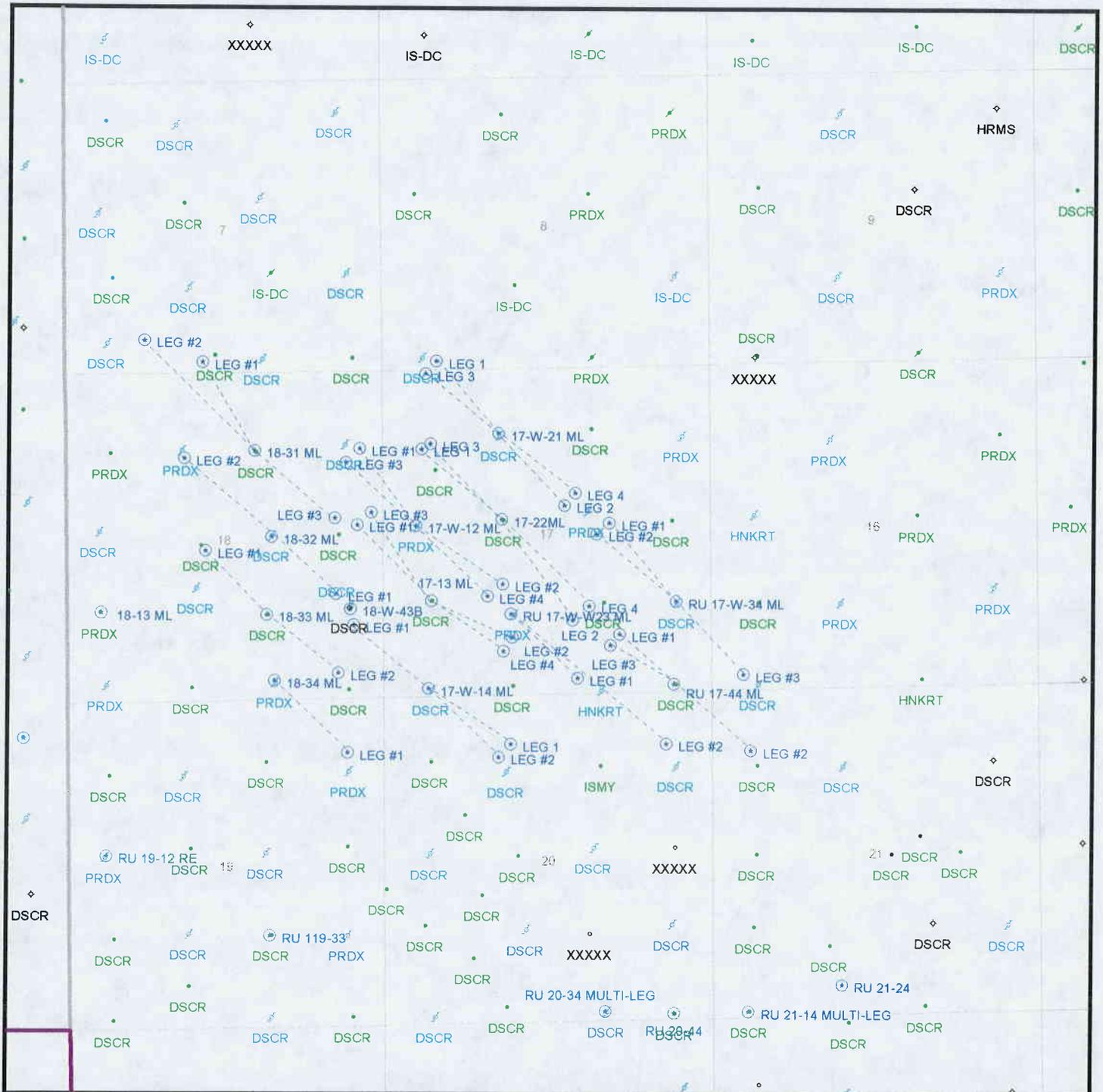
DIVISION OF OIL, GAS & MINING

OPERATOR: MOBIL PRODUCING (N7370)

FIELD: GREATER ANETH (365)

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

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



DATE PREPARED:  
9-APR-1998



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

Michael O. Leavitt  
Governor

Ted Stewart  
Executive Director

Lowell P. Braxton  
Division Director

1594 West North Temple, Suite 1210

PO Box 145801

Salt Lake City, Utah 84114-5801

801-538-5340

801-359-3940 (Fax)

801-538-7223 (TDD)

April 23, 1998

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

Re: Ratherford 17-W-43 (Re-Entry), 1980' FSL, 0660' FEL, NE SE,  
Sec. 17, T. 41 S., R. 24 E., San Juan County, Utah

Gentlemen:

Pursuant to the provisions and requirements of Utah Code Ann. 40-6-1 et seq., Utah Administrative Code R649-3-1 et seq., and the attached Conditions of Approval, approval to re-enter and 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 43-037-16417.

Sincerely,

A handwritten signature in cursive script that reads "John R. Baza".  
John R. Baza  
Associate Director

lwp

Enclosures

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

Operator: Mobil Exploration & Producing  
Well Name & Number: Ratherford 17-W-43 (Re-Entry)  
API Number: 43-037-16417  
Lease: 14-20-603-353  
Location: NE SE Sec. 17 T. 41 S. R. 24 E.

### Conditions of Approval

1. General

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

2. Notification Requirements

Notify the Division within 24 hours following spudding the well or commencing drilling operations. Contact Jim Thompson at (801)538-5336.

Notify the Division prior to commencing operations to plug and abandon the well. Contact Dan Jarvis at (801) 538-5338 or John R. Baza at (801)538-5334.

3. Reporting Requirements

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

4. 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.

DIVISION OF OIL, GAS AND MINING

SPUDDING INFORMATION

Name of Company: MOBIL E & P

Well Name: RATHERFORD UNIT 17-W-43

Api No. 43-037-16417

Section 17 Township 41S Range 24E County SAN JUAN

Drilling Contractor BIG "A"

Rig # 25

SPUDDED:

Date 6/17/98

Time \_\_\_\_\_

How ROTARY

Drilling will commence \_\_\_\_\_

Reported by BENNIE BRIGGS

Telephone # 1-435-651-3473

Date: 6/18/98 Signed: JLT

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

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SAN JUAN UT

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- Subsequent Report
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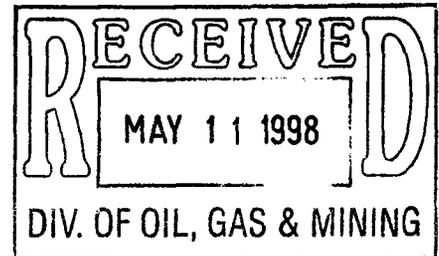
TYPE OF ACTION

- Abandonment
- Recompletion
- Plugging Back
- Casing Repair
- Altering Casing
- Other MIT TESTS
- Change of Plans
- New Construction
- Non-Routine Fracturing
- Water Shut-Off
- Conversion to Injection
- Dispose Water

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

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SEE ATTACHED MIT AND CHART.



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

Signed

*Shirley Houchins*

Title

SHIRLEY HOUCHINS/ENV & REG TECH

Date

5-13-98

(This space for Federal or State office use)

Approved by

Title

Date

Conditions of approval, if any:

# ANNULAR PRESSURE TEST

(Mechanical Integrity Test)

Operator Mobil E. & P., Inc Date of Test 10-31-97  
 Well Name RU # 17W-43 EPA Permit No. \_\_\_\_\_  
 Location Sec. 17, T41S-R24E Tribal Lease No. 14-20-603-353  
 State and County San Juan County, UT

Continuous Recorder? YES  NO  Pressure Gauge? YES  NO   
 Bradenhead Opened? YES  NO  Fluid Flow? YES  NO

<u>TIME</u>	<u>ANNULUS PRESSURE, psi</u>	<u>TUBING PRESSURE, psi</u>
<u>8:50</u>	<u>1105</u>	<u>2900</u>
<u>8:55</u>	<u>1105</u>	<u>2900</u>
<u>9:00</u>	<u>1100</u>	<u>2900</u>
<u>9:10</u>	<u>1100</u>	<u>2900</u>
<u>9:20</u>	<u>1100</u>	<u>2900</u>

MAX. INJECTION PRESSURE: \_\_\_\_\_ PSI  
 MAX. ALLOWABLE PRESSURE CHANGE: \_\_\_\_\_ PSI (TEST PRESSURE X 0.05)  
 REMARKS: Passed? Failed? If failed, cease injection until well passes MIT (40CFR§144.21(c)(6)).

*PASSED M.I.T.*  
*NEED TO REPLACE VALVE ON WELL HEAD FLANGE.*

Fritz Johnson Fritz Johnson 10-31-97  
 COMPANY REPRESENTATIVE: (Print and Sign) DATE  
Melvin Capitan Jr. Melvin Capitan Jr. 10-31-97  
 INSPECTOR: (Print and Sign) DATE

U.S. ENVIRONMENTAL PROTECTION AGENCY

**NOTICE OF INSPECTION**

Address (EPA Regional Office) Region 9 Environmental Inspection Agency 215 Fremont Street (W-6-2) San Francisco, CA 94105	Inspection Contractor NAVAJO EPA - GPCP Groundwater Pollution Control P.O. Box 1979 Shiprock, NM 87420-1979	Firm To Be Inspected Mobil E. & P., Inc. P.O. Box Drawer G Cortez, CO 81321
---	---	--

Date <i>10-30-97</i>	Notice of inspection is hereby given according to Section 1445(b) of the Safe Drinking Water Act (42 U.S.C. §300 f et seg.).
Hour <i>9:00 AM</i>	

**Reason For Inspection**

For the purpose of inspecting records, files, papers, processes, controls and facilities, and obtaining samples to determine whether the person subject to an applicable underground injection control program has acted or is acting in compliance with the Safe Drinking Water Act and any applicable permit or rule.

*MCU# N-23, WATER INJECTION WELL, M.I.T. - PASSED*  
*MCU# P-23A, WATER INJECTION WELL, M.I.T. - PASSED*  
*MCU# R-19, WATER INJECTION WELL, M.I.T. - PASSED*  
*MCU# R-11A, WATER INJECTION WELL, M.I.T. - PASSED*  
*MCU# R-09, WATER INJECTION WELL, M.I.T. - PASSED*  
*RU# 17W-43, WATER INJECTION WELL, M.I.T. - PASSED*  
*MCU# A-17, WATER INJECTION WELL, M.I.T. - PASSED*  
*MCU# E-19, WATER INJECTION WELL, M.I.T. - PASSED*  
*RU# 10W-21, WATER INJECTION WELL, M.I.T. - FAILED*  
*RU# 10W-23, WATER INJECTION WELL, M.I.T. - PASSED*

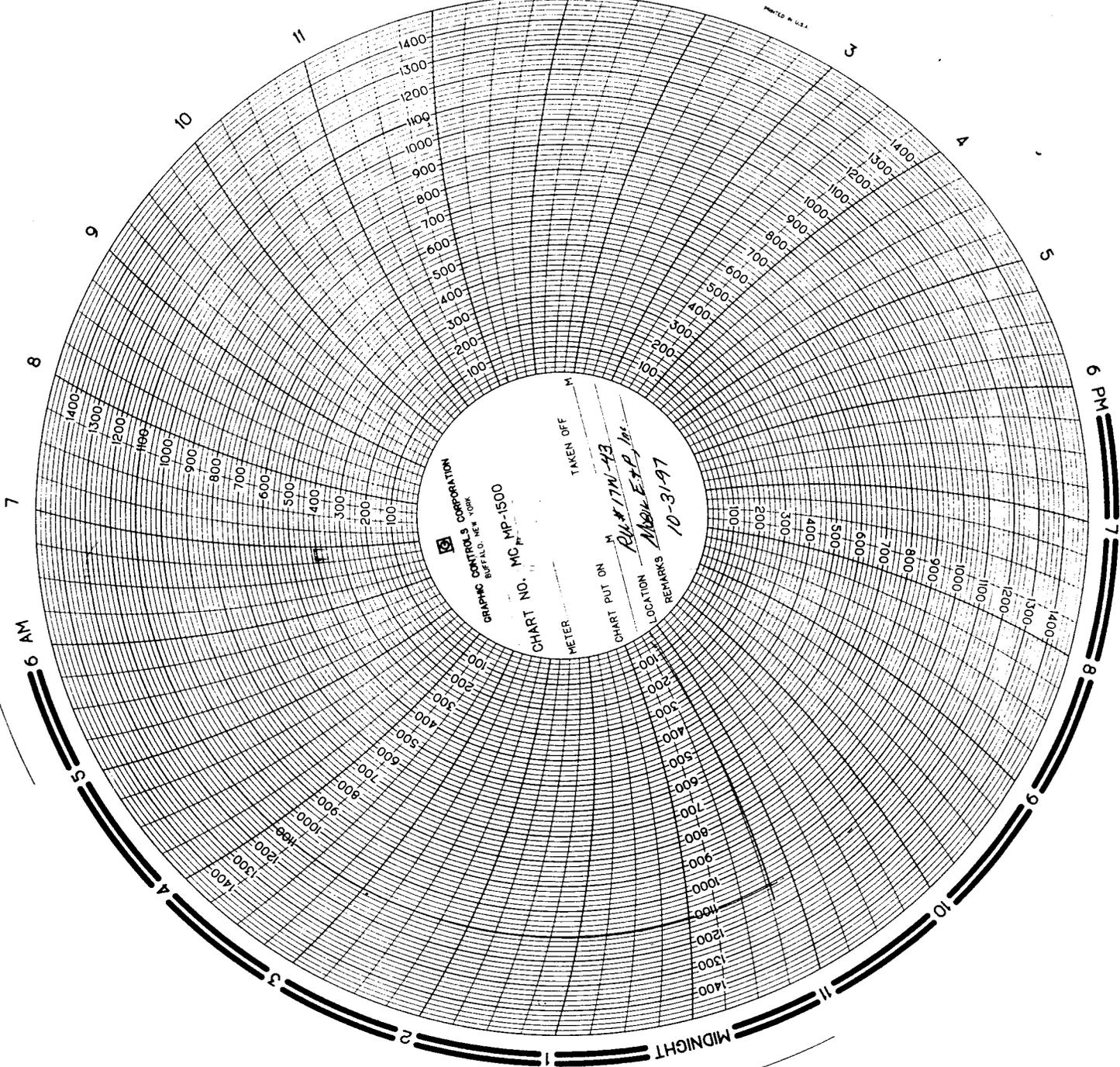
Section 1445(b) of the SDWA (42 U.S.C. §300 j-4 (b) is quoted on the reverse of this form.

Receipt of this Notice of Inspection is hereby acknowledged.

Firm Representative <i>[Signature]</i>	Date <i>10-30-97</i>	Inspector <i>[Signature]</i>
---	-------------------------	---------------------------------

NOON

PRINTED IN U.S.A.



GRAPHIC CONTROLS CORPORATION  
 BUFFALO, N.Y. 14203

CHART NO. MC MP-1500

METER \_\_\_\_\_ TAKEN OFF \_\_\_\_\_

CHART PUT ON \_\_\_\_\_

LOCATION PL # 17M-43

REMARKS ADW EXP. Mt.

10-31-97

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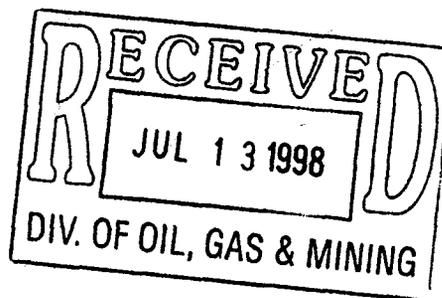
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ATTACHED MIT & CHART / SCHEDULED TEST



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*Shirley Houchins*

Title

SHIRLEY HOUCHINS/ENV & REG TECH

Date

7-8-98

(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

# ANNULAR PRESSURE TEST

(Mechanical Integrity Test)

Operator Mobil  
 Well Name Rutherford Unit Well # 17W-21  
 Location SEC 17 T41S R24E  
 State and County SAN JUAN COUNTY, UTAH

Date of Test 6-24-98  
 EPA Permit No. \_\_\_\_\_  
 Tribal Lease No. 1420603353

Continuous Recorder? YES  NO  Pressure Gauge? YES  NO   
 Bradenhead Opened? YES  NO  Fluid Flow? YES  NO

<u>TIME</u>	<u>ANNULUS PRESSURE, psi</u>	<u>TUBING PRESSURE, psi</u>
4:35 pm	1100	2400
4:40 pm	1100	2400
4:45 pm	1095	2400
4:50 pm	1095	2400
4:55 pm	1095	2400
5:00 pm	1099	2400
5:05 pm	1100	2400

MAX. INJECTION PRESSURE: 3000 PSI For the Rutherford Mobil Unit as  
 MAX. ALLOWABLE PRESSURE CHANGE: 55.0 PSI (TEST PRESSURE X 0.05)  
 REMARKS: Passed? Failed? If failed, cease injection until well passes MIT (40CFR§144.21(c)(6)).

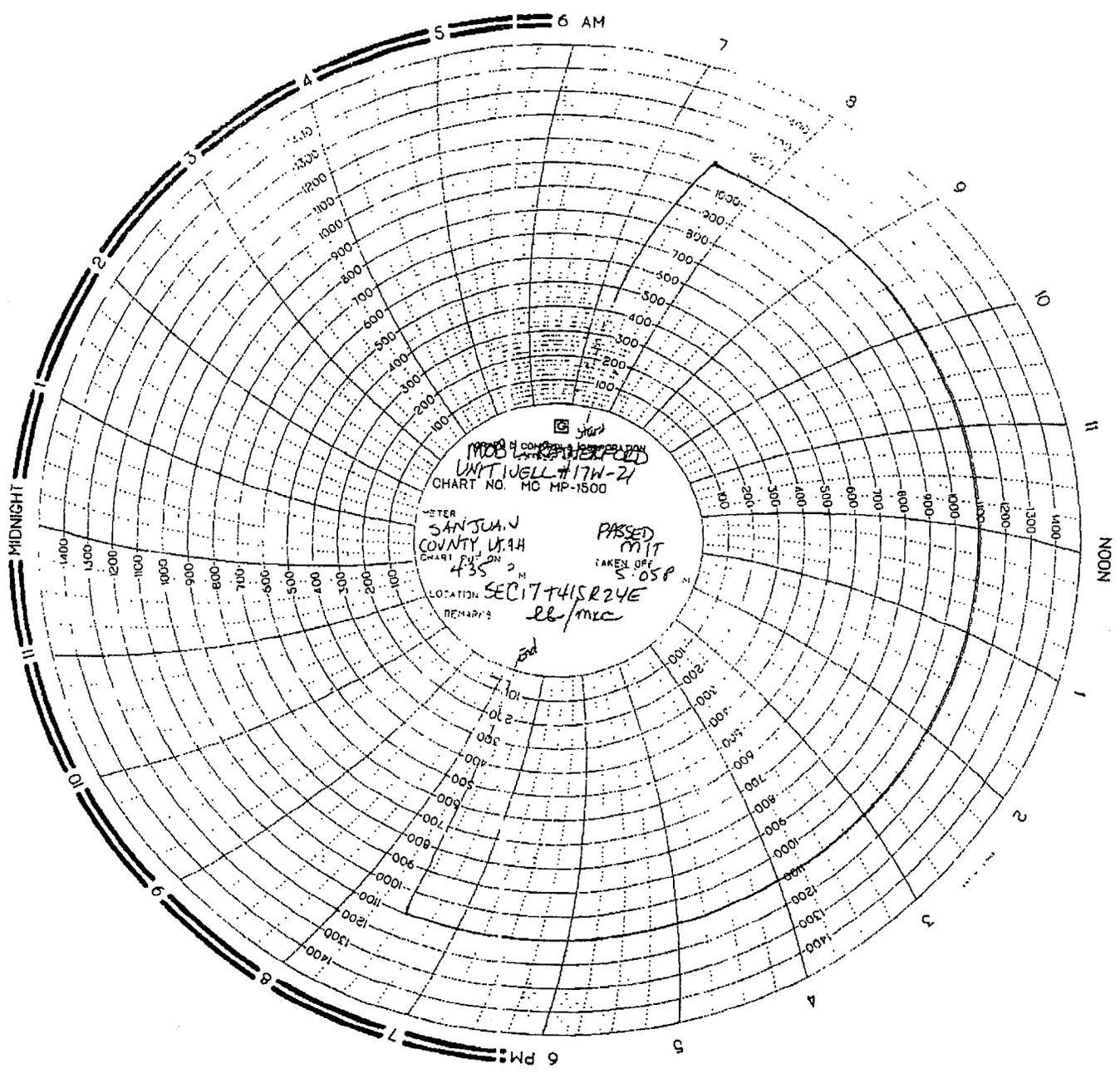
PASSED MIT

Lorenzo K. Benally Lorenzo K. Benally  
 COMPANY REPRESENTATIVE: (Print and Sign)

6-24-98  
 DATE

Melvin K. Clark Melvin K. Clark  
 INSPECTOR: (Print and Sign)

6-24-98  
 DATE





# ROCKY MOUNTAIN GEO-ENGINEERING

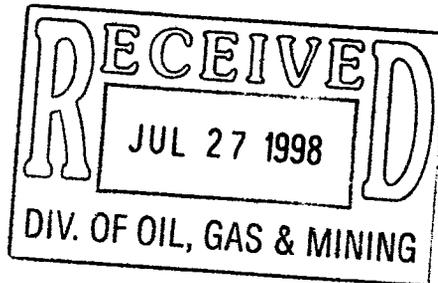
*Electronic Rig Monitoring Systems • Well Logging • Consulting Geology • Coal Bed Methane Services*

**PASON ROCKY MOUNTAIN GEO-ENGINEERING CORP.**

2450 INDUSTRIAL BLVD. • GRAND JUNCTION, CO 81505

(970) 243-3044 • (FAX) 241-1085

Tuesday, July 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 #17-43 Legs 1, 2 **43 037 16417**  
Sec. 17, T41S, R24E **DR (REENTRY)**  
San Juan County, Utah

Dear Sirs:

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

**14 LOG FILE**

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

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

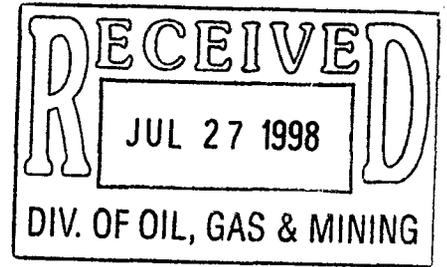
Sincerely,

Bill Nagel  
Senior Geologist

BN/dn

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

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



**MOBIL**

**RATHERFORD UNIT #17-43  
NW HORIZONTAL LATERAL LEG #1  
1-A POROSITY BENCH  
DESERT CREEK MEMBER  
PARADOX FORMATION  
SECTION 17, T41S, R24E  
SAN JUAN, UTAH**

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

**MICROFICHE**

## TABLE OF CONTENTS

WELL SUMMARY.....	3
DRILLING CHRONOLOGY.....	4
DAILY ACTIVITY.....	5
BIT RECORD.....	5
MUD RECORD.....	5
SURVEY RECORD.....	6
SAMPLE DESCRIPTIONS.....	8
FORMATION TOPS.....	17
GEOLOGIC SUMMARY AND ZONES OF INTEREST.....	18
WELL PLOTS.....	24

**WELL SUMMARY**

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

**NAME:** RATHERFORD UNIT #17-43 NW HORIZONTAL LATERAL  
**LEG #1** IN THE DESERT CREEK 1-A POROSITY BENCH

**LOCATION:** SECTION 17, T41S, R24E

**COUNTY/STATE:** SAN JUAN, UTAH

**ELEVATION:** KB: 4708' GL: 4696'

**SPUD DATE:** 6/19/98

**COMPLETION DATE:** 6/24/98

**DRILLING ENGINEER:** BENNY BRIGGS

**WELLSITE GEOLOGY:** DAVE MEADE / LUKE TITUS / MARVIN ROANHORSE

**MUDLOGGING ENGINEERS:** DAVE MEADE / LUKE TITUS / MARVIN ROAN HORSE

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

**HOLE SIZE:** 4 3/4"

**CASING RECORD:** SIDETRACK IN WINDOW AT 5330' MEASURED DEPTH

**DRILLING MUD:** M-I DRILLING FLUIDS  
**ENGINEER:** RON WESTENBERG  
**MUD TYPE:** FRESH WATER & BRINE WATER W/ POLYMER SWEEPS

**DIRECTIONAL DRILLING CO:** SPERRY-SUN

**ELECTICAL LOGGING:** NA

**TOTAL DEPTH:** 7097' MEASURED DEPTH; TRUE VERTICAL DEPTH- 5487'

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

**DRILLING CHRONOLOGY**  
**RATHERFORD UNIT #17-43**  
**NW 1-A HORIZONTAL LATERAL LEG #1**

DATE	DEPTH	DAILY	ACTIVITY
6/18/98	0'	0'	RIG DOWN & MOVE TO 17-43 LOC.,RIG UP-NIPPLE UP-RIG UP;PRES. TEST;RIG UP WIRELINE & SET PACKER @ 5338';STRAP & CALIPER COLLARS
6/19/98	5322'	2'	P.U. 20 4 1/4" D.C. & 149 JTS. AOH-STRAP IN HOLE-CIR & CLEAR DP;P.U. & RUN GYRO DATA-ORIENT PACKER;TOH W/ANCHOR LATCH;P.U. WHIPSTOCK #1 & ORIENT-TIH SET & SHEAR WHIPSTOCK @ 5322';CIRC & MILL F/5322' T/5324'-L.D. 1 JT-TOH;L.D. STARTER MILL-P.U. WINDOW MILL-TIH
6/20/98	5324'	122'	CIR-MILL W/ WINDOW MILL F/5322 T/5330-PUMP & CIRC SWEEP;L.D. 15 JTS-TOH L.D. MILLS;P.U. CURVE ASSEM.-TEST MWD & MTR-TIH;CIRC & CLEAN PIPE-RIG UP & RUN GYRO DATA-ORIENT TOOL;TIME DRILL F/5330' T/ 5333'; DRLG CRVE F/5333' T/5356'-PULL GYRO-RIG DOWN GYRO DATA;DRLG AHEAD F/5356' T/5446'
6/21/98	5446'	233'	DRLG. AHEAD SUR. F/5446' T/5614;PUMP SWEEP & CIRC. OUT SMPLS;PUMP 10 BBLS BRINE;L.D. 55 JTS AOH & TOOH;L.D.CURVE ASSMY.-P.U. LATERAL ASSMY.-ORIENT & TEST;P.U. PH-6 D.C OFF RACK & TIH-DIR DRLG & SUR. F/5614' T/5679'
6/22/98	5679'	597'	DIR DRLG & SURVEYS
6/23/98	6279'	537'	DIR DRLG & SURVEYS
6/24/98	6816'	281'	DIR DRLG & SURVEYS; TOTAL DEPTH REACHED 8:00 AM (MST)-7097' MD-5387' TVD;PREPARE FOR LEG #26/24/98

## DAILY ACTIVITY

Operator: MOBIL

Well Name: RATHERFORD UNIT #17-43 NW 1-A HORIZONTAL LATERAL LEG #1

DATE	DEPTH	DAILY	DATE	DEPTH	DAILY
6/18/98	0'	0'			
6/19/98	5322'	2'			
6/20/98	5324'	122'			
6/21/98	5446'	233'			
6/22/98	5679'	597'			
6/23/98	6279'	537'			
6/24/98	6816'	281'			

## BIT RECORD

OPERATOR: MOBIL

WELL NAME: RATHERFORD UNIT #17-43 NW 1-A HORIZONTAL LATERAL LEG #1

RUN	SIZE	MAKE	TYPE	IN/OUT	FTG	HRS	FT/HR
1	4 3/4"	STC	MF-3P	5330'/	284'	22	13'/HR
(RR) 2	4 3/4"	STC	MF-37P	5612'/ 7097'	1485'	50	30'/HR

## MUD REPORT

OPERATOR: MOBIL

WELL NAME: RATHERFORD UNIT #17-43 NW 1-A HORIZONTAL LATERAL LEG #1

DATE	DEPTH	WT	VIS	PLS	YLD	GEL	PH	WL	CK	CHL	CA	SD	OIL	WTR
6/19/98	5328'	8.4	26	1	0	0/0	8.0	NC	NC	1000	400	0	0%	100%
6/20/98	5331'	8.4	26	1	1	0/0	8.0	NC	NC	2000	280	0	0%	100%
6/21/98	5540'	8.4	26	1	1	0/0	13.0	NC	NC	2400	80	1	0%	99%
6/22/98	5904'	8.5	26	1	1	0/0	12.0	NC	NC	16K	560	0	0%	100%
6/23/98	6370'	8.6	26	1	1	0/0	12.0	NC	NC	19K	1080	1	0%	99%
6/24/98	7014'	8.6	26	1	1	0/0	12.0	NC	NC	26K	1920	1	TR	99%

SPERRY-SUN DRILLING SERVICES  
SURVEY DATA

Customer ... : Mobil (Utah)  
Platform ... : RATHERFORD UNIT  
Slot/Well .. : BA25/17-43 1A1

MEASURED DEPTH	ANGLE DEG	DIRECTION DEG	TVD	NORTHINGS FEET	EASTINGS FEET	VERTICAL SECTION	DOG LEG
5300.00	0.28	163.49	5299.47	42.23 N	2.93 E	24.90	0.00
5322.00	0.37	218.02	5321.47	42.12 N	2.90 E	24.85	1.40
5330.00	3.90	310.00	5329.46	42.28 N	2.68 E	25.12	49.13
5345.00	10.50	313.04	5344.34	43.54 N	1.29 E	27.00	44.06
5360.00	16.70	313.92	5358.91	45.97 N	1.27 W	30.52	41.36
5375.00	21.20	314.35	5373.09	49.36 N	4.76 W	35.38	30.01
5390.00	25.90	314.60	5386.84	53.56 N	9.04 W	41.35	31.34
5405.00	29.60	314.77	5400.11	58.47 N	14.00 W	48.31	24.67
5420.00	32.80	314.90	5412.94	63.95 N	19.51 W	56.05	21.34
5435.00	35.60	303.40	5425.36	69.23 N	26.04 W	64.45	46.89
5450.00	40.50	302.90	5437.17	74.28 N	33.78 W	73.62	32.73
5465.00	46.60	305.60	5448.04	80.10 N	42.31 W	83.90	42.51
5480.00	52.40	306.90	5457.77	86.85 N	51.50 W	95.28	39.22
5495.00	57.50	310.30	5466.39	94.52 N	61.08 W	107.55	38.73
5510.00	62.70	314.70	5473.86	103.30 N	70.65 W	120.53	42.98
5525.00	66.40	313.00	5480.31	112.68 N	80.42 W	134.04	26.70
5540.00	67.60	312.80	5486.17	122.08 N	90.54 W	147.83	8.09
5555.00	69.70	307.60	5491.63	131.09 N	101.21 W	161.79	35.19
5570.00	74.20	304.30	5496.28	139.46 N	112.75 W	176.01	36.57
5585.00	81.30	304.90	5499.46	147.78 N	124.81 W	190.60	47.49
5614.00	90.90	305.10	5501.43	164.35 N	148.48 W	219.38	33.11
5646.00	91.60	310.20	5500.73	183.89 N	173.80 W	251.34	16.08
*5678.00	94.70	314.00	5498.97	205.30 N	197.50 W	283.26	15.31
5710.00	90.60	311.00	5497.50	226.89 N	221.06 W	315.19	15.87
5741.00	90.60	310.30	5497.17	247.08 N	244.58 W	346.18	2.26
5772.00	91.30	310.90	5496.66	267.25 N	268.12 W	377.17	2.97
5804.00	91.10	310.20	5495.99	288.05 N	292.42 W	409.17	2.27
5836.00	88.50	309.30	5496.10	308.51 N	317.02 W	441.16	8.60
5867.00	86.00	308.20	5497.59	327.89 N	341.17 W	472.12	8.81
5899.00	90.20	309.10	5498.65	347.86 N	366.14 W	504.08	13.42
5931.00	91.90	310.00	5498.06	368.23 N	390.81 W	536.07	6.01
5962.00	89.70	310.20	5497.63	388.20 N	414.52 W	567.07	7.13
5993.00	89.40	309.60	5497.87	408.08 N	438.30 W	598.07	2.16
6025.00	89.00	308.70	5498.32	428.28 N	463.11 W	630.06	3.08
6056.00	88.60	308.60	5498.97	447.64 N	487.32 W	661.05	1.33
6088.00	89.60	311.40	5499.47	468.21 N	511.83 W	693.04	9.29
6119.00	91.90	311.70	5499.06	488.76 N	535.02 W	724.02	7.48
6151.00	91.20	311.60	5498.20	510.02 N	558.93 W	756.00	2.21

SPERRY-SUN DRILLING SERVICES  
SURVEY DATA

Customer ... : Mobil (Utah)  
Platform ... : RATHERFORD UNIT  
Slot/Well .. : BA25/17-43 1A1

MEASURED DEPTH	ANGLE DEG	DIRECTION DEG	TVD	NORTHINGS FEET	EASTINGS FEET	VERTICAL SECTION	DOG LEG
6183.00	90.80	312.10	5497.64	531.37 N	582.76 W	787.98	2.00
6215.00	88.40	312.40	5497.86	552.88 N	606.44 W	819.95	7.56
6246.00	88.20	312.30	5498.78	573.76 N	629.34 W	850.91	0.72
6278.00	90.90	312.40	5499.03	595.31 N	652.99 W	882.88	8.44
6309.00	90.40	312.40	5498.68	616.21 N	675.88 W	913.85	1.61
6341.00	90.50	312.10	5498.43	637.73 N	699.57 W	945.82	0.99
6372.00	92.40	312.80	5497.65	658.64 N	722.43 W	976.78	6.53
*6404.00	93.90	312.30	5495.89	680.25 N	745.97 W	1008.70	4.94
6436.00	86.20	311.90	5495.86	701.69 N	769.69 W	1040.66	24.09
6468.00	88.30	313.10	5497.40	723.28 N	793.26 W	1072.59	7.56
6499.00	90.50	313.00	5497.72	744.44 N	815.91 W	1103.54	7.10
6531.00	91.50	313.10	5497.16	766.28 N	839.29 W	1135.49	3.14
6563.00	93.50	314.20	5495.77	788.34 N	862.42 W	1167.39	7.13
6595.00	91.10	312.60	5494.48	810.31 N	885.65 W	1199.31	9.01
6627.00	88.90	311.40	5494.48	831.72 N	909.43 W	1231.28	7.83
6657.00	89.10	311.40	5495.00	851.56 N	931.93 W	1261.27	0.67
6689.00	90.40	311.70	5495.14	872.78 N	955.88 W	1293.26	4.17
*6721.00	93.00	312.30	5494.20	894.18 N	979.64 W	1325.22	8.34
6752.00	91.50	312.10	5492.98	914.99 N	1002.59 W	1356.17	4.88
*6784.00	93.70	312.30	5491.53	936.46 N	1026.27 W	1388.11	6.90
6816.00	95.10	311.40	5489.07	957.75 N	1050.04 W	1420.00	5.20
6847.00	93.50	310.50	5486.75	978.01 N	1073.38 W	1450.91	5.92
6879.00	89.40	308.90	5485.94	998.44 N	1097.99 W	1482.89	13.75
6911.00	88.50	308.40	5486.52	1018.42 N	1122.98 W	1514.88	3.22
6943.00	89.50	308.00	5487.08	1038.20 N	1148.12 W	1546.86	3.37
6974.00	89.60	307.50	5487.33	1057.18 N	1172.63 W	1577.83	1.64
7006.00	90.40	307.70	5487.33	1076.71 N	1197.98 W	1609.80	2.58
7038.00	89.90	307.00	5487.24	1096.12 N	1223.42 W	1641.77	2.69
7066.00	90.30	307.00	5487.19	1112.97 N	1245.78 W	1669.73	1.43
7097.00	90.30	307.00	5487.03	1131.63 N	1270.54 W	1700.69	0.00

THE DOGLEG SEVERITY IS IN DEGREES PER 100.00 FEET.  
N/E COORDINATE VALUES GIVEN RELATIVE TO WELL SYSTEM REFERENCE POINT.  
TVD COORDINATE VALUES GIVEN RELATIVE TO WELL HEAD.  
THE VERTICAL SECTION ORIGIN IS WELL HEAD.  
THE VERTICAL SECTION WAS COMPUTED ALONG 310.00 (TRUE).  
CALCULATION METHOD: MINIMUM CURVATURE.

SURVEY 7097' IS PROJECTED TO BIT AT TD.

## SAMPLE DESCRIPTIONS

**OPERATOR: MOBIL**

**WELL NAME: RATHERFORD UNIT #17-43 NW 1-A HORIZONTAL LATERAL LEG #1**

DEPTH	LITHOLOGY
5330.00 5340.00	"pr smple gulty;DOL LS to LS,ltgy-gy,crpt-mic xln,occ vf xln,mdns-tt mtx,sl dolo to dolo ip,rthy,arg;pred compact xln to intrxln fab POR,no CUT,dul spty yelgld FLOR,pr-o STN"
5340.00 5350.00	"DOL LS to LS,ltgy-ltgybn,mic-vf xln,mdns-sl suc mtx,prtly dolo,arg,rthy,rr dkbn cht frgs,pred comp xln to intrxln fab POR,no CUT,no FLOR"
5350.00 5360.00	"LS,ltgybn-ltgy-tn-crm,crypt-mic,occ vf xln,occ sl slty,dns-tt mtx,rthy,arg,sl chlky,pred compact xln to p-intrxln,p-spty blk o STN,dul spty yelgld FLOR,no CUT"
5360.00 5370.00	"LS,ltbn-tn-crm,crypt-vf xln,scat suc-sl suc mtx,mdns-tt mtx,tr chlky ARG LS,sl plty tt PCKST,tr GRNST,spty blk o STN res-pr ltbn o STN,spty dul FLOR,no CUT"
5370.00 5380.00	"LS,ltbn-tn-crm,mic-vf xl,occ crypt xln,sl dolo ip,sl slty mtx,rthy,sl arg,sl chlky tt sl plty PCKST,rthy chlky ARG LS,FLOR AA,CUT AA,o STN AA"
5380.00 5390.00	"LS,ltbn-tn-crm,crypt-mic-vf xln,mdns-dns mtx,sl dolo,occ slty mtx,sl rthy,chlky,tr anhy xls,tr ltgy GRNST;pred intrxln fab POR,no CUT,pr-ltbn o STN,no FLOR"
5390.00 5410.00	"LS,ltbn-tn-crm,crypt-vf xln,dns-tt mtx,sl dolo,scat offwht chlky arg PCKST,pred dns PCKST,rr ltgy GRNST,transl-ltgy-ltbn CHT frgs;pred interxln to compact xln fab POR,v-spty dul yelgld FLOR,no-wk slo sl dif strmg CUT,pred pr-ltbn o STN,spty dd o STN"
5410.00 5430.00	"LS,ltbn-dkbn-tn,mic-vf xln,mdns-dns mtx,sl dolo to dolo rich,rthy,arg,tr anhy incl,tr dkbn-bn CHT frgs,occ sl slty,rr chlky arg PCKST,v rr calc frac flgs;pred interxln to scat compact xln fab POR,v-spty dul yelgld FLOR,pred pr-dkbn o STN,no CUT"
5430.00 5440.00	"LS,ltbn-bn-tn-occ crm,mic-vf xln,mdns-dns mtx,sl dolo to dolo,rthy,arg,tr cht frgs,occ sl slty,POR AA,FLOR AA,o STN AA"
5440.00 5450.00	"LS AA,ltbn-tn,mic-vf xln,mdns mtx,rthy/arg,tr cht frgs,rr dkbn sft carb SH frgs;pred intrxln fab POR,no FLOR,no CUT,v-pr bn o STN"
5450.00 5460.00	"LS,dkbn-mbn-ltbn-tn,mic-vf xln,grn-sl slty mtx,mdns mtx,rthy,arg,rr cht frgs,sl dolo to dolo ip;pred intrexln fab POR,v-spty dul yelgld FLOR,no CUT,pr-bn o STN"

DEPTH	LITHOLOGY
5460.00	5470.00"LS,ltbn-dkbn-tn,tr crypt xln,mic-vf xln,sl suc-occ grn-slty mtx,mdns mtx,tn sl sucDOL to DOL LS,rr tt sl plty PCKST,rthy sl slty LS;POR AA,CUT AA,o STN AA"
5470.00	5480.00"LS,dkbn-mbn-tn-occ crm,mic-vf xln,rr crypt xln,mdns mtx,tr sl suc mtx,occ grn-slty mtx,rthy,arg;pred intrxln fab POR,v-spty dul yelgld FLOR,no CUT,pr-brn o STN"
5480.00	5490.00"LS AA,ltbn-sl suc DOL LS,tr bn sl arg DOL,sl plty tt PCKST,arg sl slty rthy GRNST,rr dkbn CHT frgs,POR AA,FLOR AA,CUT AA"
5490.00	5510.00"DOLO LS,ltgy-dkbn-tn-ltgybn,mic-vf xln,mdns mtx,sl suc-grn mtx,occ slty mtx,sl dolo to dolo rich,tr dkbn-bn CHT frgs,sl rthy,chkly;pred intrxln to compact xln fab POR,spty dul yelgld FLOR,no CUT,pr ltbn-dkbn o STN"
5510.00	5520.00"DOLO LS,dkgy-ltgy-ltbn-tn,mic-vf xln,mdns-sl suc-occ grn mtx,sl dolo to dolo rich,dkgy sl suc-suc DOL LS to DOL,ltbn-tn tt sl plty PCKST;pred pr-m intrxln fab POR,spty dul-mbri yelgld FLOR,no CUT,pr o STN"
5520.00	5530.00"LS,crm-tn-ltbn,mic-vf xln,mdns mtx,rr sl suc-grn mtx,pred sl plty-chlky PCKST,rr DOL LS,tr transl CHT,rr dkbn SH;pred pr-intrxln to comp xln fab POR,v-dpty dul yelgld FLOR,no CUT,v-pr ltbn o STN"
5530.00	5540.00"SH w/thnly intrbd LS,ltbn-tn,pred ool GRNST,SH-dkbn-blk,sft-mfrm,sbblky-sl plty"
5540.00	5550.00"SH,dkbn-blk-dkgybn,sft-mfrm,mica,sl plty-sl sbblky,arg/rthy,occ fiss,sl slty,sooty,tr micropyr,calc rich,carbs,tr thnly intrbd LS AA"
5550.00	5560.00"SH grdg to LS,SH AA,LS-ltbn-tn-crm,occ mott,intrbd ool oom/ool GRNST w/ sl ool sl plty tt PCKST,occ intraclastic,sl chlky,sl anhy,occ rthy"
5560.00	5580.00"LS,ltbn-tn-crm,mott,mic-vf xln,mdns mtx,microsuc mtx,sl dolo,pred ool rich oom/ool GRNST w/ v-thny intrbd sl ool tt sl plty PCKST,tr chlky mat,rr anhy xls,pred mf-g oom/ool to tr mf-intrxln fab POR,tr introol POR,mg slo dif strmg CUT,mg-mbri yelgld FLOR"
5580.00	5600.00"LS AA,intrbd sl ool chlky occ plty PCKST w/pred ool rich oom/ool GRNST,tr calc/anhy fld casts,rr anhy xls;pred mf-g oomoldic to oolastic to mf intrxln fab POR,g-even yelgld FLOR,mf-g slo dif/milky ring CUT,mg-mbn-dkbn-ltbn o STN,spty dd blk o STN"
5600.00	5614.00"LS,ltbn-tn,mott,mic-vf xln,mdns-gn mtx,pred ool rich oom/ool GRNST,rr tt PCKST,tr transl CHT frgs,tr pel,tr foss frgs,rr anhy xls;pred mf-g oom/ool fab POR,rr intrxln fab POR,g-mbri-bri yelgld FLOR,mf-slo dif strmg CUT,pred mbn-ltbn o STN,spty blkddo STN"

DEPTH	LITHOLOGY
5614.00	5630.00"LS ltbrn-tan,occ crm-wh,crpxl-micxl,gran ip,dns sl ool-thn chky plty PCKST/scat ool GRNST,sl anhy-tr POR fl,tt- tr intxl-rr ool POR,tr scat bri yel FLOR,fr tl brn STN,g slow stmg mlky CUT/tr DOL brn,micxl,sl shy-arg,occ calc,NFSOC& SH blk,carb cvgs"
5630.00	5640.00"LS tan-crm-wh,ltbrn,micxl-crpxl,occ gran,pred ool GRNST/decr PCKST AA,sl anhy/tr POR fl-xln ANHY,fr-g ool/tr intxl POR,g even mod bri-bri yel FLOR,fr ltbrn/tr brn-blk pp dd o STN,g fast-mod fast stmg mlky CUT"
5640.00	5660.00"LS AA,micxl-gran,occ crpxl,pred ool GRNST/tr PCKST AA,sl anhy/tr POR fl-xln ANHY,g ool/tr intxl POR,g scat bri yel FLOR,STN & CUT AA"
5660.00	5670.00"LS tan,occ crm-wh,tr ltbrn,micxl-gran,tr crpxl,pred ool GRNST,tr scat dns sl ool PCKST,tr chky prtgs,sl anhy/tr POR fl-rr xln ANHY,POR-FLOR AA,fr ltbrn/tr brn-blk dd o STN,g fast stmg mlky CUT"
5670.00	5680.00"LS AA,pred ool-oom GRNST/tr PCKST AA,rr chky prtgs,sl anhy/tr POR fl-rr xln ANHY,POR-FLOR-STN AA,g mod fast-fast stmg mlky CUT"
5680.00	5690.00"LS AA,micxl-gran,tr crpxl,pred ool GRNST/scat dns sl ool PCKST,tr chky prtgs,sl anhy,tr POR fl,tr ltbrn-tan CHT incl,tr mic fos,rr xln ANHY,POR-FLOR-STN-CUT AA"
5690.00	5700.00"LS tan,occ crm-wh,ltbrn,micxl-gran,tr crpxl,pred ool-oom GRNST/tr scat-intbd dns sl ool PCKST,tr chky prtgs,sl anhy AA,POR-FLOR AA,fr ltbrn/tr brn-blk dd o STN,g fast stmg mlky CUT"
5700.00	5720.00"LS ltbrn,tan,occ crm,rr wh,gran-micxl,occ micsuc,tr crpxl,ool-oom GRNST/tr intbd-scat sl ool PCKST,chky-sl anhy/tr POR fl,tr ltbrn-tan CHT incl,rr xln CALC,v rr xln ANHY,g ool-oom/tr intxl-sl frac POR,FLOR AA,fr ltbrn-scat brn/tr blk STN,g fast stmg CUT"
5720.00	5740.00"LS AA,gran-micxl,sl micsuc,tr crpxl,ool-oom GRNST/tr intbd-scat sl ool PCKST,chky-sl anhy/tr POR fl,rr xln ANHY,v rr CHT AA,g ool-oom/tr intxl POR,FLOR AA,fr-m g ltbrn-scat brn/tr blk STN,g mod fast stmg CUT"
5740.00	5750.00"LS AA,ool-oom GRNST/tr PCKST AA,chky-sl anhy/tr POR fl-rr xln ANHY,rr CHT AA,POR-FLOR-STN AA,g mod fast-fast stmg mlky CUT"
5750.00	5770.00"LS ltbrn-tan,occ crm,rr wh,gran-micxl,sl micsuc,tr crpxl,GRNST AA/tr intbd-scat dns sl ool PCKST,chky-sl anhy/tr POR fl,rr CHT AA,rr xln ANHY,g ool-oom/tr intxl POR,FLOR AA,fr ltbrn-scat brn/tr blk STN,g fast stmg CUT"
5770.00	5790.00"LS,ltbn-tn-crm,mott,mic-vf xln,mdns-grn mtx,pred intrbd ool ooc/oom GRNST to sl ool dns PCKST,tr chky mat,rr cht frgs,rr calc fra cflgs;pred oom/ooc to mf-intrxln fab POR,spty bri yelgld FLOR,m-slo strmg CUT,dkbn-ltbn o STN"

DEPTH	LITHOLOGY
5790.00	5810.00"LS AA,intrbd ool oom/oo GRNST to sl ool dns sl plty PCKST,decr in oomoldic to oolastic POR,incr mf-intrxln fab POR,spty bri yelgld FLOR,pred mbn-ltbn o STN,spty blk dd o STN,m-slo strmg dif CUT"
5810.00	5830.00"LS AA,ltbn-tn-crm,pred mf-to intrbd oomoldic/oolastic to interxln fab POR,o STN AA,FLOR AA"
5830.00	5850.00"LS,ltbn-tn-crm,sl mott-mott,mic-vf xln,rr crypt xln,mdns-dns mtx,occ grn mtx,pred intrbd sl ool dns occ tt PCKST to ool oom/oo GRNST,rr calc frac flg,rr cht frgs,tr anhy xls;pred m-mf intrxln to ptchy red-m oom/oo fab POR,tr slo strm CUT,m-ltbn STN"
5850.00	5860.00"LS AA,POR AA,FLOR AA,pred tr-m ltbn-mbn o STN,spty dd blk o STN"
5860.00	5880.00"LS,ltbn-tn-crm,sl mott,mic-vf xln,rr crypt xln,mdns mtx-occ grn mtx,pred intrbd sl ool dns PCKST to ool oom/oo GRNST,rr cht frgs;pred m-intrxln to reduced-m oom/oo fab POR,spty dul-mbri yelgld FLOR,m-slo dif strmg CUT,m-mbn-ltbn o STN,spty blk o STN"
5880.00	5900.00"LS AA,spty mbri-bri yelgld FLOR,m-slo dif/milky ring CUT,m-mbn-ltbn-occ dkbn o STN,spty dd blk cast fld o STN res"
5900.00	5920.00"LS,ltbn-crm-occ dkbn,occ mott,occ crypt xln,pred mic-vf xln,tr dkbn sl plty tt to mdns sl ool PCKST w/ ool sl ool mdns oom/oo GRNST,rr anhy xls,rr calc frac flgs;pred intrbd mf-intrxln to red-mf oom/oo fab POR,pr-m slo strmg CUT,spty mbri yelgld FLOR"
5920.00	5940.00"LS AA,ltbn-tn-crm-occ dkbn,spty dd blk o STN flg casts,pred mbn-ltbn-occ dkbn o mtx o STN,spty mbri-bri yelgld FLOR,pred mf-intrxln to red oom/oo fab POR"
5940.00	5960.00"LS,ltbn-tn-occ crm,decr dkbn tt dns PCKST,pred ool rich oom/oo GRNST,mdns-sl grn mtx,rr calc frac flgs;pred oom/oo fab POR w/scat intrxln fab POR,FLOR AA,o STN AA"
5960.00	5980.00"LS AA,ltbn-tn,sl mott-mott,mic-vf xln,sl grn-mdns mtx,occ dns mtx,pred oom/oo ool GRNST to sl ool dns GRNST,rr sl ool dns PCKST,rr anhy xls;POR AA,spty mbri yelgld FLOR,m-slo strm sl dif CUT,pred m-mf o STN"
5980.00	6000.00"LS AA,sl incr in sl ool dns-tt mtx PCKST to sl ool GRNST;pred mf-intrxln to reduced oomoldic to oolastic fab POR,FLOR AA,o STN AA"
6000.00	6020.00"LS,ltbn-tn-crm,sl mott to mot,mic-vf xln,rr crypt xln,mdns mtx-occ grn mtx,pred intrbd sl ool dns PCKST to ool oom/oo GRNST,rr cht frgs;pred m-intrxln to red-m oom/oo fab POR,spty dul-mbri yelgld FLOR,m-slo dif strmg CUT,m-mbn-ltbn o STN,spty blk o STN"

DEPTH	LITHOLOGY
6020.00	6040.00"LS,ltbn-tn,mott,mic-vf xln,mdns-grn mtx,pred intrbd ool ooc/oom GRNST to sl ool dns PCKST, tr chky mat,rr cht frgs,rr calc frac flgs;pred oom/oc to mf-intrxln fab POR,spty bri yelgld FLOR,m-slo strmg CUT,dkbn-ltbn o STN"
6040.00	6060.00"LS AA,sl incr in oom/oc fab POR,spty mbri yelgld FLOR,pred tr-m ltbn-mbn o STN,spty dd blk o STN" □
6060.00	6080.00"LS,ltbn-tn-crm,mic-vf xln,occ grn-mdns mtx,intrbd sl dns PCKST to ool oom/oc GRNST,rr calc frac flgs,tr anhy xls;POR AA,FLOR AA,CUT AA"
6080.00	6100.00"LS,ltbn-tn-crm,sl mott,tr crypt xln,mic-occ vf xln,mdns-tr dns-occ grn mtx,pred sl ool to ool PCKST,tr oom/oc ool GRNST,rr anhy xls,tr calc frac flg,calc/anhy fld casts;pred pr-mf intrxln to patchy oom/oc fab POR,spty mbri yelgld FLOR,m slo strmg CUT"
6100.00	6120.00"LS,ltbn-crm-occ,mott,pred mic-vf xln,tr mdns sl ool PCKST w/ ool sl ool mdns oom/oc GRNST,rr anhy xls,rr calc frac flgs;pred red-mf oom/oc fab POR,pr-m slo strmg CUT,spty mbri yelgld FLOR,pred ltbn-mbn o STN,spty blk o STN res"
6120.00	6140.00"LS AA,pred oom/oc to mf intrxln fab POR,mf-g ltbn-mbn w/spty blk dd blk cast fld o STN,mbri-spty bri yelgld FLOR"
6140.00	6160.00"LS,ltbn-tn-crm,mott,mic-vf xln,mdns-dns mtx,grn mtx,pred ool rich oom/oc GRNST,rr calc frac flg,rr cht frgs,tr anhy xls;pred mf oom/oc fab POR,m slo strmg dif CUT,mf-ltbn-mbno STN,spty blk dd cast fld o STN"
6160.00	6180.00"LS,ltbn-tn,pred ool rich oom/oc GRNST,mdns-sl grn mtx,rr calc frac flgs;pred oom/oc fab POR w/scat intrxln fab POR,FLOR AA,o STN AA"
6180.00	6200.00"LS tan-ltbrn,occ sl crm,rr wh,gran-vfxl-sl micsuc,tr crpxl,pred ool-oom GRNST/tr scat-intbd dns sl ool PCKST,sl chk-anhy/rr xln ANHY-POR fl,tr rhmb xln CALC,rr tan-ltbrn CHT incl,g ool-oom/tr intxl POR,g mod bri-bri yel FLOR,g ltbrn-brn/tr"
6180.00	6200.00"blk dd o STN,g fast stmg mlky-sl blooming mlky CUT"
6200.00	6210.00"LS AA,occ crm,tr wh,gran-vfxl-sl micsuc,crpxl,pred GRNST AA/incr scat-intbd PCKST AA,chky-anhy/tr POR fl-rr xln ANHY,tr CALC AA,rr CHT AA,fr-mg ool-oom/tr intxl POR,g scat bri yel FLOR,STN-CUT AA"
6210.00	6230.00"LS tan-ltbrn,incr crm-wh,gran-vfxl-micsuc,tr crpxl,pred ool-oom GRNST/incr scat-intbd dns sl ool-thn chky plty PCKST,anhy/rr xln ANHY-POR fl,rr CALC AA,rr tan CHT incl,POR,incr scat FLOR AA,STN AA/rr blk pp dd o STN,g mod fast-slow stmg mlky CUT"

DEPTH	LITHOLOGY
6230.00	6250.00"LS tan-crm-wh, occ ltbrn, micxl-crpxl-vfxl, gran, chky dns sl ool-thn plty PCKST, intbd/ool GRNST, anhy AA, crm-trnsl-wh CHT, rr CALC AA, tr intxl/scat mg ool POR, sl decr FLOR AA, fr-tr scat ltbrn-brn/rr blk STN, mg slow stmg mlky CUT "
6250.00	6270.00"LS AA, micxl-crpxl, vfxl-gran, pred PCKST AA, sl decr GRNST AA, anhy/tr xl ANHY-POR fl, incr crm-trnsl-ltbrn CHT, pred tt-tr scat mg ool-sl intxl POR, g scat bri yel FLOR sl decr/depth, STN AA, g mod fast-fast stmg mlky CUT "
6270.00	6280.00"LS AA, pred chky dns sl ool-plty PCKST, tr scat ool-oom GRNST, sl anhy/tr POR fl-rr xln ANHY, crm-trnsl-wh-occ brn-ltbrn CHT/rr mic fos incl, tt-tr intxl/rr scat ool POR, tr FLOR AA, tr ltbrn-brn/rr blk STN, tr g fast stmg mlky CUT "
6280.00	6290.00"LS tan-crm-wh, micxl-crpxl, tr gran-vfxl, PCKST AA/incr thn chky plty frag, tr GRNST AA, sl anhy, POR AA, tr dull-mod bri yel FLOR, tr-fr ltbrn/v rr pp blk dd o STN, fr slow stmg CUT"
6290.00	6310.00"LS AA, pred chky dns sl ool-plty PCKST/occ sl gran tex, v rr ool-oom GRNST frag, sl anhy/rr xln ANHY, CHT AA, tt-tr intxl POR, no-tr dull-v rr mod bri yel FLOR, rr STN AA, no-v p dif/v fnt res ring CUT"
6310.00	6330.00"LS, tn-crm-offwht, mic xln, mdns-dns mtx, pred PCKST, tr ltgy-trnsl-tn CHT frgs, tr chlky mat, sl anhy/chlky; pred pr-intrxln to poss sme frac POR, v-dul yelgld FLOR, n-wk CUT, pr-ltbn 0 STN"
6330.00	6350.00"LS AA, tn-crm-offwht, mic xln-crypt xln, mdns-dns mtx, rr cht, rr anhy xls; POR AA, FLOR AA, CUT AA"
6350.00	6370.00"LS, ltbn-tn-crm-offwht, mic xln, mdns mtx, mfrm, pred PCKST, rr trip CHT frgs, rr chlky mat, sl anhy; pred intrxln to compact xln fab POR, pr-ltbn-occ mbn o STN, dul spty yelgld FLOR, wk slo strm CUT"
6371.00	6390.00"LS AA, decr in CHT frgs, bcg sl oolitic, pred chlky sl plty PCKST; POR AA, FLOR AA, o STN AA"
6390.00	6410.00"LS, ltbn-tn-offwht, mic-vf xln, mdns mtx, sl grn, appears friable, pred mdns sl ool chlky PCKST, abunt frac flgs, pred intrxln to tr compact xln fab POR, dul-spty mbri yelgld FLOR, wk slo strm CUT"
6410.00	6430.00"LS, ltbn-tn-crm, sl mott, mic-vf xln, mdns mtx, pred sl ool chlky PCKST, abunt calc frac flgs, rr anhy xls/chlky mat; pred mf-intrxln to ool intrxln fab POR, mf-mbri-spty bri yelgld FLOR, m-slo strmg dif CUT, m-ltbn-mbn o STN"

DEPTH	LITHOLOGY
6430.00	6450.00"LS,ltbn-tn-crm,sl mott,mic-vf xln,pred sl ool PCKST w/scat oom/oc GRNST,tr chlky mat,tr calc frac flgs,tr anhy xls,sme calc cast flgs;pred mf-f intrxln to scat red-m oom/oc fab POR,mf slo strm,g-mbri yelgld FLOR"
6450.00	6470.00"LS AA,FLOR AA,CUT AA,o STN AA,sl incr in oom/oc ool GRNST,decr in frac flgs"
6470.00	6490.00"LS AA,ltbn-tn,sl mott,mic-vf xln,pred f-intrxln sl ool PCKST,m-mf ltbn-bn o STN,dif/milky ring mf-slo strmg CUT,mbri-bri yelgld FLOR,fri-occ grn mtx-grn mtx ip"
6490.00	6510.00"LS,AA,incr in calc frac flg,pred sl ool f-intrxln PCKST,mf-f slo dif strmg CUT,f-mbri yelgld FLOR,scat oom/oc fab POR"
6510.00	6530.00"LS,ltbn-tn-crm,mott-sl mott,mic-vf xln,mdns-occ grn mtx,pred sl ool GRNST to sl ool dns PCKST,abunt calc frac flgs,tr anhy xls;pred mf-f intrxln to scat oom/oc fab POR,g-mbri-spty bri yelgld FLOR,mf-slo strm dif strmg CUT,mf-ltbn-bn o STN,spty blk o STN"
6530.00	6550.00"LS AA,pred mf-f intrxln to frac POR w/sme scat oom/oc fab POR,f-mbri yelgld FLOR,mf slo dif/milky ring CUT,mf-f ltbn-bn mtx o STN,spty blk o STN res"
6550.00	6570.00"LS,ltbn-tn-crm,sl mott,mic-vf xln,mdns-occ grn mtx,pred sl ool PCKST to ooc sl ool GRNST,abunt frac flgs-frac POR,tr anhy xls;pred intrxln to frac POR w/scat oom/oc fab POR,mbri yelgld FLOR,mf-slo dif strmg CUT,mf-f ltbn-bn mtx o STN,spty blk dd o STN"
6570.00	6590.00"LS AA,pred mf-f intrxln to frac POR,incr in oom/oc fab POR,spty blk dd cast fld o STN,mf ltbn-bn o STN,bri yelgld flor-spty bri yelgld FLOR"
6590.00	6610.00"LS,ltbn-tn-crm,mic-vf xln,mdns-mtx,occ crypt xln,pred sl ool dns PCKST to v/scat oom/occ sl ool GRNST,abunt calc frac flgs;pred mf-intrxln to frac POR w/sme v/scat oom/oc fab POR,m-bri yelgld FLOR,m-slo strm dif CUT,m-tr ltbn-bn o STN,spty blk oSTn res"
6610.00	6630.00"LS AA,ltbn-tn-crm,mic-vf xln,occ crypt xln,mdns-rr grn mtx,pred PCKST,calc frac flgs-frac POR,rr chlky may,rr anhy xls,rr ool oom/oc GRNST;pred intrxln to frac POR,FLOR AA,o STN AA"
6630.00	6650.00"LS AA,pred frac to intrxln w/sme scat red oom/oc fab POR,sl ool,mbri yelgld FLOR,spty bri yelgld FLOR,m-mbn-ltbn o STN,pr-m slo strmg dif/sl milky ring CUT"
6650.00	6670.00"LS tan-crm-ltbrn,occ off wh,micxl-crpxl,rr vfxl-sl gran tex,cky dns v sl ool PCKST,v rr sl ool GRNST frag-occ intbd/PCKST,sl anhy/tr xln ANHY,tr rhmb. xl CALC,v rr CRIN fos,tt-tr intxl-sl frac POR,fr-g scat dull/rr bri yel FLOR,fr ltbrn/rr brn & "

DEPTH	LITHOLOGY
6650.00	6670.00"pp dd o STN,fr slow dif/tr slow stmg mlky CUT"
6670.00	6700.00"LS AA,pred chky dns PCKST/tr sl gran tex-occ grdg to dns GRNST,v rr ool-oom GRNST frag,sl anhy-tr xln ANHY,tr CALC AA,rr crm-off wh CHT incl,v rr CRIN,POR AA,fr-g dull-mod bri yel FLOR,fr ltbrn/tr brn-pp blk dd o STN,g dif/tr fast stmg mlky CUT"
6700.00	6720.00"ltbrn/tr pp blk dd o STN,g slow-mod fast stmg mlky CUT"
6700.00	6720.00"LS tan-ltbrn,occ crm-off wh,micxl-crpxl,incr vfxl-gran,dns v sl ool PCKST/incr scat-intbd ool-oom GRNST,sl chky-anhy/rr xln ANHY-POR fl,rr xl CALC,v rr CRIN fos,tr-rr tan-ltbrn-brn CHT,g intxl-ool POR,g even mod bri-scat bri yel FLOR,g-fr"
6720.00	6740.00"LS AA,micxl-crpxl,incr vfxl-gran-occ micsuc,PCKST AA/scat-intbd ool-oom GRNST,sl chky-anhy/tr xln ANHY-POR fl,tt-tr intxl/incr ool-oom POR,FLOR AA,fr-g ltbrn-brn/incr scat pp blk dd o STN,g fast dif/tr fast stmg mlky CUT"
6740.00	6750.00"LS tan-crm-off wh,ltbrn,micxl-crpxl,occ vfxl-gran,pred chky dns PCKST/decr GRNST AA,sl anhy/tr xln ANHY-POR fl,rr rhmb xl CALC,tr CHT AA,tt-tr intxl-ool POR,FLOR AA,decr STN AA,CUT AA"
6750.00	6760.00"LS AA,micxl-crpxl,tr vfxl-gran,pred PCKSTAA/tr thn intbd-scat ool-oom GRNST,sl anhy AA,rr CALC AA,POR AA/fr-g sl incr scat ool POR,FLOR AA,fr ltbrn-tr brn/incr scat blk pp dd o STN,g fast-mod fast stmg mlky CUT"
6760.00	6780.00"LS AA/incr ltbrn,sl incr vfxl-gran,chky dns PCKST/tr gran tex,scat GRNST AA,sl anhy/tr POR fl-rr xln ANHY,tr rhmb xl CALC,tt-tr intxl/scat ool POR,g-fr even dull-mod bri yel FLOR,STN AA/sl decr blk pp dd o STN,g fast dif/tr slow stmg mlky CUT"
6780.00	6790.00"LS AA,pred PCKST AA/sl gran tex-occ grdg to GRNST,occ GRNST AA,POR-FLOR-STN-CUT AA"
6790.00	6800.00"LS AA,POR-FLOR AA,STN AA/incr scat blk pp dd o STN,g fast dif/tr fast stmg mlky CUT"
6800.00	6820.00"LS tan-crm-off wh,ltbrn,micxl-crpxl,occ vfxl-gran,pred chky dns PCKST occ grdg to GRNST,scat-thn intbd ool GRNST,sl anhy/tr xln ANHY-POR fl,tr CALC AA,tt-tr intxl-ool POR,g even mod bri/scat bri FLOR,fr-g ltbrn/scat blk pp dd o STN,g fast stmg mlky CUT"
6820.00	6850.00"LS AA,micxl-crpxl,occ vfxl-gran,pred PCKST AA-occ grdg GRNST ip,sl incr thn intbd-scat ool-oom GRNST,sl chky-anhy/tr POR fl-rr xln ANHY,rr CALC AA,POR AA,FLOR AA,fr-g ltbrn/scat blk pp dd o STN,CUT AA"

DEPTH	LITHOLOGY
6850.00 6870.00	"LS tan-ltbrn-crm,occ wh,micxl-crppl,vfxl-gran,pred dns-sl ool PCKST occ grdg to dns GRNST,scat-intbd ool GRNST,sl anhy AA,tr CALC AA,tt-tr intxl-ool POR,g even dull-mod bri/tr bri FLOR,STN AA,g mod fast/tr fast stmg mlky CUT"
6870.00 6880.00	"LS AA,pred PCKST AA/sl gran tex-occ grdg to dns GRNST,scat GRNST AA,rr crm-tan CHT incl,POR-FLOR AA,STN AA/decr pp dd o STN,CUT AA"
6880.00 6890.00	"LS AA,PCKST AA,tr scat-occ intbd GRNST AA,tr CHT AA,POR AA,sl incr FLOR AA,STN-CUT AA"
6890.00 6910.00	"LS,tn-crm-offwht,occ brn,sl mott,mic-vf xln,mdns mtx,pred slool mdns mf-intrxln PCKST w/thnly intrbd GRNST,tr offwht chlky carb mat,abunt calc frac flg;pred mf-f intrxln to frac POR/w/sme scat oom/oc,m-mbri-dul yelgld FLOR,m-ltbn-bn o STN,spty blk res"
6910.00 6930.00	"LS AA,pred mf-intrxln to poss frac POR,sme thnly intrbd red-mf oom/oc fab POR,dul-mbri yelgld FLOR,m-slo strmg dif/milky ring CUT,pred m-mf ltbn-bn-occ dkbn w/sptty dd blk o STN res"
6930.00 6950.00	"LS AA,incr in oolitic GRNST,incr in dkbn o STN,intrbd GRNST-sl ool dns PCKST,pred mf-intrxln to oom/oc fab POR w/poss sem frac POR,mf-slo dif strmg CUT,dul-mbri yelgld FLOR"
6950.00 6970.00	"LS,ltbn-mbn-tn,sl mott-mott,mdns-grn mtx,pred sl ool red-oom/oc GRNST w/thnly intrb PCKST,sl anhy,rr chlky carb mat,rr calc frac flgs;pred ool intrxln to red oom/oc fab POR w/tr frac POR,m-slo strmg dif/milky ring CUT,m-mf-dkbn-bn-ltbn o STN"
6970.00 6990.00	"LS AA,even-dul-mbri-occ bri yelgld FLOR,m-slo strmg/milky ring dif CUT,fri,m-mf-mbn-dkbn-ltbn o STN,spty occ cast fld dd o STN res"
6990.00 7010.00	"LS AA,FLOR AA,o STN AA,decr in reduced to m-oom/oc fab POR,fri,pred mdns PCKST"
7010.00 7030.00	"LS,ltbn-tn,crm,miv xln-vf xln,mdns-occ grn mtx,pred intrbd dns occ sl ool PCKST to sl ool GRNST,rr anhy xls,fri;pred m-mf intrxln to red-m oom/oc fab POR,even dul-spty mbri yelgld FLOR,pr-m slo strmg/milky ring CUT,pred m-mbn-ltbn-occ dkbn o STN"
7030.00 7050.00	"LS AA,ltbn-tn-crm-occ offwht,sl mott,mic-vf xln,incr grn mtx,pred sl ool GRNST, sl ool dns PCKST,rr foss frgs,rr anhy xls;POR AA,FLOR AA,m-ltbn-mbn-occ dkbn o STN,spty blk o STN res"
7050.00 7070.00	"LS AA,incr grn mtx,dul-mbri yelgld FLOR,m-fst to slo dif strmg CUT,m-ltbn-mbn-occ dkbn o STN,spty occ cast fld blk o STN res"
7070.00 7096.00	"LS,ltbn-tn-crm,sl mott,mic-vf xln,grn-mdns mtx,tr dns mtx,pred sl ool to ool GRNST w/thnly intrbd dns chlky PCKST,rr anhy xls,rr chlky mat;pred mf-f intrxln to ptchy red-oom/oc fab POR,dul-spty mbri yelgld FLOR,m-slo strmg dif CUT,m-ltbn-mbn o STN"

**FORMATION TOPS**

**OPERATOR: MOBIL**

**WELL NAME: RATHERFORD UNIT #17-43 NW 1-A HORIZONTAL LATERAL LEG #1**

FORMATION NAME		SAMPLE	SAMPLE	DATUM
		MEASURED DEPTH	TRUE VERTICAL DEPTH	KB:4703'
UPPER ISMAY		5369'	5367'	-664'
LOWER ISMAY		5481'	5458'	-755'
GOTHIC SHALE		5527'	5481'	-778'
DESERT CREEK		5548'	5490'	-787'
TOP DC 1-A ZONE		5565'	5495'	-792'

## GEOLOGICAL SUMMARY

### AND

## ZONES OF INTEREST

The Mobil Exploration and Production U.S., Inc., Ratherford Unit #17-43 Northwest Horizontal Lateral Leg #1 was a re-entry of the Mobil Ratherford Unit #17-43 located in Section 17, T41S, R24E, and was sidetracked in a northwesterly direction from 5300' measured depth, 5329' true vertical depth, on June 21, 1998. The lateral reached a measured depth of 7097', true vertical depth of 5487.0' at total depth, with a horizontal displacement of 1700' and true vertical plane of 307 degrees on June 24, 1998 in the 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 and the gamma neutron log helped define contacts between formations and their members in the curve and lateral section.

The objectives of the Ratherford Unit #17-43 northwest lateral leg #1 were to penetrate and drill the Desert Creek 1-A porosity bench, identify and define its lithology, facies, hydrocarbon and gas potential and to evaluate the effective porosity and permeability. These objectives were met in the Desert Creek 1-A porosity bench, which had a consistent lithology throughout the length of the lateral, a variety of carbonate facies, poor to fair hydrocarbon and gas shows and ineffective to effective porosity and permeability.

The curve portion of the lateral was completed at a measured depth of 5612', true vertical depth of 5501', with a horizontal displacement of 219', placing the bit near the middle of the 1-A porosity bench of the Desert Creek on June 21, 1998. The curve was started in the lower portion of the Honaker Trail Formation of the Hermosa Group before encountering the typical stratigraphic section of the Upper Ismay, Lower Ismay, Gothic Shale, Desert Creek and the 1-A porosity bench carbonate cycle of the Upper Paradox Formation.

The curve section began in the basal 38 feet of the Honaker Trail Limestone of the Hermosa Group. From 5330' measured depth, 5329' true vertical depth to 5369' measured depth, 5367' true vertical depth, the lithology was predominately a dense argillaceous limestone. This limestone was tan to brown, light gray, gray brown, cream, microcrystalline to cryptocrystalline with a dense to tight occasionally slightly silty matrix. These limestones were slightly platy, occasionally chalky, earthy to argillaceous and dolomitic to slightly dolomitic in part. Rare to trace dark brown to brown chert were associated with this carbonate sequence. Some thinly interbedded chalky slightly dolomitic marlstones and rare light gray argillaceous grainstones were noted through this interval as well. The formation exhibited a poorly developed intercrystalline to compact-crystalline to earthy fabric porosity, with no visible to very spotty dull yellow-gold fluorescence, no visible to very poor black, light brown, dark brown dead oil stain and no visible to very weak slow streaming cut. The basal shale marker that defines the contact between the Honaker Trail Limestone and the Upper Ismay was not represented in the samples. A marked two-foot decrease in penetration rate at a measured depth 5365', true vertical depth 5363' to a measured depth 5369', true vertical depth 5367' suggested this contact.

The top of the Upper Ismay carbonate cycle of the Upper Paradox Formation was encountered at a measured depth of 5369', true vertical depth of 5367' and was penetrated to a measured depth of 5481'; true vertical depth 5458'. This formation was characterized by a dense to argillaceous to chalky limestone that was very slightly dolomitic in part. The limestone was light brown, dark brown, dark gray brown, brown, tan, occasionally cream, cryptocrystalline to microcrystalline to very fine crystalline, earthy, argillaceous, chalky to slightly silty, with an occasionally grainy to microsugrosic matrix. Common to rare light brown, brown, translucent chert fragments, rare anhydrite crystals and rare calcite fracture fill were noted in this interval. Rare argillaceous dolomites were gray brown, gray, silty to grainy and graded to a light gray slightly argillaceous grainstone. These thin argillaceous dolomites within the Upper Ismay displayed very poor sample shows with very poor earthy to microsugrosic fabric porosity development. Overall, this entire interval displayed predominately an intercrystalline to compact-crystalline to earthy fabric porosity, no visible to very spotty dull yellow-gold florescence and a spotty bright green florescence due to clay in the matrix of the limestones. A very poor dark brown to brown oil stain was noted and insignificant for development. The Hovenweep Shale between the Upper and Lower Ismay was approximately two feet thick (5476' to 5481' measured depth) based on rate of penetration and its lithology was a light brown, brown, argillaceous limetone interbedded with thin black shales.

The top of the Lower Ismay carbonate cycle of the Upper Paradox Formation was picked at a measured depth of 5481', true vertical depth 5458', based primarily on sample identification and a slight increase in rate of penetration. The lithology of the Lower Ismay from 5481' to 5527' measured depth, true vertical depth 5458' to 5481', was predominately limestone, tan, light brown, brown, dark brown, light gray brown, light gray, rare cryptocrystalline to microcrystalline to very fine crystalline, moderately dense, dense, and occasionally silty. An increase in microsugrosic to grainy matrix was noted with depth. This interval had traces of tan to brown chert, was slightly anhydritic, slightly argillaceous to argillaceous and very slightly dolomitic to dolomitic in part. Predominately intercrystalline to compact-crystalline fabric porosity was developed in these limestones and had poor shows. The Lower Ismay displayed an increase in dolomitization with depth and these slightly dolomitic to dolomitic rich limestones were light brown, dark gray, light gray brown, microsugrosic to grainy, and had poorly developed intercrystalline to microsugrosic fabric porosity, with very rare poor sample shows. The bottom of the Lower Ismay from a measured depth of 5520' to the top of the Gothic Shale at 5527' measured depth became less dolomitic and was predominately a slightly platy chalky packstone with intercrystalline to compact-crystalline fabric porosity with very scattered dark brown to black shale partings.

The Gothic Shale was penetrated at a measured depth of 5527', true vertical depth 5481' and continued through to a measured depth of 5548', true vertical depth 5490' and was picked primarily by a decrease in penetration rate and cuttings. This member was nine feet thick and the shales were dark brown to black to dark gray black shale, carbonaceous, occasionally grainy to silty, soft to slightly firm, sooty, slightly fissile, subblocky to subplaty, calcareous to slightly dolomitic and slightly micaceous, with micro pyrite crystals inclusions. Very thinly interbedded platy packstones and oolitic grainstones were noted in this interval and increased towards the base as the zone graded into the Desert Creek Member of the Upper Paradox Formation.

The top of the Desert Creek Member of the Upper Paradox Formation was picked at a measured depth of 5548', true vertical depth 5490' and was penetrated to a measured depth of 5565', true vertical depth 5495'. This transition zone was approximately five feet thick. The top was picked based on an increase in penetration rate and carbonate rocks in the samples. The transition zone between the Gothic Shale and the top of the Desert Creek was interbedded shales as described above and light brown, tan, cream, slightly mottled, microcrystalline to very fine crystalline, moderately dense, slightly platy chalky packstones and thin streaks of oolitic rich grainstones. Trace anhydrite, off-white chalky matter was noted in this transition zone. Porosity was interbedded or cyclic with moderately fair intercrystalline and good oomoldic to oolitic with some interoolitic fabric porosity, staining was moderately fair, a moderately good slow diffused cut and a moderately bright yellow-gold florescence was logged.

The top of the Desert Creek 1-A porosity bench was encountered at a measured depth of 5565', true vertical depth of 5495', at a horizontal displacement of approximately 175' and was picked by a significant increase in the penetration rate. A grainstone facies was first seen and was tan, light brown and cream, microcrystalline to very fine crystalline, with a granular to slightly microsucrosic texture and was very slightly dolomitic. This grainstone facies had a fair oomoldic to oolitic with some interoolitic to moderately good intercrystalline fabric porosity development, fair brown, light brown, brown oil stain to traces of black bitchimum stain\* filling casts, a fair bright to occasionally bright yellow-gold fluorescence and fair to good streaming slow diffused cut. At a measured depth of 5577', true vertical depth 5497' through a measured depth of 5596', true vertical depth 5499', thin interbeds or cyclic deposits of slightly oolitic limestone packstones and oolitic grainstones were drilled. These slightly oolitic packstones were cream to tan in color, cryptocrystalline to microcrystalline, with a slightly chalky texture, dense, clean and very slightly anhydritic. This packstone facies had a moderately fair intercrystalline fabric porosity and a decrease in sample shows. Penetration rate increased at a measured depth of 5596', true vertical depth 5499' to a measured depth of 5612', true vertical depth 5501', where the trip was made for the lateral assembly. The carbonates drilled through this interval were oolitic grainstones as described above. The 1-A porosity bench was projected to be about 15 feet thick in this northwesterly lateral, based on the gamma neutron log for the 17-43 wellbore.

The curve portion of the lateral was completed at a measured depth of 5612', true vertical depth 5501', at a horizontal displacement of 219', bearing 310.2 degrees, with an inclination of 90.9 degrees, on June 21, 1998. At this point a trip was made to lay down the curve assembly and pickup the lateral assembly.

Drilling resumed June 21, 1998 after the trip was made for the lateral assembly in the Desert Creek 1-A porosity bench of the Upper Paradox Formation and sliding to control vertical depth and horizontal plane direction was required. Starting at a measured depth of 5612', true vertical depth 5501.4' to a measured depth of 5649', true vertical depth 5500.7, good homogenous oomoldic to oolitic rich grainstones were penetrated. At a measured depth of 5649', true vertical depth 5500.7, a less then one foot thick hard streak of dense slightly oolitic chalky packstone noted coming down through the curve section was bumped and the bit climbed away from it at 94.7 degrees. The bit was brought back to horizontal at a measured depth of 5710', true vertical depth 5497.5', in cyclic deposits of packstones and grainstones where the bit was oriented back down to try to track the homogenous interval of oolitic grainstone. This cyclic interval continued from a measured depth of 5667', true vertical depth 5500', to a measured depth of 6007', true vertical depth 5497'. The cyclic deposits were interbedded with slightly oolitic packstones and oolitic rich oomoldic/oolitic grainstones. The slightly oolitic packstone facies was cryptocrystalline to microcrystalline, dense to tight, slightly chalky and platy, and displayed a moderately fair intercrystalline fabric porosity, a poor to moderate light brown oil stain and a moderately bright yellow-gold florescence. The oolitic grainstone facies was microcrystalline to very fine crystalline, mottled, moderately dense, grainy, occasionally microsucrosic, slightly dolomitic and occasionally contained calcite/anhydrite filled casts. The grainstone facies had reduced to a good oomoldic, oolitic to occasionally interoolitic fabric porosity and a moderately bright to bright yellow-gold florescence. A moderately fair to good dark brown, brown, light brown oil stain, spotty black cast filled oil stain resin, and a good fast to moderate to good slow diffused milky ring cut was seen. This interval contained trace amounts of anhydrite, rare to trace calcite fracture fill, rare light brown chert fragments, trace to common off-white chalky matter, rare fossil fragments, oolites and pellets. The cyclic deposits decreased at approximately 6007' measured depth, true vertical depth 5497', to the homogenous oolitic grainstone seen before the bit bounced off the hard stringer at 5649' measured depth, true vertical depth 5500.7' and was approximately two and half to three feet thick. This grainstone facies was drilled for approximately 77 feet until the hard stringer of slightly oolitic limestone was pentetrated. This interval is defined as the "upper payzone" in the Desert Creek 1-A porosity bench.

The bottom of the upper payzone was encountered at a measured depth of 6084', true vertical depth 5499.4', when the hard streak noted above was drilled. This hard streak of slightly oolitic limestone was less than a foot thick and was drilled from a measured depth of 6084', true vertical depth 5499.0' to 6106' measured depth, true vertical depth 5499.8', where what is herein defined as the "lower payzone" was encountered. This homogenous zone of oolitic rich oomoldic to oolitic grainstone was drilled from a measured depth of 6106', true vertical depth 5499.7' to a measured depth of 6187', true vertical depth 5497.4' and approximately two feet thick. This grainstone facies displayed a reduced to good oomoldic to oolitic fabric porosity, moderately fair to good dark brown to brown to light brown oil stain, a spotty black cast filled oil stain resin, and a good fast to moderate to good slow diffused milky ring cut. This zone is typical of the homogenous grainstones drilled in the Ratherford Unit that are the producers, so the bit was brought to horizontal and this interval was tracked for approximately 92 feet.

The bottom of the Desert Creek 1-A porosity bench was encountered at a measured depth of 6187', true vertical depth 5497.4' and was drilled for approximately 221 feet horizontally until the payzone was reacquired at a measured depth of 6495', true vertical depth 5495'. It was thought that porosity was below 5497' true vertical depth based on the gamma neutron log for the 17-43 wellbore. Surveys indicated the bit wanted to go up, but gave no indication that the bottom was present at the true vertical depth of 5497'. It was assumed that the hard stringer of slightly oolitic packstone that defined the contact between the upper and lower payzones was being drilled again and the bit was oriented down to track the homogenous oolitic grainstone facies. It was apparent at a 6230' measured depth, true vertical depth 5499', that the bottom of the 1-A porosity bench was being drilled because of a significant decrease in the rate of penetration and an increase in chert fragments. It is suggested that the oolitic grainstone facies pinched out. From a measured depth of 6187', true vertical depth 5497', where the bit was oriented backup, to a measured depth of 6495', true vertical depth 5495', the lithology was predominately a slightly oolitic dense to tight packstone. This packstone facies was light brown, tan, cream, occasionally white, cryptocrystalline to microcrystalline, dense to tight and contained very thinly interbedded oolitic grainstones. The packstones had poor-occasionally moderate intercrystalline to compact crystalline fabric porosity, a spotty moderately bright yellow-gold fluorescence, rare to trace light brown to brown oil stain, a spotty black oil stain resin and poor to occasionally good slow diffused streaming cut. An increase in light gray, light brown, translucent, and occasionally triptolitic chert was noted between 5498' and 5499' true vertical depths. A decrease in staining and background gas was also noted in this interval.

The bottom of the Desert Creek 1-A porosity was reacquired at a measured depth of 6495', true vertical depth 5495' and appeared gradational based on the rate of penetration. The carbonates from a measured depth of 6495', true vertical depth 5495' to a measured depth of 6553', true vertical depth 5496', was predominately a slightly oolitic packstone with thinly interbedded oolitic rich oomoldic to oolitic grainstone. The packstone facies was tan, moderately dense to dense, microcrystalline to very fine crystalline, chalky, slightly anhydritic, with a moderately fair to fair intercrystalline fabric porosity. The thinly interbedded oolitic rich grainstone facies was light brown, microcrystalline to very fine crystalline, mottled, moderately dense to occasionally grainy matrix and contained common calcite/anhydrite cast fillings. A reduced to good oomoldic to oolitic fabric porosity, a moderately fair to fair oil stain, moderately bright fluorescence, and moderate to moderately fair slow diffused cut was logged. A decrease in chert fragments was noted as the lateral graded out of the bottom of the 1-A porosity bench and into the lower payzone.

At a measured depth of 6553', true vertical depth 5495.7', the lithology still remained a slightly oolitic packstone with thinly interbedded oolitic grainstones as noted above. At this measured depth and true vertical depth there was an increase in calcite fracture fill and the bottom of the 1-A porosity bench was bumped, causing the bit to climb to 93.5 degrees. It was turned back to horizontal to track porosity at the true vertical depths of 5494' to 5495'. The occasionally rhombohedral calcite crystals, that were interpreted as fracture fill, became very common and represent in part some of the inconsistent rate of penetration from a measured depth of 6553' to the total depth of 7097'. The rate of penetration due to fracturing was suggested to be the random drill increase's in penetration on the log. This fracturing

maybe due faults surrounding or in the field, and lateral extension. It is possible that too much pressure in the formation created by the injector well 17-32 and surrounding injectors may have contributed to the fracturing. After the horizontal reacquired the Desert Creek 1-A porosity at a measured depth of 6495', true vertical depth 5495', the bit maintained horizontal with the help of minor slides. The packstones and thinly interbedded oolitic grainstones had a moderately fair to fair intercrystalline to reduced to good oomoldic/oolicastic fabric porosity, abundant associated fracture porosity and a moderate to moderately fair oil shows for approximately 317' before bumping off the bottom as noted above. When the bit graded into the lower payzone it wanting to build after it was brought back to horizontal at 6553' measured depth, but was kept horizontal due to good rate of penetration. It was decided to let the bit build at approximately 6700' measured depth when the rate of penetration decreased in the lower payzone.

From approximately 6700' measured depth, true vertical depth 5495' to 6848' measured depth, the lateral cut across the Desert Creek 1-A porosity bench at 91 to 93 degrees until it was brought back to horizontal at a true vertical depth 5487'. It was not determined whether or not the less than a foot thick hard streak between the upper and lower payzones was drilled because of the angle of the bit as it cut across the bench. It is suggested that the upper payzone may have been what was drilled until the total depth was reached based on drill cuttings of cyclic deposits. The lithology for this interval was predominately slightly oolitic packstone interbedded with oolitic rich grainstone. The slightly oolitic to occasionally oolitic slightly chalky packstone facies was light brown, tan, cream, occasionally mottled, microcrystalline to very fine crystalline, moderately dense to dense and slightly anhydritic to chalky in part. The grainstone facies was light brown, brown, mottled, microcrystalline to very fine crystalline, occasionally grainy to moderately dense to microsucrosic, slightly dolomitic in part, with trace to common calcite/anhydrite filled casts. The grainstone facies displayed a reduced to good oomoldic to oolicastic fabric porosity. This interval contained minor amounts of light brown chert, rare to common calcite fracture fill (fracture porosity), rare to trace off-white chalky matter and rare to trace anhydrite crystals, oolites and fossil fragments. A moderately fair to fair medium brown to light brown oil stain and spotty black oil stain resin with a dull to moderately bright to spotty bright yellow-gold florescence was logged for this interval.

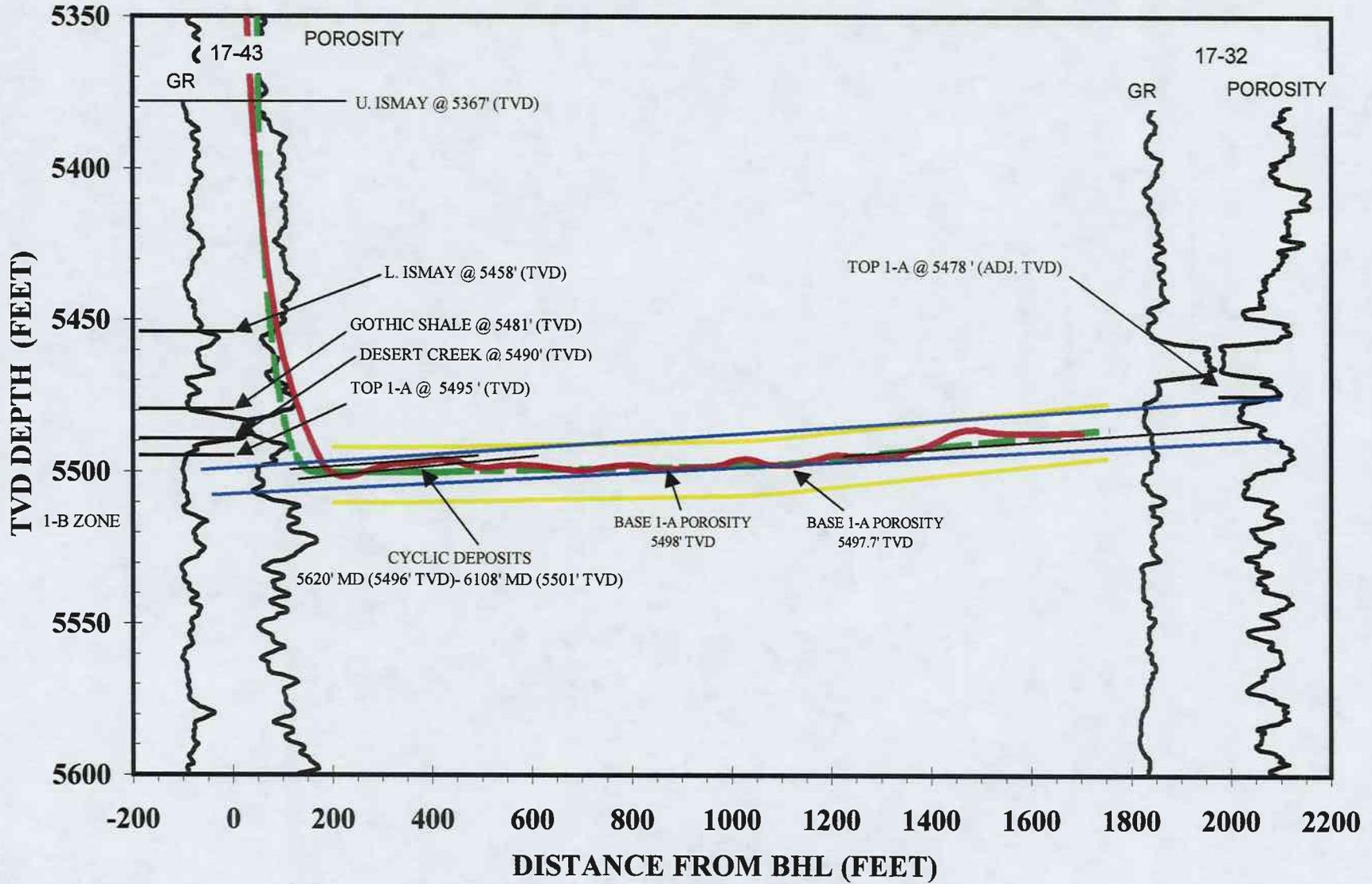
The remainder of the northwest lateral from a measured depth of 6848, true vertical depth 5487' to the total depth of 7097', true vertical depth 5487', was drilled virtually horizontal. The lithology and facies was predominately interbedded packstones and grainstones as discussed above, with the exception of an increase in oolitic rich oomoldic to oolicastic grainstones for the last 66 feet of the lateral. It was noted that towards the end of this lateral that the samples became flushed, which is probably due to the 17-32 injection well driving the oil away from its wellbore.

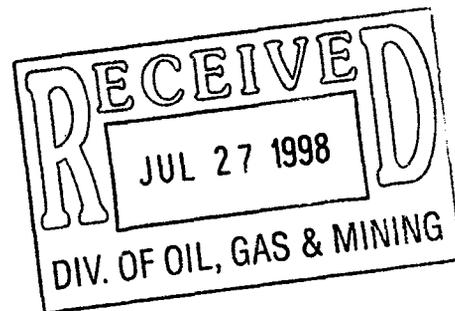
From the beginning of the 17-43 northwest lateral leg#1 to its termination on June 24, 1998, at a measured depth of 7097', 5487.0' true vertical depth and a horizontal displacement of 1700.7', the lithology remained consistent with what is expected for the Desert Creek 1-A porosity bench. The difference between the 17-43 well and other wells within the Rutherford Unit were the cyclic deposits, abundant fracture fill, and the continuous hard streak within the 1-A porosity development. The cyclic deposits of packstones and grainstones maybe present because this well is not far from the edge of the shelf /field or these carbonates at the time of deposition were in an environment where marine transgressions and regressions were common. Abundant fracture fill maybe due to faults surrounding or in the field, lateral extension, or it is possible that too much pressure in the formation created by the injector well 17-32 and surrounding injectors contributed to the fracturing. This fracturing did add to the rate of penetration in the 1-A porosity bench and could be influencing the movement of oil or loss of oil depending on the magnitude and degree of the fracture system. The continuous hard streak within the 1-A porosity that defined herein the upper and lower payzone developments is something to consider for the southeast lateral. If present in the bench, it would be possible to determine the trend for the 1-A porosity development based on three occasions when the bit tagged this hard streak in the northwest lateral and went to 93-degrees. Furthermore, the only consistent drilling seen in this lateral was directly above the hard streak and below, which was a grainstone facies. This homogenous oolitic grainstone was thicker at

the top of this hard streak and will be targeted for penetration first on the southeast lateral. Sample shows remained fairly good throughout the lateral, but decreased when the bottom of the bench was drilled and towards the 17-32 wellbore where they became flushed. Porosity was cyclic, intercrystalline, oomoldic to oolitic and became extensively fractured as the lateral moved northwest towards the 17-32 wellbore. This re-entry into the 17-43 wellbore may help in the development and production in the Rutherford Unit and will enhance the overall performance of the zone after treatment and returning the well to the water flood plan.

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

# MOBIL, Ratherform Unit #17-43, Northwest Lateral Leg 1





**MOBIL**

**RATHERFORD UNIT #17-43  
SE HORIZONTAL LATERAL LEG #2  
UPPER 1-A POROSITY BENCH  
DESERT CREEK MEMBER  
PARADOX FORMATION  
SECTION 17, T43S, R24E  
SAN JUAN, UTAH**

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

**MICROFICHE**

## TABLE OF CONTENTS

WELL SUMMARY.....	3
DRILLING CHRONOLOGY.....	4
DAILY ACTIVITY.....	5
BIT RECORD.....	5
MUD RECORD.....	5
SURVEY RECORD.....	6
SAMPLE DESCRIPTIONS.....	8
FORMATION TOPS.....	16
GEOLOGIC SUMMARY AND ZONES OF INTEREST.....	17
WELL PLOTS.....	22

WELL SUMMARY

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

**NAME:** RATHERFORD UNIT #17-43 SE HORIZONTAL LATERAL  
**LEG #2** IN THE DESERT CREEK 1-A POROSITY BENCH

**LOCATION:** SECTION 17, T41S, R24E

**COUNTY/STATE:** SAN JUAN, UTAH

**ELEVATION:** KB: 4708' GL: 4696'

**SPUD DATE:** 6/19/98

**COMPLETION DATE:** 6/30/98

**DRILLING ENGINEER:** BENNY BRIGGS /SIMON BARRERA

**WELLSITE GEOLOGY:** LUKE TITUS / MARVIN ROANHORSE

**MUDLOGGING ENGINEERS:** LUKE TITUS / MARVIN ROANHORSE

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

**HOLE SIZE:** 4 3/4"

**CASING RECORD:** SIDETRACK IN WINDOW AT 5308' MEASURED DEPTH

**DRILLING MUD:** M-I DRILLING FLUIDS  
**ENGINEER:** RON WESTENBERG  
**MUD TYPE:** FRESH WATER & BRINE WATER W/ POLYMER SWEEPS

**DIRECTIONAL DRILLING CO:** SPERRY-SUN

**ELECTICAL LOGGING:** NA

**TOTAL DEPTH:** 6924' MEASURED DEPTH; 5519.29' TRUE VERTICAL DEPTH

**STATUS:** TOH & LAY DOWN TOOLS - MOVE RIG TO 17-44  
LOCATION

**DRILLING CHRONOLOGY**  
**RATHERFORD UNIT #17-43**  
**1-A SE HORIZONTAL LATERAL LEG #2**

DATE	DEPTH	DAILY	ACTIVITY
6/24/98	0'	0'	TD NW LATERAL LEG #1;L.D. 2 JTS-PULL TO WINDOW-PUMP 80 BBLs BRINE-RIG SERVICE-TOOH;L.D. LAT ASSEM.;TIH W/RETRIV HOOK & SHEAR @ 97K;TOOH W/OLD WHPSTK & L.D.;P.U. & M.U. & ORIENT WHPST-TIH;P.U. SWIVEL & BRK CIRC;MILL W/STR MILL F/5300 T/5302-PUMP BRINE TO DISPLACE HOLE
6/25/98	5308'	22'	TOOH-L.D STR MILL & M.U.;P.U. WATERMELON MILL-TIH-FILL PIPE BREAK CIRC.;MILL WINDOW F/5300 T/5308-PMP CIRC. OUT SWEEP-TOOH;L.D. 72 JTS-L.D. MILLS;P.U. CRVE ASSEM.-ORIENT & TEST-TIH W/DIR ASSEM-SWIVEL UP-BRK CIRC.;R.U. GYRO DATA & TIH W/GYRO;ORIENT TOOL FACE-WRK ON W.L. PCKER;TIME DRILL CRV F/5308 T/5330
6/26/98	5330'	127'	DRLG & SRVYG CRV T/5343-SRVY;PULL GYRO & RIG DOWN W.L.;DRLG F/5343 T/5390;PUMP-SWEEP-PUMP 20 BBLs BRINE-L.D. 4 JTS-TOOH;L.D. 1.8 SBP DIR. ASSEM-P.U. 3.5 SBP SLICK-INSTALL CORR. RING-TIH;SWIVEL UP-BRK CIRC.;DRLG F/5390 T/5505
6/27/98	5505'	175'	DRLG CRVE & SRV F/5505 T/5604;PMP SWEEP-CIRC. OUT-PMP 20 BBLs BRINE;TOOH L.D. CRVE ASSM.-P.U. LAT. MTR.-TEST-TIH;DRLG F/5604 T/5885
6/28/98	5885'	491'	DIR DRLG & SURVEYS F/5885 T/6376
6/29/98	6376'	524'	DIR DRLG & SURVEYS F/6376 T/6900
6/30/98	6900'	24'	DIR DRLG & SURVEYS T/6924; TOTAL DEPTH REACHED 00:30 AM (MST)-6924 MD-5519 TVD;PUMP 10 BBL SWEEP & CIRC. SMPLS OUT;PUMP 26 BBLs BRINE;TOH TO WINDOW & PUMP 78 BBLs BRINE;L.D. 1 AOH JNT & TOH;RIH W/PACKER;

### DAILY ACTIVITY

Operator: MOBIL  
Well Name: RATHERFORD UNIT #17-43 SE 1-A HORIZONTAL LATERAL LEG #2

DATE	DEPTH	DAILY	DATE	DEPTH	DAILY
6/24/98	0'	0'			
6/25/98	5308'	22'			
6/26/98	5330'	127'			
6/27/98	5505'	175'			
6/28/98	5885'	491'			
6/29/98	6376'	524'			
6/30/98	6900'	524'			
TD	6924'				

### BIT RECORD

OPERATOR: MOBIL  
WELL NAME: RATHERFORD UNIT #17-43 SE 1-A HORIZONTAL LATERAL LEG #2

RUN	SIZE	MAKE	TYPE	IN/OUT	FTG	HRS	FT/HR
1	4 3/4"	STC	MF-3P	5308'/ 5604'	296'	29	22'/HR
2	4 3/4"	STC	MF-37P	5604'/ /6924'	1320'	86.5	15.3'/HR

### MUD REPORT

OPERATOR: MOBIL  
WELL NAME: RATHERFORD UNIT #17-43 SE 1-A HORIZONTAL LATERAL LEG #2

DATE	DEPT H	WT	VIS	PLS	YLD	GEL	PH	WL	CK	CHL	CA	SD	OIL	WTR
6/25/98	5308'	9.2	26	1	1	0/0	10.0	NC	NC	88K	2200	1	0%	100%
6/26/98	5379'	9.1	26	1	1	0/0	8.0	NC	NC	78K	2400	0	0%	99%
6/27/98	5577'	9.1	26	1	1	0/0	11.0	NC	NC	74K	2800	1	0%	99%
6/28/98	6220'	9.1	26	1	1	0/0	12.0	NC	NC	75K	3200	0	TR	99%
6/29/98	6443'	9.1	26	1	1	0/0	12.0	NC	NC	74K	3200	1	TR	99%

SPERRY-SUN DRILLING SERVICES  
SURVEY DATA

Customer ... : Mobil (Utah)  
Platform ... : RATHERFORD UNIT  
Slot/Well .. : BA25/17-43 2A1

MEASURED DEPTH	ANGLE DEG	DIRECTION DEG	TVD	NORTHINGS FEET	EASTINGS FEET	VERTICAL SECTION	DOG LEG
5100.00	0.35	160.51	5099.47	43.28 N	2.58 E	-28.78	0.00
5300.00	0.28	163.49	5299.47	42.24 N	2.92 E	-27.80	0.04
5308.00	3.20	135.00	5307.46	42.06 N	3.09 E	-27.56	36.96
5323.00	6.50	132.38	5322.41	41.19 N	4.01 E	-26.29	22.04
5338.00	9.70	131.62	5337.26	39.78 N	5.58 E	-24.18	21.34
5353.00	12.50	131.26	5351.97	37.87 N	7.75 E	-21.30	18.67
5368.00	16.30	131.04	5366.50	35.42 N	10.56 E	-17.58	25.34
5383.00	21.10	130.90	5380.70	32.26 N	14.19 E	-12.78	32.00
5398.00	26.90	130.80	5394.40	28.28 N	18.80 E	-6.70	38.67
5413.00	32.40	134.50	5407.43	23.24 N	24.24 E	0.71	38.63
5428.00	37.80	139.90	5419.70	16.90 N	30.07 E	9.32	41.50
5443.00	41.10	137.00	5431.29	9.77 N	36.40 E	18.83	25.19
5458.00	45.30	138.00	5442.22	2.20 N	43.33 E	29.08	28.37
5473.00	48.40	136.20	5452.48	5.81 S	50.78 E	40.02	22.44
5488.00	52.60	137.90	5462.02	14.28 S	58.66 E	51.58	29.33
5503.00	57.50	137.10	5470.61	23.34 S	66.97 E	63.86	32.96
5518.00	62.10	133.20	5478.15	32.52 S	76.12 E	76.82	38.01
5533.00	66.00	129.30	5484.72	41.40 S	86.26 E	90.27	34.96
5548.00	70.90	128.00	5490.22	50.11 S	97.15 E	104.13	33.65
5563.00	76.70	128.30	5494.41	59.01 S	108.47 E	118.43	38.71
5578.00	82.80	128.40	5497.07	68.16 S	120.04 E	133.08	40.67
5604.00	89.80	130.40	5498.75	84.62 S	140.08 E	158.89	27.99
5646.00	84.80	134.60	5500.73	112.95 S	170.99 E	200.78	15.54
5678.00	86.00	137.00	5503.30	135.81 S	193.23 E	232.67	8.36
5710.00	89.90	137.40	5504.44	159.27 S	214.95 E	264.62	12.25
5741.00	93.70	137.70	5503.47	182.13 S	235.86 E	295.56	12.30
5773.00	91.80	137.40	5501.93	205.71 S	257.43 E	327.49	6.01
5804.00	91.90	137.40	5500.93	228.52 S	278.41 E	358.45	0.32
5835.00	87.20	135.40	5501.18	250.96 S	299.78 E	389.43	16.48
5867.00	88.00	134.40	5502.52	273.53 S	322.42 E	421.40	4.00
5899.00	88.30	134.40	5503.55	295.91 S	345.27 E	453.38	0.94
5930.00	89.20	134.00	5504.22	317.51 S	367.49 E	484.37	3.18
5962.00	90.10	133.80	5504.42	339.70 S	390.55 E	516.37	2.88
5993.00	90.10	133.50	5504.37	361.10 S	412.98 E	547.36	0.97
6025.00	91.30	132.40	5503.98	382.90 S	436.40 E	579.33	5.09
6057.00	91.20	132.60	5503.28	404.51 S	459.99 E	611.30	0.70
6088.00	89.90	132.60	5502.98	425.50 S	482.81 E	642.27	4.19
6120.00	90.40	132.60	5502.90	447.16 S	506.36 E	674.24	1.56

SPERRY-SUN DRILLING SERVICES  
SURVEY DATA

Customer ... : Mobil (Utah)  
Platform ... : RATHERFORD UNIT  
Slot/Well .. : BA25/17-43 2A1

MEASURED DEPTH	ANGLE DEG	DIRECTION DEG	TVD	NORTHINGS FEET	EASTINGS FEET	VERTICAL SECTION	DOG LEG
6152.00	91.20	132.40	5502.45	468.77 S	529.95 E	706.20	2.58
6184.00	91.80	132.10	5501.61	490.28 S	553.63 E	738.16	2.10
6216.00	92.20	132.40	5500.49	511.78 S	577.30 E	770.10	1.56
6247.00	91.80	133.30	5499.41	532.85 S	600.02 E	801.06	3.18
6279.00	91.10	134.50	5498.60	555.03 S	623.06 E	833.04	4.34
6311.00	89.80	134.40	5498.35	577.44 S	645.91 E	865.04	4.07
6343.00	89.00	134.90	5498.69	599.93 S	668.67 E	897.04	2.95
6374.00	88.80	135.60	5499.28	621.94 S	690.49 E	928.03	2.35
6406.00	86.60	135.60	5500.57	644.78 S	712.86 E	960.00	6.88
6438.00	86.40	136.10	5502.52	667.70 S	735.11 E	991.94	1.68
6470.00	87.10	136.30	5504.33	690.76 S	757.22 E	1023.88	2.27
6501.00	87.20	136.70	5505.87	713.22 S	778.53 E	1054.83	1.33
6533.00	87.30	136.50	5507.41	736.44 S	800.50 E	1086.78	0.70
6565.00	88.40	136.30	5508.61	759.60 S	822.55 E	1118.75	3.49
6597.00	89.70	136.30	5509.14	782.73 S	844.65 E	1150.73	4.06
6629.00	89.30	135.20	5509.42	805.65 S	866.98 E	1182.73	3.66
6660.00	87.40	134.70	5510.31	827.54 S	888.91 E	1213.71	6.34
6691.00	86.20	134.70	5512.04	849.31 S	910.91 E	1244.67	3.87
6723.00	85.70	134.00	5514.30	871.63 S	933.73 E	1276.58	2.68
6755.00	86.70	134.20	5516.42	893.85 S	956.66 E	1308.51	3.19
6786.00	87.10	133.80	5518.10	915.35 S	978.93 E	1339.46	1.82
6818.00	89.70	133.80	5518.99	937.49 S	1002.02 E	1371.44	8.12
6849.00	88.30	133.70	5519.54	958.92 S	1024.41 E	1402.42	4.53
6881.00	90.70	133.80	5519.81	981.05 S	1047.52 E	1434.41	7.51
6924.00	90.70	133.80	5519.29	1010.81 S	1078.55 E	1477.40	0.00

THE DOGLEG SEVERITY IS IN DEGREES PER 100.00 FEET.  
N/E COORDINATE VALUES GIVEN RELATIVE TO WELL SYSTEM REFERENCE POINT.  
TVD COORDINATE VALUES GIVEN RELATIVE TO WELL HEAD.  
THE VERTICAL SECTION ORIGIN IS WELL HEAD.  
THE VERTICAL SECTION WAS COMPUTED ALONG 135.00 (TRUE).  
CALCULATION METHOD: MINIMUM CURVATURE.

\* 6924 BIT PROJECTION

## SAMPLE DESCRIPTIONS

**OPERATOR: MOBIL**

**WELL NAME: RATHERFORD UNIT #17-43 SE 1-A HORIZONTAL LATERAL LEG #2**

DEPTH	LITHOLOGY
5308.00 5320.00	"LS m-ltbrngy, occ ltgy-off wh, tr tan, crpxl-micxl, dns, sl slty-shy, occ arg-mrly ip, tr chky-anhy prtgs, tr brn CHT, tt, rr v fnt dull orng mnrl FLOR, NSOC"
5320.00 5330.00	"LS AA/incr ltgy-off wh chky-sl anhy prtgs-occ grdg to MRLST ip, tr scat brn crpxl dns frag, tr CHT AA, tt, NFSOC"
5330.00 5340.00	"LS dk-mgybrn, ltgybrn-ltgy, tr brn, rr off wh, micxl-crpxl, bcmg rthy-sl slty ip, occ dol grdg to arg calc DOL ip, tr prgs & CHT AA, rr blk carb frag incl, dns, tt-sl tr intxl POR, tr dull orng mnrl FLOR, NSOC"
5340.00 5350.00	"LS, ltgybn-ltgy-bn-dkbn, rr crypt xln, mic-vf xln, pred arg LS, sl slty, rthy, mdns mtx, tr ltbn-tn sl plty tt PCKST; pred compact xln to intrxln fab POR, v-spty dul yelgld FLOR, no CUT/o STN"
5350.00 5360.00	"LS AA, incr arg LS, tr rthy-bn-dkbn slty SH, tr blk dns Sh, grdg to MRLST, tr dkbn CHSTfrgs, PCKST AA, sl dolo, arg, tr anhy xls, POR AA, FLOR AA, o STN AA"
5360.00 5370.00	"LS AA, decr in SH frgs, pred ltbn-tn-ltgybn-crm-tn, mic-vf xln, occ grn mtx, chlky, sl arg, tr CHT AA, rr offwht chlky mat, sl anhy; POR AA, no FLOR, pr-dkbn o STN"
5370.00 5380.00	"LS, tn-crm-ltbn, mic-vf xln, mdns-tt mtx, sl dolo, rr bn CALC DOL, tr chlky mat, tr anhy xls, rr-GRNST; pred intrxln to compact xln, no FLOR, no CUT, CALC DOL g-blk o STN"
5380.00 5389.00	"LS AA, CALC DOL-bn-microsucr to sucrosic mtx, g-brn o STN, tr chlky mat, chlky"
5389.00 5400.00	"LS tan, crm-off wh-ltgybrn, occ ltbrn-brn, crpxl, micxl, dns/intbd chky-sl anhy prtgs, rr slty stk, tr ltgybrn CHT, tt-tr intxl POR, NFSOC "
5400.00 5410.00	"LS AA, dns/sl decr intbd chky prtgs, sl anhy/tr xln ANHY incl, tr ltgybrn-tan CHT, rr dk brn dns-arg dol frag, tt-tr intxl POR, NFSOC "
5410.00 5420.00	"LS lt-mgybrn-ltgy, tan, occ m-dkbrn, crpxl-micxl, rthy/sl slty tex, occ sl shy, v sl anhy/v rr xln ANHY, tr dkbrn-ltgybrn CHT, rr chky-mrly prtgs, v rr thn blk styl, tt-tr intxl POR, NFSOC"
5420.00 5430.00	"LS AA, crpxl-micxl, rthy-sl slty, occ sl shy, CHT AA, tr chky-mrly prtgs, sl anhy, rr blk carb frag, tt-tr intxl POR, NFSOC"
5430.00 5440.00	"LS brn-dkbrnblk, m-ltgybrn, occ ltbrn-tan, ltgy, micxl, crpxl, rthy-slty, mot-arg ip, rr dkbrn-blk CHT, v rr chky prtgs, v rr fos, tt-tr intxl POR, NFSOC"

DEPTH	LITHOLOGY
5590.00 5604.00	"LS,ltbn-tn,sl mott,mic-vf xln,pred sl oolPCKST,v-rr ool GRNST,sl chky,occ grn mtx,mdns mtx,tr anhy/chlky mat,spty mbri yelgld FLOR,sl tr spty blk o STN res,pr-ltbn o STN,v-wk slo dif stmg CUT "
5604.00 5620.00	"LS tan-ltbrn,occ crm-wh,tr brn,vfxl-gran,micxl-crppl,occ micsuc,oom-ool GRNST intbd/plty-dns sl PCKST,chky-sl anhy/tr POR fl-rr xln ANHY,tr brn CHT,sl dol ip,fr-g ool-intxl POR,scat FLOR AA,STN-CUT AA"
5620.00 5630.00	"LS AA,pred ool-oom GRNST/scat-occ intbd PCKST AA,chky-sl anhy/tr POR fl,tr rhmb CALC xl,rr xln ANHY & CHT AA,g-fr ool-intxl POR,fr-g scat mod bri-bri yel FLOR,STN-CUT AA"
5630.00 5640.00	"LS AA pred ool-oom GRNST intbd/PCKST AA,POR-FLOR-STN-CUT AA"
5640.00 5660.00	"LS tan-ltrn,occ crm-wh,tr brn,micxl-crppl-vfxl,gran,tr micsuc,ool-oom GRNST,intbd/dns sl ool-chky plty PCKST,sl anhy/tr POR fl,rr xln ANHY,rr CALC AA,g-fr ool-oom/tr intxl POR,g-fr scat mod bri-bri yel FLOR,fr-g ltbrn/tr brn-rr blk"
5640.00 5660.00	"pp dd o STN,g fast stmg mlky CUT"
5660.00 5680.00	"LS AA,pred ool-oom GRNST/scat-intbd dns sl ool-chky plty PCKST,sl anhy/tr POR fl,tr xln CALC,rr xln ANHY,rr crm-off wh CHT incl,POR AA/rr frac POR,FLOR-STN-CUT AA"
5680.00 5700.00	"blk pp dd o STN,g fast stmg mlky CUT"
5680.00 5700.00	"LS ltbrn-tan,occ brn,crm,tr wh,gran-vfxl-micxl,sl micsuc,tr crppl,ool-oom GRNST,tr scat-intbd dns sl ool PCKST,sl chky-anhy/tr POR fl,sl agl,rr xln ANHY & brn CHT incl,g ool-oom/tr inxl-rr pp vug POR,g even mod bri-bri yel FLOR,g brn-ltbrn/tr "
5700.00 5720.00	"LS ltbrn-brn,occ tan,tr crm,rr wh,gran-vfxl-micsuc,occ micxl-crppl,pred ool-oom GRNST,scat-intbd dns sl ool-occ gran tex PCKST,sl chky-rr plty prtgs,sl anhy/tr POR fl,rr xln ANHY,g oom-ool/tr intxl POR,g bri-mod bri yel FLOR,STN AA,g mod fast stmg CUT"
5720.00 5740.00	"LS AA,pred oom-ool GRNST/tr intbd-scat PCKST AA,sl chky-anhy/sl incr POR fl,tr xln ANHY,rr CALC xl,g ool-intxl/rr frac POR,g mod bri/tr bri yel FLOR,g brn-ltbrn/tr pp blk dd o STN,g fast stmg mlky CUT"
5740.00 5760.00	"LS brn-ltbrn,occ tan,tr crm,rr wh,AA,occ micxl-crppl,pred ool-oom GRNST,scat-intbd dns sl ool-agl PCKST,chky-sl anhy/incr POR fl-rr plty prtgs,tr brn CHT incl,rr xln ANHY,g-fr oom-ool/tr intxl POR,g scat bri-mod bri yel FLOR,STN-CUT AA"
5760.00 5780.00	"LS AA,gran-vfxl-micxl,occ crppl,sl micsuc,pred ool-oom GRNST/sl incr scat-intbd dns sl ool-agl PCKST,sl incr chky-sl anhy/incr POR fl-tr plty prtgs,sl incr brn CHT incl,rr ANHY AA,POR AA,g scat bri-mod bri yel FLOR,g ltbrn/tr brn-blk pp dd o STN,CUT AA"

DEPTH	LITHOLOGY
5780.00	5800.00 "LS ltbrn-brn-tan, tr crm, rr wh, vfxl-gran-micsuc, occ micxl, tr crpxl, ool-oom GRNST/scat-intbd PCKST AA, chky-sl anhy/tr POR fl-rr plty prtgs, tr crm-brn CHT incl, rr xln ANHY, g-fr oom-ool/tr intxl POR, g-fr scat mod bri-bri yel FLOR, STN-CUT AA"
5800.00	5820.00 "LS ltbrn-tan-crm, tr brn, wh, gran-vfxl-micsuc, micxl-tr crpxl, ool-oom GRNST/scat-intbd PCKST AA, chky-sl anhy/tr POR fl-plty prtgs, tr CHT AA, rr xln ANHY & rhmb xl CALC, g-fr ool-intxl/rr frac POR, FLOR AA, g-fr ltbrn-brn/rr blk STN, g-fr mod fast stmg mlky CUT"
5820.00	5850.00 "LS AA, pred ool-oom GRNST/incr scat-occ intbd dns sl ool-tr thn chky plty PCKST, bcmg incr chky-sl anhy/POR fl-tr xln ANHY, tr crm-tan CHT incl, rr CALC AA, g-fr ool-intxl-sl frac POR, decr FLOR AA, STN AA, g mod fast dif/tr slow stmg mlky CUT"
5850.00	5870.00 "LS tan-ltbrn-crm, tr brn, rr wh, AA, ool-oom GRNST/scat-intbd dns sl ool PCKST, chky-sl anhy/sl incr POR fl-rr plty prtgs, tr CHT AA, rr xln ANHY, g-fr ool-intxl/rr frac POR, g mod bri-bri yel FLOR, g-fr ltbrn/tr brn-v rr blk pp STN, g mod fast-fast stmg mlky CUT"
5870.00	5890.00 "LS ltbrn-tan, occ crm, tr brn, AA, ool-oom GRNST/tr scat-intbd PCKST AA, sl chky-anhy/tr POR fl, tr CHT AA, rr xln ANHY, g ool-oom/tr intxl POR, g even mod bri-scat bri yel FLOR, g-fr ltbrn-scat brn/rr blk STN, g mod fast/tr fast stmg mlky CUT"
5890.00	5900.00 "LS ltbrn-tan-brn, tr crm, gran-vfxl-micsuc, micxl-tr crpxl, GRNST AA/tr PCKST AA, sl chky-anhy/tr POR fl, tr crm-tan CHT incl, tr xln ANHY, POR AA, g mod bri-scat bri yel FLOR, STN-CUT AA"
5900.00	5920.00 "LS ltbrn-tan-brn, tr crm, gran-vfxl-micsuc, micxl-tr crpxl, ool-oom GRNST/tr scat-intbd dns-sl ool PCKST, sl chky-anhy/tr POR fl, tr CHT AA, rr xln ANHY, POR AA, g incr mod bri-scat bri yel FLOR, g ltbrn-brn/rr blk STN, g fast stmg mlky CUT"
5920.00	5940.00 "LS AA, ool-oom GRNST/tr scat-intbd dns-sl ool PCKST, bcmg sl incr chky-sl anhy/tr POR fl, tr CHT AA, rr xln ANHY & rhmb xl CALC, POR-FLOR AA, g brn-ltbrn/rr blk pp dd o STN, g mod fast-fast stmg mlky CUT"
5940.00	5960.00 "LS ltbrn-brn-tan, tr crm, AA, ool-oom GRNST/tr scat-intbd dns sl ool PCKST, chky-sl anhy/tr POR fl, tr crm-tan-rr brn CHT incl, rr xln ANHY, v rr xl CALC, POR AA, g mod bri-scat bri yel FLOR, g brn-ltbrn/rr blk STN, g fast stmg mlky CUT"
5960.00	5970.00 "LS AA, ool-oom GRNST/sl decr PCKST AA, sl chky-anhy/tr POR fl-rr xln ANHY, tr CHT AA, POR-FLOR AA, g brn-ltbrn/sl incr blk pp dd o STN, g mod fast-fast stmg mlky CUT"
5970.00	5990.00 "LS AA, gran-vfxl-micsuc, micxl, tr crpxl, ool-oom GRNST/tr intbd-rr scat dns sl ool PCKST, sl chky-anhy/tr POR fl-rr xln ANHY, tr CHT AA, v rr xl CALC, POR AA, g incr mod bri-bri yel FLOR, g brn-ltbrn/tr blk pp dd o STN, g fast stmg-sl blooming mlky CUT"
5990.00	6020.00 "LS ltbrn-tan, occ brn, crm, tr wh, gran-vfxl-micsuc, micxl, tr crpxl, ool-oom GRNST/tr scat-intbd dns sl ool-rr chky plty PCKST, sl anhy/tr POR fl, tr crm-tan CHT incl, tr xln ANHY, POR AA, g even mod bri-scat bri yel FLOR, STN-CUT AA"

DEPTH	LITHOLOGY
6020.00 6050.00	"LS AA, gran-vfxf1-micsuc, micxl, tr crpxl, ool-oom GRNST/tr scat-intbd dns sl ool PCKST, chky- sl anhy/sl incr POR fl-tr xln ANHY, rr CHT AA, POR-FLOR AA, g ltbrn-scat brn/tr blk pp dd o STN, g mod fast-fast stmg mlky CUT"
6050.00 6060.00	"LS AA, ool-oom GRNST intbd/PCKST AA, POR-FLOR-STN-CUT AA"
6060.00 6080.00	"LS AA, gran-vfxf1-micsuc, micxl, tr crpxl, ool-oom GRNST/tr scat-intbd dns sl ool PCKST, chky-sl anhy/tr POR fl-tr xln ANHY, tr CHT AA, POR-FLOR AA, g ltbrn-scat brn/tr blk pp dd o STN, g mod fast-fast stmg mlky CUT"
6080.00 6100.00	"LS AA, ool-oom GRNST/sl incr scat-intbd dns ool PCKST, bcmg sl incr chky-sl anhy/tr POR fl-rr thn plty frag, tr CHT AA, tr xln ANHY, rr rhmb xl CALC, POR AA, g-fr scat mod bri-bri yel FLOR, g ltbrn-brn/tr blk pp dd o STN, g mod fast-fast stmg mlky CUT"
6100.00 6120.00	"LS ltbrn-tan, occ brn, crm, tr wh, gran-vfxf1, micxl-sl micsuc, tr crpxl, ool-sl oom GRNST/tr scat-intbd dns sl ool-rr chky plty PCKST, sl anhy/tr POR fl, tr tan-ltbrn CHT incl, tr xl CALC, rr xln ANHY, POR AA, g scat mod bri-bri yel FLOR, g-fr ltbrn/tr brn-"
6100.00 6120.00	"rr blk dd o STN, g mod fast-fast stmg mlky CUT"
6120.00 6140.00	"LS AA, gran-vfxf1, micxl-micsuc ip, tr crpxl, ool-oom GRNST/tr scat-intbd dns sl ool-rr chky plty PCKST, sl anhy/tr POR fl, tr tan-ltbrn CHT incl, tr xln ANHY, g ool-sl oom /tr intxl POR, g-fr scat mod bri-bri yel FLOR, STN AA, g mod fast-fast stmg mlky CUT"
6140.00 6160.00	"LS ltbrn-tan, occ brn, crm, tr wh, gran-vfxf1, sl micsuc-micxl, tr crpxl, ool-oom GRNST/sl incr scat-intbd dns sl ool PCKST, chky/sl incr thn plty prtgs & POR fl, sl anhy/tr xln ANHY, tr CHT AA, rr xl CALC, POR AA, g-fr mod bri-scat bri yel FLOR, STN-CUT AA"
6160.00 6180.00	"LS, ltbn-tn, sl mott-mott, mic-vf xln, mdns-grn mtx, pred ool oom/oc GRNST grdg to sl ool tt sl plty PCKST, tr anhy xls, sl chky, tr carb mat; pred intrbd mf-g oom/oc to mf-intrxln fab POR, m-dul to spty mbri yelgld FLOR, m-slo dif strmg CUT, m-mbn-ltbn o STN"
6180.00 6200.00	"LS AA, ltbn-tn, sl mott-mott, mic-vf xln, tr crypt xln, mdns-dns-occ grn mtx, pred intrbd ool oom/oc GRNST w/ sl ool PCKST grdg to dns tt PCKST, incr in anhy, rr calc frac flgs; pred red-m oom/oc to interxln w/sme comp xln fab POR, FLOR AA, dcr in brn o STN"
6200.00 6218.00	"LS AA, dcr in GRNST, pred interxln to compact xln fab POR, pr-ltbn o STN, spty blk o STN res, dul yelgld FLOR, p-dif tr strm CUT"
6218.00 6240.00	"LS, ltgy-tn-crm-gy, crypt-mic xln, dns-tt mtx, v-rr sl ool PCKST, tr ltgy-gyblk sl calc SH, rr transl-ltbn CHT frgs, sl rthy; pred compact xln to pr-interxln fab POR, v-spty dul yelgld FLOR, pr-wk slo strm CUT, v-spty ltbn o STN, v-spty blk o STN res"
6240.00 6260.00	"LS AA, ltgy-gy-ltbn-tn, crypt-mic xln, occ vf xln, dns-tt mtx, rr cht frgs, SH AA, tr anhy, tr chky offwht mat, POR AA, FLOR AA, o STN AA"

## DEPTH

## LITHOLOGY

6260.00 6280.00 "LS,ltbn-bn-ltgybn-tn, crypt-vf xln,mdns-tt mtx,pred dns PCKST,tr blk-dkbn SH prtgs,rr thnly intr ool GRNST,sl rthy,arg,sl plty;pred compact xln to intrxln fab POR,dul-spty mbri yelgld FLOR,pr o STN,pr strm CUT"

6280.00 6300.00 "LS,ltbn-tn-dkbn,sl mott,crypt-mic xln,mdns0dns-tt mtx,pred sl ool plty PCKST,v-rr ool oom/oc GRNST,rr SH prtgs AA,tr oolits,sl chlky,sl rthy;pred interxln to compact xln fab POR,v-spty dul yelgld FLOR,no-wk slo strm CUT,spty blk cast fld o STN res,prSTN"

6300.00 6310.00 "LS AA,incr dkbrn,crpxl/sl gran tex,dns-sl arg PCKST,tr scat ool-sl oom GRNST,sl chky-anhy,tt-tr f-g ool POR,scat bri-mod bri spty yel FLOR,g-fr ltbrn-brn/pp blk dd o STN,g mod fast stmg mlky CUT"

6310.00 6330.00 "LS dk-m-ltbrn,occ ltgybrn-ltgy,tr intbd tan-crm incl,crpxl-micxl-vfxl,PCKST w/occ sl gran tex,dns,occ rthy,sl chky-v sl anhy,rr wh-trnsl rhmb xln CALC,rr pp blk incl,rr crm CHT,tt-tr intxl POR,NFSOC"

6330.00 6350.00 "LS dk-mbrn,tr ltbrn,ltgybrn,rr ltgy,tr incl AA,crpxl-micxl-vfxl,w/occ sl gran tex,dns-arg PCKST,occ rthy,sl chky-anhy,rr CALC AA,rr crm CHT,tt/tr intxl POR,NFSOC,w/v rr scat ool-oom GRNST frag/g ool POR,bri yel FLOR,fr-g ool POR,g fast stmg mlky CUT"

6350.00 6360.00 "LS AA/sl incr tan-wh frag-incl,crpxl-micxl-vfxl,w/occ sl gran tex,dns-arg PCKST AA,rr CALC AA,tt/tr intxl POR,NFSOC"

6360.00 6370.00 "LS AA,dns-sl arg PCKST/tr lt-mgy thn sl chky-mrly frag,POR AA,NFSOC"

6370.00 6390.00 "LS m-dk-ltbrn/tr scat crm-tan-wh,micxl-crpxl-vfxl,occ gran tex,dns-arg PCKST/scat thn mot ltgybrn-ltgy sl arg frag,sl chky-anhy,rr pp blk incl,v rr pp mica,rr wh-trnsl xl CALC,tt-rr intxl POR,NFSOC"

6390.00 6410.00 "LS,ltgy-ltgybn-brn-tn,mic-vf xln,arg,rthy,sl slty,tr SH prtgs,sl plty,tr chrt frgs-ltbn-tn,rr sl suc DOL LS;pred interxln to compact xln fab POR,pr ltbn o STN,v wk strm CUT,v-dul yelgld FLOR"

6410.00 6430.00 "LS,ltbn-tn,sl mott,mic-vf xln,pred sl ooldns PCKST,sl chlky,v rr grn mtx,mdns mtx,tr anhy/chlky mat,spty mbri yelgld FLOR,sl tr spty blk o STN res,pr-ltbn o STN,v-wk slo dif strmg CUT "

6430.00 6450.00 "LS,ltbn-tn,,mic-vf xln,pred sl ool PCKST,sl chlky,occ grn mtx,mdns mtx,sl plty,sl rthy,tr anhy xls, tr chlky mat,spty mbri yelgld FLOR,sl tr spty blk o STN res,pr-ltbn o STN,v-wk slo dif strmg CUT "

6450.00 6470.00 "LS,ltbn-tn-crm,sl mott,mic-vf xln,pred mdns-dns sl ool sl plty-plty PCKST,tr anhy xls,rr chlky mat,rr ltbn cht frgs;pred mfinterxln fab POR,ltbn-bn-dkbn o STN,wk slo strm CUT,spty mbri telgld FLOR"

6470.00 6490.00 "LS AA,pred tr ltbn-bn-dkbn o STN, v-spty blk o STN,spty mbri yelgld FLOR,pr slo strmg sl dif CUT"

DEPTH	LITHOLOGY
6490.00 6510.00	"LS,ltbn-bn-tn-crm,v sl mott,mic-vf xln,mic-vf xln,occ grn-mdns mtx,pred sl ool plty chlky PCKST,tr anhy xls,rr ool,v rr cht frgs;pred m-interxln fab POR,spty mbri yelgld FLOR,tr ltbn-bn o STN,spty blk oSTN res"
6510.00 6530.00	"LS,ltbn-tn,mic-vf xln,pred sl ool sl plty PCKST,sl chlky,mdns mtx-sl grn mtx,sl plty,sl rthy,tr anhy xls, tr chlky mat,spty mbri yelgld FLOR,sl tr-m spty blk o STN res,tr-m-ltbn o STN,m-slo dif strmg CUT "
6530.00 6550.00	"LS AA,FLOR AA,CUT AA,o STN AA;smpl qlty v-pr"
6550.00 6560.00	"v-pr smplr qlty-LS AA"
6560.00 6580.00	"LS,ltbn-tn-crm,sl mott,vf mic-vf xln,pred mdns sl chlky plty PCKST,v-rr oomoldic to ooc GRNST,rr cht frgs,tr anhy;incr m-brn o STN,spty blk o STN res,pred f-ool intrxln fab POR,ptchy oom/ooc fab POR,spty FLOR"
6580.00 6600.00	"LS,ltbn-tn,vf xln,pred sl ool sl plty PCKST,tr oom/ooc GRNST to ool GRTNST,mdns mtx-grn mtx,sl plty,rr cht frgs,sme anhy xls, tr chlky mat,spty mbri yelgld FLOR,sl tr-m spty blk o STN res,tr-m-ltbn-brn,spty blk o STN res,m-slo dif strmg CUT,friable "
6600.00 6620.00	"LS AA,incr in grn mtx,v-sl dolo,pred f-interxln to ool POR,bri yelgld FLOR,mf-slo dif strmg CUT,ltbn-bn o STN,spty blk o STN res"
6620.00 6640.00	"LS,ltbn-tn,vf xln,pred sl ool sl plty PCKST to GRNST,mdns mtx-grn mtx,sl plty,sl rthy,tr anhy xls, tr chlky mat,tr cht,sl dolo, mbri yelgld FLOR,m spty blk o STN res,m-ltbn-bn o STN,m-slo dif strmg CUT "
6640.00 6660.00	"LS,ltbn-tn,vf xln,pred sl ool sl plty PCKST,rr oom/ooc GRNST,mdns mtx-grn mtx,sl plty,rr cht frgs,sme anhy xls, tr chlky mat,spty mbri yelgld FLOR,sl tr-m spty blk o STN res,m-ltbn-brn,spty blk o STN res,m-slo dif strmg CUT"
6660.00 6680.00	"LS,ltbn-tn-crm,sl mott,mic-vf xln,mdns-occ grn mtx,pred ool to sl ool PCKST to GRNST,rr cht frgs,sl anhy/chlky,sl dolo;pred mf-f interxln,spty mbri yelgld flor,m-ltbn-bn o STN,spty blk o STN res,m-slo strmg dif CUT"
6670.00 6690.00	"LS AA,pred ool-sl oom GRNST,tr scat-occ intbd dns PCKST/occ gran tex,cky-sl anhy/tr POR fl-rr xln ANHY,fr-g ool-sl oom/tr intxl & rr sl frac POR,g even mod bri-bri yel FLOR,fr-g STN AA,g mod fast-fast stmg mlky CUT"
6690.00 6710.00	"LS tan-crm,occ brn,tr ltbrn,vfxl-gran-sl misuc ip,tr crpxl,ool-sl oom sl dns GRNSTocc grdg to dns PCKST/tr gran tex,cky-sl anhy/tr POR fl-rr plty prtgs,rr xln ANHY,fr-g ool-sl oom/tr intxl POR,g even mod bri-bri yel FLOR,fr-g ltbrn/tr brn"
6690.00 6710.00	"blk pp dd o STN,g mod fast-slow stmg mlky CUT"

## DEPTH

## LITHOLOGY

6710.00 6740.00 "LS tan-ltbrn-crm,occ brn,AA,ool-sl oom GRNST occ grdg to dns PCKST/tr gran tex,chky-sl anhy/tr POR fl-v rr plty prtgs,rr xln ANHY,fr-g ool-sl oom/tr intxl POR,g even mod bri-bri yel FLOR,STN AA/rr pp blk dd o STN,CUT AA"

6740.00 6750.00 "LS ltbrn-tan-brn,tr crm,AA,GRNST AA/tr dns sl ool PCKST,sl chky-anhy/rr POR fl-xln ANHY-v rr prtgs,occ sl dol,POR AA,g mod bri-bri yel FLOR,g brn-ltbrn/rr pp blk dd o STN,g fast-slow stmg mlky CUT"

6750.00 6770.00 "LS AA,gran-vfxl,micxl-micsuc,tr crpxl,ool-sl oom GRNST occ grdg to dns PCKST/tr gran tex,sl chky-anhy/tr POR fl-v rr xln ANHY,v rr rhmb xln CALC,fr-g ool-sl oom/tr intxl-rr pp vug POR,g even mod bri-bri yel FLOR,STN AA,g fasy stmg mlky CUT"

6770.00 6800.00 "LS ltbrn-brn,occ tan,tr crm-off wh,AA,GRNST AA/sl incr scat-occ intbd dns sl ool PCKST,sl chky-anhy/rr POR fl-xln ANHY,occ v sl dol,POR AA,g even mod bri-bri yel FLOR,g brn-ltbrn/rr pp blk dd o STN,g fast-slow stmg mlky CUT"

6800.00 6820.00 "LS ltbrn-brn-occ tan,tr crm,gran-vfxl-sl micsuc,micxl-crpxl,GRNST AA,tr dns sl ool PCKST/occ gran tex,sl chky-anhy/rr POR fl-xln ANHY,bcmg incr dol/rr DOL cmt,POR-FLOR AA,g brn-ltbrn/rr pp blk dd o STN,g fast-mod fast stmg mlky CUT"

6820.00 6850.00 "LS AA,vfxl-gran-micxl,incr crpxl,tr micsuc,ool-sl oom-occ dns GRNST,incr scat-tr intbd dns sl ool PCKST/tr gran tex,chky-sl anhy AA/rr prtgs,v sl dol,g intxl-f ool POR,g mod bri-bri yel FLOR,g ltbrn-brn/v rr pp blk dd o STN,g mod fast-slow stmg mlky CUT"

6850.00 6860.00 "LS AA,pred GRNST AA,sl incr dns PCKST AA/incr thn wh-ltgy chky plty PCKST prtgs,sl anhy/tr POR fl-rr xln ANHY,v sl dol ip,f-mg POR AA,FLOR-STN AA,g mod fast/tr slow stmg mlky CUT"

6860.00 6870.00 "LS AA,pred GRNST AA,scat PCKST AA/abnt prtgs AA,chky-sl anhy/tr POR fl-rr xln ANHY,f-mg intxl-ool POR,FLOR AA,g-fr ltbrn-brn/rr blkpp dd o STN,CUT AA"

6870.00 6900.00 "LS ltbrn-tan,occ brn,tr crm,wh,gran-vfxl-micsuc,occ micxl-tr crpxl,ool-sl oom GRNST,tr dns sl ool PCKST/gran tex,sl chky-anhy/rr POR fl-xln ANHY-prtgs,bcmg sl dol/rr DOL cmt,tr crm-off wh CHT,g ool-intxl/tr sl oom POR,g mod bri-scat bri yel FLOR,g-fr ltbrn-brn/tr scat blk pp dd o STN,g fast-mod fast stmg mlky CUT"

6900.00 6910.00 "LS ltbrn-tan-brn,tr crm,wh,AA,pred ool-sl oom GRNST,tr PCKST AA,sl chky-anhy/incr prtgs,rr POR fl-xln ANHY,v sl dol,tr CHT AA,g-fr ool-intxl POR,FLOR AA,g mod fast stmg mlky CUT"

6910.00 6924.00 "LS tan-ltbrn,occ brn,incr wh,tr crm,gran-vfxl,micxl-sl micsuc,tr crpxl,pred ool-sl oom GRNST,tr dns sl ool PCKST/gran tex,chky-sl anhy/tr POR fl-xln ANHY,abnt thn plty prtgs,sl dol ip,incr crm-off wh CHT,g ool-sl oom/tr intxl POR,tr scat dull-mod"

6910.00 6924.00 "bri/rr spty bri yel FLOR,fr-g ltbrn-brn/v rr blk pp dd o STN,fr-g slow stmg mlky CUT"

**FORMATION TOPS**

**OPERATOR: MOBIL**  
**WELL NAME: RATHERFORD UNIT #17-43 SE 1-A HORIZONTAL LATERAL LEG #2**

<b>FORMATION NAME</b>		<b>SAMPLES MEASURED DEPTH</b>	<b>SAMPLES TRUE VERTICAL DEPTH</b>	<b>DATUM KB:4733'</b>
UPPER ISMAY		5368'	5367'	-664'
LOWER ISMAY		5481'	5458'	-755'
GOTHIC SHALE		5527'	5482'	-779'
DESERT CREEK		5555'	5492'	-789'
TOP DC 1-A ZONE		5595'	5499'	-796'

## GEOLOGICAL SUMMARY

### AND

## ZONES OF INTEREST

The Mobil Exploration and Production U.S., Inc., Ratherford Unit #17-43 Southeast Horizontal Lateral Leg #2 was a re-entry of the Mobil Ratherford Unit #17-43 located in Section 17, T41S, R24E, and was sidetracked in a southeasterly direction from 5308' measured depth, 5307' true vertical depth, on June 25, 1998. The lateral reached a measured depth of 6924', true vertical depth of 5519' at total depth, with a horizontal displacement of 1477' and true vertical plane of 134 degrees on June 30, 1998 in the 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 and the gamma neutron log helped define contacts between formations and their members in the curve and lateral section.

The objectives of the Ratherford Unit #17-43 southeast lateral leg #2 were to penetrate and drill the Desert Creek 1-A porosity bench, identify and define its lithology, facies, hydrocarbon and gas potential and to evaluate the effective porosity and permeability. These objectives were met in the Desert Creek 1-A porosity bench, which had a consistent lithology throughout the length of the lateral, a variety of carbonate faces, poor to good hydrocarbon and gas shows and ineffective to effective porosity and permeability.

The curve portion of the lateral was completed at a measured depth of 5604', true vertical depth of 5499', with a horizontal displacement of 296', placing the bit near the top of the 1-A porosity bench of the Desert Creek on June 27, 1998. The curve was started in the lower portion of the Honaker Trail Formation of the Hermosa Group before encountering the typical stratigraphic section of the Upper Ismay, Lower Ismay, Gothic Shale, Desert Creek and the 1-A porosity bench carbonate cycle of the Upper Paradox Formation.

The curve section began in the basal 60 feet of the Honaker Trail Limestone of the Hermosa Group. From 5308' measured depth, 5307' true vertical depth to 5368' measured depth, 5367' true vertical depth, the lithology was predominately a dense argillaceous limestone. This limestone was tan to brown, light gray, gray brown, and cream, microcrystalline to cryptocrystalline with a dense to tight occasionally slightly silty to shaley matrix. These limestones were slightly platy, occasionally chalky, earthy to argillaceous and dolomitic to slightly dolomitic in part. Rare to trace dark brown to brown chert were associated with this carbonate sequence. Some thinly interbedded chalky slightly dolomitic marlstones, argillaceous calcareous dolomites and rare light gray argillaceous grainstones were noted through this interval as well. The formation exhibited a poorly developed intercrystalline to compact-crystalline to earthy fabric porosity, with no visible to very spotty dull yellow-gold fluorescence, no visible to very poor black, light brown, dark brown dead oil stain and no visible to very weak slow streaming cut. The basal shale marker that defines the contact between the Honaker Trail Limestone and the Upper Ismay was represented by a dark brown, brown, and black silty to dense shale. A marked six-foot decrease in penetration rate at a measured depth 5362', true vertical depth 5361' to a measured depth 5368', true vertical depth 5367' suggested this contact as well.

The top of the Upper Ismay carbonate cycle of the Upper Paradox Formation was encountered at a measured depth of 5368', true vertical depth of 5367' and was penetrated to a measured depth of 5481', true vertical depth 5458'. This formation was characterized by a dense to chalky limestone that was light brown, dark brown, dark gray brown, brown, tan, occasionally cream, off-white, cryptocrystalline to microcrystalline to very fine crystalline, earthy, argillaceous, chalky to slightly silty, with an occasionally grainy to microsucrosic matrix and was very slightly dolomitic. Common to rare light brown, brown, light gray brown, translucent chert fragments, rare anhydrite crystals and rare calcite fracture fill and very rare thinly interbedded brown calcareous dolomites with a good brown staining and a microsucrosic to sucrosic fabric porosity were associated with this formation. Overall, this entire interval displayed predominately an intercrystalline to compact-crystalline to earthy fabric porosity, no visible to very spotty dull yellow-gold florescence and a very poor dark brown to brown oil stain. The Hovenweep Shale between the Upper and Lower Ismay was a light brown, brown, argillaceous limestone interbedded with thin black shales. It was not determined how thick this member was in the southeast curve because of a trip for a 3.5-degree bearing pack was made at a measured depth of 5389'. Incorrect build rates for landing the bit in the 1-A porosity bench was the reason for this trip. This bearing pack ended up building too much and sliding left and right to control the build rates affected the bit penetration through the shale marker. Based on the northwest lateral this member is suggested to be approximately two to three feet thick.

The top of the Lower Ismay carbonate cycle of the Upper Paradox Formation was picked at a measured depth of 5481', true vertical depth 5458'. As discussed above, the rate of penetration gave inconclusive evidence for where the contact was between the Hovenweep Shale and the Lower Ismay. This contact was based primarily on sample identification, the gamma neutron log and where this top was penetrated in the northwest lateral. The lithology of the Lower Ismay from 5481' to 5527' measured depth, true vertical depth 5458' to 5482', was predominately limestone, tan, light brown, brown, dark brown, light gray brown, light gray, cryptocrystalline to microcrystalline to very fine crystalline, moderately dense, dense, and occasionally silty. This interval had traces of tan to brown chert, was slightly anhydritic, slightly argillaceous to argillaceous and very slightly dolomitic to dolomitic in part. Predominately intercrystalline to compact-crystalline fabric porosity was developed in these limestones and had poor shows. The bottom of the Lower Ismay from a measured depth of 5510' to the top of the Gothic Shale at 5527' measured depth was predominately a slightly platy chalky packstone thinly interbedded with dolomitic limestones. A slight increase in staining was logged and intercrystalline to compact-crystalline fabric porosity with very scattered dark brown to black shale partings represented the transition zone between the Lower Ismay and Gothic Shale.

The Gothic Shale was penetrated at a measured depth of 5527', true vertical depth 5482' and continued through to a measured depth of 5555', true vertical depth 5492' and was picked primarily by a decrease in penetration rate and cuttings. This member was ten feet thick and the shales were dark brown to black to dark gray black shale, carbonaceous, occasionally grainy to silty, soft to slightly firm, sooty, slightly fissile, subblocky to subplaty, calcareous to slightly dolomitic and slightly micaceous, with micro pyrite crystal inclusions. Very thinly interbedded platy packstones and oolitic grainstones were noted in this interval and increased towards the base as the zone graded into the Desert Creek Member of the Upper Paradox Formation.

The top of the Desert Creek Member of the Upper Paradox Formation was picked at a measured depth of 5555', true vertical depth 5492' and was penetrated to a measured depth of 5647', true vertical depth 5501'. This transition zone was approximately nine feet thick. The top was picked based on an increase in penetration rate and carbonate rocks in the samples. The transition zone

between the Gothic Shale and the top of the Desert Creek was interbedded shales as described above and light brown, tan, cream, slightly mottled, microcrystalline to very fine crystalline, moderately dense, slightly platy chalky packstones and thin streaks of oolitic rich grainstones. Trace anhydrite, fossil fragments and off-white chalky matter was logged in this transition zone. Porosity was interbedded or cyclic with moderately fair intercrystalline and good oomoldic to oolitic with some interoolitic fabric porosity, staining was poor and these carbonates had a slow poor slightly diffused cut and a spotty moderately bright yellow-gold florescence.

The curve portion of the lateral was completed at a measured depth of 5604', true vertical depth 5499', at a horizontal displacement of 159', bearing 158.9 degrees, with an inclination of 89.8 degrees, on June 27, 1998. At this point a trip was made to lay down the curve assembly and pickup the lateral assembly.

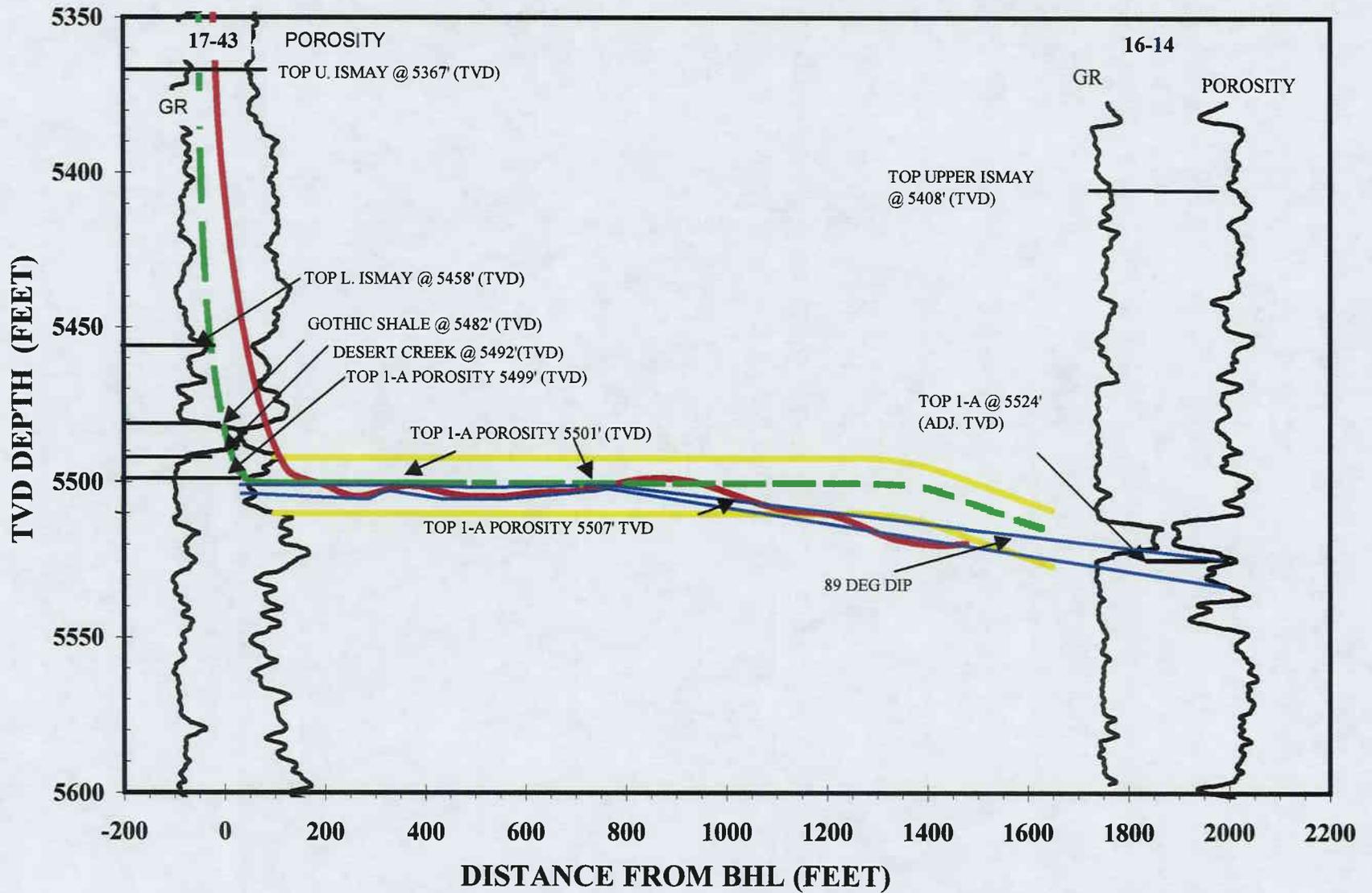
Drilling resumed June 27, 1998 in the Desert Creek transition zone until the top of the Desert Creek 1-A porosity bench was encountered at a measured depth of 5647', true vertical depth of 5500', at a horizontal displacement of approximately 200'. When the top of the 1-A porosity bench was encountered the bit dropped to 84 degrees, bounced off the hard streak that defines the upper and lower payzones and climbed to 94 degrees before bouncing off the top at a measured depth of 5815', true vertical depth 5501'. The bit was brought back to horizontal in the 1-A porosity bench at measured depth of 5832', true vertical depth 5501' where drilling continued at less than a minute per foot for approximately 368'. This facies for the upper payzone, which is defined by the hard streak in the middle of the 1-A porosity bench, from a measured depth of 5647', true vertical depth 5500' to a measured depth of 6200', true vertical depth 5501' through 5504', was predominately a grainstone thinly interbedded with packstones. The grainstone facies was tan, light brown and cream, microcrystalline to very fine crystalline, with a granular to slightly microsucrosic texture and was very slightly dolomitic. This grainstone facies had a fair oomoldic to oolitic with some interoolitic to moderately good intercrystalline fabric porosity development. A fair brown, light brown, brown oil stain to traces of black bichimum stain\* filling casts, a fair bright to occasionally bright yellow-gold fluorescence and fair to good streaming fast to slow diffused cut. The thinly interbedded slightly oolitic packstones were cream to tan in color, cryptocrystalline to microcrystalline, with a slightly chalky texture, dense, clean and very slightly anhydritic. This packstone facies had a moderately fair intercrystalline fabric porosity development, poor light brown oil shows, a weak slow streaming cut and a spotty moderately bright yellow gold florescence. This interval contained trace amounts of anhydrite, rare to trace calcite fracture fill, rare light brown chert fragments, trace to common off-white chalky matter, rare fossil fragments and oolites and pellets.

The top of the 1-A porosity bench was penetrated at a measured depth of 6200', true vertical depth 5501'. The bit had slowly been building in the grainstone facies as described above and as the lateral moved towards the 16-14 wellbore it was thought that the bit would glance off the top and continue to track porosity between the true vertical depths of 5501' through 5504'. The 1-A porosity bench apparently pinched-out drastically and hit some sort of structure, possibly a normal fault, and bounced the bit into the bottom of the transition zone of the Desert Creek. The transition zone was drilled from the measured depths of 6200' to 6515', true vertical depths 5501' through 5507'. The carbonates drilled in this interval were predominately limestones with very poor porosity development. The facies was a packstone, light gray, gray, light gray brown, brown, dark brown, light brown, tan, cryptocrystalline to microcrystalline, dense to tight, occasionally slightly oolitic, occasionally very slightly silty, slightly argillaceous, earthy, slightly platy and occasionally chalky. Porosity was predominately poor intercrystalline to compact crystalline with scattered earthy fabric porosity. Staining was a poor light brown to patchy black dead oil stain, a very spotty dull to occasionally

Ratherford Unit and will enhance the overall performance of the zone after treatment and returning the well to the water flood plan.

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

### MOBIL, Ratherford #17-43 Southeast Lateral Leg 2



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

SUBMIT IN DUPLICATE

(See other instructions on reverse side)

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

**WELL COMPLETION OR RECOMPLETION REPORT AND LOG\***

1a. TYPE OF WELL: OIL WELL <input type="checkbox"/> GAS WELL <input type="checkbox"/> DRY <input type="checkbox"/> Other <input checked="" type="checkbox"/> INJECTOR		3. ADDRESS AND TELEPHONE NO. P.O. Box 633, Midland TX 79702 (915) 688-2585		5. LEASE DESIGNATION AND SERIAL NO. 14-20-603-353	
b. TYPE OF COMPLETION: NEW WELL <input type="checkbox"/> WORK OVER <input type="checkbox"/> DEEP-EN <input type="checkbox"/> FLUG BACK <input type="checkbox"/> DIFF. RESVR. <input type="checkbox"/> Other <input checked="" type="checkbox"/> SIDETRACK		2. NAME OF OPERATOR MOBIL PRODUCING TX & NM INC.* *MOBIL EXPLORATION & PRODUCING US INC. AS AGENT FOR MPTM		6. IF INDIAN, ALLOTTEE OR TRIBE NAME NAVAJO TRIBAL	
7. ADDRESS AND TELEPHONE NO. P.O. Box 633, Midland TX 79702 (915) 688-2585		8. FARM OR LEASE NAME, WELL NO. RATHERFORD 17-W-43		7. UNIT AGREEMENT NAME RATHERFORD UNIT	
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)* At surface 1980' FSL & 660' FEL (NE/SE) At top prod. interval reported below		9. API WELL NO. 43-037-16417		10. FIELD AND POOL, OR WILDCAT GREATER ANETH	
At total depth *#37		14. PERMIT NO. NA		DATE ISSUED 1959	
15. DATE SPUDDED 5-28-98		16. DATE T.D. REACHED 7-01-98		17. DATE COMPL. (Ready to prod.) 7-24-98	
18. ELEVATIONS (DF, RKB, RT, GR, ETC.)* GR 4692' KB 4703'		19. ELEV. CASINGHEAD		11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA SEC. 17, T41S, R24E	
20. TOTAL DEPTH, MD & TVD **#37		21. PLUG, BACK T.D., MD & TVD **#37		22. IF MULTIPLE COMPL., HOW MANY*	
23. INTERVALS DRILLED BY →		ROTARY TOOLS X		CABLE TOOLS	
24. PRODUCING INTERVAL(S), OF THIS COMPLETION - TOP, BOTTOM, NAME (MD AND TVD)* **#37 DSCR				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	160'	17 1/2"	175 SXS CMT	
8 5/8"	24	1600'	11"	330 SXS CMT	
5 1/2"	34	5700'	7 7/8"	250 SXS CMT	
	ORIGINAL	CASING	UNDISTURBED		

29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)	SIZE	DEPTH SET (MD)	PACKER SET (MD)
					2 7/8"	5233'	5233'

31. PERFORATION RECORD (Interval, size and number)

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
5308-6924'	LAT 2A1 ACIDIZE W/391 GAL 15% HCL
5564-7097'	LAT 1A1 ACIDIZE W/18648 GALS
	15% HCL ACID

**RECEIVED**  
SEP 07 1998  
DIV OF OIL, GAS & MINING

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

33.* PRODUCTION	
DATE FIRST PRODUCTION 7-24-98	PRODUCTION METHOD (Flowing, gas lift, pumping - size and type of pump) INJECTOR
DATE OF TEST 08-01-98	WELL STATUS (Producing or shut-in) INJECTOR
HOURS TESTED	WATER - BBL. 205
CHOKE SIZE	GAS - OIL RATIO
PROD'N. FOR TEST PERIOD	
OIL - BBL.	
GAS - MCF.	
FLOW. TUBING PRESS. 3000 PSI	OIL GRAVITY - API (CORR.)
CASING PRESSURE	
CALCULATED 24-HOUR RATE	
OIL - BBL.	
GAS - MCF.	
WATER - BBL.	

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

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 09-03-98

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

## **DRILLED FOOTAGE CALCULATION FOR DIRECTIONAL AND HORIZONTAL WELLS**

Unit, Well Name:                   Ratherford Unit, Well 17-W-43  
API Well #:                         43-037-16417  
Well Completion:                 Horizontal, Injector, 2 Laterals

First leg description:                 **Lateral #1A1**  
                          KOP MD:                         5322.00  
                          EOL MD:                         7097.00  
                          Footage drilled:                 1775.00  
Max. TVD Recorded                   5501.43

Second leg description:               **Lateral #2A1**  
                          KOP MD:                         5300.00  
                          EOL MD:                         6924.00  
                          Footage drilled:                 1624.00  
Max. TVD Recorded                   5519.29

<b>Total Footage Drilled (MD):</b>	<b>3399.00</b>
<b>Deepest point (TVD):</b>	<b>5519.29</b>

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

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

SUNDRY NOTICES AND REPORTS ON WELLS

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

5. Lease Designation and Serial No.

14-20-603-353

6. If Indian, Allottee or Tribe Name

NAVAJO TRIBAL

7. If Unit or CA, Agreement Designation

RATHERFORD UNIT

8. Well Name and No.

RATHERFORD 17-W-43

9. API Well No.

43-037-16417

10. Field and Pool, or exploratory Area

GREATER ANETH

11. County or Parish, State

SAN JUAN UT

SUBMIT IN TRIPLICATE

1. Type of Well

Oil Well  Gas Well  Other

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

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

3. Address and Telephone No.

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

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

SEC. 17, T41S, R24E  
(NE/SE) 1980' FSL & 660' FEL

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

TYPE OF SUBMISSION

Notice of Intent  
 Subsequent Report  
 Final Abandonment Notice

TYPE OF ACTION

Abandonment  
 Recompletion  
 Plugging Back  
 Casing Repair  
 Altering Casing  
 Other INJECTOR  
 Change of Plans  
 New Construction  
 Non-Routine Fracturing  
 Water Shut-Off  
 Conversion to Injection  
 Dispose Water

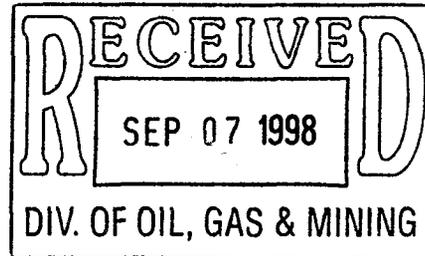
(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

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

BHL:

LAT #1A1 1132' FNL & 1271' FWL F/SURF SPOT  
LAT #2A1 1011' FSL & 1079' FEL F/SURF SPOT

SEE ATTACHMENT 5-28-98 TO 7-24-98



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

Signed *Shirley Houchins* for Title SHIRLEY HOUCHINS/ENV & REG TECH Date 9-03-98

(This space for Federal or State office use)

Approved by \_\_\_\_\_ Title \_\_\_\_\_ Date \_\_\_\_\_  
Conditions of approval, if any:

ATTACHMENT - FORM 3160-5  
RATHERFORD UNIT #17-W-43  
14-20-603-353  
NAVAJO TRIBAL  
SAN JUAN, UTAH

- 05-28-98 NAVAJO WEST 15 ROAD UNIT TO LOC. REMOVAL OF CMT SLAB & CMT SLAB & CMT CELLAR. RU UNIT, RU SAFETY EQUIPT, RU FLOWLINE TO TANK. SD.
- 05-29-98 FLOW WELL TO TANK TO UNLOAD, F/B 360 BBLS, PUMP 30BBLS 10# TO LOAD TBG. PSI 600-125, PUMP 20BBLS 13# TO KILL WELL, NDWH, NUBOP. UNSET GUIB G-6 PKR TOH LD. P/U & TIH W/ 59 JTS. CALLED BLM & NAVAJO EPA.  
5/28/98 P.M. TALKED TO CHARMANE W NAVAJO EPA 5/28/98 A.M.
- 05-30-98 SICP 600#. BLEED INITIAL PRESSURE OFF AND PUMP 10BBLS. 13# MD TBG. PU 4 3/4" BIT AND CSG. TIH W/ 59 JNTS. CONTINUE IN HOLE PU AND STRAPPING TBG. SET DN @ 5530'. UNABLE TO GO DEEPER. SWFN.
- 06-01-98 SI PRESSURE @ 7:30 WAS 1400 PSI. WELLHEAD PRESSURE @ 100 PSI. MIRU HALLIBURTON WL UNIT. RIH W/ 5.5" CMT. RETAINER TO 5346'. SET CMT. RETAINER. POH. RDMO HALLIBURTON WIRELINE UNIT. PU GUIBERSON. RIH ON 2.875" TBG. TO 5330'. SIFN.
- 06-02-98 SI TBG. PRESSURE @ 7:30 WAS 1350 PSI. RU DOWELL CMT. TEST LINES TO 3500 PSI. DOWELL SQZ CMT. CSG. PERFS FROM 5499' TO 5590' W/ 54 SXS CLASS 'B' NEAT CMT. 1% FLUID LOSS, .25% DISPERSANT, AND 1% CACL2. FOLLOWED BY 50 SXS CLASS 'B' CMT. 89 SXS CMT. INTO FORMATION. STING OUT OF CMT. RET. REVC. OUT 15 SXS CMT. TO PIT. ND BOPE. CAP WELL. RD RIG FLOOR. SIFN.
- 06-03-98 SI PRESSURE @ 7:30 WAS 0 PSI. ND WELLHEAD CAP. ND TBG. PULL 5.5" X 8.625" CSG. CUT OFF 13.375" COND. CSG. CUT OFF 8.625" CSG. WELD ON NEW 8.625" X 11" X 3000# CSG HD. NU NEW 7.0625" X 11" X 3000# TBG. TEST TBG. HEAD TO 1000 PSI, 30 MIN. OK. SWI.
- 06-04-98 RDMO NAVAJO WEST RIG #15, FINAL WELL PREP.
- 06-18-98 MI MONTEZUMA RIG #25. NOTIFIED JIM THOMPSON W/ STATE UTAH @ 6:00 AM, 18 JUN 98, ABOUT STARTING DRILLING OPERATIONS
- 06-19-98 NU BOP & CHOKE LINES, SINGLE JACK RAN MMS PRESS TEST, 2000# HIGH & 250#. SCHLUMBERGER RAN 5 1/2" TIW WHIPSTOCK PKR. SET DN @ 5342', SET TOP PKR @ 5338'. RIH W/ TIW ANCHOR LATCH ASSEMBLY. 2.875" AOHP RIH W/ GYRO, PKR KEYWAY @ 97 DEG GTF, POH & RAN DIRECTIONAL SURVEY FROM 5329-100' POH W/ ANCHOR LATCH ORIENT WHIPSTOCK. FINAL REPORT FOR REENTRY.
- 06-20-98 RIH W/ 4 3/4" RR MF3P BIT, 3 5/8" 3 1/2" DEG FBH MUD MOTOR. 2.875" PH6 TBG. 20-4 1/4" DC'S & 2.875" AOHP TO 5330, RU GRYO DATA, RIH W/ GYRO. TIME DRILLED CURVE 1A1 USING GYRO FROM 5330-5336'.
- 06-20-98 RIH W/ TIW ANCHOR LATCH ASSEMBLY. 5 1/2" WEATHERFORD 3 DEG WHIPSTOCK. STARTING MILL & 2.875" AOHP. TIW PKR @ 5338' W/ GTF @ 97 DEG, SET TOP OF WHIPSTOCK @ 5322' W/ FACE OF WHIPSTOCK @ 310 MILLED WINDOW FROM 5322-5324'. POH W/ STARTING MILL. RIH W/ 4 3/4" WINDOW & WATERMELLON MILL ON SAME BHA MILL WINDOW FROM 5322-5329' & FORMATION TO 5330'. PUMP SWEEP & CIRC HOLE CLEAN. POH & LD MILLS. FINAL REPORT FOR LATERAL 1.

ATTACHMENT - FORM 3160-5  
RATHERFORD UNIT #17-W-43

14-20-603-353

NAVAJO TRIBAL

SAN JUAN, UTAH

PAGE 2

- 06-21-98 SLIDE DRILLED CURVE 1A1 FROM 5330-5414', LANDED CURVE @ 91.5 ANGLE, 306 DIRECTION, 5501' TVD, 219' VS PUMPED POLYMER SWEEP & CIRC HOLE CLEAN LD 56 JTS 2.875" AOHDP, POH W/ MUD MOTOR.
- 06-22-98 FIN POH & LD CURVE ASSEMBLY, RIH W/ 4 3/4" MF3P BIT, MUD MOTOR, 68 JTS 2.875" PH6 TBG, 20-DC'S 2.875" AOHDP. SLIDE & ROTATE DRILLED LATERAL 1A1 FROM 5614-6150'.
- 06-23-98 SLIDE / ROTATE DRILL AND SURVEYS FROM 6150-6640'. LAST SURVEY @ 6595' MD, 91.10 ANGLE, 312.60 AZ., 5494.48 TVD, 1199.31 VERTICAL SECTION.
- 06-24-98 SLIDE / ROTATE DRILL AND SURVEYS FROM 6640' TO TD OF 7097'. (PROJECTED SURVEY AT TD OF 7097' MD, 90.30 ANGLE, 307.00 AZ., 5487.03 TVD, 1700.69 VERTICAL SECTION.) LD 2 JNTS, DISPLACE HOLE W/10# BRINE TO KILL. POOH AND LD SPERRY SUN TOOLS AND BIT. PU RETRIEVING TOOL. TIH TO RETRIEVE WHIPSTOCK.
- 06-25-98 RIH W/ 4 3/4". MOTOR, NMFS, NMPONY COLLAR, FT, NMSUB, NMXO, ORIENTING SUB, NMDC, 68 JNTS. PHG TBG. AND AOHDP TOP OF WINDOW @ 5300'. PUMP THROUGH DP TO CLEAN ID. RU GYRO DATA.
- 06-25-98 TIH W/ ANCHOR LATCH ASSY. WHIPSTOCK, STARTER MILL AND LATCH INTO TIW PKR. @ 5338'. PU SWIVEL. MILL CSG. FROM 5300-5302'. PUMP BRINE DN TBG. POOH W/ STARTER MILL. PU CSG. AND WATERMELLON MILL. CUT WINDOW IN 5.5" CSG. FROM 5300-5307' PLUS 1' FORMATION TO 5308'. (TOP OF WINDOW 5300', BTM. 5307'.) PUMP SWEEP. POOH LAYING DOWN. DP POOH LD TOOLS. FINAL REPORT LAT 1.
- 06-25-98 FINISH IN HOLE W/ RETRIEVING TOOL. LATCH INTO WHIPSTOCK. POOH & LD SAME. FINAL REPORT.
- 06-26-98 RIH TO BTM W/GYRO. TIME DRILL AND DRILL FROM 5308-5400'
- 06-27-98 DRILL FROM 5400' TO TD OF 5604' (CURVE SECTION) LAT 2A1. (PROJECTED SURVEY @ BIT 5604' MD, 88.80 ANGLE, 128.80 AZ., 5498.98 TVD, 158.84 VS) PUMP SWEEP AND CIRC. PH6 TBG. CONTINUE IN HOLE W/ ASSY TO TOP OF WINDOW @ 5300'.
- 06-28-98 CONTINUE IN HOLE TO 6504'. RU SWIVEL. SLIDE/ROTATE DRILL & SURVEYS FROM 5604-6300'.
- 06-29-98 SLIDE/DRILL & SURVEYS FROM 6300-6700'. (LAST SURVEY @ 6660' MD, 87.40 ANGLE, 134.70 AZ., 5510.70 TVD, 1213.71 VERTICAL SECTION.)
- 06-30-98 SLIDE/ROTATE DRILL & SURVEYS FROM 6700' TO TD OF 6924'. PROJECTED SURVEY @ TD MD OF 6924' 90.70, ANGLE, 133.80 AZ., TVD 5519.29, 1477.40. CIRC. SWEEP. HANG SWIVEL BACK. DISPLACE HOLE W/ 10# BRINE. POOH W/ ASSY. & LD SPERRY SUN'S TOOLS. RIH, PH6 TBG., GUIBERSON PKR. SET PKR. @ 5220'. (TOP OF WHIPSTOCK @ 5300'). @ 5643.43' PRESSURE TEST CSG. & PKR. TO 600# RELEASE ON/OFF TOOL. DISPLACE HOLE W/ 10# BRINE. POOH LD DRILLSTRING.
- 07-01-98 ND. BOP STACK AND SECURE WELLHD. FLARE LINES, SUPPORT EQUIPMENT, JET AND CLEAN PITS, ETC. RDMO. FINAL REPORT PENDING COMPLETION.

ATTACHMENT - FORM 3160-5  
RATHERFORD UNIT #17-W-43  
14-20-603-353  
NAVAJO TRIBAL  
SAN JUAN, UTAH  
PAGE 3

COMPLETION:

- 07-13-98 MIRU NAVAJO WEST #36 DDPU & REV EQUIP. SICP 0# NIP DN WELLHEAD INSTALLED BOP/HYDRIL RIG FLOOR TO PU TBG. PU RIH W/ 5.5" GUIB. ON/OFF RET. TOOL ON 2.875" PH-6. TBG. RU TEFTELLER SLICKLINE RIH. TBG PSI TO 800# FISHED 1.87 PLUG. TEST PKR 5.5" CSG TO 500# OK, PREPARE TO ACIDIZE W/ COIL TBG SWISDFN.
- 07-14-98 RU DOWELL COIL TBG/ACID EQUIP, RIH W/ COIL TBG STARTED TREATING 90 BBLs INTO JOB BACK SIDE CAME UP FROM 600 TO 1820-2400# TOP, FLUID FLOWED BACK RDN EQUIP, SET PLUG IN PROFILE, ATTEMP TO FILE PROBLEM TEST TBG/CSG SWISDFN.
- 07-15-98 SITP 75# CSG 0#, BLED OFF TBG ACID GAS. RU SLICK LINE FISHED PLUG, PLUG LOOKED OK. RU DOWELL COIL TBG/ACID EQUIPT, ACIDIZED 2A1 LATERAL W/ 391 GALS 15% HCL ACID. RD DOWELL EQUIPT FLOWED WELL BACK STP 1150# ON 26/64 CHOKE FLOWED 185 BBLs ACID WTR LEFT WELL FLOWING TO TEST TANK WHITEHORSE CONT.
- 07-16-98 7HR SITP 400# OPEN WELL FLOWED. PUMP 30 BBLs DN TBG KILL WELL ON VAC, 10 BBLs BRINE REL PKR. POOH W/ 2.875" PH-6 TBG LAY DN PKR/14 JTS TAIL PIPE PU WEATHERFORD WS RET. 2.875" TBG RIH W/ PH-6. POOH W/ WS TBG & TOP PART OF WHIPSTOCK FISHING FOR SHEAR SUB 22' EXT. W/ STAB./ DEBRI SUB/ ANCHOR/ LATCH RIH W/ 80-JTS 2.875" TBG FOR KILL STRING, RU CHOKE/ FLOW LINE.
- 07-17-98 SITP 50# CSG 100# BLED DN TO 1/4" STREAM, CIRC BRINE PSI TBG CSG CAME UP TO 200#, PUMP 60 BBLs 11.6# KILL FLUID, PSI. RIH W/ TBG W/ GOOD 1.5" STREAM OUT CSG TO 5220. CIRC WELL BORE W/ 11.6# KILL FLUID. POOH W/ KILL STRING. TBG TO TOP FISH @ 5310'. TIE BACK CHANGED ELEVATOR LATCHED ON TO FISH @ 5310', JARED @ 60M OVER PULLED 90M OVER & WORKED FREE.
- 07-18-98 SITP 50# CSG 50# BLED OFF FLUID / GAS STOP FLOWING. PU MAKE UP ORIENT RE-ENTRY GUIDE 97 DEG. RIH W/ 2.875" PH-6 TBG TO TIW PKR @ 5338'. ATTEMPT TO LATCH INTO TIW PKR NO SUCCESS. KILL FLUID 120BBLs. RE ATTEMP. NO SUCCESS. POOH W/ RE-ENTRY GUIDE LD. PU RIH W/ TIW CO TOOL ON 181-JTS 2.875" PH-6 TBG TO 5218'.
- 07/20/98 SI TBG & CSG. PRESSURE @ 7:30 WAS 20 PSI. RU AND KILL WELL W/ 100 BBLs. OF 11.6 PPG. KILL FLUID. WD. RIH W/ RETV. WHIPSTOCK TO 5322', SET WHIPSTOCK. RIH W/ 2.875" PH-6 TAIL PIPE. RUN ON 2.875" PH-6 TBG. TO 5554.62' END OF PH-6 TAIL PIPE, PKR DEPTH OF 5173.40'. SET PKR AND TEST TO 500 PSI. OK. SIFN.
- 07/21/98 SI TBG. PRESSURE @ 4:00 WAS 198 PSI. MIRU DOWELL ACID UNIT. RIH W/ 1.75" COILED TBG. TO 7097'. CIRC. DOWELL ACIDIZE LAT 1A1 FROM 7097' TO 6380' AND FROM 6192' TO 5564' WITH 18,648 GAL. OF 15% HCL ACID DOWN 1.75" COILED TBG. 1.75" X 2.875" ANN. ISIP OF 2663' PSI, 5 MIN. OF 2600 PSI, 10 MIN. OF 2502 PSI, 15 MIN. OF 2438' PSI. LOAD TO RECV. WELL SI POH W/ 1.75" COILED TBG. RDMO DOWELL COILED TBG. SIFN.

ATTACHMENT - FORM 3160-5

RATHERFORD UNIT #17-W-43

14-20-603-353

NAVAJO TRIBAL

SAN JUAN, UTAH

PAGE 4

- 07/22/98 SI TBG. PRESSURE @ 6:30 WAS 1000 PSI, OPEN TO TEST TANK ON .75" CHOKE. RU AND KILL WELL W/ 120 BBLs OF 11.6 PPG KILL FLUID. WELL DEAD. RELEASE PKR. POH. LD PKR. MAKE UP RETV. TOOLS FOR RETV. WHIPSTOCK. RIH TO 5330' TOP OF WHIPSTOCK. MAKE UP PRODUCTION PKR. (GUBERSON V1 PKR W/ PUMP OUT PLUG RUN IN PLACE) RUN ON 2.875" PH-6 TBG. TO 5233'. SET PKR. SIFN.
- 07/23/98 SI CSG. PRESSURE @ 7:30 WAS 1000 PSI. SI TBG. PRESSURE @ 7:30 WAS 0 PSI. RU AND TEST PKR TO 400 PSI. OK. RELEASE FROM ON/OFF TOOL. POH AND LD WORKSTRING. RU TO RUN CMT. LINED TBG. PU GUBERSON ON/OFF TOOL, TALLY AND RIH W/ 170 JTS OF CMT. LANDING JT TO 5233'. SET TBG. SIFN.
- 07/24/98 SI PRESSURE @ 7:30 ND BOPE. MAKE UP PRODUCTION TREE. LATCH ONTO PKR. W/ ON/OFF TOOL. NU PRODUCTION TREE. RU AND TEST PKR. AND CSG. TO 1000 PSI. 30 MIN. OK. RU AND PUMP OUT PKR. PLUG. OK. RDMO NAVAJO WEST RIG #36.

**Mobil**

**San Juan County  
Utah  
Ratherford Unit  
RU 17-43 - MWD Survey Leg #1**

**SURVEY REPORT**

**29 July, 1998**

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

**Survey Ref: svy2998**

# Sperry-Sun Drilling Services

Survey Report for RU 17-43



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)
<b>Gyro</b>							
0.00	0.000	0.000	0.00	0.00 N	0.00 E	0.00	
100.00	0.370	127.270	100.00	0.20 S	0.26 E	-0.32	0.370
300.00	0.340	150.660	300.00	1.10 S	1.06 E	-1.52	0.073
500.00	0.320	172.810	499.99	2.18 S	1.42 E	-2.49	0.064
700.00	0.210	141.030	699.99	3.01 S	1.72 E	-3.26	0.090
900.00	0.330	348.290	899.99	2.74 S	1.84 E	-3.16	0.263
1100.00	0.510	337.790	1099.98	1.35 S	1.38 E	-1.93	0.098
1300.00	1.020	337.070	1299.97	1.12 N	0.35 E	0.45	0.255
1500.00	1.570	337.040	1499.91	5.28 N	1.41 W	4.47	0.275
1700.00	1.520	336.340	1699.84	10.23 N	3.54 W	9.29	0.027
1900.00	1.340	339.310	1899.78	14.85 N	5.43 W	13.71	0.097
2100.00	1.100	335.000	2099.73	18.78 N	7.07 W	17.49	0.128
2300.00	0.560	340.660	2299.71	21.44 N	8.21 W	20.07	0.273
2500.00	0.700	26.160	2499.70	23.46 N	7.99 W	21.20	0.252
2700.00	1.360	34.480	2699.67	26.51 N	6.11 W	21.72	0.338
2900.00	1.420	33.860	2899.61	30.52 N	3.38 W	22.21	0.031
3100.00	1.210	29.010	3099.56	34.43 N	0.98 W	22.88	0.119
3300.00	1.020	27.120	3299.52	37.86 N	0.86 E	23.68	0.097
3500.00	0.740	21.640	3499.49	40.64 N	2.14 E	24.48	0.146
3700.00	0.580	29.180	3699.48	42.73 N	3.11 E	25.08	0.091
3900.00	0.370	335.250	3899.47	44.20 N	3.34 E	25.85	0.235
4100.00	0.110	256.910	4099.47	44.74 N	2.88 E	26.55	0.182
4300.00	0.100	294.330	4299.47	44.77 N	2.53 E	26.84	0.034
4500.00	0.080	260.340	4499.47	44.82 N	2.24 E	27.10	0.028
4700.00	0.140	130.950	4699.47	44.64 N	2.28 E	26.94	0.100
4900.00	0.180	188.090	4899.47	44.16 N	2.42 E	26.53	0.079
5100.00	0.350	160.510	5099.47	43.28 N	2.58 E	25.84	0.104
5300.00	0.280	163.490	5299.47	42.23 N	2.93 E	24.91	0.036
<b>MWD Survey Leg #1</b>							
5322.00	0.370	218.020	5321.47	42.13 N	2.90 E	24.86	1.401
5330.00	3.900	310.000	5329.46	42.28 N	2.67 E	25.13	49.127
5345.00	10.500	313.040	5344.33	43.54 N	1.28 E	27.01	44.058
5360.00	16.700	313.920	5358.91	45.97 N	1.27 W	30.52	41.355
5375.00	21.200	314.350	5373.09	49.37 N	4.77 W	35.38	30.014
5390.00	25.900	314.600	5386.84	53.56 N	9.04 W	41.36	31.340
5405.00	29.600	314.770	5400.11	58.47 N	14.00 W	48.31	24.672
5420.00	32.800	314.900	5412.94	63.95 N	19.51 W	56.06	21.338
5435.00	35.600	303.400	5425.36	69.23 N	26.04 W	64.45	46.887
5450.00	40.500	302.900	5437.16	74.28 N	33.78 W	73.63	32.731

Continued...

# Sperry-Sun Drilling Services

Survey Report for RU 17-43



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)
5465.00	46.600	305.600	5448.03	80.11 N	42.31 W	83.91	42.508
5480.00	52.400	306.900	5457.77	86.85 N	51.50 W	95.28	39.223
5495.00	57.500	310.300	5466.38	94.52 N	61.09 W	107.55	38.726
5510.00	62.700	314.700	5473.86	103.31 N	70.66 W	120.53	42.982
5525.00	66.400	313.000	5480.30	112.69 N	80.43 W	134.04	26.704
5540.00	67.600	312.800	5486.17	122.08 N	90.54 W	147.83	8.094
5555.00	69.700	307.600	5491.63	131.09 N	101.21 W	161.80	35.188
5570.00	74.200	304.300	5496.28	139.46 N	112.75 W	176.02	36.568
5585.00	81.300	304.900	5499.46	147.78 N	124.81 W	190.60	47.494
5614.00	90.900	305.100	5501.43	164.35 N	148.48 W	219.39	33.111
5646.00	91.600	310.200	5500.73	183.89 N	173.81 W	251.34	16.083
5678.00	94.700	314.000	5498.97	205.30 N	197.51 W	283.27	15.310
5710.00	90.600	311.000	5497.49	226.89 N	221.07 W	315.19	15.869
5741.00	90.600	310.300	5497.17	247.08 N	244.59 W	346.19	2.258
5772.00	91.300	310.900	5496.65	267.26 N	268.12 W	377.18	2.974
5804.00	91.100	310.200	5495.98	288.05 N	292.43 W	409.17	2.275
5836.00	88.500	309.300	5496.09	308.51 N	317.03 W	441.17	8.598
5867.00	86.000	308.200	5497.58	327.89 N	341.18 W	472.12	8.809
5899.00	90.200	309.100	5498.64	347.86 N	366.15 W	504.09	13.423
5931.00	91.900	310.000	5498.06	368.24 N	390.82 W	536.08	6.011
5962.00	89.700	310.200	5497.62	388.20 N	414.52 W	567.07	7.126
5993.00	89.400	309.600	5497.87	408.08 N	438.31 W	598.07	2.164
6025.00	89.000	308.700	5498.31	428.29 N	463.12 W	630.07	3.078
6056.00	88.600	308.600	5498.96	447.64 N	487.32 W	661.05	1.330
6088.00	89.600	311.400	5499.47	468.21 N	511.83 W	693.04	9.290
6119.00	91.900	311.700	5499.06	488.77 N	535.03 W	724.03	7.482
6151.00	91.200	311.600	5498.19	510.02 N	558.93 W	756.00	2.210
6183.00	90.800	312.100	5497.64	531.37 N	582.76 W	787.98	2.001
6215.00	88.400	312.400	5497.86	552.88 N	606.45 W	819.95	7.558
6246.00	88.200	312.300	5498.78	573.76 N	629.35 W	850.91	0.721
6278.00	90.900	312.400	5499.03	595.31 N	652.99 W	882.88	8.443
6309.00	90.400	312.400	5498.68	616.21 N	675.88 W	913.85	1.613
6341.00	90.500	312.100	5498.43	637.73 N	699.57 W	945.83	0.988
6372.00	92.400	312.800	5497.64	658.65 N	722.44 W	976.79	6.531
6404.00	93.900	312.300	5495.88	680.25 N	745.97 W	1008.71	4.940
6436.00	86.200	311.900	5495.86	701.69 N	769.70 W	1040.66	24.095
6468.00	88.300	313.100	5497.39	723.28 N	793.26 W	1072.59	7.556
6499.00	90.500	313.000	5497.72	744.44 N	815.91 W	1103.54	7.104
6531.00	91.500	313.100	5497.16	766.28 N	839.29 W	1135.49	3.141
6563.00	93.500	314.200	5495.76	788.35 N	862.43 W	1167.40	7.131
6595.00	91.100	312.600	5494.48	810.31 N	885.65 W	1199.31	9.011
6627.00	88.900	311.400	5494.48	831.72 N	909.43 W	1231.29	7.831
6657.00	89.100	311.400	5495.00	851.56 N	931.93 W	1261.27	0.667
6689.00	90.400	311.700	5495.14	872.78 N	955.88 W	1293.26	4.169
6721.00	93.000	312.300	5494.19	894.18 N	979.65 W	1325.23	8.338

Continued...

# Sperry-Sun Drilling Services

Survey Report for RU 17-43



Mobil  
San Juan County

Utah  
Rutherford Unit

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
6752.00	91.500	312.100	5492.97	914.99 N	1002.60 W	1356.18	4.881
6784.00	93.700	312.300	5491.52	936.46 N	1026.28 W	1388.12	6.903
6816.00	95.100	311.400	5489.07	957.75 N	1050.04 W	1420.01	5.197
6847.00	93.500	310.500	5486.74	978.01 N	1073.39 W	1450.91	5.918
6879.00	89.400	308.900	5485.93	998.44 N	1097.99 W	1482.90	13.753
6911.00	88.500	308.400	5486.52	1018.42 N	1122.98 W	1514.88	3.217
6943.00	89.500	308.000	5487.08	1038.21 N	1148.12 W	1546.86	3.366
6974.00	89.600	307.500	5487.32	1057.18 N	1172.63 W	1577.84	1.645
7006.00	90.400	307.700	5487.32	1076.71 N	1197.99 W	1609.81	2.577
7038.00	89.900	307.000	5487.24	1096.12 N	1223.43 W	1641.77	2.688
7066.00	90.300	307.000	5487.19	1112.97 N	1245.79 W	1669.73	1.429
7097.00	90.300	307.000	5487.03	1131.63 N	1270.55 W	1700.69	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 310.000° (True).

Based upon Minimum Curvature type calculations, at a Measured Depth of 7097.00ft.,  
The Bottom Hole Displacement is 1701.43ft., in the Direction of 311.690° (True).

**Mobil**

**San Juan County  
Utah  
Ratherford Unit  
RU 17-43 - MWD Survey Leg #2**

**SURVEY REPORT**

**29 July, 1998**

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

**Survey Ref: svy3000**

# Sperry-Sun Drilling Services

Survey Report for RU 17-43



**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)
<b>Gyro</b>							
0.00	0.000	0.000	0.00	0.00 N	0.00 E	0.00	
100.00	0.370	127.270	100.00	0.20 S	0.26 E	0.32	0.370
300.00	0.340	150.660	300.00	1.10 S	1.06 E	1.53	0.073
500.00	0.320	172.810	499.99	2.18 S	1.42 E	2.54	0.064
700.00	0.210	141.030	699.99	3.01 S	1.72 E	3.35	0.090
900.00	0.330	348.290	899.99	2.74 S	1.84 E	3.23	0.263
1100.00	0.510	337.790	1099.98	1.35 S	1.38 E	1.93	0.098
1300.00	1.020	337.070	1299.97	1.12 N	0.35 E	-0.54	0.255
1500.00	1.570	337.040	1499.91	5.28 N	1.41 W	-4.73	0.275
1700.00	1.520	336.340	1699.84	10.23 N	3.54 W	-9.74	0.027
1900.00	1.340	339.310	1899.78	14.85 N	5.43 W	-14.34	0.097
2100.00	1.100	335.000	2099.73	18.78 N	7.07 W	-18.28	0.128
2300.00	0.560	340.660	2299.71	21.44 N	8.21 W	-20.96	0.273
2500.00	0.700	26.160	2499.70	23.46 N	7.99 W	-22.24	0.252
2700.00	1.360	34.480	2699.67	26.51 N	6.11 W	-23.06	0.338
2900.00	1.420	33.860	2899.61	30.52 N	3.38 W	-23.98	0.031
3100.00	1.210	29.010	3099.56	34.43 N	0.98 W	-25.04	0.119
3300.00	1.020	27.120	3299.52	37.86 N	0.86 E	-26.17	0.097
3500.00	0.740	21.640	3499.49	40.64 N	2.14 E	-27.22	0.146
3700.00	0.580	29.180	3699.48	42.73 N	3.11 E	-28.01	0.091
3900.00	0.370	335.250	3899.47	44.20 N	3.34 E	-28.89	0.235
4100.00	0.110	256.910	4099.47	44.74 N	2.88 E	-29.60	0.182
4300.00	0.100	294.330	4299.47	44.77 N	2.53 E	-29.87	0.034
4500.00	0.080	260.340	4499.47	44.82 N	2.24 E	-30.11	0.028
4700.00	0.140	130.950	4699.47	44.64 N	2.28 E	-29.95	0.100
4900.00	0.180	188.090	4899.47	44.16 N	2.42 E	-29.52	0.079
5100.00	0.350	160.510	5099.47	43.28 N	2.58 E	-28.78	0.104
<b>MWD Survey Leg #2</b>							
5300.00	0.280	163.490	5299.47	42.23 N	2.93 E	-27.79	0.036
5308.00	3.200	135.000	5307.46	42.06 N	3.09 E	-27.55	36.962
5323.00	6.500	132.380	5322.41	41.19 N	4.01 E	-26.29	22.044
5338.00	9.700	131.620	5337.25	39.78 N	5.59 E	-24.18	21.345
5353.00	12.500	131.260	5351.97	37.87 N	7.75 E	-21.29	18.672
5368.00	16.300	131.040	5366.50	35.41 N	10.56 E	-17.57	25.336
5383.00	21.100	130.900	5380.70	32.26 N	14.19 E	-12.78	32.001
5398.00	26.900	130.800	5394.40	28.27 N	18.80 E	-6.70	38.668
5413.00	32.400	134.500	5407.43	23.23 N	24.24 E	0.71	38.628
5428.00	37.800	139.900	5419.70	16.89 N	30.08 E	9.32	41.497

Continued...

# Sperry-Sun Drilling Services

Survey Report for RU 17-43



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)
5443.00	41.100	137.000	5431.28	9.77 N	36.40 E	18.83	25.193
5458.00	45.300	138.000	5442.22	2.20 N	43.33 E	29.09	28.369
5473.00	48.400	136.200	5452.47	5.81 S	50.79 E	40.02	22.443
5488.00	52.600	137.900	5462.01	14.29 S	58.67 E	51.58	29.332
5503.00	57.500	137.100	5470.60	23.35 S	66.97 E	63.86	32.957
5518.00	62.100	133.200	5478.15	32.52 S	76.12 E	76.82	38.011
5533.00	66.000	129.300	5484.71	41.41 S	86.26 E	90.27	34.959
5548.00	70.900	128.000	5490.22	50.12 S	97.15 E	104.13	33.646
5563.00	76.700	128.300	5494.41	59.01 S	108.47 E	118.43	38.714
5578.00	82.800	128.400	5497.07	68.17 S	120.04 E	133.08	40.672
5604.00	89.800	130.400	5498.75	84.62 S	140.08 E	158.89	27.995
5646.00	84.800	134.600	5500.73	112.95 S	171.00 E	200.78	15.538
5678.00	86.000	137.000	5503.30	135.82 S	193.23 E	232.67	8.364
5710.00	89.900	137.400	5504.44	159.27 S	214.95 E	264.62	12.251
5741.00	93.700	137.700	5503.47	182.13 S	235.86 E	295.57	12.296
5773.00	91.800	137.400	5501.93	205.72 S	257.44 E	327.50	6.011
5804.00	91.900	137.400	5500.93	228.52 S	278.41 E	358.45	0.323
5835.00	87.200	135.400	5501.17	250.96 S	299.78 E	389.43	16.476
5867.00	88.000	134.400	5502.51	273.53 S	322.43 E	421.41	4.000
5899.00	88.300	134.400	5503.55	295.91 S	345.28 E	453.39	0.938
5930.00	89.200	134.000	5504.22	317.52 S	367.49 E	484.38	3.177
5962.00	90.100	133.800	5504.42	339.70 S	390.55 E	516.37	2.881
5993.00	90.100	133.500	5504.37	361.10 S	412.98 E	547.36	0.968
6025.00	91.300	132.400	5503.97	382.90 S	436.40 E	579.34	5.087
6057.00	91.200	132.600	5503.28	404.52 S	459.99 E	611.30	0.699
6088.00	89.900	132.600	5502.98	425.50 S	482.81 E	642.27	4.194
6120.00	90.400	132.600	5502.89	447.16 S	506.36 E	674.24	1.562
6152.00	91.200	132.400	5502.45	468.78 S	529.95 E	706.21	2.577
6184.00	91.800	132.100	5501.61	490.28 S	553.63 E	738.16	2.096
6216.00	92.200	132.400	5500.49	511.79 S	577.30 E	770.10	1.562
6247.00	91.800	133.300	5499.41	532.86 S	600.02 E	801.06	3.175
6279.00	91.100	134.500	5498.60	555.04 S	623.07 E	833.05	4.340
6311.00	89.800	134.400	5498.35	577.45 S	645.91 E	865.04	4.075
6343.00	89.000	134.900	5498.69	599.93 S	668.67 E	897.04	2.948
6374.00	88.800	135.600	5499.28	621.94 S	690.49 E	928.03	2.348
6406.00	86.600	135.600	5500.56	644.79 S	712.86 E	960.00	6.875
6438.00	86.400	136.100	5502.52	667.71 S	735.11 E	991.94	1.680
6470.00	87.100	136.300	5504.33	690.76 S	757.22 E	1023.88	2.275
6501.00	87.200	136.700	5505.87	713.22 S	778.54 E	1054.83	1.328
6533.00	87.300	136.500	5507.41	736.45 S	800.50 E	1086.78	0.698
6565.00	88.400	136.300	5508.61	759.60 S	822.55 E	1118.75	3.494
6597.00	89.700	136.300	5509.14	782.73 S	844.65 E	1150.74	4.062
6629.00	89.300	135.200	5509.42	805.65 S	866.98 E	1182.73	3.658
6660.00	87.400	134.700	5510.31	827.55 S	888.91 E	1213.72	6.338
6691.00	86.200	134.700	5512.04	849.32 S	910.91 E	1244.67	3.871

Continued...

# Sperry-Sun Drilling Services

Survey Report for RU 17-43



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)
6723.00	85.700	134.000	5514.30	871.63 S	933.74 E	1276.59	2.684
6755.00	86.700	134.200	5516.42	893.85 S	956.67 E	1308.51	3.187
6786.00	87.100	133.800	5518.10	915.35 S	978.93 E	1339.46	1.823
6818.00	89.700	133.800	5518.99	937.49 S	1002.02 E	1371.44	8.125
6849.00	88.300	133.700	5519.53	958.92 S	1024.41 E	1402.43	4.528
6881.00	90.700	133.800	5519.81	981.05 S	1047.52 E	1434.42	7.507
6924.00	90.700	133.800	5519.29	1010.81 S	1078.55 E	1477.40	0.000

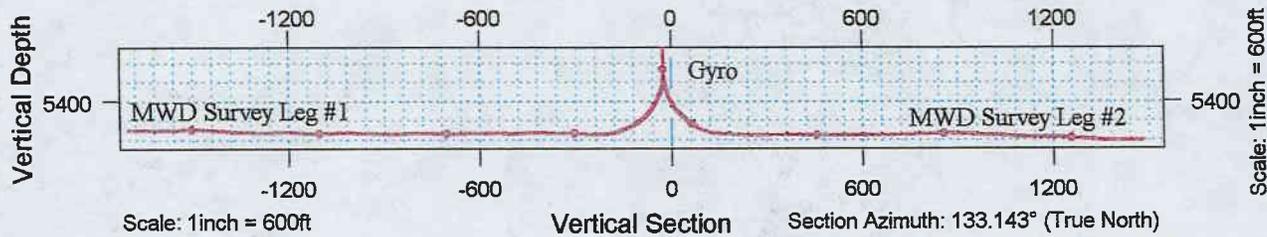
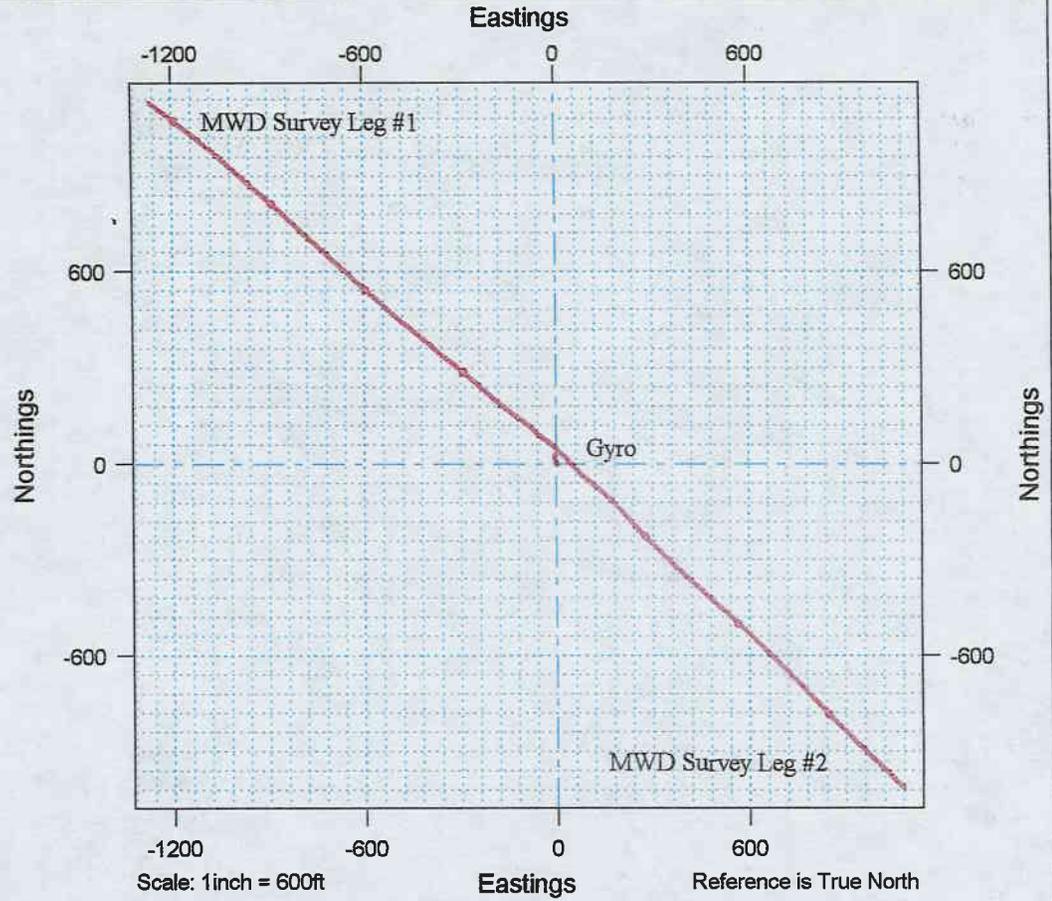
All data is in feet unless otherwise stated. Directions and coordinates are relative to True North.  
Vertical depths are relative to Well. Northings and Eastings are relative to Well.

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 6924.00ft.,  
The Bottom Hole Displacement is 1478.18ft., in the Direction of 133.143° (True).

San Juan County  
Utah  
Ratherford Unit  
RU 17-43 Legs 1 & 2



Prepared:

Checked:

Approved:

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

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

SUNDRY NOTICES AND REPORTS ON WELLS

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

5. Lease Designation and Serial No.

14-20-603-353

6. If Indian, Allottee or Tribe Name

NAVAJO TRIBAL

7. If Unit or CA, Agreement Designation

RATHERFORD UNIT

8. Well Name and No.

RATHERFORD 17-W-43

9. API Well No.

43-037-16417

10. Field and Pool, or exploratory Area

GREATER ANETH

11. County or Parish, State

SAN JUAN UT

SUBMIT IN TRIPLICATE

1. Type of Well

Oil Well  Gas Well  Other

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

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

3. Address and Telephone No.

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

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

SEC. 17, T41S, R24E  
(NE/SE) 1980' FSL & 660' FEL

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

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

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

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

BHL:

LAT #1A1 1132' FNL & 1271' FWL F/SURF SPOT  
LAT #2A1 1011' FSL & 1079' FEL F/SURF SPOT

5-28-98 TO 7-24-98 HORIZONTAL RECOMPLETION.

ATTACHED FORM 15.



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

Signed Shirley Houchins

Title SHIRLEY HOUCHINS/ENV & REG TECH

Date 1-28-99

(This space for Federal or State office use)

Approved by \_\_\_\_\_ Title \_\_\_\_\_ Date \_\_\_\_\_

Conditions of approval, if any:

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

\* See Instruction on Reverse Side

WTC  
3-1-99

**ExxonMobil Production Comp**

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

June 27, 2001

**ExxonMobil**  
*Production*

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

Change of Name – Mobil Oil Corporation to  
ExxonMobil Oil Corporation

Dear Mr. Thompson

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

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

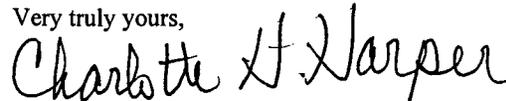
Please note the change of name of MOC to ExxonMobil Oil Corporation in your records pertaining to any MOC permits.

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

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

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

Very truly yours,



Charlotte H. Harper  
Permitting Supervisor

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

RECEIVED

JUN 29 2001

DIVISION OF  
OIL, GAS AND MINING



# United States Department of the Interior

BUREAU OF INDIAN AFFAIRS

XXXXXXXXXXXXXXXXXXXX  
Navajo Area Office  
NAVAJO REGION

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

AUG 30 2001

IN REPLY REFER TO:

RRES/543

## CERTIFIED MAIL - RETURN RECEIPT REQUESTED

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

Dear Ms. Harper:

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

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

Sincerely,

DEAN DENETSONE

Regional Realty Officer

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

MINERAL RESOURCES	
ADM 1	<i>DB/MC</i>
NATV AM MIN COORD	_____
SOLID MIN TEAM	_____
PERSONNEL TEAM	<i>2</i>
O & G INSPECT TEAM	_____
ALL TEAM LEADERS	_____
LAND RESOURCES	_____
ENVIRONMENT	_____
FILES	_____

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

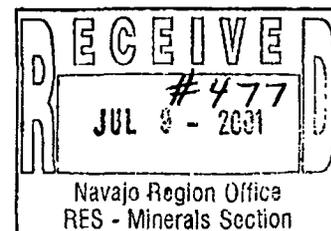
*7/12/2001*  
*GN*  
*543*  
*File*

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.

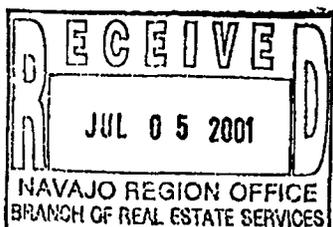
If you have any questions , please contact Alex Correa at (713) 431-1012.

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 Issac*

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

Gentlemen:

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

OFFICERS

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

DIRECTORS

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

Sincerely,



Alex Correa

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



Signature

AGENT AND ATTORNEY IN FACT

Title

**CERTIFICATION**

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

**CHANGE OF COMPANY NAME**

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

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

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

ExxonMobil Oil Corporation",

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

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

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

*D. A. Miller*  
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

1000 West Loop South, Suite 1900, Houston, Texas 77027-3501  
Phone: (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**

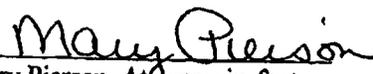
All other terms and conditions of this Bond are unchanged.

Signed, sealed and dated this 12<sup>th</sup> of June, 2001.

**ExxonMobil Oil Corporation**

By: 

**FEDERAL INSURANCE COMPANY**

By:   
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

Mary Pierson, Philana Berros, and Jody E. Specht of Houston, Texas----- **R.F. Bobo,**

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

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

Kenneth C. Wendel, 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 was thereto subscribed by authority of said Companies in the presence of the Notary Public.



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

Karen Price  
Notary Public

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

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

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

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

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



Kenneth C. Wendel, Assistant Secretary

**IN THE EVENT YOU WISH TO NOTIFY US OF A CLAIM, VERIFY THE AUTHENTICITY OF THIS BOND OR NOTIFY US OF ANY OTHER MATTER, PLEASE CONTACT US AT ADDRESS LISTED ABOVE, OR BY Telephone (908) 903-3485 Fax (908) 903-3656 e-mail: surety@chubb.com**

CSC

5184334741

06/01 '01 08:46 NO.410 03/05

CSC

06/01 '01 09:06 NO.135 02/04

F010601000187

CERTIFICATE OF AMENDMENT  
OF  
CERTIFICATE OF INCORPORATION  
OF  
MOBIL OIL CORPORATION

CSC 45

(Under Section 805 of the Business Corporation Law)

Pursuant to the provisions of Section 805 of the Business Corporation Law, the undersigned President and Secretary, respectively, of Mobil Oil Corporation hereby certify:

**FIRST:** That the name of the corporation is MOBIL OIL CORPORATION and that said corporation was incorporated under the name of Standard Oil Company of New York.

**SECOND:** That the Certificate of Incorporation of the corporation was filed by the Department of State, Albany, New York, on the 10th day of August, 1882.

**THIRD:** That the amendments to the Certificate of Incorporation effected by this Certificate are as follows:

(a) Article 1st of the Certificate of Incorporation, relating to the corporate name, is hereby amended to read as follows:

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

(b) Article 7th of the Certificate of Incorporation, relating to the office of the corporation is hereby amended to read as follows:

The office of the corporation within the State of New York is to be located in the County of Albany. The Company shall have offices at such other places as the Board of Directors may from time to time determine.

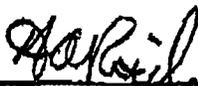
CSC  
CSC

5184334741

06/01 '01 08:47 NO.410 04/05  
06/01 '01 09:06 NO.133 03/04

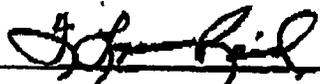
**FOURTH:** That the amendments to the Certificate of Incorporation were authorized by the Board of Directors followed by the holder of all outstanding shares entitled to vote on amendments to the Certificate of Incorporation by written consent of the sole shareholder dated May 22, 2001.

IN WITNESS WHEREOF, this Certificate has been signed this 22nd Day of May, 2001.

  
\_\_\_\_\_  
F. A. Risch, President 

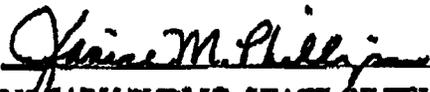
STATE OF TEXAS        )  
COUNTY OF DALLAS    )

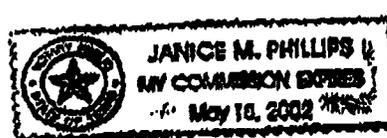
F. L. REID, being duly sworn, deposes and says that he is the Secretary of MOBIL OIL CORPORATION, the corporation mentioned and described in the foregoing instrument; that he has read and signed the same and that the statements contained therein are true.

  
\_\_\_\_\_  
F. L. REID, Secretary

SUBSCRIBED AND SWORN TO before me, the undersigned authority, on this the 22nd day of May, 2001.

[SEAL]

  
\_\_\_\_\_  
NOTARY PUBLIC, STATE OF TEXAS



CSC  
CSC

5184334741

06/01 '01 09:01 NO. 411 02/02  
06/01 '01 09:06 NO. 133 04/04  
**F010601000187**

**CSC 45**

**CERTIFICATE OF AMENDMENT**

**OF**

**MOBIL OIL CORPORATION**

Under Section 805 of the Business Corporation Law

*SAC*

**STATE OF NEW YORK  
DEPARTMENT OF STATE**

*100 cc*

Filed by: EXXONMOBIL CORPORATION  
(Name)

FILED JUN 01 2001

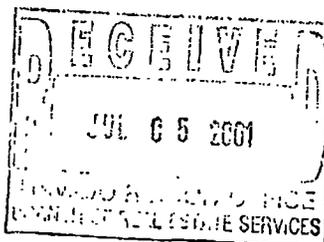
6959 Las Colinas Blvd.  
(Mailing address)

TAX \$ \_\_\_\_\_  
BY: *SAC*

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

*ny Albany*

*Cust Ref # 1655781MPJ*



**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**



*Special Deputy Secretary of State*

**OPERATOR CHANGE WORKSHEET**

**ROUTING**

1. GLH
2. CDW
3. FILE

Change of Operator (Well Sold)

Designation of Agent

**X Operator Name Change**

Merger

The operator of the well(s) listed below has changed, effective:		<b>06-01-2001</b>
<b>FROM:</b> (Old Operator):		<b>TO:</b> ( 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 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:**

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Division of Oil, Gas and Mining  
**OPERATOR CHANGE WORKSHEET**

<b>ROUTING</b>
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:		<b>6/1/2006</b>
<b>FROM:</b> (Old Operator): N1855-ExxonMobil Oil Corporation PO Box 4358 Houston, TX 77210-4358 Phone: 1 (281) 654-1936	<b>TO:</b> ( New Operator): N2700-Resolute Natural Resources Company 1675 Broadway, Suite 1950 Denver, CO 80202 Phone: 1 (303) 534-4600	
<b>CA No.</b>	<b>Unit:</b>	<b>RATHERFORD (UIC)</b>

**OPERATOR CHANGES DOCUMENTATION**

Enter date after each listed item is completed

- (R649-8-10) Sundry or legal documentation was received from the **FORMER** operator on: 4/21/2006
- (R649-8-10) Sundry or legal documentation was received from the **NEW** operator on: 4/24/2006
- The new company was checked on the **Department of Commerce, Division of Corporations Database** on: 6/7/2006
- Is the new operator registered in the State of Utah: YES Business Number: 5733505-0143
- If **NO**, the operator was contacted on: \_\_\_\_\_
- (R649-9-2)Waste Management Plan has been received on: requested
- Inspections of LA PA state/fee well sites complete on: n/a
- Reports current for Production/Disposition & Sundries on: ok
- Federal and Indian Lease Wells:** The BLM and or the BIA has approved the merger, name change, or operator change for all wells listed on Federal or Indian leases on: BLM n/a BIA not yet
- Federal and Indian Units:**  
The BLM or BIA has approved the successor of unit operator for wells listed on: not yet
- Federal and Indian Communization Agreements ("CA"):**  
The BLM or BIA has approved the operator for all wells listed within a CA on: n/a
- Underground Injection Control ("UIC")** The Division has approved UIC Form 5, **Transfer of Authority to Inject**, for the enhanced/secondary recovery unit/project for the water disposal well(s) listed on: 6/12/2006

**DATA ENTRY:**

- Changes entered in the **Oil and Gas Database** on: 6/22/2006
- Changes have been entered on the **Monthly Operator Change Spread Sheet** on: 6/22/2006
- Bond information entered in RBDMS on: n/a
- Fee/State wells attached to bond in RBDMS on: n/a
- Injection Projects to new operator in RBDMS on: 6/22/2006
- Receipt of Acceptance of Drilling Procedures for APD/New on: n/a

**BOND VERIFICATION:**

- Federal well(s) covered by Bond Number: n/a
- Indian well(s) covered by Bond Number: PA002769
- (R649-3-1) The **NEW** operator of any fee well(s) listed covered by Bond Number n/a
- The **FORMER** operator has requested a release of liability from their bond on: n/a  
The Division sent response by letter on: n/a

**LEASE INTEREST OWNER NOTIFICATION:**

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

**COMMENTS:**

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

UIC FORM 5

TRANSFER OF AUTHORITY TO INJECT

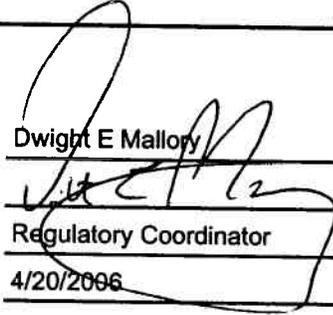
Well Name and Number See attached list	API Number Attached
Location of Well Footage: See attached list County: San Juan	Field or Unit Name Rutherford Unit
QQ, Section, Township, Range: State: UTAH	Lease Designation and Number See attached list

EFFECTIVE DATE OF TRANSFER: 6/1/2006

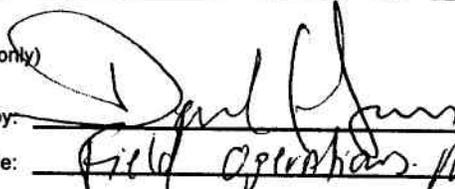
CURRENT OPERATOR

Company: Exxon Mobil Oil Corporation Name: \_\_\_\_\_  
Address: PO Box 4358 Signature: \_\_\_\_\_  
city Houston state TX zip 77210-4358 Title: \_\_\_\_\_  
Phone: (281) 654-1936 Date: \_\_\_\_\_  
Comments: Exxon Mobil has submitted a separate, signed copy of UIC Form 5

NEW OPERATOR

Company: Resolute Natural Resources Company Name: Dwight E Mallory  
Address: 1675 Broadway, Suite 1950 Signature:   
city Denver state CO zip 80202 Title: Regulatory Coordinator  
Phone: (303) 534-4600 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

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

FORM 9

<b>SUNDRY NOTICES AND REPORTS ON WELLS</b>		5. LEASE DESIGNATION AND SERIAL NUMBER: See attached list
Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.		6. IF INDIAN, ALLOTTEE OR TRIBE NAME: Navajo Tribe
1. TYPE OF WELL OIL WELL <input type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <u>Unit Agreement</u>		7. UNIT or CA AGREEMENT NAME: Ratherford Unit
2. NAME OF OPERATOR: Resolute Natural Resources Company <u>N2700</u>		8. WELL NAME and NUMBER: See attached list
3. ADDRESS OF OPERATOR: 1675 Broadway, Suite 1950 CITY Denver STATE CO ZIP 80202		9. API NUMBER: Attached
4. LOCATION OF WELL FOOTAGES AT SURFACE: <u>See attached list</u> COUNTY: <u>San Juan</u>		10. FIELD AND POOL, OR WILDCAT: Greater Aneth
QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: _____ STATE: <b>UTAH</b>		

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

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

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

Effective June 1, 2006 Exxon Mobil Oil Corporation resigns as operator of the Ratherford Unit. Also effective June 1, 2006 Resolute Natural Resources Company is designated as successor operator of the Ratherford Unit.

A list of affected producing and water source wells is attached. A separate of affected injection wells is being submitted with UIC Form 5, Transfer of Authority to Inject.

As of the effective date, bond coverage for the affected wells will transfer to BIA Bond # PA002769.

NAME (PLEASE PRINT) <u>Dwight E Malloy</u>	TITLE <u>Regulatory Coordinator</u>
SIGNATURE	DATE <u>4/20/2006</u>

(This space for State use only)

**APPROVED** 6127106  
*Earlene Russell*  
Division of Oil, Gas and Mining (See Instructions on Reverse Side)  
Earlene Russell, Engineering Technician

**RECEIVED**  
**APR 24 2006**  
DIV. OF OIL, GAS & MINING

(5/2000)

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

FORM 9

<b>SUNDRY NOTICES AND REPORTS ON WELLS</b>		5. LEASE DESIGNATION AND SERIAL NUMBER:
Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.		6. IF INDIAN, ALLOTTEE OR TRIBE NAME: <b>Ship Rock</b>
		7. UNIT or CA AGREEMENT NAME: <b>UTU68931A</b>
1. TYPE OF WELL OIL WELL <input type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <u>Injection</u>	8. WELL NAME and NUMBER: <b>Ratherford</b>	
2. NAME OF OPERATOR: <b>ExxonMobil Oil Corporation</b> <i>N1855</i>		9. API NUMBER: <b>attached</b>
3. ADDRESS OF OPERATOR: <b>P.O. Box 4358</b> CITY <b>Houston</b> STATE <b>TX</b> ZIP <b>77210-4358</b>	PHONE NUMBER: <b>(281) 654-1936</b>	10. FIELD AND POOL, OR WILDCAT: <b>Aneth</b>
4. LOCATION OF WELL FOOTAGES AT SURFACE:		COUNTY: <b>San Juan</b>
QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:		STATE: <b>UTAH</b>

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

TYPE OF SUBMISSION	TYPE OF ACTION		
<input checked="" type="checkbox"/> NOTICE OF INTENT (Submit in Duplicate) Approximate date work will start: <u>6/1/2006</u>	<input type="checkbox"/> ACIDIZE	<input type="checkbox"/> DEEPEN	<input type="checkbox"/> REPERFORATE CURRENT FORMATION
<input type="checkbox"/> SUBSEQUENT REPORT (Submit Original Form Only) Date of work completion:	<input type="checkbox"/> ALTER CASING	<input type="checkbox"/> FRACTURE TREAT	<input type="checkbox"/> SIDETRACK TO REPAIR WELL
	<input type="checkbox"/> CASING REPAIR	<input type="checkbox"/> NEW CONSTRUCTION	<input type="checkbox"/> TEMPORARILY ABANDON
	<input type="checkbox"/> CHANGE TO PREVIOUS PLANS	<input checked="" type="checkbox"/> OPERATOR CHANGE	<input type="checkbox"/> TUBING REPAIR
	<input type="checkbox"/> CHANGE TUBING	<input type="checkbox"/> PLUG AND ABANDON	<input type="checkbox"/> VENT OR FLARE
	<input type="checkbox"/> CHANGE WELL NAME	<input type="checkbox"/> PLUG BACK	<input type="checkbox"/> WATER DISPOSAL
	<input type="checkbox"/> CHANGE WELL STATUS	<input type="checkbox"/> PRODUCTION (START/RESUME)	<input type="checkbox"/> WATER SHUT-OFF
	<input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS	<input type="checkbox"/> RECLAMATION OF WELL SITE	<input type="checkbox"/> OTHER: _____
	<input type="checkbox"/> CONVERT WELL TYPE	<input type="checkbox"/> RECOMPLETE - DIFFERENT FORMATION	

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

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) <u>Laurie Kilbride</u>	TITLE <u>Permitting Supervisor</u>
SIGNATURE <i>Laurie S. Kilbride</i>	DATE <u>4/19/2006</u>

(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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**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