Converted to water injection. Started injecting in April, 1962

FILE NOTATIONS

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

COMPLETION DATA:

Date Well Completed 8-22-59 Location Inspected

OW ✓ WW TA Bond released

GW OS PA State of Fee Land

LOGS FILED

Driller's Log 10-16-59

Electric Logs (No.) 4

E I E-I ✓ GR GR-N ✓ Micro ✓

Lat Mi-L Sonic Others Radiation

Form 9-331 b
(April 1952)

Budget Bureau No. 42-R-359.3.
Approval expires 12-31-55.

(SUBMIT IN TRIPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Indian Agency Navajo

Allottee Tribal

Lease No. 14-20-603-355

SUNDRY NOTICES AND REPORTS ON WELLS

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

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

Cortez, Colorado June 22, 1959

Navajo "A"

Well No. 20 is located 660 ft. from {N/S} line and 2030 ft. from {E/W} line of sec. 21

NE, NW Sec. 21 (¼ Sec. and Sec. No.) 41S (Twp.) 24E (Range) SLM (Meridian)

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

The elevation of the ~~derrick floor~~ above sea level is 4630 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 13-3/8" 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 5750', run 5-1/2" casing and cement with approximately 250 sacks cement. Complete in Desert Creek 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 1150
Cortez, Colorado

By C. H. Boles
C. H. Boles
District Superintendent

Title District Superintendent

Company PHILLIPS PETROLEUM COMPANY

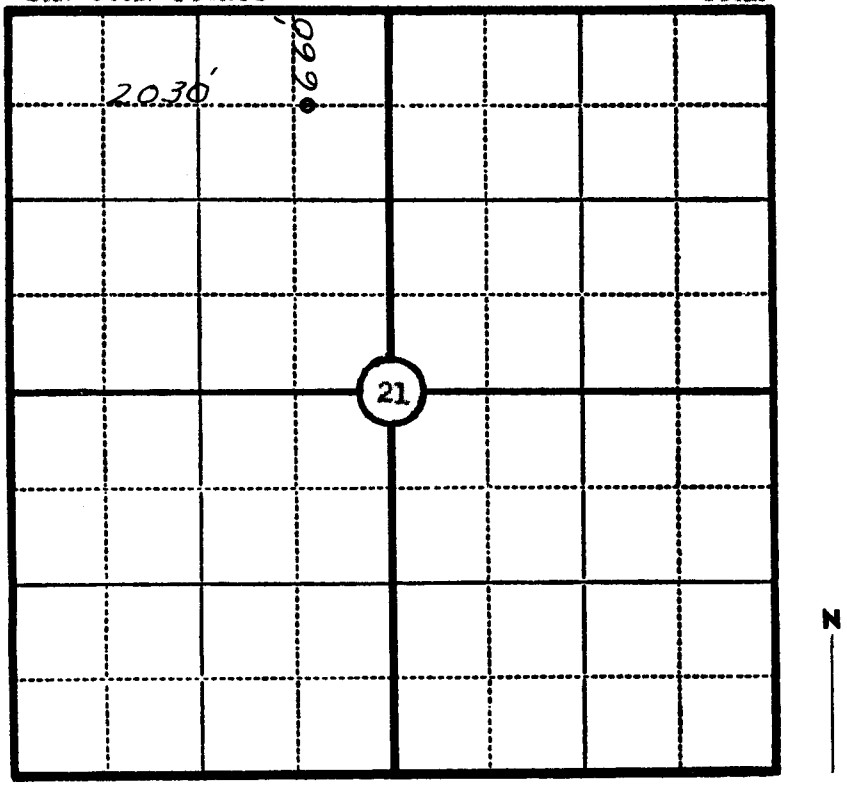
Lease Navajo "A" Well No. 20

Sec. 21, T. 41 SOUTH, R. 24 EAST, SLM

Location 660' FROM THE NORTH LINE AND 2030' FROM THE WEST LINE

Elevation 4630.0 UNGRADED GROUND

SAN JUAN COUNTY UTAH



Scale—4 inches equal 1 mile.

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

James P. Leese

Seal:

Registered Land Surveyor.

James P. Leese
Utah Reg. No. 1472

Surveyed 27 February, 19 59

SAN JUAN ENGINEERING COMPANY, FARMINGTON, N. M.

June 25, 1959

Phillips Petroleum Company
P. O. Box 1150
Cortez, Colorado

Attention: C. M. Boles, District Superintendent

Gentlemen:

This is to acknowledge receipt of your notice of intention to drill Well No. Navajo A-20, which is to be located 660 feet from the north line and 2030 feet from the west line of Section 21, Township 41 South, Range 24 East, SLBM, San Juan County, Utah.

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

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

Yours very truly,

OIL & GAS CONSERVATION COMMISSION

CLEON B. FEIGHT
EXECUTIVE SECRETARY

CBF:co

cc: P. T. McGrath, Dist. Eng.
U. S. Geological Survey
Farmington, New Mexico

Form 9-331 b
(April 1952)

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

Navajo
Indian Agency

Tribal
Allottee

14-20-603-355
Lease No.

(SUBMIT IN TRIPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

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	
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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 September 18, 1959

Navajo "A" Well No. 20 is located 660 ft. from {N} line and 2030 ft. from {E/W} line of sec. 21

NE NW Sec. 21 (¼ Sec. and Sec. No.) 41S (Twp.) 24E (Range) SLM (Meridian)

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

The elevation of the ~~derrick floor~~ ungraded ground above sea level is 4630 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 7:00 P.M. 7-17-59. Drilled 12-1/4" hole to 180'. Reamed 12-1/4" hole to 17-1/4" to 173'. Set and cemented 4 jts. 13-3/8" OD, 27.1# Armco SW SJ casing at 173' with 175 sx. regular cement, 2% CC. Pumped plug to 145' at 3:20 PM 7-18-59. Cement circulated to surface. W.O.C. 24 hours.

Drilled 11" hole to 1410'. Set and cemented 46 jts. 8-5/8" OD 24# J-55 ST&C casing at 1409.44' with 330 sx. regular cement, 126 sx. Diacel "D", 620# Calcium Chloride, 165# Flocele, 660# Tuff Plug, followed with 125 sx. regular cement around shoe. Pumped plug to 1374' at 7:30 PM 7-20-59. Cement circulated but fell back. Recemented to surface down annulus with 20 sx. regular cement. W.O.C. 24 hours. Tested casing with 750# for 30 minutes - tested O.K.

(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 1150
Cortez, Colorado

By C. M. Boles

Title District Superintendent

Drilled 7-7/8" hole to 5462'. Cored from 5462 to 5513, recovered 51'.
Cored from 5513 to 5529', recovered 16'.
Cored from 5529 to 5535', recovered 6'.
Cored from 5535 to 5595', recovered 57'.
Cored from 5595 to 5643', recovered 51'.
(3' top feet from Core #4)
Reamed core hole to 7-7/8" to 5643' at 11:30 PM 8-16-59. (Ran Schlumberger ES Induction Micro and Gamma Ray Neutron logs to 5643'). Drilled 7-7/8" hole to 5662' at 6:00 P.M. 8-17-59. Set and cemented 175 jts. 5-1/2" OD 14# J-55 casing with Rector fill collar and guide shoe at 5661.85' w/132 sx regular cement, 100 sx. Diacel D, 496# CC. Pumped plug to 5629' with 1500# at 6:40 AM 8-18-59. WOC 24 hours. Tested casing with 1000# for 30 minutes - tested O.K.

Form 9-331 b
(April 1952)

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

(SUBMIT IN TRIPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Indian Agency Navajo

Allottee Tribal

Lease No. 14-20-603-355

SUNDRY NOTICES AND REPORTS ON WELLS

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

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

Navajo "A" Cortez, Colorado September 18, 19 59

Well No. 20 is located 660 ft. from {N/S} line and 2030 ft. from {E/W} line of sec. 21

NE NW Sec. 21 (¼ Sec. and Sec. No.) 41S (Twp.) 24E (Range) SLM (Meridian)

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

The elevation of the ~~derrick floor~~ ungraded ground above sea level is 4630 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)

Tagged bottom with tubing at 5629' (Top cement plug). Ran Gamma Ray Collar locator log to 5630-1/2'. Perforated Desert Creek (5-1/2" casing) with 4 dyna jet shots per foot from 5467-95' EL and RL measurements. Ran 176 jts. 2-7/8" OD EUE tubing with Baker EGJ packer. Set tubing at 5608.11'. Tubing perforations 5467.95'. Packer at 5315.94'. Released rotary at 2:00 P.M. 8-19-59.

Acidized Desert Creek perforations 5467-5495 with 1000 gallons regular 15% acid. Maximum pressure 3500#, minimum pressure 600# 8-20-59. Average treating rate 2.7 BPM. Flush rate 1.7 BPM. 5 minute shut in pressure decreased from 2300# to 1200#. Flowed 6 barrels oil 2% acid and emulsion, and died 8-20-59. Acidized Desert Creek perforations 5567-5595 with 4500 gallons retarded acid and 250 gallons block 8-21-59. (3000 gallons retarded acid, 150 gal block, 1500 gallons retarded acid). Maximum pressure 2800#, minimum pressure 1700#. Block on formation pressure increased from 900 to 1700#-

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

Flowed 108 BO, 0 wtr in 24 hours through 3/4" choke, FTP 175#, 8-22-59.

Company Phillips Petroleum

Address P.O. Drawer 1150
Cortez, Colorado

By C. M. Boles
Title District Superintendent

PHILLIPS PETROLEUM COMPANY

NAVAJO NO. A-20

SEC. 21-41S-24E

PARADOX

WHITE MESA, UTAH

CHEMICAL & GEOLOGICAL LABORATORIES

CHEMISTS CORE ANALYSTS ENGINEERS

220 West Broadway
Farmington, New Mexico

August 19, 1959

Phillips Petroleum Company
P. O. Box 548
Cortez, Colorado

Re: Core Analysis Report
Navajo No. A-20
White Mesa, Utah

Gentlemen:

Core analysis service on the subject well was initiated on August 12, 1959. Chem Lab service "C" Full Diameter Core Study was used in the analysis of all samples selected.

Core No. 1, 5462-5513 was pulled on the above date. Thirty-eight samples were analyzed.

A second trip to the well was made for Core No. 2, 5513-5529 on August 13, 1959. Chem Lab's plane was used to pick up this core, of which, only three samples were taken for analysis.

On August 15, 1959, Core No. 3, 5529-5535 and Core No. 4, 5535-5595 were picked up in a single trip to the well. One sample was analyzed to represent Core No. 3 and eleven were selected from Core No. 4.

The final trip for core pickup to the wellsite was made on August 17, 1959 when Core No. 5, 5595-5647 was pulled. An additional 29 samples were analyzed.

All core recovered was returned to the laboratory where selection of footage for analysis was made. The bulk of the core not used in analysis and the samples used for porosity and permeability will be retained for several weeks before it is discarded.

The new owners of Chem Lab in Farmington are proud to present this report to you and take this opportunity to extend their thanks for this occasion to be of service.

Sincerely yours,

CHEMICAL & GEOLOGICAL LABORATORIES

Donald M. Gutz
for the Management

DMG:bb

Phillips Petroleum Company
Navajo No. A-20
White Mesa, Utah

Distribution for Final Report:

5 copies	Phillips Petroleum Company Attn: Mr. C. M. Boles P. O. Box 548 Cortez, Colorado
1 copy	Phillips Petroleum Company Mr. Earl Griffin Phillips Building Bartlesville, Oklahoma
1 copy	Phillips Petroleum Company Mr. C. E. Turner Adams Building Bartlesville, Oklahoma
1 copy	Phillips Petroleum Company Mr. R. O. Dunbar 515 Bank Building Bartlesville, Oklahoma
1 copy	Phillips Petroleum Company Mr. Frank Earle 1200 Denver Club Building Denver, Colorado
5 copies	Phillips Petroleum Company Attn: Mr. M. W. Freeman P. O. Box 3133 Durango, Colorado
1 copy	Aztec Oil & Gas Company Mr. Joe Salmon Farmington, New Mexico
1 copy	Aztec Oil & Gas Company Mr. Van Thompson 920 Mercantile Securities Building Dallas, Texas
Invoice:	Phillips Petroleum Company P. O. Box 548 Cortez, Colorado

CEI-20 (REV. 10-59)
PRAIRIE PUBLISHING CO.—61938

CHEMICAL & GEOLOGICAL LABORATORIES

Farmington

FULL DIAMETER CORESTUDY

Operator Phillips Petroleum Co. Field White Mesa, San Juan Co., Utah Formation Paradox

Well No. Navajo A-20 Location Sec 21-41S-24E Depths 5462' - 5647'

Elevation ~~4630 Gr~~ Date August 12, 1959 Lab. No.

Sample No.	Representative of Feet	Footage	Permeability K	Permeability K-90	Effective Porosity %	Density Bulk	Density Matrix	Saturation % of Pore Space Residual Oil	Saturation % of Pore Space Water	Description
	Core No. 1 5462 - 5513 Recovered 51'									
1	5462-63		0.02	0.01	1.1		2.67	0	48.2	NF
2	5463-64		0.03	0.01	0.7		2.68	0	40.0	NF
3	5464-65		0.04	0.03	0.3		2.68	0	84.6	NF
4	5465-66		0.03	0.02	0.3		2.70	0	94.7	NF
5	5466-67		0.06	0.04	0.8		2.68	Trace	68.8	HF
6	5467-68		2.00	1.69	11.9		2.62	9.8	24.0	NF
7	5468-69		2.54	2.11	10.1		2.66	10.6	24.4	NF
8	5469-70		1.36	1.47	9.0		2.68	14.2	22.0	NF
9	5470-71		0.31	0.09	5.8		2.65	18.3	47.2	NF
10	5471-72		0.90	0.13	8.0		2.50	Trace	22.5	NF
11	5472-73		3.81	1.47	24.0		2.63	1.1	10.9	NF
12	5473-74		1.57	1.52	26.5		2.65	1.8	14.6	NF
13	5474-75		177.	37.	26.6		2.65	1.7	14.5	HF
14	5475-76		37.	12.	25.3		2.64	1.2	10.9	VF
15	5476-77		2.47	1.36	25.2		2.64	1.7	12.7	NF
16	5477-78		1.27	2.17	18.3		2.56	2.2	17.2	VF
17	5478-79		0.94	0.31	13.0		2.50	1.5	25.8	NF
18	5479-80		0.03	0.02	0.9		2.68	0	89.0	NF
19	5480-81		0.02	0.01	0.2		2.69	0	90.5	NF
20	5481-82		0.04	0.03	0.8		2.68	0	76.3	NF
21	5482-83		1.47	1.36	12.7		2.68	2.3	9.8	NF,Vu
22	5483-84		12.	10.	16.0		2.67	4.3	10.7	NF,Vu
23	5484-85		13.	12.	13.5		2.67	3.7	14.5	NF,Vu
24	5485-86		7.72	4.56	16.1		2.63	7.2	16.8	NF,Vu
25	5486-87		7.46	7.40	13.5		2.66	3.3	13.3	NF,Vu

CL1-20 (2ND) 5-57

Sample No.	Representative of Feet	Footage	Permeability K	Permeability K-90	Effective Porosity %	Density Bulk	Density Matrix	Saturation % of Pore Space Residual Oil	Saturation % of Pore Space Water	Description
	Core No. 1 continued									
26	5487-88		16.	14.	15.2		2.68	3.8	15.1	NF,Vu
27	5488-89		24.	19.	18.3		2.66	2.7	14.6	NF,Vu
28	5489-90		5.90	5.46	20.6		2.66	5.8	16.2	VF,Vu
29	5490-91		16.	29.	23.3		2.65	5.0	11.9	VF,SVu
30	5491-92		1.41	0.93	3.3		2.66	18.5	65.8	NF,Sty
31	5492-93		0.15	0.07	2.2		2.62	Trace	41.1	NF
32	5493-94		0.09	0.08	2.3		2.68	Trace	87.2	NF
33	5494-95		0.06	0.02	1.0		2.68	Trace	95.0	VF
34	5495-96		0.04	0.01	0.6		2.68	Trace	81.7	VF
	5496-5500	No samples, tight, no stain								
35	5500-01		0.20	0.11	0.2		2.69	0	50.0	HC
	5501-03	No samples, tight, no stain								
36	5503-04		0.47	0.39	0.7		2.67	0	26.3	HC
	5504-07	No samples, tight, no stain								
37	5507-08		2.19	2.04	0.9		2.66	0	31.7	VF,HF
	5508-09	No sample, tight, no stain								
38	5509-10		0.63	0.47	0.5		2.67	0	89.4	VF
	5510-13	No samples, tight, no stain								
	Core No. 2 5413 - 5429 Recovered 16'									
39	5514-15		0.02	0.01	0.4		2.67	Trace	87.6	NF
	5515-19	No samples, tight, no stain								
40	5519-20		0.04	0.01	0.6		2.68	Trace	84.9	NF
	5520-22	No samples, tight, no stain								
41	5522-23		0.02	0.02	0.3		2.70	Trace	90.0	NF
	5523-29	No samples, tight, no stain								
	Core No. 3 5529 - 5535 Recovered 6'									
	5529-30	No sample, tight, no stain								
42	5530-31		0.21	0.18	0.6		2.67	0	72.9	HC
	5531-35	No samples, tight, no stain								
	Core No. 4 5535 - 5595 Recovered 57'									
	5535-38	No samples, tight, no stain								
43	5538-39		0.06	0.04	0.5		2.68	0	69.6	NF
	5539-43	No samples, tight, no stain								

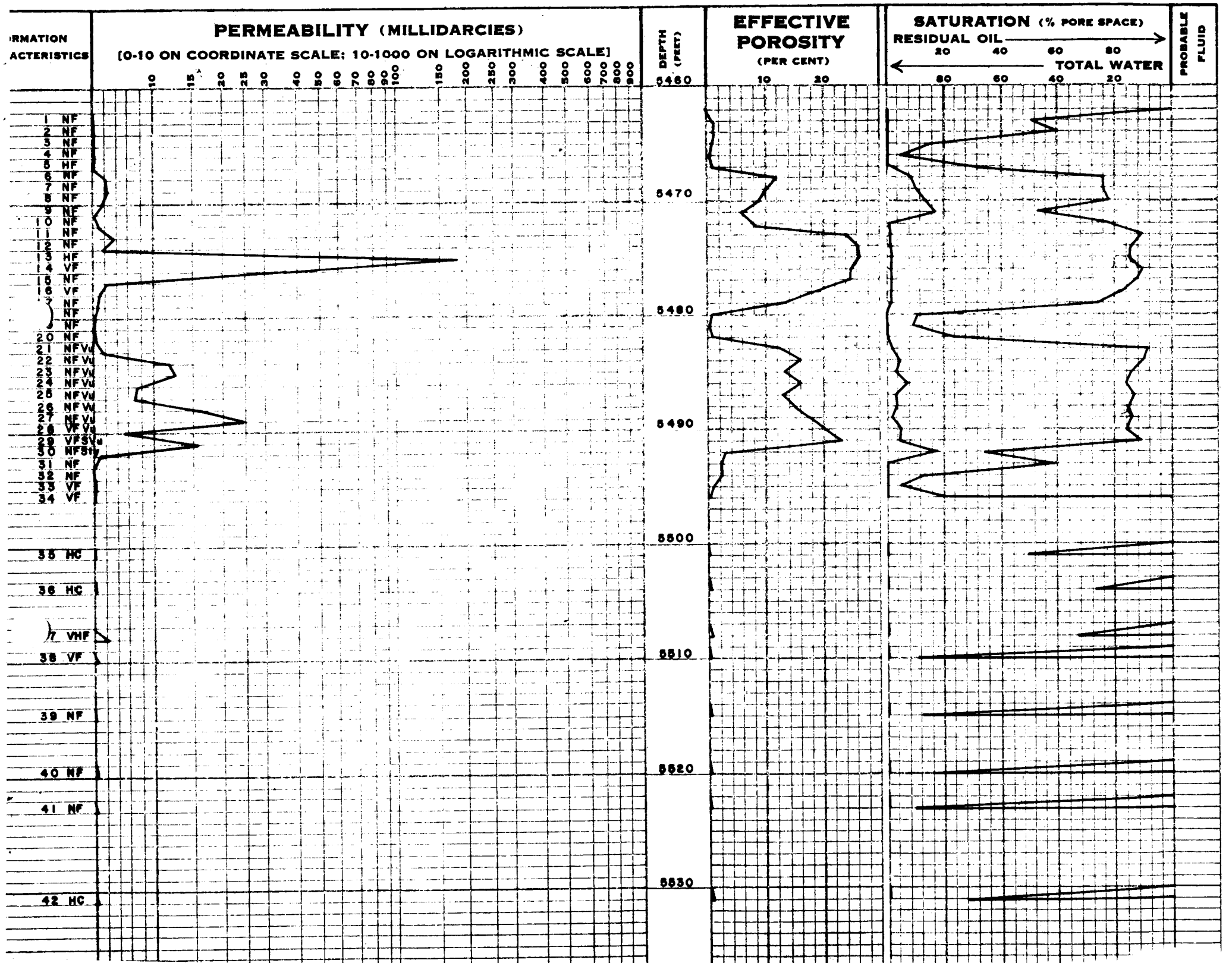
CLI-20 (2ND) 5-57

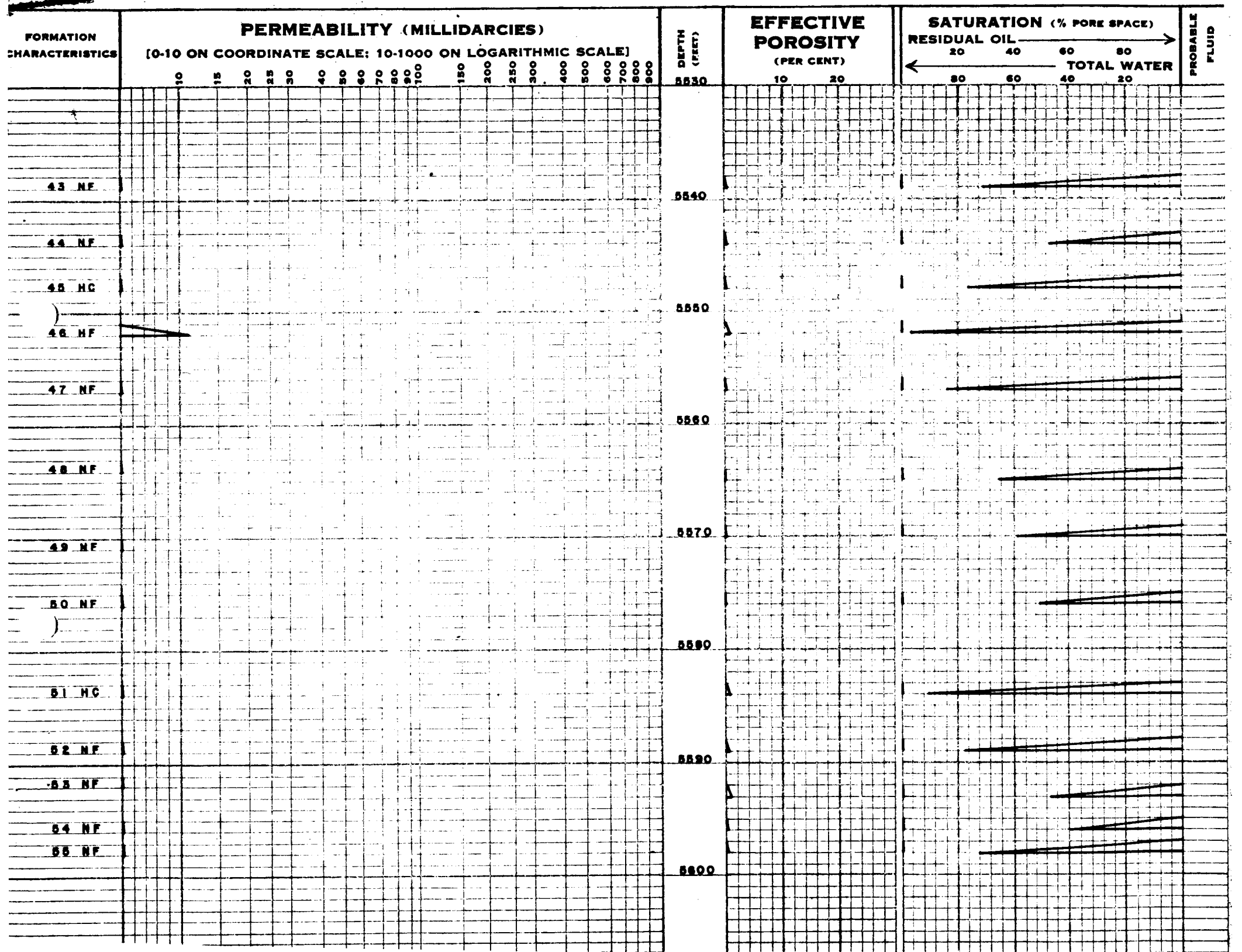
Sample No.	Representative of Feet	Footage	Permeability K	Permeability K-90	Effective Porosity %	Density Bulk	Density Matrix	Saturation % of Pore Space Residual Oil	Saturation % of Pore Space Water	Description
	Core No. 4 continued									
44	5543-44		0.03	0.01	0.3		2.67	0	46.3	NF
	5544-47	No samples, tight, no stain								
45	5547-48		0.08	0.02	0.4		2.66	0	76.2	HC
	5548-51	No samples, tight, no stain								
46	5551-52		12.	11.	1.1		2.65	Trace	96.3	HF
	5552-56	No samples, tight, no stain								
47	5556-57		0.01	0.01	0.2		2.70	0	83.5	NF
	5557-63	No samples, tight, no stain								
48	5563-64		0.01	0.01	0.2		2.69	0	65.0	NF
	5564-70	No samples, tight, no stain								
49	5570-71		0.03	0.01	0.4		2.71	0	58.7	NF
	5571-75	No samples, tight, no stain								
50	5575-76		0.02	0.02	0.1		2.70	0	49.4	NF
	5576-83	No samples, Anhydrite								
51	5583-84		0.07	0.05	0.7		2.66	0	90.6	HC
	5584-88	No samples, tight, no stain								
52	5588-89		0.02	0.01	0.8		2.67	0	77.1	NF
	5589-91	No sample, tight, no stain								
53	5591-92		0.11	0.04	0.9		2.68	0	46.2	NF
	5592-95	No samples, tight, no stain								
	Core No. 5 5595 - 5647	Recovered 52'								
54	5595-96		0.03	0.02	0.5		2.69	0	39.2	NF
	5596-97	No sample, tight, no stain								
55	5597-98		0.07	0.06	0.6		2.70	0	72.8	NF
	5598-5604	No samples, tight, no stain								
56	5604-05		0.04	0.03	0.6		2.70	0	70.3	NF
57	5605-06		0.06	0.04	1.1		2.68	Trace	91.7	NF
58	5606-07		0.07	0.05	0.9		2.68	Trace	96.3	NF
59	5607-08		0.04	0.02	0.7		2.67	Trace	89.0	NF
60	5608-09		0.02	0.01	0.4		2.69	0	94.4	NF
61	5609-10		0.03	0.02	1.0		2.68	0	80.2	NF
62	5610-11		0.68	0.61	12.8		2.71	6.8	67.7	NF
63	5611-12		0.17	0.09	10.2		2.71	3.6	94.4	NF
64	5612-13		0.12	0.10	5.0		2.67	1.7	89.2	NF
65	5613-14		0.16	0.11	4.6		2.63	Trace	97.2	NF
	5614-15	No sample, tight no stain								

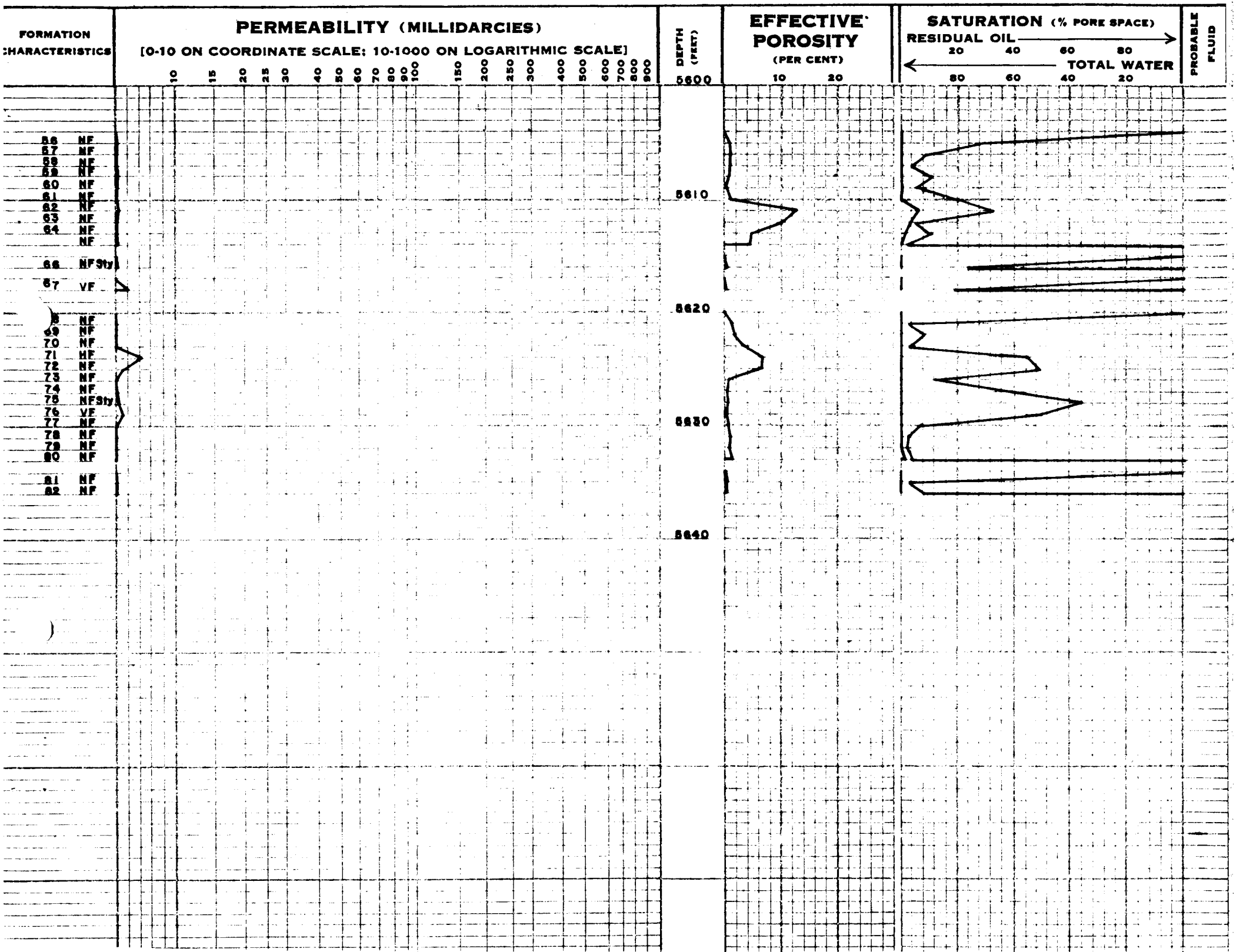
CLI-20 (2ND) 5-57

Sample No.	Representative of Feet	Footage	Permeability K	Permeability K-90	Effective Porosity %	Density Bulk	Density Matrix	Saturation % of Pore Space Residual Oil	Saturation % of Pore Space Water	Description
	Core No. 5 continued									
66	5615-16		0.32	0.29	0.6		2.69	0	76.0	NF,Sty
	5616-17	No samples, tight, no stain								
67	5617-18		2.11	0.13	0.5		2.69	0	81.1	VF
	5618-20	No samples, tight, no stain								
68	5620-21		0.17	0.12	1.4		2.66	0	96.2	NF
69	5621-22		0.14	0.12	1.7		2.66	Trace	91.4	NF
70	5622-23		0.17	0.10	3.5		2.75	Trace	96.5	NF
71	5623-24		4.46	1.58	6.9		2.80	0	55.2	NF
72	5624-25		1.43	1.19	6.7		2.79	0	51.8	NF
73	5625-26		0.04	0.02	0.8		2.71	0	87.2	NF
74	5626-27		0.06	0.03	0.4		2.70	0	61.4	NF
75	5627-28		0.45	0.26	0.7		2.68	0	36.5	NF,Sty
76	5628-29		1.51	0.25	0.3		2.70	0	49.9	VF
77	5629-30		0.03	0.01	0.8		2.68	Trace	93.4	NF
78	5630-31		0.04	0.03	1.0		2.65	Trace	97.0	NF
79	5631-32		0.07	0.05	0.8		2.64	Trace	98.5	NF
80	5632-33		0.04	0.02	1.5		2.66	1.6	95.7	NF
	5633-34	No samples, tight, no stain								
81	5634-35		0.02	0.01	0.6		2.67	Trace	96.2	NF
82	5635-36		0.03	0.02	0.1		2.71	0	91.3	NF
	5636-47	No samples, shale								

Legend:
NF - No fracture
VF - Vertical Fracture
HF - Horizontal fracture
HC - Horizontal crack
Sty - Styolite


RMATION
ACTERISTICS
PERMEABILITY (MILLIDARCIES)
[0-10 ON COORDINATE SCALE; 10-1000 ON LOGARITHMIC SCALE]
10 15 20 25 30 40 50 60 70 80 90 100 150 200 250 300 400 500 600 700 800 900
DEPTH (FEET)
5460
5470
5480
5490
5500
5510
5520
5530
EFFECTIVE POROSITY
(PER CENT)
10 20
SATURATION (% PORE SPACE)
RESIDUAL OIL
20 40 60 80
TOTAL WATER
80 60 40 20
PROBABLE FLUID
1 NF
2 NF
3 NF
4 NF
5 HF
6 NF
7 NF
8 NF
9 NF
10 NF
11 NF
12 NF
13 HF
14 VF
15 NF
16 VF
17 NF
NF
19 NF
20 NF
21 NF Vu
22 NF Vu
23 NF Vu
24 NF Vu
25 NF Vu
26 NF Vu
27 NF Vu
28 VF Vu
29 VF Sv
30 NF Sv
31 NF
32 NF
33 VF
34 VF
35 HC
36 HC
37 VHF
38 VF
39 NF
40 NF
41 NF
42 HC


FORMATION CHARACTERISTICS
PERMEABILITY (MILLIDARCIES)
[0-10 ON COORDINATE SCALE: 10-1000 ON LOGARITHMIC SCALE]
10 15 20 25 30 40 50 60 70 80 90 100 150 200 250 300 400 500 600 700 800 900
DEPTH (FEET)
EFFECTIVE POROSITY
(PER CENT)
10 20
SATURATION (% PORE SPACE)
RESIDUAL OIL
20 40 60 80
TOTAL WATER
80 60 40 20
PROBABLE FLUID
43 NF
44 NF
45 HC
46 HF
47 NF
48 NF
49 NF
50 NF
51 HC
52 NF
53 NF
54 NF
55 NF
5530
5540
5550
5560
5570
5580
5590
5600


FORMATION CHARACTERISTICS
PERMEABILITY (MILLIDARCIES)
[0-10 ON COORDINATE SCALE; 10-1000 ON LOGARITHMIC SCALE]
10 15 20 25 30 40 50 60 70 80 90 100 150 200 250 300 400 500 600 700 800 900
DEPTH (FEET)
5600
5610
5620
5630
5640
EFFECTIVE POROSITY
(PER CENT)
10 20
SATURATION (% PORE SPACE)
RESIDUAL OIL
20 40 60 80
TOTAL WATER
80 60 40 20
PROBABLE FLUID
56 NF
57 NF
58 NF
59 NF
60 NF
61 NF
62 NF
63 NF
64 NF
NF
66 NF Sty
67 VF
68 NF
69 NF
70 NF
71 NF
72 NF
73 NF
74 NF
75 NF Sty
76 VF
77 NF
78 NF
79 NF
80 NF
81 NF
82 NF

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

Form 9-330

U. S. LAND OFFICE Navajo
SERIAL NUMBER 14-20-603-355
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 Navajo "A" Field White Mesa State Utah
Well No. 20 Sec. 21 T. 41S R. 24E Meridian SLM County San Juan
Location 660 ft. {N./S.} of N Line and 2030 ft. {E./W.} of W Line of Sec. 21 Elevation 4646 (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 [illegible]

Date October 14, 1959 Title District Superintendent

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

Commenced drilling July 17, 1959 Finished drilling August 17, 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

In all sands above 1400' and from 2530 to 2705
No. 1, from ____ to ____ No. 3, from ____ to ____
No. 2, from ____ to ____ No. 4, from ____ to ____

CASING RECORD

Size casing	Weight per foot	Threads per inch	Make	Amount	Kind of shoe	Cut and pulled from	Perforated From	Perforated To	Purpose
13-3/8	27.1#	Dri-Sj	Armco	160	None		5467	5495	Oil Pay
8-5/8	24#	8 rd	J-55	1406	None				
5-1/2	14#	8 rd	J-55	5692	Rector				

MUDDING AND CEMENTING RECORD

Size casing	Where set	Number sacks of cement	Method used	Mud gravity	Amount of mud used
13-3/8	173	175 sx	Circulated		
8-5/8	1409	800 cu ft	Circulated(filled annulus w/20 sx. reg cmt, 2% CC)		
5-1/2	5662	550 cu ft	Halliburton		

FOLD | MARK

PLUGS AND ADAPTERS

Heaving plug—Material ____ Length ____ Depth set ____
Adapters—Material ____ Size ____

SHOOTING RECORD

5-1/2	5662	550 cu ft	Halliburton		

FOLD | MA

PLUGS AND ADAPTERS

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

Adapters—Material ..... Size .....

SHOOTING RECORD

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

TOOLS USED

Rotary tools were used from 0 feet to 5662 feet, and from ..... feet to ..... feet

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

DATES

October 14, 19 59 Put to producing August 22, 19 59

The production for the first 24 hours was 108 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. FTP 175#

EMPLOYEES

Moran Bros., Inc., Driller ..... , Driller

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

FORMATION RECORD

FROM—	TO—	TOTAL FEET	FORMATION
2250	2310	60	Shinarump
2310	2453	143	Moenkopi
2453	2530	77	Cutler - Hoskinini Equivalent
2530	2705	~~177~~ 175	" De Chelly Member
2705	4468	1763	" Organ Rock Member
4468	5314	846	Honaker Trail
5314	5460	146	Paradox - Ismay Zone
5460	5662	202	Paradox - Desert Creek Zone

(OVER)

16—43094-4

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

HISTORY OF OIL OR GAS WELL

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

Spudded 7-18-59. Drilled 12-1/4" hole to 180'. Reamed 12-1/4" hole to 17-1/4" to 173'. Set and cemented 4 jts. 13-3/8" OD 27.1# Armco SW SJ casing at 173' with 175 sx. regular cement, 2% Calcium Chloride. Pumped plug to 145' at 3:20 P.M. 7-18-59. Cement circulated to surface. W.O.C. 24 hours.

Drilled 11" hole to 1410'. Set and cemented 46 jts. 8-5/8" OD 24# J-55 ST&C casing at 1409.44' with 330 sx. regular cement, 126 sx. Diacel "D", 620# Calcium Chloride, 165# Flocele, 660# Tuff Plug, followed with 125 sx. regular cement around shoe. Pumped plug to 1374' at 7:30 P.M. 7-20-59. Cement circulated but fell back. Recemented to surface down annulus with 20 sx. regular cement. W.O.C. 24 hours. Tested casing with 750# for 30 minutes - tested O.K.

Drilled 7-7/8" hole to 5462'. Cored from 5462 to 5513, recovered 51'.
Cored from 5513 to 5529', recovered 16'.
Cored from 5529 to 5535', recovered 6'.
Cored from 5535 to 5595', recovered 57'.
Cored from 5595 to 5643', recovered 51'.
(3' top foot from Core #4)
Reamed core hole to 7-7/8" to 5643' at 11:30 P.M. 8-16-59. (Ran Schlumberger ES Induction Micro and Gamma Ray Neutron logs to 5643'). Drilled 7-7/8" hole to 5662' at 6:00 P.M. 8-17-59. Set and cemented 175 jts. 5-1/2" OD 14# J-55 casing with Baker fill collar and guide shoe at 5661.85' with 132 sx. regular cement, 100 sx. Diacel D, 496# Calcium Chloride. Pumped plug to 5629' with 1500# at 6:40 A.M. 8-18-59. W.O.C. 24 hours. Tested casing with 1000# for 30 minutes - O.K.

Tagged bottom with tubing at 5629' (top cement plug). Ran Gamma Ray Collar Locator log to 5630-1/2'. Perforated Desert Creek (5-1/2" casing) with 4 dyna jet shots per foot from 5467-95' EL and RL measurements. Ran 176 jts. 2-7/8" OD EUE tubing with Baker FGJ packer. Set tubing at 5608.11'. Tubing perforations 5467.95'. Packer at 5315.94'. Released rotary at 2:00 P.M. 8-19-59 .

Acidized Desert Creek perforations 5467-5495 with 1000 gallons regular 15% acid. Maximum pressure 3500#, minimum pressure 600# 8-20-59. Average treating rate 2.7 BPM. Flush rate 1.7 BPM. 5 minute shut in pressure decreased from 2300# to 1200#. Flowed 6 barrels oil 2% acid and emulsion, and died 8-20-59. Acidized Desert Creek perforations 5567-5595 with 4500 gallons retarded acid and 150 gallons block 8-21-59. (3000 gallons retarded acid, 150 gallons block, 1500 gallons retarded acid). Maximum pressure 2800#, minimum pressure 1700#. Block on formation pressure increased from 900 to 1700#. Flowed 108 BO, 0 water in 24 hours through 3/4" choke, FTP 175#, 8-22-59.

Form 9-331 b
(April 1952)

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

(SUBMIT IN TRIPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Indian Agency _____

Allottee Tribal

Lease No. 14-20-603-355

SUNDRY NOTICES AND REPORTS ON WELLS

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

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

May 2, 1962

Ratherford Unit

Well No. 21x21 is located 660 ft. from [N] line and 2030 ft. from [E] line of sec. 21
(Formerly Phillips ~~[illegible]~~ Navajo "A" #20, then Ratherford Unit #21-21 - See NOTE)

NE NW Sec. 21 (¼ Sec. and Sec. No.) | 41S (Twp.) | 24E (Range) | SLM (Meridian)

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

The elevation of the ~~derrick floor~~ ungraded ground above sea level is 4630 ft.

DETAILS OF WORK

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

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

1/21/62 Pulled tubing.

1/22 through 1/31/62 - Idle

2/1/62 Moved in R&R Well Service. Running cement lined tubing.

2/2/62 Ran 2-1/2" EUE cement lined tubing with Baker EUJ Knockoff packer.

2/3/62 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 363 BW in 5 hours. Tubing Pressure 1050# to 2550#.

NOTE: Well number changed from #21-21 to #21x21 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 O. H. Bolno

Title District Superintendent

Form 9-331
(May 1963)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN TRIPLICATE*
(Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1424.

SUNDRY NOTICES AND REPORTS ON WELLS

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

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

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

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

7. UNIT AGREEMENT NAME: SW-I-4192

2. NAME OF OPERATOR: Phillips Petroleum Company

8. FARM OR LEASE NAME: Rathorford Unit

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

9. WELL NO.: 21-21

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.)
At surface
660' FNL, 2030' FWL, Section 21
NW NW Sec. 21

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

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: 21-41S-24E S.L.M.

14. PERMIT NO.:

15. ELEVATIONS (Show whether DF, RT, GR, etc.): 4630' ungraded ground

12. COUNTY OR PARISH: San Juan

13. STATE: Utah

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

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

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

In attempt to increase water injection rate, treat well with 2,000 gallons of 15% regular acid with 2 gallons of I-5 additive per 1000 gallons of acid, 250 gallons Sol Block, and 2000 gallons of 15% regular acid with 2 gallons of I-5 additive per 1000 gallons of acid.

Present Injection Rate: 159 BWPD at 2525#.

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

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

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

*See Instructions on Reverse Side

December 15, 1965

Phillips Petroleum Company
Drawer 1150
Cortez, Colorado

Gentlemen:

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

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

Phillips Petroleum Company (2)
Drawer 1150
Cortez, Colorado

RATHERFORD UNIT #15423, Shoot or acidize
Sec. 15, T. 41 S., R. 24 E.

RATHERFORD UNIT #16443, Shoot or acidize
Sec. 16, T. 41 S., R. 24 E.

Your attention to this matter will be greatly appreciated.

Very truly yours,

OIL & GAS CONSERVATION COMMISSION

ARRETTE B. HANSEN
RECORDS CLERK

arh

Enclosures: OGCC-1b

Form 9-331
(May 1963)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN TRIPLICATE* (Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1424.

SUNDRY NOTICES AND REPORTS ON WELLS

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

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

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

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

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: Drawer 1150, Cortez, Colorado 81321

9. WELL NO.: 21-21

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface: 660' FNL, 2030' FWL, Section 21 NE NW Sec. 21

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

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: 21-41S-24E S.L.M.

14. PERMIT NO.:

15. ELEVATIONS (Show whether DF, RT, GR, etc.): 4630' ungraded ground

12. COUNTY OR PARISH: San Juan

13. STATE: Utah

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

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

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

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

Pull cement lined tubing, run string of 2½" bare tubing, treat Subzone I perforations 5467-95' in the Desert Creek Formation with 15,000 gallons of 15% acid, pull bare tubing, rerun cement lined tubing and return well to injection service.

PRESENT INJECTION RATE: 145 BWPD at 2560#.

#This Notice of Intention to Shoot or Acidize supercedes and cancels Notice of Intention to Shoot or Acidize dated 10-13-65.

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

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

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

*See Instructions on Reverse Side

Form 9-331
(May 1963)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN DUPLICATE* (Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1424.

SUNDRY NOTICES AND REPORTS ON WELLS

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

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

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: Navajo

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

7. UNIT AGREEMENT NAME: 89-I-4192

2. NAME OF OPERATOR: Phillips Petroleum Company

8. FARM OR LEASE NAME: Rutherford Unit

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

9. WELL NO.: 21-21

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface: 660' FNL, 2030' FWL, Section 21

NE NW Sec. 21

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

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: 21-41S-24E S.L.M.

14. PERMIT NO.

15. ELEVATIONS (Show whether DF, RT, GR, etc.): 4630' ungraded ground

12. COUNTY OR PARISH: San Juan

13. STATE: Utah

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

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	☐	PULL OR ALTER CASING	☐	WATER SHUT-OFF	☐	REPAIRING WELL	☐
FRACTURE TREAT	☐	MULTIPLE COMPLETE	☐	FRACTURE TREATMENT	X	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 February 16, 1966 acidized well with 15,000 gallons 15% regular acid, 16,000 gallons fresh water and 1000 gallons salt plug in 2 stages. First stage 7500 gallons regular acid followed by 7500 gallons fresh water then 1000 gallons salt plug. Second stage 7500 gallons 15% acid, 8500 gallons fresh water. Looked back up and resumed injection.

Present Injection Rate: 881 BWPD at 2450#.

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

SIGNED: C. M. Baker TITLE: Dist. Supt. DATE: 3-10-66

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

*See Instructions on Reverse Side

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

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

IN THE MATTER OF THE APPLICATION OF
PHILLIPS PETROLEUM COMPANY
ADDRESS P.O. BOX 2920
CASPER, WYOMING ZIP 82602
INDIVIDUAL ___ PARTNERSHIP X CORPORATION ___
FOR ADMINISTRATIVE APPROVAL TO DISPOSE OR INJECT FLUID INTO THE 21W21 WELL
SEC. 21 TWP. 41S RANGE 24E
SAN JUAN COUNTY, UTAH

CAUSE NO. C-3(B)

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

APPLICATION

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

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

Lease Name: Ratherford Unit	Well No.: 21W21	Field: Greater Aneth	County: San Juan
Location of Enhanced Recovery Injection or Disposal Well: 21W21	Sec. 21	Twp. 41S	Rge. 24E
New Well To Be Drilled Yes ☐ No ☒	Old Well To Be Converted Yes ☐ No ☒	Casing Test Yes ☒ No ☐ Date 5-83	
Depth-Base Lowest Known Fresh Water Within ½ Mile: Wingate 1550'	Does Injection Zone Contain Oil-Gas-Fresh Water Within ½ Mile YES ☒ NO ☐	State What: Oil & Gas	
Location of Injection Source(s): Desert Creek Paradox I & II, San Juan River	Geologic Name(s) and Depth of Source(s): Desert Creek (5567'), San Juan River (Surface)		
Geologic Name of Injection Zone: Desert Creek I	Depth of Injection Interval: 5467 to 5495		
a. Top of the Perforated Interval: 5467	b. Base of Fresh Water: 1550'	c. Intervening Thickness (a minus b): 3917	
Is the intervening thickness sufficient to show fresh water will be protected without additional data? YES NO	See Attachment #4		
Lithology of Intervening Zones: See Attachment #1			
Injection Rates and Pressures: Maximum 230 (12-82) B/D; 2525 PSI			

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

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

State of Wyoming)
County of Natrona)

PHILLIPS PETROLEUM COMPANY
Applicant

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

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

SEAL

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

Donald L. Hudson

My commission expires Nov 3, 1986 Notary Public in and for Natrona Co., Wyoming

(OVER)

INSTRUCTIONS

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

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

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

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

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

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

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

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

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

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

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

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

CASING AND TUBING DATA

NAME OF STRING	SIZE	SETTING DEPTH	SACKS CEMENT	TOP OF CEMENT	TOP DETERMINED BY
Surface	13-3/8	173	175	Surface	Returns
Intermediate	8-5/8	1409	800 cu ft	Surface	Returns
Production	5-1/2	5662	550 cu ft	4274	CALCULATED
Tubing	2-1/2	5442	Name - Type - Depth of Tubing Packer: Baker GKS Pkr 5442		

Total Depth	Geologic Name - Inj. Zone	Depth - Top of Inj. Interval	Depth - Base of Inj. Interval
PB 5629	Desert Creek I	5467	5495

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

PLEASE TYPE OR USE BLACK INK ONLY

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

LEASE NO. 14-20-603- 355

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

API NO. 43-037- 16425

640 Acres
N
W E
S
Locate Well Correctly and Outline Lease

COUNTY San Juan SEC. ____ TWP. ____ RGE. ____
COMPANY OPERATING Phillips Petroleum Company
OFFICE ADDRESS P.O. Box 2920
TOWN Casper STATE ZIP Wyoming 82602
FARM NAME ____ WELL NO. 21W21
DRILLING STARTED 7/15 1959 DRILLING FINISHED 8/17 1959
DATE OF FIRST PRODUCTION 8/22/59 COMPLETED 8/22/59
WELL LOCATED NE ¼ NW ¼ ____ ¼
660 FT. FROM NL OF ¼ SEC. & 2030 FT. FROM WL OF ¼ SEC.
ELEVATION ~~DERRICK FLOOR~~ RKB 4646 GROUND 4630

TYPE COMPLETION
Single Zone x
Multiple Zone ____
Comingled ____
LOCATION EXCEPTION

OIL OR GAS ZONES

Name	From	To	Name	From	To
Desert Creek I	5467	5495			

CASING & CEMENT

Casing Set				Csg. Test	Cement		
Size	Wgt.	Grade	Feet	Psi	Sax	Fillup	Top
13-3/8	27.1	H-40	160	no test	175		Surface
8-5/8	24	J-55	1406	750	800 cu ft		Surface
5-1/2	14	J-55	5692	1000	550 cu ft	1417	4274

PBTD 5629 TOTAL DEPTH 5662
PACKERS SET DEPTH Baker Model GKS Pkr @ 5442

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

COMPLETION & TEST DATA BY PRODUCING FORMATION

	1	2	3
FORMATION	Desert Creek I		
SPACING & SPACING ORDER NO.	40 acre Cause #C-3(B)		
CLASSIFICATION (DISPOSAL WELL, ENHANCED RECOVERY, LP GAS STORAGE)	Enhanced Recovery		
PERFORATED	5467 - 5495		
INTERVALS			
ACIDIZED?	2-16-66 15,000 gal 15% Regular Acid		
FRACTURE TREATED?	No		

INITIAL TEST DATA Converted to Injector 5-10-62

Date	5-10-62		
Oil, bbl./day	--		
Oil Gravity	--		
Gas, Cu. Ft./day	-- CF	CF	CF
Gas-Oil Ratio Cu. Ft./Bbl.	--		
Water-Bbl./day	415		
Pumping or Flowing	pumping		
CHOKE SIZE	--		
FLOW TUBING PRESSURE	2150		

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

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

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

Subscribed and sworn before me this ____ day of SEP 22, 19 83

Casper

WELL: 21W21

LOCATION: NENW Sec 21 - T41S - R24E

FIELD: GREATER ANETH

RESERVOIR: Desert Creek I

COMPLETION: 5.10.62

PRESENT STATUS: W.I.

RKB 4646'

GL 4630'

173'

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

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

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

1409'

PERFORATIONS:
5467-5495

PACKER: Baker "GKS"
Pkr @ 5442'
Tubing: 2 1/2 @ 5442'

5442'

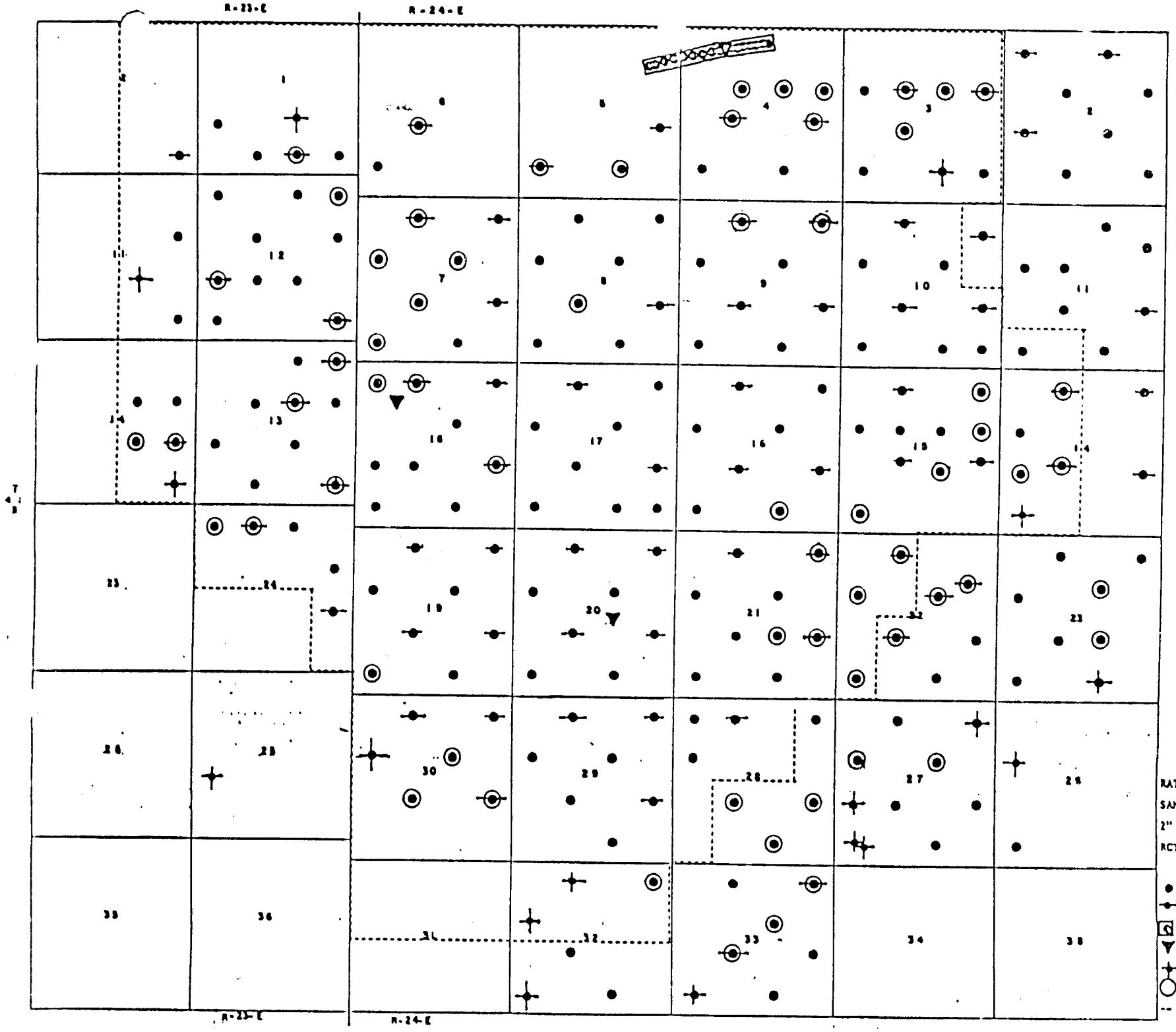
5467' - 5495'

PBTD: 5629'

OTD: 5662'

5662'

Phillips Petroleum Company


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

Formation Water

ATTACHMENT 3b:

CL1-12A (REV. 1964).

CHEMICAL & GEOLOGICAL LABORATORIES

P. O. Box 2794
Casper, Wyoming

WATER ANALYSIS REPORT

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

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

REMARKS & CONCLUSIONS:

Cations	mg/1	meq/1
Sodium	30147	1311.38
Potassium	429	10.98
Lithium	--	--
Calcium	6865	342.56
Magnesium	1738	124.86
Iron	--	--
Total Cations		1807.78

Anions	mg/1	meq/1
Sulfate	1380	28.70
Chloride	63000	1776.60
Carbonate	0	0.00
Bicarbonate	151	2.48
Hydroxide	--	--
Hydrogen sulfide	--	--
Total Anions		1807.78

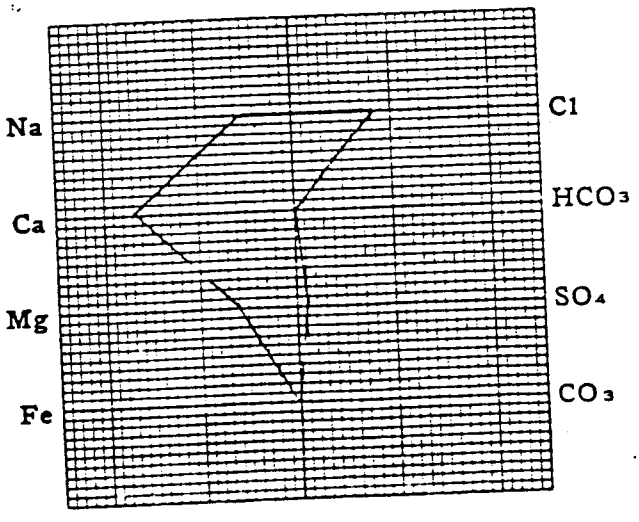
Total dissolved solids, mg/1	103633
NaCl equivalent, mg/1	104549
Observed pH	7.3

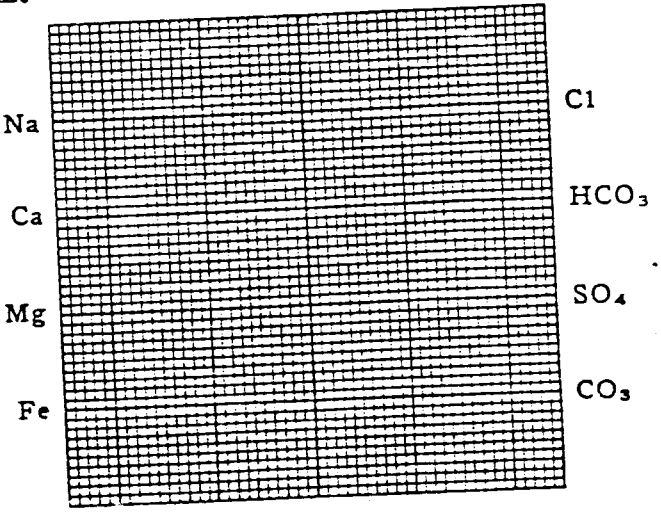
Specific resistance @ 68°F.:
Observed 0.087 ohm-meters
Calculated 0.078 ohm-meters

WATER ANALYSIS PATTERN

Sample above described

Scale
MEQ per Unit





(Na value in above graphs includes Na, K, and Li)
NOTE: Mg/1 = Milligrams per liter Meq/1 = Milligram equivalents per liter
Sodium chloride equivalent = by Dunlap & Hawthorne calculation from components

ATTACHMENT 3a:

Wte Injection Well

CL1-12A (REV. 1964)

CHEMICAL & GEOLOGICAL LABORATORIES

P. O. Box 2794
Casper, Wyoming

WATER ANALYSIS REPORT

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

REMARKS & CONCLUSIONS:

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

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

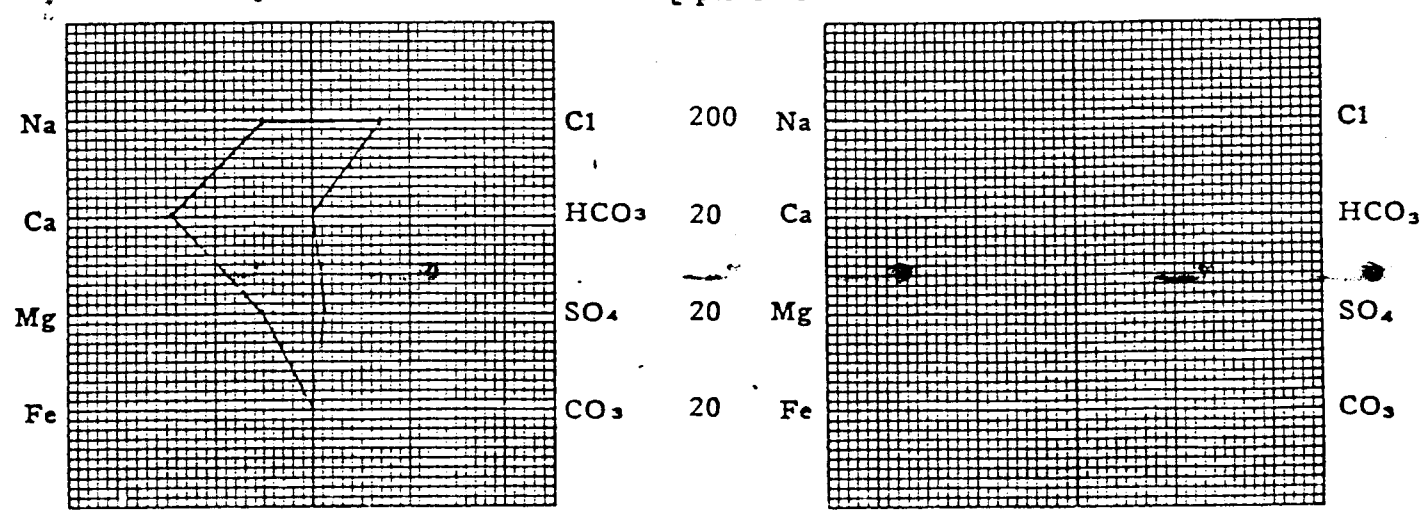
Total dissolved solids, mg/l 85655
NaCl equivalent, mg/l 86344
Observed pH 7.4

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

WATER ANALYSIS PATTERN

Sample above described

Scale
MEQ per Unit



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

CHECKLIST FOR INJECTION WELL APPLICATION AND FILE REVIEW

Operator: Phillips Well No. Rathbone Unit 21W21

County: San Juan T 41S R 24E Sec. 21 API# 43-037-

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

	YES	NO
UIC Forms Completed	✓	
Plat including Surface Owners, Leaseholders, and wells of available record	✓	
Schematic Diagram	✓	
Fracture Information	✓	
Pressure and Rate Control	✓	
Adequate Geologic Information	✓	
Fluid Source	Desert Creek	
Analysis of Injection Fluid	Yes ✓	No ___ TDS 85655
Analysis of Water in Formation to be injected into	Yes ✓	No ___ TDS 103683
Known USDW in area	Wingate	Depth 1550
Number of wells in area of review	70	Prod. 4 P&A 0
		Water 0 Inj. 3
Aquifer Exemption	Yes ___	NA ✓
Mechanical Integrity Test	Yes ___	No ✓
	Date ___	Type ___

Comments: 70C 4274

Reviewed by: [illegible]

Mobil Oil Corporation

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

May 14, 1986

RECEIVED
MAY 16 1986
DIVISION OF
OIL, GAS & MINING

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

Attn: R. J. Firth
Associate Director

SUPERIOR OIL COMPANY MERGER

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

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

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

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

Very truly yours,

R. D. Baker
Environmental Regulatory Manager

CNE/rd
CNE8661

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

OPERATOR: Phillips Petroleum Company

FIELD: Greater Aneth LEASE: Ratherford Unit

WELL # 21W21 SEC. 21 TOWNSHIP 41S RANGE 24E

STATE (FED.) FEE DEPTH 5629 TYPE WELL INJ W MAX. INJ. PRESS. 2525 psi

TEST DATE 6/18/86

CASING STRING	SIZE	SET AT	CMT	PRESSURE READINGS	REMARKS	FUTURE
SURFACE	13 3/8	173	175			
INTERMEDIATE	8 5/8	1409	800#³			
PRODUCTION	5 1/2	5662	550#³	980	Flowed water	OK - Should check again
TUBING	2 1/2	5442		2700		
	Baker GKS		Pkr	at 5442		

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

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

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPLICATE*
(Other instructions on reverse side)

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

SUNDRY NOTICES AND REPORTS ON WELLS

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

5. LEASE DESIGNATION AND SERIAL NO.

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

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

7. UNIT AGREEMENT NAME: RATHERFORD UNIT #7960041920

2. NAME OF OPERATOR: PHILLIPS PETROLEUM COMPANY

8. FARM OR LEASE NAME:

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

9. WELL NO.: VARIOUS (see attached)

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

10. FIELD AND POOL, OR WILDCAT: GREATER ANETH

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

14. PERMIT NO.

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

12. COUNTY OR PARISH: San Juan

13. STATE: Utah

MAR 20 1989
DIVISION OF OIL, GAS & MINING

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

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

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

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

(former Operator - Phillips Oil Company)

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

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

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

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

*See Instructions on Reverse Side

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

DOWNHOLE SCHEMATIC

Date: 8/6/87

Rutherford Unit # 21W21

Location NE NW Sec. 21 T41S-R24E

RKB Elev. 4646'

GL Elev. 4635'

RKB Above GL' 11'

Well Drld 8/17/59

Well Converted to injector 4/30/62

Conductor Csg 13 3/8 @ 173'

Surface Csg. 8 5/8 @ 1409'

TOC 4081' CALC.

Tubing 2 1/2 @ 5442' Marlex lined

Packer Baker Lok-Set PKR. @ 5442'

Perfs 5467 - 5495

PBTD 5,629'

Production Csg. 5 1/2 @ 5662' J-55, 14#

All Perfs Zone I unless noted

FORM 10

STATE OF UTAH
DIVISION OF OIL, GAS AND MINING

MONTHLY OIL AND GAS PRODUCTION REPORT

RECEIVED
AUG 16 1993
DIVISION OF
OIL, GAS & MINING

OPERATOR NAME AND ADDRESS:

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

ACCOUNT NUMBER: N0772

REPORT PERIOD (MONTH/YEAR): 6 / 93

AMENDED REPORT ☐ (Highlight Changes)

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

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

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

Name and Signature: PAT KONKEL Pat Konkel

Telephone Number: 505 599-3452

(6/93)

FORM 11

STATE OF UTAH
/ISION OF OIL, GAS AND MINING

MONTHLY OIL AND GAS DISPOSITION REPORT

OPERATOR NAME AND ADDRESS:

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

UTAH ACCOUNT NUMBER: N7370

REPORT PERIOD (MONTH/YEAR): 7 / 93

AMENDED REPORT ☐ **(Highlight Changes)**

*931006 updated. fc

ENTITY NUMBER	PRODUCT	GRAVITY BTU	BEGINNING INVENTORY	VOLUME PRODUCED	DISPOSITIONS TRANSPORTED	USED ON SITE	FLARED/VENTED	OTHER	ENDING INVENTORY
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. ROBIN ~~ASSU~~ 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: Lowell B Sheffield

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

(6/93)

FORM=NR0003.FRM 07/2

FORM 9

STATE OF UTAH
DIVISION OF OIL, GAS AND MINING

5. LEASE DESIGNATION & SERIAL NO.

SUNDRY NOTICES AND REPORTS ON WELLS

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

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

1. OIL WELL ☐ GAS WELL ☐ OTHER

7. UNIT AGREEMENT NAME: RATHERFORD UNIT

2. NAME OF OPERATOR: MOBIL OIL CORPORATION

8. FARM OR LEASE NAME

3. ADDRESS OF OPERATOR: P. O. BOX 633 MIDLAND, TX 79702

9. WELL NO.

RECEIVED SEP 13 1993 DIVISION OF OIL, GAS & MINING

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

10. FIELD AND POOL, OR WILDCAT: GREATER ANETH

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

14. API NO.

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

12. COUNTY: SAN JUAN

13. STATE: UTAH

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

NOTICE OF INTENTION TO:

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

APPROX. DATE WORK WILL START _____

SUBSEQUENT REPORT OF:

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.)

DATE OF COMPLETION _____

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

* Must be accompanied by a cement verification report.

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

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

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

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

See Instructions On Reverse Side

(3/89)

STATE OF UTAH
DIVISION OF OIL, GAS AND MINING

OCT 2 3 1993

TRANSFER OF AUTHORITY TO INJECT - UIC FORM 5

Well name and number: _____

Field or Unit name: RATHERFORD UNIT API no. _____

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

Effective Date of Transfer: July 1, 1993

CURRENT OPERATOR

Transfer approved by:

Name Ed Hasely Company Phillips Petroleum Company

Signature Ed Hasely Address 5525 HWY. 64

Title Environmental Engineer Farmington, NM 87401

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

Comments:

NEW OPERATOR

Transfer approved by:

Name Shirley Todd Company Mobil Exploration & Producing North America

Signature Shirley Todd Address P O Box 633

Title Env. & Reg. Technician Midland, TX 79702

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

Comments:

(State use only)
Transfer approved by [illegible] Title UIC Manager

Approval Date 10-27-93

Lisha Cordova (801) 538-5340

(3/89)

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

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

ORDER

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

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

TOWNSHIP 41 SOUTH, RANGE 23 EAST, SLBM

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

TOWNSHIP 41 SOUTH, RANGE 24 EAST, SLBM

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

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

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

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

FINDINGS OF FACT

The Commission finds that:

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

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

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

O R D E R

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

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

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

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

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

Dated this 13th day of September, 1961.

THE OIL AND GAS CONSERVATION
COMMISSION OF THE STATE OF UTAH

Edward W. Clyde, Commissioner presiding

C. R. Henderson, Chairman

M. V. Hatch, Commissioner

C. S. Thomson, Commissioner

Walter G. Mann, Commissioner

Sept 29, 1993

TO: Lisha Cordova - Utah Mining Oil & Gas

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

Here is copy of Rutherford Unit Successor Operator.

4 pages including this one.

Ratherford Unit (G-C)

RECEIVED
BLM
27 AM 11:44
070 FARMINGTON, NM
MINERAL RESOURCES
1
3
2
ALL SURV.

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

ARES/543

JUL 2 0 1993

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

Dear Mr. Cox:

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

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

Sincerely,

ACTING Area Director

Enclosure

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS

RECEIVED
BLM
93 JUL 27 AM 11:44
070 FARMINGTON, NM

DESIGNATION OF OPERATOR

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

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

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

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

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

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

Attached hereto as Exhibit "A"

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

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

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

Attached is the appropriate documentation relevant to this document.

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

Phillips Petroleum Company

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

Mobil Exploration and Producing
North America Inc.

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

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

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

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

EXHIBIT "A"

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

EXHIBIT "C"

Revised as of September 29, 1992)

SCHEDULE OF TRACT PERCENTAGE PARTICIPATION

Tract Number	Description of Land	Serial Number and Effective Date of Lease	Tract Percentage Participation
1	S/2 Sec. 1, E/2 SE/4 Sec. 2, E/4 Sec. 11, and all of Sec. 12, T-41-S, R-23-E, S.L.M. San Juan County, Utah	14-20-603-246-A Oct. 5, 1953	11.0652565
2	SE/4 and W/2 SW/4 Sec. 5, the irregular SW/4 Sec. 6, and all of Sec. 7 and 8, T-41-S, R-24-E, San Juan County, Utah	14-20-603-368 Oct. 26, 1953	14.4159942
3	SW/4 of Sec. 4, T-41-S, R-24-E, San Juan County, Utah	14-20-603-5446 Sept. 1, 1959	.5763826
4	SE/4 Sec. 4, and NE/4 Sec. 9, T-41-S, R-24-E, San Juan County, Utah	14-20-603-4035 March 3, 1958	1.2587779
5	SW/4 of Sec. 3, T-41-S, R-24-E, S.L.M., San Juan County, Utah	14-20-603-5445 Sept. 3, 1959	.4667669
6	NW/4 of Sec. 9, T-41-S, R-24-E, S.L.M., San Juan County, Utah	14-20-603-5045 Feb. 4, 1959	1.0187043
7	NW/4, W/2 NE/4, and SW/4 Sec. 10, SE/4 Sec. 9, T-41-S, R-24-E, San Juan County, Utah	14-20-603-4043 Feb. 18, 1958	3.5097575
8	SW/4 Sec. 9, T-41-S, R-24-E, S.L.M. San Juan County, Utah	14-20-603-5046 Feb. 4, 1959	1.1141679
9	SE/4 Sec. 10 and S/2 SW/4 Sec. 11 T-41-S, R-24-E, San Juan County, Utah	14-20-603-4037 Feb. 14, 1958	2.6186804
10	All of Sec. 13, E/2 Sec. 14, and E/2 SE/4 and N/2 Sec. 24, T-41-S, R-23-E, S.L.M., San Juan County, Utah	14-20-603-247-A Oct. 5, 1953	10.3108861
11	Sections 17, 18, 19 and 20, T-41-S, R-24-E, San Juan County Utah	14-20-603-353 Oct. 27, 1953	27.3389265
12	Sections 15, 16, 21, and NW/4, and W/2 SW/4 Sec. 22, T-41-S, R-24-E, San Juan County, Utah	14-20-603-355 Oct. 27, 1953	14.2819339
13	W/2 Section 14, T-41-S, R-24-E, San Juan County, Utah	14-20-603-370 Oct. 26,1953	1.8500847
14	N/2 and SE/4, and E/2 SW/4 Sec. 29, NE/4 and E/2 SE/4 and E/2 W/2 irregular Sec. 30, and E/2 NE/4 Sec. 32, T-41-S, R-24-E, San Juan County, Utah	14-20-603-407 Dec. 10, 1953	6.9924969
15	NW/4 Sec. 28, T-41-S, R24-E San Juan County, Utah	14-20-603-409 Dec. 10, 1953	.9416393
16	SE/4 Sec. 3, T-41-S, R-24-E San Juan County, Utah	14-20-0603-6504 July 11, 1961	.5750254
17	NE/4 Sec. 3, T-41-S, R-24-E San Juan County, Utah	14-20-0603-6505 July 11, 1961	.5449292
18	NW/4 Sec. 3, T-41-S, R-24-E San Juan County, Utah	14-20-0603-6506 July 11, 1961	.5482788
19	NE/4 Sec. 4, T-41-S, R24-E San Juan County, Utah	14-20-0603-7171 June 11, 1962	.4720628
20	E/2 NW/4 Sec. 4, T-41-S, R-24-E San Juan County, Utah	14-20-0603-7172 June 11, 1962	.0992482
100% Indian Lands		TOTAL 12,909.74	100.0000000

Division of Oil, Gas and Mining

PHONE CONVERSATION DOCUMENTATION FORM

Route original/copy to:

[] Well File _____

(Location) Sec___Twp___Rng___

(API No.) _____

[] Suspense

(Return Date) _____

(To - Initials) _____

XXX Other

OPERATOR CHANGE

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

2. DOGM Employee (name) L. CORDOVA (Initiated Call XXX)

Talked to:

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

of (Company/Organization) MOBIL

3. Topic of Conversation: OPERATOR CHANGE FROM PHILLIPS TO MOBIL "RATHERFORD UNIT".

(NEED TO CONFIRM HOW OPERATOR WANTS THE WELLS SET UP - MEPNA AS PER BIA APPROVAL

OR MOBIL OIL CORPORATION AS PER SUNDRY DATED 9-8-93?)

4. Highlights of Conversation:

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

MEPNA-

PO DRAWER G

CORTEZ, CO 81321

(303)565-2212

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

Division of Oil, Gas and Mining
OPERATOR CHANGE WORKSHEET

Routing:

1- VEC/7-SJ	
2- DTS/8-FILE	
3- VLC	
4- RJF	
5- LEC	
6- PL	

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

XX Change of Operator (well sold) ☐ Designation of Agent
☐ Designation of Operator ☐ Operator Name Change Only

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

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

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

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

Name:	API:	Entity:	Sec	Twp	Rng	Lease Type:
SEE ATTACHED	43-037-16425					

OPERATOR CHANGE DOCUMENTATION

Lec 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)

Lec 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: _____.

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

Lec 5. Changes have been entered in the Oil and Gas Information System (Wang/IBM) for each well listed above. (O&G wells 10-6-93) (WIW's 10-26-93)

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

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

Lec 8. Changes have been included on the monthly "Operator, Address, and Account Changes" memo for distribution to State Lands and the Tax Commission. (10-6-93)

Lec 9. A folder has been set up for the Operator Change file, and a copy of this page has been placed there for reference during routing and processing of the original documents.

- OVER -

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

NTITY REVIEW

Yes 1. (Rule R615-8-7) Entity assignments have been reviewed for all wells listed above. Were entity changes made? (yes/no) ____ (If entity assignments were changed, attach copies of Form 6, Entity Action Form).

N/A 2. State Lands and the Tax Commission have been notified through normal procedures of entity changes.

OND VERIFICATION (Fee wells only)

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

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

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

EASE INTEREST OWNER NOTIFICATION RESPONSIBILITY

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

DTS 11-10-93

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

FILMING

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

FILING

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

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

COMMENTS

931006 B/A/Blm Approved 7-9-93.

19W-21	43-037-15741	14-20-603-353	SEC. 19, T41S, R24E	NE/NW 660' FNL 1860' FWL	
19-22	43-037-31046	14-20-603-353	SEC. 19, T41S, R24E	SE/NW 1840' FNL; 1980' FWL	
19W-23	43-037-15742	14-20-603-353	SEC. 19, T41S, R24E	NE/SW 2080' FSL; 1860' FWL	
19-31	43-037-31047	14-20-603-353	SEC. 19, T41S, R24E	NW/NE 510' FNL; 1980' FEL	
19-32	43-037-15743	14-20-603-353	SEC. 19, T41S, R24E	SW/NE 1980' FNL; 1980' FEL	
19-33	43-037-31048	14-20-603-353	SEC. 19, T41S, R24E	NW/SE 1980' FSL; 1980' FEL	
19-34	43-037-15744	14-20-603-353	SEC. 19, T41S, R24E	SW/SE 660' FSL; 1980' FEL	
19W-41	43-037-15745	14-20-603-353	SEC. 19, T41S, R24E	NE/NE 660' FNL; 660' FEL	
19-42	43-037-30916	14-20-603-353	SEC. 19, T41S, R24E	SE/NE 1880' FNL, 660' FEL	
19W-43	43-037-16420	14-20-603-353	SEC. 19, T41S, R24E	NE/SE 1980' FSL; 760' FEL	
19-44	43-037-31081	14-20-603-353	SEC. 19, T41S, R24E	SE/SE 660' FSL; 660' FEL	
19-97	43-037-31596	14-20-603-353	SEC. 19, T41S, R24E	2562' FNL, 30' FEL	
20-11	43-037-31049	14-20-603-353	SEC. 20, T41S, R24E	NW/NW 500' FNL; 660' FWL	
20-12	43-037-15746	14-20-603-353	SEC. 20, T41S, R24E	1980' FNL, 660' FWL	
20-13	43-037-30917	14-20-603-353	SEC. 20, T41S, R24E	NW/SW 2140' FSL, 500' FWL	
20-14	43-037-15747	14-20-603-353	SEC. 20, T41S, R24E	660' FSL; 660' FWL	
20W-21	43-037-16423	14-20-603-353	SEC. 20, T41S, R24E	660' FNL; 1880' FWL	
20-22	43-037-30930	14-20-603-353	SEC. 20, T41S, R24E	SE/NW 2020' FNL; 2090' FWL	
20W-23	43-037-15748	14-20-603-353	SEC. 20, T41S, R24E	NW/SW 2080; 2120' FWL	
20-24	43-037-30918	14-20-603-353	SEC. 20, T41S, R24E	SE/SW 820' FSL; 1820' FWL	
20-31	43-037-31050	14-20-603-353	SEC. 20, T41S, R24E	NW/NE 660' FNL; 1880' FEL	
20-32	43-037-15749	14-20-603-353	SEC. 20, T41S, R24E	SW/NE 1980' FNL, 1980' FEL	
20-33	43-037-30931	14-20-603-353	SEC. 20, T41S, R24E	NW/SE 1910' FSL; 2140' FEL	
20-34	43-037-15750	14-20-603-353	SEC. 20, T41S, R24E	660' FSL; 1850' FEL	
20W-41	43-037-15751	14-20-603-353	SEC. 20, T41S, R24E	NE/NE 660' FNL; 660' FEL	PA'd
20-42	43-037-31051	14-20-603-353	SEC. 20, T41S, R24E	SE/NE 1980 ' FNL; 660' FEL	
20W-43	43-037-16424	14-20-603-353	SEC. 20, T41S, R24E	2070' FSL; 810' FEL	
20-44	43-037-30915	14-20-603-353	SEC. 20, T41S, R24E	SE/SE 620' FSL; 760' FEL	
20-66	43-037-31592	14-20-603-353	SEC. 20, T41S, R24E	SW/NW 1221' FWL; 1369' FNL	
21-11	43-037-31052	14-20-603-355	SEC. 21, T41S, R24E	NW/NW 660' FNL; 660 FWL	
21-12	43-037-15752	14-20-603-355	SEC. 21, T41S, R24E	2080' FNL; 660' FWL	
21-13	43-037-30921	14-20-603-355	SEC. 21, T41S, R24E	NW/SW 2030' FSL; 515' FWL	
21-14	43-037-15753	14-20-603-355	SEC. 21, T41S, R24E	SW/SW 660' FSL; 460' FWL	
21W-21	43-037-16425	14-20-603-355	SEC. 21, T41S, R24E	NE/NW 660' FNL; 2030' FWL	
21-32	43-037-15755	14-20-603-355	SEC. 21, T41S, R24E	SW/NE 1880' FNL; 1980' FEL	
~~21-33~~	~~NA~~	~~14-20-603-355~~	~~SEC. 21, T41S, R24E~~	~~2000 FSL, 1860' FEL~~	
21-34	43-037-15756	14-20-603-355	SEC. 21, T41S, R24E	SW/SE 660' FSL; 1980' FEL	
21W-41	43-037-16426	14-20-603-355	SEC. 21, T41S, R24E	660' FNL; 810' FEL	PA'd
21W-43	43-037-16427	14-20-603-355	SEC. 21, T41S, R24E	NE/NE 1980' FSL; 660' FEL	
24-11	43-037-15861	14-20-603-247A	SEC. 24, T41S, R24E	510' FNL; 810' FWL	PA'd
24W-21	43-037-16429	14-20-603-247	SEC. 24, T41S, R24E	4695' FSL; 3300' FEL	PA'd
24W-43	43-037-16430	14-20-603-247	SEC. 24, T41S, R24E	2080' FSL; 660' FEL	
24-31W	43-037-15862	14-20-603-247A	SEC. 24, T41S, R24E	NW/NE 560' FNL; 1830' FEL	
24-32	43-037-31593	14-20-603-247A	SEC. 24, T41S, R24E	SW/NE 2121' FNL; 1846' FEL	
24-41	43-037-31132	14-20-603-247A	SEC. 24, T41S, R24E	NE/NE 660' FNL; 710' FEL	
24W-42	43-037-15863	14-20-603-247A	SEC. 24, T41S, R24E	660' FSL; 1980' FNL	
28-11	43-037-30446	14-20-603-409	SEC. 28, T41S, R24E	NW/NW 520' FNL; 620' FWL	
28-12	43-037-15336	14-20-603-409B	SEC. 28, T41S, R24E	SW/SE/NW 2121' FNL; 623' FWL	
29-11	43-037-31053	14-20-603-407	SEC. 29, T41S, R24E	NW/NW 770' FNL; 585' FWL	
29W-21	43-037-16432	14-20-603-407	SEC. 29, T41S, R24E	NE/NW 667' FNL; 2122' FWL	
29-22	43-037-31082	14-20-603-407	SEC. 29, T41S, R24E	SE/NW 2130' FNL; 1370' FWL	
29W-23	43-037-15338	14-20-603-407	SEC. 29, T41S, R24E	NE/SW 1846' FSL; 1832' FWL	
29-31	43-037-30914	14-20-603-407	SEC. 29, T41S, R24E	NW/NE 700' FNL; 2140' FEL	
29-32	43-037-15339	14-20-603-407	SEC. 29, T41S, R24E	1951' FNL; 1755' FEL	
29-33	43-037-30932	14-20-603-407	SEC. 29, T41S, R24E	NW/SE 1860' FSL; 1820' FEL	
29-34	43-037-15340	14-20-603-407	SEC. 29, T41S, R24E	817 FSL; 2096' FEL	
29W-41	43-037-16433	14-20-603-407	SEC. 29, T41S, R24E	557' FNL; 591' FEL	
29W-42	43-037-30937	14-20-603-407	SEC. 29, T41S, R24E	SE/NE 1850' FNL; 660' FEL	
29W-43	43-037-16434	14-20-603-407	SEC. 29, T41S, R24E	NE/SE 1980' FSL; 660' FEL	
30-21W	43-037-16435	14-20-603-407	SEC. 30, T41S, R24E	660' FNL; 1920' FWL	
30-32	43-037-15342	14-20-603-407	SEC. 30, T41S, R24E	SW/NE 1975' FNL; 2010' FEL	
30W-41	43-037-15343	14-20-603-407	SEC. 30, T41S, R24E	NE/NE 660' FNL; 660' FEL	
9-34	NA 43037157 11	NA 14206034643	NA Sec. 9, T. 41S, R. 24E	NA SWSE 660' FSL 1980 FEL	
12-43	43-307-31202	14-20-603-246	SEC. 12. T41S. R23E	2100' FSL;660 FEL	
12W31	43-037-15847	14-20-603-246	SEC. 12, T41S, R23E	661' FNL;, 1981' FEL	
13W24	43-037-15853	14-20-603-247	SEC. 13, T41S, R23E	SE/SW 660' FSL;3300'FEL	
15W23	43-037-16412	14-20-603-355	SEC. 15, T41S, R24E	2140' FSL;1820' FWL	
17-24	43-037-31044	14-20-603-353	SEC. 17, T41S, R24E	SE/SW 720' FSL; 1980' FWL	
18-13	43-037-15734	14-20-603-353	SEC. 18, T41S, R24E	NW/NW 1980' FSL;500' FWL	
18W32	43-037-15736	14-20-603-353	SEC. 18, T41S, R24E	SW/NE2140'FNL;1830' FEL	
20-68	43-037-31591	14-20-603-353	SEC. 20, T41S, R24E	NW/SW 1276' FWL;1615' FSL	
21-23	43-037-13754	14-20-603-355	SEC. 21, T41S, R24E	NE/SW 1740 FSL 1740 FWL	
28W21	43-037-16431	14-20-603-409	SEC.29, T41S, R24E	660' FNL; 2022' FWL	

Form 3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

5. Lease Designation and Serial No.
14-20-603-355

6. If Indian, Allottee or Tribe Name
NAVAJO TRIBAL

7. If Unit or CA, Agreement Designation
RATHERFORD UNIT

8. Well Name and No.
21-W-21

9. API Well No.
43-037-16425

10. Field and Pool, or Exploratory Area
GREATER ANETH

11. County or Parish, State
SAN JUAN, UT

SUNDRY NOTICES AND REPORTS ON WELLS

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

SUBMIT IN TRIPLICATE

1. Type of Well
☐ Oil Well ☐ Gas Well ☐ Other INJECTION WELL

2. Name of Operator
MOBIL OIL CORPORATION

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)
660' FNL, 2030 FWL SEC.21, T41S, R24E

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

TYPE OF SUBMISSION	TYPE OF ACTION	
☐ Notice of Intent	☐ Abandonment	☐ Change of Plans
☒ Subsequent Report	☐ Recompletion	☐ New Construction
	☐ Plugging Back	☐ Non-Routine Fracturing
	☐ Casing Repair	☐ Water Shut-Off
☐ Final Abandonment Notice	☐ Altering Casing	☐ Conversion to Injection
	☐ Other WORKOVER	☐ 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.)*

2-13-94 MIRU ND WELLHEAD NU BOP REL BAKER 5.5" LOK-SET PKR POOH LD 90 JTS TBG.
2-14-94 POOH W/INJECTION TBG (172 JTS 2 7/8" DUO-LINED) PU 4 3/4 BIT & SCRAPPER TAG FILL W?180 JTS TBG @ 5490' DRILL OUT TO PBTD 95629') DIR HOLE LEAN W/180 BBL FW POOH W/TBG
2-15-94 PU 5.5" PKR ON 172 JTS 2 7/8 TBG SET PKR @ 5382' DOWELL ACID PERF INTERVAL 5467-95, W/5000 GALS 15% HCL W/ADD.
2-16-94 OPEN WELL & BLOW DOWN REL PKR. POOH LD W.S. RIH W?104 JTS 2 7/8 CMT LINED TBG
2-17-94 RIH W/PKR ON 172 JTS TBG PUMP OUT, TEST CSG TO 1000 PSI/HELD/OK RDMO

MAR 10 1994

14. I hereby certify that the foregoing is true and correct
Signed Shirley Todd SHIRLEY TODD Title ENV. & REG TECH Date 3-5-94

(This space for Federal or State office use)
Approved by Federal Approval of this action is Necessary Title Date Tax Credit
Conditions of approval, if any:

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

*See Instruction on Reverse Side

Division of Oil, Gas and Mining

PHONE CONVERSATION DOCUMENTATION FORM

Route original/copy to:

[ ] **Well File** _____

(Location) Sec___Twp___Rng___

(API No.) _____

[ ] **Suspense**

(Return Date) _____

(To - Initials) _____

XXX **Other**

OPER NM CHG

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

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

Talked to:

Name R. J. FIRTH (Initiated Call XX) - Phone No. ( )

of (Company/Organization) _____

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

4. Highlights of Conversation:

OPERATOR NAME IS BEING CHANGED FROM M E P N A (MOBIL EXPLORATION AND PRODUCING NORTH AMERICA INC) TO MOBIL EXPLOR & PROD. THE NAME CHANGE IS BEING DONE AT THIS TIME TO ALLEVIATE CONFUSION, BOTH IN HOUSE AND AMONGST THE GENERAL PUBLIC.

*SUPERIOR OIL COMPANY MERGED INTO M E P N A 4-24-86 (SEE ATTACHED).

Division of Oil, Gas and Mining
OPERATOR CHANGE WORKSHEET

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

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

☐ Change of Operator (well sold) ☐ Designation of Agent
☐ Designation of Operator XXX Operator Name Change Only

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

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

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

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

Name:	API:	Entity:	Sec	Twp	Rng	Lease Type:
** SEE ATTACHED **	037-16425					

OPERATOR CHANGE DOCUMENTATION

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

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

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

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

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

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

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

Lec 8. Changes have been included on the monthly "Operator, Address, and Account Changes" memo for distribution to State Lands and the Tax Commission. (8-3-95)

Lec 9. A folder has been set up for the Operator Change file, and a copy of this page has been placed there for reference during routing and processing of the original documents.

OVER

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

ENTITY REVIEW

Lec 1. (Rule R615-8-7) Entity assignments have been reviewed for all wells listed above. Were entity changes made? (yes/no) ____ (If entity assignments were changed, attach copies of Form 6, Entity Action Form).

N/A 2. State Lands and the Tax Commission have been notified through normal procedures of entity changes.

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

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

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

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

LEASE INTEREST OWNER NOTIFICATION RESPONSIBILITY

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

VTS 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 19 95.

FILING

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

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

COMMENTS

950803 UIC F5 / Not necessary!

WE71/34-35

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	--

Form 3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

SUNDRY NOTICES AND REPORTS ON WELLS

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

SUBMIT IN TRIPLICATE

5. Lease Designation and Serial No.: 14-20-603-355
6. If Indian, Allottee or Tribe Name: NAVAJO TRIBAL
7. If Unit or CA, Agreement Designation: RATHERFORD UNIT
8. Well Name and No.: RATHERFORD 21-W-21
9. API Well No.: 43-037-16425
10. Field and Pool, or exploratory Area: GREATER ANETH
11. County or Parish, State: SAN JUAN UT

1. Type of Well: [ ] Oil Well [ ] Gas Well [X] Other
2. Name of Operator: MOBIL PRODUCING TX & NM INC.*
*MOBIL EXPLORATION & PRODUCING US INC. AS AGENT FOR MPTM
3. Address and Telephone No.: P.O. Box 633, Midland TX 79702 (915) 688-2585
4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
SEC. 21, T41S, R24E
(NE/NW) 660' F~~S~~N L & 2030' F~~E~~W L

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

TYPE OF SUBMISSION	TYPE OF ACTION	
[X] Notice of Intent	[ ] Abandonment	[ ] Change of Plans
[ ] Subsequent Report	[ ] Recompletion	[ ] New Construction
[ ] Final Abandonment Notice	[ ] Plugging Back	[ ] Non-Routine Fracturing
	[ ] Casing Repair	[ ] Water Shut-Off
	[ ] Altering Casing	[ ] Conversion to Injection
	[X] Other INJECTOR/SIDETRACK	[ ] Dispose Water (Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

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

BHL:

LATERAL #1: 1159' FNL & 1243' FWL FROM SURFACE SPOT (ZONE 1a).
LATERAL #2: 1028' FSL & 1226' FEL FROM SURFACE SPOT (ZONE 1a).

SEE ATTACHED PROCEDURE.

RECEIVED
AUG 14 1998
DIV. OF OIL, GAS & MINING

14. I hereby certify that the foregoing is true and correct
Signed: Sue Moseley for Title: SHIRLEY HOUCHINS/ENV & REG TECH Date: 8-12-98

(This space for Federal or State office use)
Approved by: Title: BRADLEY G. HILL RECLAMATION SPECIALIST III Date: 8/20/98
Conditions of approval, if any: Federal Approval of this Action is Necessary

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

* See Instruction on Reverse Side

Ratherford Unit Well #21-21
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 retrievable bridge plug and pressure test casing to 1000 psi.

7. RDMO WSU.

8. MIRU 24 hr. WSU. NU BOP's and pressure test with chart.

9. PU tubing, drilling collars, and drill pipe in derrick and run in hole. Then POH and stand back.

10. Run packer on wireline and set using GR/CCL log to correlate with. RD wireline.

11. PU drillpipe with UBHO sub in string and latch into packer to survey the hole and obtain orientation of keyway. POH w/gyro and drill string.

12. Orient whipstock on surface to desired bearing and RIH on drill pipe. Latch into packer. Shear starter mill bolt and make starter cut.

13. POH w/ starter mill and pick up window mill and watermelon mill and continue to mill window. Drill 1-2 ft of formation

14. POH w/ mills and PU curve building assembly and drill string with UBHO sub in string and RIH.

15. RU gyro to assist in time drilling and starting out of the casing window. POH w/ gyro when inclination dictates it must be pulled.

16. Finish drilling the curve using the MWD.

17. POH once curve is finished and PU lateral motor to drill the lateral using MWD.

18. Once lateral TD is reached, POH w/ directional equipment.

19. PU retrieving hook and RIH on drill pipe. Retrieve whipstock and PU new whipstock oriented for desired bearing to start in hole.

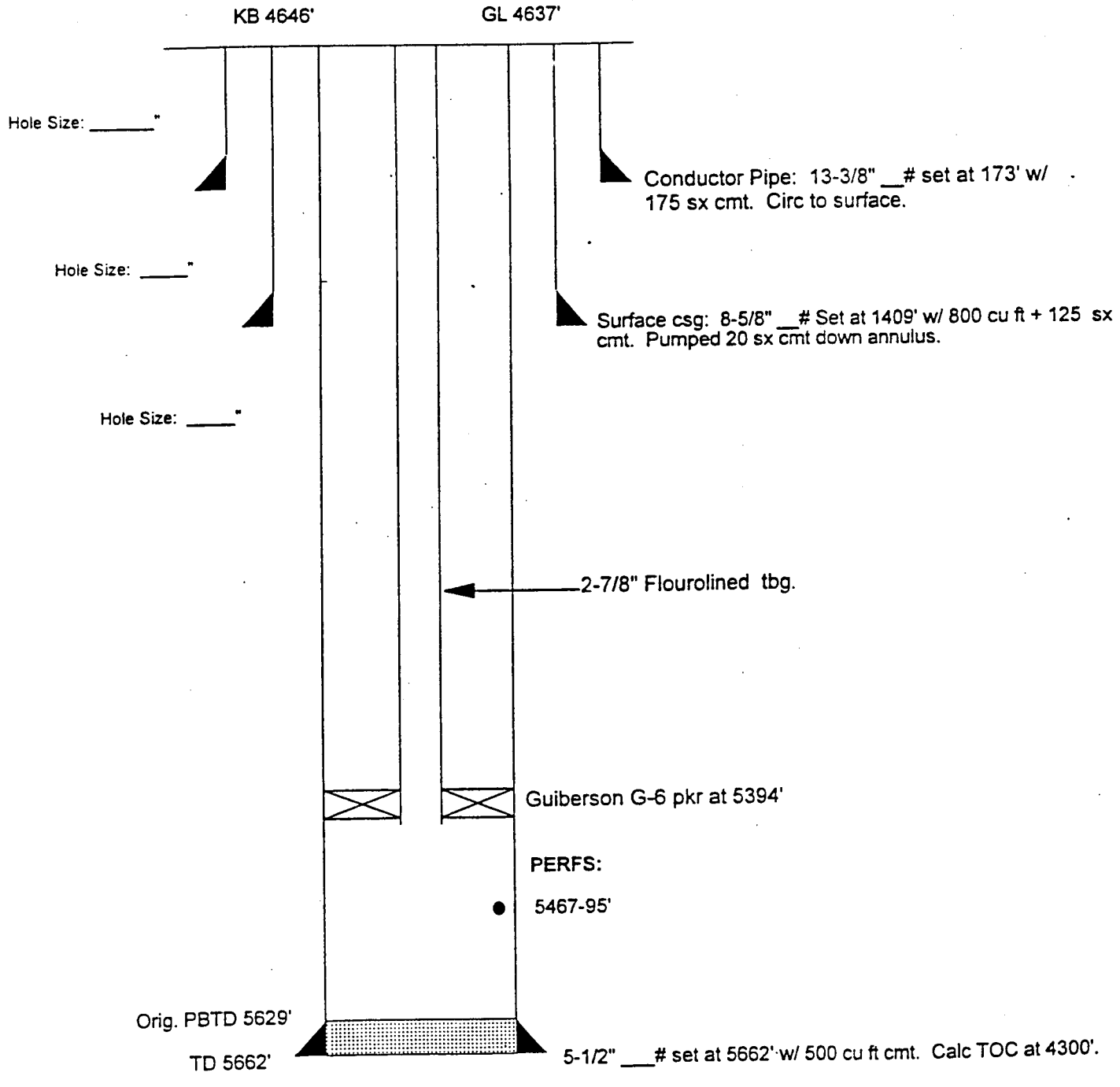
20. Repeat steps 12 through 19 for each subsequent lateral.

RATHERFORD UNIT # 21-W-21

GREATER ANETH FIELD
660' FNL & 2030' FWL
SEC 21-T41S-R24E
SAN JUAN COUNTY, UTAH
API 43-037-16425
PRISM 0043114

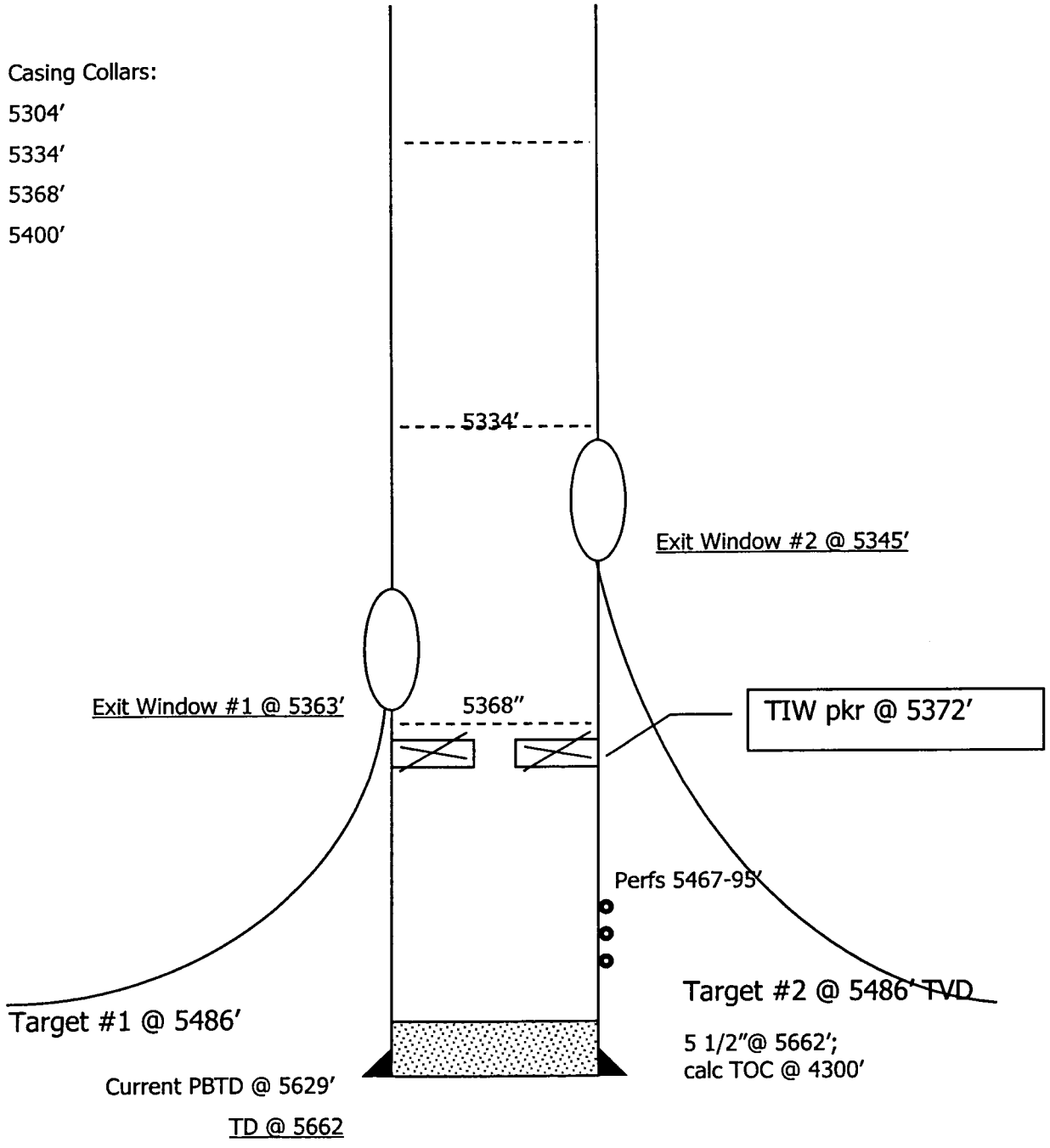
INJECTOR

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



L. A. TUCKER 7-30-96 R.U. # 21-W-21

Ratherford Unit #21-21



Window	Btm-Top of Window	Ext length	Curve Radius	Bearing	Horiz Displ
1	5363-57	------	123	313	1700
2	5345-39	18	141	130	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: 08/14/98

API NO. ASSIGNED: 43-037-16425

WELL NAME: RATHERFORD 21-W-21 (MULTI-LEG)
OPERATOR: MOBIL EXPL & PROD (N7370)
CONTACT: _____

PROPOSED LOCATION:
NENW 21 - T41S - R24E
SURFACE: 0660-FNL-2030-FWL
BOTTOM: 1159-FNL-1243-FWL (Multi-lateral)
SAN JUAN COUNTY
GREATER ANETH FIELD (365)

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

PROPOSED FORMATION: DSCR

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

RECEIVED AND/OR REVIEWED:

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

___ St/Fee Surf Agreement (Y/N)

LOCATION AND SITING:

___ R649-2-3. Unit _____

___ R649-3-2. General

___ R649-3-3. Exception

___ Drilling Unit
Board Cause No: _____
Date: _____

COMMENTS: _____

STIPULATIONS: (1) FEDERAL APPROVAL
(2) DIRECTIONAL DRILLING

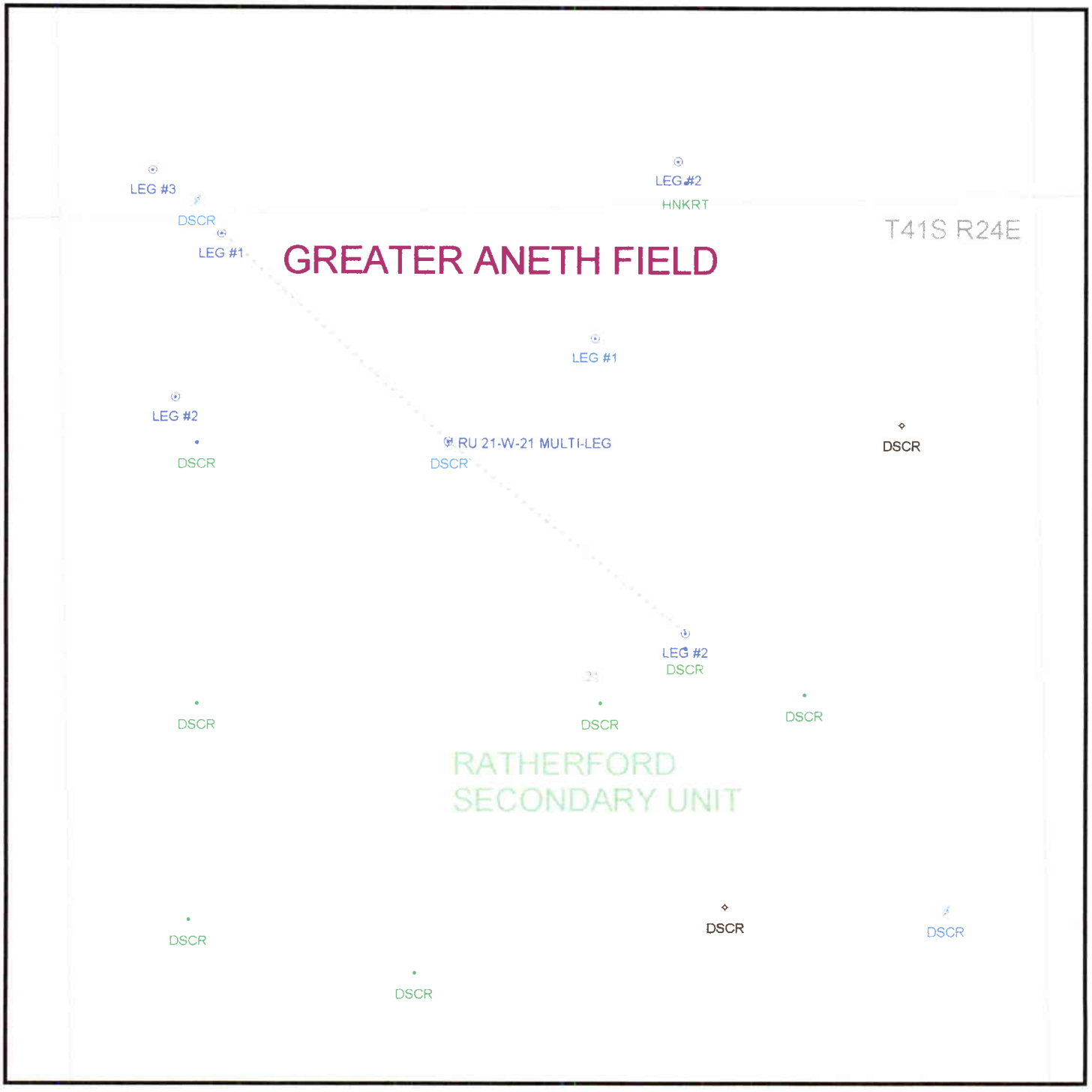
DIVISION OF OIL, GAS & MINING

OPERATOR: MOBIL EXPL & PROD (N7370)

FIELD: GREATER ANETH (365)

SEC. 21, TWP 41S, RNG 24E

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



DATE PREPARED:
18-AUG-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)

August 20, 1998

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

Re: Ratherford 21-W-21 Well, 660' FNL, 2030' FWL, NE NW, Sec. 21, T. 41 S., R. 24 E., San Juan County, Utah

Gentlemen:

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

This approval shall expire one year from the above date unless substantial and continuous operation is underway, or a request for extension is made prior to the expiration date. The API identification number assigned to this well is 43-037-16425.

Sincerely,

John R. Baza
Associate Director

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

Operator: Mobil Exploration & Producing

Well Name & Number: Ratherford 21-W-21

API Number: 43-037-16425

Lease: 14-20-603-355

Location: NE NW **Sec.** 21 **T.** 41 S. **R.** 24 E.

Conditions of Approval

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

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

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

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

4. State approval of this well does not supersede 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 21-W-21

Api No. 43-037-16425 Lease Type: INDIAN

Section 21 Township 41S Range 24E County SAN JUAN

Drilling Contractor BIG "A"

Rig # 25

SPUDDED:

Date 8/22/98

Time

How ROTARY

Drilling will commence

Reported by BENNY

Telephone # 1-435-651-3473

Date: 8/24/98 Signed: JLT

ROCKY MOUNTAIN GEO-ENGINEERING

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

PASON ROCKY MOUNTAIN GEO-ENGINEERING CORP.

2450 INDUSTRIAL BLVD. • GRAND JUNCTION, CO 81505

(970) 243-3044 • (FAX) 241-1085

RECEIVED
OCT 21 1998
DIV. OF OIL, GAS & MINING

Wednesday, October 14, 1998

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

43-037-16425

Re: Ratherford Unit #21-21 , Legs 1 & 2
Sec. 21, T41S, R24E
San Juan County, Utah

Dear Sirs:

Enclosed is the final computer colored log and geology report for the above referenced well.
filed in Log file

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

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

Sincerely,

Bill Nagel

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

RECEIVED
OCT 21 1998
DIV. OF OIL, GAS & MINING

MOBIL

RATHERFORD UNIT #21-21
SE HORIZONTAL LATERAL LEG #1
UPPER 1-A POROSITY BENCH
DESERT CREEK MEMBER
PARADOX FORMATION
SECTION 21, T41S, R24E
SAN JUAN, UTAH

GEOLOGY REPORT
prepared by

LUKE TITUS
PASON/ROCKY MOUNTAIN GEO-ENGINEERING CORP.
GRAND JUNCTION, COLORADO
(970) 243-3044

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WELL SUMMARY

OPERATOR:	MOBIL EXPLORATION & PRODUCTION U.S. INC.
NAME:	RATHERFORD UNIT #21-21 SE HORIZONTAL LATERAL LEG #1 IN 1-A UPPER POROSITY BENCH, DESERT CREEK
LOCATION:	SECTION 21, T41S, R24E
COUNTY/STATE:	SAN JUAN, UTAH
ELEVATION:	KB:4646' GL:4637'
SPUD DATE:	8/23/98
COMPLETION DATE:	8/26/98
DRILLING ENGINEER:	BENNY BRIGGS / SIMON BARRERA
WELLSITE GEOLOGY:	DAVE MEADE / LUKE TITUS/MARVIN ROANHORSE
MUDLOGGING ENGINEERS:	DAVE MEADE / LUKE TITUS/MARVIN ROANHORSE
CONTRACTOR:	BIG "A" RIG 25
TOOLPUSHER:	J. DEES
HOLE SIZE:	4 ¾"
CASING RECORD:	SIDETRACK IN WINDOW AT 5377' MEASURED DEPTH
DRILLING MUD:	M-I
ENGINEER:	RON WESTENBERG/MIKE PITTSINGER
MUD TYPE:	FRESH WATER & BRINE WATER W/ POLYMER SWEEPS
DIRECTIONAL DRILLING CO:	SPERRY-SUN
ELECTICAL LOGGING:	NA
TOTAL DEPTH:	6850' MEASURED DEPTH; TRUE VERTICAL DEPTH-5477.8'
STATUS:	PREPARING WELL FOR NW LATERAL #2

DRILLING CHRONOLOGY
RATHERFORD UNIT #21-21
1-A SE HORIZONTAL LATERAL LEG #1

DATE	DEPTH	DAILY	ACTIVITY
8/22/98	0'	0'	RIG DOWN & MOVE TO R.U. 21-21 LOC.;RIG UP;NIPPLE UP & TEST BOP
8/23/98	0'	0'	P.U. D.C. & D.P-TIH-LEVEL DERRICK;P.U. D.P.-TIH W/RETRIEVING HOOK-LATCH INTO PACKER-EQUILIZE & PRESS-TOH;L.D. PACKER;RIG-UP SCHLUMBERGER "J";TIH W/WIRELINE PACKER SET @ 5385'-TOH-RIG DOWN WIRELINE;P.U. UBHO & ANCHOR LATCH-TIH-RIG UP GYRO DATA-ORIENT PACKER & SHEAR OFF-TOH;L.D ANCHOR LATCH-P.U. & ORIENT WHIPSTOCK-TIH
8/24/98	5377'	0'	P.U. STARTER MILL-TIH-MILL 5370'-5372'-L.D. 2 JTS-D.P.-TOH-L.D STARTER MILL;P.U. WINDOW MILLS-TIH-MILL 5370'-5376'-PUMP SWEEP & CIRC. OUT-TOH;CHANGE OUT WINDOW MILLS-TIH-MILL 5376'-5377'-PUMP SWEEP CIRC. OUT-PUMP 20 BBS BRINE-TOH;L.D. MILLS-P.U. CRVE ASSEM-TEST & ORIENT-TIH
8/25/98	5377'	252'	FILL & WASH THRU DRLG STRNG-RIG UP GYRO DATA & RUN GYRO;TIME DRLG F/5377' T/5380'-DIR DRLG & WIRELINE SURV.;PULL GYRO-R.D. WIRELINE;DGLG F/5407' T/5555';PMP CIRC. OUT & PMP 20 BBLS BRINE-TOH;L.D. CRVE ASSEM.-P.U. LAT. ASSEM.-TIH;P.U. 48 JNTS-P.U. SWIVEL & BRK CIRC.-DIR DRLG SURVEY F/5555' T/5629'
8/26/98	5629'	1221' TD	DIR DRLG & SURVEYING F/5629' T/6850' TD;PMP SWEEP & CIRC OUT SMPLS-PMP 10 BBLS BRINE & L.D. 2 JNTS-TOOH
8/27/98	6850'		TOOH & L.D. TOOLS-M.U. SUPERHOOK & TIH;P.U. 21 JNTS FROM BASKET-HOOK WHIPSTOCK #1 & SHEAR OFF TOOH;M.U. WHIPSTOCK #2 –TIH-SET @ 5350'

DAILY ACTIVITY

Operator: MOBIL
Well Name: RATHERFORD UNIT #21-21 SE 1-A HORIZONTAL LATERAL LEG #1

DATE	DEPTH	DAILY	DATE	DEPTH	DAILY
8/22/98	0'	0'			
8/23/98	0'	0'			
8/24/98	5377'	0'			
8/25/98	5377'	252'			
8/26/98	5629'	1221' TD			
8/27/98	6850'				

BIT RECORD

OPERATOR: MOBIL
WELL NAME: RATHERFORD UNIT #21-21 SE 1-A HORIZONTAL LATERAL LEG #1

RUN	SIZE	MAKE	TYPE	IN/OUT	FTG	HRS	FT/HR
#1 (RR)	4 3/4"	STC	MF-2GP	5377'/ 5555'	178'	10.5	17
#2	4 3/4"	STC	MF-2GP	5555'/ 6850'	1295'	22.5	60

MUD REPORT

OPERATOR: MOBIL
WELL NAME: RATHERFORD UNIT #21-21 SE 1-A HORIZONTAL LATERAL LEG #1

DATE	DEPTH	WT	VIS	PLS	YLD	GEL	PH	WL	CK	CHL	CA	SD	OIL	WTR
8/23/98	5350'	8.4	26	1	1	0/0	8.0	NC	NC	1500	400	0%	0%	100%
8/24/98	5373'	8.5	26	1	1	0/0	8.5	NC	NC	14000	2200	TR	0%	100%
8/25/98	5457'	8.5	26	1	1	0/0	9.5	NC	NC	12000	2300	0.5	0%	100%
8/26/98	6296'	8.5	26	1	1	0/0	10	NC	NC	10000	2300	TR	1%	99%

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SPERRY-SUN DRILLING SERVICES
SURVEY DATA

Customer ... : MOBIL (Utah)
Platform ... : RATHERFORD UNIT
Slot/Well .. : BA25/21-21, 1A1

MEASURED DEPTH	ANGLE DEG	DIRECTION DEG	TVD	NORTHINGS FEET	EASTINGS FEET	VERTICAL SECTION	DOG LEG
5300	0.75	190.79	5299.79	3.6 S	19.87 W	-12.91	0
5370	0.88	192.6	5369.78	4.58 S	20.07 W	-12.44	0.19
5377	4.9	130	5376.77	4.82 S	19.86 W	-12.11	65.18
5387	9.1	125.29	5386.7	5.55 S	18.88 W	-10.9	42.36
5397	14.6	123.7	5396.48	6.71 S	17.19 W	-8.85	55.09
5407	19.5	122.89	5406.04	8.32 S	14.74 W	-5.94	49.06
5417	24.4	122.4	5415.31	10.33 S	11.59 W	-2.24	49.03
5427	29.3	125.7	5424.23	12.87 S	7.86 W	2.25	51.2
5437	33.8	128.9	5432.75	16.04 S	3.7 W	7.48	48
5447	38.8	129.7	5440.81	19.79 S	0.88 E	13.39	50.22
5457	44.2	131	5448.29	24.08 S	5.92 E	20.02	54.68
5467	49.6	132.8	5455.12	28.96 S	11.35 E	27.31	55.57
5477	54.1	133.4	5461.3	34.34 S	17.09 E	35.16	45.25
5487	58.9	131.7	5466.82	39.97 S	23.23 E	43.49	50.05
5497	63.7	127.9	5471.62	45.58 S	29.97 E	52.26	58.43
5507	66.8	123	5475.81	50.84 S	37.37 E	61.3	54.22
5517	72.4	123.5	5479.29	55.97 S	45.2 E	70.61	56.2
5527	78.4	125.3	5481.81	61.44 S	53.18 E	80.23	62.47
5555	89.9	127.6	5484.66	77.96 S	75.55 E	107.99	41.87
5596	89.4	131.8	5484.91	104.15 S	107.08 E	148.98	10.32
5627	91.1	132.4	5484.78	124.93 S	130.08 E	179.95	5.82
5659	90.6	132.4	5484.3	146.51 S	153.71 E	211.92	1.56
5691	89	132.1	5484.41	168.02 S	177.4 E	243.9	5.09
5723	89.6	132.7	5484.81	189.6 S	201.03 E	275.87	2.65
5755	86.7	132.7	5485.84	211.28 S	224.53 E	307.81	9.06
5787	85.7	132.9	5487.96	232.98 S	247.96 E	339.7	3.19
5818	87.5	132.7	5489.8	254 S	270.66 E	370.61	5.84
5849	87.8	132.6	5491.07	274.99 S	293.44 E	401.55	1.02
5880	88.8	133.4	5491.99	296.12 S	316.1 E	432.49	4.13
5912	92.1	134.3	5491.74	318.28 S	339.18 E	464.41	10.69
5944	91.5	134.3	5490.73	340.62 S	362.07 E	496.31	1.87
5975	90.4	133.6	5490.22	362.13 S	384.38 E	527.23	4.21
6007	90.3	133.1	5490.02	384.1 S	407.65 E	559.17	1.59
6039	89.8	132.6	5489.99	405.86 S	431.11 E	591.13	2.21
6071	90.7	131.7	5489.85	427.34 S	454.84 E	623.11	3.98
6103	90.4	130.8	5489.55	448.43 S	478.89 E	655.1	2.96
6134	90	129.7	5489.44	468.46 S	502.55 E	686.1	3.78
6166	89.5	129.2	5489.58	488.8 S	527.26 E	718.1	2.21

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SPERRY-SUN DRILLING SERVICES
SURVEY DATA

Customer ... : MOBIL (UTAH)
Platform ... : RATHERFORD UNIT
Slot/Well .. : BA25/21-21, 1A1

MEASURED DEPTH	ANGLE DEG	DIRECTION DEG	TVD	NORTHINGS FEET	EASTINGS FEET	VERTICAL SECTION	DOG LEG
6198	90.4	128.7	5489.61	508.91 S	552.15 E	750.09	3.22
6230	89.1	128	5489.75	528.77 S	577.24 E	782.08	4.61
6262	87.6	126.8	5490.67	548.19 S	602.65 E	814.03	6
6293	89.6	127.5	5491.42	566.91 S	627.35 E	844.98	6.84
6325	88.9	130.3	5491.84	587 S	652.25 E	876.97	9.02
6357	91.3	131.9	5491.79	608.03 S	676.36 E	908.96	9.01
6389	91	131.7	5491.15	629.36 S	700.21 E	940.94	1.13
6421	88.8	131.3	5491.2	650.56 S	724.18 E	972.92	6.99
6452	89.2	131.5	5491.74	671.06 S	747.43 E	1003.91	1.44
6484	91.5	132.2	5491.55	692.41 S	771.26 E	1035.89	7.51
6516	91.5	132.6	5490.71	713.98 S	794.89 E	1067.85	1.25
6548	92.1	132.4	5489.7	735.58 S	818.47 E	1099.81	1.98
6579	90.7	132.7	5488.95	756.54 S	841.3 E	1130.76	4.62
6611	92.1	132.9	5488.16	778.28 S	864.77 E	1162.72	4.42
6642	95.4	133.6	5486.14	799.47 S	887.3 E	1193.6	10.88
6673	95.2	133.6	5483.27	820.75 S	909.65 E	1224.4	0.65
6705	94.2	132.9	5480.65	842.61 S	932.88 E	1256.24	3.81
6737	91.3	133.3	5479.12	864.44 S	956.21 E	1288.16	9.15
6769	89.9	132.9	5478.78	886.31 S	979.58 E	1320.11	4.55
6816	91	132.4	5478.41	918.15 S	1014.14 E	1367.05	2.57
6850	91	132.4	5477.82	941.07 S	1039.25 E	1401.02	0

THE DOGLEG SEVERITY IS IN DEGREES PER 100.00 FEET.
N/E COORDINATE VALUES GIVEN RELATIVE TO WELL HEAD.
TVD COORDINATE VALUES GIVEN RELATIVE TO WELL HEAD.
THE VERTICAL SECTION ORIGIN IS WELL HEAD.
THE VERTICAL SECTION WAS COMPUTED ALONG 130.00 (TRUE).
CALCULATION METHOD: MINIMUM CURVATURE.

SAMPLE DESCRIPTIONS

OPERATOR: MOBIL
WELL NAME: RATHERFORD UNIT #21-21 SE 1-A HORIZONTAL LATERAL LEG #1

DEPTH	LITHOLOGY
5377.00 5390.00	"LS tan-ltgybrn-brn,occ crm,crpxl-micxl,rthy-chk,occ chty,arg-v sl slty,v rr mic fos,anhy ip,occ dol,tt-v rr frac POR,NFSOC,rr DOL brn-gybrn,micxl,rthy,arg,sl lmy tt,NFSOC w/scat blk sl calc-dol plty SH frag & brn-mbrn CHT frag"
5390.00 5400.00	"LS,ltbn-bn-crm-tn,crypt-vf xln,sl slty,rthy-arg grdg to MRLST,tr bn-dkbn CHT,rr cab mat,mdns-dns,rr dkbn DOL,NFSOC,tt xln fab POR"
5400.00 5410.00	"LS,bn-ltbn-tn,crypt-vf xln,dns-chlky-rthy,tr foss frgs,rr pyr,tr blk carb SH,crm sl arg to MRLY LS,tr bn DOLO,tr dkbn CHT frgs,sl dolo to dolo ip,NFSOC,rthy fab POR"
5410.00 5420.00	"LS,ltbn-bn-crm-tn,crypt-vf xl,mdns-dns-occ tt mtx,sl slty,rthy-arg,tr blk-dkbn SH,tr dkbn DOL,sl mrly,tr ANHY incl-sl anhy/chlky;NFSOC"
5420.00 5430.00	"LS,dkbn-bn-tn-crm,mic-vf xln,sl dolo to dolo,rthy-arg grdg to MRLY LS,slty,dolo ip,sl chlky,sl anhy-tr dkbn-trnsl CHT frgs,rr dkbn-bn DOL,v spty dul yelgld FLOR,no CUT,no vis o STN,tt-intrxln fab POR"
5430.00 5440.00	"LS,ltbn-bn-crm,slty-grn,rthy-arg,tr blk carb SH,occ cln-chlky,,mdns-dns,sl plty,sl anhy-tr ANHY xls,rr trnsl-buf CHT frgs,spty yelgld FLOR,no vis CUT,pr dkbn o STN res,intrxl POR"
5440.00 5450.00	"LS,tn-crm-ltgy-occ ofwht,mic-vf xln,mdns-,sl dolo ip,tr calc frac flgs,rr clr-trnsl CHT frgs,NFSOC"
5450.00 5460.00	"LS,ltbn-tn-crm,mic-vf xln,microsuc-grn mtx,mdns-dns mtx,sl dolo to dolo ip,sl plty,rthy-occ arg,pred intrxln fab POR,NFSOC"
5460.00 5470.00	"LS grdg to SH,sh-dkbn-blk,sft-occ frm,sooty,rthy/arg,sbblky-sbplty,tr pyr incl,LS-ltbn-dns-sl plty,DOL to DOL LS-dkbn-bn,microsuc,pred rthy fab POR"
5470.00 5480.00	"SH AA,rthy/arg,sft-frm,occ fiss,carb,v sl dolo,sl slty,sbblky-sbplty,occ sooty,calc, tr ARG LS to LS,rr dkbn-bn DOL-ltbn o STN"
5480.00 5490.00	"LS,ltbn-tn,mic-vf xln,slty-grn-mfns mtx,v sl ool,tr anhy incl,tr carb SH AA,rr dkbn DOLO,sl chlky,intraclastic,pred interxln fab POR,v wk CUT,pr dul spty FLOR,v pr ltbn o STN"
5490.00 5510.00	"LS,ltgy-ltbn-bn-crm,sl mott,mic-vf xln,microsuc-suc mtx,grn-mdns-dns mtx,sl plty dns sl ool PCKST,tr ltbn-bn CALC DOL to DOL,sl chlky,sl rthy-v sl arg;pred ool-tr-mf intrxln/sucrosic fab POR,scat mbri yelgld FLOR,wk slo strm CUT,pr ltbn o STN"

DEPTH	LITHOLOGY

5510.00 5520.00 "LS,ltbn-tn,mott,mic-vf xln,grn-microsuc-mdns mtx,v sl dolo,rr buf CHT frgs,pred ool rich oom/ooc GRNST w/tr PCKST AA,mf-g oom/ooc fab POR w/sme intrxln,mbri-spty bri yelgld FLOR,m slo dif CUT,tr-mf ltbn o STN"

5520.00 5530.00 "LS AA,incr in dns sl ool to ool PCKST,sl anhy-tr ANHY xls,scat ool rich GRNST"

5530.00 5540.00 "LS,ltbn-crm,sl mott,mic-vf xln,occ grn-pred dns mtx,pred sl ool chlky PCKST,scat ANHY xls,sl plty;pred mf-f intrxln to scat oom/ooc POR,tr-m ltbn o STN,mbri FLOR,tr-m slo strm CUT"

5540.00 5555.00 "LS,ltbn-tn-crm,mott,mic-vf xln,grn-mdns mtx,microsuc mtx,pred ool oom/ooc GRNSt w/sme sl ool dns PCKST,tr ANHY xls,v rr cht frgs,sl dolo;pred mf-f intrxln to oom/ooc fab POR,mf-ltbn-bn o STN,tr blk dd o STn res,f mbri-spty bri yelgld FLOR,mf-f slo CUT"

5560.00 5580.00 "LS ltbrn-tan-occ crm,tr wh,gran-vfxl-micxl,tr crpxl,ool-sl oom GRNST/tr scat-occ intbd dns PKST,tr chky prtgs,sl anhy/tr POR fl-rr xln ANHY,g ool-sl oom/tr intxl POR,g even dull-mod bri/scat bri yel FLOR,fr ltbrn/tr brn-rr blk pp dd o STN,g fast stmg CUT"

5580.00 5600.00 "LS AA,pred ool-sl oom GRNST/tr dns sl ool-chky plty PKST,sl anhy/tr POR fl-rr xln ANHY,tr ltbrn CHT incl,rr xln CALC,POR AA,g ltbrn-tr brn & blk dd o STN,g even dull-mod bri/tr bri yel FLOR,g fast stmg mlky CUT "

5600.00 5620.00 "LS ltbrn-tan,occ crm,rr wh,gran-vfxl,occ micxl-tr crpxl,pred sl ool-oom GRNST/tr intbd dns-decr chky plty PKST,sl anhy/rr POR fl-xln ANHY,rr xln CALC & CHT AA,POR-FLOR-STN AA,g mod fast-slow stmg mlky CUT"

5620.00 5640.00 "LS AA,gran-vfxl-sl micsuc ip,occ micxl-crpxl,pred ool-sl oom GRNST,tr intbd-scat dns PKST/sl gran tex,sl anhy/tr POR fl-rr xln ANHY,rr xln CALC,rr tan CHT,g ool-intxl POR,g mod bri-scat dull/tr bri yel FLOR,g ltbrn/tr brn & blk pp dd o STN,g slow CUT"

5640.00 5660.00 "LS AA,gran-vfxl-micsuc,occ micxl,tr crpxl,ool-sl oom GRNST/tr dns PKST incl/sl gran tex,sl chky-anhy/tr POR fl-rr xln ANHY,rr ltbrn CHT & xln CALC,g-fr ool-intxl POR,g dull-mod bri/scat bri yel FLOR,fr-mg ltbrn/tr brn-rr blk STN,g mod fast-slow stmg CUT"

5660.00 5680.00 "LS tan-ltbrn,occ crm,gran-micxl-vfxl,sl micsuc,tr crpxl,sl ool-oom GRNST occ grdg to dns gran PKST,tr intbd PKST AA,chky-sl anhy/sl incr POR fl-rr xln ANHY,tr crm-ltbrn CHT,rr xln CALC,POR AA,g even dull-mod bri/tr bri yel FLOR,fr ltbrn-rr blk STN,g mod fast-slow stmg mlky CUT"

5680.00 5700.00 "LS AA,pred GRNST AA/tr PKST AA,sl chky-anhy/POR fl-rr xln ANHY,incr intbd-scat brn-tan-occ crm CHT,rr xln CALC,fr-mg intxl-ool POR,FLOR AA,fr-mg ltbrn/tr brn-rr blk dd o STN,CUT AA"

DEPTH	LITHOLOGY

5700.00 5720.00 "LS tan,ltbrn,occ crm,tr brn,gran-vfxl-sl micsuc,occ micxl-crpxl,sl ool-oom GRNST/tr PKST AA,sl chky-anhy/tr POR fl,rr xln ANHY,rr CHT AA,fr-mg intxl-sl ool POR,mg-g dull-mod bri/tr bri yel FLOR,STN-CUT AA"

5720.00 5740.00 "LS tan-ltbrn-crm,occ brn,tr wh,vfxl-gran-sl micsuc,occ micxl-crpxl,dns-sl ool GRNST occ grdg to dns PKST/gran tex,tr intbd dns PKST,incr chky-sl anhy/tr POR fl-prtgs,rr xln ANHY & CALC,tt-fr intxl-rr ool POR,fr mod bri-bri yel FLOR,mg-g ltbrn/tr blk STN,g mod fast-fast stmg mlky CUT"

5740.00 5760.00 "LS ltbrn-tan,occ brn,tr crm,vfxl-gran,micxl-micsuc ip,tr crpxl,pred GRNST AA/sl incr intbd-scat dns PKST/gran tex,sl chky-anhy/tr POR fl,rr xln ANHY,POR AA,g scat mod bri-bri yel FLOR,STN AA,g-fr slow/tr fast stmg mlky CUT"

5760.00 5780.00 "LS AA,pred GRNST AA,tr PKST AA,v sl chky-anhy/tr POR fl-rr xln ANHY,rr xln CALC,POR-FLOR-STN-CUT AA"

5780.00 5800.00 "LS brn-ltbrn,tr tan,rr crm,dns-sl ool-oom GRNST,tr scat-intbd dns v sl ool PKST/gran tex,sl chky/tr v chky prtgs ip,sl anhy/tr pOR fl-rr xln ANHY,tt-fr intxl/tr ool POR,mg scat dull-mod bri/tr bri yel FLOR,g brn-ltbrn/tr blk STN,mg slow stmg mlky CUT"

5800.00 5820.00 "LS AA,POR-FLOR-STN-CUT AA"

5820.00 5850.00 "LS,bn-ltbn,mott,mic-vf xln,mnds-dns-occ grn mtx,v sl dolo ip,pred ool to sl ool mdns GRNST,tr dns sl ool chlky PCKST,rr chlky mat,v sl anhy,sme calc flds casts;pred intrxln to oom/ooc fab POR,mf-f ltbn-bn o STN,tr blk dd o STN res,mbri FLOR,mf-f CUT"

5850.00 5880.00 "LS,ltbn-tn-crm-bn,mott,vf xln,pred ool oom/ooc sl agl GRNST,tr pel,sl foss,rr chlky mat,sme chlky/calc fld casts;pred mg-g oom/ooc fab POR w/sme sucrosic/alg POR,mbri-bri yelgld FLOR,mf-f slo strmg CUT,mf-mg ltbn-bn o STN,tr blk dd o STN res"

5880.00 5910.00 "LS,ltbn-tbn-tn,mott,mic-pred vf xln,grn-m-suc-microsuc mtx,occ mdns mtx,pred ool rich GRNSt,v-rr sl ool PCKST,POR AA,FLOR AA,o STN AA"

5910.00 5940.00 "LS AA,mf-mg mbri-spty bri yelgld FLOR,f-mg slo strmg dif CUT,mf-mg ltbn-bn mtx o STN w/blk dd o STN fld casts,mg-g oom/ooc fab POR,tr alg/intrxln fab POR"

5940.00 5970.00 "LS,ltbn-tn-crm,mott,mic-pred vf xln,grn-microsuc-suc-mdns mtx,v sl dolo,rr sl ool dns PCKST,pred ool oom/ooc sl alg GRNSt,tr calc/chlky/anhy fld casts;FLOR AA,CUT AA,o STN AA"

5970.00 6000.00 "LS AA,even mbri-spty bri yelgld FLOR,mf-fast to f-slo strmg dif/milky ring CUT,mf-mg ltbn-bn o STN w/tr blk dd o STN res,POR AA,v-rr buf CHT frgs"

DEPTH	LITHOLOGY

6000.00 6030.00 "LS,ltbn-bn-tn,mott,mic-pred vf xln,mdns-microsuc-occ suc mtx,pred ool rich oom/ooc GRNST,rr CHT frgs,v sl dolo ip,tr chalky mat;pred mf-g oom/ooc fab POR w/sme suc to sl alg/vug POR,mf-mg ltbn-bn o STN,mbri-bri yelgld FLOR,mf slo strmg dif CUT"

6030.00 6060.00 "LS AA,CUT AA,FLOR AA,POR AA"

6060.00 6090.00 "LS,ltbn-bn-tn,mott,mic-vf xln,mdns-grn-microsuc mtx,v sl dolo,rr dns sl chlky sl ool PCKST,pred oom/ooc ool GRNST,tr calc/chlky fld casts;pred mf-mg oom/ooc fab POR to vug/suc fab POR,f mbri-bri yelgld FLOR,mf-mg ltbn-bn o STN,tr blk dd o STN,f-slo CUT"

6090.00 6120.00 "LS AA,even mbri yelgld FLOR,g fst to f slo strmg CUT,dif CUT w/milky ring,pred mf-mg oom/ooc to vug fab POR, v rr ltbn CHT,sme occ chlky fld casts"

6120.00 6150.00 "LS,ltbn-bn,mic-vf xln,mdns-grn mtx,microsuc-suc mtx,pred ool rich oom/ooc GRNST,sl alg dev,rr ltbn CHT,sl dolo,occ sl chlky;pred mf-mg oom/ooc fab POR w/sme intrxln to vug POR,mf-ltbn-bn o STN,tr blk,even mbri-spty bri yelgld FLOR,g fst to mf slo strmCUT"

6150.00 6180.00 "LS,ltbn-tn-crm-bn,mott,vf xln,pred ool oom/ooc sl agl GRNST,tr pel,sl foss,rr chlky mat,sme chlky/calc fld casts;pred mg-g oom/ooc fab POR w/sme sucrosic/alg POR,mbri-bri yelgld FLOR,mf-f slo strmg CUT,mf-mg ltbn-bn o STN,tr blk dd o STN res"

6180.00 6210.00 "LS AA,FLOR AA,CUT AA,o STN AA,POR AA"

6210.00 6240.00 "LS,ltbn-bn-tn,mott,mic-pred vf xln,mdns-microsuc-occ suc mtx,pred ool rich oom/ooc GRNST,rr CHT frgs,v sl dolo ip,tr chalky mat;pred mf-g oom/ooc fab POR w/sme suc to sl alg/vug POR,mf-mg ltbn-bn o STN,mbri-bri yelgld FLOR,mf slo strmg dif CUT"

6240.00 6270.00 "LS AA,even mbri-spty bri yelgld FLOR,mf-mg ltbn-bn o STN w/blk dd o STN fld casts,mf-f slo strmg dif/milky ring CUT,POR AA"

6270.00 6300.00 "LS,ltbn-tn-bn,mott,pred vf xln,grn-micrsuc-suc-mdns mtx,pred ool oom ooc sl alg GRNST,rr PCKST,sl chlky,rr ANHY xls;pred oom/ooc fab POR w/suc to vug POR,mbri-bri yelgld FLOR,mf-mg ltbn o STN,tr blk o STN,mf-f slo strmg CUT"

6300.00 6330.00 "LS,ltbn-tn-crm,mott,mic-vf xln,mdns-grn mtx,v sl dolo,pred ool to sl ool oom/ooc sl alg GRNST w/tr dns PCKST,sl chlky,rr foss frgs;pred oom/ooc fab POR to intrxln w/occ vug POR,mbri-bri yelgld FLOR,mf-slo strmg CUT,mf-f ltbn o STN"

6330.00 6360.00 "LS AA,rr ofwht chlky mat,pr dev alg POR,v sl dolo,rr foss frgs,ool,occ pel,reduced to mg oom/ooc fab POR,scat vug,poss sme frac POR,mbei yelgld FLOR,mf-f slo strmg dif CUT"

DEPTH	LITHOLOGY

6360.00 6390.00 "LS,ltbn-tn-bn,mott,mic-vf xln,sl incr in dns sl ool chlky PCKST w/ool oom ooc GRNST,sl incr in intrxln fab POR,pred oom/ooc fab POR w/tr vug,FLOR AA,g-fst to f slo strmg CUT,m-mf ltbn o STN"

6390.00 6420.00 "LS AA,pred oom ooc ool GRNST w/sme sl ool dns chlky PCKSt,abunt ANHY-sl anhy,grn-microsuc mtx-mdns mtx,sl chlky,pred mf-f intrxln to ool fab POR w/pr-mf oom/ooc fab POR,dul-mbri yelgld FLOR,mf fst to slo strmg CUT,pred mf-f ltbn o STN"

6420.00 6450.00 "LS,incr in oom/ooc ool GRNSt,microsuc-suc-grn-mdns mtx,sl alg development,tr to ANHY xls-anhy,chlky w/tr sl ool PCKST;POR AA,m-even yelgld FLOR,mf-f ltbn-bn w/blk dd o STN res,mf-fst to slo strmg dif CUT"

6450.00 6480.00 "LS,ltbn-tn-crm,sl mott-mott,mic-vf xln,microsuc-occ suc-mdns-grn mtx,sl agl dev,scat ANHY xls-anhy,sl chlky ool PCKST to oom/ooc GRNST;mf-dul-mbri to spty bri yelgld FLOR,tr-mf slo strmg dif CUT,mf ltbn-bn o STN,tr blk dd o STN"

6480.00 6500.00 "LS,ltbn-tn-crm,sl mott,mic-vf xln,grn-mdns-dns mtx,scat suc-microsuc,v sl dolo,pred sl ool dns chlky PCKST to oom/ooc ool GRNST,scat alg dev,sl anhy-tr ANHY xls,v-rr cht frgs/calc frac flgs;POR AA,FLOR AA,CUT AA"

6500.00 6520.00 "LS AA,mf-ltbn mtx o STN,tr spty blk dd o STN res occ flg oom/ooc casts,m-slo strmg dif CUT,sl milky ring,dul-mbri yelgld FLOR,pred intrxln to oom/ooc fab POR"

6520.00 6540.00 "LS,ltbn-tn,sl mott,mic-vf xln,grn-mdns mtx,pred sl ool to ool GRNST to sl ool dns anhy/chlky PCKST;pred reduced to m oom/ooc fab POR w/m-intrxln fab POR,dul-mbri yelgld FLOR,tr-m slo strmg CUT,pred tr-mf ltbn o STN"

6550.00 6560.00 "LS AA,pred sl ool-oom-occ agl GRNST/tr PKST AA,POR-FLOR-STN CUT AA"

6560.00 6580.00 "LS ltbrn-tan,incr crm-wh,vfxl-gran,occ micxl,sl micsuc,tr crpxl,pred sl ool-oom GRNSt/tr agl fab,scat-dns sl gran PKST/incr thn plty chky frag,sl anhy/tr POR fl,tt-fr intxl-tr ool POR,fr-g mod bri-dull/tr scat bri yel FLOR,fr-mg ltbrn/tr brn-rr blk pp dd o STN,fr-mg slow-mod fast stmg mlky CUT"

6580.00 6610.00 "LS AA,vfxl-gran-sl micsuc,occ micxl,tr crpxl,pred sl ool-oom GRNST/tr agl fab,scat-intbd dns sl gran-thn plty chky PKST frag,tr ltbrn-tan CHT,sl anhy/tr POR fl,fr-tr intxl-ool POR,fr dull-mod bri/tr scat bri yel FLOR,STN AA,g-mg dif/g modbri ring CUT"

6610.00 6620.00 "LS AA,pred GRNST AA,scat PKST AA/incr thn plty chky frag,tr CHT AA,sl anhy/tr POR fl,tt-fr intxl-tr ool-sl oom POR,fr-g mod bri-dull/tr spty bri yel FLOR,mg ltbrn-fr brn STN,g-mg slow-mod fast stmg mlky CUT"

DEPTH	LITHOLOGY

6620.00 6630.00 "LS AA,pred GRNST AA,scat PKST AA,sl anhy/tr POR fl,tr CHT AA,POR-FLOR-STN AA,mg-fr dif/mod bri res ring & tr slow stmg mlky CUT"

6630.00 6640.00 "LS AA,pred GRNST AA/decr PKST AA,sl anhy/tr POR fl,tr CHT AA,POR-FLOR-STN AA,mg-g dif/mod bri res ring-rr slow stmg mlky CUT"

6640.00 6650.00 "LS AA,gran-vfxl-micsuc,sl micxl-crpxl,ool-sl oom GRNST/rr agl incl,rr dns sl ool PKST/decr chky thn plty frag,sl anhy/decr POR fl-rr xln ANHY,g ool-sl oom-intxl POR,fr-mg mod bri/scat bri yel FLOR,mg ltbrn-brn/tr blk pp dd o STN,g fast-mod fast stmg CUT"

6650.00 6670.00 "LS tan-ltbrn,occ crm-wh,gran-vfxl-sl micsuc,tr micxl-crpxl,pred sl ool-oom-occ dns GRNST,tr dns sl gran-thn plty PKST,sl chky-anhy/tr POR fl-rr xln ANHY,tr tan-lt brn CHT,rr arg dol frag,mg-fr intxl-ool-sl oom POR,g even mod bri-dull/scat bri yel FLOR,STN-CUT AA"

6670.00 6690.00 "LS AA,pred ool-sl oom-tr dns GRNST,tr dns sl gran-thn plty PKST,sl chky-anhy/tr POR fl-rr xln ANHY,tr CHT AA,vrr arg dol frag,POR AA,g even mod bri-dull/scat bri yel FLOR,mg-fr ltbrn/tr brn & blk dd o STN,g fast-mod fast stmg mlky CUT"

6690.00 6710.00 "LS tan-ltbrn,occ crm-wh,gran-vfxl,sl micsuc,tr micxl-crpxl,pred GRNST AA,tr dns sl gran-incr thn plty PKST,sl chky-anhy/tr POR fl-rr xln ANHY,tr tan-lt brn CHT,occ sl dol,g-mg ool-intxl-sl oom POR,FLOR-STN AA,g fast stmg mlky CUT"

6710.00 6720.00 "LS AA,pred ool-sl oom-occ dns GRNST,tr dns sl gran-decr thn plty PKST,sl chky-anhy/rr POR fl-xl ANHY,tr CHT AA,sl dol ip,POR-FLOR-STN-CUT AA"

6720.00 6740.00 "LS ltbrn,occ tan,tr crm-wh,rr brn,gran-vfxl-sl micsuc,tr micxl-crpxl,pred sl ool-oom-occ dns GRNST,tr dns sl gran-thn plty PKST,sl chky-anhy/rr POR fl-xln ANHY,tr CHT AA,sl dol,g ool-intxl-tr sl oom POR,g even mod bri-incr bri yel FLOR,g ltbrn-brn/tr blk pp dd o STN,g fast-mod fast stmg mlky CUT"

6740.00 6760.00 "LS ltbrn-tan-brn,tr wh-crm,gran-vfxl-micsuc,tr micxl-crpxl,ool-sl oom/tr dns GRNST,tr PKST AA,sl chky-anhy/rr xln ANHY-POR fl,tr CHT AA,occ sl dol ip,POR AA,g even mod bri-bri yel FLOR,g ltbrn-brn/tr blk pp dd o STN,g fast-mod fast stmg mlky CUT"

6760.00 6770.00 "LS AA,pred GRNST AA/tr sl dns gran-decr thn plty PKST,tr CHT AA,v sl dol ip,POR-FLOR-STN-CUT AA"

6770.00 6800.00 "LS ltbrn-brn-tan,tr crm,rr wh,gran-vfxl-micsuc,tr micxl,rr crpxl,ool-sl oom GRNST,tr dns sl ool-rr thn plty PKST,sl chky-anhy/rr xln ANHY-POR fl,tr brn-ltbrn CHT,v sl dol ip,g-mg ool-intxl POR,g even mod bri-bri yel FLOR,g ltbrn-brn/incr blk pp dd o STN,g fast-mod fast stmg mlky CUT"

DEPTH	LITHOLOGY
6800.00 6820.00	"LS AA,gran-vfxl-micsuc,tr micxl-crpxl,ool-sl oom-sl agl GRNST,tr PKST AA,sl chky-anhy/rr xln ANHY-POR fl,tr xln CALC,tr CHT AA,sl dol ip,POR-FLOR AA,g ltbrn-brn/tr blk pp dd o STN,g fast stmg mlky CUT"
6820.00 6850.00	"LS ltbrn-tan,brn,tr crm,rr wh,gran-vfxl-micsuc,tr micxl-crpxl,ool-sl oom-sl agl GRNST,tr dns sl ool-rr thn plty PKST,sl chky-anhy/tr POR fl-rr xln ANHY,tr ltbrn-tan CHT,rr xl CALC,sl dol ip,g-mg ool-intxl POR,g even mod bri-bri yel FLOR,g ltbrn-fr brn/tr blk pp dd o STN,g mod fast-slow stmg mlky CUT"

FORMATION TOPS

OPERATOR: MOBIL
WELL NAME: RATHERFORD UNIT #21-21 SE 1-A HORIZONTAL LATERAL LEG #1

FORMATION NAME		SAMPLES	SAMPLES	DATUM
		MEASURED DEPTH	TRUE VERTICAL DEPTH	KB:4646'
LOWER ISMAY		5399'	5398'	-752'
GOTHIC SHALE		5457 '	5448'	-802'
DESERT CREEK		5473'	5459'	-813'
UPPER DC 1-A ZONE		5490'	5468'	-822'
LOWER DC 1-A ZONE		5542 '	5484'	-838'

GEOLOGICAL SUMMARY

AND

ZONES OF INTEREST

The Mobil Exploration and Production U.S., Inc., Ratherford Unit #21-21 Southeast Horizontal Lateral Leg #1 was a re-entry of the Mobil Ratherford Unit #21-21 drilled on July 17, 1959. Located in Section 21, T41S, R24E, this re-entry was sidetracked in a southeasterly direction from 5377' measured depth, 5484.6' true vertical depth, on August 25, 1998. The lateral reached a measured depth of 6850', true vertical depth of 5477.8' at total depth, with a horizontal displacement of 1401' and true vertical plane of 132.4 degrees on August 26, 1998. The lateral was terminated in the lower pay-zone of 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 the various formations and their members.

The objective of the Ratherford Unit #21-21 southeast lateral leg #1 was to penetrate 1400' horizontally in the Desert Creek 1-A porosity bench, identify and define its lithology, evaluate its effective porosity and permeability, various carbonate facies, hydrocarbon and gas potential and overall thickness. The 1-A porosity bench has a defined hard streak that separates the bench into an upper and lower pay-zone. In this southeasterly direction the lower pay-zone in the Desert Creek 1-A porosity bench has been targeted for penetration. The curve section began in the Pennsylvanian Upper Ismay carbonate cycle before encountering the typical stratigraphic column of the Lower Ismay carbonate cycle, Gothic Shale and the Desert Creek 1-A member of the Upper Paradox Formation of the Hermosa Group.

The curve section began in the basal 22' of the Upper Ismay carbonate cycle of the Upper Paradox Formation and was penetrated from the kick-off measured depth of 5377', true vertical depth 5376' through a measured depth of 5399', true vertical depth 5398'. This cycle contained limestones, dolomites, argillaceous limestones, marly limestones and carbonaceous shales. The predominant limestone facies was tan, light gray, light gray brown to brown, cryptocrystalline to microcrystalline, dense to tight, earthy to chalky in part, very slightly silty to silty, occasionally dolomitic, and slightly anhydritic. The dark brown dolomites are suggested to be thinly interbedded lenses as well as the light brown to brown argillaceous limestones that grade to marly limestone. The carbonaceous shales, also thinly interbedded, increased towards the contact between the Upper and Lower Ismay where the two-foot Hovenweep marker bed was penetrated. Associated with these carbonates were trace amounts of dark brown to brown chert fragments, off-white chalky matter, rare to trace anhydrite crystals and very rare fossil fragments. A tight crystalline fabric porosity development to earthy fabric porosity was observed in these carbonates, which had no visible cut, no visible to very poor dull yellow fluorescence and no visible oil stain.

The top of the Lower Ismay carbonate cycle of the Upper Paradox Formation was picked at a measured depth of 5399', true vertical depth 5398', based primarily on the Hovenweep marker bed, sample identification and an increase in the rate of penetration. The Lower Ismay in this southeasterly direction was 50' thick and was primarily a slightly dolomitic to dolomitic, earthy to chalky, occasionally silty, and slightly argillaceous to argillaceous, clean to occasionally chalky limestone. This limestone facies was brown, light brown, tan, cream to light gray brown, and moderately dense,

tight to infrequently grainy and had a poor intercrystalline, compact crystalline to earthy fabric porosity development. No visible to a poor brown oil stain, no visible to very spotty poor dull yellow-gold fluorescence and no visible cut was logged for this interval of carbonates. This interval also contained interbedded dark brown microsucrosic dolomites and trace carbonaceous shale partings. Crinoid stems were noted in the limestones at the top of the Lower Ismay and buff, light brown to dark brown chert fragments, rare to trace anhydrite crystals, rare off-white carbonaceous matter and rare calcite fracture fill.

The Gothic Shale was penetrated at a measured depth of 5457', true vertical depth 5448' and continued to a measured depth of 5473', true vertical depth 5459'. The top of the Gothic was picked by a decrease in the penetration rate and a significant increase in the amount of black carbonaceous shale in the cuttings. This shale member of the Upper Paradox Formation was eleven feet thick in this southeasterly direction and was the typical black, dark brown to dark gray shale. This carbonaceous shale was occasionally silty, soft to slightly firm, sooty, slightly fissile, subblocky to subplaty, calcareous to slightly dolomitic, micaceous and had very rare micro pyrite inclusions. Very thin dense argillaceous limestones to dolomitic rich limestones were interbedded in the Gothic Shale and increased as the top of the Desert Creek transition zone was penetrated.

The top of the Desert Creek transition zone of the Upper Paradox Formation was picked at a measured depth of 5473', true vertical depth 5459' and penetrated through a measured depth of 5490, true vertical depth 5468'. This transition zone was approximately nine feet thick and was predominately cyclic deposits of limestones, calcareous dolomites and dolomites. The limestone facies was light brown to tan, microcrystalline to very fine crystalline, moderately dense, grainy to silty, slightly dolomitic, chalky and very slightly argillaceous. The interbedded calcareous dolomites were brown; microsucrosic to sucrosic and the dolomites were brown and had a moderately dense to microsucrosic matrix. Scattered light brown chert fragments, intraclasts of anhydrite and shale partings, oolites and a weak slow streaming cut, poor light brown oil stain, spotty moderately bright yellow-gold fluorescence was associated with these carbonates. Porosity was intercrystalline and very poorly development in the limestones, while the dolomites and calcareous dolomites had a slightly vuggy, microsucrosic to sucrosic fabric porosity development.

The top of the Desert Creek Upper 1-A porosity bench was encountered at a measured depth of 5490', true vertical depth of 5468', with a horizontal displacement of approximately 50'. The top was picked based on a significant drill off and a change in lithology. The characteristic oolitic rich oomoldic to oolicastic grainstone facies of the upper pay-zone in the Desert Creek 1-A porosity bench was approximately 12' thick in this southeasterly direction. The grainstone facies was light brown to tan, mottled, microcrystalline to very fine crystalline, grainy to microsucrosic, slightly dolomitic, oolitic rich and very slightly chalky. Trace buff to light brown chert fragments, rare anhydrite crystals, trace off-white chalky matter and rare carbonaceous matter were logged as well. Thinly interbedded light brown dense slightly oolitic packstones were associated with the grainstones. These carbonates had a moderately bright to spotty bright yellow-gold fluorescence, moderately slow streaming diffused cut, trace to moderately fair light brown oil stain, trace dead black oil resin, and predominately a reduced to good oomoldic to oolicastic with some fair intercrystalline fabric porosity development. The hard streak of dense slightly oolitic packstone, which defines the upper and lower pay-zones in the 1-A, was approximately four feet thick. This interval had a marked decrease in penetration rate, oil and gas shows, porosity development and scattered grainstones. The lower pay-zone of the Desert Creek 1-A porosity bench was encountered at a measured depth of 5542', true vertical depth 5484' and was a good oomoldic to oolicastic oolitic grainstone as defined above.

The curve portion of the lateral was completed at a measured depth of 5555', true vertical depth 5484', at a horizontal displacement of 108', bearing 127.6 degrees, with an inclination of 89.9 degrees, on August 25, 1998, in the targeted lower pay-zone of the Desert Creek 1-A porosity bench. At this point a trip was made to lay down the curve assembly and pickup the lateral assembly.

Drilling of the southeast lateral was resumed on August 25, 1998, in the lower pay zone of the Desert Creek Upper 1-A porosity bench of the Upper Paradox Formation. Approximately 70' of sliding to control the vertical depth, horizontal plane direction and to put the lateral assembly out far enough to begin rotating was required. Starting at the measured depth of 5555', true vertical depth 5484.6' to a measured depth of 6465', true vertical depth 5491', and a horizontal displacement of 1030', the lower pay-zone was an oolicastic to oomoldic oolitic rich slightly developed algal grainstone facies. This grainstone facies was light brown, tan to cream, slightly mottled to mottled, microcrystalline to very fine crystalline, moderately dense, granular to microsucrosic/sucrosic, slightly anhydritic, occasionally chalky, and slightly dolomitic. Scattered calcite, anhydrite to chalky filled casts, rare to trace buff to light brown chert fragments, rare to trace fossil fragments, trace off-white chalky matter, oolites, pellets, and a slightly developed *Ivanovia* algal texture were noted with this facies. Scattered throughout this interval were rare to trace dense slightly oolitic packstones. This facies was light brown, tan to cream, slightly mottled, microcrystalline, dense, oolitic to slightly oolitic, chalky, anhydritic, and very slightly dolomitic in part. This portion of the lower pay-zone had a moderately fair to moderately good light brown to brown matrix oil stain, which was flushed near the well-bore, and a black dead oil resin filling the oolitic casts and occasionally fossil casts. Staining increased as the lateral moved towards the 21-32 well bore. An even dull to moderately bright to spotty bright yellow-gold fluorescence and a moderate fast to trace to moderately good slow streaming diffused milky ring cut was exhibited in this portion of the lateral, too. Porosity development for the grainstone facies was predominately a reduced to good oomoldic to oolicastic fabric, however the slightly developed algal grainstone facies had a vuggy, microsucrosic to sucrosic fabric and the packstone facies displayed a tight to fair intercrystalline oolitic fabric porosity. The lower pay-zone kicked-off at a true vertical depth 5484.6' where stayed for 275' horizontally. At a measured depth of 5740', true vertical depth 5481.6', at a vertical section of 275' out, the bit glanced the bottom of the hard streak and oriented the bit down. During the process of recovering the bit back to horizontal, the bit bounced off the bottom of the bench at a measured depth of 5880', true vertical depth of 5492', at a vertical section of 433' out. At this point the lower pay-zone was approximately 7.5' thick and appeared promising. Finally recovering the bit back to horizontal, the next 350' of vertical section drilled at an average of 10-15 seconds/foot and maintained a horizontal state. At approximately 6230' measured depth, true vertical depth 5489.5, at a vertical section of 783', the bit glanced the bottom of the hard streak and oriented down, bounced off the bottom of the bench at approximately 6325', true vertical depth 5491.8', at a vertical section of 909' and went up. The bit then glanced off the bottom of the hard streak again at a measured depth of 6390', true vertical depth 5491.1', at a vertical section of 941'. The bit then again bounced off the bottom of the bench at a measured depth 6465', true vertical depth 5491.1' at a vertical section of 1037'. Here the lower pay-zone of the Desert Creek 1-A porosity bench pinched out and it was suggested that the bit be oriented up through the hard streak and into the upper pay-zone or something in between.

During the course of building the curve, it appeared that the hard streak, defining the upper and lower pay-zones, was approximately four feet thick in this southeasterly direction. From a measured depth of 6532', true vertical depth 5490' to a measured depth of 6632', true vertical depth 5486' the bit penetrated what is considered a four foot splay off the original hard streak. It is insinuated that this hard streak splay, of the typical slightly oolitic dense packstone with some grainstones, developed and separates the lower pay-zone into two distinct homogenous zones. The original hard streak drilled in the curve section still exists, but is almost flat between the 21-21 and 21-32 well-bores with the splay originating possibly at the 21-21 well-bore and dipping down. The zone discussed in the previous paragraph dipped down and the new zone at a measured depth 6632', true vertical depth 5486', dipped up based on the orientation of the bit as it penetrated. For a visual idea

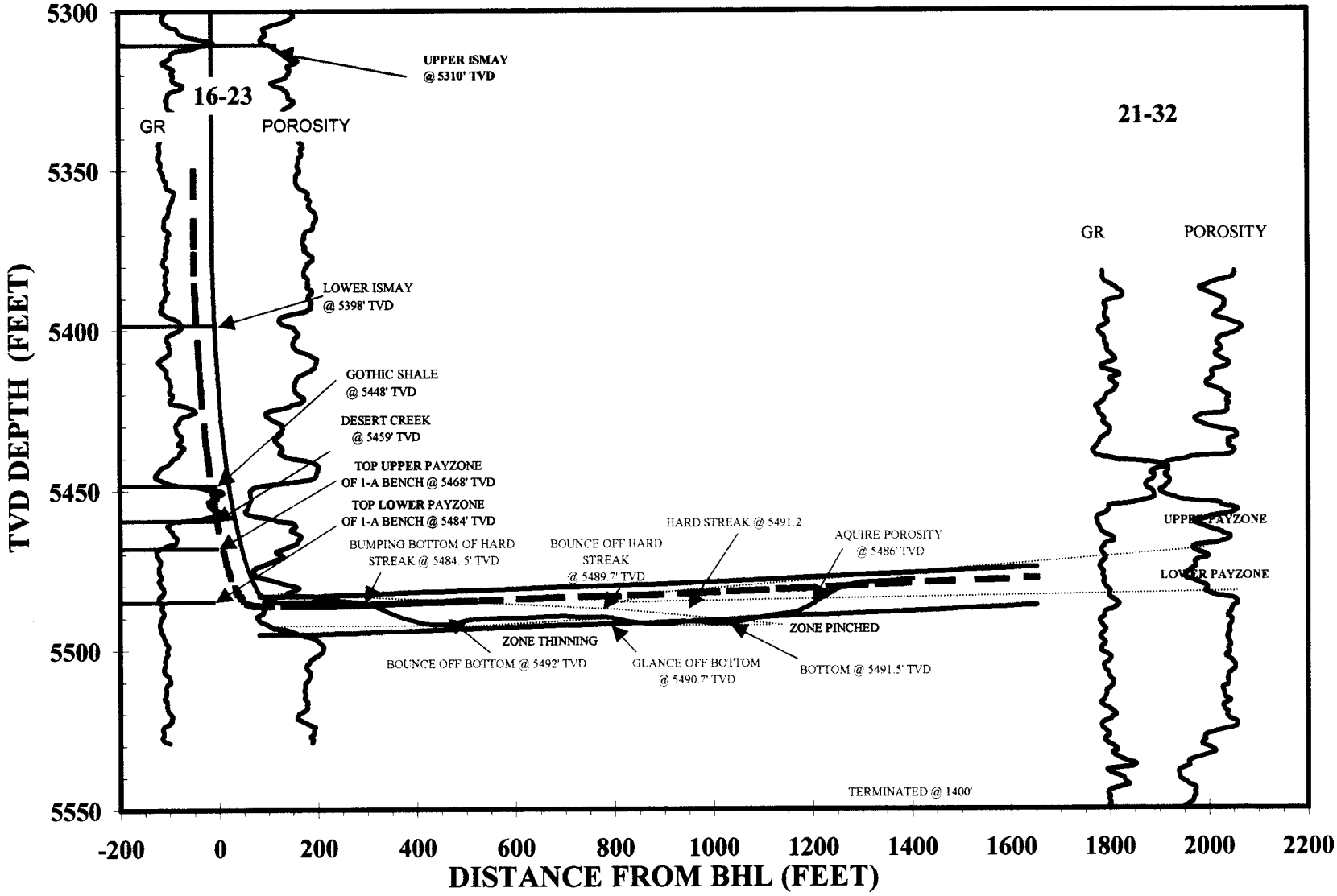
of this please refer to the southeast 21-21 excel vertical section diagram. Three-dimensional models have established that the lower pay-zone maintains a continuous dip of 90.3 degrees to the southeast and the 21-32 well bore. This would put the bottom of the upper pay-zone, at this dip, at true vertical depth of approximately 5465' and the bit 12' below this value when the total depth was reached at 1400' vertical section. If the upper pay-zone was dipping down like the lower pay-zone, approximately 89 to 88.5 degrees, and the original hard streak did not splay, this would place the bit in the Desert Creek transition zone at approximately 5480' true vertical depth at 1400' vertical section or total depth. This would conclude that the lower pay-zone was drilled for the entire lateral and was two separate homogenous zones and is possible that the hard streak did in fact splay. The hard streak splay of dense slightly oolitic packstone to oolitic rich oomoldic to oolicastic grainstone was approximately four feet thick. The facies for these carbonates is the same as described above with only a minor exception in density and a moderate light brown oil staining.

The remainder of the 21-21 southeast lateral leg#1 was from a measured depth of 6632', true vertical depth 5486' to a measured depth of 6850', true vertical depth 5478' was predominately an oomoldic to oolicastic oolitic rich grainstone. This grainstone facies was light brown, tan to cream, mottled, microcrystalline to very fine crystalline, moderately dense, granular to microsucrosic/sucrosic, slightly anhydritic and contained buff to light brown chert fragments, rare to trace fossil fragments, trace anhydrite trace off-white chalky matter, oolites, pellets and was very slightly dolomitic. The grainstone facies also exhibit a slight *Ivanovia* algal development. Thinly interbedded dense slightly oolitic packstones were associated with the grainstone facies. This interval of carbonates had a moderate fast to moderately good slow streaming diffused milky ring cut, an even dull to moderately bright to spotty bright yellow-gold fluorescence and was predominately a reduced to good oomoldic to oolicastic fabric porosity development. The slightly developed algal grainstone facies had a vuggy, microsucrosic to sucrosic fabric and the packstone facies displayed a tight to fair intercrystalline oolitic fabric porosity.

The southeast lower pay-zone lateral of the Desert Creek 1-A porosity bench was terminated on August 27, 1998. The southeast lateral leg #1 reached a measured depth of 6850', true vertical depth 5477.8' and a horizontal displacement of 1400', bearing 132.4 at 91 degrees. The lithology remained consistent with what is expected for the lower pay-zone of the Desert Creek 1-A porosity bench and although the 21-21 re-entry was into an injection well, staining was moderately fair to moderately good except at the well bore where the samples had been flushed. Porosity was a reduced to good oomoldic to oolicastic fabric porosity and was associated with a slight algal facies which exhibited a vuggy fabric porosity. Of the 1295' penetrated horizontally in this lateral, only 100' foot of the porosity was not present. The lower pay-zone had two defined homogenous pay zones that were divided by a down dipping splay off the hard stringer which was roughly flat between the 21-21 and 21-32 well bores based on three dimensional modeling. Gas shows remained low throughout the lateral, approximately 500 units on the average. This re-entry should make an important contribution to the overall performance of the Ratherford Unit when it is returned to the water-flood plan. From this stimulation, better movement of hydrocarbons, gas and production water between the 21-21 and 21-32 well bore will help increase production, reserves and benefits for Mobil E & P.

*The black residual staining has been called by Dr. Dave Eby & others as "bitchimum" and is also known as "dead oil" ("dd o stn" on mud logs). This staining is associated with the movement of oil over long periods of time and is a good indicator of productive 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 #21-21, Southeast Lateral



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DIV. OF OIL, GAS & MINING

MOBIL

RATHERFORD UNIT #21-21
NW HORIZONTAL LATERAL LEG #2
UPPER 1-A POROSITY BENCH
DESERT CREEK MEMBER
PARADOX FORMATION
SECTION 21, T41S, R24E
SAN JUAN, UTAH

GEOLOGY REPORT
prepared by

LUKE TITUS
PASON/ROCKY MOUNTAIN GEO-ENGINEERING CORP.
GRAND JUNCTION, COLORADO
(970) 243-3044

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WELL SUMMARY

OPERATOR:	MOBIL EXPLORATION & PRODUCTION U.S. INC.
NAME:	RATHERFORD UNIT #21-21 NW HORIZONTAL LATERAL LEG #2 IN 1-A UPPER POROSITY BENCH, DESERT CREEK
LOCATION:	SECTION 21, T41S, R24E
COUNTY/STATE:	SAN JUAN, UTAH
ELEVATION:	KB:4646' GL:4637'
SPUD DATE:	8/23/98
COMPLETION DATE:	8/30/98
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 ¾"
CASING RECORD:	SIDETRACK IN WINDOW AT 5377' MEASURED DEPTH
DRILLING MUD:	M-I
ENGINEER:	RON WESTENBERG/MIKE PITTSINGER
MUD TYPE:	FRESH WATER & BRINE WATER W/ POLYMER SWEEPS
DIRECTIONAL DRILLING CO:	SPERRY-SUN
ELECTICAL LOGGING:	NA
TOTAL DEPTH:	7124' MEASURED DEPTH; TRUE VERTICAL DEPTH-5473.6'
STATUS:	L.D TOOLS; PREPARE TO MOVE RIG

DRILLING CHRONOLOGY
RATHERFORD UNIT #21-21
1-A NW HORIZONTAL LATERAL LEG #2

DATE	DEPTH	DAILY	ACTIVITY
8/27/98	0'	0'	TOOH-LD. LATERAL ASSEM;M.U. SUPERHOOK & TIH-P.U. 21 JNTS FROM BSKT-HOOK WHIPSTOCK #1 & SHEAR OFF-TOOH;TIH W/WHIPSTOCK #2 SET @ 5350'-TOOH;BRK CIRC;TIH W/STRATER MILL-MILL F/5350' T/5332';TOOH;BRK CIRC;TIH W/WATERMELLON MILLS-MILL F/5352' T/5357'-PMP SWP & CIRC OUT-PMP 10 BBLS. BRINE;L.D. 13 JNTS TOOH-L.D. MILLS;P.U. CRVE ASSEM.-TEST-TIH;BRK CIRC.-R.U GYRO DATA
8/28/98	5357'	258'	TIME DRLG F/5357' T/5360'-DIR DRLG & WIRELINE SRVYS F/5360' T/5550';PMP SWEEP CIRC. OUT-PMP 10 BBLS BRINE-L.D. 58 JNTS AOH;MAKE-UP LAT. ASSEM-TEST-TIH-INSTALL CORROSION RINGS;P.U. 2 JNTS;SWIVEL-UP & BRK CIRC.-DIR DRLG & SRVYS F/5550' T/5615'
8/29/98	5615'	1181'	DIR DRLG & SRVY F/5615' T/6796'
8/30/98	6796'	328' TD	DIR DRLG & SRVY F/6796' T/7124';TD NW LAT. LEG #2 AT 9:00 AM (MST)-CIRC. BOTTOMS-TIH

DAILY ACTIVITY

Operator: MOBIL
Well Name: RATHERFORD UNIT #21-21 NW 1-A HORIZONTAL LATERAL LEG #2

DATE	DEPTH	DAILY	DATE	DEPTH	DAILY
8/27/98	0'	0'			
8/28/98	5357'	258'			
8/29/98	5615'	1181'			
8/30/98	6796'	328' TD			

BIT RECORD

OPERATOR: MOBIL
WELL NAME: RATHERFORD UNIT #21-21 NW 1-A HORIZONTAL LATERAL LEG #2

RUN	SIZE	MAKE	TYPE	IN/OUT	FTG	HRS	FT/HR
#1 (RR)	4 3/4"	STC	MF-2GP	5357'/ 5551'	193'	14.5	13
#2	4 3/4"	STC	MF-2GP	5551'/ 7124'	1536'	33.5	45

MUD REPORT

OPERATOR: MOBIL
WELL NAME: RATHERFORD UNIT #21-21 NW 1-A HORIZONTAL LATERAL LEG #2

DATE	DEPTH	WT	VIS	PV	YP	GEL	PH	CL	CA	MBT	PM	PF	SOL	LGS	HGS
8/27/98	5350'	8.7	26	1	1	0/0	10.5	NC	NC	30K	3000	TR	1%	99%
8/28/98	5443'	8.7	26	1	1	0/0	10.5	NC	NC	29K	2800	TR	1%	99%
8/29/98	6140'	8.8	26	1	1	0/0	10.5	NC	NC	50K	4600	TR	1%	99%

SPERRY-SUNDRILLING SERVICES
SURVEY DATA

Customer: MOBIL (Utah)
Platform: RATHERFORD UNIT
Slot/Well: BA25/21-21,2A1

MEASURED DEPTH	ANGLE DEG	DIRECTION DEG	TVD	NORTHINGS FEET	EASTINGS FEET	VERTICAL SECTION	DOG LEG
5300	0.75	190.79	5299.79	3.6 S	19.87 W	12.08	0
5350	0.84	192.15	5349.79	4.28 S	20.01 W	11.71	0.18
5357	3.5	313	5356.78	4.19 S	20.18 W	11.9	57.09
5367	7.6	326.6	5366.73	3.42 S	20.76 W	12.85	42.78
5377	12.7	330.3	5376.57	1.92 S	21.67 W	14.54	51.39
5387	18.2	332	5386.21	0.42 N	22.95 W	17.07	55.18
5397	22.3	333	5395.59	3.49 N	24.55 W	20.33	41.14
5407	25.6	339.4	5404.73	7.2 N	26.17 W	24.05	41.96
5417	28.6	335	5413.63	11.4 N	27.94 W	28.21	36.06
5427	33.2	333.1	5422.21	16.01 N	30.19 W	33	47.02
5437	37.1	331.9	5430.38	21.11 N	32.85 W	38.43	39.61
5447	41.7	329.5	5438.11	26.64 N	35.96 W	44.47	48.45
5457	46.6	328.3	5445.28	32.6 N	39.56 W	51.17	49.71
5467	51	329.2	5451.87	39.04 N	43.46 W	58.41	44.52
5477	55.2	331	5457.87	45.97 N	47.45 W	66.05	44.4
5487	59.8	332.4	5463.24	53.39 N	51.44 W	74.04	47.49
5497	65.1	332.6	5467.87	61.26 N	55.53 W	82.39	53.03
5507	70.7	332.5	5471.63	69.47 N	59.8 W	91.12	56.01
5517	76	333.5	5474.49	78.01 N	64.15 W	100.12	53.86
5550	89.7	331.1	5478.59	106.92 N	79.34 W	130.95	42.13
5590	88.8	325.7	5479.11	140.98 N	100.29 W	169.49	13.68
5622	89	322.2	5479.73	166.84 N	119.12 W	200.9	10.95
5654	90.1	318.9	5479.98	191.54 N	139.45 W	232.62	10.87
5686	90.6	315.2	5479.78	214.96 N	161.25 W	264.53	11.67
5718	90.8	311.7	5479.39	236.96 N	184.47 W	296.52	10.95
5749	90	311.5	5479.18	257.55 N	207.65 W	327.51	2.66
5781	89.6	311.5	5479.29	278.75 N	231.62 W	359.5	1.25
5813	89.5	311.7	5479.54	299.99 N	255.55 W	391.49	0.7
5845	89.9	311.1	5479.71	321.16 N	279.55 W	423.48	2.25
5876	89.7	310.1	5479.81	341.33 N	303.09 W	454.45	3.29
5908	90.6	309.4	5479.73	361.79 N	327.69 W	486.4	3.56
5939	90.4	309.4	5479.46	381.47 N	351.64 W	517.34	0.65
5971	90.1	308.7	5479.32	401.63 N	376.49 W	549.26	2.38
6002	89.8	308.3	5479.35	420.92 N	400.75 W	580.16	1.61
6034	89.8	308.3	5479.46	440.76 N	425.87 W	612.06	0
6065	89.1	308.2	5479.76	459.95 N	450.21 W	642.95	2.28
6097	87.8	308.5	5480.62	479.79 N	475.3 W	674.83	4.17
6129	88.2	309.7	5481.74	499.96 N	500.11 W	706.74	3.95

SPERRY-SUN DRILLING SERVICES
SURVEY DATA

Customer...: MOBIL (Utah)
Platform...: RATHERFORD UNIT
Slot/Well..: BA25/21-21,2A1

MEASURED DEPTH	ANGLE DEG	DIRECTION DEG	TVD	NORTHINGS FEET	EASTINGS FEET	VERTICAL SECTION	DOG LEG
6161	88.9	309.9	5482.55	520.44 N	524.69 W	738.67	2.27
6193	89.7	311	5482.94	541.2 N	549.04 W	770.64	4.25
6224	88.9	310.4	5483.32	561.41 N	572.54 W	801.61	3.23
6256	92.2	308.9	5483.01	581.83 N	597.17 W	833.55	11.33
6288	94.2	309.4	5481.23	602 N	621.95 W	865.43	6.44
6320	91.2	309.4	5479.72	622.28 N	646.65 W	897.32	9.38
6352	92.3	310.3	5478.74	642.78 N	671.2 W	929.26	4.44
6383	89.4	309.7	5478.28	662.7 N	694.94 W	960.21	9.55
6415	88.9	308.9	5478.76	682.97 N	719.7 W	992.14	2.95
6447	90.7	308.7	5478.87	703.02 N	744.64 W	1024.05	5.66
6479	92.3	308.3	5478.03	722.93 N	769.68 W	1055.94	5.15
6510	89.9	307.5	5477.44	741.97 N	794.13 W	1086.81	8.16
6542	91	310.3	5477.18	762.06 N	819.03 W	1118.73	9.4
6574	91.1	312	5476.6	783.11 N	843.12 W	1150.7	5.32
6606	91.3	312	5475.93	804.52 N	866.9 W	1182.69	0.63
6637	91.8	312.2	5475.09	825.3 N	889.89 W	1213.67	1.74
6668	91.4	311.5	5474.22	845.97 N	912.97 W	1244.66	2.6
6700	91.1	310.8	5473.52	867.02 N	937.06 W	1276.63	2.38
6731	91.1	310.8	5472.93	887.27 N	960.52 W	1307.6	0
6763	90.2	311.5	5472.57	908.33 N	984.62 W	1339.58	3.56
6794	88.9	310.6	5472.81	928.69 N	1008 W	1370.56	5.1
6826	89.6	310.6	5473.23	949.51 N	1032.29 W	1402.53	2.19
6857	88.9	311.3	5473.64	969.83 N	1055.7 W	1433.51	3.19
6888	89.3	313.1	5474.12	990.65 N	1078.66 W	1464.5	5.95
6920	90.7	313.8	5474.12	1012.65 N	1101.89 W	1496.5	4.89
6952	92	314.3	5473.37	1034.89 N	1124.89 W	1528.49	4.35
6983	92.4	314.8	5472.18	1056.63 N	1146.96 W	1559.45	2.06
7015	90.8	313.8	5471.28	1078.96 N	1169.85 W	1591.43	5.9
7047	88.3	313.4	5471.54	1101.03 N	1193.02 W	1623.42	7.91
7091	88.5	314.1	5472.76	1131.44 N	1224.8 W	1667.4	1.65
7124	88.5	314.1	5473.63	1154.4 N	1248.49 W	1700.38	0

THE DOGLEG SEVERITY IS IN DEGREES PER 100 FEET.
N/E COORDINATE VALUES GIVEN RELATIVE TO WELL HEAD.
TVD COORDINATE VALUES GIVEN RELATIVE TO WELL HEAD.
THE VERTICAL SECTION ORIGIN IS WELL HEAD
THE VERTICAL SECTION WAS COMPUTED ALONG 313 (TRUE).
CALCULATION METHOD: MINIMUM CURVATURE.

SAMPLE DESCRIPTIONS

OPERATOR: MOBIL
WELL NAME: RATHERFORD UNIT #21-21 SE 1-A HORIZONTAL LATERAL LEG #1

DEPTH	LITHOLOGY

5356.00 5360.00 "LS ltgybrn-crm-wh,tr tan,crpxl-micxl,chky,sl chty-arg,v rr mic fos,anhy/tr xln ANHY-POR fl,sl dol,tt-v rr frac POR,NFSOC,rr DOL brn-gybrn,micxl,rthy,arg,sl lmy tt,NFSOC w/scat brn-mbrn CHT frag"

5360.00 5370.00 "LS ltgybrn-crm-wh,tr tan,brn,crpxl-micxl,chky,sl arg,anhy/tr xln ANHY-POR fl,sl dol,tt-v rr intxl POR,NFSOC,rr DOL AA,tt,NFSOC w/scat brn,ltgy CHT"

5370.00 5380.00 "LS,crypt-vf xln,mnds-tt mtx,pcc slty,scat dkbn DOL,rthy-arg grdg to MRLY LS,tr dkbn CHT frgs,NFSOC"
5380.00 5390.00 "LS,ltbn-crm-bn,mic-vf xln,rthy-arg grdg to MRLY LS,sl slty,chlky-sl anhy-rr ANHY xls,rr bn DOL,rr crypt-sl plty PCKST,NFSOC"

5390.00 5400.00 "LS,ltbn-bn-tn-crm-ltgybn,mic-vf xln,tr dkbn-blk carb SH prtgs,rthy-arg,tr dkbn-gy CHT frgs,slty-sl slty,chlky,tr anhy incl,v-spty dul FLOR,no CUT,no o STN"

5400.00 5410.00 "LS,ltgybn-ltgy-bn-tn,rr crypt-mic-vf xl,rthy-slty mtx,tr SH prtgs AA,sl arg to MRLY LS,sft,occ sl dolo ip,tr cht frgs,rr chlky ofwht mat"

5410.00 5420.00 "LS,bn-ltbn-ltgybn,mic-vf xln,mdns-tt mtx,rthy-arg,slty,tr bn microsuc DOL,tr dkbn-transl CHT frgs,rr fos frgs,rr calc frac flgs;pred rthy-pr-intrxln fab POR,NFSOC"

5420.00 5430.00 "LS,ltgy-bn-ltbn-crm,mic-vf xln,mdns-tt mtx,occ sl plty,occ cln,pred rthy-arg grdg to MRLY LS,sl dolo,slty,tr CHT frgs,rr ANHY xls-sl anhy,occ chlky,POR AA,no cut,no FLOR,no o STN"

5430.00 5440.00 "LS,sft-frm,mdns-tt mtx,slty-occ grn mtx,v rr mic foss,rr calc frac flgs,rthy/arg,occ cln-chlky,pred rthy/intrxln fab POR,pr-dul FLOR,no CUT,no o STN,rr blk res"

5440.00 5450.00 "LS,ltgy-ltgybn-tn-crm.mic-vf xln,slty-rthy-arg,rr bn DOLO,tr CHT frgs;pred intrxln fab POR,NFSOC"

5450.00 5460.00 "LS,ltgy-ltbn-tn-crm,mic-vf xl,mdns-slty-rthy mtx,occ grn,sl arg-tr MRLY LS,rr CALC DOL-microsuc-suc mtx-bn,rr bn DOL,sl chlky /anhy;pred microsuc-intrxln fab POR,pr-spty dul yel FLOR,no CUT,rr blk res o STN"

5460.00 5470.00 "LS grdg to pred SH,LS AA,rr bn DOL,SH-blk-dkbn,rthy/arg,sl slty-slty,sooty,sblky-sbplty,sl fiss,tr micro-pyr incl,sl calc-sl dolo,carbonacous,sft-dns"

DEPTH	LITHOLOGY

5470.00 5480.00 "SH AA,decr in LS to DOL strgrs,tr ltgy rthy dns ARG LS"

5480.00 5490.00 "LS,ltbn-ltgybn-crm-tn,mic-vf xln,rthy-sl arg,mdns-dns,slty,tr ltgy CHT frgs,rr SH prtgs,tr ool dns PCKST;pr ltbn o STN,spty mbri yel FLOR,no vis CUT"

5490.00 5500.00 "LS AA,occ intraclast ip,tr ool,sl rthy-arg,slty-occ grn,pr ltbn o STN,rr blk o STN res,or-spty mbri yelgld FLOR,no to wk strmg CUT"

5500.00 5510.00 "LS,ltbn-tn-crm-ltgy,incr in dns sl ool PCKST,slty-grn mtx,v rr ool GRNST,rr bn DOLgrdg to CALC DOL,o STN AA,CUT AA,FLOR AA"

5510.00 5530.00 "LS,sl ool dns occ chlky PCKST grdg to pred ool rich mg-g oom/ooc GRNST,ool/pel,tr foss frgs,sl dolo,rr buf-ltbn CHT frgs,sl anhy-rr ANHY xls;pred mg-g oom/ooc fab POR,tr tt-g intrxln fab POR,f-mbri yel FLOR,tr-m slo strmg dig CUT,pred m-mf ltbn-trblkoSTN"

5530.00 5540.00 "LS,ltbn-tn,mott,mic-vf xln,grn-microsuc-mdns mtx,pred ool oom/ooc GRNST,sl anhy-rr ANHY xls,sl dolo,v rr ltbn CHT frgs;pred g-oom/ooc fab POR,tr blk dd o STN,tr-mf ltbn o STN,tr-slo strmg CUT,f-mbri yelgld FLOR"

5540.00 5550.00 "LS AA,pred ool rich oom/ooc GRNST,pred m-mf ltbn o STN w/blk dd o STN fld casts,pred mg-g oom/ooc fab POR,f-mbri yelgld FLOR,tr-m slo strmg CUT"

5550.00 5560.00 "LS AA.ool-oom GRNST/tr dns sl ool PKST incl-frag,sl dol/tr DOL cmt,POR-FLOR-STN CUT AA"

5560.00 5580.00 "dd o STN,g fast-mod fast stmg mlky CUT"

5560.00 5580.00 "LS ltbrn-tan/crm incl,rr wh,gran-micxl,vfxl-suc ip,tr crpxl,ool-oom GRNST,tr PKST AA,sl chky-anhy/tr POR fl-rr xln ANHY,sl dol/tr DOL cmt,rr tan-crm CHT incl,g ool-oom/tr intxl POR,g even dull-mod bri/spty bri yel FLOR,mg-fr ltbrn-brn/tr blk"

5580.00 5600.00 "LS AA,gran-vfxl-micsuc ip.occ micxl,tr crpxl,ool-oom GRNST,tr intbd-scat dns sl ool-agl PKST,sl-occ v chky/tr POR fl-rr xln ANHY,sl dol/tr DOL strk-cmt,v rr CHT AA,v rr clr xln CALC incl,POR-FLOR AA,mg-g ltbrn-brn/tr blk dd o STN,g mod fast-slow stmg CUT"

5600.00 5620.00 "LS ltbrn-tan/crm incl,tr brn,rr wh,gran-vfxl-micsuc ip,tr micxl-crpxl,GRNST AA,tr PKST AA,sl-occ v chky-anhy/tr POR fl-rr xln ANHY,dol/tr DOL strk-cmt,incr brn-tan CHT,g ool-oom/tr intxl POR,g even mod bri-spty bri yel FLOR,STN-CUT AA"

5620.00 5640.00 "LS ltbrn-tan/crm incl,tr brn,gran-vfxl-micsuc,tr micxl-crpxl,ool-oom GRNST/tr dn sl ool-v sl agl PKST,chky-sl anhy/tr POR fl-rr xl ANHY,dol/tr DOL cmt-strk,rr crm CHT,g ool-oom POR,g even mod bri-dull/spty bri yel FLOR,mg ltbrn-tr brn-rr blk STN,CUT AA"

5640.00 5660.00 "LS AA,gran-vfxl-micsuc,tr micxl-crpxl,ool-oom GRNST,tr dns sl ool-agl PKST,sl chky-anhy/tr POR fl-rr xln ANHY,sl dol/tr DOL cmt,v rr CHT AA,POR-FLOR AA,mg-fr ltbrn-tr brn/rr blk dd o STN,g fast-mod fast stmg mlky CUT"

DEPTH	LITHOLOGY
5660.00 5680.00	"LS ltbrn-tan/crm-off wh incl,rr brn,gran-vfxl-micsuc,tr micxl-crpxl,GRNST AA,tr PKST AA,sl-occ v chky-anhy/tr POR fl-rr xln ANHY,sl dol/tr DOL cmt,rr CHT AA,g ool-oom/tr intxl POR,g even mod bri-spty bri yel FLOR,STN AA,g mod fast-slow stmg mlky CUT"
5680.00 5700.00	"LS AA,gran-vfxl,tr micxl-crpxl,micsuc ip,ool-oom GRNST/tr intbd-scat sl ool-agl PKST,sl chky-anhy/tr POR fl-rr xln ANHY,sl dol/tr DOL cmt,tr crm-tan CHT incl,POR-FLOR AA,g ltbrn-fr brn/tr blk dd o STN,g fast-mod fast stmg mlky CUT"
5700.00 5720.00	"LS ltbrn-tan/tr crm-wh incl,tr brn,gran-vfxl-micsuc,micxl-tr crpxl,GRNST AA/tr PKST AA,sl chky-anhy/tr POR fl-rr xln ANHY,sl dol/tr DOL cmt,v rr CHT AA,POR AA,g even mod bri-spty bri yel FLOR,mg-g ltbrn-tr brn & blk dd o STN,g fast stmg mlky CUT "
5720.00 5740.00	"LS AA,ool-oom GRNST/tr dns sl ool-rr agl PKST,sl chky-anhy/tr POR fl-rr xln ANHY,sl dol/tr DOL cmt,v rr crm CHT incl,g ool-oom/tr intxl POR,g even dull-mod bri/spty bri yel FLOR,g ltbrn-brn/tr blk dd o STN,g fast-mod fast stmg mlky CUT"
5740.00 5760.00	"LS AA,gran-vfxl-micsuc ip,tr micxl-sl crpxl,ool-oom GRNST,tr PKST AA,v sl chky-anhy-rr prtg/rr POR fl-xln ANHY,sl dol/tr DOL cmt,v rr crm CHT,g ool-oom/tr intxl POR,g even mod bri-spty bri yel FLOR,STN AA,g fast stmg mlky CUT"
5760.00 5790.00	"LS tan-crm-ltbrn,tr wh incl,rr brn,gran-vfxl-micsuc,tr micxl,rr crpxl,GRNST AA/decr PKST AA,sl-occ v chky-anhy/tr POR fl-xln ANHY & occ prtgs,sl dol/tr DOL cmt,v rr CHT AA,POR-FLOR AA,mg-fr ltbrn-rr brn & blk dd o STN,g fast stmg mlky CUT "
5790.00 5820.00	"LS AA,gran-vfxl-micsuc,sl micxl-rr crpxl,GRNST AA/rr PKST AA,sl chky-anhy/tr POR fl-rr xln ANHY,sl dol/tr DOL cmt,tr crm-tan CHT,POR AA,g even mod bri-spty bri yel FLOR,mg-fr ltbrn-rr brn & blk dd o STN,g fast stmg mlky CUT "
5820.00 5850.00	"LS,ltbn-tn-crm,mott,mic-vf xln,mdns-grn mtx,pred ool rich oom/ooc GRNST,tr pel,rr chlky mat,v rr dns PCKST,rr crypt xln;pred mf-mg oom/ooc fab POR w/tr intrxln fab POR,f-g mbri-bri yelgld FLOR,tr-m slo strmg dif CUT,pred m-occ mg ltbn w/tr blk dd o STN"
5850.00 5880.00	"LS AA,pred mf-ltbn o STN w/dd blk o STN flg ool/pel/foss casts,mf-f even mbri-bri yelgld FLOR,tr-mf slo strmg dif/milky ring CUT,pred mf-mg oom/ooc fab POR"
5880.00 5910.00	"LS ltbn-tn,mott,mic-vf xln,mdns-grn-microsuc mtx,pred ool rich oom/ooc GRNST,sl anhy-v rr ANHY xls,rr chlky mat,sme calc/chlky fld casts,rr calc frac flgs;POR AA,FLOR AA,o STN AA,CUT AA"

DEPTH	LITHOLOGY

5910.00 5940.00 "LS,ltbn-tn,mott,mic-vf xln,grn mtx,pred oom/ooc GRNST w v rr dns sl plty ool PCKST,rr carb mat,v sl dolo ip,ool rich,poss sme pel,sme chlky flgs;pred mf-mg oom/ooc fab POR,mf-ltbn o STN tr dd blk o STN,mbri yelgld FLOR,slo strmg dif CUT"

5940.00 5970.00 "LS,ltbn-tn,mott,mic-vf xln,grn-microsuc mtx,pred ool rich oom/ooc GRNST,v rr carb mat,ool/pel,tr foss frgs,v sl chlky;pred mf-mg oom/ooc fab POR,mg-fst to slo strmg CUT,pred mf-f ltbn o STN w/dd blk o STN res"

5970.00 6000.00 "LS AA,mbri-bri yelgld FLOR,mf- fast to slo strmg CUT,dif milky ring CUT,pred mg oom/ooc fab POR w/rr intrxln fab POR"

6000.00 6030.00 "LS,ltbn-tn,mott,mic-vf xln,mdns-grn mtx,tr microsuc mtx,pred ool oom/ooc GRNST,v rr dns sl ool to ool occ sl plty sl chlky PCKST,rr calc frac flgs,v sl dolo,rr ltbn cht frgs,v rr carb mat;pred mg-mf oolmoldic to oolicast fab POR,mbri-bri yelgld FLOR"

6030.00 6060.00 "LS AA,POR AA,rr f-interxln fab POR,FLOA AA,fst to mf-mg slo strmg dif milky CUT,pred mf-mg ltbn o STN w/blk o STN res"

6060.00 6090.00 "LS,ltbn-tn-occ crm,mott,mic-vf xl,mdns-grn mtx,v sl dolo,pred oom/ooc GRNST,ool/pel,tr foss frgs,v sl dol,rr ltbn CHT frgs,rr ofwht chlky mat;pred mf-mg oom/ooc fab POR w/sme f-intrxln fab POR,f-mbri-spty bri yelgld FLOR,g-slo strmg dif milky CUT"

6090.00 6120.00 "LS ltbn-tn,mott,mic-vf xln,mdns-grn-microsuc mtx,pred ool rich oom/ooc GRNST,sl anhy-v rr ANHY xls,rr chlky mat,sme calc/chlky fld casts,rr calc frac flgs;POR AA,FLOR AA,o STN AA,CUT AA"

6120.00 6150.00 "LS,ltbn-tn-crm,mott,mic-vf xln,mdns-grn mtx,pred ool rich oom/ooc GRNST,tr pel,rr chlky mat,v rr dns PCKST,rr crypt xln;pred mf-mg oom/ooc fab POR w/tr intrxln fab POR,f-g mbri-bri yelgld FLOR,mf slo strmg dif CUT,pred mf-mg ltbn w/tr blk dd o STN"

6150.00 6180.00 "LS,ltbn-tn,mott,vf xln,grn-microsuc mtx,pred ool rich oom/ooc GRNST,sl chlky dns ool to sl ool PCKST,rr ofwht chlky mat,rr calc frac flgs;pred mg oom/ooc w/sme reduced oom/ooc fab POR,mbri-bri yelgld FLOR,f-slo strmg CUT,mf-mg ltbn mtx o STN"

6180.00 6210.00 "LS AA,mbri-bri yelgld FLOR,mf- fast to slo strmg CUT,dif milky ring CUT,pred mg oom/ooc fab POR w/rr intrxln fab POR"

6210.00 6240.00 "LS,ltbn-tn,mott,mic-vf xln,grn mtx,pred oom/ooc GRNST, v rr dns sl plty ool PCKST,rr carb mat,v sl dolo ip,ool rich,poss sme pel,sme chlky flgs;pred mf-mg oom/ooc fab POR,mf-ltbn o STN tr dd blk o STN,mbri yelgld FLOR,slo strmg dif CUT"

6240.00 6270.00 "LS,ltbn-tn-crm,mott,mic-vf xln,mdns-grn mtx,pred ool rich oom/ooc GRNST,tr chlky mat, tr dns PCKST,tr crypt xln;pred mf-mg oom/ooc fab POR w/tr intrxln fab POR,f-g mbri-bri yelgld FLOR,mf-g slo strmg dif CUT,pred mf-mg ltbn w/tr blk dd o STN"

DEPTH	LITHOLOGY

6270.00 6300.00 "LS AA,sl incr in dens ool to ool rich mdns-dns PCKST,abunt ool rich reduced to mf oomoldic to oolicastic fab POR,abunt GRNST,tr blk dd o STN w mf-mg ltbn o STN,f-fast to f slo strmg dif CUT,f-mbri-bri yelgld FLOR"

6300.00 6330.00 "LS,tn-crm-occ ltbn,crypt-vf xln,mnds-dns tx,grn-microsuc mtx,incr in dns sl chlky PCKST,abunt ool redu to mg oom/ooc GRNST,rr carb mat,sl anhy-tr ANHY xls,sl dolo ip;tr-mf ltbn o STN,tr blk o STN,dul-mbri yelgld FLOR,tr-slo strmg slo CUT"

6330.00 6360.00 "LS,ltbn-tn-crm,sl mott,crypt-vf xln,mdns-dns mtx,tr grn mtx-microsuc mtx,pred dns sl ool PCKST to com sl oom/ooc ool GRNST;FLOR AA,CUT AA,o STN AA,pred reduced-f oom/ooc fab POR w/mf-intrxln fab POR"

6360.00 6390.00 "LS,ltbn-tn,sl mott-mott,mic-vf xln,mdns-grn mtx,occ dns mtx,pred ool rich oom/ooc GRNST,rr dns PCKST,tr crypt xln;pred mf-mg oom/ooc fab POR w/rr intrxln fab POR,f-g mbri-bri yelgld FLOR,mf-g slo strm dif CUT,pred mf-mg ltbn w/tr blk dd o STN"

6390.00 6420.00 "LS,ltbn-tn,mott,mic-xln-vf xln,grn-microsuc mtx,pred ool rich oom/ooc GRNST,sl chlky dns ool w/rr sl ool PCKST,rr ofwht chlky mat,rr calc frac flgs;pred mg oom/ooc w/sme reduced oom/ooc fab POR,mbri-bri yelgld FLOR,f-slo strmg CUT,mf-mg ltbn mtx o STN"

6420.00 6450.00 "LS ltbn-tn,occ crm,sl mott-mott,mic-vf xln,mdns-grn-microsuc mtx,pred ool rich oom/ooc GRNST,sl anhy,rr chlky mat,sme calc/chlky fld casts,rr calc frac flg;POR AA,FLOR AA,o STN AA,CUT AA"

6450.00 6480.00 "LS,ltbn-tn-crm,mott,mic-vf xln,rr crypt xl,mdns-grn mtx,occ microsuc mtx,v sl dolo to sl dolo ip,pred ool rich oom/ooc mdns GRNSt,tr chlky/calc fld casts,rr anhy xls;pred mf-mg oom/ooc fab POR,mbri-bri yelgld FLOR,mf-f slo strmg CUT,pred mf-mg ltbn o STN"

6480.00 6510.00 "LS,ltbn-tn-occ crm,mott,mic-vf xln,grn mtx,mdns-occ dns mtx,pred oom/ooc ool rich GRNST w/scat dns PCKST,rr carb mat,tr ofwht chlky mat,tr calc frac flgs;pred oom/ooc fab POR,ltbn o STn,spty mbri yelgld FLOR,wk cut"

6510.00 6540.00 "LS AA,sl decr in o STN,pr-m slo strmg CUT,spty mbri yelgld FLOR,dul FLOR,tr blk dd o STN res flg casts,pred oom/ooc fab POR,poss flushed"

6540.00 6570.00 "LS tan-ltbrn-crm/tr wh-off wh incl,rr brn,gran-vfxl-sl micsuc,tr micxl-rr crpxl,ool-oom GRNST/tr dns sl ool-agl PKST incl,v sl dol ip,chky-sl anhy/tr xln ANHY-POR fl,rr crm CHT,g ool-oom/tr intxl POR,tr scat mod bri-spty bri yel FLOR,fr-tr ltbrn-rr"

6540.00 6570.00 "brn/v rr blk dd o STN,mg-tr mod fast stmg mlky CUT"

DEPTH	LITHOLOGY

6570.00 6590.00 "LS AA,pred ool-oom GRNST/occ dns sl ool-agl PKST strk-incl,chky-anhy/tr POR fl-xln ANHY,sl dol ip,mg-fr ool-oom/tr intxl POR,tr scat mod bri-spty bri yel FLOR,fr-mg ltbrn-rr brn-v rr blk dd o STN,fr-tr mod fast stmg mlky CUT"

6590.00 6620.00 "AA,tr-fr slow stmg mlky CUT"

6590.00 6620.00 "LS tan-ltgybrn-crm,occ ltbrn,tr off wh-wh incl,vfxl-micxl-gran,crpxl-sl micsuc ip,oom-ool GRNST,sl incr dns sl ool-agl PKST/gran tex,chky-sl anhy/tr POR fl-rr xln ANHY.v sl dol ip,tr mic fos-v rr pel,fr-mg ool/tr inxl POR-occ tt,FLOR-STN"

6620.00 6640.00 "LS AA,vfxl-gran-sl micsuc,micxl-crpxl,ool-sl oom-occ dns GRNST,scat-occ intbd dns sl ool-agl PKST/tr gran tex,chky-sl anhy/tr POR fl-xln ANHY,sl dol ip,tr crm-off wh CHT,POR AA,incr scat mod bri-spty bri yel FLOR,STN AA,g mod fast/tr fast stmg mlky CUT"

6640.00 6660.00 "LS AA,pred ool-oom GRNST/tr dns intbd-scat dns sl ool-agl PKST,chky-sl anhy/tr POR-rr xln ANHY,POR-FLOR-STN-CUT AA"

6660.00 6680.00 "occ tt,fr scat mod bri-spty bri yel FLOR,fr ltbrn-rr brn/v rr blk dd o STN,fr-tr mod fast-slow stmg mlky CUT"

6660.00 6680.00 "LS tan-crm-ltbrn,tr off wh-wh incl,rr brn,vfxl-gran-micsuc ip,occ micxl-crpxl,oom-ool-tr dns GRNST,scat-intbd dns sl ool-agl PKST/gran tex,chky-sl anhy/tr POR fl-xln ANHY,v sl dol ip,tr mic fos,rr brn CHT,fr-mg ool/tr inxl POR-"

6680.00 6700.00 "bri yel FLOR,mg-fr ltbrn-tr brn STN,g mod fast-fast stmg mlky CUT"

6680.00 6700.00 "LS tan-ltbrn,occ crm,tr wh-off wh incl,vfxl-gran-sl suc,micxl-crpxl,pred ool-sl oom GRNST,decr scat-intbd dns sl ool-rr agl PKST/tr gran tex,sl chky-anhy/tr xln ANHY-rr POR fl,sl dol,rr crm CHT,mg-g ool-sl oom/tr intxl POR,g even mod bri-"

6700.00 6720.00 "LS AA,pred ool-oom GRNST/tr dns intbd-scat dns sl ool-agl PKST,chky-sl anhy/tr POR-rr xln ANHY,POR-FLOR-STN-CUT AA"

6720.00 6750.00 "ltbrn/rr brn STN,fast dif/bri res ring-tr fast stmg mlky CUT"

6720.00 6750.00 "LS AA,vfxl-gran-sl micsuc,micxl-crpxl,pred GRNST AA-occ dns,sl incr scat-intbd dns sl ool-rr agl PKST/rr thn plty PKST,sl incr chky-sl anhy/tr xln ANHY-POR fl,sl dol,tr CHT AA,POR AA,g even mod bri-dull/tr spty bri yel FLOR,mg-fr"

6750.00 6760.00 "LS AA,pred GRNST AA,incr scat-intbd dns sl ool-rr agl PKST/sl incr thn plty frag,bcmg incr chky-sl anhy/tr xln ANHY-POR fl,sl dol/tr DOL cmt,incr tr trnsl-wh-crm CHT,POR AA,decr FLOR AA,STN-CUT AA"

6760.00 6770.00 "LS AA,fr-mg ool-sl oom/tr intxl POR-occ tt,decr FLOR AA,STN AA,fr slow dif/fnt res ring-tr slow stmg mlky CUT"

DEPTH	LITHOLOGY
6770.00 6800.00	"FLOR,fr ltbrn-rr brn STN,CUT AA"
6770.00 6800.00	"LS tan-crm,occ ltbrn,tr wh-off wh incl,vfxl-gran,micxl-crpxl,pred ool-sl oom GRNST,scat-intbd dns sl ool-tr thn plty PKST,chky-sl anhy/tr xln ANHY-POR fl,sl dol,sl chty/CHT AA,mg-fr ool-sl oom-intxl POR,mg-fr even dull-mod bri/tr spty bri yel"
6800.00 6830.00	"LS AA,pred ool-sl oom-tr dns GRNST,sl incr scat-intbd dns sl ool-agl-rr thn plty PKST,chky-sl anhy/tr xln ANHY-POR fl,sl dol,tr crm CHT,mg-fr ool-sl oom/tr intxl POR,g even mod bri-dull/tr spty bri yel FLOR,STN AA,g mod fast-slow stmg mlky CUT"
6830.00 6860.00	"LS AA,vfxl-gran,micxl-crpxl,tr xl incl,pred GRNST AA-occ dns,tr scat-intbd dns sl ool-rr agl PKST,sl chky-anhy/tr xln ANHY-POR fl,sl dol,tr crm-trnsl CHT,v rr xl CALC,POR AA,g even dull-mod bri/scat spty bri yel FLOR,mg-fr ltbrn STN,CUT AA"
6860.00 6890.00	"LS AA,micxl-gran-vfxl,tr crpxl-xl ip,pred ool-sl oom-occ dns GRNST,scat-intbd dns sl ool PKST,sl-occ v chky-sl anhy/tr xln ANHY-POR fl,sl dol,tr crm-tan CHT,mg-fr ool-sl oom-intxl POR,FLOR-STN AA,g dif/bri res ring-tr slow stmg mlky CUT"
6890.00 6910.00	"mod fast-slow stmg mlky CUT"
6890.00 6910.00	"LS tan-occ ltbrn,rr crm-wh-off wh incl,gran-micxl-vfxl,tr crpxl-xl incl,pred ool-sl oom-occ dns GRNST,tr scat-intbd dns sl ool PKST,sl chky-anhy/tr xl ANHY-POR fl,sl dol,tr trnsl rhmb xl CALC,rr CHT AA,POR AA,g even mod bri-spty bri yel FLOR,g"
6910.00 6940.00	"LS AA,pred ool-sl oom-occ dns GRNST,tr intbd dns sl ool PKST,agl ip,sl-occ chky-sl anhy/tr xln ANHY-POR fl,sl dol,tr crm-tan CHT,rr CALC AA & mic fos,mg-fr ool-sl oom-intxl POR,g even mod bri-bri yel FLOR,STN-CUT AA"
6940.00 6960.00	"LS AA,gran-micxl-vfxl,tr crpxl-xl ip,pred ool-sl oom-occ dns GRNST,tr scat-intbd dns sl ool PKST,sl chky-anhy/tr xln ANHY-POR fl,sl dol,tr CHT AA,tr GAST & mic fos,rr trnsl rhmb CALC,POR-FLOR AA,fr-mg lt brn/v rr blk pp dd o STN,g mod fast-fast stmg CUT"
6960.00 6980.00	"LS AA,pred ool-oom GRNST/tr dns intbd-scat dns sl ool-agl PKST,sl agl,sl chky-anhy/tr POR-rr xln ANHY,tr GAST & mic fos,tr CHT AA,v rr xln CALC,sl dol ip,POR-FLOR-STN-CUT AA"
6980.00 7009.00	"LS,crm-tn,mott,mic-vf xln,grn-mdns mtx ip,pred sl ool to ool mdns to microsuc GRNST,tr dns sl ool PCKSt,rr chlky mat,sl chlky/any-tr ANHY xls;pred oom/ooc fab POR to interxln POR,fst mf-strmg dif CUt,pred mf-tn o STN,tr blk res,f-mbri yelgld FLOR"
7010.00 7030.00	"LS AA,bri yelgld FLOR,tr-m slo strmg v dif CUT,m-mf ltbn-crm o STN,v rr blk res o STN"

DEPTH		LITHOLOGY
7030.00	7050.00	"LS,pred sl oom/ooc sl foss mdns GRNST,v rr ltgy CHT frgs,tr vug POR,pred sl oom/ooc to intrxln fab POR,bri yelgld FLOR,tr-m slo strmg CUT,ltbn o STN"
7050.00	7070.00	"LS,ltbn-tn-crm-ofwht,v sl mott,mic-vf xln,tr crypt xln,GRNST AA to dns chlky sl ool PCKST,rr ltgy cht frgs,v rr carb mat;pred v sl oom/ooc fab POR to pred interxln fab POR ip,even mbri-bri yelgld FLOR,tr-m fst strmg CUT,m-ltbn mtx o STN"
7070.00	7090.00	"LS AA,incr in dns mtx to PCKST,even mbri yelgld FLOR,tr-m fst strmg dif CUT,pred m-ltbn tn o STn w/blk o STN res"
7090.00	7110.00	"LS,ltbn-tn-crm,sl mott,occ crypt xl,mic-vf xln,mdns-dns mtx ip,grn mtx,pred sl oom/ooc GRNSt intrbd w/mdns sl oom/ooc GRNST,FLOR AA,CUT AA.o STN AA;pred interxln to sl oom/ooc fab POR"
7110.00	7124.00	"LS,ltbn-tn,mott-sl mott,mic-vf xln,tr crypt xln,mdns-dns-grn mtx,tr microsuc mtx,pred ool oom/ooc GRNSt w/sme dns PCKST,sl anhy-rr ANHY xls,v rr ltgy CHT frgs;pred sl oom/ooc to occ vug POR w/intrxln,mf-ltbn o STN,bri yelgld FLOR,tr-mf fst to slostrmgCUT"

FORMATION TOPS

OPERATOR: MOBIL
WELL NAME: RATHERFORD UNIT #21-21 NW 1-A HORIZONTAL LATERAL LEG #2

FORMATION NAME		SAMPLES MEASURED DEPTH	SAMPLES TRUE VERTICAL DEPTH	DATUM KB:4646'
LOWER ISMAY		5399'	5398'	-752'
GOTHIC SHALE		5463'	5449'	-803'
DESERT CREEK		5481'	5460'	-814'
UPPER DC 1-A ZONE		5500'	5469'	-823'
*LOWER DC 1-A ZONE		5542 '	5484'	-838'
*PROJECTED				

GEOLOGICAL SUMMARY

AND

ZONES OF INTEREST

The Mobil Exploration and Production U.S., Inc., Ratherford Unit #21-21 Northwest Horizontal Lateral Leg #2 was a re-entry of the Mobil Ratherford Unit #21-21 drilled on July 17, 1959. Located in Section 21, T41S, R24E, this re-entry was sidetracked in a northwesterly direction from 5357' measured depth, 5349.8' true vertical depth, on August 28, 1998. The lateral reached a measured depth of 7124', true vertical depth of 5473.6' at total depth, with a horizontal displacement of 1700' and true vertical plane of 314.1 degrees on August 30, 1998. The lateral was terminated in the upper pay-zone of 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 the various formations and their members.

The objective of the Ratherford Unit #21-21 northwest lateral leg #2 was to penetrate 1700' horizontally in the Desert Creek 1-A porosity bench, identify and define its lithology, evaluate its effective porosity and permeability, various carbonate facies, hydrocarbon and gas potential and overall thickness. The 1-A porosity bench has a defined hard streak that separates the bench into an upper and lower pay-zone. In this northwesterly direction the upper pay-zone in the Desert Creek 1-A porosity bench has been targeted for penetration. The curve section began in the Pennsylvanian Upper Ismay carbonate cycle before encountering the typical stratigraphic column of the Lower Ismay carbonate cycle, Gothic Shale and the Desert Creek 1-A member of the Upper Paradox Formation of the Hermosa Group.

The curve section began in the basal 48' of the Upper Ismay carbonate cycle of the Upper Paradox Formation and was penetrated from a measured depth of 5357', true vertical depth 5349.8' through a measured depth of 5399', true vertical depth 5398'. This carbonate cycle was predominately slightly dolomitic earthy limestone. This facies was light gray brown, cream, off-white, light brown, brown to tan, cryptocrystalline to microcrystalline, occasionally very fine crystalline, moderately dense to tight, earthy to argillaceous grading to a marly limestone, slightly anhydritic, slightly dolomitic in part, chalky and uncommonly silty. Associated with this limestone facies was rare to trace dark brown to brown dolomite, slightly platy cream packstone, rare dark brown to black carbonaceous shale partings, rare to trace amounts of dark brown chert, anhydrite crystals, and rare micro-fossil fragments. Through this interval no visible staining or cut was noted, but a spotty dull yellow-gold fluorescence was logged at the contact between the Upper Ismay and Hovenweep Shale marker bed. Porosity was predominately a poor intercrystalline to earthy development. The Hovenweep Shale, defining the contact between the Upper and Lower Ismay carbonate cycle, was represented in the samples by dark brown to black soft shale partings and was approximately two feet in this northwesterly direction.

The top of the Lower Ismay carbonate cycle of the Upper Paradox Formation was picked at a measured depth of 5399', true vertical depth 5398', based primarily on the Hovenweep marker bed, sample identification and an increase in the rate of penetration. The Lower Ismay in this northwesterly direction was 51' thick and was primarily limestone that was infrequently dolomitic. This limestone facies was light gray, light gray brown, brown, light brown, tan to cream, cryptocrystalline to very fine crystalline, moderately dense to tight, moderately dense to tight, slightly silty and dolomitic, earthy to argillaceous, slightly chalky and anhydritic and occasionally clean. Some thinly interbedded lenses of dark brown to brown microsucrosic dolomites, sucrosic calcareous dolomites, marly limestones and dark brown to black carbonaceous shale partings were associated with this limestone cycle in the Lower Ismay. Accessories and inclusions of dark brown to translucent chert fragments, rare microfossils, rare calcite fracture filling, crystalline anhydrite and off-white chalky matter were noted through this interval. Throughout this carbonate cycle an earthy to poor intercrystalline with rare microsucrosic to sucrosic fabric porosity was developed, a poor spotty dull yellow-gold fluorescence, no visible to black dead oil stain resin and no visible cut was logged. The base of the Lower Ismay was marked by an increase in carbonaceous shale partings as the contact and transition zone between the Lower Ismay and Gothic Shale was penetrated.

The Gothic Shale was penetrated at a measured depth of 5463', true vertical depth 5449' and was drilled to a measured depth of 5481', true vertical depth 5460'. The top of the Gothic was picked by a decrease in the penetration rate and a significant increase in the amount of carbonaceous shale in the cuttings. The Gothic Shale was eleven feet thick, black, dark brown, occasionally silty, soft, sooty, slightly fissile, subblocky to subplaty, calcareous to slightly dolomitic and had rare micro pyrite inclusions. Very thin dense argillaceous limestones to dolomitic rich limestones were interbedded in the Gothic Shale and increased as the top of the Desert Creek transition zone was penetrated.

The top of the Desert Creek transition zone of the Upper Paradox Formation was picked at a measured depth of 5481', true vertical depth 5460' and penetrated through a measured depth of 5500, true vertical depth 5469'. This transition zone was approximately nine feet thick and was a light gray brown, tan to cream, microcrystalline to very fine crystalline, moderately dense to dense, silty to grainy, earthy to slightly argillaceous and occasionally intraclastic. Rare carbonaceous shale partings, trace light gray chert fragments and crystalline anhydrite were associated with this transition zone. No visible to a poor light brown with a black dead oil stain resin, spotty moderately bright yellow-gold fluoresces and no visible to a weak streaming cut was exhibited in these carbonates. An increase in slightly oolitic dense packstone was notable as the transition graded into the upper pay-zone of the Desert Creek 1-A porosity bench.

The top of the Desert Creek Upper 1-A porosity bench was encountered at a measured depth of 5500', true vertical depth of 5469' at a horizontal displacement of approximately 91'. The top was picked based on a significant drill off and a change in lithology. The top of the upper pay-zone, targeted for penetration, was the typical homogenous oolititc rich grainstone facies of the Desert Creek 1-A porosity bench. This grainstone facies was light brown; tan to brown, slightly mottled to mottled, microcrystalline to predominately very fine crystalline, moderately dense, microsucrosic to granular, slightly anhydritic to occasionally chalky and slightly dolomitic. Thinly interbedded slightly oolitic dense chalky occasionally platy packstones, rare light brown chert fragments, fossil fragment, calcite fracture filling, oolites and pellets and chalky/calcite/anhydrite filled casts were associated with these carbonates. A reduced to good oomoldic to oolicastic with some intercrystalline fabric porosity was developed in these grainstones. Although samples were flushed because of 21-21 being an injection well, this facies had a moderately fair staining with a trace to moderate slow streaming slightly diffused cut, and an even dull to spotty

moderately bright yellow-gold fluorescence. Black dead oil stain resin filling oolites, pellets and fossil fragment casts was visible, too.

The curve portion of the lateral was completed at a measured depth of 5550', true vertical depth 5479', at a horizontal displacement of 130', bearing 331.1 degrees, with an inclination of 89.7 degrees, on August 28, 1998, in the targeted upper pay-zone of the Desert Creek 1-A porosity bench. At this point a trip was made to lay down the curve assembly and pickup the lateral assembly.

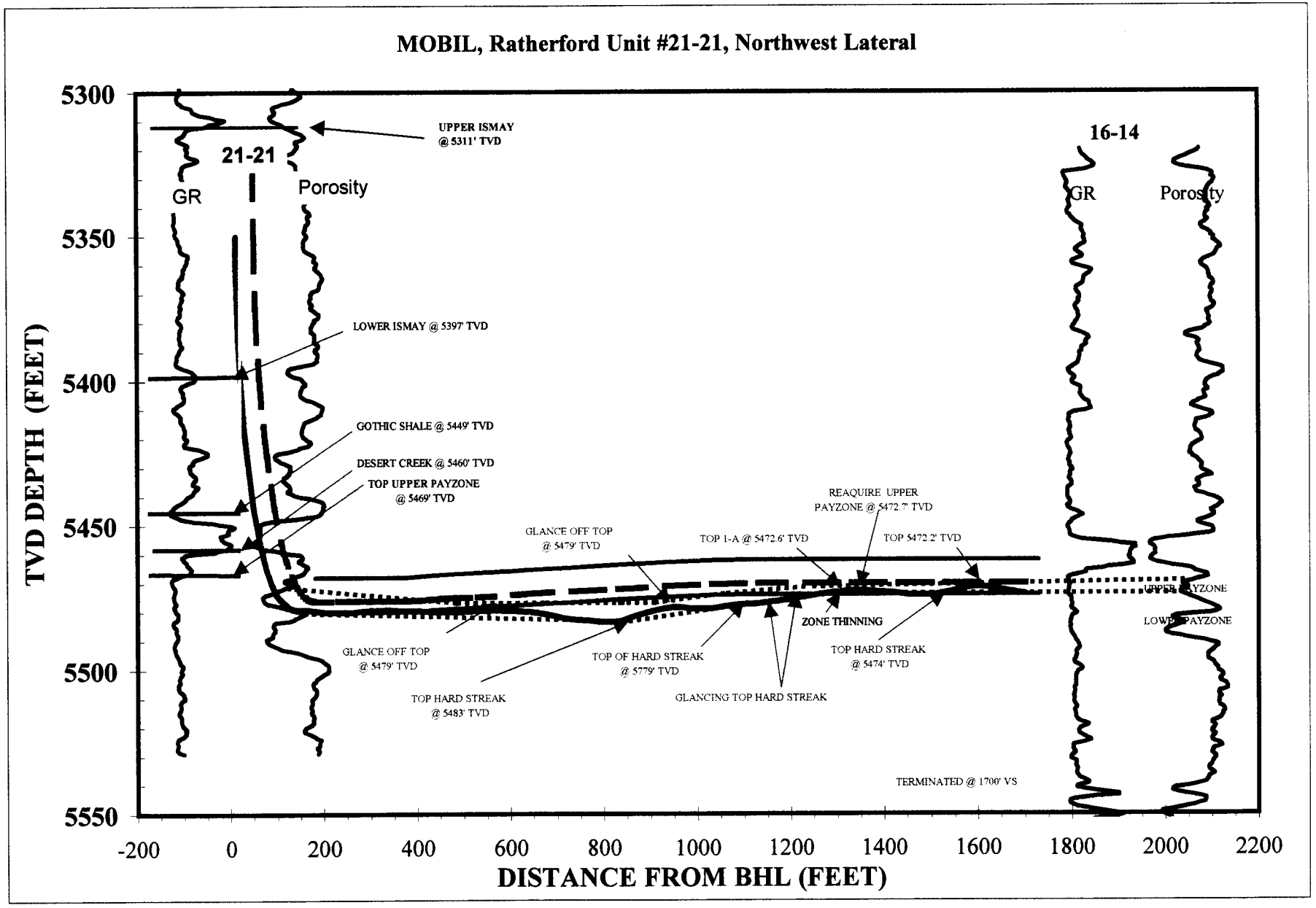
Drilling of the Northwest lateral was resumed on August 28, 1998, in the upper pay zone of the Desert Creek Upper 1-A porosity bench of the Upper Paradox Formation. Approximately 160' of sliding to control the vertical depth, horizontal plane direction and to put the lateral assembly out far enough to begin rotating was required. Starting at the measured depth of 5550', true vertical depth 5478.6', through the total depth of 7124' measured depth, true vertical depth 5474', the upper pay-zone was a homogenous oolicastic to oomoldic oolitic rich grainstone facies. This grainstone facies was light brown, tan to cream, slightly mottled to mottled, microcrystalline to very fine crystalline, moderately dense, granular to microsucrosic/sucrosic, slightly anhydritic, occasionally chalky, and slightly dolomitic. Scattered calcite, anhydrite to chalky filled casts, rare to trace buff to light brown chert fragments, rare to trace fossil fragments, trace off-white chalky matter, oolites and pellets, were noted with this facies. Throughout this lateral rare to trace dense slightly oolitic packstones were penetrated and when the bit glanced the top of the hard streak and the top of the bench. This facies was light brown, tan to cream, slightly mottled, microcrystalline, dense, oolitic to slightly oolitic, chalky, anhydritic, and very slightly dolomitic in part. A moderately fair to moderately good light brown to brown matrix oil stain and a black dead oil resin, a moderately bright to bright yellow-gold fluorescence and trace to fast to slow streaming diffused milky ring cut was logged for these carbonates.

As the bit penetrated in a northwesterly off the 21-21 well-bore towards the 16-14 well-bore, it maintained horizontal for approximately 550' vertical section before glancing off the top of the Desert Creek 1-A porosity bench at a measured depth of 6070', true vertical depth 5479'. The bit was brought back to horizontal and at approximately 800' vertical section, measured depth 6220', true vertical depth 5483' the bit encountered the top of the hard streak, bounced off and penetrated back across the 1-A bench. The Desert Creek 1-A porosity bench was approximately four feet thick at this point. During the process of recovering the bit back to horizontal from this glance, the bit bounced off the top of the 1-A porosity bench at a measured depth of 6370', true vertical depth 5479' at 900' vertical section. The bit was recovered to horizontal and then bounced off the top of the hard streak again at a measured depth of 6460', true vertical depth 5479' at 1050' vertical section. At this point the bench climbing at 91 to 92 degrees before leveling out at 1200' vertical section. The top of the Desert Creek 1-A porosity bench was encountered at this vertical section at a true vertical depth 5473.6. The bit glanced and penetrated back across the 1-A porosity bench and bounced off the top of the hard streak at a true vertical depth 5474' at 1400' vertical section and glanced off the top of the 1-A bench again at a true vertical depth 5472.2'. The bench had thinned from 1200' vertical section to the total depth of 1700' vertical section to approximately one to two feet thick.

The northwest upper pay-zone lateral of the Desert Creek 1-A porosity bench was terminated on August 30, 1998. The northwest lateral leg #2 reached a measured depth of 7124', true vertical depth 5473.6' and a horizontal displacement of 1700', bearing 314.1 at 88.5 degrees. The lithology remained homogenous and consistent with what is expected for the upper pay-zone of the Desert Creek 1-A porosity bench and although the 21-21 re-entry was into an injection well, staining was moderately fair to moderately good except at the well bore where the samples had been flushed. Porosity was a reduced to good oomoldic to

oolicastic fabric porosity. This re-entry should make an important contribution to the overall performance of the Ratherford Unit when it is returned to the water-flood plan. From this stimulation, better movement of hydrocarbons, gas and production water between the 21-21 and 16-14 well-bore will help increase production, reserves and benefits for Mobil E & P.

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


MOBIL, Ratherford Unit #21-21, Northwest Lateral
TVD DEPTH (FEET)
5300
5350
5400
5450
5500
5550
DISTANCE FROM BHL (FEET)
-200
0
200
400
600
800
1000
1200
1400
1600
1800
2000
2200
21-21
GR
Porosity
16-14
GR
Porosity
UPPER ISMAY @ 5311' TVD
LOWER ISMAY @ 5397' TVD
GOTHIC SHALE @ 5449' TVD
DESERT CREEK @ 5460' TVD
TOP UPPER PAYZONE @ 5469' TVD
REAQUIRE UPPER PAYZONE @ 5472.7' TVD
GLANCE OFF TOP @ 5479' TVD
TOP 1-A @ 5472.6' TVD
TOP 5472.2' TVD
UPPER PAYZONE
LOWER PAYZONE
ZONE THINNING
GLANCE OFF TOP @ 5479' TVD
TOP OF HARD STREAK @ 5479' TVD
TOP HARD STREAK @ 5474' TVD
TOP HARD STREAK @ 5483' TVD
GLANCING TOP HARD STREAK
TERMINATED @ 1700' VS

Form 3160-4
(July 1992)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUBMIT IN DUPLICATE (See other instructions on reverse side)

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

WELL COMPLETION OR RECOMPLETION REPORT AND LOG*

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

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

7. UNIT AGREEMENT NAME: RATHERFORD UNIT

8. FARM OR LEASE NAME, WELL NO.: RATHERFORD 21-W-21

9. API WELL NO.: 43-037-16425

10. FIELD AND POOL, OR WILDCAT: GREATER ANETH

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: SEC. 21, T41S, R24E

12. COUNTY OR PARISH: SAN JUAN

13. STATE: UT

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

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

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

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

4. LOCATION OF WELL (*Report location clearly and in accordance with any State requirements*)*
At surface
(NE/NW) 660' FNL & 2030' FWL
At top prod. interval reported below
BHL: LAT #1A1 941' FSL & 1039' FEL F/SURF SPOT, LAT #2A1 1154' FNL AND
At total depth
1248' FWL F/SURF SPOT

14. PERMIT NO. / DATE ISSUED:

15. DATE SPUDDED	16. DATE T.D. REACHED	17. DATE COMPL. (*Ready to prod.*)	18. ELEVATIONS (DF, RKB, RT, GR, ETC.)*	19. ELEV. CASINGHEAD
08-19-98	08-31-98	09-16-98		

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

24. PRODUCING INTERVAL(S), OF THIS COMPLETION - TOP, BOTTOM, NAME (MD AND TVD)*
LAT #1A1 (5377-5478'TVD)(5377-6850' TMD) LAT #2A1(5357-5474' TMD)(5357-7124' TMD)

25. WAS DIRECTIONAL SURVEY MADE: YES

26. TYPE ELECTRIC AND OTHER LOGS RUN
NO Mud Log 10-21-98

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#	173'	17 1/4"	175 SXS SURFACE	
8 5/8"	24#	1409'	11"	475 SXS SURFACE	
5 1/2"	14#	5662'	7 7/8"	132 SXS NA	

29. LINER RECORD

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

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)
2 7/8"	5265'	5265'

31. PERFORATION RECORD (*Interval, size and number*)

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

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
5659-6850'	ACIDIZE W/16800 GALS 15% HCL ACID
5565-7124'	ACIDIZE W/26300 GALS 15% HCL ACID

33.* PRODUCTION

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

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

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

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

TEST WITNESSED BY

35. LIST OF ATTACHMENTS
DIRECTIONAL SURVEY

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

SIGNED Sue Moseley for TITLE SHIRLEY HOUCHINS/ENV & REG TECH DATE 11-10-98

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

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

Form 3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

SUNDRY NOTICES AND REPORTS ON WELLS

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

SUBMIT IN TRIPLICATE

5. Lease Designation and Serial No.: 14-20-603-355
6. If Indian, Allottee or Tribe Name: NAVAJO TRIBAL
7. If Unit or CA, Agreement Designation: RATHERFORD UNIT
8. Well Name and No.: RATHERFORD 21-W-21
9. API Well No.: 43-037-16425
10. Field and Pool, or exploratory Area: GREATER ANETH
11. County or Parish, State: SAN JUAN UT

1. Type of Well: [ ] Oil Well [ ] Gas Well [X] Other
2. Name of Operator: MOBIL PRODUCING TX & NM INC.*
*MOBIL EXPLORATION & PRODUCING US INC. AS AGENT FOR MPTM
3. Address and Telephone No.: P.O. Box 633, Midland TX 79702 (915) 688-2585
4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
SEC. 21, T41S, R24E
(NE/NW) 660' FNL & 2030' FWL

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

TYPE OF SUBMISSION	TYPE OF ACTION	
[ ] Notice of Intent	[ ] Abandonment	[ ] Change of Plans
[X] Subsequent Report	[ ] Recompletion	[ ] New Construction
[ ] Final Abandonment Notice	[ ] Plugging Back	[ ] Non-Routine Fracturing
	[ ] Casing Repair	[ ] Water Shut-Off
	[ ] Altering Casing	[ ] Conversion to Injection
	[X] Other INJECTOR/SIDETRACK	[ ] Dispose Water (Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

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

BHL:

LATERAL #1: 941' FSL & 1039' FEL FROM SURFACE SPOT (ZONE 1a).
LATERAL #2: 1154' FNL & 1248' FWL FROM SURFACE SPOT (ZONE 1a).

SEE ATTACHED PROCEDURE.

RECEIVED
NOV 12 1998
DIV. OF OIL, GAS & MINING

14. I hereby certify that the foregoing is true and correct
Signed Joe Moseley for Title SHIRLEY HOUCHINS/ENV & REG TECH Date 11-10-98

(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

DRILLED FOOTAGE CALCULATION FOR DIRECTIONAL AND HORIZONTAL WELLS

Unit, Well Name:	Ratherford Unit, Well 21-W-21
API Well #:	43-037-16425
Well Completion:	Horizontal, Injector, 2 Laterals

First leg description:		Lateral #1
	KOP MD:	5467.00
	EOL MD:	6850.00
	Footage drilled:	1383.00
Max. TVD Recorded		5491.99

Second leg description:		Lateral #2
	KOP MD:	5350.00
	EOL MD:	7124.00
	Footage drilled:	1774.00
Max. TVD Recorded		5483.32

Total Footage Drilled (MD):	***3157.00***
Deepest point (TVD):	***5491.99***

ATTACHMENT - FORM 3160-5
RATHERFORD UNIT - WELL #21-W-21
14-20-603-355
NAVAJO TRIBAL
SAN JUAN, UTAH

08-19-98	MIRU NAVAJO WEST #15, DIG PIT & LINE, SDFN.
08-20-98	C/O DRILLING LINE ON UNIT & SERV. UNIT, ND HW, NU BOP & HYDRILL, PRES TEST CSG & BOPE 1000# HELD GOOD. UNSET GUIB 5.5# G-6 PKR, POOH LD TBG RU SCHLUMBERGER TO RUN CSG INSPECTION LOG, RIH W/ LOGGING TOOL, & PREPARE TO RUN WL SET RBP.
08-21-98	FINISH RUNNING M.E.T.T. (CSG INSPECTION LOG) RIH W/ RBP ON WL SET @ 5350', RDMO SCHLUMBERGER WL. RIH W/ 2.875" TBG OFF OF FLOAT EOT @ 950', ND BOPE, REMOVE BOLTS FROM WH. REPLACE WH, LAND 5.5" CSG W/ 80,000 LBS, PACK OFF WH, TEST 1000#, HELD OK, SWI SDFN.
08-22-98	RDMO NAVAJO WEST #15
08-22-98	RU NAVAJO RIG #25. (NOTIFIED JIM THOMPSON W/ STATE OF UTAH @ 0730 HRS. REFERENCE MOVING OFF AND ON WELLS.)\
08-23-98	FINISH RU NAVAJO RIG #25. TEST BOP STACK, CHOKE MANIFOLD. TIW VALVES, ETC. TO 2000 PSI HIGH AND 250 PSI LOW TEST. AND TALLY DC'S AND DP. RU RIH W/ RETRIEVING HD. DP TO 3600. RE-LEVEL RIG INTO RBP @ 5350'. POOH W/ RBP. SCHLUMBERGER. RIH W/ TIW PKR. ON WL TO 5385'. SET. RD WL.
08-24-98	TIH W/ ANCHOR LATCH ASSY., WS AND STARTER MILL. SHEAR OFF WS AND MILL. CSG. FROM 5370-72' (WHIPSTOCK AT 130 GTF/KEYWAY AT 46 GTF) TOOH. LD STARTER MILL. TIH W/CSG. AND WATERMELON MILL. MILL WINDOW FROM 5369-5376'. POOH LD CSG. MILL. REPLACE CSG. MILL. TIH.
08-25-98	FINISH IN HOLE W/ NEW MILL. MILL FROM 5367'-5377' (1' FORMATION) PUMP SWEEP AND POOH LD MILLS.
08-25-98	PU AND RIH W/ 4 ¾" STC BIT MTR, PH6 TBG., AND DP TO 5377'. FILL DP AND CIRC. TO CLEAN STRING. RU GYRODATA AND ORIENT TOOLFACE. TIME DRILL AND DRILL FROM 5377-5407' W/ GYRO. PULL GYRO AND RD. SLIDE/DRILL AND SURVEYS FROM 5407' –T.D. OF 5555' MD, LAST SURVEY @ 5527' MD, 78.40 ANGLE, 125.30 AZ., 5481.81 TVD, 80.23 VS. PUMP SWEEP AND CIRC. OUT. START OUT OF HOLE W/CURVE ASSY.
08-26-98	FINISH OUT OF HOLE LD. DP AND CURVE BUILDING ASSY. CURVE BUILDING ASSY. 4 ¾" BIT, PH6 TBG. TEST MTR. AND MWD OK. POWER SWIVEL, SLIDE/ROTATE DRILL AND SURVEYS FROM 5555' TO 6580' (1025' SURVEY @ 6516' MD, 91.50 ANGLE, 132.60 AZ., 5490.71 TVD, 1067.85 VS. (PRESENT ROP 2 MIN/FT ROTATING, 5 MIN/FT. SLIDING)
08-27-98	SLIDE/ROTATE DRILL AND SURVEYS FROM 6580-6850' (TD LAT.) LAST SURVEY @ 6850' TMD, 5477.82' TVD, PUMP SWEEP AND CIRC. OUT. HANG SWIVEL BACK. POOH CURVE INTO CSG. PUMP BRINE TO PULL DRY. LD LAT. ASSY. PU RETRIEVING TOOL. TIH AND ENGAGE WS# 1 SHEAR PIN. POOH LD TOOLS. REPORT LATERAL #1.
08-28-98	MILL FROM 5353-5357' (1' FORMATION) TOP WINDOW 5350' BTM. 5356'. PUMP SWEEP AND CIRC. OUT. POOH W/ MILLS. FINAL REPORT FOR LAT. 2

ATTACHMENT - FORM 3160-5
RATHERFORD UNIT - WELL #21-W-21
14-20-603-355
NAVAJO TRIBAL
SAN JUAN, UTAH
PAGE 2

08-28-98	PU CURVE BUILDING ASSY. AND ORIENT. TIH RU POWER SWIVEL. RU GYRODATA AND ORIENT TOOLFACE. TIME DRILL FROM 5357-5359'. SLIDE/DRILL AND SURVEYS FROM 5359-5393' W/GYRO. RD GYRO DATA. SLIDE/DRILL AND SURVEYS FROM 5393-5510' LAST SURVEYS @ 5477' MD, TVD 5458' 55.20 ANGLE, 331 AZ., 66.05 VERTICAL SECTION.
08-29-98	SLIDE / ROTATE DRILL AND SURVEYS FROM 5510-5550' (T.D. CURVE SECTION) @ 5550 MD, 5478.59 TVD, PUMP AND CIRC. SWEEP TO SURFACE. POOH LD CURVE BUILDING. PU NEW BIT AND LATERAL ASSY. TIH. SLIDE/ROTATE DRILL AND SURVEYS FROM 5550-6520'. LAST SURVEY @ 6479 MD, 92.30 ANGLE, 308.30 AZ., 5478.03 TVD, 1055.94 VERTICAL SECTION.
08-30-98	SLIDE / ROTATE DRILL AND SURVEYS FROM 6520' TO TD OF 7154' SURVEY @ 7124' MD, 5473.63 TVD. PUMP SWEEP AND CIRC. OUT. PULL OUT OF LATERAL INTO CSG. (TOP OF WINDOW) DISPLACE HOLE BRINE. (WELL DEAD). POOH TO 1000' TOP KILL W/25 BBLS. 12# MUD. FINISH OUT OF HOLE.
08-31-98	TIH TAILPIPE, PKR. SET PKR. @ 5235' (WINDOW @ 5350') W/ TAILPIPE @ 5565' (END OF CURVE @ 5550'). TEST PKR. AND CSG. TO 500# OK. POOH LD DRILLSTRING. TIH W/ EXCESS PIPE AND POOH LD SAME. ND BOP STACK, CHOKE MANIFOLD, GAS SEPERATOR, FLARE LINES JET STEEL PITS ETC. FINAL REPORT PENDING COMPLETION.

COMPLETION:

09-08-98	MIRU NAVAJO DDPU #36 & RU PUMP / PIT CIRC WELL BORE, LATCH ON TO PKR @ 5235' TEST PKR TO 500#.
09-09-98	MIRU DOWELL COIL TBG UNIT / RIH W/ COIL TBG JET WASHED 2A1 FROM 5565-7124' CIRC CLEAN. DOWELL ACIDIZED 2A1 LATERAL 7124-5565' W/ 26300 GALS 15% HCL ACID DN. SWISDFN.
09-10-98	SITP 500# KILL TBG 10# BRINE REL PKR. POH W/ TBG / PKR / TP, RIH W/ WEATHERFORD SUPERHOOK. FISHED & REL WHIPSTOCK. POH W/ TBG / WHIPSTOCK. LD WHIPSTOCK PU RE-ENTRY GUIDE ASSEM. ORIENT TOOL FOR 1A1 LATERAL. RIH W/ TOOL. ATTEMP TO SET TOOL NO SUCCESS. SWISDFN.
09-11-98	SI TBG / CSG 400# KILL WELL. FINISHED RIH W/ RE-ENTRY GUIDE LATCHED INTO TIW PKR @ 5385'. POH W/ TBG & SETTING TOOL. RIH W/ 2.875" TBG GUIB 5.5" UNI-6 PKR ON 2.875" PH-6 TBG 5327' W/ PKR EOT @ 5661'. SET PKR & TEST CSG / PKR TO 500# HELD OK SWISDFN.
09-12-98	DOWELL RU RIH. JET WASHED 1A1 LATERAL FM 5659-6850' CIRC & FLOWED CLEAN. ACIDIZE 1A1 6850-5659' W/ 16800 GALS 15% HCL. POH W/ COIL TBG. RD DOWELL EQUIP MOVE OUT SAME SWISDFN SITP 150#.
09-13-98	SI TP 450# FLOWED WELL ON SWISDFN.

ATTACHMENT - FORM 3160-5
RATHERFORD UNIT - WELL #21-W-21
14-20-603-355
NAVAJO TRIBAL
SAN JUAN, UTAH
PAGE 3

09-14-98	SI TBG. PRESSURE @ 5:00 WAS 300 PSI. OPEN TO TEST TANK ON. RU AND KILL WELL, WELL DEAD. RELEASE PKR., LD PKR AND TAIL PIPE. PICK UP W/ RETV. TOOLS FOR RETV. WHIPSTOCK. LATCH ONTO WHIPSTOCK, RELEASE WHIPSTOCK. W/ RUNNING TOOLS FOR WHIPSTOCK, RETV. WHIPSTOCK, LD RUNNING TOOLS. GUIBERSON G-VI PKR., 2.875" WORKSTRING TO 5265'. LOAD ANN. TEST TO 450 PSI. OK. RELEASE FROM ON/OFF TOOL. LD WORKSTRING.
09-15-98	SI PRESSURE @ 7:00 WAS 0 PSI. RU TO RUN CMT. LINED TBG. PU RIH W/ 2.875" CMT. LINED TBG TO 5265'. ND BOPE, MAKE UP PRODUCTION TREE. NU PRODUCTION TREE. RU TO CHART, TEST CSG. AND PKR TO 1100 PSI. 30 MIN. HELD, OK. SIFN.
09-16-98	RDMO NAVAJO WEST RIG #36. FINAL COMPLETION REPORT. TURN WELL OVER TO PRODUCTION. WELL SI.

Mobil

San Juan County
Utah
Ratherford Unit
RU 21-21 - MWD Survey Leg #1

SURVEY REPORT

22 September, 1998

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

Survey Ref: svy3190

Sperry-Sun Drilling Services

Survey Report for RU 21-21

Mobil
San Juan County

Utah
Ratherford Unit

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
Gyro							
0.00	0.000	0.000	0.00	0.00 N	0.00 E	0.00	
100.00	0.120	108.160	100.00	0.03 S	0.10 E	0.10	0.120
300.00	0.180	101.460	300.00	0.16 S	0.61 E	0.57	0.031
500.00	0.220	91.500	500.00	0.23 S	1.30 E	1.14	0.026
700.00	0.090	30.200	700.00	0.11 S	1.76 E	1.42	0.097
900.00	0.200	332.400	900.00	0.34 N	1.68 E	1.07	0.085
1100.00	0.420	302.600	1099.99	1.04 N	0.90 E	0.02	0.133
1300.00	1.020	285.800	1299.98	1.92 N	1.43 W	-2.33	0.315
1500.00	1.090	288.710	1499.94	3.02 N	4.95 W	-5.73	0.044
1700.00	0.930	291.960	1699.91	4.23 N	8.25 W	-9.04	0.085
1900.00	0.740	290.330	1899.89	5.29 N	10.97 W	-11.80	0.096
2100.00	0.370	330.260	2099.88	6.30 N	12.50 W	-13.63	0.257
2300.00	0.310	343.780	2299.88	7.38 N	12.97 W	-14.68	0.050
2500.00	0.300	228.260	2499.88	7.55 N	13.51 W	-15.21	0.258
2700.00	0.240	339.680	2699.88	7.59 N	14.05 W	-15.64	0.224
2900.00	0.250	352.480	2899.87	8.42 N	14.25 W	-16.33	0.028
3100.00	0.240	1.580	3099.87	9.27 N	14.30 W	-16.91	0.020
3300.00	0.250	48.030	3299.87	9.98 N	13.96 W	-17.11	0.097
3500.00	0.010	95.960	3499.87	10.27 N	13.62 W	-17.04	0.122
3700.00	0.190	227.690	3699.87	10.05 N	13.85 W	-17.07	0.098
3900.00	0.310	201.060	3899.87	9.32 N	14.29 W	-16.94	0.082
4100.00	0.520	200.180	4099.86	7.96 N	14.80 W	-16.45	0.105
4300.00	0.570	207.220	4299.85	6.23 N	15.56 W	-15.92	0.042
4500.00	0.580	213.540	4499.84	4.50 N	16.58 W	-15.59	0.032
4700.00	0.620	210.260	4699.83	2.72 N	17.68 W	-15.29	0.026
4900.00	0.630	205.430	4899.82	0.79 N	18.70 W	-14.83	0.027
5100.00	0.620	192.030	5099.81	1.26 S	19.40 W	-14.05	0.073
5300.00	0.750	190.790	5299.79	3.60 S	19.87 W	-12.90	0.065
MWD Survey Leg #1							
5370.00	0.880	192.600	5369.79	4.58 S	20.07 W	-12.43	0.189
5377.00	4.900	130.000	5376.78	4.82 S	19.85 W	-12.11	65.175
5387.00	9.100	125.290	5386.70	5.56 S	18.88 W	-10.89	42.355
5397.00	14.600	123.700	5396.48	6.71 S	17.19 W	-8.85	55.092
5407.00	19.500	122.890	5406.04	8.32 S	14.73 W	-5.94	49.056
5417.00	24.400	122.400	5415.31	10.33 S	11.59 W	-2.23	49.034
5427.00	29.300	125.700	5424.23	12.87 S	7.85 W	2.26	51.199
5437.00	33.800	128.900	5432.75	16.05 S	3.70 W	7.48	48.000
5447.00	38.800	129.700	5440.81	19.80 S	0.88 E	13.40	50.223
5457.00	44.200	131.000	5448.30	24.09 S	5.92 E	20.02	54.680

Continued...

Sperry-Sun Drilling Services

Survey Report for RU 21-21

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)
5467.00	49.600	132.800	5455.13	28.97 S	11.35 E	27.32	55.572
5477.00	54.100	133.400	5461.30	34.34 S	17.09 E	35.17	45.246
5487.00	58.900	131.700	5466.82	39.97 S	23.24 E	43.49	50.047
5497.00	63.700	127.900	5471.62	45.58 S	29.98 E	52.26	58.427
5507.00	66.800	123.000	5475.81	50.84 S	37.37 E	61.31	54.223
5517.00	72.400	123.500	5479.30	55.98 S	45.21 E	70.61	56.196
5527.00	78.400	125.300	5481.82	61.44 S	53.19 E	80.24	62.475
5555.00	89.900	127.600	5484.67	77.97 S	75.55 E	107.99	41.874
5596.00	89.400	131.800	5484.92	104.15 S	107.09 E	148.98	10.316
5627.00	91.100	132.400	5484.78	124.93 S	130.09 E	179.96	5.815
5659.00	90.600	132.400	5484.31	146.51 S	153.71 E	211.93	1.562
5691.00	89.000	132.100	5484.42	168.02 S	177.40 E	243.90	5.087
5723.00	89.600	132.700	5484.81	189.60 S	201.03 E	275.87	2.652
5755.00	86.700	132.700	5485.84	211.29 S	224.53 E	307.81	9.062
5787.00	85.700	132.900	5487.96	232.98 S	247.96 E	339.71	3.187
5818.00	87.500	132.700	5489.80	254.01 S	270.66 E	370.61	5.842
5849.00	87.800	132.600	5491.07	274.99 S	293.45 E	401.55	1.020
5880.00	88.800	133.400	5491.99	296.12 S	316.11 E	432.50	4.130
5912.00	92.100	134.300	5491.74	318.29 S	339.18 E	464.42	10.689
5944.00	91.500	134.300	5490.74	340.63 S	362.07 E	496.31	1.875
5975.00	90.400	133.600	5490.22	362.14 S	384.39 E	527.23	4.206
6007.00	90.300	133.100	5490.03	384.10 S	407.65 E	559.18	1.593
6039.00	89.800	132.600	5490.00	405.87 S	431.11 E	591.14	2.210
6071.00	90.700	131.700	5489.86	427.34 S	454.84 E	623.12	3.977
6103.00	90.400	130.800	5489.55	448.44 S	478.90 E	655.11	2.965
6134.00	90.000	129.700	5489.44	468.47 S	502.56 E	686.10	3.776
6166.00	89.500	129.200	5489.58	488.80 S	527.27 E	718.10	2.210
6198.00	90.400	128.700	5489.61	508.92 S	552.15 E	750.10	3.217
6230.00	89.100	128.000	5489.75	528.77 S	577.25 E	782.08	4.614
6262.00	87.600	126.800	5490.67	548.20 S	602.65 E	814.03	6.002
6293.00	89.600	127.500	5491.43	566.91 S	627.35 E	844.99	6.835
6325.00	88.900	130.300	5491.85	587.00 S	652.25 E	876.97	9.019
6357.00	91.300	131.900	5491.79	608.04 S	676.37 E	908.96	9.014
6389.00	91.000	131.700	5491.15	629.36 S	700.22 E	940.94	1.127
6421.00	88.800	131.300	5491.21	650.56 S	724.18 E	972.93	6.988
6452.00	89.200	131.500	5491.75	671.06 S	747.43 E	1003.91	1.443
6484.00	91.500	132.200	5491.55	692.41 S	771.27 E	1035.90	7.513
6516.00	91.500	132.600	5490.71	713.98 S	794.89 E	1067.86	1.250
6548.00	92.100	132.400	5489.71	735.59 S	818.47 E	1099.81	1.976
6579.00	90.700	132.700	5488.95	756.54 S	841.30 E	1130.77	4.619
6611.00	92.100	132.900	5488.17	778.28 S	864.77 E	1162.72	4.419
6642.00	95.400	133.600	5486.14	799.47 S	887.30 E	1193.60	10.881
6673.00	95.200	133.600	5483.28	820.76 S	909.65 E	1224.41	0.645
6705.00	94.200	132.900	5480.66	842.61 S	932.88 E	1256.25	3.810
6737.00	91.300	133.300	5479.12	864.45 S	956.22 E	1288.16	9.148

Continued...

Sperry-Sun Drilling Services

Survey Report for RU 21-21

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)
6769.00	89.900	132.900	5478.79	886.31 S	979.58 E	1320.11	4.550
6816.00	91.000	132.400	5478.42	918.15 S	1014.15 E	1367.06	2.571
6850.00	91.000	132.400	5477.82	941.07 S	1039.25 E	1401.02	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 130.000° (True).

Based upon Minimum Curvature type calculations, at a Measured Depth of 6850.00ft.,
The Bottom Hole Displacement is 1402.02ft., in the Direction of 132.162° (True).

Mobil

San Juan County
Utah
Ratherford Unit
RU 21-21 - MWD Survey Leg #2

SURVEY REPORT

22 September, 1998

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

Survey Ref: svy3192

Sperry-Sun Drilling Services

Survey Report for RU 21-21

Mobil
San Juan County

Utah
Ratherford Unit

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
Gyro							
0.00	0.000	0.000	0.00	0.00 N	0.00 E	0.00	
100.00	0.120	108.160	100.00	0.03 S	0.10 E	-0.10	0.120
300.00	0.180	101.460	300.00	0.16 S	0.61 E	-0.55	0.031
500.00	0.220	91.500	500.00	0.23 S	1.30 E	-1.11	0.026
700.00	0.090	30.200	700.00	0.11 S	1.76 E	-1.36	0.097
900.00	0.200	332.400	900.00	0.34 N	1.68 E	-1.00	0.085
1100.00	0.420	302.600	1099.99	1.04 N	0.90 E	0.05	0.133
1300.00	1.020	285.800	1299.98	1.92 N	1.43 W	2.36	0.315
1500.00	1.090	288.710	1499.94	3.02 N	4.95 W	5.67	0.044
1700.00	0.930	291.960	1699.91	4.23 N	8.25 W	8.92	0.085
1900.00	0.740	290.330	1899.89	5.29 N	10.97 W	11.63	0.096
2100.00	0.370	330.260	2099.88	6.30 N	12.50 W	13.44	0.257
2300.00	0.310	343.780	2299.88	7.38 N	12.97 W	14.52	0.050
2500.00	0.300	228.260	2499.88	7.55 N	13.51 W	15.03	0.258
2700.00	0.240	339.680	2699.88	7.59 N	14.05 W	15.46	0.224
2900.00	0.250	352.480	2899.87	8.42 N	14.25 W	16.17	0.028
3100.00	0.240	1.580	3099.87	9.27 N	14.30 W	16.78	0.020
3300.00	0.250	48.030	3299.87	9.98 N	13.96 W	17.02	0.097
3500.00	0.010	95.960	3499.87	10.27 N	13.62 W	16.97	0.122
3700.00	0.190	227.690	3699.87	10.05 N	13.85 W	16.98	0.098
3900.00	0.310	201.060	3899.87	9.32 N	14.29 W	16.81	0.082
4100.00	0.520	200.180	4099.86	7.96 N	14.80 W	16.25	0.105
4300.00	0.570	207.220	4299.85	6.23 N	15.56 W	15.63	0.042
4500.00	0.580	213.540	4499.84	4.50 N	16.58 W	15.19	0.032
4700.00	0.620	210.260	4699.83	2.72 N	17.68 W	14.79	0.026
4900.00	0.630	205.430	4899.82	0.79 N	18.70 W	14.22	0.027
5100.00	0.620	192.030	5099.81	1.26 S	19.40 W	13.33	0.073
5300.00	0.750	190.790	5299.79	3.60 S	19.87 W	12.07	0.065
MWD Survey Leg #2							
5350.00	0.840	192.150	5349.79	4.28 S	20.01 W	11.71	0.184
5357.00	3.500	313.000	5356.79	4.19 S	20.17 W	11.90	57.090
5367.00	7.600	326.600	5366.74	3.43 S	20.76 W	12.85	42.776
5377.00	12.700	330.300	5376.58	1.92 S	21.67 W	14.54	51.389
5387.00	18.200	332.000	5386.21	0.42 N	22.95 W	17.07	55.180
5397.00	22.300	333.000	5395.59	3.49 N	24.54 W	20.33	41.144
5407.00	25.600	339.400	5404.73	7.20 N	26.17 W	24.05	41.957
5417.00	28.600	335.000	5413.63	11.39 N	27.94 W	28.20	36.062
5427.00	33.200	333.100	5422.21	16.01 N	30.19 W	33.00	47.018
5437.00	37.100	331.900	5430.39	21.11 N	32.85 W	38.42	39.606

Continued...

Sperry-Sun Drilling Services

Survey Report for RU 21-21

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)
5447.00	41.700	329.500	5438.11	26.64 N	35.96 W	44.47	48.450
5457.00	46.600	328.300	5445.29	32.60 N	39.56 W	51.17	49.706
5467.00	51.000	329.200	5451.87	39.03 N	43.46 W	58.41	44.517
5477.00	55.200	331.000	5457.87	45.96 N	47.44 W	66.05	44.395
5487.00	59.800	332.400	5463.25	53.39 N	51.44 W	74.03	47.489
5497.00	65.100	332.600	5467.87	61.25 N	55.53 W	82.39	53.030
5507.00	70.700	332.500	5471.63	69.47 N	59.80 W	91.11	56.008
5517.00	76.000	333.500	5474.49	78.00 N	64.15 W	100.11	53.858
5550.00	89.700	331.100	5478.59	106.92 N	79.34 W	130.94	42.135
5590.00	88.800	325.700	5479.12	140.97 N	100.29 W	169.49	13.685
5622.00	89.000	322.200	5479.73	166.84 N	119.11 W	200.90	10.953
5654.00	90.100	318.900	5479.98	191.54 N	139.44 W	232.61	10.870
5686.00	90.600	315.200	5479.79	214.96 N	161.24 W	264.53	11.667
5718.00	90.800	311.700	5479.40	236.96 N	184.47 W	296.52	10.955
5749.00	90.000	311.500	5479.18	257.54 N	207.65 W	327.51	2.660
5781.00	89.600	311.500	5479.29	278.75 N	231.62 W	359.50	1.250
5813.00	89.500	311.700	5479.54	299.99 N	255.54 W	391.49	0.699
5845.00	89.900	311.100	5479.71	321.15 N	279.55 W	423.47	2.253
5876.00	89.700	310.100	5479.82	341.33 N	303.08 W	454.45	3.290
5908.00	90.600	309.400	5479.73	361.79 N	327.69 W	486.39	3.563
5939.00	90.400	309.400	5479.46	381.46 N	351.64 W	517.33	0.645
5971.00	90.100	308.700	5479.32	401.62 N	376.49 W	549.25	2.380
6002.00	89.800	308.300	5479.35	420.92 N	400.75 W	580.16	1.613
6034.00	89.800	308.300	5479.46	440.75 N	425.87 W	612.05	0.000
6065.00	89.100	308.200	5479.76	459.94 N	450.21 W	642.94	2.281
6097.00	87.800	308.500	5480.63	479.79 N	475.29 W	674.83	4.169
6129.00	88.200	309.700	5481.74	499.96 N	500.11 W	706.73	3.951
6161.00	88.900	309.900	5482.55	520.44 N	524.69 W	738.67	2.275
6193.00	89.700	311.000	5482.94	541.20 N	549.04 W	770.64	4.250
6224.00	88.900	310.400	5483.32	561.41 N	572.54 W	801.61	3.226
6256.00	92.200	308.900	5483.02	581.82 N	597.17 W	833.55	11.327
6288.00	94.200	309.400	5481.23	601.99 N	621.95 W	865.42	6.442
6320.00	91.200	309.400	5479.72	622.28 N	646.64 W	897.32	9.375
6352.00	92.300	310.300	5478.74	642.78 N	671.20 W	929.26	4.441
6383.00	89.400	309.700	5478.28	662.70 N	694.94 W	960.21	9.553
6415.00	88.900	308.900	5478.76	682.96 N	719.70 W	992.14	2.948
6447.00	90.700	308.700	5478.87	703.01 N	744.64 W	1024.05	5.660
6479.00	92.300	308.300	5478.03	722.93 N	769.67 W	1055.94	5.154
6510.00	89.900	307.500	5477.44	741.96 N	794.13 W	1086.81	8.161
6542.00	91.000	310.300	5477.19	762.06 N	819.03 W	1118.72	9.401
6574.00	91.100	312.000	5476.60	783.11 N	843.12 W	1150.70	5.321
6606.00	91.300	312.000	5475.93	804.52 N	866.89 W	1182.69	0.625
6637.00	91.800	312.200	5475.09	825.29 N	889.89 W	1213.67	1.737
6668.00	91.400	311.500	5474.23	845.97 N	912.97 W	1244.65	2.600
6700.00	91.100	310.800	5473.53	867.02 N	937.06 W	1276.63	2.379

Continued...

Sperry-Sun Drilling Services

Survey Report for RU 21-21

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)
6731.00	91.100	310.800	5472.93	887.27 N	960.52 W	1307.60	0.000
6763.00	90.200	311.500	5472.57	908.33 N	984.62 W	1339.58	3.563
6794.00	88.900	310.600	5472.81	928.68 N	1007.99 W	1370.56	5.100
6826.00	89.600	310.600	5473.23	949.51 N	1032.29 W	1402.53	2.187
6857.00	88.900	311.300	5473.64	969.82 N	1055.70 W	1433.51	3.193
6888.00	89.300	313.100	5474.13	990.64 N	1078.66 W	1464.50	5.947
6920.00	90.700	313.800	5474.13	1012.65 N	1101.89 W	1496.50	4.891
6952.00	92.000	314.300	5473.37	1034.89 N	1124.88 W	1528.48	4.352
6983.00	92.400	314.800	5472.18	1056.62 N	1146.96 W	1559.45	2.065
7015.00	90.800	313.800	5471.29	1078.96 N	1169.85 W	1591.42	5.896
7047.00	88.300	313.400	5471.54	1101.03 N	1193.02 W	1623.42	7.912
7091.00	88.500	314.100	5472.77	1131.44 N	1224.79 W	1667.40	1.654
7124.00	88.500	314.100	5473.63	1154.40 N	1248.48 W	1700.38	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 313.000° (True).

Based upon Minimum Curvature type calculations, at a Measured Depth of 7124.00ft.,
The Bottom Hole Displacement is 1700.40ft., in the Direction of 312.758° (True).

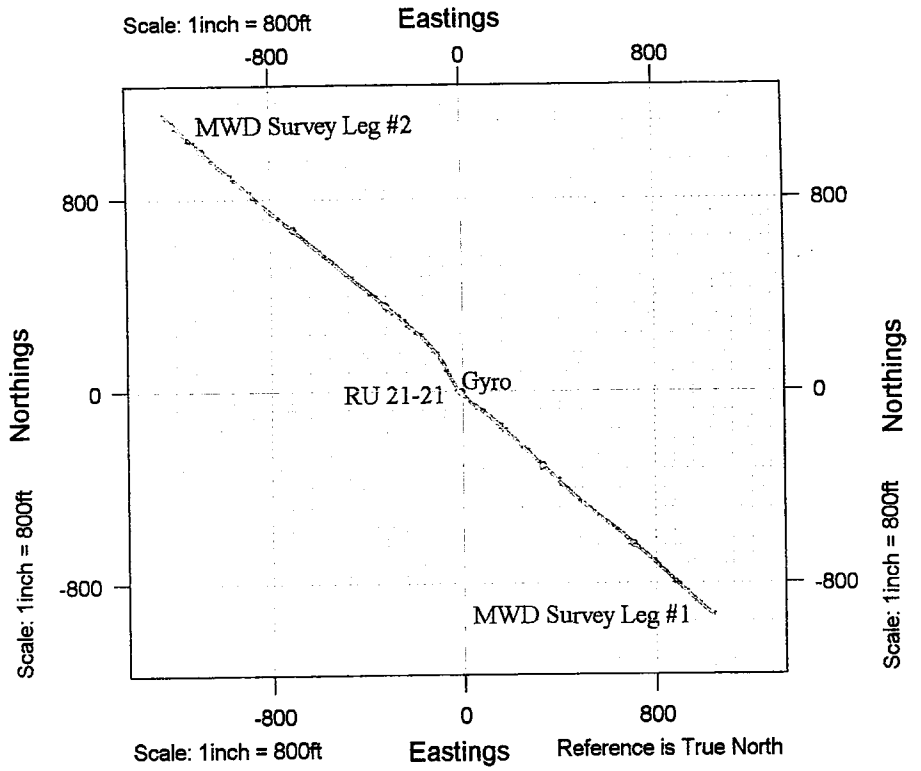
sperry-sun DRILLING SERVICES

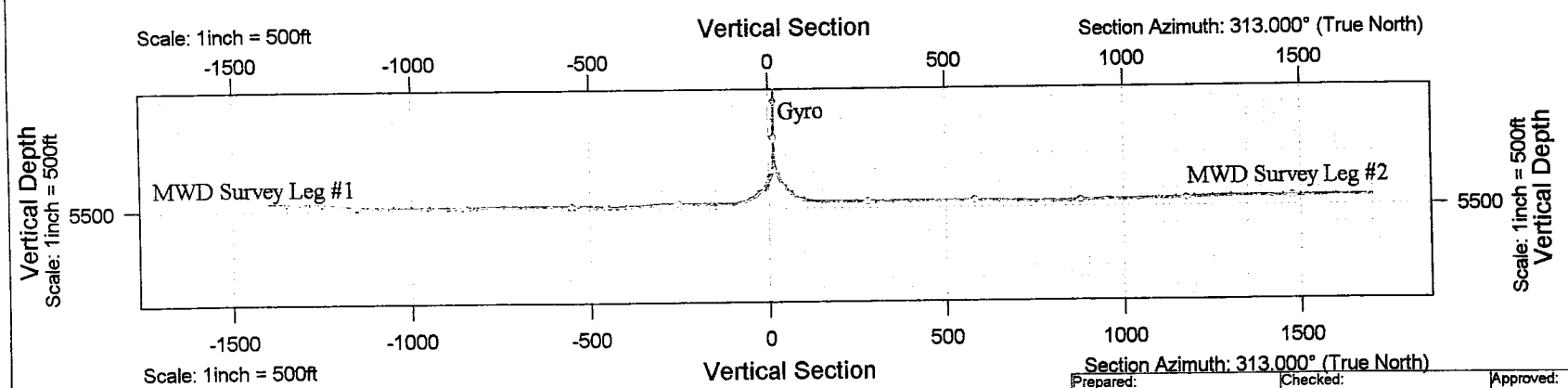
Mobil

DrillQuest

San Juan County
Utah
Ratherford Unit
RU 21-21

Mobil





Prepared:	Checked:	Approved:

DIVISION OF OIL, GAS AND MINING

ENTITY ACTION FORM - FORM 6

OPERATOR MOBIL PRODUCING TX & NM INC

ADDRESS P. O. BOX 633,

MIDLAND, TX 79702

OPERATOR ACCT. NO. N 7370

ACTION CODE	CURRENT ENTITY NO.	NEW ENTITY NO.	API NUMBER	WELL NAME	WELL LOCATION QQ	SC	TP	RG	COUNTY	SPUD DATE	EFFECTIVE DATE
	99990 →		43-037-16425	RATHERFORD 21-W-21	NE/NW	21	41S	24E	SAN JUAN	8-19-98	9-16-98
WELL 1 COMMENTS:											
WELL 2 COMMENTS:											
WELL 3 COMMENTS:											
WELL 4 COMMENTS:											
WELL 5 COMMENTS:											

ACTION CODES (See instructions on back of form)

- A - Establish new entity for new well (single well only)
- B - Add new well to existing entity (group or unit well)
- C - Re-assign well from one existing entity to another existing entity
- D - Re-assign well from one existing entity to a new entity
- E - Other (explain in comments section)

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

(3/89)

RECEIVED NOV 12 1998 DIV. OF OIL, GAS & MINING

Signature SHIRLEY HOUCHINS

ENV & REG TECHNICIAN 11-10-98

Title Date

Phone No. (915) 688-2585

Form 3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

SUNDRY NOTICES AND REPORTS ON WELLS

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

SUBMIT IN TRIPLICATE

5. Lease Designation and Serial No.: 14-20-603-355
6. If Indian, Allottee or Tribe Name: NAVAJO TRIBAL
7. If Unit or CA, Agreement Designation: RATHERFORD UNIT
8. Well Name and No.: RATHERFORD 21-W-21
9. API Well No.: 43-037-16425
10. Field and Pool, or exploratory Area: GREATER ANETH
11. County or Parish, State: SAN JUAN UT

1. Type of Well: [ ] Oil Well [ ] Gas Well [X] Other
2. Name of Operator: MOBIL PRODUCING TX & NM INC.*
*MOBIL EXPLORATION & PRODUCING US INC. AS AGENT FOR MPTM
3. Address and Telephone No.: P.O. Box 633, Midland TX 79702 (915) 688-2585
4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
SEC. 21, T41S, R24E
(NE/NW) 660' FNL & 2030' FWL

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

TYPE OF SUBMISSION	TYPE OF ACTION	
[ ] Notice of Intent	[ ] Abandonment	[ ] Change of Plans
[X] Subsequent Report	[ ] Recompletion	[ ] New Construction
[ ] Final Abandonment Notice	[ ] Plugging Back	[ ] Non-Routine Fracturing
	[ ] Casing Repair	[ ] Water Shut-Off
	[ ] Altering Casing	[ ] Conversion to Injection
	[X] Other INJECTOR/SIDETRACK	[ ] Dispose Water

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

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

BHL:

LATERAL #1; 941' FSL & 1039' FEL FROM SURFACE SPOT (ZONE 1a).
LATERAL #2; 1154' FNL & 1248' FWL FROM SURFACE SPOT (ZONE 1a).

08-19-98 -- 08-31-98 HORIZONTAL RECOMPLETION.

ATTACHED FORM 15

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

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

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

*** See Instruction on Reverse Side**

WTC 3-1-99 12 pk

Form 3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

SUNDRY NOTICES AND REPORTS ON WELLS

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

SUBMIT IN TRIPLICATE

5. Lease Designation and Serial No.: 14-20-603-355
6. If Indian, Allottee or Tribe Name: NAVAJO TRIBAL
7. If Unit or CA, Agreement Designation: RATHERFORD UNIT
8. Well Name and No.: RATHERFORD 21-W-21
9. API Well No.: 43-037-16425
10. Field and Pool, or exploratory Area: GREATER ANETH
11. County or Parish, State: SAN JUAN UT

1. Type of Well: [ ] Oil Well [ ] Gas Well [X] Other
2. Name of Operator: MOBIL PRODUCING TX & NM INC.*
*MOBIL EXPLORATION & PRODUCING US INC. AS AGENT FOR MPTM
3. Address and Telephone No.: P.O. Box 633, Midland TX 79702 (915) 688-2585
4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
SEC. 21, T41S, R24E
(NE/NW) 660' FNL & 2030' FWL

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

TYPE OF SUBMISSION	TYPE OF ACTION	
[X] Notice of Intent	[ ] Abandonment	[ ] Change of Plans
[ ] Subsequent Report	[ ] Recompletion	[ ] New Construction
[ ] Final Abandonment Notice	[ ] Plugging Back	[ ] Non-Routine Fracturing
	[ ] Casing Repair	[ ] Water Shut-Off
	[ ] Altering Casing	[ ] Conversion to Injection
	[X] Other MIT CHART	[ ] Dispose Water (Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

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

SEE ATTACHED CHART.

RECEIVED
MAY 14 1999
DIV. OF OIL, GAS & MINING

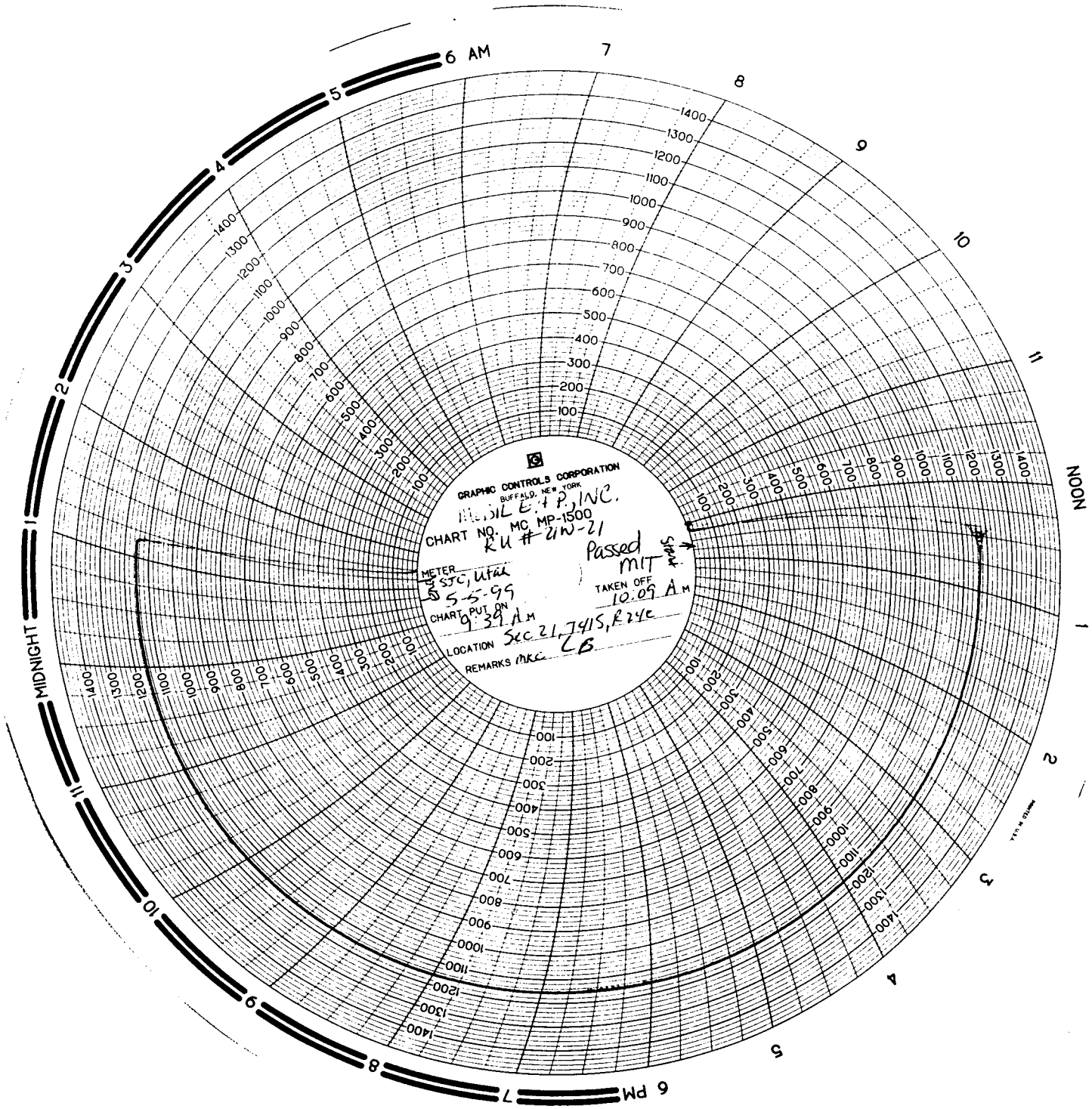
14. I hereby certify that the foregoing is true and correct
Signed Sue Mosley for Title SHIRLEY HOUCHINS/ENV & REG TECH Date 5-12-99

(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


GRAPHIC CONTROLS CORPORATION
BUFFALO, NEW YORK
MOBIL E. & P., INC.
CHART NO. MC MP-1500
KU # 2W-21
Passed MIT
METER
5-5-95
CHART PUT ON
9:39 AM
TAKEN OFF
10:09 AM
LOCATION Sec 21, T41S, R24E
REMARKS
MIDNIGHT
NOON
6 AM
6 PM

Form 3160-5
(November 1994)

U. ED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

SUNDRY NOTICES AND REPORTS ON WELLS

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

SUBMIT IN TRIPLICATE - Other instructions on reverse side

5. Lease Serial No.
14-20-603-355

6. If Indian, Allottee or Tribe Name
NAVAJO TRIBAL

7. If Unit or CA/Agreement, Name and/or No.
RATHERFORD UNIT

1. Type of Well
[ ] Oil Well [ ] Gas Well [X] Other INJECTOR

8. Well Name and No.
RATHERFORD 21-W-21

2. Name of Operator
MOBIL PRODUCING TX & NM INC.*
*MOBIL EXPLORATION & PRODUCING US INC. AS AGENT FOR MPTM

9. API Well No.
43-037-16425

3a. Address
P.O. Box 633, Midland TX 79702

3b. Phone No. (*include area code*)
(915) 688-2585

10. Field and Pool, or Exploratory Area
GREATER ANETH

4. Location of Well (*Footage, Sec., T., R., M., or Survey Description*)
SEC. 21, T41S, R24E
NE/NW 660' FNL & 2030' FWL. IAT #1 941' FSL & 1039' FEL
LAT #2 1154' FNL & 1248' FWL F/SURF SPOT

11. County or Parish, State
SAN JUAN UT

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

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

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

12-14-99 MIRU MONTEZUMA #15, SITP @ 1900, SICP @ 0 PSI. NOTIFY M. CLAH W/NAVAJO EPA, RUN/SET TBG PLUG, BLED TBG TO 0. SDFN.
12-15-99 SITP @ 1550, SICP @ 0, REL PKR, ENGAGE PKR & PULL TBG PLUG, WELL FLOWING, DISP. TBG, SITP 160 PSI. SDFN.
12-16-99 SITP @ 200, SICP @ 0, KILL TBG, WORK PKR, TBG TAKING FLUID/ANNULUS FLOWING, PERFORATE TBG @ 4000', SECURE WELL, SDFN.
12-17-99 SITP @ 0, SICP @ 0, RIH W/GUAGE RING TO 5389', WLM SHOWED TOP OF WINDOW F/5355-5366' LATERAL #1A1; RUN/SET CIBP @ 5373'. PU & TAG, RD WLU, SECURE/SDFN.
12-18-99 RU TESTERS, RIH, TUBING TESTING TO 3500 PSI. SECURE WELL, SDFN.
12-19-99 RIH W/G6 PKR, & TBG TO 5250'. RAN MIT TEST ON ANNULUS, START 1050 PSI. 30 MIN, TO 1110 PSI, NAVAJO EPA, MELVINA CLAH WILL RE-RUN MIT 12-20-99.RIG RELEASED @ 1700 HRS 12-19-99.
12-20-99 PASSED MIT FORM & CHART ATTACHED.

FORM 15 FOR STATE OF UTAH.

RECEIVED
JAN 18 2000
DIVISION OF
OIL, GAS AND MINING

14. I hereby certify that the foregoing is true and correct
Name (*Printed/Typed*) Lee Moseley for

Title SHIRLEY HOUCHINS/ENV & REG TECH

Date 1-12-00

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by

Title

Date

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

Office

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.

(Instructions on reverse)

RECEIVED

JAN 18 2000

DIVISION OF OIL, GAS AND MINING

Form 15

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

ORIGINAL FILING ☐
AMENDED FILING ☐

DESIGNATION OF WORKOVER OR RECOMPLETION

1. Name of Operator: MOBIL EXPLORATION/PRODUCING U.S.	2. Utah Account Number: N-	5. Well Name and Number: Rutherford Unit 21-21
3. Address of Operator: P. O. DRAWER G		6. API Well Number: 43-037-16425
CORTEZ, COLORADO 81321	4. Telephone Number: 970.564-5207	7. Field Name: GREATER ANETH / 8. Field Code Number

9. Location of Well
Footage : 660' FNL & 2030' FWL
QQ, Sec, T., R. : Sec. 21, T41S, R24E
County : SAN JUAN
State : UTAH

COMPLETE ALL SECTIONS. ATTACH ADDITIONAL SHEETS IF NEEDED.

10. TYPE OF WORK (Check One)
- ☐ Production enhancement
- ☐ Convert to injection
- ☑ Recomplete
- ☐ Repair well

11.
Date work commenced 12/14/99
Date work completed 12/19/99

12. THE FOLLOWING EXPENSES FOR OPERATIONS ARE SUBMITTED FOR DESIGNATION AS WORKOVER OR RECOMPLETION EXPENSES UNDER U.C.A. 59-5-102(4):

	Expenses	Division Approval
a. Location preparation and cleanup	$ 1711	
b. Move-in, rig-up and rig-down (including trucking)		
c. Rig charges (including fuel)	11994	
d. Drill pipe or other working string		
e. Water and chemicals for circulating fluid (including water hauling)	21648	
f. Equipment purchase	1743	
g. Equipment rental	16975	
h. Cementing		
i. Perforating		
j. Acidizing		
k. Fracture stimulation		
l. Logging services		
m. Supervision and overhead	3000	
n. Other (itemize): Tubing Inspection	9504	
o. Total submitted expenses	$ 66575	
p. Total approved expenses		$

13. LIST CONTRACTORS PROVIDING SERVICES VALUED AT MORE THAN $3,000.00.

Contractor	Location (city, state)	Services Provided
Montezuma Well Service	Montezuma Creek, UT	Rig
MI Drilling Fluids	Farmington, NM	KW Mud + Completion Fluids
Guiberson	Farmington, NM	Service Rental Tools

14. LIST WORKING INTEREST OWNERS WHO TAKE PRODUCT IN KIND AND ARE AUTHORIZED TO SHARE IN THE TAX CREDIT.

Name	Address	Utah Account No.	Percent of Interest
Chieftain			21.38
Texaco			4.45

I hereby certify that the foregoing is true and correct

Name & Signature David C. Newman DC Newman Title Operations Engineer Date 12/27/99

Form 15

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

ORIGINAL FILING ☐
AMENDED FILING ☐

DESIGNATION OF WORKOVER OR RECOMPLETION

1. Name of Operator: MOBIL EXPLORATION/PRODUCING U.S.	2. Utah Account Number: N-	5. Well Name and Number: Rutherford Unit 21-21
3. Address of Operator: P. O. DRAWER G		6. API Well Number:
CORTEZ, COLORADO 81321	4. Telephone Number:	7. Field Name: GREATER ANETH / 8. Field Code Number:

9. Location of Well
Footage :
QQ, Sec. T., R. :
County : SAN JUAN
State : UTAH

COMPLETE ALL SECTIONS. ATTACH ADDITIONAL SHEETS IF NEEDED.

10. TYPE OF WORK (Check One)
- ☐ Production enhancement
- ☐ Convert to injection
- ☐ Recompletion
- ☐ Repair well

11.
Date work commenced
Date work completed

12. THE FOLLOWING EXPENSES FOR OPERATIONS ARE SUBMITTED FOR DESIGNATION AS WORKOVER OR RECOMPLETION EXPENSES UNDER U.C.A. 59-5-102(4):

	Expenses	Division Approval
a. Location preparation and cleanup	$	
b. Move-in, rig-up and rig-down (including trucking)		
c. Rig charges (including fuel)		
d. Drill pipe or other working string		
e. Water and chemicals for circulating fluid (including water hauling)		
f. Equipment purchase		
g. Equipment rental		
h. Cementing		
i. Perforating		
j. Acidizing		
k. Fracture stimulation		
l. Logging services		
m. Supervision and overhead		
n. Other (itemize)		
o. Total submitted expenses	$	
p. Total approved expenses		$

13. LIST CONTRACTORS PROVIDING SERVICES VALUED AT MORE THAN $3,000.00.

Contractor	Location (city, state)	Services Provided
Cambell Testers	Odessa, TX	Tubing Testing

14. LIST WORKING INTEREST OWNERS WHO TAKE PRODUCT IN KIND AND ARE AUTHORIZED TO SHARE IN THE TAX CREDIT.

Name	Address	Utah Account No.	Percent of Interest

I hereby certify that the foregoing is true and correct

Name & Signature _____ Title _____ Date _____

ANNULAR PRESSURE TEST

(Mechanical Integrity Test)

Operator MOBIL E.&P., INC. Date of Test 12/20/99

Well Name RATHERFORD UNIT WELL# 21W-21 EPA Permit No.

Location SEC 21, T41S, R24E Tribal Lease No. H20603355

State and County SAN JUAN COUNTY, UTAH

Continuous Recorder? YES ☑ NO ☐ Pressure Gauge? YES ☑ NO ☐

Bradenhead Opened? YES ☐ NO ☑ Fluid Flow? YES ☐ NO ☑

TIME	ANNULUS PRESSURE, psi 0-2000psi gauge	ANNULUS PRESSURE, psi 0-1500psi recorder	TUBING PRESSURE, psi 0-3000psi gauge
12:06 PM	1070	1095	~~1775~~ 1760 mLL
12:11 PM	1070	1100	~~1775~~ 1760 mLL
12:16 PM	1070	1100	1760
12:21 PM	1060	1085	1760
12:26 PM	1060	1060	1760
12:31 PM	1059	1025	1760
12:36 PM	1058	1025	1760

MAX. INJECTION PRESSURE: 3000 PSI

MAX. ALLOWABLE PRESSURE CHANGE: 53.50 PSI (TEST PRESSURE X 0.05)

REMARKS: Passed? Failed? If failed, cease injection until well passes MIT (40CFR§144.21(c)(6)).

Bradenhead buried.

Well was shut in before testing. Tubing psi was 1760. Not injecting.

Passed MIT

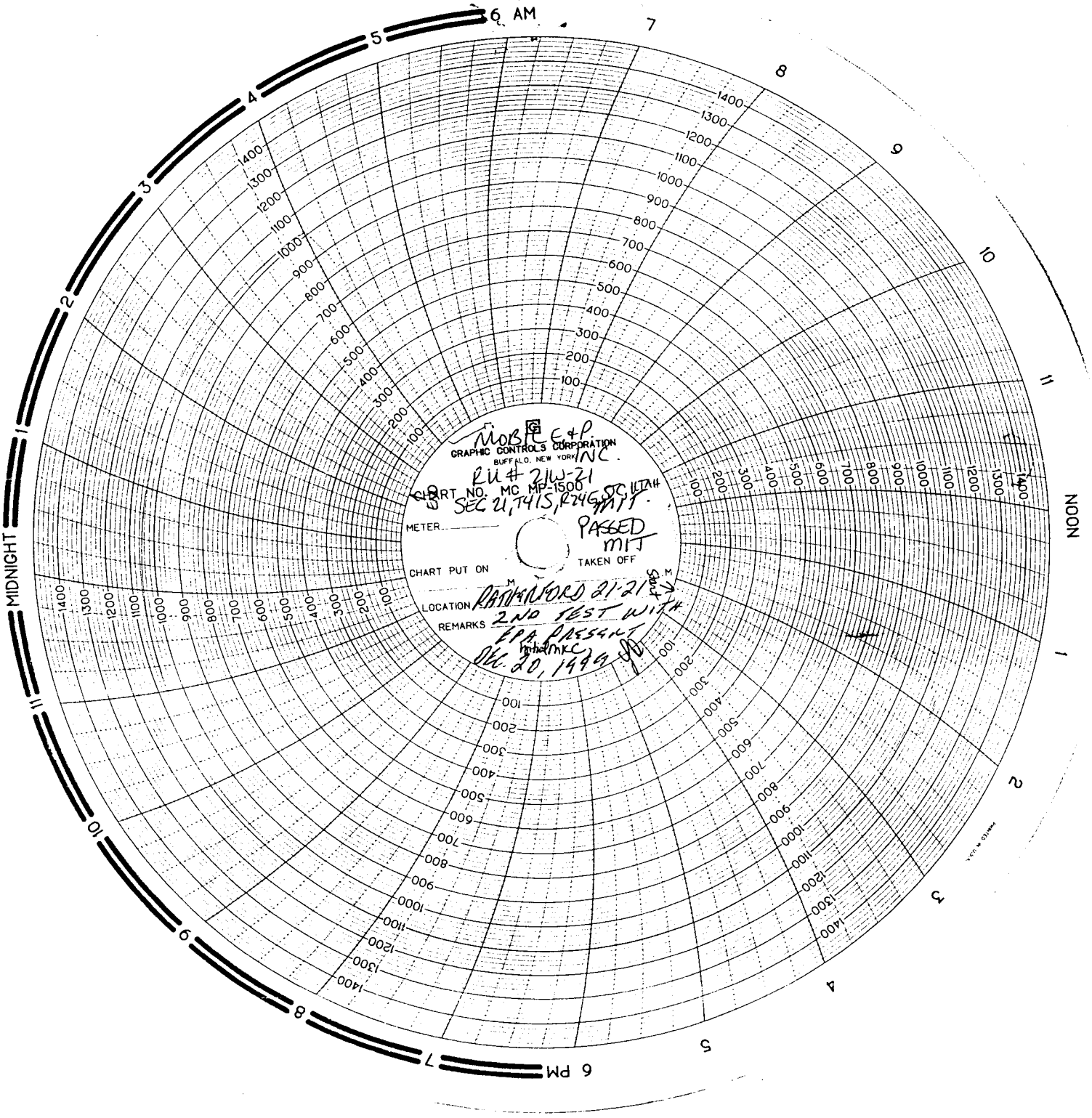
LARRY DILLARD [signature] 12/20/99

COMPANY REPRESENTATIVE: (Print and Sign) DATE

MELVINA K. CLAH [signature] 12/20/99

INSPECTOR: (Print and Sign) DATE

REGION-IX-FORM-935 (6/13/96) USEPA - Region IX (White) NEPA-GPCP (Yellow) Operator (Pink)


MIDNIGHT
NOON
6 AM
6 PM
GRAPHIC CONTROLS CORPORATION
BUFFALO, NEW YORK
MOBIL E&P INC.
RU # 21W-21
CHART NO. MC MP-1500
SEC 21, T41S, R24E, SC, UTAH
MIT
METER
PASSED MIT
CHART PUT ON
TAKEN OFF
LOCATION RATHERFORD 21-21
REMARKS 2ND TEST WITH EPA PRESENT
DEC. 20, 1999

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

Charlotte H. Harper
Permitting Supervisor

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

United States Department of the Interior

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

IN REPLY REFER TO:

RRES/543

AUG 30 2001

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

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

Dear Ms. Harper:

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

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

Sincerely,

GENNI 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 DBM
NATV AM MIN COORD
SOLID MIN TEAM
PETRO MGMT TEAM 2
O & G INSPECT TEAM
ALL TEAM LEADERS
LAND RESOURCES
ENVIRONMENT
FILES

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

PBR 7/12/2001 SN 543 file

June 27, 2001

ExxonMobil Production

Certified Mail
Return Receipt Requested

RECEIVED #477 JUL 9 - 2001 Navajo Region Office RES - Minerals Section

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

RECEIVED JUL 05 2001 NAVAJO REGION OFFICE BRANCH OF REAL ESTATE SERVICES

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

NOTE: Check forwarded to Ella Jossie

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

Gentlemen:

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

OFFICERS

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

DIRECTORS

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

Sincerely,

Alex Correa

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

(CORPORATE SEAL)

Signature

AGENT AND ATTORNEY IN FACT
Title

SAL

CERTIFICATION

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

CHANGE OF COMPANY NAME

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

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

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

ExxonMobil Oil Corporation",

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

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

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

S. A. Millican
Assistant Secretary

COUNTY OF DALLAS)
STATE OF TEXAS)
UNITED STATES OF AMERICA)
Sworn to and subscribed before me at Irving, Texas, U. S. A. on this the 8th day of June, 2001.

Janice M. Phillips
Notary Public

LISTING OF LEASES OF MOBIL OIL CORPORATION

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

6/1/01

CHUBB GROUP OF INSURANCE COMPANIES

[illegible] South, Suite 1500, Houston, Texas 77027-3[illegible]
[illegible] (713) 297-4600 • Facsimile: (713) 297-4750

NW Bond

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

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

FEDERAL INSURANCE COMPANY AS SURETY,

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

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

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

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

TO : **ExxonMobil Oil Corporation**

All other terms and conditions of this Bond are unchanged.

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

ExxonMobil Oil Corporation

By :

FEDERAL INSURANCE COMPANY

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

Chubb Surety

POWER OF ATTORNEY

Federal Insurance Company
Vigilant Insurance Company
Pacific Indemnity Company

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

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

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

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

Kenneth C. Wendel, Assistant Secretary

Frank E. Robertson, Vice President

STATE OF NEW JERSEY
County of Somerset } ss.

On this 10th day of May, 2001, before me, a Notary Public of New Jersey, personally came Kenneth C. Wendel, to me known to be Assistant Secretary of FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, and PACIFIC INDEMNITY COMPANY, the companies which executed the foregoing Power of Attorney, and the said Kenneth C. Wendel being by me duly sworn, did depose and say that he is Assistant Secretary of FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, and PACIFIC INDEMNITY COMPANY and knows the corporate seals thereof, that the seals affixed to the foregoing Power of Attorney are such corporate seals and were thereto affixed by authority of the By-Laws of said Companies; and that he signed said Power of Attorney as Assistant Secretary of said Companies by like authority; and that he is acquainted with Frank E. Robertson, and knows him to be Vice President of said Companies; and that the signature of Frank E. Robertson, subscribed to said Power of Attorney is in the genuine handwriting of Frank E. Robertson, and was thereto subscribed by authority of said Companies in deponent's presence.

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

Notarial Seal

KAREN A. PRICE NOTARY PUBLIC NEW JERSEY

Notary Public

CERTIFICATION

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

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

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

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

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

FEDERAL INSURANCE COMPANY · INDIANA ·

PACIFIC INDEMNITY COMPANY INCORPORATED JAN. 14, 1929 WISCONSIN

VIGILANT INSURANCE COMPANY · NEW YORK ·

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

15-10-0225 (Ed. 4-99) CONSENT

F010601000187

CSC 45

CERTIFICATE OF AMENDMENT

OF

CERTIFICATE OF INCORPORATION

OF

MOBIL OIL CORPORATION

(Under Section 805 of the Business Corporation Law)

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

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

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

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

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

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

ExxonMobil Oil Corporation",

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

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

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

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

F. A. Risch, President

STATE OF TEXAS)
COUNTY OF DALLAS)

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

F. L. REID, Secretary

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

[SEAL]

NOTARY PUBLIC, STATE OF TEXAS

JANICE M. PHILLIPS
MY COMMISSION EXPIRES
May 16, 2002

CSC 5184334741 06/01 '01 09:01 NO.411 02/02
CSC 06/01 '01 09:06 NO.155 04/04

F010601000187

CSC 45

CERTIFICATE OF AMENDMENT

OF

MOBIL OIL CORPORATION

Under Section 805 of the Business Corporation Law

SAC

100 cc

STATE OF NEW YORK
DEPARTMENT OF STATE
FILED JUN 01 2001
TAX $
BY: SAC
NY | Albany

Filed by: EXXONMOBIL CORPORATION
(Name)

5959 Las Colinas Blvd.
(Mailing address)

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

Cust Ref # 165578MPJ

RECEIVED
JUL 05 2001
DIVISION OF CORPORATIONS
CORPORATE SERVICES

010601000195

State of New York }
Department of State } *ss:*

I hereby certify that the annexed copy has been compared with the original document in the custody of the Secretary of State and that the same is a true copy of said original.

Witness my hand and seal of the Department of State on JUN 01 2001

Special Deputy Secretary of State

DOS-1266 (7/00)

Division of Oil, Gas and Mining

OPERATOR CHANGE WORKSHEET

ROUTING
1. GLH
2. CDW
3. FILE

Change of Operator (Well Sold) — Designation of Agent

X **Operator Name Change** — Merger

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

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

CA No. **Unit:** **RATHERFORD**

WELL(S)

NAME	SEC TWN RNG	API NO	ENTITY NO	LEASE TYPE	WELL TYPE	WELL STATUS
NAVAJO B-6 (RATHERFORD 7W21)	07-41S-24E	43-037-16394	99990	INDIAN	WI	A
NAVAJO B-43-7 (RATHERFORD 7W43)	07-41S-24E	43-037-16395	99990	INDIAN	WI	A
NAVAJO 23-9 (RATHERFORD 9W23)	09-41S-24E	43-037-16398	99990	INDIAN	WI	A
RATHERFORD U 20W21	20-41S-24E	43-037-16423	99990	INDIAN	WI	A
DSRT A-19 (RATHERFORD 20W43)	20-41S-24E	43-037-16424	99990	INDIAN	WI	I
RATHERFORD 21W21	21-41S-24E	43-037-16425	99990	INDIAN	WI	A
NAVAJO B-10 (RATHERFORD 29W41)	29-41S-24E	43-037-16433	99990	INDIAN	WI	A
NAVAJO B-13 (RATHERFORD 29W43)	29-41S-24E	43-037-16434	99990	INDIAN	WI	A

OPERATOR CHANGES DOCUMENTATION

Enter date after each listed item is completed

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

6. **Federal and Indian Lease Wells:** The BLM and or the BIA has approved the merger, name change, or operator change for all wells listed on Federal or Indian leases on: BIA-06/01/01

7. **Federal and Indian Units:**
The BLM or BIA has approved the successor of unit operator for wells listed on: 06/01/2001

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

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

NOTE: EPA ISSUES UIC PERMITS

DATA ENTRY:

1. Changes entered in the **Oil and Gas Database on:** 04/18/2002
2. Changes have been entered on the **Monthly Operator Change Spread Sheet on:** 04/18/2002
3. Bond information entered in RBDMS on: N/A
4. Fee wells attached to bond in RBDMS on: N/A

STATE WELL(S) BOND VERIFICATION:

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

FEDERAL WELL(S) BOND VERIFICATION:

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

INDIAN WELL(S) BOND VERIFICATION:

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

FEE WELL(S) BOND VERIFICATION:

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

LEASE INTEREST OWNER NOTIFICATION:

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

COMMENTS:

Division of Oil, Gas and Mining

OPERATOR CHANGE WORKSHEET

ROUTING
1. DJJ
2. CDW

X Change of Operator (Well Sold) Operator Name Change/Merger

The operator of the well(s) listed below has changed, effective: **6/1/2006**

FROM: (Old Operator):	**TO:** (New Operator):
N1855-ExxonMobil Oil Corporation	N2700-Resolute Natural Resources Company
PO Box 4358	1675 Broadway, Suite 1950
Houston, TX 77210-4358	Denver, CO 80202
Phone: 1 (281) 654-1936	Phone: 1 (303) 534-4600

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

OPERATOR CHANGES DOCUMENTATION

Enter date after each listed item is completed

1. (R649-8-10) Sundry or legal documentation was received from the **FORMER** operator on: 4/21/2006
2. (R649-8-10) Sundry or legal documentation was received from the **NEW** operator on: 4/24/2006
3. The new company was checked on the **Department of Commerce, Division of Corporations Database on:** 6/7/2006
4. Is the new operator registered in the State of Utah: YES Business Number: 5733505-0143
5. If **NO**, the operator was contacted contacted on:

6a. (R649-9-2)Waste Management Plan has been received on: requested

6b. Inspections of LA PA state/fee well sites complete on: n/a

6c. Reports current for Production/Disposition & Sundries on: ok

7. **Federal and Indian Lease Wells:** The BLM and or the BIA has approved the merger, name change, or operator change for all wells listed on Federal or Indian leases on: BLM n/a BIA not yet
8. **Federal and Indian Units:**
   The BLM or BIA has approved the successor of unit operator for wells listed on: not yet
9. **Federal and Indian Communization Agreements ("CA"):**
   The BLM or BIA has approved the operator for all wells listed within a CA on: n/a
10. **Underground Injection Control ("UIC")** The Division has approved UIC Form 5, **Transfer of Authority to Inject,** for the enhanced/secondary recovery unit/project for the water disposal well(s) listed on: 6/12/2006

DATA ENTRY:

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

BOND VERIFICATION:

1. Federal well(s) covered by Bond Number: n/a
2. Indian well(s) covered by Bond Number: PA002769
3. (R649-3-1) The **NEW** operator of any fee well(s) listed covered by Bond Number n/a

a. The **FORMER** operator has requested a release of liability from their bond on: n/a
The Division sent response by letter on: n/a

LEASE INTEREST OWNER NOTIFICATION:

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

COMMENTS:

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

UIC FORM 5

TRANSFER OF AUTHORITY TO INJECT

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

EFFECTIVE DATE OF TRANSFER: 6/1/2006

CURRENT OPERATOR

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

Name:
Signature:
Title:
Date:

NEW OPERATOR

Company: Resolute Natural Resources Company
Address: 1675 Broadway, Suite 1950
city Denver state CO zip 80202
Phone: (303) 534-4600
Comments: A list of affected UIC wells is attached.
New bond numbers for these wells are:
BIA Bond # PA002769 and US EPA Bond # B001252

Name: Dwight E Mallory
Signature:
Title: Regulatory Coordinator
Date: 4/20/2006

(This space for State use only)

Transfer approved by:
Title: Field Operations Manager
Approval Date: 6/12/06

Comments:

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

SUNDRY NOTICES AND REPORTS ON WELLS

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

5. LEASE DESIGNATION AND SERIAL NUMBER: See attached list
6. IF INDIAN, ALLOTTEE OR TRIBE NAME: Navajo Tribe
7. UNIT or CA AGREEMENT NAME: Ratherford Unit
8. WELL NAME and NUMBER: See attached list
9. API NUMBER: Attached
10. FIELD AND POOL, OR WILDCAT: Greater Aneth

1. TYPE OF WELL: OIL WELL ☐ GAS WELL ☐ OTHER Unit Agreement

2. NAME OF OPERATOR: Resolute Natural Resources Company N2700

3. ADDRESS OF OPERATOR: 1675 Broadway, Suite 1950 CITY Denver STATE CO ZIP 80202 PHONE NUMBER: (303) 534-4600

4. LOCATION OF WELL
FOOTAGES AT SURFACE: See attached list COUNTY: San Juan
QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: STATE: UTAH

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

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

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

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

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

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

NAME (PLEASE PRINT) Dwight E Mallory TITLE Regulatory Coordinator
SIGNATURE DATE 4/20/2006

(This space for State use only)

APPROVED 6/27/06
Earlene Russell
Division of Oil, Gas and Mining
Earlene Russell, Engineering Technician

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

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

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

FORM 9

SUNDRY NOTICES AND REPORTS ON WELLS

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

5. LEASE DESIGNATION AND SERIAL NUMBER:

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: Ship Rock

7. UNIT or CA AGREEMENT NAME: UTU68931A

8. WELL NAME and NUMBER: Ratherford

9. API NUMBER: attached

10. FIELD AND POOL, OR WILDCAT: Aneth

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

2. NAME OF OPERATOR: ExxonMobil Oil Corporation N1855

3. ADDRESS OF OPERATOR: P.O. Box 4358 CITY Houston STATE TX ZIP 77210-4358 PHONE NUMBER: (281) 654-1936

4. LOCATION OF WELL

FOOTAGES AT SURFACE:

COUNTY: San Juan

QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:

STATE: UTAH

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

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

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

ExxonMobil Oil Corporation is transferring operatorship of Greater Aneth field, Ratherford lease to Resolute Natural Resources Company. All change of operator notices should be made effective as of 7:00 AM MST on June 1, 2006.

Attached please find a listing of injection wells included in the transfer.

NAME (PLEASE PRINT) Laurie Kilbride TITLE Permitting Supervisor

SIGNATURE Laurie O. Kilbride DATE 4/19/2006

(This space for State use only) APPROVED 6/27/06
Earlene Russell
Division of Oil, Gas and Mining
Earlene Russell, Engineering Technician

(See Instructions on Reverse Side)

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DIV. OF OIL, GAS & MINING

(5/2000)

GREATER ANETH FIELD UIC WELL LIST
Ratherford lease, San Juan County, Utah

Reg Lease Name	Well ID	API Num	Status	Reg Lease #	Surface Location						
					Qtr 1	Qtr 2	Sec	TN	RNG	NS Foot	EW Foot
RATHERFORD UNIT	1W24	430371583900S1	Shut-in	14-20-603-246A	NE	SE	1	41S	23E	0651FSL	3300FEL
RATHERFORD UNIT	2W44	430371638600S1	Active	14-20-603-246A	SE	SE	2	41S	23E	0810FSL	**0510FEL**
RATHERFORD UNIT	11W42	430371584100S1	Active	14-20-603-246A	SE	NE	11	41S	23E	3290FSL	4617FWL
RATHERFORD UNIT	11W44	430371584200S1	Shut-in	14-20-603-246A	SE	SE	11	41S	23E	0660FSL	0558FEL
RATHERFORD UNIT	12W11	430371584300S1	Active	14-20-603-246A	NW	NW	12	41S	23E	0678FNL	4620FEL
RATHERFORD UNIT	12W13	430371640400S1	Active	14-20-603-246A	NW	SW	12	41S	23E	1980FSL	4620FEL
RATHERFORD UNIT	12W22	430371584501S1	Active	14-20-603-246A	SE	NW	12	41S	23E	1920FNL	2080FWL
RATHERFORD UNIT	12W24	430373115101S1	Active	14-20-603-246A	SE	SW	12	41S	23E	0775FSL	1980FWL
RATHERFORD UNIT	12W31	430371584700S1	Active	14-20-603-246A	NW	NE	12	41S	23E	0661FNL	1981FEL
RATHERFORD UNIT	12W33	430371584800S1	Active	14-20-603-246A	NW	SE	12	41S	23E	1958FSL	3300FEL
RATHERFORD UNIT	12W42	430371585000S1	Active	14-20-603-246A	SE	NE	12	41S	23E	3275FSL	0662FEL
RATHERFORD UNIT	12W44A	430373154300S1	Shut-in	14-20-603-246A	SE	SE	12	41S	23E	0772FSL	0807FEL
RATHERFORD UNIT	13W11	430373115201S1	Active	14-20-603-247A	NW	NW	13	41S	23E	0500FNL	0660FWL
RATHERFORD UNIT	13W13	430371585100S1	Active	14-20-603-247A	NW	SW	13	41S	23E	1980FSL	4620FEL
RATHERFORD UNIT	13W22	430371585200S1	Active	14-20-603-247A	SE	NW	13	41S	23E	1988FNL	3300FEL
RATHERFORD UNIT	13W24	430371585300S1	Active	14-20-603-247A	SE	SW	13	41S	23E	0660FSL	3300FEL
RATHERFORD UNIT	13W33	430371585501S1	Active	14-20-603-247A	NW	SE	13	41S	23E	1970FSL	1979FEL
RATHERFORD UNIT	13W42	430371585700S1	Shut-in	14-20-603-247A	SE	NE	13	41S	23E	2139FNL	0585FEL
RATHERFORD UNIT	13W44	430371640700S1	Active	14-20-603-247A	SE	SE	13	41S	23E	0653FSL	0659FEL
RATHERFORD UNIT	14-31	430373171700S1	Active	14-20-603-247A	NW	NE	14	41S	23E	0754FNL	1604FEL
RATHERFORD UNIT	14W42	430371586001S1	Active	14-20-603-247A	SE	NE	14	41S	23E	1976FNL	653FEL
RATHERFORD UNIT	24W31	430371586200S1	Shut-in	14-20-603-247A	NW	NE	24	41S	24E	0560FNL	1830FEL
RATHERFORD UNIT	24W42	430371586300S1	Shut-in	14-20-603-247A	SE	NE	24	41S	24E	1980FNL	0660FEL
RATHERFORD UNIT	17W12	430371572601S1	Active	14-20-603-353	SW	NW	17	41S	24E	1980FNL	510FWL
RATHERFORD UNIT	17W14	430371572700S1	Active	14-20-603-353	SW	SW	17	41S	24E	0610FSL	0510FWL
RATHERFORD UNIT	17W21	430371641601S1	Active	14-20-603-353	NE	**NW**	17	41S	24E	0510FNL	1830FWL
RATHERFORD UNIT	17W23	430371572801S1	Active	14-20-603-353	NE	SW	17	41S	24E	1880FSL	1980FWL
RATHERFORD UNIT	17W32	430371572900S1	TA'd	14-20-603-353	SW	NE	17	41S	24E	1830FNL	2030FEL
RATHERFORD UNIT	17W34	430371573000S1	Active	14-20-603-353	SW	SE	17	41S	24E	0560FSL	1880FEL
RATHERFORD UNIT	17W41	430371573100S1	Shut-in	14-20-603-353	NE	NE	17	41S	24E	0610FNL	0510FEL
RATHERFORD UNIT	17W43	430371641701S1	Active	14-20-603-353	NE	SE	17	41S	24E	1980FSL	0660FEL
RATHERFORD UNIT	18-43B	430373171801S1	Active	14-20-603-353	NE	SE	18	41S	24E	2023FSL	0651FEL
RATHERFORD UNIT	18W12	430373115301S1	Active	14-20-603-353	SW	NW	18	41S	24E	1980FNL	560FWL
RATHERFORD UNIT	18W14	430371573501S1	Active	14-20-603-353	SW	SW	18	41S	24E	0810FSL	0600FWL
RATHERFORD UNIT	18W21	430371641801S1	Active	14-20-603-353	NE	NW	18	41S	24E	660FNL	1882FWL
RATHERFORD UNIT	18W23	430373024400S1	Shut-in	14-20-603-353	NE	SW	18	41S	24E	2385FSL	2040FWL
RATHERFORD UNIT	18W32	430371573601S1	Active	14-20-603-353	SW	NE	18	41S	24E	2140FNL	1830FEL
RATHERFORD UNIT	18W34	430371573701S1	Active	14-20-603-353	SW	SE	18	41S	24E	780FSL	1860FEL
RATHERFORD UNIT	18W41	430371573800S1	TA'd	14-20-603-353	NE	NE	18	41S	24E	0660FNL	0660FEL
RATHERFORD UNIT	19-12	430371573901S1	Active	14-20-603-353	SW	NW	19	41S	24E	1980FNL	0600FWL
RATHERFORD UNIT	19-32	430371574301S1	Active	14-20-603-353	SW	NE	19	41S	24E	2717FNL	2802FEL
RATHERFORD UNIT	19-34	430371574401S1	Active	14-20-603-353	SW	SE	19	41S	24E	0660FSL	1980FEL
RATHERFORD UNIT	19W21	430371574100S1	Shut-in	14-20-603-353	NE	NW	19	41S	24E	0660FNL	1860FWL
RATHERFORD UNIT	19W23	430371574200S1	Shut-in	14-20-603-353	NE	SW	19	41S	24E	2080FSL	1860FWL
RATHERFORD UNIT	19W43	430371642000S1	Shut-in	14-20-603-353	NE	SE	19	41S	24E	1980FSL	0760FEL
RATHERFORD UNIT	20-12	430371574601S1	Active	14-20-603-353	SW	NW	20	41S	24E	0709FNL	0748FEL
RATHERFORD UNIT	20-14	430371574701S1	Active	14-20-603-353	SW	SW	20	41S	24E	0660FSL	0660FWL
RATHERFORD UNIT	20-32	430371574901S1	Active	14-20-603-353	SW	NE	20	41S	24E	0037FNL	0035FWL
RATHERFORD UNIT	20-34	430371575001S1	Active	14-20-603-353	SW	SE	20	41S	24E	0774FNL	0617FWL
RATHERFORD UNIT	20-67	430373159000S1	Active	14-20-603-353	NE	SW	20	41S	24E	2629FSL	1412FWL
RATHERFORD UNIT	20W21	430371642300S1	Active	14-20-603-353	NE	NW	20	41S	24E	0660FNL	1880FWL
RATHERFORD UNIT	20W23	430371574800S1	Active	14-20-603-353	NW	SW	20	41S	24E	2080FSL	2120FWL
RATHERFORD UNIT	20W41	430371575100S1	Active	14-20-603-353	NE	NE	20	41S	24E	0660FNL	0660FEL
RATHERFORD UNIT	20W43	430371642400S1	TA'd	14-20-603-353	NE	SE	20	41S	24E	2070FSL	0810FEL
RATHERFORD UNIT	16W12	430371572000S1	Active	14-20-603-355	SW	NW	16	41S	24E	1880FNL	0660FWL

GREATER ANETH FIELD UIC WELL LIST
Ratherford lease, San Juan County, Utah

Reg Lease Name	Well ID	API Num	Status	Reg Lease #	Surface Location						
					Qtr 1	Qtr 2	Sec	TN	RNG	NS Foot	EW Foot
RATHERFORD UNIT	16W14	430371572100S1	Shut-in	14-20-603-355	SW	SW	16	41S	24E	0660FSL	0660FWL
RATHERFORD UNIT	16W21	430371641400S1	Active	14-20-603-355	NE	NW	16	41S	24E	0660FNL	1880FWL
RATHERFORD UNIT	16W23	430371572201S1	Active	14-20-603-355	NE	SW	16	41S	24E	1980FSL	1980FWL
RATHERFORD UNIT	16W43	430371641501S1	Active	14-20-603-355	NE	SE	16	41S	24E	2140FSL	0820FEL
RATHERFORD UNIT	21-14	430371575301S1	Active	14-20-603-355	SW	SW	21	41S	24E	0660FSL	0460FWL
RATHERFORD UNIT	21-67	430373175301S1	Active	14-20-603-355	NE	SW	21	41S	24E	2560FSL	1325FWL
RATHERFORD UNIT	21W21	430371642501S1	Active	14-20-603-355	NE	NW	21	41S	24E	0660FNL	2030FWL
RATHERFORD UNIT	**6W14**	430371598400S1	Active	14-20-603-368	NE	SE	6	41S	24E	0660FSL	0660FWL
RATHERFORD UNIT	7W12	430371598500S1	Active	14-20-603-368	NE	SE	7	41S	24E	2140FNL	0585FWL
RATHERFORD UNIT	7W14	430371598600S1	Active	14-20-603-368	NE	SE	7	41S	24E	1065FSL	0660FWL
RATHERFORD UNIT	7W21	430371639400S1	Active	14-20-603-368	**NE**	NW	7	41S	24E	0710FNL	1820FWL
RATHERFORD UNIT	7W34	430371598900S1	Active	14-20-603-368	SW	SE	7	41S	24E	0710FSL	2003FEL
RATHERFORD UNIT	7W43	430371639500S1	Active	14-20-603-368	NE	SE	7	41S	24E	2110FSL	0660FEL
RATHERFORD UNIT	**8W14**	430371599200S1	Active	14-20-603-368	SW	NE	8	41S	24E	0745FSL	0575FWL
RATHERFORD UNIT	10W43	430371640300S1	TA'd	14-20-603-4037	NE	SE	10	41S	24E	1980FSL	0550FEL
RATHERFORD UNIT	29-12	430371533701S1	Active	14-20-603-407	SW	**NW**	29	41S	24E	2870FNL	1422FWL
RATHERFORD UNIT	29-32	430371533901S1	Active	14-20-603-407	SW	NE	29	41S	24E	0694FNL	0685FWL
RATHERFORD UNIT	29W21	430371643200S1	Active	14-20-603-407	NE	NW	29	41S	24E	0667FNL	2122FWL
RATHERFORD UNIT	29W41	430371643300S1	Active	14-20-603-407	NE	NE	29	41S	24E	0557FNL	0591FEL
RATHERFORD UNIT	29W43	430371643400S1	Shut-in	14-20-603-407	NE	SE	29	41S	24E	1980FSL	0660FEL
RATHERFORD UNIT	30W41	430371534300S1	Shut-in	14-20-603-407	NE	NE	30	41S	24E	0660FNL	0660FEL
RATHERFORD UNIT	28-12	430371533601S1	Active	14-20-603-409	SW	SE	28	41S	24E	2121FNL	0623FWL
RATHERFORD UNIT	28W21	430371643100S1	Shut-in	14-20-603-409	NE	NW	28	41S	24E	0660FNL	2022FWL
RATHERFORD UNIT	9W23	430371639800S1	Active	14-20-603-5046	NW	SE	9	41S	24E	1980FSL	1980FWL