

UTAH OIL AND GAS CONSERVATION COMMISSION

REMARKS: *12-1-83 Operator name Range*
5-30-59 commenced acidizing & shooting Producing ^{on Pump} 40 BOPD 2.8 BWPD GOR 1240
6-6-59 completed Production (on Pump) 86 BOPD, 56 BWPD GOR 1129 **011321**
Electric Log

*Subsequent Report of Shooting or Acidizing - 7-1-60 Pumped 152 BOP, no water in 24 hrs GOR 658.
 Producing from Desert Creek formation. * Appended for water injection 2-18-86
 (Name July) Will tag 1/3 electric log*

DATE FILED **2-19-58** Nav-14-20-

LAND: FEE & PATENTED STATE LEASE NO. PUBLIC LEASE NO. INDIAN **603-3573**

DRILLING APPROVED: **2-19-58**

SPUDDED IN: **3-9-58**

COMPLETED: **4-6-58**

INITIAL PRODUCTION: **1164 BOPD**

GRAVITY A. P. I. **42°**

GOR:
 PRODUCING ZONES: **5478-90, 5520-28, 5537-50, 5572-80, 5596-607, 5614-20**

TOTAL DEPTH: **5700**

WELL ELEVATION: **4708 DF**

DATE ABANDONED:

FIELD OR DISTRICT: ~~ratherford~~ **Aneth**

COUNTY: **San Juan**

WELL NO. **DESERT A-7 (Ratherford 17-23)**

LOCATION: **1880** FT. FROM (S) LINE, **1980** FT. FROM (W) LINE. **NE 1/4 SW 1/4** QUARTER - QUARTER SEC. **17** **11 API 43-037-15728**

TWP.	RGE.	SEC.	OPERATOR	TWP.	RGE.	SEC.	OPERATOR
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41 N	24 E	17	PHILLIPS OIL Co. PETROLEUM				
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QUATERNARY	Star Point	Sinbad	Brazer
Recent	Wahweap	PERMIAN	Pilot shale
Alluvium	Masuk	Kaibab	Madison
Lake beds	Colorado	Coconino	Leadville
Pleistocene	Mancos	Cutler	Redwall
Lake beds	Upper	Hoskinnini 2520	DEVONIAN
TERTIARY	Middle	DeChelly 2569	Upper
Pliocene	Lower	White Rim	Middle
Humboldt	Emery	Organ Rock 2737	Lower
Salt Lake	Blue Gate	Cedar Mesa	Ouray
Miocene	Ferron	Halgate tongue	Elbert
Bishop conglomerate	Frontier	Phosphoris	Guilmette
Oligocene	Dakota	Park City	Simonsen dolomite
Norwood	Burro Canyon	Rico (Goodridge)	Sevy dolomite
Eocene	Cedar Mountain	Supai	North Point
Duchesne River	Buckhorn	Bird Springs	SILURIAN
Uinta	JURASSIC	CARBONIFEROUS	Laketown dolomite
Bridger	Morrison	Pennsylvanian	ORDOVICIAN
Green River	Salt Wash	Oquirrh	Eureka quartzite
Upper	San Rafael Gr.	Weber	Pogonip limestone
Middle	Summerville	Morgan	CAMBRIAN
Lower	Bluff sandstone	Hermosa	Lynch
Wasatch	Curtis	Upper 4490	Bowman
Colton	Entrade	Lower	Tapeats
Flagstaff	Moab tongue	Molas	Ophir
Almy	Carmel	Paradox 5470	Tintic
Paleocene	Glen Canyon Gr.	A	PRE-CAMBRIAN
Current Creek	Navajo	B	PAPUC 5320
North Horn	Kayento	C	ABAJO 5470
CRETACEOUS	Wingate	Manning Canyon	
Montana	TRIASSIC	Mississippian	
Mesaverde	Chinle 1463	Chainman shale	
Price River	Shinarump 2295	Humburg	
Blackhawk	Moenkapi 4	Joana limestone	

Date Completed

Inspector

Affidavit

Map

Location

Well Log File

Scout Report sent out

Noted in the NID File

Location map pinned

Approval or Disapproval Letter

Date Completed, P. & A. or

-
-
-
-

152 B O
GOR 258

COMPLETION DATA

Filed in NID File

Map Sheet

Location Map Pinned

Card Indexed

RWR for State or Fee Land

Checked by Chief

Copy NID to Field Office

Approval Letter

Disapproval Letter

COMPLETION DATA: Acidized to increase production - 5-26-60

Date Well Completed 4-2-58

OW WW _____ TA _____

GW CS _____ PA _____

Location Inspected _____

Bond released _____

State of Fee Land _____

LOGS FILED

Driller's Log 4-18-58

Electric Logs (No.) 3

E _____ I _____ E-I GR _____ GR-N _____ Micro

Lat _____ Mi-L _____ Sonic _____ Others Nuclear Log

(SUBMIT IN TRIPLICATE)

Indian Agency New Jo

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Allottee Tribal
Lease No. 14-0-601-375

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL	<input checked="" type="checkbox"/>	SUBSEQUENT REPORT OF WATER SHUT-OFF	
NOTICE OF INTENTION TO CHANGE PLANS		SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING	
NOTICE OF INTENTION TO TEST WATER SHUT-OFF		SUBSEQUENT REPORT OF ALTERING CASING	
NOTICE OF INTENTION TO REDRILL OR REPAIR WELL		SUBSEQUENT REPORT OF REDRILLING OR REPAIR	
NOTICE OF INTENTION TO SHOOT OR ACIDIZE		SUBSEQUENT REPORT OF ABANDONMENT	
NOTICE OF INTENTION TO PULL OR ALTER CASING		SUPPLEMENTARY WELL HISTORY	
NOTICE OF INTENTION TO ABANDON WELL			

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

Denver, Colorado Feb. 17, 19 50

Report # 7
Well No. 7 is located 1000 ft. from S line and 1000 ft. from W line of sec. 17
N 1/4 34 1/4 Sec. 17 (1/4 Sec. and Sec. No.) 43E (Twp.) 7E (Range) T.14N. (Meridian)
Rutherford (Field) San Juan (County or Subdivision) Utah (State or Territory)

The elevation of the ~~surface~~ ground above sea level is 4477 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 150', set 150' of 11-3/8" conductor pipe and cement to surface. Drill 11" hole to approximately 1400', set 8-5/8" casing and cement to surface. Drill 7-7/8" hole to total depth of approximately 5750', run 5/8" casing and cement with approximately 250 sacks. Complete in Paradox formation.

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

Company Phillips Petroleum Company
Address 1200 Denver Club Bldg.
Denver 2, Colorado
By [Signature]
Title Division Superintendent

10
2

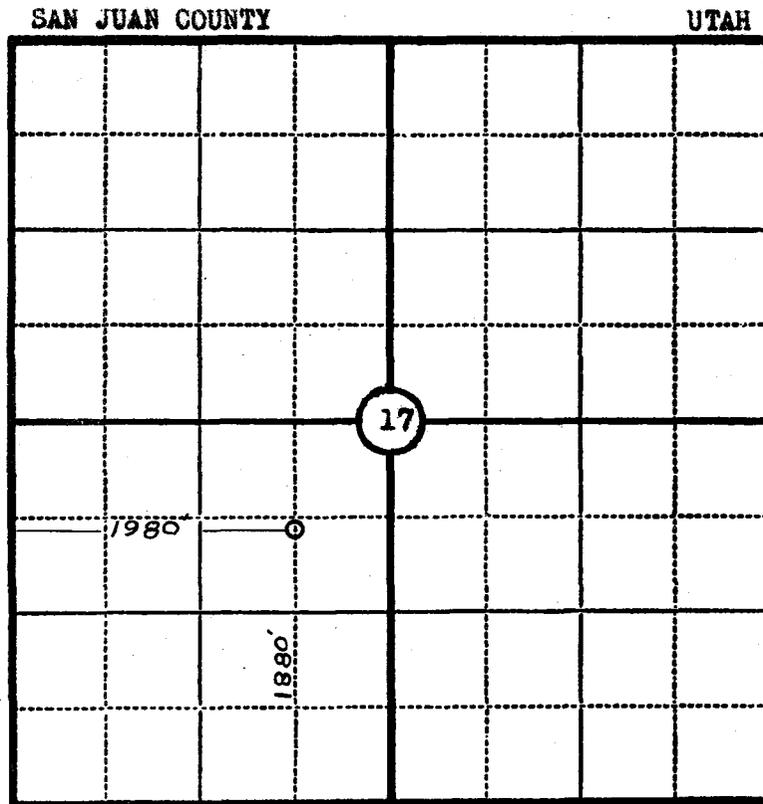
Company PHILLIPS PETROLEUM COMPANY

Lease DESERT "A" Well No. 7

Sec. 17, T. 41 SOUTH, R. 24 EAST S.L.M.

Location 1980' FROM THE WEST LINE AND 1880' FROM THE SOUTH LINE.

Elevation 4697.0 UNGRADED GROUND



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

Seal:

James P. Leese

Registered Land Surveyor.

JAMES P. LEESE

UTAH REG. NO. 1472

Surveyed 13 FEBRUARY, 19 58.

SAN JUAN ENGINEERING COMPANY, FARMINGTON, N. M.

February 19, 1958

Phillips Petroleum Company
1200 Denver Club Building
Denver 2, Colorado

Attention: W. M. Schal, Division Superintendent

Gentlemen:

This is to acknowledge receipt of your notice of intention to drill Well No. Desert A -7, which is to be located 1880 feet from the south line and 1980 feet from the west line of Section 17, Township 41 South, Range 24 East, S1EM, 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

OLEON B. FREIGHT
SECRETARY

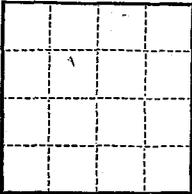
CBF:en

cc: Phil McGrath
USGS, Farmington,
New Mexico

2

(SUBMIT IN TRIPLICATE)

Indian Agency Navajo



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Allottee Tribal

Lease No. 11-20-603-355

71-H
3-28

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL	SUBSEQUENT REPORT OF WATER SHUT-OFF	<input checked="" type="checkbox"/>
NOTICE OF INTENTION TO CHANGE PLANS	SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING	<input type="checkbox"/>
NOTICE OF INTENTION TO TEST WATER SHUT-OFF	SUBSEQUENT REPORT OF ALTERING CASING	<input type="checkbox"/>
NOTICE OF INTENTION TO REDRILL OR REPAIR WELL	SUBSEQUENT REPORT OF REDRILLING OR REPAIR	<input type="checkbox"/>
NOTICE OF INTENTION TO SHOOT OR ACIDIZE	SUBSEQUENT REPORT OF ABANDONMENT	<input type="checkbox"/>
NOTICE OF INTENTION TO PULL OR ALTER CASING	SUPPLEMENTARY WELL HISTORY	<input type="checkbox"/>
NOTICE OF INTENTION TO ABANDON WELL		<input type="checkbox"/>

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

Denver, Colorado March 18, 1958

Desert "A"
Well No. 7 is located 1600 ft. from S line and 1900 ft. from W line of sec. 17

NE/4 SW/4 Sec. 17
(¼ Sec. and Sec. No.)

41S
(Twp.)

24E
(Range)

S.L.M.
(Meridian)

Rutherford
(Field)

San Juan
(County or Subdivision)

Utah
(State or Territory)

The elevation of the derrick floor above sea level is 4700 ft.

DETAILS OF WORK

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

Drilled to 1590'. Ran 6-5/8" OD 24# J-55 casing set at 1549'. Mixed 175 barrels 40 viscosity 9.8# mud, circulated before cementing. Cemented with 298 sacks regular cement, 110 sacks Diacel "D", 590# calcium chloride, 143# Flocote, 495# Tuf-Plug, followed with 125 sacks regular cement. Pumped plug to 1513' at 8:15 P.M. March 12, 1958. Ran 1" pipe down annulus, found hard cement at 70', recomputed with 75 sacks regular cement, 25 calcium chloride. Drilled plug at 8:15 P.M. March 13, 1958, tested casing with 500# for 30 minutes, held OK.

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

Company Phillips Petroleum Company

Address 1300 Denver Club Building

Denver 2, Colorado

By [Signature]

Title N. H. Schul
Division Superintendent

(SUBMIT IN TRIPLICATE)

Indian Agency Navajo

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Allottee Tribal
Lease No. 14-20-603-355

71-#
3-28

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL.....	SUBSEQUENT REPORT OF WATER SHUT-OFF.....	<input checked="" type="checkbox"/>
NOTICE OF INTENTION TO CHANGE PLANS.....	SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING.....	
NOTICE OF INTENTION TO TEST WATER SHUT-OFF.....	SUBSEQUENT REPORT OF ALTERING CASING.....	
NOTICE OF INTENTION TO REDRILL OR REPAIR WELL.....	SUBSEQUENT REPORT OF REDRILLING OR REPAIR.....	
NOTICE OF INTENTION TO SHOOT OR ACIDIZE.....	SUBSEQUENT REPORT OF ABANDONMENT.....	
NOTICE OF INTENTION TO PULL OR ALTER CASING.....	SUPPLEMENTARY WELL HISTORY.....	
NOTICE OF INTENTION TO ABANDON WELL.....		

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

Denver, Colorado March 18, 1956

Desert "A"
Well No. 7 is located 1800 ft. from XXX line and 1800 ft. from XXX line of sec. 17

NE/4 SW/4 Sec. 17 (¼ Sec. and Sec. No.) A18 (Twp.) 24E (Range) S.L.M. (Meridian)
Katharford (Field) San Juan (County or Subdivision) Utah (State or Territory)

The elevation of the derrick floor above sea level is 4708 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 17 1/2" hole at 12:00 midnight March 9, 1956. Drilled to 180'. Ran 13-3/8" OD 27.1# Armo SW 87 casing set at 179' RKB, cemented with 175 sacks regular cement. Pumped plug to 148' at 12:50 pm. March 10, 1956, cement circulated. WOG 2 1/2 hours, tested casing with 300# for 30 minutes, hold OK.

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

Company Phillips Petroleum Company

Address 1200 Denver Club Building

Denver 2, Colorado

By W. M. Schul

Title Division Superintendent

PHILLIPS PETROLEUM COMPANY

1200 Denver Club Building
Denver 2, Colorado

April 8, 1958

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

Dear Mr. Feight:

Attached you will find two copies of each of the following logs ran on Phillips Petroleum Company - Aztec Oil and Gas Company's Desert "A" #7, San Juan County, Utah.

1. Schlumberger Micro Logging
2. Schlumberger Induction - Electrical Log
3. B J Service, Inc. Nuclear Log

Very truly yours,

PHILLIPS PETROLEUM COMPANY



W. M. Schul
Division Superintendent

CCK:lb

U. S. LAND OFFICE Navajo
 SERIAL NUMBER 14-20-603-353
 LEASE OR PERMIT TO PROSPECT _____

UNITED STATES
 DEPARTMENT OF THE INTERIOR
 GEOLOGICAL SURVEY

71-H
 4-28

LOG OF OIL OR GAS WELL

LOCATE WELL CORRECTLY

Company Phillips Petroleum Company - Artes Oil & Gas Company Address 1200 Denver Club Bldg. Denver 2, Colorado
 Lessor or Tract Desert "A" Field Batherford State Utah
 Well No. 7 Sec. 17 T. 41S R. 24E Meridian S.L.M. County San Juan
 Location 1980 ft. N. of S. Line and 1980 ft. E. of W. Line of Sec. 17 Elevation 4708
(Derrick floor relative to sea level)

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

Signed [Signature]
 Title Division Superintendent

Date April 15, 1958

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

Commenced drilling March 9, 1958 Finished drilling March 30, 1958

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

No. 1, from _____ to _____ No. 3, from _____ to _____
 No. 2, from _____ to _____ No. 4, from _____ to _____

CASING RECORD

Size casing	Weight per foot	Threads per inch	Make	Amount	Kind of shoe	Cut and pulled from	Perforated		Purpose
							From-	To-	
<u>13-3/8"</u>	<u>37.14</u>	<u>81</u>	<u>Artes</u>	<u>1611</u>	<u>Baker</u>				
<u>8-5/8"</u>	<u>31.14</u>	<u>81</u>	<u>Artes</u>	<u>3042</u>	<u>Baker</u>				
<u>5-1/2"</u>	<u>21.14</u>	<u>81</u>	<u>Artes</u>	<u>5530</u>	<u>Baker</u>				
<u>5-1/2"</u>	<u>18</u>	<u>81</u>	<u>Artes</u>	<u>5530</u>	<u>Baker</u>				
<u>HIEROKA OIL OIL OK</u>							<u>5573-80</u>	<u>5596-5607</u>	<u>PROMOTION</u>
							<u>5611-20</u>		

MUDDING AND CEMENTING RECORD

Size casing	Where set	Number sacks of cement	Method used	Mud gravity	Amount of mud used
<u>13-3/8"</u>	<u>1791</u>	<u>175</u>	<u>Circ.</u>		
<u>8-5/8"</u>	<u>1549</u>	<u>533</u>	<u>Circ.</u>		
<u>5-1/2"</u>	<u>5699</u>	<u>212</u>	<u>Hallid.</u>		

PLUGS AND ADAPTERS

FOLD

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 5700 feet, and from feet to feet

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

DATES

April 15, 1958

Put to producing April 6, 1958

The production for the first 24 hours was 194 barrels of fluid of which 42% was oil; 58% emulsion; 2% water; and 38% sediment. Gravity, °Bé. 42

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

Rock pressure, lbs. per sq. in. 190

EMPLOYEES

Moran Bros., Inc., Driller Driller
 Driller Driller

FORMATION RECORD

FROM—	TO—	TOTAL FEET	FORMATION
1463	2295	832	Chinle
2295	2354	59	Shinarump
2354	2520	166	Moenkopi
2520	2567	47	Hoskinini
2567	2737	170	De Chelly
2737	4498	1761	Organ Rock
4498	5470	972	Upper Hermosa
5470	5700	230	Paradox

APR 18 1958

[OVER]

Navajo

Form 9-331b
(April 1952)

(SUBMIT IN TRIPLICATE)

Indian Agency

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Allottee **Tribal**

Lease No. **14-20-603-353**

21/4
5/5

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.....	X	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)

Cortes, Colorado April 16, 19 59

Desert "A"

Well No. **7** is located **1880** ft. from **KS** line and **1980** ft. from **W** line of sec. **17**

NE, SW Sec. 17

1S

24E

1M

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

(Twp.)

(Range)

(Meridian)

Ratherford

San Juan

Utah

(Field)

(County or Subdivision)

(State or Territory)

The elevation of the derrick floor above sea level is **4708** 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)

Full rods and tubing, perforate the zones 5634-5644 and 5506-5510 with 4 shots per foot. Run tubing with Baker HJ Packer and acidize Desert Creek Formation with 11,000 gallons of 15% regular acid in 4 stages (2000 gallons 15% regular acid, 300 gallons block, 3000 gallons 15% regular acid, 300 gallons block, 3000 gallons 15% regular acid, 300 gallons block, 3000 gallons 15% reg acid). Pull tubing with Packer, rerun tubing with rods. Complete and test.

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**

Cortes, Colorado

By **G. M. Boles**

Title **District Superintendent**

Form 9-331 b
(April 1952)

(SUBMIT IN TRIPLICATE)

Indian Agency Navajo

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Allottee Tribal

Lease No. 14-20-603-353

7-A
8-24

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.....	X	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)

Desert "A" Cortes, Colorado August 7, 19 59

Well No. 7 is located 1680 ft. from N line and 1980 ft. from W line of sec. 17

NE SW Sec. 17 41S 24E SLM

(1/4 Sec. and Sec. No.) (Twp.) (Range) (Meridian)

Ratherford San Juan Utah

(Field) (County or Subdivision) (State or Territory)

The elevation of the ~~surface~~ **ungraded ground** above sea level is 4708 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)

Moved in Rivins & Smeat Well Service Unit 5-30-59. Rigged up, killed well, pulled tubing and rods and perforated Desert Creek with 4 dyna jet shots per foot SL and RL Measurements from 5506-10', 5634-44'. 5-31-59. Previous Production: 40 BOPD, 2.8 BOPD GOR 1240 - Pumping.

Ran tubing, set Baker EGJ Packer 5380', tubing set at 5615' (PBD 5662) Acidized Desert Creek perforations from 5478-90, 5520-28, 5537-50, 5575-80, 5596-5607, 5614-20, 5506-10, 5634-44 with 11,000 gallons regular 15% acid, and 900 gallons blocking agent in 4 stages as follows: 6/1/59 2000 gallons acid, 300 gallons block, 3000 gallons acid. Flushed with 37 BO. Maximum pressure 1900#, minimum 0#. Average treating rate 9.4 BPM, average flush rate 9.2 BPM. Well on vacuum at end of treating. Pressure increased 250# when first 2 blocks hit formation. No pressure increase with 3rd block. Swab tested - pulled tubing and packer, reran tubing. (Continued on reverse side.)

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

Cortes, Colorado

By C. M. Boles
C. M. Boles
Title District Superintendent

Handwritten signatures and initials.

Tubing set 5638.14. Intake 5624.94'. Tension anchor 5462.85'.
Ran rods and placed on pump. Pumped 86 BO, 36 BW, GOR 1129 in 24 hours 6-6-59.

AUG 14 1959

(SUBMIT IN TRIPLICATE)

Indian Agency Navajo

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Allottee Tribal
Lease No. 14-20-603-353

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL		SUBSEQUENT REPORT OF WATER SHUT-OFF	
NOTICE OF INTENTION TO CHANGE PLANS		SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING	
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NOTICE OF INTENTION TO REDRILL OR REPAIR WELL		SUBSEQUENT REPORT OF REDRILLING OR REPAIR	
NOTICE OF INTENTION TO SHOOT OR ACIDIZE	X	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)

Desert "A" Cortez, Colorado May 23, 1960

Well No. 7 is located 1880 ft. from SW line and 1980 ft. from EW line of sec. 17

NE, SW Sec. 17 41S 24E SLM

(1/4 Sec. and Sec. No.) (Twp.) (Range) (Meridian)

Ratherford San Juan Utah

(Field) (County or Subdivision) (State or Territory)

ungraded ground

The elevation of the ~~surface~~ above sea level is 4697 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)

Pull tubing and rods, run Lane Wells Gamma Ray Neutron log with collar locator to check the original B-J Radioactivity Log to confirm the perforated intervals. The Lane Wells magnetic collar log showed evidence of defective perforating in the intervals 5572-5580 and 5596-5607 based upon a comparison of recorded electrical signals. Re-perforate zones 5570-83, 5588-93, 5596-5608 and acidize with 4000 gallons 15% regular acid in 2 stages (2000 gallons acid, 200 gallons temporary block, 2000 gallons regular acid). Swab test - rerun rods and tubing and return well to production. Previous production 69 BO, 0 water, OOR 618.

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

Company Phillips Petroleum Company

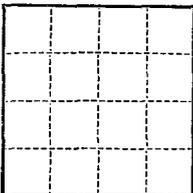
Address P. O. Drawer 1150

Cortez, Colorado

By C. M. Boles
Title Dist. Supt.

(SUBMIT IN TRIPLICATE)

Indian Agency Navajo



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Allottee Tribal
Lease No. 14-20-603-353

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL	SUBSEQUENT REPORT OF WATER SHUT-OFF	
NOTICE OF INTENTION TO CHANGE PLANS	SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING	X
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)

Desert "A" Cortez, Colorado June 29, 19 60

Well No. 7 is located 1680 ft. from KS line and 1960 ft. from W line of sec. 17
NE SW Sec. 17 41S 24E SLM
(1/4 Sec. and Sec. No.) (Twp.) (Range) (Meridian)
Rutherford San Juan Utah
(Field) (County or Subdivision) (State or Territory)

The elevation of the ~~surface~~ ungraded ground above sea level is 4697 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)

Moved in well service unit, pulled rods and tubing. Perforated 5-1/2" casing with 4 J-2 Rocket Jet Shots per foot using EL and RL measurements from 5570-83, 5588-93, 5596-5608 on 5-20-60. Ran 177 jts. 2-7/8" OD EUE tubing with Baker Model EGJ packer and Guiberson Hydraulic Holddown and Lane Wells anchor packer. Set tubing (open ended) at 5644'. Packer at 5560 and anchor packer at 5459'. Swabbed tubing 50 minutes, found fluid at 4250'. Recovered 21 BO.

5/21/60 - Acidized Desert Creek perforations 5570-83, 5588-93, 5596-5608, 5614-5620 and 5634-44 with 4000 gallons regular 15% acid and 200 gallons temporary block. Maximum treating pressure 1600#, minimum 100#. Rate 7.2 BPM. Flush maximum pressure 1400#, minimum 0#. Rate 9 BPM. Block increased pressure from 1600 to 1800# - on vacuum immediately after treatment. Swab tested, pulled tubing and packers.

(Continued on reverse side)

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

Company Phillips Petroleum Company

Address P. O. Drawer 1150

Cortez, Colorado

By C. M. Boles

Title District Superintendent

(Continued)

Reran 2-7/8" OD tubing, gas anchor, seating nipple, tubing tension anchor.
Tubing set at 5638.94'. Intake at 5624.94'. Tension anchor at 5462.85'
Seating nipple at 5617.85'. Ran rods and placed on pump 5-24-60.
Test 5-26-60. Pumped 152 BO, no water in 24 hours, GOR 658.
Producing from Desert Creek formation.

JUL 1 1960

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

SUNDRY NOTICES AND REPORTS ON WELLS

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

1. oil well gas well other

2. NAME OF OPERATOR
Phillips Petroleum Company

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

4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
AT SURFACE: 1880' FSL & 1980' FWL
AT TOP PROD. INTERVAL:
AT TOTAL DEPTH:

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

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

5. LEASE
14-20-603-353

6. IF INDIAN, ALLOTTEE OR TRIBE NAME
Navajo

7. UNIT AGREEMENT NAME
SW-I-4192

8. FARM OR LEASE NAME
Ratherford Unit

9. WELL NO.
17-23

10. FIELD OR WILDCAT NAME
Greater Aneth

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec. 17-41S-24E

12. COUNTY OR PARISH
San Juan

13. STATE
Utah

14. API NO.
43-037-15728

15. ELEVATIONS (SHOW DF, KDB, AND WD)
4708' RKB

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

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

Acidize Well #17-23 with 12,000 gal. 28% HCL in increase production.

**APPROVED BY THE DIVISION OF
OIL, GAS, AND MINING**

DATE: 7-30-80

BY: M. J. Mander

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

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

SIGNED D. J. Fisher TITLE Operations Supt. DATE July 9, 1980

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

- 3 - USGS, Farmington, NM
- 2 - Utah O&G CC, Salt Lake City, UT
- 1 - Southland Royalty Co., Farmington, NM
- 1 - T. M. Isaacs
- 1 - File

*See Instructions on Reverse Side

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUNDRY NOTICES AND REPORTS ON WELLS

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

1. oil well gas well other

2. NAME OF OPERATOR
Phillips Petroleum Company

3. ADDRESS OF OPERATOR
P. O. Box 2920, Casper, Wyoming 82402

4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
AT SURFACE: **1880' WEL & 1980' WEL**
AT TOP PROD. INTERVAL:
AT TOTAL DEPTH:

5. LEASE
14-20-403-393

6. IF INDIAN, ALLOTTEE OR TRIBE NAME
None

7. UNIT AGREEMENT NAME
88-1-4198

8. FARM OR LEASE NAME
Rutherford Well

9. WELL NO.
17-23

10. FIELD OR WILDCAT NAME
Greater Amph

11. SEC., T., R., M.; OR BLK. AND SURVEY OR AREA
Sec. 17-2415-204E

12. COUNTY OR PARISH
San Juan

13. STATE
Utah

14. API NO.
43-077-1578

15. ELEVATIONS (SHOW DF, KDB, AND WD)
4700' HB

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

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

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

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

October 8 through October 20, 1982 -

Acidized w/3000 gal 28% HCL w/4 gal/1000 A-200 and 4 gal/1000 U-46. Displaced w/183 HBW. Returned to Pumping 10/10/80 from Desert Creek Zone I & II Perfs 5478-5644' OA.

Production Before - 9 MOPD, 11 MOPD, 1 MOPD
Production After - 16 MOPD, 19 MOPD, 7 MOPD

RECEIVED
JAN 20 1982

DIVISION OF
OIL, GAS & MINING
Set @ _____ Ft.

Subsurface Safety Valve: Manu. and Type _____

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

SIGNED D. J. Fisher TITLE Operations Dept. DATE January 22, 1982

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

3-5808, Farmington, NM
24th St - 083 00, Salt Lake City, UT
1-File

1-Southland Royalty Company
1-Superior Oil Company

SUNDRY NOTICES AND REPORTS ON WELLS

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

1. OIL WELL <input checked="" type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <input type="checkbox"/>		5. LEASE DESIGNATION AND SERIAL NO. 96-004192 ✓
2. NAME OF OPERATOR Phillips Oil Company		6. IF INDIAN, ALLOTTEE OR TRIBE NAME Navajo
3. ADDRESS OF OPERATOR P. O. Box 2920, Casper, WY 82602		7. UNIT AGREEMENT NAME Ratherford Unit ✓
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface See Attached		8. FARM OR LEASE NAME
14. PERMIT NO. See Attached		9. WELL NO.
15. ELEVATIONS (Show whether DF, RT, OR, etc.)		10. FIELD AND POOL, OR WILDCAT N/A
		11. SEC., T., R., M., OR BLK. AND SURVAY OR AREA See Attached
		12. COUNTY OR PARISH San Juan
		13. STATE Utah

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

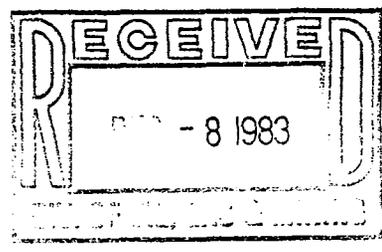
NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF <input type="checkbox"/>	PULL OR ALTER CASING <input type="checkbox"/>	WATER SHUT-OFF <input type="checkbox"/>	REPAIRING WELL <input type="checkbox"/>
FRACTURE TREAT <input type="checkbox"/>	MULTIPLE COMPLETE <input type="checkbox"/>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

(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.) *

To show change of Operator only. Phillips Oil Company assumed operations effective December 1, 1983 from Phillips Petroleum Company. See attached for list of wells.

*190 wells
17-23*



- | | | |
|---------------------|-----------------------|-------------------------|
| Org. & 3-BLM | 1-Robert Klazbuba | 1-Shell Oil Co. |
| 1-The Navajo Nation | 1-Micheal J. Moncrief | 1-Southland Royalty Co. |
| 1-Mary Wiley Black | 1-Richard B. Moncrief | 1-Superior Oil Co. |
| 1-Lawrence E. Brock | 1-Lee W. Moncrief | 1-Leroy Shave |
| 1-Cheveron USA | 1-Mary H. Morgan | 1-Texaco, Inc. |
| 1-Ralph Fixel | 1-W. A. Moncrief | 1-Wade Wiley, Jr. |
| 1-Royal Hogan | 1-W. A. Moncrief, Jr. | 1-Edwin W. Word, Jr. |
| 1-W. O. Keller | 1-L. F. Peterson | 1-File |
| 1-Dee Kelly Corp. | | |

18. I hereby certify that the foregoing is true and correct
SIGNED A. E. Stuart TITLE Area Manager DATE 12/6/83

(This space for Federal or State office use)
APPROVED BY _____ TITLE _____ DATE _____
CONDITIONS OF APPROVAL, IF ANY:

*See Instructions on Reverse Side

WELL NO.WELL LOCATIONAPI NO.STATUS

E14-12	SW NW Sec. 14-T41S-R24E	43-037-15998	Act.
E14-13	NW SW Sec. 14-T41S-R24E	43-037-15999	SI
10-44	SE SE Sec. 10-T41S-R24E	43-037-30451	Act.
15-12	SW NW Sec. 15-T41S-R24E	43-037-15715	Act.
15-14	SW SW Sec. 15-T41S-R24E	43-037-15716	SI
15-22	SE NW Sec. 15-T41S-R24E	43-037-30449	Act.
15-32	SW NE Sec. 15-T41S-R24E	43-037-15717	Act.
15-33	NW SE Sec. 15-T41S-R24E	43-037-15718	SI
15-41	NE NE Sec. 15-T41S-R24E	43-037-15719	Act.
15-42	SE NE Sec. 15-T41S-R24E	43-037-3-448	SI
16-12	SW NW Sec. 16-T41S-R24E	43-037-15720	Act.
16-14	SW SW Sec. 16-T41S-R24E	43-037-15721	Act.
16-32	SW NE Sec. 16-T41S-R24E	43-037-15723	Act.
16-34	SW SE Sec. 16-T41S-R24E	43-037-15724	SI
16-41	NE NE Sec. 16-T41S-R24E	43-037-15725	Act.
17-12	SW NW Sec. 17-T41S-R24E	43-037-15726	Act.
17-14	SW SW Sec. 17-T41S-R24E	43-037-15727	Act.
17-23	NE SW Sec. 17-T41S-R24E	43-037-15728	Act.
17-32	SW NE Sec. 17-T41S-R24E	43-037-15729	Act.
17-34	SW SE Sec. 17-T41S-R24E	43-037-15730	Act.
17-41	NE NE Sec. 17-T41S-R24E	43-037-15731	Act.
17-44	SE SE Sec. 17-T41S-R24E	43-037-15732	Act.
18-11	NW NW Sec. 18-T41S-R24E	43-037-15733	SI
18-13	NW SW Sec. 18-T41S-R24E	43-037-15734	Act.
18-14	SW SW Sec. 18-T41S-R24E	43-037-15735	Act.
18-23	NE SW Sec. 18-T41S-R24E	43-037-30244	Act.
18-32	SW NE Sec. 18-T41S-R24E	43-037-15736	Act.
18-34	SW SE Sec. 18-T41S-R24E	43-037-15737	Act.
19-12	SW NW Sec. 19-T41S-R24E	43-037-15739	Act.
19-14	SW SW Sec. 19-T41S-R24E	43-037-15740	SI
19-32	SW NE Sec. 19-T41S-R24E	43-037-15743	Act.
19-34	SW SE Sec. 19-T41S-R24E	43-037-15744	Act.
20-12	SW NW Sec. 20-T41S-R24E	43-037-15746	Act.
20-14	SW SW Sec. 20-T41S-R24E	43-037-15747	Act.
20-32	SW NE Sec. 20-T41S-R24E	43-037-15749	Act.
20-34	SW SE Sec. 20-T41S-R24E	43-037-15750	Act.
21-12	SW NW Sec. 21-T41S-R24E	43-037-15752	Act.
21-14	SW SW Sec. 21-T41S-R24E	43-037-15753	Act.
21-23	NE SW Sec. 21-T41S-R24E	43-037-13754	Act.
21-32	SW NE Sec. 21-T41S-R24E	43-037-15755	Act.
21-33	NW SE Sec. 21-T41S-R24E	43-037-30447	SI
21-34	SW SE Sec. 21-T41S-R24E	43-037-15756	Act.
22-12	SW NW Sec. 22-T41S-R24E	43-037-15757	SI
22-14	SW SW Sec. 22-T41S-R24E	43-037-15758	SI
24-42	SE NE Sec. 24-T41S-R24E	43-037-15863	Act.
28-11	NW NW Sec. 28-T41S-R24E	43-037-30446	Act.
28-12	SW NW Sec. 28-T41S-R24E	43-037-15336	Act.
29-12	SW NW Sec. 29-T41S-R24E	43-037-15337	Act.
29-32	SW NE Sec. 29-T41S-R24E	43-037-15339	Act.

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

SUBMIT IN TRIPLICATE
(Other instructions on reverse side)

Budget Bureau No. 1004-0138
Expires August 31, 1985

SUNDRY NOTICES AND REPORTS ON WELLS

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

RECEIVED

1. <input type="checkbox"/> OIL WELL <input type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER Flowline		7. UNIT AGREEMENT NAME SW-I-4192	
2. NAME OF OPERATOR Phillips Oil Company		8. FARM OR LEASE NAME Ratherford Unit	
3. ADDRESS OF OPERATOR P. O. Box 2920 Casper, WY 82602		9. WELL NO. 17.23	
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements. See also space 17 below.) At surface SW SW Sec. 16 & SE SE Sec. 17 of T41S-R24E San Juan Co., Utah		10. FIELD AND POOL, OR WILDCAT Greater Aneth	
14. PERMIT NO.		15. ELEVATIONS (Show whether OF, BT, OR, etc.) 4760' MSL	
16. COUNTY OR PARISH		18. STATE	
San Juan Co.		Utah	

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

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF <input type="checkbox"/>	PULL OR ALTER CASING <input type="checkbox"/>	WATER SHUT-OFF <input type="checkbox"/>	REPAIRING WELL <input type="checkbox"/>
FRACTURE TREAT <input type="checkbox"/>	MULTIPLE COMPLETE <input type="checkbox"/>	FRACTURE TREATMENT <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
SHOOT OR ACIDISE <input type="checkbox"/>	ABANDON* <input type="checkbox"/>	SHOOTING OR ACIDISING <input type="checkbox"/>	ABANDONMENT* <input type="checkbox"/>
REPAIR WELL <input type="checkbox"/>	CHANGE PLANS <input type="checkbox"/>	(Other) _____	
(Other) Install flowline <input checked="" type="checkbox"/>		(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)	

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

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

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

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

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

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

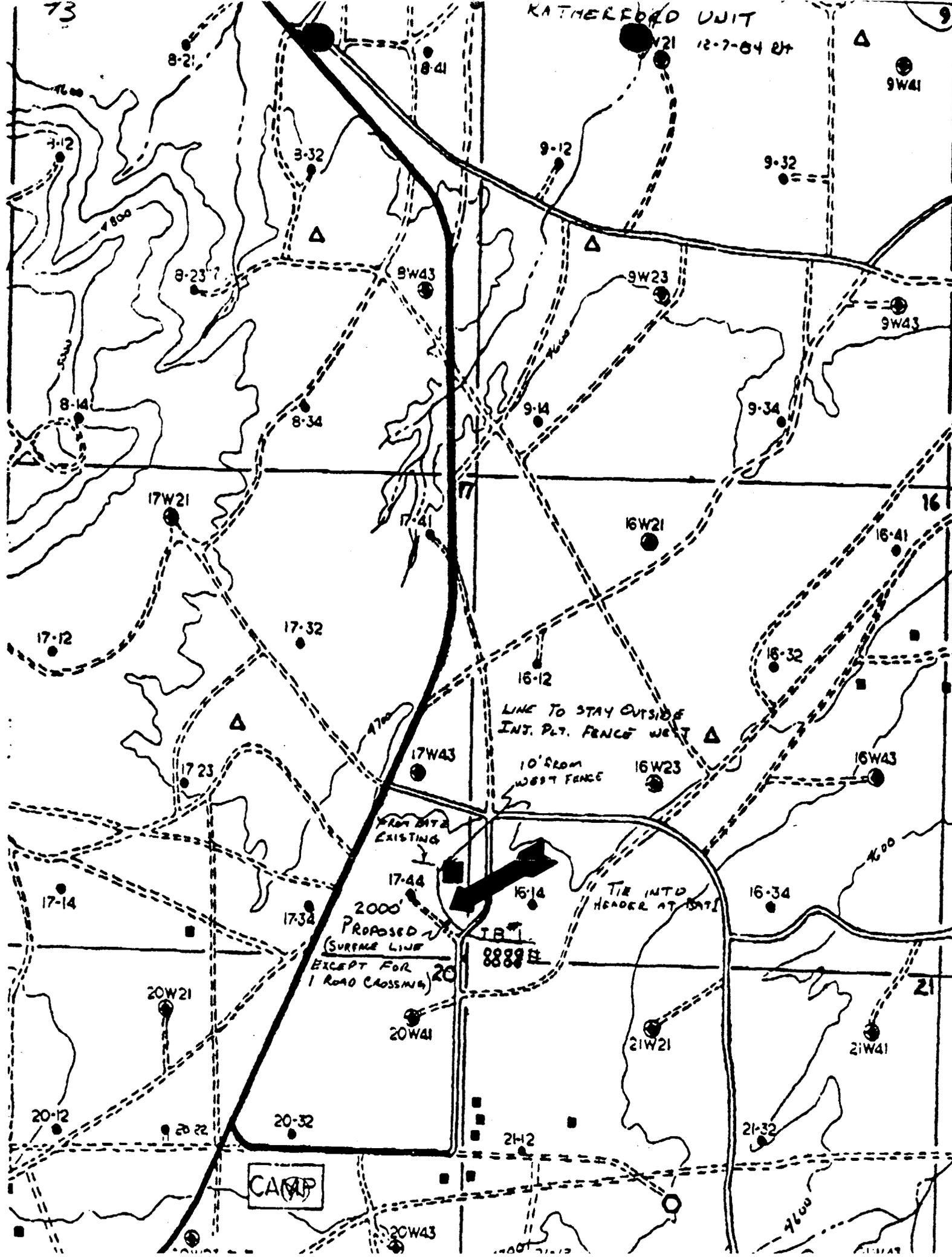
*See instructions on Reverse Side



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

KATHERFORD UNIT

12-7-64 BT



LINE TO STAY OUTSIDE
INT. PLY. FENCE WEST
10' FROM WEST FENCE

2000'
PROPOSED
(SURFACE LINE
EXCEPT FOR
1 ROAD CROSSING)

TIE INTO
HEADER AT DATE

CAMP

T.B.

73

9

16

21

20

8-21

8-41

9-21

12-7-64 BT

9W41

9-12

9-32

8-23

8W43

9W23

9W43

8-14

8-34

9-14

9-34

17W21

17-41

16W21

16-41

17-12

17-32

16-12

16-32

17-23

17W43

16W23

16W43

17-14

17-34

17-44

16-14

16-34

20W21

20W41

21W21

21W41

20-12

20-22

20-32

21-12

21-32

20W43

4600

4600

4600

BUREAU OF LAND MANAGEMENT

SUNDRY NOTICES AND REPORTS ON WELLS

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

6. LEASE DESIGNATION AND SERIAL NO.

14-20-603-353

8. IF INDIAN, ALLOTTEE OR TRIBE NAME

Navajo

080627

7. UNIT ASSIGNMENT NAME

SW-I-4192

8. FARM OR LEASE NAME

Ratherford Unit

9. WELL NO.

17-23

10. FIELD AND POOL, OR WILDCAT

Greater Aneth

11. SEC., T., R., E., OR BLE. AND SURVEY OR AREA

Sec. 17-T41S-R23E

12. COUNTY OR PARISH 13. STATE

San Juan

Utah

1. OIL WELL GAS WELL OTHER

2. NAME OF OPERATOR
Phillips Petroleum Company

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

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements. See also space 17 below.)
At surface
1880' FSL, 1980' FWL (NE SW)

14. PERMIT NO.
43-037-15728

15. ELEVATIONS (Show whether SP, RT, OR, etc.)
4708' RKB

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

NOTICE OF INTENTION TO:

SUBSEQUENT REPORT OF:

TEST WATER SHUT-OFF PULL OR ALTER CASING
FRACTURE TREAT MULTIPLE COMPLETE
SHOOT OR ACIDIZE ABANDON*
REPAIR WELL CHANGE PLANS
(Other) Convert to Water Injection

WATER SHUT-OFF REPAIRING WELL
FRACTURE TREATMENT ALTERING CASING
SHOOTING OR ACIDISING ABANDONMENT*
(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.)*

It is proposed to convert Ratherford Unit #17-23 from a Zone I & II producing well to Zone I water injection. After plugging back to Zone I, the well will be acidized with approximately 6200 gallons of 28% HCl Acid, and placed on injection.

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

- 5-Blm, Farmington, NM
- 2-Utah O&G CC, Salt Lake City, Utah
- 1-P. J. Adamson
- 1-M. Williams, 302 TRW
- 1-J. R. Weichbrodt
- 1-B. J. Murphy
- 1-File RC

RECEIVED
MAY 21 1986

APPROVED BY THE STATE
DIVISION OF UTAH DIVISION OF
OIL, GAS & MINING OIL, GAS, AND MINING
DATE: 7/30/86
BY: [Signature]

Federal approval of this action is required before commencing operations.

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

SIGNED [Signature] TITLE Area Manager DATE May 14, 1986
D. C. Gill

(This space for Federal or State office use)

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

*See Instructions on Reverse Side

Mobil Oil Corporation

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

May 14, 1986

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

Attn: R. J. Firth
Associate Director

RECEIVED
MAY 16 1986

DIVISION OF
OIL, GAS & MINING

SUPERIOR OIL COMPANY MERGER

Dear Mr. Firth:

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

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

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

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

Very truly yours,



CNE/rd
CNE8661

R. D. Baker
Environmental Regulatory Manager



STATE OF UTAH
NATURAL RESOURCES
Oil, Gas & Mining

Norman H. Bangerter, Governor
Dee C. Hansen, Executive Director
Dianne R. Nielson, Ph.D., Division Director

355 W. North Temple • 3 Triad Center • Suite 350 • Salt Lake City, UT 84180-1203 • 801-538-5340

July 18, 1986

072104

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

Gentlemen:

RE: Injection Well Approval - Cause No. UIC-083

Insofar as this Division is concerned, administrative approval is hereby granted to convert the following wells to Class II enhanced recovery injection wells:

RATHERFORD UNIT - San Juan County, Utah

#11-44, Sec. 11, T41S, R23E
#12-22, Sec. 12, T41S, R23E
#12-31, Sec. 12, T41S, R23E
#12-42, Sec. 12, T41S, R23E
#13-24, Sec. 13, T41S, R23E
#13-42, Sec. 13, T41S, R23E

#17-12, Sec. 17, T41S, R24E
#17-23, Sec. 17, T41S, R24E
#17-34, Sec. 17, T41S, R24E
#18-23, Sec. 18, T41S, R24E
#18-32, Sec. 18, T41S, R24E
#18-34, Sec. 18, T41S, R24E

This approval is conditional upon full compliance with the UIC rules and regulations adopted by the Board of Oil, Gas and Mining, and construction and operation of the wells as outlined in the application submitted.

If you have any questions concerning this matter, please do not hesitate to call or write.

Best regards,

Dianne R. Nielson
Director

mfp
7627U

Affidavit of Publication

ADM-358

STATE OF UTAH,
County of Salt Lake

SS.

Sharon Payne

BEFORE THE DIVISION OF OIL, GAS AND MINING DEPARTMENT OF NATURAL RESOURCES STATE OF UTAH CAUSE NO. UIC-083

IN THE MATTER OF THE APPLICATION OF PHILLIPS PETROLEUM COMPANY, FOR ADMINISTRATIVE APPROVAL TO INJECT FLUID INTO WELLS TO BE CONVERTED TO ENHANCED RECOVERY INJECTION WELLS LOCATED IN SECTIONS 11, 12 AND 13, TOWNSHIP 41 SOUTH, RANGE 23 EAST; AND SECTIONS 17, AND 18, TOWNSHIP 41 SOUTH, RANGE 24 EAST, S.L.M., SAN JUAN COUNTY, UTAH.

THE STATE OF UTAH TO ALL INTERESTED PARTIES IN THE ABOVE ENTITLED MATTER.

Notice is hereby given that Phillips Petroleum Company, P.O. Box 2920, Casper, Wyoming 82602, has requested administrative approval from the Division to convert the following listed wells to enhanced recovery water injection wells:

RATHERFORD UNIT
San Juan County, Utah

- *11-44, Sec. 11, T41S, R23E
- *12-22, Sec. 12, T41S, R23E
- *12-31, Sec. 12, T41S, R23E
- *12-42, Sec. 12, T41S, R23E
- *13-24, Sec. 13, T41S, R23E
- *13-42, Sec. 13, T41S, R23E
- *17-12, Sec. 17, T41S, R24E
- *17-23, Sec. 17, T41S, R24E
- *17-34, Sec. 17, T41S, R24E
- *18-23, Sec. 18, T41S, R24E
- *18-32, Sec. 18, T41S, R24E
- *18-34, Sec. 18, T41S, R24E

Injection Interval: Desert Creek 5317 to 5712'
Maximum Estimated Surface Pressure: 3000 psig
Maximum Estimated Water Injection Rate: 500 BWPD

Approval of this Application will be granted unless objections are filed with the division of Oil, Gas and Mining within fifteen days after publication of this Notice. Objections, if any, should be mailed to the Division of Oil, Gas and Mining, Attention: UIC Program Manager, 355 West North Temple, 3 Trid Center, Suite 350, Salt Lake City, Utah 84100-1201.

DATED this 20th day of June, 1986.

STATE OF UTAH
DIVISION OF OIL
AND GAS

Being first duly sworn, deposes and says that he/she is legal advertising clerk of THE SALT LAKE TRIBUNE, a daily newspaper printed in the English language with general circulation in Utah, and published in Salt Lake City, Salt Lake County, in the State of Utah, and of the DESERET NEWS, a daily newspaper printed in the English language with general circulation in Utah, and published in Salt Lake City, Salt Lake County, in the State of Utah.

That the legal notice of which a copy is attached hereto

Cause No. UIC-083

was published in said newspaper on

July 2, 1986

Sharon Payne

Legal Advertising Clerk

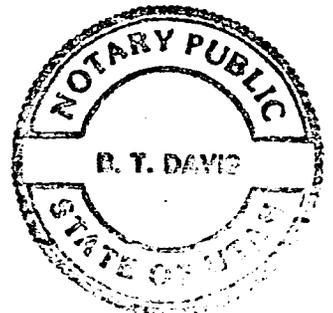
Subscribed and sworn to before me this 10th day of July A.D. 1986

B. J. Davis

Notary Public

My Commission Expires

March 01, 1988



AFFIDAVIT OF PUBLICATION

Public notice

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

IN THE MATTER OF THE APPLICA
TION OF PHILLIPS PETROLEUM
COMPANY, FOR ADMINISTRATIVE
APPROVAL TO INJECT FLUID INTO
WELLS TO BE CONVERTED TO
ENHANCED RECOVERY INJEC
TION WELLS LOCATED IN SEC
TIONS 11, 12 AND 13, TOWNSHIP 41
SOUTH, RANGE 23 EAST AND
SECTIONS 17, AND 18, TOWNSHIP 41
SOUTH, RANGE 24 EAST, S.L.M. SAN
JUAN COUNTY, UTAH

CAUSE NO. UIC-083

THE STATE OF UTAH TO ALL
INTERESTED PARTIES IN THE
ABOVE ENTITLED MATTER.

Notice is hereby given that Phillips
Petroleum Company, P.O. Box 2920,
Casper, Wyoming 82602, has requested
administrative approval from the
Division to convert the following listed
wells to enhanced recovery water
injection wells:

RATHERFORD UNIT,
SAN JUAN COUNTY, UTAH

- #11-44, Sec. 11, T41S, R23E
- #12-22, Sec. 12, T41S, R23E
- #12-31, Sec. 12, T41S, R23E
- #12-42, Sec. 12, T41S, R23E
- #13-24, Sec. 13, T41S, R23E
- #13-42, Sec. 13, T41S, R23E
- #17-12, Sec. 17, T41S, R24E
- #17-23, Sec. 17, T41S, R24E
- #17-34, Sec. 17, T41S, R24E
- #18-23, Sec. 18, T41S, R24E
- #18-32, Sec. 18, T41S, R24E
- #18-34, Sec. 18, T41S, R24E

INJECTION INTERVAL: Desert
Creek 5317' to 5712'

MAXIMUM ESTIMATED SURFACE
PRESSURE: 3000 psig
MAXIMUM ESTIMATED WATER
INJECTION RATE: 500 BWPD

Approval of this Application will be
granted unless objections are filed with
the Division of Oil, Gas and Mining
withing fifteen days after publication of
this Notice. Objections, if any, should be
mailed to the Division of Oil, Gas and
Mining, Attention: UIC Program Mana
ger, 355 West North Temple, 3 Triad
Center, Suite 350, Salt Lake City, Utah
84180-1203.

DATED this 20th day of June, 1986.

STATE OF UTAH
DIVISION OF OIL,
GAS AND MINING
s/ Marjorie L. Anderson
Administrative Assistant

Published in The San Juan Record
July 2, 1986.

I, Joyce Martin, being duly sworn, depose and say that I am the publisher of **The San
Juan Record**, a weekly newspaper of general circulation published at Monticello,
Utah every Wednesday; that notice of Cause No. UIC-083

a copy of which is hereunto attached, was published in the regular and entire issue
of each number of said newspaper for a period of one issues, the
first publication having been made on July 2, 1986. and the
last publication having been made on _____.

Joyce A. Martin

Publisher

Subscribed and sworn to before me this 2nd day of July.

A.D. 1986

Ingrid K Adams

Notary Public residing at Monticello, Utah

My commission expires December 2, 1987

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

---oo0oo---

IN THE MATTER OF THE APPLICATION : CAUSE NO. UIC-083
OF PHILLIPS PETROLEUM COMPANY, :
FOR ADMINISTRATIVE APPROVAL TO :
INJECT FLUID INTO WELLS TO BE :
CONVERTED TO ENHANCED RECOVERY :
INJECTION WELLS LOCATED IN SEC- :
TIONS 11, 12 AND 13, TOWNSHIP 41 :
SOUTH, RANGE 23 EAST; AND SECTIONS :
17, AND 18, TOWNSHIP 41 SOUTH, :
RANGE 24 EAST, S.L.M. SAN JUAN :
COUNTY, UTAH :

---oo0oo---

THE STATE OF UTAH TO ALL INTERESTED PARTIES IN THE ABOVE ENTITLED
MATTER.

Notice is hereby given that Phillips Petroleum Company, P.O. Box
2920, Casper, Wyoming 82602, has requested administrative approval from
the Division to convert the following listed wells to enhanced
recovery water injection wells:

RATHERFORD UNIT - San Juan County, Utah

#11-44, Sec. 11, T41S, R23E	#17-12, Sec. 17, T41S, R24E
#12-22, Sec. 12, T41S, R23E	#17-23 , Sec. 17, T41S, R24E
#12-31, Sec. 12, T41S, R23E	#17-34, Sec. 17, T41S, R24E
#12-42, Sec. 12, T41S, R23E	#18-23, Sec. 18, T41S, R24E
#13-24, Sec. 13, T41S, R23E	#18-32, Sec. 18, T41S, R24E
#13-42, Sec. 13, T41S, R23E	#18-34, Sec. 18, T41S, R24E

INJECTION INTERVAL: Desert Creek 5317' to 5712'
MAXIMUM ESTIMATED SURFACE PRESSURE: 3000 psig
MAXIMUM ESTIMATED WATER INJECTION RATE: 500 BWPD

Approval of this Application will be granted unless objections are
filed with the Division of Oil, Gas and Mining within fifteen days
after publication of this Notice. Objections, if any, should be
mailed to the Division of Oil, Gas and Mining, Attention: UIC Program
Manager, 355 West North Temple, 3 Triad Center, Suite 350, Salt Lake
City, Utah 84180-1203.

DATED this 20th day of June, 1986.

STATE OF UTAH
DIVISION OF OIL, GAS AND MINING


MARJORIE L. ANDERSON
Administrative Assistant



STATE OF UTAH
NATURAL RESOURCES
Oil, Gas & Mining

Norman H. Bangerter, Governor
Dee C. Hansen, Executive Director
Dianne R. Nielson, Ph.D., Division Director

355 W. North Temple • 3 Triad Center • Suite 350 • Salt Lake City, UT 84180-1203 • 801-538-5340

June 23, 1986

San Juan Record
Legal Advertising
Box 879
Monticello, Utah 84535

Gentlemen:

RE: Cause No. UIC-083

Enclosed is a Notice of Application of Administrative Approval before the Division of Oil, Gas and Mining, Department of Natural Resources, State of Utah.

It is requested that this notice be published ONCE ONLY, as soon as possible, but no later than the 2nd day of July, 1986. In the event that said notice cannot be published by this date, please notify me immediately by calling 538-5340.

Upon completion of this request, please send proof of publication and statement of cost to the Division of Oil, Gas and Mining, 355 West North Temple, 3 Triad Center, Suite 350, Salt Lake City, Utah 84180-1203.

Sincerely,

A handwritten signature in cursive script that reads "Marjorie L. Anderson".

Marjorie L. Anderson
Administrative Assistant

mfp

Enclosure



STATE OF UTAH
NATURAL RESOURCES
Oil, Gas & Mining

Norman H. Bangerter, Governor
Dee C. Hansen, Executive Director
Dianne R. Nielson, Ph.D., Division Director

355 W. North Temple • 3 Triad Center • Suite 350 • Salt Lake City, UT 84180-1203 • 801-538-5340

June 23, 1986

Newspaper Agency Corporation
Legal Advertising
143 South Main - Mezzanine Floor
Salt Lake City, Utah 84110

Gentlemen:

RE: Cause No. UIC-083

Enclosed is a Notice of Application of Administrative Approval before the Division of Oil, Gas and Mining, Department of Natural Resources, State of Utah.

It is requested that this notice be published ONCE ONLY, as soon as possible, but no later than the 2nd day of July, 1986. In the event that said notice cannot be published by this date, please notify me immediately by calling 538-5340.

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Sincerely,

Marjorie L. Anderson
for

Marjorie L. Anderson
Administrative Assistant

mfp

Enclosure

UIC-083

Publication was sent to the following:

Utah State Department of Health
Water Pollutioncontrol
Attn: Loren Morton
4241 State Office Building
Salt Lake City, Utah 84114

U.S. Environmental Protection Agency
Suite 1300
Attn: Mike Streiby
999 18th Street
Denver, Colorado 80202-2413

Bureau of Land Management
Fluid Minerals Caller Service #4104
Farmington, New Mexico 87499

Phillips Petroleum Company
PO Box 2920
Casper Wyoming 82602

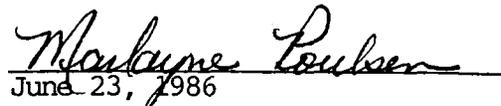
Mobil Oil Corporation
PO Box 5444
Denver, Colorado 80217

Navajo Tribe
Minerals Development
PO Box 146
Window Rock, Arizona 86515

Texaco, Incorporated
PO Box 3360
Casper, Wyoming 82602

Newspaper Agency Corporation
Legal Advertising
143 South Main - Mezzanine Floor
Salt LakeCity, Utah 84110

San Juan Record
Legal Advertising
Box 879
Monticello, Utah 84535


June 23, 1986

LOCATION: NESW S 17 - T41S - R23 E

FIELD: GREATER ANETH

RESERVOIR: Desert Creek Zone I

COMPLETION: Injector
PRESENT STATUS: Conversion

RKB 4708'

GL 4697'

179'

SURFACE CASING: 1 3/8" 27.1#
Ameco

Well #: 17W23

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

1549'

PRODUCTION CASING: 5 1/2"
14# / 15.5# J-55

PERFORATIONS:

5478 - 90

5506 - 10

5520 - 28

5537 - 50

5570 - 83'

PACKER: Baker Model
AB Tension Type Pkr or
Similar Set @ 5378'

Logs on file: _____

Gamma Ray

SP

Neutron Porosity

Electrical Resistivity

Caliper

Microlog

Temperature Survey

RECEIVED
JUN 12 1986

DIVISION OF
OIL, GAS & MINING

PBTD: 5662'

OTD: 5700'

5699'

Phillips Petroleum Company



PHILLIPS PETROLEUM COMPANY

CASPER, WYOMING 82602
BOX 2920

EXPLORATION AND PRODUCTION GROUP

June 9, 1986

RECEIVED
JUN 12 1986

DIVISION OF
OIL, GAS & MINING

State of Utah
Division of Oil, Gas, and Mining
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

Attn: Gil Hunt

RE: Ratherford Unit
San Juan County
Class II Injection Well
Conversions

Dear Mr. Hunt:

Enclosed are applications of conversions for twelve more injection wells in the Ratherford Unit. The well numbers are:

11-W44	13-W24	17-W34
12-W22	13-W42	18-W23
12-W31	17-W12	18-W32
12-W42	17-W23	18-W34

We appreciate the effort put forth in revising and streamlining the UIC program for enhanced recovery wells, the elimination of duplication makes permitting much easier.

The additional information required should not be a burden on the regulated industry. We have listed, on each well bore schematic, the logs on file for that well. We have also enclosed a copy of our letters to mineral lease operators and landowners in the area informing them of these proposed well conversions. The enclosed Attachment 6 is a supplement to the original informational package on the conversion program sent in February 1986. Please contact Renee Taylor at (307) 237-3791 with any questions.

Thank you again for your efforts to make this program more workable for all involved.

Sincerely,

PHILLIPS PETROLEUM COMPANY

D. C. Gill
Area Manager

RCT/fb (23)

Attach

cc: B. J. Murphy - Casper w/o attach
J. R. Weichbrodt - Cortez w/attach.
Casper RC

Casing & Cementing Program
Ratherford Unit

The casing and cementing program at the Ratherford Unit has been designed so that injected fluid or formation water will not be able to enter any fresh water strata. All wells have at least two strings of casing set at approximately 1600' and 5700' (TD). The majority of wells also have a string of casing set at approximately 140'. The following is a summary of the casing and cementing program:

<u>Casing Depth</u>	<u>Range of Casing Sizes</u>	<u>Range of Cement (sx)</u>
140'	20" - 13 5/8"	175 - 125
1600'	13 3/8" - 8 5/8"	800 - 200
5700'	8 5/8" - 5 1/2"	900 - 200

TOWNSHIP PLAT

Owner PHILLIPS PETROLEUM Date 6/13/86

Township 41S Range 24E County SAN JUAN

23E

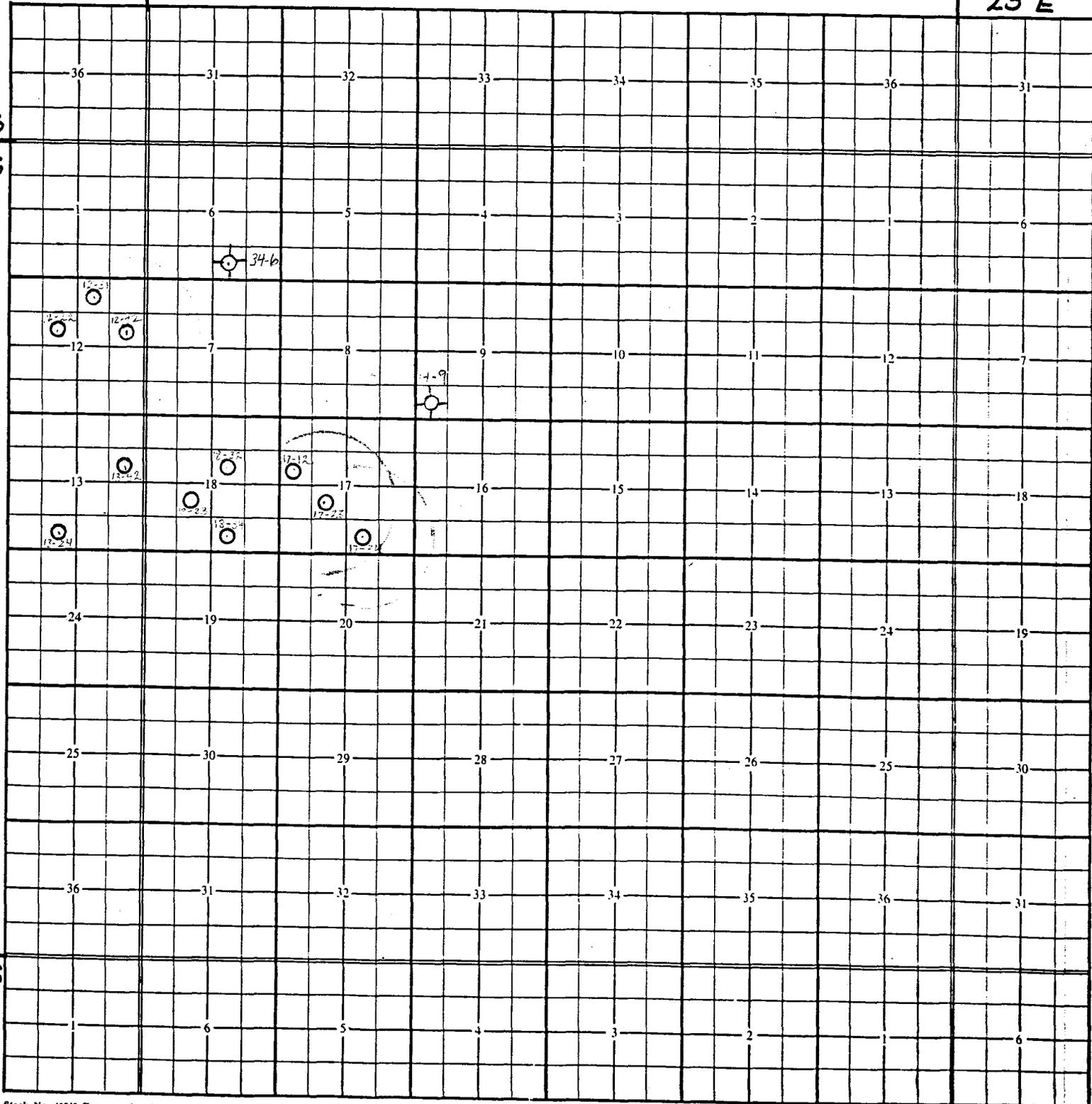
24E

25E

40S

41S

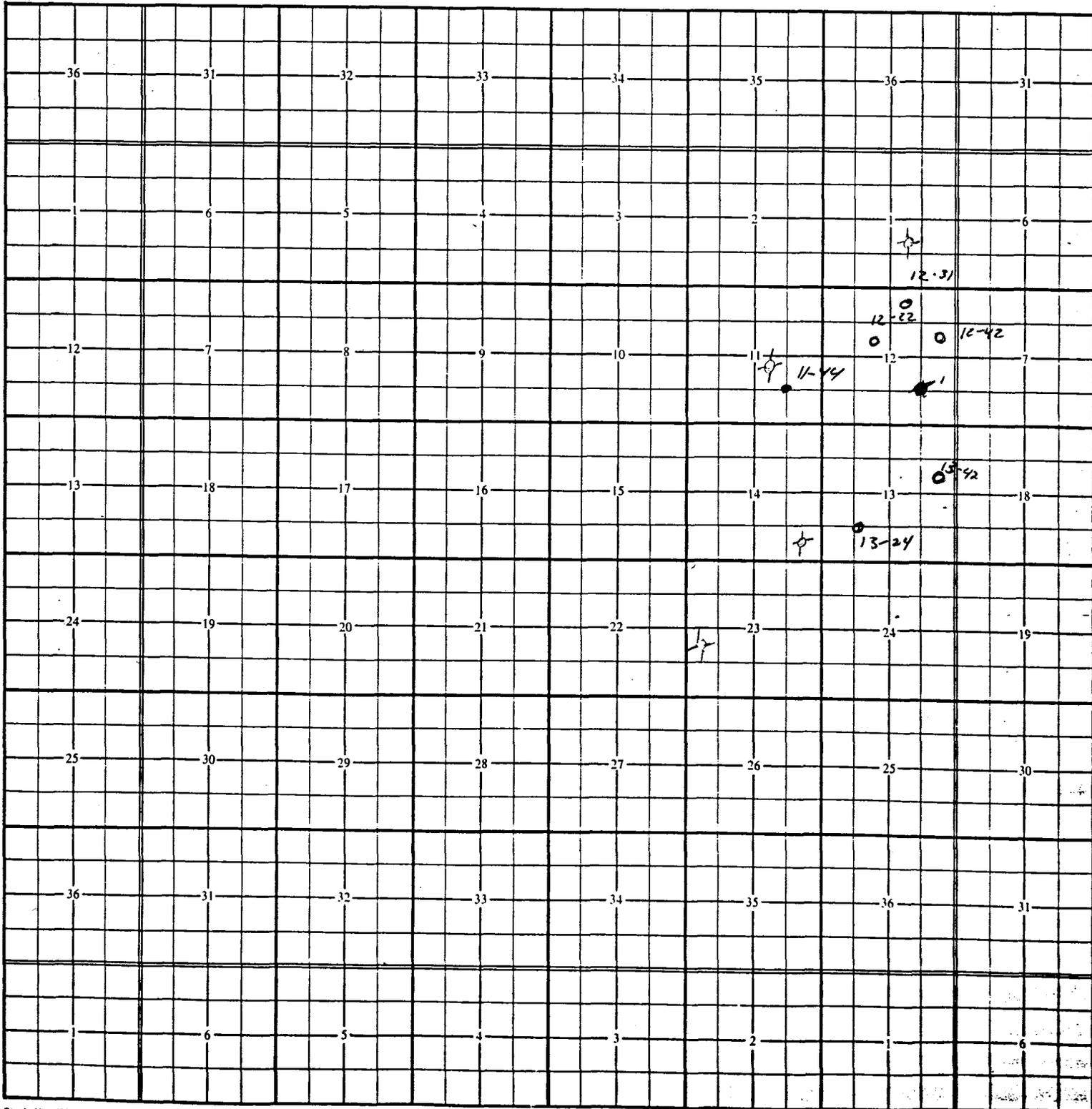
42S



TOWNSHIP PLAT

Owner Phillips Petroleum Date 6/12/86

Township 41S Range 23E County SAN Juan



P.O. Box 2920, Casper, Wyoming 82602

RECEIVED
JUN 12 1986

June 10, 1986

DIVISION OF
OIL, GAS & MINING

Mobile Oil Corp.
P.O. Box 5444
Denver, CO 80217
Attn: Joint Interest Advisor

Re: Ratherford Unit
Injection Well Conversions

Dear Sirs,

Phillips Petroleum Company has made application to the State of Utah, Division of Oil, Gas and Mining to convert twelve existing producing wells to water injection wells in the Ratherford Unit secondary recovery project. The revised rule 502(b)(12) requires that you are notified of these plans and are provided with a copy of the application for injection well (Form DOGM-UIC-1). Under Rule 503 you are provided with the opportunity to object to the proposed application.

"Applications for Injection Well" are attached for the following existing wells:

11-W44	13-W24	17-W34
12-W22	13-W42	18-W23
12-W31	17-W12	18-W32
12-W42	17-W23	18-W34

Please contact Renee Taylor or Blair Murphy at (307) 237-3791 with any questions.

Sincerely,

D. C. Gill
Area Manager

RCT/lt (17)

cc: B. J. Murphy-Casper
J. R. Weichbrodt-Cortez
Casper-RC
St. of Utah OG&M/UIC

P.O. Box 2920, Casper, Wyoming 82602

June 10, 1986

Navajo Tribe
Minerals Department
P.O. Box 146
Window Rock, AZ 86515

Re: Ratherford Unit
Injection Well Conversions

Dear Sirs,

Phillips Petroleum Company has made application to the State of Utah, Division of Oil, Gas and Mining to convert twelve existing producing wells to water injection wells in the Ratherford Unit secondary recovery project. The revised rule 502(b)(12) requires that you are notified of these plans and are provided with a copy of the application for injection well (Form DOGM-UIC-1). Under Rule 503 you are provided with the opportunity to object to the proposed application.

"Applications for Injection Well" are attached for the following existing wells:

11-W44	13-W24	17-W34
12-W22	13-W42	18-W23
12-W31	17-W12	18-W32
12-W42	17-W23	18-W34

Please contact Renee Taylor or Blair Murphy at (307) 237-3791 with any questions.

Sincerely,

D. C. Gill
Area Manager

RCT/lc (17)

cc: B. J. Murphy-Casper
J. R. Weichbrodt-Cortez
Casper-RC
St. of Utah OG&M/UIC

P.O. Box 2920, Casper, Wyoming 82602

June 10, 1986

Texaco, Inc.
P.O. Box 3360
Casper, WY 82602
Attn: A. J. Sanford

Re: Ratherford Unit
Injection Well Conversions

Dear Sirs,

Phillips Petroleum Company has made application to the State of Utah, Division of Oil, Gas and Mining to convert twelve existing producing wells to water injection wells in the Ratherford Unit secondary recovery project. The revised rule 502(b)(12) requires that you are notified of these plans and are provided with a copy of the application for injection well (Form DOGM-UIC-1). Under Rule 503 you are provided with the opportunity to object to the proposed application.

"Applications for Injection Well" are attached for the following existing wells:

11-W44	13-W24	17-W34
12-W22	13-W42	18-W23
12-W31	17-W12	18-W32
12-W42	17-W23	18-W34

Please contact Renee Taylor or Blair Murphy at (307) 237-3791 with any questions.

Sincerely,

D. C. Gill
Area Manager

RCT/lt (17)

cc: B. J. Murphy-Casper
J. R. Weichbrodt-Cortez
Casper-RC
St. of Utah OG&M/UIC

UIC CHECKLIST FOR APPLICATION APPROVAL

OPERATOR Phillips WELL NUMBER Rutherford 17-23
SEC. 17 T. 41S R. 24E COUNTY San Juan
API # 43-037-15728

NEW WELL _____ DISPOSAL WELL _____ ENHANCED RECOVERY WELL ✓

- | | | | | |
|----------------------------------|-----|-----------------|----|----------|
| - Plat showing surface ownership | Yes | <u>Feb. 86*</u> | No | _____ |
| - Application forms complete | Yes | <u>✓</u> | No | _____ |
| - Schematic of well bore | Yes | <u>✓</u> | No | _____ |
| - Adequate geologic information | Yes | <u>Feb. 86</u> | No | _____ |
| - Rate and Pressure information | Yes | <u>Feb. 86</u> | No | _____ |
| - Fluid source | Yes | <u>Feb. 86</u> | No | _____ |
| - Analysis of formation fluid | Yes | <u>Feb. 86</u> | No | _____ |
| - Analysis of injection fluid | Yes | <u>Feb. 86</u> | No | _____ |
| - USDW information | Yes | <u>Feb. 86</u> | No | _____ |
| - Mechanical integrity test | Yes | _____ | No | <u>✓</u> |

Comments: _____

*Info submitted in Feb. 1986

Reviewed by Dorothy Swindel

DESCRIPTION			COMP. TYPE	W.I.	WELL CLASS	PROD. METHOD	WELL TEST										MONTHLY				REMARK				
LEASE CODE	LEASE NAME	WELL NO.					DATE		WELL HEAD PRESSURE PSIG	SEPARATOR		OIL OR COND. B/D	GAS MCF/D	WATER B/D	GOR CF/B	WTR %	OIL OR API	DAYS OPD	ALLOWABLE BBLs. or MCF	OIL or COND. BBLs.	GAS MCF	WATER BBLs.	CODE	DATE	
							MO.	DY.		CHOKES GTHS	PRESS. PSIG													TEMP. °F.	MO.
933028NE	NW 14 41S24E	E14W21S			Q22WI																15	12	10	85	
933028NE	SW 14 41S24E	E14W23S			Q22WI																	15	12	10	85
X933028SE	SW 1 41S23E	1W24S			Q22WI			2250		226				30				6768			07	08	01	86	
933028SW	SE 1 41S23E	1W34S			Q22WI																	15	7	17	9
X933028SE	SE 2 41S23E	2W44S			Q22WI			2325		207				30				6211			17	6	28	86	
933028SE	NE 3 41S24E	3W42S			Q22WI																	15	7	17	80
X933028NE	SE 5 41S24E	5W43S			Q22WI			1075		145				30				4383			17	12	7	84	
933028NE	SW 6 41S24E	6W23S			Q22WI																	15	4	25	80
X933028SW	NW 7 41S24E	7W12S			Q22WI			2250		243				30				7292			11	10	22	86	
X933028SW	SW 7 41S24E	7W14S			Q22WI			2250		129				30				3882			07	08	22	86	
X933028NE	NW 7 41S24E	7W21S			Q22WI			2150		1				30								27	17	8	186
X933028SW	NE 7 41S24E	7W32S			Q22WI			2125		96				30				2890			07	10	09	86	
X933028SW	SE 7 41S24E	7W34S			Q22WI			2075		79				30				2367			07	10	06	86	
X933028NE	NE 7 41S24E	7W41S			Q22WI					203				30				6101			21	2	18	83	
X933028NE	SE 7 41S24E	7W43S			Q22WI			2000		128				30				3838			12	6	26	86	
X933028SW	SW 8 41S24E	8W14S			Q22WI			2150		17				30				516			07	09	16	86	
X933028NE	SE 8 41S24E	8W43S			Q22WI					228				30				6832			21	2	18	83	
933028NE	NW 9 41S24E	9W21S			Q22WI			1500		194				30				5830			17	6	10	85	
X933028NE	SW 9 41S24E	9W23S			Q22WI			100		244				30				7333			17	12	7	84	
X933028NE	NE 9 41S24E	9W41S			Q22WI																	15	12	10	85
X933028NE	SE 9 41S24E	9W43S			Q22WI																	15	12	10	85
X933028NE	NW 10 41S24E	10W21S			Q22WI																	15	12	10	85
X933028NE	SW 10 41S24E	10W23S			Q22WI			1500		165				30				4964			21	2	18	83	
X933028NE	SE 10 41S24E	10W43S			Q22WI			1550		2				30				46			21	2	18	83	
X933028NW	SW 12 41S23E	12W13S			Q22WI			2350		160				30				4805			17	3	19	86	
933028SE	SE 12 41S23E	12W44S			Q22WI																	15	09	02	86
933028SW	NE 13 41S23E	13W32S			Q22WI																	15	4	25	80
X933028NE	NE 13 41S23E	13W41S			Q22WI																	15	7	18	0
X933028SE	NE 13 41S23E	13W42S			Q22WI			2100		444				30				1331			17	07	10	24	86
X933028SE	SE 13 41S23E	13W44S			Q22WI			2225		40				30				1208			17	06	01	86	
933028NE	SE 14 41S23E	14W43S			Q22WI																	15	8	17	83
X933028NE	NW 15 41S24E	15W21S			Q22WI			1175		169				30				5061			21	2	18	83	
X933028NE	SW 15 41S24E	15W23S			Q22WI			2250		54				30				1628			21	2	18	83	
X933028NE	SE 15 41S24E	15W43S			Q22WI			2200		22				30				668			21	2	18	83	
X933028NE	NW 16 41S24E	16W21S			Q22WI			950		159				30				4771			21	2	18	83	
X933028NE	SW 16 41S24E	16W23S			Q22WI			1575		110				30				3309			21	2	18	83	
X933028NE	SE 16 41S24E	16W43S			Q22WI			2300		77				30				2315			17	12	2	85	
X933028NE	NW 17 41S24E	17W21S			Q22WI			2275		432				30				12974			17	08	13	86	
X933028NE	NE 17 41S24E	17W41S			Q22WI			2250		28				30				82507			10	23	86		

Commencement

COMPLETION TYPE: 1st Space, 2nd Space, 3rd Space, S Single, U Upper, C Commingled, M Middle, D Dual, L Lower, T Triple, C Commingled

WELL CLASSIFICATION: O Oil, OC Oil (cond.), AG Asso. gas (dry), AC Asso. gas (cond.), NG Non-asso. gas (dry), NC Non-asso. gas (cond.), GI Gas Injection

WI Water injection, WD Salt water disposal, WS Water supply, M Miscellaneous

PRODUCING METHOD: NF Natural flow, PL Plunger lift

GC Gas lift, continuous, GI Gas lift, intermittent, PE Pump, rod, engine, PM Pump, rod, elec. motor, HP Hydraulic pump, RP Reda pump, S Swabbing, M Miscellaneous

WELL TEST DATE: ES Some data, estimated

CHOKE SIZE: AD Adjustable, NO No choke

MONTHLY ALLOWABLE: D Discovery allow, L Limited allow, M Marginal, P Penalized (high GOR), MONTHLY GAS, V Some gas vented, E Estimated

REMARK CODE: 01 Drilled and completed, 02 Acquired, 03 Trld. to EDP system, 04 Recompletion (new), 05 New comp. (commingling stopped), 06 New comp. (commingling started), 07 New classification (converted), 10 New identification, 11 Stimulation treatment, 12 Workover, same reservoir, 13 Artificial lift installed, 14 Reclassified (oil or gas), 15 Shut down (only), 16 Shut down (service work), 17 Activated, 20 P&A, 21 Sold for plugging, 22 Sold for future operations, 23 Transferred from EDP system, 24 Completion abandoned, 25 Old comp. (commingling stopped), 26 Old comp. (before commingling), 27 Old classification (converted)

DISTRICT 34 DATE 11/18/86 PAGE 1

Commencement

MONTHLY REPORT OF ENHANCED RECOVERY PROJECT - PART 2 Page 3

MONTHLY MONITORING OF INJECTION WELLS

Well Name	Inj. Press.	Inj. Rate	Annulus Press.	Monthly Inj. Vol.
✓ 14W4343-037-16410	SI	SI		SI
✓ 15W2143-037-16411	0	71		2202
✓ 15W2343-037-16412	2400	71		2202
✓ 15W4343-037-16413	2125	27		836
✓ 16W1243-037-15720	2350	255		7903
✓ 16W1443-037-15721	2325	19		588
✓ 16W2143-037-16414	275	313		9699
✓ 16W2343-037-15722	1200	168		3190
✓ 16W4343-037-16415	2150	144		4463
✓ 17W1243-037-15726	2080	83		2574
✓ 17W1443-037-15727	1930	424		11,444
✓ 17W2143-037-16416	2120	0		3
11-20-84 ✓ 17W2343-037-15728	2140	60		1858
✓ 17W3243-037-15729	0	211		1055
✓ 17W3443-037-15730	750	509		6616
✓ 17W4143-037-15731	2150	58		1796
✓ 17W4343-037-16417	2400	68		2105
✓ 18W1243-037-31153	2125	221		6851
✓ 18W1443-037-15735	2150	16		495
✓ 18W2143-037-16418	2050	38		1177
✓ 18W2343-037-30244	2100	102		3162
✓ 18W3243-037-15736	2100	58		1796

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUNDRY NOTICES AND REPORTS ON WELLS

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

1. OIL WELL <input type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER Water Injector		4. LEASE DESIGNATION AND SERIAL NO. 14-20-603-353
2. NAME OF OPERATOR Phillips Petroleum Company		5. IF INDIAN, ALLOTTEE OR TRIBE NAME NAVAJO
3. ADDRESS OF OPERATOR P.O. Box 2920, Casper, WY 82602		6. UNIT ASSIGNMENT NAME SW-I-4192
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements. See also space 17 below.) At surface 1880' FSL, 1980' FWL NE SW		7. PAGE OR LEASE NAME Ratherford Unit
8. PERMIT NO. API# 43-037-15728		8. WELL NO. 17W23
9. ELEVATIONS (Show whether SP, ST, GR, etc.) 4708' RKB		9. FIELD AND POOL, OR WILDCAT Greater Aneth
10. COUNTY OR PARISH San Juan		10. SEC. T. R. N. OR B.L.E. AND SURVEY OR AREA R 24 Sec. 17-T41S-R23E
11. STATE Utah		11. COUNTY OR PARISH San Juan

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

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

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

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

Oct. 31, 1986 through Nov. 19, 1986

MI WS 10/31/86. Test for comm, found comm between Zones I & II. Set pkr at 5417'. Sqzd w/200 sx Class B cmt, no sqz. Mixed another 100sx, reached 1500 psi sqz. Drld out cmt to 5560'. Tested sqz, did not hold. Spotted 10 bbls acid on Zone II, formation broke down between Zones I & II. Set 5-1/2" cmt retainer at 5447'. Sqzd w/18 sx cmt. Drld out cmt to 5565'. Test squeeze, did not hold. Set cmt retainer at 5560'. Sqz leak below 5550' using 100 sx Class B cmt. Sqz to 1500 psi. Perf 5478-5547' OA. Acidized w/5000 gal 28% HCL. Run 5-1/2" pkr w/167 jts 2-3/8" tbg, set at 5408'. RR 11/19/86. HU to injection 11/20/86.

Production Before Shut-down
Injection After 227 BWPD @ 2275 psi

RECEIVED

AUG 4 1987

DEPARTMENT OF OIL
GAS & MINING

- 4-BLM, Farmington, NM
- 2-Utah O&G CC, SLC, UT
- 1-M. Williams, B¹ville
- 1-J. Landrum, Denver
- 1-J. Reno, Cortez
- 1-Chieftain
- 1-Mobil Oil
- 1-Texaco, Inc.
- 1-Chevron USA
- 1-File RC

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

SIGNED D. C. GILL TITLE Area Manager DATE 7/27/87

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

*See instructions on Reverse Side

DOWN HOLE SCHEMATIC

Date: 8/6/87

RATHERFORD Unit # 17W23

LOCATION NE SW sec. 17

RKB Elev. 4708'

T41S-R24E

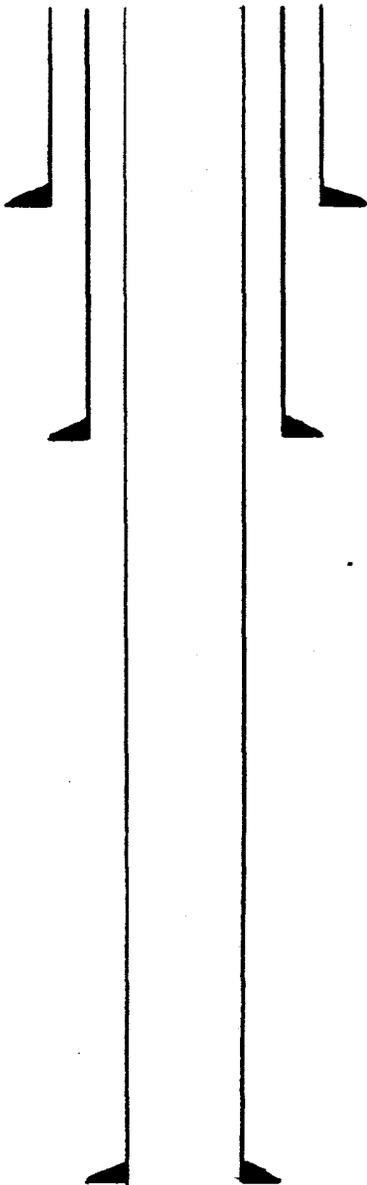
GL ELEV. 4696'

Well Drld 3/30/58

RKB Above GL' 12'

Well converted to injector 11/19/86

42 781 50 SHEETS 5 SQUARE
42 782 100 SHEETS 5 SQUARE
42 783 200 SHEETS 5 SQUARE
NATIONAL



CONDUCTOR CSG 13³/₈ @ 179'

SURFACE CSG. 8⁵/₈ @ 1549'

TOC 3500' CALC

Tubing 2⁷/₈ @ 5644' Luoline HT2

PACKER Otis Inter-lock packer
@ 5560

PERFS	<u>5478 - 90</u>	<u> -</u>	<u> -</u>
	<u>5506 - 10</u>	<u> -</u>	<u> -</u>
	<u>5520 - 28</u>	<u> -</u>	<u> -</u>
	<u>5537 - 50</u>	<u> -</u>	<u> -</u>

PBTD 5560'

PRODUCTION CSG. @
2-55, 14# 15.5#

All Perfs ZONE I unless noted

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

SUBMIT IN TRIPPLICATE*
(Other instructions on reverse side)

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

SUNDRY NOTICES AND REPORTS ON WELLS

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

<p>1. <input type="checkbox"/> OIL WELL <input type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER WATER INJECTION & WATER SUPPLY WELLS</p> <p>2. NAME OF OPERATOR PHILLIPS PETROLEUM COMPANY</p> <p>3. ADDRESS OF OPERATOR 152 N. DURBIN, 2ND FLOOR, CASPER, WYOMING 82601</p> <p>4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface <u>SEE ATTACHED</u></p>		<p>5. LEASE DESIGNATION AND SERIAL NO. 6. IF INDIAN, ALLOTTEE OR TRIBE NAME SW-I-4192</p> <p>7. UNIT AGREEMENT NAME RATHERFORD UNIT #7960041920</p> <p>8. FARM OR LEASE NAME</p> <p>9. WELL NO. VARIOUS (see attached)</p> <p>10. FIELD AND POOL, OR WILDCAT GREATER ANETH</p> <p>11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA Sections 1 thru 30 T41S - R23E & 24E</p> <p>12. COUNTY OR PARISH 13. STATE San Juan Utah</p>
<p>14. PERMIT NO.</p>	<p>15. ELEVATIONS (Show whether DF, ST, OR, etc.) <i>APPROVED</i> MAR 20 1989 <i>BLM, CAS & WYOMING</i></p>	

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

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

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

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

(former Operator - Phillips Oil Company)

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

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

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

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY: _____

*See Instructions on Reverse Side

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUBMIT IN ORIGINAL STATE*
(Other information on reverse side)

Form approved.
Budget Bureau No. 1004-015
Expires August 31, 1985

SUNDRY NOTICES AND REPORTS ON WELLS

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

1. OIL WELL <input type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <input checked="" type="checkbox"/> Water Injection		5. LEASE DESIGNATION AND SERIAL NO. 14-20-603-355
2. NAME OF OPERATOR Phillips Petroleum Company		6. IF INDIAN, ALLOTTEE OR TRIBE NAME Navajo
3. ADDRESS OF OPERATOR P. O. Box 1150, Cortez, CO 81321		7. UNIT AGREEMENT NAME SW-I-4192
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements. See also space 17 below.) At surface 1880' FSL & 1980' FWL		8. FARM OR LEASE NAME Rutherford Unit
14. PERMIT NO. 43-037-15728		9. WELL NO. #17W23
15. ELEVATIONS (Show whether DF, RT, GR, etc.) 4708' GL		10. FIELD AND POOL, OR WILDCAT Greater Aneth
12. COUNTY OR PARISH San Juan		11. SEC., T., E., M., OR BLK. AND SURVEY OR AREA Sec. 17-T41S-R24E
13. STATE Utah		

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MAY 01 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 <input type="checkbox"/>	PULL OR ALTER CASING <input type="checkbox"/>	WATER SHUT-OFF <input type="checkbox"/>	REPAIRING WELL <input type="checkbox"/>
FRACTURE TREAT <input type="checkbox"/>	MULTIPLE COMPLETE <input type="checkbox"/>	FRACTURE TREATMENT <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
SHOOT OR ACIDIZE <input type="checkbox"/>	ABANDON* <input type="checkbox"/>	SHOOTING OR ACIDIZING <input checked="" type="checkbox"/>	ABANDONMENT* <input type="checkbox"/>
REPAIR WELL <input type="checkbox"/>	CHANGE PLANS <input type="checkbox"/>	(Other) <input type="checkbox"/>	

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

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

October 31, 1988 thru November 12, 1988

MI & RU Well Service Unit 10/31/88. Release packer & POOH w/tubing. Clean out to 5559' with bit & scraper. RIH w/packer, set at 5473'. Reset packer at 5379'. Acidized well w/1800 gal. 15% HCl. POOH w/packer. Run casing inspection log. RIH w/injection packer and lined tubing, set packer @ 5413'. Performed UIC test. Tested OK. (Tested to 1100 psi for 15 min. No drop.) Return well to injection. Release rig 11/12/88.

Injection Before: 31 BWPD @ 2500 psi
Injection After: 32 BWPD @ 2500 psi

- 5-BLM, Farmington, NM
- 2-Utah O&G, CC
- 1-M. Williams, Bartlesville
- 1-S. H. Oden, Casper
- 1-Chieftain
- 1-Mobil Oil
- 1-Texaco, Inc.
- 1-Chevron, USA
- 1-Cortez Office - RC

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

SIGNED M. L. Murgin

TITLE DIST. SUPT.

DATE 4/27/89

(This space for Federal or State office use)

APPROVED BY _____
CONDITIONS OF APPROVAL, IF ANY:

TITLE _____

DATE _____

*See Instructions on Reverse Side

UIC

STATE OF UTAH
DIVISION OF OIL, GAS AND MINING
OIL AND GAS INSPECTION RECORD

OPERATOR Phillips LEASE _____
WELL NO. 11 New Tr. 17W23 API 43-037-15928
SEC. 17 T. 41S R. 24E CONTRACTOR _____
COUNTY S/J FIELD G/A

NE
SW

DRILLING/COMPLETION/WORKOVER:

APD WELL SIGN HOUSEKEEPING BOPE
 SAFETY POLL. CONTROL SURFACE USE PITS
 OPERATIONS OTHER

SHUT-IN _____ / TA _____ :
 WELL SIGN HOUSEKEEPING EQUIPMENT* SAFETY
 OTHER

ABANDONED:
 MARKER HOUSEKEEPING REHAB. OTHER

PRODUCTION: WTW
 WELL SIGN HOUSEKEEPING EQUIPMENT* FACILITIES*
 METERING* POLL. CONTROL PITS DISPOSAL
 SECURITY SAFETY OTHER

GAS DISPOSITION:
 VENTED/FLARED SOLD LEASE USE

LEGEND: Y - YES OR SATISFACTORY
N - NO OR UNSATISFACTORY
NA - NOT APPLICABLE

*FACILITIES INSPECTED: W/A

REMARKS: well is injecting

ACTION: _____

INSPECTOR: AA DATE 7/19/89

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
Budget Bureau No. 1004-1135
Expires September 30, 1990

SUNDRY NOTICES AND REPORTS ON WELLS

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

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

6. If Indian, Allottee or Tribe Name
Navajo Tribal

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

8. Well Name and No.
Ratherford Unit #17W23

9. API Well No.
43-037-15728

10. Field and Pool, or Exploratory Area
Greater Aneth

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

SUBMIT IN TRIPLICATE

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SEP 06 1990

1. Type of Well
 Oil Well Gas Well Other

2. Name of Operator
Phillips Petroleum Company

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

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
1980' FWL & 1880' FSL, NE SW, Sec. 17-T41S-R24E

DIVISION OF
OIL, GAS & MINING

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

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

August 6, 1990 Through August 9, 1990

MI & RU well service unit 8/6/90. ND wellhead, NU BOP. Rel 5-1/2" Otis Interlock pkr & COOH w/167 jts 2-3/8" Rice duolined tbg. GIH w/blade bit & csg scraper on 70 jts workstring & cleaned out well to 5554'. COOH w/workstring, csg scraper, and bit, and GIH w/5-1/2" Otis Interlock pkr w/on-off tool & expendable tbg test plug & 167 jts Rice duolined 2-3/8" tbg, drifting barrier rings and testing tbg to 3000 psi. OK. Set pkr at 5408' & tested annulus to 1000 psi, OK. Disengaged on/off tool & pmpd 120 bbls wtr with 1/2 drum Well Chem 840 as pkr fluid. Engaged on/off tool. ND BOP, NU wellhead. Pressured annulus to 1000 psi for 45 min for UIC test. OK. Hooked up inj line, RD & MO well service, and returned well to injection 8/9/90.

Injection Rate Prior to Work - 34 BWPD @ 2550 psi
Injection Rate After Work - 69 BWPD @ 2600 psi

Distribution

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

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

Signed S. H. Oden S. H. Oden Title District Superintendent

Date September 4, 1990

(This space for Federal or State office use)

Approved by _____
Conditions of approval, if any:

Title _____

ASST. DIR.

Date _____

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.

MONTHLY OIL AND GAS PRODUCTION REPORT

OPERATOR NAME AND ADDRESS:

ACCOUNT NUMBER: N0772

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

RECEIVED

AUG 16 1993

REPORT PERIOD (MONTH/YEAR):

6 / 93

DIVISION OF
OIL, GAS & MINING

AMENDED REPORT (Highlight Changes)

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

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

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

Date: 8/11/93

Name and Signature: PAT KONKEL

Pat Konkell

Telephone Number: 505 599-3452

MONTHLY OIL AND GAS DISPOSITION REPORT

OPERATOR NAME AND ADDRESS:

L.B. Sheffield
~~BRIAN BERRY~~
~~MEPNA 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.
Jc*

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

RECEIVED

SEP 13 1993

DIVISION OF
OIL, GAS & MINING

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

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

Date: 9/5/93

Name and Signature: Lwell B Sheffield

Telephone Number: 303.565.2212
244.658.2578

STATE OF UTAH
DIVISION OF OIL, GAS AND MINING

3. 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

7. UNIT AGREEMENT NAME

RATHERFORD UNIT

8. FARM OR LEASE NAME

9. WELL NO.

10. FIELD AND POOL, OR WILDCAT

GREATER ANETH

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

1. OIL WELL GAS WELL OTHER

2. NAME OF OPERATOR

MOBIL OIL CORPORATION

3. ADDRESS OF OPERATOR

P. O. BOX 633 MIDLAND, TX 79702

SEP 13 1993

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.)

See also space 17 below.)
At surface

At proposed prod. zone

DIVISION OF
OIL, GAS & MINING

14. API NO.

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

12. COUNTY

SAN JUAN

13. STATE

UTAH

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

NOTICE OF INTENTION TO:

TEST WATER SHUT-OFF

FRACTURE TREAT

SHOOT OR ACIDIZE

REPAIR WELL

(Other)

PULL OR ALTER CASING

MULTIPLE COMPLETE

ABANDON

CHANGE PLANS

SUBSEQUENT REPORT OF:

WATER SHUT-OFF

FRACTURE TREATMENT

SHOOTING OR ACIDIZING

(Other) CHANGE OF OPERATOR

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

REPAIRING WELL

ALTERING CASING

ABANDONMENT*

APPROX. DATE WORK WILL START _____

DATE OF COMPLETION _____

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

* Must be accompanied by a cement verification report.

AS OF JULY 1, 1993, MOBIL OIL CORPORATION IS THE OPERATOR OF THE RATHERFORD UNIT. ATTACHED ARE THE INDIVIDUAL WELLS.

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

SIGNED

Shirley Todd

TITLE

ENV. & REG TECHNICIAN

DATE

9-8-93

(This space for Federal or State office use)

APPROVED BY _____

TITLE _____

DATE _____

CONDITIONS OF APPROVAL, IF ANY:

OCT 25 1993

TRANSFER OF AUTHORITY TO INJECT - UIC FORM 5

OIL, GAS & MINING

Well name and number: _____
Field or Unit name: RATHERFORD UNIT API no. _____
Well location: QQ _____ section _____ township _____ range _____ county _____
Effective Date of Transfer: July 1, 1993

CURRENT OPERATOR

Transfer approved by:

Name Ed Hasely Company Phillips Petroleum Company
Signature Ed Hasely Address 5525 HWY. 64
Title Environmental Engineer 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 [Signature] Title TEC Manager
Approval Date 10-27-93

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

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

ORDER

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

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

TOWNSHIP 41 SOUTH, RANGE 23 EAST, 91RM

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

TOWNSHIP 41 SOUTH, RANGE 24 EAST, 91RM

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

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

of the monetary value, if any, to be attributed to three test wells drilled within the Rutherford 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 Rutherford 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 Rutherford Unit Agreement has been approved by the various signatory parties as fair, reasonable and acceptable.

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

ORDER

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

1. Unit operation of the Rutherford Unit Area under the Rutherford 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 Rutherford 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

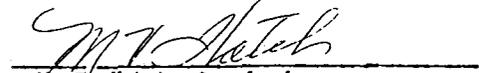
and shall be subject to approval by the Commission or its delegated representative, which approval may be given without notice or hearing, unless otherwise ordered or directed by the Commission.

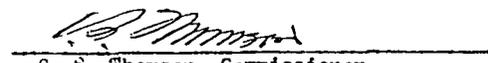
Dated this 13th day of September, 1961.

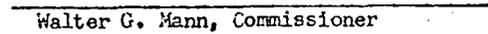
THE OIL AND GAS CONSERVATION
COMMISSION OF THE STATE OF UTAH


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.

File Rutherford Unit (GC)

RECEIVED
BLM

JUL 27 AM 11:44

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

070 FARMINGTON, NM

ARES/543

JUL 23 1993

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

MINERAL RIGHTS	
NO. 1572	
DATE	
BY	
3	
2	
OTHER	
ALL COPY	
FILE	

Dear Mr. Cox:

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

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

Sincerely,

ACTING Area Director

Enclosure

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS

RECEIVED
BLM

DESIGNATION OF OPERATOR

Phillips Petroleum Company is, on the records of the Bureau of Indian Affairs, operator of the Rutherford Unit, ^{070 FARMINGTON, NM}

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

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

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

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

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

Attached hereto as Exhibit "A"

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

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

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

Attached is the appropriate documentation relevant to this document.

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

Phillips Petroleum Company

June 17, 1993

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

Mobil Exploration and Producing
North America Inc.

June 11, 1993

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

[Signature] ACTING AREA DIRECTOR 7/9/93
APPROVED BY TITLE DATE

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

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

EXHIBIT "A"

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

EXHIBIT "C"

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

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

100% Indian Lands

TOTAL 12,909.74

100.0000000

Division of Oil, Gas and Mining
PHONE CONVERSATION DOCUMENTATION FORM

Route original/copy to:

Well File _____

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

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

Other
OPERATOR CHANGE

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

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

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

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

Division of Oil, Gas and Mining
OPERATOR CHANGE WORKSHEET

Routing:

1	VEC/47-S4
2	DTS/58-ALF
3	VLC
4	RJF
5	IFC
6	PL

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

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

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

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

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

Name: **SEE ATTACHED**	API: <u>43-037-15728</u>	Entity: _____	Sec _____	Twp _____	Rng _____	Lease Type: _____
Name: _____	API: _____	Entity: _____	Sec _____	Twp _____	Rng _____	Lease Type: _____
Name: _____	API: _____	Entity: _____	Sec _____	Twp _____	Rng _____	Lease Type: _____
Name: _____	API: _____	Entity: _____	Sec _____	Twp _____	Rng _____	Lease Type: _____
Name: _____	API: _____	Entity: _____	Sec _____	Twp _____	Rng _____	Lease Type: _____
Name: _____	API: _____	Entity: _____	Sec _____	Twp _____	Rng _____	Lease Type: _____
Name: _____	API: _____	Entity: _____	Sec _____	Twp _____	Rng _____	Lease Type: _____

OPERATOR CHANGE DOCUMENTATION

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

ENTITY REVIEW

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

BOND VERIFICATION (Fee wells only)

- 1. (Rule R615-3-1) The new operator of any fee lease well listed above has furnished a proper bond.
- 2. A copy of this form has been placed in the new and former operators' bond files.
- 3. The former operator has requested a release of liability from their bond (yes/no) no. Today's date 11-17 1993. If yes, division response was made by letter dated 11-17 1993.

LEASE INTEREST OWNER NOTIFICATION RESPONSIBILITY

- 1. (Rule R615-2-10) The former operator/lessee of any fee lease well listed above has been notified by letter dated 11-17 1993, of their responsibility to notify any person with an interest in such lease of the change of operator. Documentation of such notification has been requested.
- 2. Copies of documents have been sent to State Lands for changes involving State leases.

FILMING

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

FILING

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

COMMENTS

931006 BIA/Bhm Approved 7-9-93.

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

PA'ed

PA'ed

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

SUNDRY NOTICES AND REPORTS ON WELLS

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

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

6. If Indian, Allottee or Tribe Name
NAVAJO TRIBAL

SUBMIT IN TRIPLICATE

7. If Unit or CA, Agreement Designation
RATHERFORD UNIT

1. Type of Well

Oil Well Gas Well Other

8. Well Name and No.

RATHERFORD UNIT 17W-23

2. Name of Operator

MOBIL EXPLORATION & PRODUCING US, AS AGENT FOR MEPNA

9. API Well No.

43-037-15728

3. Address and Telephone No.

P. O. BOX 633, MIDLAND, TX 79702

(915) 688-2585

10. Field and Pool, or exploratory Area
GREATER ANETH

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

1880' FSL, 1980' FWL; SEC 17, T41S, R24E

11. County or Parish, State

SAN JUAN, UT

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

TYPE OF SUBMISSION

Notice of Intent
 Subsequent Report
 Final Abandonment Notice

TYPE OF ACTION

Abandonment
 Recompletion
 Plugging Back
 Casing Repair
 Altering Casing
 Other ACIDIZE

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

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

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

08/27/93 MIRU. CLEAN OUT TO 5554' PBD. CIRC CLEAN. ACDZ W/4000 GALS 15% HCL ACROSS PERFS RDMO. RETURN WELL TO INJECTION.

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

Signed D. Swin for Shily Todd Title ENV. & REG. TECHNICIAN

Date 5-20-94

(This space for Federal or State office use)

Approved by _____ Title _____

Date fox 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.

PHONE CONVERSATION DOCUMENTATION FORM

Route original/copy to:

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

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

Other
OPER NM CHG _____

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

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

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

of (Company/Organization) _____

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

4. Highlights of Conversation: _____

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

Division of Oil, Gas and Mining
OPERATOR CHANGE WORKSHEET

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

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

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

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

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

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

Name: <u>** SEE ATTACHED **</u>	API: <u>037-15728</u>	Entity: _____	Sec _____	Twp _____	Rng _____	Lease Type: _____
Name: _____	API: _____	Entity: _____	Sec _____	Twp _____	Rng _____	Lease Type: _____
Name: _____	API: _____	Entity: _____	Sec _____	Twp _____	Rng _____	Lease Type: _____
Name: _____	API: _____	Entity: _____	Sec _____	Twp _____	Rng _____	Lease Type: _____
Name: _____	API: _____	Entity: _____	Sec _____	Twp _____	Rng _____	Lease Type: _____
Name: _____	API: _____	Entity: _____	Sec _____	Twp _____	Rng _____	Lease Type: _____
Name: _____	API: _____	Entity: _____	Sec _____	Twp _____	Rng _____	Lease Type: _____

OPERATOR CHANGE DOCUMENTATION

- N/A 1. (Rule R615-8-10) Sundry or other legal documentation has been received from former operator (Attach to this form).
- N/A 2. (Rule R615-8-10) Sundry or other legal documentation has been received from new operator (Attach to this form).
- N/A 3. The Department of Commerce has been contacted if the new operator above is not currently operating any wells in Utah. Is company registered with the state? (yes/no) _____ If yes, show company file number: _____.
- N/A 4. (For Indian and Federal Wells ONLY) The BLM has been contacted regarding this change (attach Telephone Documentation Form to this report). Make note of BLM status in comments section of this form. Management review of **Federal and Indian** well operator changes should take place prior to completion of steps 5 through 9 below.
- Yes 5. Changes have been entered in the Oil and Gas Information System (Wang/IBM) for each well listed above. (8-3-95)
- LWP 6. Cardex file has been updated for each well listed above. 8-31-95
- LWP 7. Well file labels have been updated for each well listed above. 9-28-95
- Yes 8. Changes have been included on the monthly "Operator, Address, and Account Changes" memo for distribution to State Lands and the Tax Commission. (8-3-95)
- Yes 9. A folder has been set up for the Operator Change file, and a copy of this page has been placed there for reference during routing and processing of the original documents.

ENTITY REVIEW

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

BOND VERIFICATION (Fee wells only)

** No Fee Lease Wells at this time!*

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

LEASE INTEREST OWNER NOTIFICATION RESPONSIBILITY

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

FILMING

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

FILING

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

COMMENTS

950803 LIC F5/Not necessary!

STATE OF UTAH
INVENTORY OF INJECTION WELLS

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

SUNDRY NOTICES AND REPORTS ON WELLS

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

5. Lease Designation and Serial No.

14-20-603-353

6. If Indian, Allottee or Tribe Name

NAVAJO TRIBAL

7. If Unit or CA, Agreement Designation

RATHERFORD UNIT

8. Well Name and No.

RATHERFORD 17-W-23

9. API Well No.

43-037-15728

10. Field and Pool, or exploratory Area

GREATER ANETH

11. County or Parish, State

SAN JUAN UT

SUBMIT IN TRIPLICATE

1. Type of Well

Oil Well Gas Well Other

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

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

3. Address and Telephone No.

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

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

1880' FSL & 1980' FWL (NW/SW)
SEC. 17, T41S, R24E

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

TYPE OF SUBMISSION

- Notice of Intent
 Subsequent Report
 Final Abandonment Notice

TYPE OF ACTION

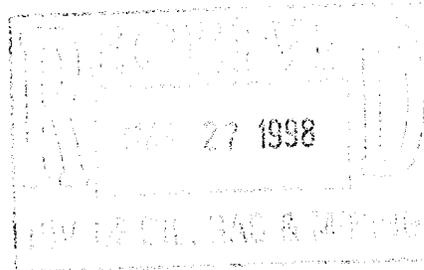
- Abandonment
 Recompletion
 Plugging Back
 Casing Repair
 Altering Casing
 Other SIDETRACK / INJECTOR
 Change of Plans
 New Construction
 Non-Routine Fracturing
 Water Shut-Off
 Conversion to Injection
 Dispose Water

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

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

BHL: LATERAL #1 1060' SOUTH & 1060' EAST F/SURFACE SPOT (ZONE 1c)³²³
LATERAL #2 2121' SOUTH & 2528' EAST F/SURFACE SPOT (ZONE 1a)³²³

SEE ATTACHED PROCEDURE.



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

Signed [Signature] Title Accepted by the State

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

Date 3-23-98

(This space for Federal or State Use)
Approved by Oil, Gas and Mining
Conditions of approval, if any:

DATE: 4/22/98
BY: [Signature]

Title 18 U.S.C. Section 400, 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

Federal Approval of this
Action is Necessary

Rutherford Unit Well #17-23 Horizontal Drilling Procedure

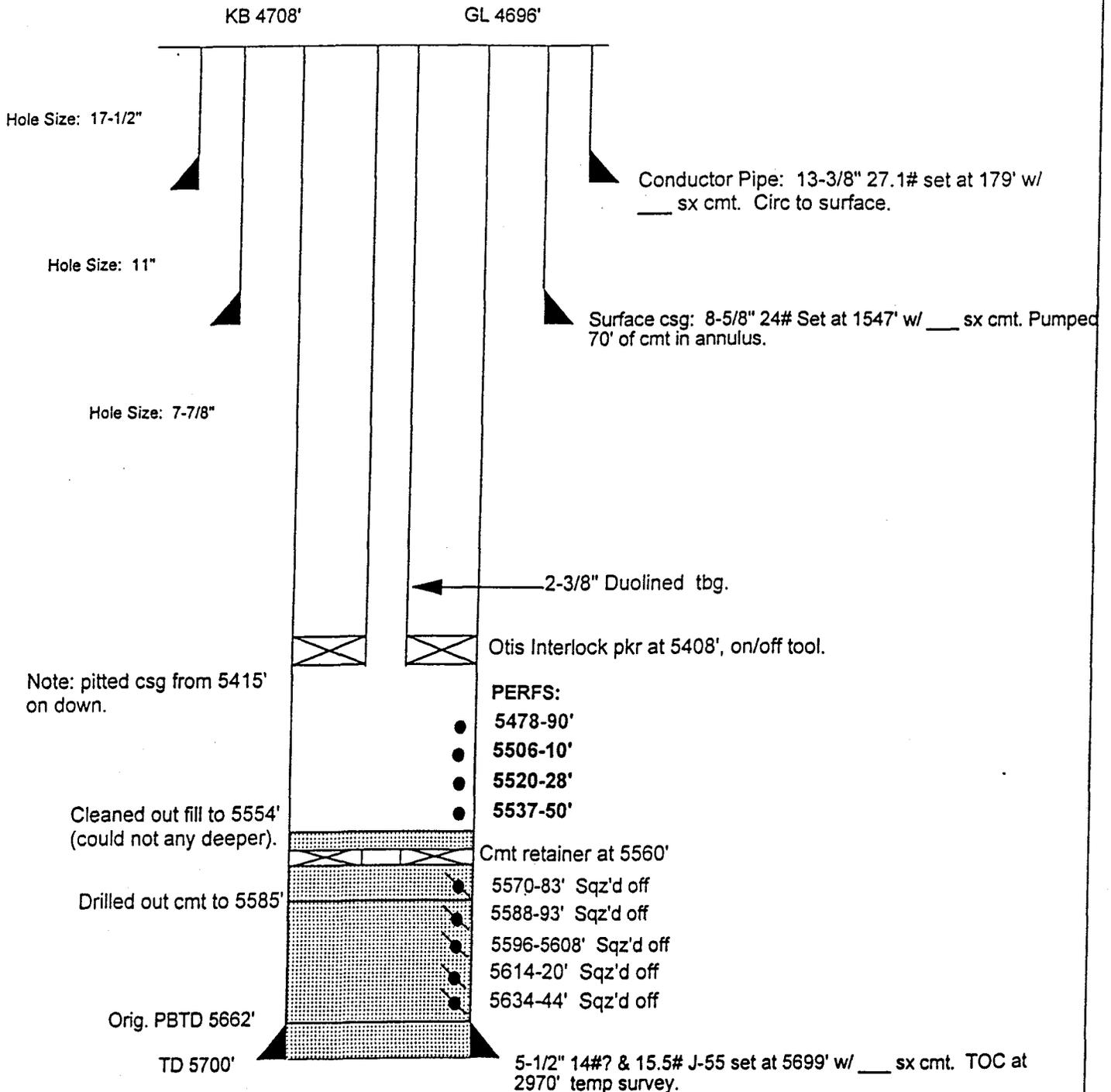
The objective of this procedure is to prepare this wellbore for sidetracking, sidetrack the subject well and drill multilateral short radius horizontal laterals (1500-3300 feet).

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 at 5200' 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 # 17W-23
GREATER ANETH FIELD
 1980' FWL & 1880' FSL
 SEC 17-T41S-R24E
 SAN JUAN COUNTY, UTAH
 API 43-037-15728
 PRISM 0043051

INJECTOR

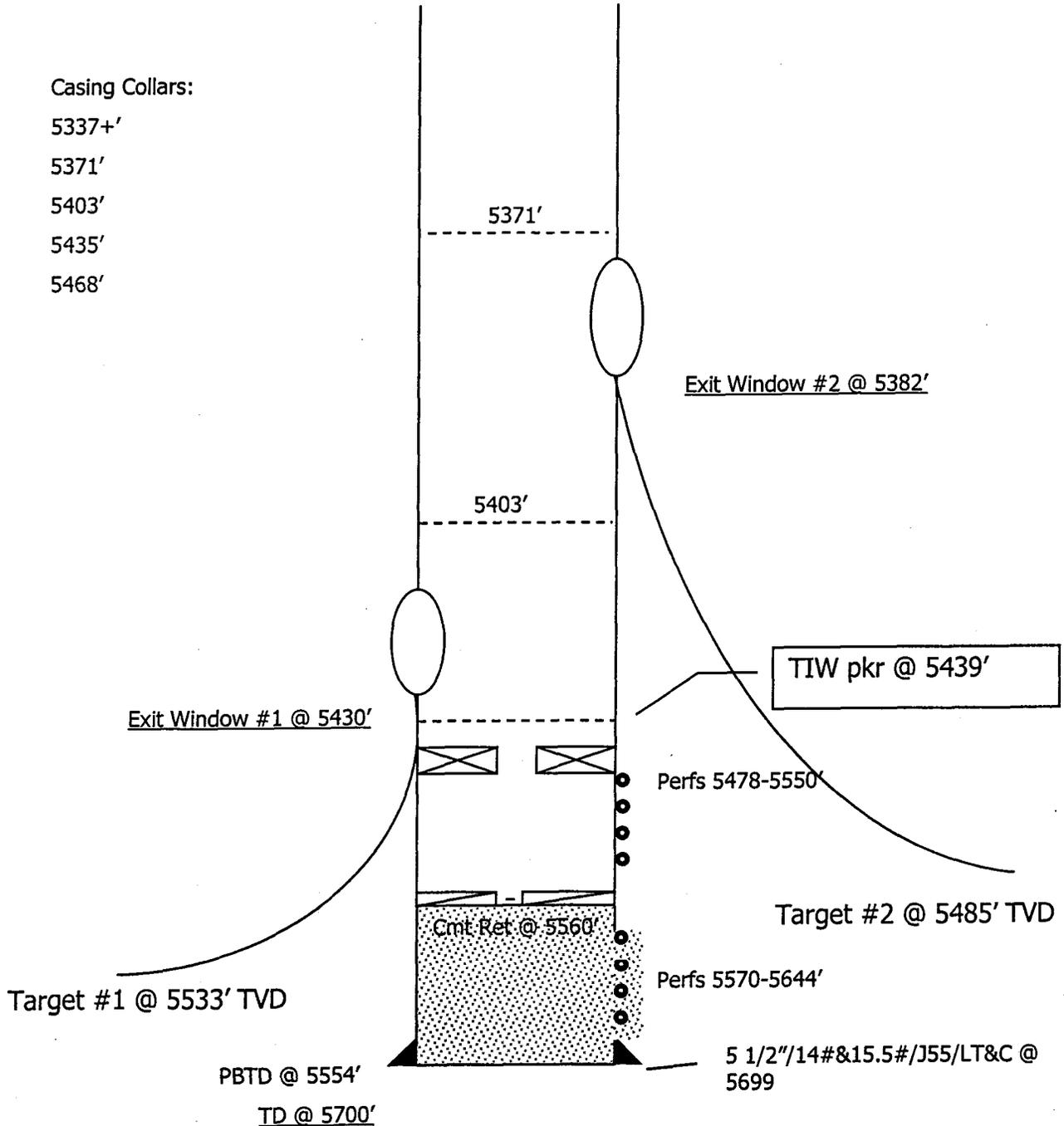
Capacities:	bbl/ft	gal/ft	cuf/ft
2-7/8" 6.5#	.00579	.2431	.0325
5-1/2" 14#	.0244	1.0249	.1370
5-1/2" 15.5#	.0238	.9997	.1336
2-7/8x5.5"14#	.0164	.6877	
.0919			
2-7/8x5.5"15.5#	.0158	.6625	
.0886			



Ratherford Unit #17-23

Casing Collars:

- 5337+'
- 5371'
- 5403'
- 5435'
- 5468'



Window	Btm-Top of Window	Ext length	Curve Radius	Bearing	Horiz Displ
1	5430-24	-----	100	135	1500
2	5382-76	46	103	130	3300

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

WORKSHEET
APPLICATION FOR PERMIT TO DRILL

APD RECEIVED: 03/27/98

API NO. ASSIGNED: 43-037-15728

WELL NAME: RATHERFORD 17W23 (MULTI-LEG)
 OPERATOR: MOBIL EXPLOR & PROD (N7370)
 CONTACT: _____

PROPOSED LOCATION:
 NWSW 17 - T41S - R24E
 SURFACE: 1880-FSL-1980-FWL
 BOTTOM: 0825-FNL-0736-FEL
 SAN JUAN COUNTY
 GREATER ANETH FIELD (365)

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

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

PROPOSED FORMATION: DSCR

RECEIVED AND/OR REVIEWED:

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

LOCATION AND SITING:

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

COMMENTS: _____

STIPULATIONS: 1) FEDERAL APPROVAL
2) DIRECTIONAL DRILLING



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

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

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

April 23, 1998

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

Re: Ratherford 17-W-23 (Re-Entry), 1880' FSL, 1980' FWL, NW SW,
Sec. 17, T. 41 S., R. 24 E., San Juan County, Utah

Gentlemen:

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

This approval shall expire one year from the above date unless substantial and continuous operation is underway, or a request for extension is made prior to the expiration date. The API identification number assigned to this well is 43-037-15728.

Sincerely,

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

John R. Baza
Associate Director

lwp

Enclosures

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

Operator: Mobil Exploration & Producing
Well Name & Number: Ratherford 17-W-23 (Re-Entry)
API Number: 43-037-15728
Lease: 14-20-603-353
Location: NW SW Sec. 17 T. 41 S. R. 24 E.

Conditions of Approval

1. General

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

2. Notification Requirements

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

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

3. Reporting Requirements

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

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

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

DIVISION OF OIL, GAS AND MINING

SPUDDING INFORMATION

Name of Company: MOBIL E & P

Well Name: RATHERFORD UNIT 17-W-23

Api No. 43-037-15728

Section 17 Township 41S Range 24E County SAN JUAN

Drilling Contractor BIG "A"

Rig # 25

SPUDDED:

Date 5/30/98

Time _____

How ROTARY

Drilling will commence _____

Reported by BENNY BRIGGS

Telephone # _____

Date: 6/2/98 Signed: JLT

↓

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to deepen or reentry to a different reservoir.

Use "APPLICATION FOR PERMIT - " for such proposals

5. Lease Designation and Serial No.

14-20-603-353

6. If Indian, Allottee or Tribe Name

NAVAJO TRIBAL

7. If Unit or CA, Agreement Designation

RATHERFORD UNIT

8. Well Name and No.

RATHERFORD 17-W-23

9. API Well No.

43-037-15728

10. Field and Pool, or exploratory Area

GREATER ANETH

11. County or Parish, State

SAN JUAN UT

SUBMIT IN TRIPLICATE

1. Type of Well

Oil Well Gas Well Other

2. Name of Operator

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

3. Address and Telephone No.

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

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

1880' FSL & 1980' FWL (NW/SW)
SEC. 17, T41S, R24E

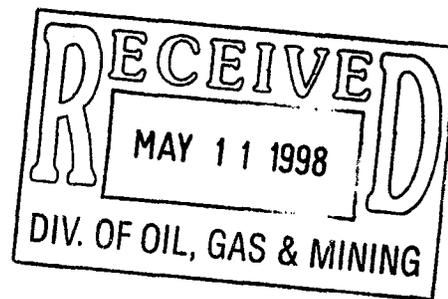
12. CHECK APPROPRIATE BOX(s) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

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

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

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

SEE ATTACHED MIT AND CHART.



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

Signed *Shirley Houchins* Title SHIRLEY HOUCHINS/ENV & REG TECH Date 5-13-98

(This space for Federal or State office use)

Approved by _____ Title _____ Date _____

Conditions of approval, if any:

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

* See Instruction on Reverse Side

ANNULAR PRESSURE TEST

(Mechanical Integrity Test)

Operator Mobil E. & P., Inc. Date of Test _____

Well Name ~~W-23~~ RU# 17W-23 EPA Permit No. _____

Location Sec. 17, T41S-R24E Tribal Lease No. 14-20-603-353

State and County San Juan County, Utah

Continuous Recorder? YES NO

Pressure Gauge? YES NO

Bradenhead Opened? YES NO

Fluid Flow? YES NO

<u>TIME</u>	<u>ANNULUS PRESSURE, psi</u>	<u>TUBING PRESSURE, psi</u>
<u>12:45</u>	<u>1110</u>	<u>3000</u>
<u>12:50</u>	<u>1110</u>	<u>3000</u>
<u>12:55</u>	<u>1100</u>	<u>3000</u>
<u>1:05</u>	<u>1100</u>	<u>3000</u>
<u>1:15</u>	<u>1100</u>	<u>3000</u>

MAX. INJECTION PRESSURE: _____ PSI

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

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

PASSED M.I.T.

Fritz Johnson

COMPANY REPRESENTATIVE: *Fritz Johnson*
(Print and Sign)

3-21-97

DATE

Melvin Capitan Jr.

INSPECTOR: *Melvin Capitan Jr.*
(Print and Sign)

3-21-97

DATE

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF INSPECTION

Address (EPA Regional Office) Region 9 Environmental Inspection Agency 215 Fremont Street (W-6-2) San Francisco, CA 94105	Inspection Contractor Navajo EPA THE CADMUS GROUP, INC. CORPORATE OFFICE 10000 North Central Walham, MA 02154 XXXXXXXXXX	Firm To Be Inspected Mobil E.&P., Inc. P.O. Box Dawer G Cortez, Co 81321
---	---	--

Date 3-21-97
 Hour 12:30 PM

Notice of inspection is hereby given according to Section 1445(b) of the Safe Drinking Water Act (42 U.S.C. §300 f et seq.).

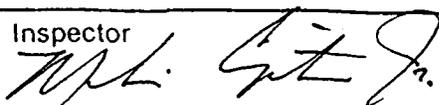
Reason For Inspection

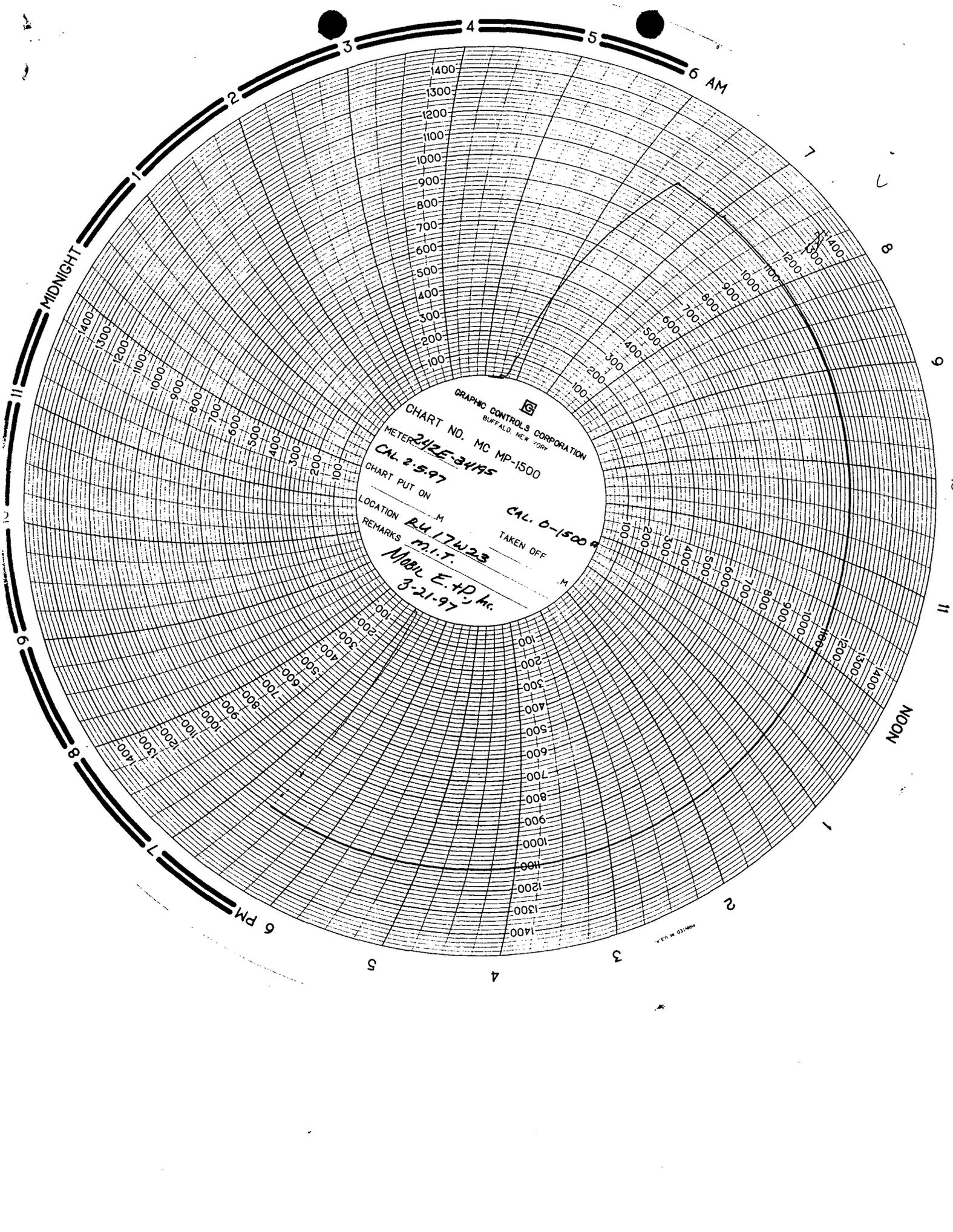
For the purpose of inspecting records, files, papers, processes, controls and facilities, and obtaining samples to determine whether the person subject to an applicable underground injection control program has acted or is acting in compliance with the Safe Drinking Water Act and any applicable permit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

RU# 17W-23, WATER INJECTION WELL, M.I.T. - PASSED
RU# 17W-34, WATER INJECTION WELL, M.I.T. - PASSED
RU# 17W-32, WATER INJECTION WELL, M.I.T. - PASSED
RU# 17W-41, WATER INJECTION WELL, M.I.T. - PASSED
RU# 18W-14, WATER INJECTION WELL, M.I.T. - PASSED
RU# 18W-32, WATER INJECTION WELL, M.I.T. - FAILED
RU# 18W-34, WATER INJECTION WELL, M.I.T. - PASSED
RU# 19W-21, WATER INJECTION WELL, M.I.T. - PASSED

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

Receipt of this Notice of Inspection is hereby acknowledged.

Firm Representative 	Date <u>3-21-97</u>	Inspector 
---	------------------------	--





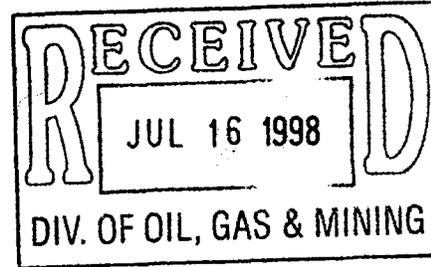
ROCKY MOUNTAIN GEO-ENGINEERING

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

PASON ROCKY MOUNTAIN GEO-ENGINEERING CORP.

2450 INDUSTRIAL BLVD. • GRAND JUNCTION, CO 81505

(970) 243-3044 • (FAX) 241-1085



Monday, July 13, 1998

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

Re: Ratherford Unit #17-23 Legs 1, 2
Sec. 17, T41S, R24E
San Juan County, Utah

Dear Sirs:

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

IN LOG FILE

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

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

Sincerely,

Bill Nagel
Senior Geologist

BN/dn

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

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

MOBIL

**RATHERFORD UNIT #17-23
SE HORIZONTAL LATERAL LEG #1
1-C POROSITY BENCH
DESERT CREEK MEMBER
PARADOX FORMATION
SECTION 17, T41S, R24E
SAN JUAN, UTAH**

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

MICROFICHE

TABLE OF CONTENTS

WELL SUMMARY.....	3
DAILY WELL CHRONOLOGY.....	4
DAILY ACTIVITY.....	6
BIT RECORD.....	6
MUD RECORD.....	6
SURVEY RECORD.....	7
SAMPLE DESCRIPTIONS.....	10
FORMATION TOPS.....	18
GEOLOGIC SUMMARY AND ZONES OF INTEREST.....	19
WELL PLOTS.....	25

WELL SUMMARY

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

NAME: RATHERFORD UNIT #17-23 SE HORIZONTAL LATERAL
LEG #1 IN THE DESERT CREEK 1-C POROSITY BENCH

LOCATION: SECTION 17, T41S, R24E

COUNTY/STATE: SAN JUAN, UTAH

ELEVATION: KB:4696' GL:4708'

SPUD DATE: 6/01/98

COMPLETION DATE: 6/10/98

DRILLING ENGINEER: SIMON BARRERA / BENNY BRIGGS

WELLSITE GEOLOGY: DAVE MEADE / MARVIN ROANHORSE

MUDLOGGING ENGINEERS: DAVE MEADE / MARVIN ROANHORSE

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

HOLE SIZE: 4 3/4"

CASING RECORD: SIDETRACK IN WINDOW AT 5387' MEASURED DEPTH

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

DIRECTIONAL DRILLING CO: SPERRY-SUN

ELECTICAL LOGGING: NA

TOTAL DEPTH: 7063' MEASURED DEPTH; TRUE VERTICAL DEPTH-5536'

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

DRILLING CHRONOLOGY
RATHERFORD UNIT #17-23
SE 1-C HORIZONTAL LATERAL LEG #1

DATE	DEPTH	DAILY	ACTIVITY
5/29/98	0'	0'	DISPLACE W/MUD-TOH-L.D. DIR TOOLS,P.U. PACKER-TIH-SET PACKER-SET PACKER @ 5301'-TOH-DISPLACE W/BRINE-L.D. DRLG STRING-NIPPLE DOWN-RIG DOWN
5/30/98	0'	0'	RIG DOWN & WAIT ON NEW LOCATION
5/31/98	0'	0'	RIG DOWN & MOVE TO 17-23 LOCATION-RIG UP-NIPPLE UP-PRESSURE TEST
6/01/98	0'	0'	P.U. DRLG COLLARS & DRLG PIPE-TIH-LATCH INTO BRIDGE PLUG-CIR. HOLE-TOH-NIPPLE DOWN FLOW TEE-R.U. LUBRICATOR-TIH W/PACKER-SET PACKER @ 5395'-RUN IN W/WIRELINE-R.D. LUBRICATOR-NIPPLE UP FLOW TEE-P.U. MULE SHOE & ORIENT-TIH-CIR.-LATCH INTO PACKER-R.U. & RUN GYRO-ORIENT GYRO-TIH
6/02/98	5395'	2'	L.D. MULE SHOE-P.U. WHIPSTOCK #1 & ORIENT-TIH-ATTEMPT TO SET WHIPSTOCK-LOST WHIPSTOCK UP HOLE-TOH-L.D. STARTER MILL-P.U. RETRIEVING HOOK-TIH-HOOK WHIPSTOCK, PULL 17K OVER-CHECK LATCH-TOH-P.U. STARTER MILL-TIH-REPAIR HYDROL HOSE-TIH-MILL 5380'-5382'-WORK ON HOSE-TOH-L.D. STARTER MILL-P.U. WINDOW MILL-TIH
6/03/98	5382'	58'	MILL W/WINDOW & WATERMELON MILLS 5382'-5387'-CIR. OUT-L.D. 13 JNTS AOH DRLG PIPE-TOH-L.D. MILLS-P.U. CURVE ASSEMBLY-TIH-R.U. & RUN GYRO DATA-TIME DRLG 5387'-5390'-DIR DRLG W/WIRELINE SURVEYS TO 5420'-PULL GYRO 7 R.D. GYRODATA-DIR DRLG & SURVEYS TO
6/04/98	5440'	152'	DIR DRLG & SURVEYS TO 5592'-L.D 7 JTS PIPE & PULL UP INTO CASING- SHUT IN WELL DUE TO MAN HUNT IN BLUFF UTAH
6/05/98	5592'	0'	SAFETY SHUT IN OF WELL
6/06/98	5592'	0'	SAFETY SHUT IN OF WELL
6/07/98	5592'	34'	SAFETY SHUT IN OF WELL DUE TO MAN HUNT-START UP RIG-CIR OUT GAS-P.U. 7 JTS PIPE & WORK TO BOTTOM-DIR DRLG & SURVEYS TO 5626'-CIR SPLS & PUMP SWEEP-PUMP 100 BBLs BRINE-L.D. JTS PIPE-TOH-L.D. CURVE ASSEMBLY-P.U. LATERAL ASSEMBLY-TEST & ORIENT MWD & MOTOR-TIH-SHUT IN WELL TO CUT DRLG LINE @ 5341'
6/08/98	5626'	441'	CUT 80' DRLG LINE-TIH-CIR-DIR DRLG & SUDRVEYS
6/09/98	6067'	473'	DIR DRLG & SURVEYS

DRILLING CHRONOLOGY (CON'T)
RATHERFORD UNIT #17-23
SE 1-C HORIZONTAL LATERAL LEG #1

DATE	DEPTH	DAILY	ACTIVITY
6/10/98	6540'	523'	DIR DRLG & SURVEYS TO A TD OF 7063'-PUMP SWEEP & CIR SPLS-TOH-L.D. LATERAL ASSEMBLY
6/11/98	7063'	0'	SEE GEOLOGY REPORT FOR 17-23 LEG #2

DAILY ACTIVITY

Operator: MOBIL

Well Name: RATHERFORD UNIT #17-23 SE 1-C HORIZONTAL LATERAL LEG #1

DATE	DEPTH	DAILY	DATE	DEPTH	DAILY
5/29/98	0'	0'			
5/30/98	0'	0'			
5/31/98	0'	0'			
6/01/98	0'	0'			
6/02/98	5395'	2'			
6/03/98	5382'	58'			
6/04/98	5440'	152'			
6/05/98	5592'	0'			
6/06/98	5592'	0'			
6/07/98	5592'	34'			
6/08/98	5626'	441'			
6/09/98	6067'	473'			
6/10/98	6540'	523'			
6/11/98	7063'	TD			

BIT RECORD

OPERATOR: MOBIL

WELL NAME: RATHERFORD UNIT #17-23 SE 1-C HORIZONTAL LATERAL LEG #1

RUN	SIZE	MAKE	TYPE	IN/OUT	FTG	HRS	FT/HR
1 (RR)	4 3/4"	STC	MF-3P	5387'/ 5626'	239'	24	9.96
2	4 3/4"	STC	MF-3P	5626'/ 7063'	1437'	66.5	21.6

MUD REPORT

OPERATOR: MOBIL

WELL NAME: RATHERFORD UNIT #17-23 SE 1-C HORIZONTAL LATERAL LEG #1

DATE	DEPTH	WT	VIS	PLS	YLD	GEL	PH	WL	CK	CHL	CA	SD	OIL	WTR
6/01/98	5395'	8.6	26	1	0	0/0	10	NC	NC	42K	580	0%	0%	100%
6/02/98	5380'	8.6	26	1	0	0/0	10	NC	NC	42K	590	0%	0%	100%
6/03/98	5387'	8.5	26	1	0	0/0	10	NC	NC	40K	620	0%	0%	99%
6/04/98	5522'	8.9	26	1	0	0/0	10	NC	NC	56K	5000	1%	1%	98%
6/05/98	NO CHECK	-	-	-	-	-	-	-	-	-	-	-	-	-
6/06/98	NO CHECK	-	-	-	-	-	-	-	-	-	-	-	-	-
6/07/98	NO CHECK	-	-	-	-	-	-	-	-	-	-	-	-	-
6/08/98	5786'	9.0	26	1	0	0/0	11	NC	NC	57K	4200	1%	1%	98%
6/09/98	6231'	9.1	27	1	0	0/0	10.5	NC	NC	56K	4200	2%	0%	98%
6/10/98	6702'	8.9	27	1	0	0/0	12.0	NC	NC	51K	400	2%	0%	98%

SPERRY-SUN DRILLING SERVICES
SURVEY DATA

Customer ... : Mobil (Utah)
Platform ... : RATHERFORD UNIT
Slot/Well .. : BA25/17-23 1A1

MEASURED DEPTH	ANGLE DEG	DIRECTION DEG	TVD	NORTHINGS FEET	EASTINGS FEET	VERTICAL SECTION	DOG LEG
5300.00	0.42	324.80	5298.95	67.43 N	63.50 W	-90.69	0.00
5380.00	0.38	318.05	5378.95	67.87 N	63.85 W	-91.23	0.08
5387.00	3.00	125.00	5385.95	67.78 N	63.71 W	-91.07	48.16
5397.00	7.60	118.10	5395.90	67.32 N	62.91 W	-90.15	46.36
5407.00	12.30	116.40	5405.75	66.53 N	61.38 W	-88.44	47.09
5417.00	16.90	115.60	5415.42	65.43 N	59.11 W	-85.95	46.04
5427.00	20.50	106.40	5424.89	64.31 N	56.12 W	-82.85	46.44
5437.00	23.30	113.70	5434.17	63.02 N	52.63 W	-79.25	39.01
5447.00	24.30	103.20	5443.33	61.75 N	48.81 W	-75.40	43.48
5457.00	28.30	107.50	5452.29	60.57 N	44.54 W	-71.23	44.28
5467.00	32.60	110.10	5460.91	58.93 N	39.75 W	-66.36	44.96
5477.00	36.60	110.10	5469.14	56.98 N	34.42 W	-60.88	40.00
5487.00	41.00	115.40	5476.93	54.55 N	28.65 W	-54.76	55.09
5497.00	45.40	117.60	5484.22	51.49 N	22.53 W	-47.99	46.50
5507.00	49.00	122.10	5491.02	47.83 N	16.18 W	-40.68	48.83
5517.00	52.20	126.20	5497.36	43.49 N	9.79 W	-32.96	45.02
5527.00	53.10	122.10	5503.43	39.03 N	3.21 W	-25.02	33.81
5537.00	56.00	116.90	5509.23	35.03 N	3.88 E	-16.91	51.32
5547.00	57.30	112.60	5514.73	31.53 N	11.46 E	-8.70	38.20
5557.00	61.10	113.00	5519.85	28.20 N	19.38 E	-0.30	38.15
5567.00	65.50	115.70	5524.35	24.52 N	27.51 E	8.47	50.17
5577.00	71.20	115.80	5528.03	20.48 N	35.88 E	17.64	57.01
5587.00	75.50	115.70	5530.90	16.32 N	44.51 E	27.10	43.01
5602.00	78.60	121.70	5534.26	9.30 N	57.32 E	41.62	44.12
5626.00	85.80	128.40	5537.52	4.35 S	76.76 E	65.37	40.79
5656.00	86.10	131.10	5539.64	23.48 S	99.76 E	95.19	9.03
5688.00	89.50	132.60	5540.87	44.81 S	123.58 E	126.93	11.61
5719.00	89.60	131.70	5541.11	65.61 S	146.56 E	157.69	2.92
5750.00	89.40	130.30	5541.38	85.95 S	169.95 E	188.52	4.56
5782.00	89.50	130.20	5541.69	106.63 S	194.37 E	220.38	0.44
5814.00	90.00	128.00	5541.83	126.81 S	219.21 E	252.30	7.05
5846.00	90.00	125.90	5541.83	146.04 S	244.78 E	284.28	6.56
5876.00	90.40	125.60	5541.73	163.57 S	269.13 E	314.27	1.67
5908.00	90.10	124.90	5541.59	182.04 S	295.26 E	346.27	2.38
5940.00	90.70	124.50	5541.36	200.25 S	321.57 E	378.27	2.25
5971.00	91.60	125.40	5540.74	218.01 S	346.97 E	409.26	4.11
6002.00	92.00	124.90	5539.77	235.85 S	372.30 E	440.25	2.06
6033.00	91.00	124.90	5538.96	253.58 S	397.72 E	471.24	3.23

SPERRY-SUN DRILLING SERVICES
SURVEY DATA

Customer ... : Mobil (Utah)
Platform ... : RATHERFORD UNIT
Slot/Well .. : BA25/17-23 1A1

MEASURED DEPTH	ANGLE DEG	DIRECTION DEG	TVD	NORTHINGS FEET	EASTINGS FEET	VERTICAL SECTION	DOG LEG
6065.00	90.40	124.90	5538.56	271.88 S	423.96 E	503.23	1.87
6097.00	91.90	125.10	5537.92	290.23 S	450.17 E	535.23	4.73
6129.00	93.10	126.10	5536.53	308.84 S	476.16 E	567.19	4.88
6161.00	91.80	126.10	5535.16	327.68 S	501.99 E	599.16	4.06
6192.00	88.90	125.20	5534.97	345.74 S	527.18 E	630.15	9.79
6224.00	90.10	126.10	5535.25	364.39 S	553.18 E	662.15	4.69
6255.00	89.20	126.80	5535.44	382.81 S	578.12 E	693.14	3.68
6287.00	86.70	125.80	5536.58	401.74 S	603.89 E	725.10	8.41
6319.00	84.50	124.30	5539.04	420.06 S	630.00 E	757.01	8.31
6351.00	87.20	124.50	5541.35	438.09 S	656.34 E	788.92	8.46
6382.00	89.40	124.20	5542.27	455.58 S	681.92 E	819.90	7.16
6414.00	90.50	122.80	5542.30	473.24 S	708.60 E	851.89	5.56
6446.00	91.30	122.20	5541.80	490.43 S	735.59 E	883.85	3.12
6478.00	91.40	122.10	5541.04	507.45 S	762.67 E	915.81	0.44
6509.00	89.90	122.90	5540.69	524.11 S	788.81 E	946.77	5.48
6541.00	90.40	124.50	5540.61	541.86 S	815.43 E	978.76	5.24
6573.00	90.00	124.90	5540.50	560.08 S	841.74 E	1010.76	1.77
6605.00	91.40	125.60	5540.10	578.54 S	867.87 E	1042.76	4.89
6636.00	91.70	125.40	5539.27	596.54 S	893.10 E	1073.75	1.16
6668.00	92.30	124.70	5538.15	614.91 S	919.28 E	1105.73	2.88
6700.00	92.50	124.20	5536.81	632.99 S	945.65 E	1137.70	1.68
6732.00	91.00	123.30	5535.83	650.76 S	972.24 E	1169.67	5.47
6764.00	89.40	122.60	5535.72	668.17 S	999.09 E	1201.65	5.46
6795.00	90.40	121.50	5535.77	684.62 S	1025.37 E	1232.61	4.80
6827.00	90.70	121.00	5535.47	701.22 S	1052.72 E	1264.54	1.82
6858.00	90.70	122.90	5535.09	717.62 S	1079.02 E	1295.49	6.13
6890.00	92.20	122.80	5534.28	734.97 S	1105.90 E	1327.46	4.70
6922.00	90.10	124.30	5533.64	752.65 S	1132.56 E	1359.44	8.06
6954.00	91.10	125.20	5533.30	770.89 S	1158.85 E	1391.44	4.20
6985.00	88.30	125.80	5533.46	788.89 S	1184.08 E	1422.43	9.24
7017.00	87.50	124.50	5534.64	807.30 S	1210.23 E	1454.41	4.77
7029.00	87.80	124.30	5535.13	814.07 S	1220.12 E	1466.40	3.00
7063.00	87.80	124.30	5536.43	833.22 S	1248.19 E	1500.37	0.00

SPERRY-SUN DRILLING SERVICES
SURVEY DATA

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

SURVEY 7063' IS PROJECTED TO BIT AT TD.

SAMPLE DESCRIPTIONS

OPERATOR: MOBIL

WELL NAME: RATHERFORD UNIT #17-23 SE 1-C HORIZONTAL LATERAL LEG #1

DEPTH	LITHOLOGY
5387.00 5400.00	"LS lt-mbrn,dkbrn,occ crm-ltgybrn,crpxl-micxl,pred thn dns w/chky plty prtgs,occ rthy-sl slty,sl anhy,v sl arg ip,tr blk SH lam,rr brn CHT,NFSOC"
5400.00 5410.00	"DOL dk-mbrn,crpxl-sl micxl,rthy-arg ip,occ shy,sl calc/tr LS incl,occ grdg to shy dol LS,dns,tt,NFSOC,w/LS AA,tt-rr intxl POR,rr spty dull yel FLOR,n-tr ltbrn-mbrn STN,fr dif/fnt res ring CUT "
5410.00 5420.00	"LS ltgybrn-ltgy,occ ltbrn-tan,tr crm-off wh,crpxl-micxl,pred thn dns-chky plty/occ rthy-sl slty prtgs,sl anhy,v sl arg ip,tr brn CHT,NFSOC,w/decr DOL AA"
5420.00 5430.00	"LS m-ltgybrn,dk-mbrn,occ tan,rr off wh,ltgy,crpxl-micxl,rthy-sl shy,dns-occ arg w/sl slty prtgs,sl chky-v sl anhy,rr dol strks,tr CHT AA,tr SH lam AA,NFSOC,"
5430.00 5440.00	"LS ltgy-gybrn,tr m-ltbrn,rr tan,micxl,tr scat crpxl,pred slty/occ sdy strk,occ grdg to vf gr SS/lmy mtx,rr chky strk-v sl anhy/tr xln ANHY-POR fl,dns,tt,NFSOC"
5440.00 5450.00	"LS ltgy-gybrn-gy,tr m-ltbrn-tan,micxl,tr scat crpxl,slty/occ sdy strk,occ grdg to SS AA,tr chky-mrly prtgs-sl anhy AA,tr mlky CHT,rr GAST,dns,tt,NFSOC"
5450.00 5460.00	"LS tan-ltbrn,occ wh,crpxl-micxl,rthy-sl chk,arg ip,dol,occ grdg to v lmy DOL MRLST,tt,NFSOC,w/v thn rthy brn-mbrn micxl DOLmrly ip,tt,NFSOC,bcmg dkgy-blk carb calc-dol SH"
5460.00 5470.00	"LS & DOL AA w/v rr bf CHT frag & grdg to SH dkgy-blk,sbblky,occ plty,sft-mfrm,sl fis,mica,calc-dol,carb,v sl slty,sooty"
5470.00 5480.00	"SH AA,bcmg calc DOL brn-mbrn,micxl-crpxl,sl anhy,lmy,occ sl mrly dns,tt,NFSOC & pred LS ltbrn-brn,occ tan-crm,crpxl-micxl,sl dol,scat ANHY xl-incl,v sl slty,arg ip,n-v rr intxl POR,v rr spty bri yel FLOR,n vis STN-CUT"
5480.00 5490.00	"LS AA,bcmg pred ooc-oom GRNST,tt-fr intxl-ool POR,tr bri yel FLOR,n-rr brn STN-v rr blk dd o STN,n-fr mod fast stmg CUT & v thn m-dkbrn micxl sl lmy arg DOL v rr spty intxl POR-bri FLOR,n-v p STN-CUT,rr trnsl CHT frag,tr SH cvgs AA"
5490.00 5510.00	"LS tan-mbrn,occ crm-wh,micxl-vfxl,occ crpxl,gran-micsuc ip,ooc-oom GRNST bcmg dns occ arg-anhy PKST,v rr CHT frag,rr SH cvgs,occ dns micxl calc DOL PKST incl,tt-mg intxl-ool POR,mfr-fr bri yel FLOR,fr brn-tr blk STN,fr-g mod fast-fast stmg CUT"
5510.00 5520.00	"LS pred wh-crm-tan,crpxl-micxl,arg,occ chk,dns PKST,w/v rr thn ooc-oom GRNST AA,rr-tr POR-FLOR-STN-CUT AA"

DEPTH

LITHOLOGY

5520.00 5530.00 "LS pred tan-mbrn,occ crm-wh,micxl-vfxl,occ crpxl,gran-micsuc ip,occ-oom GRNST AA,w/tr dns occ arg-anhy PKST AA,v rr CHT frag,fr-g intxl-ool POR,FLOR-STN-CUT AA"

5530.00 5550.00 "LS tan-crm-wh,occ brn-mbrn,crpxl-micxl,v sl micsuc,pred dns plty sl anhy chk ip PKST,sl dol,w/v rr stks ooc-oom GRNST,grdg to brn dns lmy DOL GRNST w/tt-tr stks intxl-ool POR,tr-mfr bri-dull yel FLOR,tr brn-rr blk STN,tr slow stmg CUT,rr CHT frag AA"

5550.00 5570.00 "LS PKST AA,bcmg pred brn-mbrn micxl-vfxl gran-occ micsuc vsl ooc-oom arg lmy DOL GRNST w/rr-tr dull-bri yel FLOR,lt-mbrn STN,tr slow-mod fast stmg CUT,rr CHT frag AA"

5570.00 5580.00 "DOL brn micxl-vfxl,occ gran-micsuc,v sl ooc-oo-alg DOL GRNST,tt-tr intxl-ool-sl vug POR,FLOR-STN-CUT,tr crm-tan crpxl dns v arg-sl cly dol LS PKST,w/stk ltgy-wh v lmy mfrm CLYST stk,v rr CHT frag"

5580.00 5590.00 "DOL AA,incr POR-FLOR-STN-CUT,w/intbd dol LS PKST AA & ABNT CVGS AFTER TRIP"

5590.00 5600.00 "DOL ltbrn-brn,crpxl-vfxl,occ gran-micsuc,pred sl alg-sl ooc-oom GRNST,v lmy ip,occ rr Crin fos,vrr ANHY xl,tt-fr intxl-rr alg-ool POR,fr-mg bri yel FLOR,tr brn-rr blk STN,fr mod fast CUT,w/tr intbd wh-tan crpxl dns-chk ip dol LS PKST,rr trnsl-bf CHT frag"

5600.00 5610.00 "DOL AA,occ grdg to v dol LS,w/scat CHT frag AA,sl decr POR-FLOR-STN-CUT AA"

5610.00 5626.00 "DOL ltbrn-brn,crpxl-vfxl,occ gran-micsuc,pred sl alg-sl ooc-oom GRNST,occ grdg to v dol wh-crm tan crpxl-micxl sl ool-v sl alg LS,mfr intxl-tr alg-ool POR,fr-mg bri yel FLOR,tr brn-rr blk STN,fr mod fast CUT,rr trnsl-bf CHT frag"

5626.00 5640.00 "LS tan-crm-wh,ltbrn,micxl-vfxl-gran,sl micsuc,tr crpxl,sl ool-agal mat GRNST/tr intbd dns-plty PCKST,chk-anhy/POR fl-rr xln ANHY,sl dol-occ grdg to calc DOL GRNST,fr intxl-tr ool/rr pp vug POR,g even bri-dull yel FLOR,fr ltbrn-scat brn/rr blk ppdd o STN,g mod fast-fats stmg mlky CUT"

5640.00 5650.00 "LS AA,pred GRNST AA,tr scat-intbd PCKST AA,chk-anhy AA,POR-FLOR AA,g-fr ltbrn/tr brn-incr blk dd o STN,g fast stmg mlky CUT"

5650.00 5670.00 "LS tan-crm-wh,ltbrn,crpxl-vfxl,sl gran-micsuc,sl ool-alg GRNST & intbd dns-plty PCKST,chk ip,rr xl ANHY-POR fl,v sl dol-DOL rich cmt,fr intxl-pp vug-occ ool POR,tr-fr bri yel FLOR,tr-fr ltbrn-brn STN-rr blk dd o STN,tr slow-fr mod fast CUT"

5670.00 5680.00 "LS AA,pred sl ool-alg GRNST,w/decr LS PKST incl,sl DOL rich cmt,scat ANHY xl,calc-sl dol mtx,incr vug-ool POR,FLOR-CUT AA,STN AA w/incr blk dd o STN,n-v rr CHT frag"

5680.00 5690.00 "LS AA,decr POR,incr dns occ chk anhy PKST,FLOR-STN-CUT AA"

DEPTH	LITHOLOGY
5690.00	5700.00 "L S tan-crm-wh,ltbrn,crpxl-vfxl,sl gran-micsuc,sl ool-alg GRNST & intbd dns-plty PCKST,chky ip,rr xl ANHY-POR fl,v sl dol-DOL rich cmt,fr intxl-pp vug-occ ool POR,tr-fr bri yel FLOR,tr-fr ltbrn-brn STN-rr blk dd o STN,tr slow-fr mod fast CUT"
5700.00	5710.00 "LS AA,pred sl ool-alg GRNST,w/scat dns occ chk v sl ool PKST,sl anhy-tr ANHY xl-rr POR fl,v rr trnsf-bf CHT frag,fr intxl-tr ool-alg POR,mfr-mg bri yel FLOR,tr ltbrn-brn STN,tr blk dd o STN,tr-mg slow-mod fast stmg CUT"
5710.00	5720.00 "LS AA,decr PKST,POR-FLOR-STN-CUT AA"
5720.00	5740.00 "LS tan-crm-wh,ltbrn,crpxl-vfxl,sl gran-micsuc,sl ool-alg GRNST w/thn intbd dns-plty occ chk PCKST,v sl anhy,rr xl ANHY-POR fl,v sl dol-DOL rich cmt,fr intxl-pp vug-occ ool POR,tr-fr bri yel FLOR,fr ltbrn-brn STN-blk dd o STN,tr slow-mg mod fast CUT"
5740.00	5750.00 "LS AA,decr PKST,incr sl ool & vug POR,FLOR-CUT AA,incr blk dd o STN"
5750.00	5780.00 "LS tan-ltbrn,rr crm-wh,crpxl-vfxl,sl gran-micsuc,sl ool-alg GRNST w/tr dns-plty occ chk sl ool PCKST,v sl anhy,rr ANHY xl-POR fl,v sl dol-DOL rich cmt,tr intxl-fr pp vug-tr ool POR,fr-mg bri yel FLOR,fr ltbrn-STN-fr blk dd o STN,fr slow-mg mod fast CUT"
5780.00	5800.00 "LS AA,sl incr PKST incl,fr-mg intxl-vug-tr ool POR,fr-mg bri yel FLOR,tr brn STN-abnt blk dd o STN,rr slow-mg mod fast-fast stmg CUT"
5800.00	5820.00 "LS tan-ltbrn,v rr wh-crm-ltgy,crpxl-micxl,vfxl-gran ip,occ micsuc,pred sl ool-fr alg GRNST,occ DOL rich cmt,tr dns plty ip occ chk sl ool PKST,sl anhy-rr ANHY xl,rr CHT frag,fr intxl-alg-tr ool POR,fr-mg bri yel FLOR,mfr brn-abnt blk STN,fr mod fast CUT"
5820.00	5850.00 "LS AA,bcmg pred v sl ool dns chk sl anhy PKST,decr alg-ool GRNST,fr-tt intxl-mfr ool-vug POR,rr calc xl in POR,mg-mfr bri yel FLOR,tr-n brn STN-abnt-n blk dd o STN,n vis-fr mod fast-slow stmg CUT"
5850.00	5860.00 "LS tan-ltbrn,occ crm-wh,crpxl-micxl,occ vfxl-sl gran,rr micsuc,pred sl ool dns chk PKST,w/thn stks sl ool-alg GRNST,w/occ DOL rich cmt & rr ANHY xl,v rr scat CHT frag,tt-tr vug-intxl-rr ool POR,tr-mfr bri yel FLOR,tr spty ltbrn-mfr blk dd o STN,tr CUT"
5860.00	5880.00 "LS AA,incr & bcmg pred ool-alg GRNST,tt-mg ool-vug-tr intxl POR,tr-fr bri yel FLOR,n-tr brn STN-mfr blk dd o STN,n-fr- rr mg slow-mod fast stmg CUT"
5880.00	5890.00 "LS tan-brn,pred sl ool-alg GRNST AA,w/abnt occ plty-chk v sl ool PKST incl,tt-mg intxl-alg-sl ool POR,mfr-fr bri yel FLOR,n-tr brn-blk STN,v p slow-fr mod fast-fast stmg CUT"

DEPTH

LITHOLOGY

5890.00 5910.00 "LS tan-ltbr n,v rr wh-crm-ltgy,crpxl-vfxl,occ gran-micsuc,pred sl ool-alg GRNST,occ DOL rich cmt,tr dns plty ip occ chk sl ool PKST,sl anhy-rr ANHY xl,rr CHT frag,fr intxl-tr alg-rr ool POR,fr-mg bri yel FLOR,mfr brn STN-tr blk dd o STN,n-fr mod fast CUT"

5910.00 5940.00 "LS tan-crm-wh,occ ltbrn,tr brn,micxl-crpxl,occ vfxl-gran,sl ool GRNST/intbd dns-thn chky plty PCKST strk,sl anhy/tr POR fl,rr xln ANHY,rr mlky-trnsl CHT,tr v sl dol strk,fr mod bri/tr scat bri yel FLOR,fr ltbrn/tr scat brn-rr blk dd o STN,fr dif-slow stmg mlky CUT"

5940.00 5960.00 "LS AA,incr thn chky plty-dns PCKST occ grdg to tt dns sl ool GRNST ip,tr scat GRNST AA,sl anhy/tr POR fl-rr xln ANHY,rr CHT AA,tt-tr intxl-ool POR,fr scat mod bri-tr bri yel FLOR,fr ltbrn-tr brn-rr blk dd o STN,fr slow stmg-dif CUT"

5960.00 5970.00 "LS AA,pred chky plty-dns PCKST/thn intbd sl ool GRNST prtgs,anhy/tr xln ANHY-POR fl,tt-tr intxl-rr ool POR,FLOR-STN AA,fr dif/tr slow stmg mlky CUT"

5970.00 6000.00 "LS crm-wh-tan,occ ltbrn,micxl-crpxl,occ micxl-sl gran,pred dns-thn chky plty PCKST,tr ool-sl agl sl dol GRNST,anhy/tr xln ANHY-POR fl,rr CHT AA,tt-tr ool-sl agl-vug POR,fr scat mod bri-bri yel FLOR,fr ltbrn/rr blk dd o STN,fr slow stmg mlky-dif CUT"

6000.00 6030.00 "LS tan-crm-wh,occ ltbrn ip,crpxl-micxl,occ vfxl,tr gran,pred dns sl agl-ool PCKST,sl decr thn plty frag,rr GRNST AA,chky-anhy,tr POR fl-xln ANHY,tr CALC xl,v rr trnsl CHT,v rr mic fos,tt-tr intxl-rr agl POR,decr FLOR AA,fr-tr ltbrn/rr blk dd o STN,fr slow stmg mlky-dif/v fnt res ring CUT"

6030.00 6040.00 "LS AA,pred dns-incr chky plty PCKST,tr sl ool-agl GRNST,anhy AA,tt-tr intxl-rr ool-sl agl POR,fr mod bri-rr bri yel FLOR,fr scat ltbrn/rr blk dd o STN,fr slow stmg-dif CUT/v fnt res ring"

6040.00 6060.00 "LS tan-crm-wh,fr ltbrn,crpxl-micxl,occ vfxl-sl gran,dns-chky plty PCKST,occ grdg to tt sl ool-agl GRNST,anhy/tr POR fl-xln ANHY,v rr mic fos,tt-tr intxl POR,rr mod bri-bri yel FLOR,fr-tr ltbrn/v rr blk STN,fr dif/v fnt res ring CUT"

6060.00 6080.00 "LS AA,crpxl-micxl,occ vfxl-sl gran,dns-thn chky plty PCKST occ grdg to dns v sl ool GRNST,anhy AA,tt-tr intxl POR,n-rr scat mod bri bri yel FLOR,fr ltbrn-v rr blk dd o STN,p dif/sl tr v fnt res ring CUT"

6080.00 6100.00 "LS tan-crm,occ wh,fr ltbrn,crpxl-micxl,occ vfxl-tr gran,dns-plty PCKST AA,rr scat sl ool GRNST,chky-anhy/tr POR fl-xln ANHY,v rr mic fos,tt-tr intxl POR,rr-tr FLOR AA,fr-tr ltbrn/v rr blk dd o STN,CUT AA"

6100.00 6120.00 "LS crm-wh,rr tan,crpxl-micxl,rthy-chk ip,dns,sl anhy,v sl dol,pred tt PKST w/n vis POR-FLOR-STN-CUT & v rr v thn v sl ool GRNST,n-v rr intxl POR,n-v p vis FLOR-STN-CUT"

DEPTH

LITHOLOGY

6120.00 6140.00 "LS AA v sl incr v sl alg-ool GRNST,tt-tr intxl-vug-v rr ool POR,v sl tr bri-dull yel FLOR,n-rr spty ltbrn STN-v spty blk dd o STN,n-v p slow-mod fast CUT,scat trnsl-bf CHT frag"

6140.00 6160.00 "LS tan-crm,occ wh,crpxl-micxl,rr stks vfxl-sl gran,pred dns tt occ chk-pty PKST,w/sl incr v sl ool-occ alg GRNST,scat CHT frag,v sl anhy-rr ANHY xl,tt-tr intxl-v sl alg-ool POR,rr spty FLOR,spty mbrn STN-rr spty blk dd o STN,n-v p slow dif-stmg CUT"

6160.00 6180.00 "LS AA,incr pty-chk dns PKST,v p spty POR-FLOR-STN-CUT AA"

6180.00 6210.00 "LS tan-crm,rr ltbrn-wh,crpxl-micxl,v rr gran-micsuc,pred dns tt occ pty-chk sl anhy PKST,w/v thn stks v sl alg GRNST,rr ANHY xl-trnsl CHT frag,tt-tr intxl-alg POR,rr-tr bri yel FLOR,rr spty brn-blk STN,n-v p slow dif-slow stmg CUT"

6210.00 6230.00 "LS tan-crm-wh,crpxl-micxl,pred dns sl anhy occ chk-v sl pty PKST w/scat trnsl-bf-gy CHT frag & v thn stks GRNST AA,rr-tr intxl-v sl alg POR,n-v rr spty bri yel FLOR,n-v rr spty ltbrn STN-v rr blk dd o STN,n-v rr v p slow dif-stmg CUT"

6230.00 6260.00 "LS v sl ool-dns PKST AA,bcmg pred v sl ool-tr alg GRNST,scat CHT frag AA,scat ANHY xl-rr POR fl,tt-fr intxl-v sl alg-ool POR,mfr bri yel FLOR,tr spty brn STN-rr blk dd o STN,n-fr slow-tr mod fast stmg mlky CUT-v rr slow dif CUT"

6260.00 6280.00 "LS crm-tan,occ wh,rr ltbrn,crpxl-vfxl,occ gran-micsuc,pred v sl ool-alg GRNST,w/v rr thn intbd sl ool dns-rr pty-chk PKST,occ ANHY xl-incl,v sl dol,fr-mg intxl-tr alg-ool POR,mg bri yel FLOR,tr-fr ltbrn-tr blk dd o STN,tr slow-fr mod fast stmg CUT"

6280.00 6300.00 "LS AA,pred GRNST AA,w/sl incr dns v sl ool PKST,decr intxl-ool-alg POR,fr-mg bri yel FLOR,STN-CUT AA"

6300.00 6330.00 "LS crm-tan,occ ltgybrn,rr wh,micxl-vfxl,occ gran-micsuc,pred sl alg GRNST bcmg crpxl sl ool dns-rr pty-chk PKST,occ ANHY xl-incl,rr CHT frag,v sl dol,fr-mg intxl-alg POR,mg bri yel FLOR,tr-fr ltbrn STN-tr blk dd o STN,fr-mg mod fast-tr slow stmg CUT"

6330.00 6340.00 "LS tan,occ ltbrn-crm,rr wh,crpxl-micxl,occ vfxl-gran-micsuc,pred dns sl anhy occ pty-chk v sl ool PKST,anhy ip-rr ANHY xl,w/thn stks v sl alg GRNST,v sl dol,tt-tr intxl-alg POR,mfr dull-bri yel FLOR,tr-mfr ltbrn-tr blk STN,fr slow-tr mod fast stmg CUT"

6340.00 6350.00 "LS AA,incr & bcmg pred sl alg GRNST AA,incr POR-FLOR-STN-CUT"

6350.00 6360.00 "LS AA,pred agl-sl ool GRNST,intbd/thn dns-chky pty PCKST strks,POR AA,g even mod bri-bri yel FLOR,fr ltbrn/tr blk pp dd o STN,g fsat dif/tr fast stmg mlky CUT"

DEPTH	LITHOLOGY
6360.00 6390.00	"LS tan, occ crm, rr wh, ltbrn, v fxl-gran, sl micsuc, tr crpxl, agl-sl ool GRNST/tr scat-intbd dns-rr plty PCKST, chky-sl anhy/tr POR fl-rr xln ANHY, sl dol, tt-tr intxl-vug POR, g even mod bri-bri yel FLOR, fr ltbrn/tr blk pp dd o STN, g fast dif/tr stmg mlky CUT"
6390.00 6410.00	"LS AA, vfxl-micxl-gran, crpxl, occ sl micsuc, pred GRNST AA, w/scat-intbd dns sl ool-rr plty PCKST, chky-sl anhy/tr POR fl-xln ANHY, sl dol ip, tt-POR AA, g mod bri-bri yel FLOR, fr ltbrn/tr blk pp dd o STN, g mod fast-fast dif-stmg mlky CUT"
6410.00 6420.00	"LS AA, agl-sl incr ool GRNST, tr PCKST AA, chhky-sl anhy/tr POR fl, v rr xln ANHY, v sl dol, tt-tr intxl-fr vug POR/tr ool POR, FLOR-STN AA, g slow-mod fast stmg mlky CUT"
6420.00 6450.00	"LS tan, tr crm, rr wh, ltbrn, vfxl-micsuc-gran, micxl, tr crpxl, agl-sl ool GRNST/tr scat-intbd dns-rr plty PCKST, chky-sl anhy/tr POR fl-rr xln ANHY, sl dol, tt-tr intxl-vug POR, FLOR AA, fr ltbrn/tr blk pp dd o STN, g mod fast dif/tr mod fast stmg mlky CUT"
6450.00 6470.00	"LS tan, occ ltbrn, tr crm, rr wh, vfxl-micsuc-gran, micxl, tr crpxl, agl-incr sl ool GRNST/tr PCKST AA, sl chky-anhy/tr POR fl-rr xln ANHY, occ sl dol, tr intxl-ool-vug POR, occ tt, FLOR-STN AA, g fast dif/fr mod fast stmg mlky CUT"
6470.00 6490.00	"LS AA, pred agl-sl ool GRNST/scat dns sl ool-rr thn chky plty PCKST strks, POR AA, g even mod bri-bri yel FLOR, fr ltbrn/tr blk pp dd o STN, CUT AA"
6490.00 6510.00	"LS tan, occ crm-wh, tr ltbrn, vfxl-micxl-gran, occ crpxl, pred agl-ool GRNST, tr scat PCKST AA, chky-sl anhy/tr POR fl-xln ANHY, sl dol ip, fr-g intxl-agl/tr ool POR, FLOR AA, fr-g ltbrn/sl incr blk dd o STN, g mod fast dif-fr slow stmg mlky CUT"
6510.00 6520.00	"LS AA, pred agl-ool GRNST intbd/dns-thn chky plty PCKST, sl anhy/tr POR fl-xln ANHY, g-fr intxl-agl POR/occ ool strks, g even mod bri-bri yel FLOR, fr-g ltbrn/tr brn & blk pp dd o STN, g mod fast stmg mlky CUT"
6520.00 6530.00	"LS AA, pred GRNST AA/sl incr thn chky plty-tr dns sl ool PCKST, anhy/tr POR fl-rr xln ANHY, fr-g intxl-agl/tr ool POR, FLOR-STN-CUT AA"
6530.00 6540.00	"LS AA, agl-sl ool GRNST/decr PCKST AA, POR-FLOR-STN-CUT AA"
6540.00 6560.00	"LS tan, crm-wh, tr ltbrn, micxl-vfxl, crpxl, occ gran-sl micsuc, pred agl-sl ool GRNST/incr scat thn chky plty-occ dns sl ool PCKST, anhy/tr POR fl-rr xln ANHY, v sl dol ip, fr-g intxl-agl/tr ool POR, g scat mod bri-bri yel FLOR, fr ltbrn/tr brn-rr blk pp dd o STN, g fast dif/tr slow stmg mlky CUT"
6560.00 6580.00	"LS AA, micxl-vfxl, crpxl, occ gran-sl micsuc, GRNST AA occ bcmg dns, sl decr scat thn chky plty-tr dns sl ool PCKST, anhy/tr POR fl-rr xln ANHY, v sl dol ip, POR-FLOR AA, fr ltbrn/rr brn-v rr pp blk dd o STN, CUT AA"

DEPTH	LITHOLOGY
6580.00 6610.00	"LS crm-tan,occ wh-ltbrn,crpxl-vfxl,oc c gran-tr micsuc,pred sl alg GRNST & incr dns v sl chky-pty occ chty tt PKST w/depth,v sl dol,occ anhy-rr ANHY xl,tt-fr intxl-alg POR,mfr-fr bri yel FLOR,tr ltbrn STN-rr spty blk dd o STN,n-mfr slow-mod fast stmg CUT"
6610.00 6620.00	"LS AA,pred chty dns tt PKST NFSOC,w/v thn sl alg GRNST,n-tr POR-FLOR-STN-CUT"
6620.00 6630.00	"LS AA,w/sl incr alg GRNST & POR-FLOR-STN-CUT"
6630.00 6640.00	"LS pred wh-crm,crpxl-micxl,dns,chk-pty PKST & NFSOC,scat trnsl CHT frag,w/thn stks tan-crm micxl-vfxl-rr gran-v rr micsuc sl alg GRNST & rr-tr spty bri yel FLOR,v rr stks intxl-v sl alg POR,n-rr spty ltbrn-v rr blk STN,n-v p slow-v rr mod fast stmg CUT "
6640.00 6660.00	"LS AA,pred dns chky-pty wh PKST,w/v rr scat thn stks sl alg GRNST AA,n-v rr spty POR-FLOR-STN-CUT AA"
6660.00 6680.00	"LS pred wh-crm,crpxl-micxl,dns,chk-pty PKST & NFSOC,scat trnsl CHT frag,w/incr tan-crm micxl-vfxl-rr gran-v rr micsuc sl alg GRNST & tr-mfr spty bri yel FLOR,rr-fr intxl-v sl alg POR,rr-fr spty ltbrn STN-tr blk dd o STN,rr fr slow-tr mod fast stmg CUT "
6680.00 6700.00	"LS crm-tan,occ wh,crpxl-vfxl,gran-micsuc ip,pred sl alg GRNST,w/tr dns v sl chky-pty tt PKST & NFSOC,v sl dol,occ anhy-rr ANHY xl-trnsl CHT frag,tr-fr intxl-alg POR,fr bri yel FLOR,tr ltbrn STN-spty blk dd o STN,mfr-fr slow-mod fast stmg CUT"
6700.00 6720.00	"LS AA,pred sl alg GRNST,w/scat PKST AA,incr intxl-alg POR,incr POR-FLOR-STN-CUT"
6720.00 6760.00	"LS crm-tan,rr ltbrn-wh,micxl-vfxl,gran-micsuc ip,pred sl alg-ool GRNST,w/rr dns v sl chky-pty crpxl PKST & NFSOC,v sl dol,occ anhy-rr ANHY xl-trnsl CHT frag,mg intxl-alg-tr ool POR,g bri yel FLOR,fr ltbrn STN-tr blk dd o STN,fr slow-mg mod fast stmg CUT"
6760.00 6800.00	"LS AA,pred sl alg-v sl ool GRNST w/v rr scat CHT FRAG AA & tr PKST incl AA,fr-g intxl-sl alg-ool POR,g bri yel FLOR,tr-fr ltbrn STN,tr blk dd o STN,fr-g slow-mod fast stmg CUT "
6800.00 6820.00	"LS crm-tan,tr ltbrn,rr wh,micxl-vfxl,gran-micsuc ip,pred sl alg-ool GRNST,w/rr dns sl chky-pty crpxl PKST & NFSOC,sl dol,occ anhy-rr ANHY xl-trnsl CHT frag,mg intxl-tr alg-ool POR,g bri yel FLOR,fr ltbrn STN-tr blk dd o STN,fr slow-mg mod fast stmg CUT"
6820.00 6840.00	"LS AA,pred sl alg-v sl ool GRNST w/v rr scat trnsl CHT FRAG & tr dns v sl ool PKST incl,fr-g intxl-tr alg-v sl ool POR,g bri yel FLOR,fr ltbrn-brn STN,tr blk dd o STN,fr-g slow-mod fast stmg CUT "
6840.00 6860.00	"LS pred GRNST AA,rr scat PKST AA,v rr CHT frag,POR-FLOR-STN-CUT AA"

DEPTH

LITHOLOGY

6860.00 6890.00 "LS crm-tan, tr ltbrn, rr wh, micxl-vfxl, gran-micsu c ip, pred sl alg-ool GRNST, w/rr dns sl chky-plty crpxl PKST & NFSOC, sl dol, occ anhy-rr ANHY xl-trnsl CHT frag, mg intxl-tr alg-ool POR, g bri yel FLOR, fr ltbrn STN-tr blk dd o STN, fr slow-mg mod fast stmg CUT"

6891.00 6900.00 "LS AA, sl incr ANHY xl, v rr POR fl, POR-FLOR-STN-CUT AA"

6900.00 6920.00 "LS tan-occ crm, tr ltbrn, rr wh, vfxl-gran-micxl, occ crpxl, sl agl-ool GRNST, tr scat dns sl ool PCKST, chky-sl anhy/tr POR fl-rr xln ANHY, sl dol ip, g intxl-sl ool/tr vug POR, g even bri-mod bri yel FLOR, g ltbrn/scat blk pp dd o STN, g fast stmg mlky CUT"

6920.00 6940.00 "LS AA, vfxl-gran-micxl, occ crpxl, sl agl-ool GRNST/scat PCKST AA, chky-sl anhy/tr POR fl-rr xln ANHY, sl dol ip, g intxl-ool/tr vug POR, g even bri-mod bri yel FLOR, g ltbrn/tr blk pp dd o STN, g fast-mod fast stmg mlky CUT"

6940.00 6960.00 "LS tan-crm, tr ltbrn, rr wh, vfxl-gran-micxl, occ crpxl, sl agl-ool GRNST, tr scat dns sl ool PCKST, chky-sl anhy/tr POR fl-rr xln ANHY, v sl dol ip, g intxl-sl ool/tr vug POR, g even mod bri/scat bri yel FLOR, g-fr ltbrn/incr scat blk pp dd o STN, g mod fast-fast stmg mlky CUT"

6960.00 6980.00 "LS AA, vfxl-gran-micxl, occ crpxl, agl-sl ool GRNST, tr scat dns-v rr plty PCKST, chky-sl anhy/tr POR fl-rr xln ANHY, rr crm CHT, v sl dol, g-mg ool-agl/tr intxl POR, FLOR AA, fr-g ltbrn/tr brn & blk pp dd o STN, CUT AA"

6980.00 7000.00 "LS AA, agl-ool GRNST-occ grdg to dns tt GRNST, tr scat dns sl ool PCKST, chky-sl anhy/tr POR fl-rr xln ANHY, v sl dol ip, g-mg ool-intxl/tr vug POR, g even mod bri/scat bri yel FLOR, g ltbrn/tr brn-blk pp dd o STN, g mod fast-fast stmg mlky CUT"

7000.00 7030.00 "LS tan-crm, tr ltbrn, rr wh, vfxl-micxl-gran, occ crpxl, pred GRNST AA, scat dns sl ool PCKST, chky-sl anhy/tr POR fl, rr xln ANHY, sl dol ip, g-mg ool-intxl/tr vug POR, FLOR AA, g-fr ltbrn/sl incr scat blk pp dd o STN, g mod fast stmg mlky CUT"

7030.00 7050.00 "LS AA, pred agl-ool GRNST/occ tt dns strks, tr scat dns sl ool PCKST, chky-sl anhy/tr POR fl-rr xln ANHY, v sl dol ip, g intxl-sl ool/tr vug POR, g even mod bri/scat bri yel FLOR, g-fr ltbrn/tr scat blk pp dd o STN, CUT AA"

7050.00 7063.00 "LS tan-crm, tr ltbrn, rr wh, vfxl-gran-micxl, tr crpxl, agl-ool GRNST/decr tt dns strk, tr dns sl ool PCKST, chky-sl anhy/tr POR fl-rr xln ANHY, v rr CALC xl, v sl dol ip, g-fr ool-intxl/tr vug POR, rr frac POR, FLOR-STN AA, g-fr mod fast-fast stmg mlky CUT"

FORMATION TOPS

OPERATOR: MOBIL

WELL NAME: RATHERFORD UNIT #17-23 SE 1-C HORIZONTAL LATERAL LEG #1

FORMATION NAME	SAMPLE MEASURED DEPTH	SAMPLE TRUE VERTICAL DEPTH	DATUM KB:4708'
UPPER ISMAY	± 5348'	± 5348'	± -640'
LOWER ISMAY	5440'	5437'	-729'
GOTHIC SHALE	5469'	5459'	-751'
DESERT CREEK	5478'	5470'	-762'
DC 1-A ZONE	5495'	5478'	-770'
DC 1-A/1-B TRANSITION ZONE	5502'	5488'	-780'
DC 1-B ZONE	5524'	5501'	-793'
DC 1-B/1-C TRANSITION ZONE	5534'	5507'	-799'
TOP DC 1-C ZONE	5563'	5522'	-814'
BASE DC 1-C ZONE	5647'	5548'	-832'

GEOLOGICAL SUMMARY

AND

ZONES OF INTEREST

The Mobil Exploration and Production U.S., Inc., Ratherford Unit #17-23 Southeast Horizontal Lateral Leg #1 was a re-entry of the Mobil Ratherford Unit #17-23 located in Section 17, T41S, R24E, and was sidetracked in a southeasterly direction from 5378' measured depth, 5378' true vertical depth, on May 25, 1998. The lateral reached a measured depth of 7063', true vertical depth of 5536' at total depth, with a horizontal displacement of 1500' and true vertical plane 124 degrees on June 10, 1998 in the Desert Creek 1-C porosity zone. Both the curve and lateral portions of this well were drilled with no problems. The curve portion of the lateral was completed at a true vertical depth of 5537', in the upper porosity zone of the 1-C zone of the Desert Creek on June 7, 1998, with the lateral section begun on June 8th. The curve section of the hole was begun in the lower 53' of the Upper Ismay member of the Upper Paradox Formation before encountering the typical sections of Lower Ismay, Gothic Shale and Desert Creek members of the Upper Paradox Formation.

The curve section of the hole was drilled from a measured depth of 5387' to 5526', with only one significant problem unrelated to the drilling operation. The curve was halted at a measured depth of 5592' on the afternoon of June 4, 1998, and the drilling location evacuated for safety reasons, due to an extensive man hunt occurring near by in the Bluff, Utah area, and drilling was not resumed until noon on June 7th. The curve was landed at a true vertical depth of 5537', in the slightly algal to oolitic, very limy dolomites and very dolomitic limestone grainstones in the best porosity of the 1-C zone of the Desert Creek also on June 7, 1998. The curve section of the hole was begun in the basal 53 feet of the Upper Ismay member of the Paradox Formation before encountering the typical sections of the Lower Ismay, Gothic Shale and Desert Creek members of the Paradox Formation. The lateral section was begun also on June 7, 1998, and was completed with no problems.

Objectives of the Ratherford Unit #17-23 leg #1 horizontal lateral were to penetrate and drill the 1-C porosity horizon of the Desert Creek member of the Paradox Formation to a horizontal displacement of 1500'. Additional objectives were to identify and define the lithology and evaluate the porosity and to determine the horizon parameters of the 1-C porosity bench of the Desert Creek away from the original well bore. These objectives were accomplished in the 1-C zone with some difficulty due to the thickness of the porosity benches within the zone as well as the zones pinching out. Throughout the length of the lateral, minor sections of no to marginal porosity near the lower and middle porosity zones was penetrated, with the majority of the lateral in the good slightly algal to very slightly oolitic limestone grainstone porosity, with good sample shows. After completing the curve section of the lateral, the lateral section required intermittent sliding to maintain vertical and horizontal plane direction. The well path used the proposed target line until the 1-C zone was encountered, and then only as a reference point throughout the majority of the lateral section. Both the top and bottom of the middle porosity zone in the 1-C zones was encountered in the lateral, which was terminated in the middle 1-C porosity bench.

The top of the Upper Ismay was not encountered during the drilling of the curve, but was at approximately 5348' measured, based on previous well and electric logs. The lower 53 feet from 5387' to 5452' measured depth was characterized by interbedded dense, occasionally marly limestone packstones, thin very argillaceous limey dolomite packstone with some marly dolomites and very thin carbonaceous shales. The limestones were light to medium gray, tan to dark brown, cryptocrystalline to microcrystalline, dense, slightly dolomitic, some chalky and argillaceous to marly streaks. The dolomites were medium to dark brown, cryptocrystalline to microcrystalline, earthy, clean to dense. The limestones and dolomites showed no visible porosity and had no sample shows. Scattered throughout the limestone and dolomites were brown to translucent chert fragments and very thin light to dark gray, dolomitic to calcareous, occasionally micaceous, slightly carbonaceous shale partings to laminations. Near the base of the upper Ismay, limestones and dolomites became increasingly earthy, and argillaceous and graded into the thin calcareous to slightly dolomitic, carbonaceous shales of the Hovenweep Shale. The Hovenweep marker between the Upper and Lower Ismay members was represented by a thin interval of black to dark gray brown shale which was slightly calcareous to dolomitic and occasionally micaceous to slightly silty. The Hovenweep Shale was very poorly represented in the samples.

The top of the Lower Ismay was picked at 5440' measured depth, 5437' true vertical depth, at the base of the thin Hovenweep shale marker. This pick was based on sample identification and a change to an erratic penetration rate due to very anhydritic limestone near the top of the Lower Ismay. The lithology of the Lower Ismay from 5440' to the top of the Gothic Shale at 5465' measured depth was predominately limestone packstone, light gray to white to cream to brown in color, cryptocrystalline to microcrystalline with an earthy to grainy texture grading to a dense tight matrix. Throughout the Lower Ismay were scattered light to dark brown chert fragments, very thin black carbonaceous shale partings and rare very silty to sandy streaks. Also noted near the base were very thin interbeds of brown, very argillaceous, microcrystalline, limy dolomites. The interval from a measured depth of 5453' to 5465' measured depth, showed an increase in light brown to brown, microcrystalline to cryptocrystalline, earthy to argillaceous dolomites, and increasingly marly brown, cryptocrystalline dolomitic limestone packstone. The dolomites and limestones in this basal interval became increasingly marly and graded into the carbonaceous shales of the Gothic Shale. Very minor intercrystalline porosities were noted, but had no visible fluorescence, stain or cut, in the limestones and dolomites throughout the Lower Ismay.

The Gothic Shale was penetrated at a measured depth of 5465', 5459' true vertical depth, and was the typical lithology; predominantly black to dark gray shale, carbonaceous, silty, soft to slightly firm, subblocky, occasionally subplaty to slightly fissile, calcareous to slightly dolomitic, micaceous, and very slightly silty. The top of the Gothic lays gradationally below the thin interbedded argillaceous limestones and dolomites at the base of the Lower Ismay. The top of the Gothic was picked predominantly by an increase in penetration rate and an abrupt increase in the percentage of shale in the samples. The Gothic Shale overlays the transition zone at the top of the Desert Creek, with a rather sharp facies change.

The top of the Desert Creek member of the Paradox was picked at a measured depth of 5478', 5470' true vertical depth, and was marked by a thin transition zone facies between the overlying Gothic Shale and the underlying 1-A porosity zone. This thin transition zone interval in this lateral was the typical lithology, being thin interbeds of light gray, dolomitic limestone packstone, cryptocrystalline to microcrystalline and argillaceous with traces of a silty texture and anhydrite inclusions, with thin streaks of argillaceous to clean, brown to gray brown, microcrystalline, slightly limey dolomite. This zone also displayed rare scattered chert fragments and very thin carbonaceous shale partings. There were no to very rare visible intercrystalline porosity and only very poor visible staining, fluorescence and very poor, very slow diffuse cut in this thin interval.

The top of the Desert Creek 1-A porosity zone was encountered at a measured depth of 5485', true vertical depth of 5478', essentially flat with the top on the vertical well log. The top was noted by a significant increase in the penetration rate and a change into the typical oolitic to oomoldic limestone grainstones, which displaying oolitic to intercrystalline porosity development. The limestone was cream to tan to brown in color, cryptocrystalline to very finely crystalline, oolitic and had slightly dolomitic to anhydritic cement, scattered anhydrite crystals with fair bright yellow fluorescence, spotty fair brown stain, and fair slow to moderately fast streaming cut. Thin interbeds of limestone packstones were present though the 1-A porosity zone and were cream to tan in color, cryptocrystalline to microcrystalline with a dense tight to slightly chalky texture. These packstones displayed no visible sample shows. The 1-A porosity zone was approximately 10 feet thick in this lateral and appeared to become increasingly tight with depth. This corresponds well to the 11 foot thick porosity seen on the gamma neutron log.

A tight limestone packstone was penetrated from the base of the 1-A porosity zone at 5502' measured depth, to the top of the 1-B porosity horizon at 5524' measured depth, 5501' true vertical depth. This 1-A to 1-B transition zone was characterized by a tight limestone packstone, cream to tan in color, cryptocrystalline to microcrystalline with a dense to slightly chalky micritic matrix and was slightly anhydritic. Scattered translucent to buff chert fragments and very minor thin brown, microcrystalline, earthy dolomites were observed in this section. Only a very poor spotty intercrystalline porosity with rare spotty dark brown to black stain, poor dull yellow fluorescence and slow streaming to residual ring cuts, which decreased with depth, were noted in this packstone interval.

The 1-B porosity horizon was penetrated from a measured depth of 5524', 5501' true vertical depth, to a measured depth of 5534', 5507' true vertical depth. The top of the porosity was within approximately 4 feet high to the top shown on the well log for the vertical well. The porosity development on the vertical well log appears to be about 8 to 9 feet thick. But in the curve section the best porosity appeared to be only about 6 feet thick. The lithology of the 1-B porosity zone was an oolitic to oomoldic limestone grainstone, tan to light brown, very fine crystalline to microcrystalline with a granular texture, slight anhydritic with moderately fair oolitic to intercrystalline porosity. The sample shows were fair with a trace to fair spotty light brown to brown stain, bright yellow fluorescence and a trace of moderately fair slow streaming cut.

The interval between the base of the 1-B porosity to the top of the 1-C porosity zone was an interbedded limestone packstone and a very limey dolomite grainstone. The 1-B to 1-C transition zone was from measured depths of 5534' to 5576', with true vertical depths from 5507' to 5527'. The lithology of this interval became predominately a brown to light brown, cryptocrystalline to very finely crystalline, limey dolomite, which was slightly argillaceous, oolitic to oomoldic, and had some scattered anhydrite crystals. The limestone packstones were cream to tan to white and occasionally brown in color, cryptocrystalline to microcrystalline with an occasionally chalky texture, occasional anhydritic with scattered chert fragments. The limestones were very tight with very thin streaks of intercrystalline to fractured porosity, while the dolomites had poor to moderately fair intercrystalline to oolitic porosity. The sample shows noted in the interbedded limestones and dolomites was generally poor, with no to only a trace of visible staining, traces of poor dull yellow fluorescence and only a very poor to moderate streaming to residual cut.

The 1-C objective horizon was penetrated at a measured depth of 5563', true vertical depth of 5522', 1' low to the top shown on the gamma-neutron log for the vertical well. The lithology of the 1-C when first penetrated was primarily a dolomite grainstone with interbedded limestone packstone. The dolomites were brown, microcrystalline to very finely crystalline with a microsucrosic to granular texture, slightly oolitic to oomoldic, with streaks of fair to good intercrystalline and oolitic porosity, and a fair sample show. These dolomites were limey and the interbedded limestone packstones were very dolomitic, slightly cherty, anhydritic, with scattered anhydrite crystals, slightly to very argillaceous, with no porosity or sample show. The limestone became very clayey and appeared to grade to a very limey claystone at a measured depth of 5572' to 5575'.

The top of the upper most porosity of the 1-C was encountered at a measured depth of 5576', 5527' true vertical depth, in a very oolitic to oomoldic, slightly algal dolomite grainstone. This dolomite grainstone was brown, microcrystalline to very finely crystalline, granular to microsugrosic, with fair intercrystalline to oolitic to rare vuggular porosity, which had a fair to good sample show. Below this 2' thick porosity streak, the lithology became a tight, dolomitic limestone packstone, with no visible porosity or sample show, and scattered crinoid to microfossils. At a measured depth of 5595', 5532' true vertical depth, another thin streak of porosity was encountered, in a very limey oolitic to oomoldic, slightly algal, brown to light brown, dolomite grainstone. This dolomite grainstone porosity streak, was very similar to the porosity streak described above, with the exception that the dolomite became increasingly limey with depth and graded to a very dolomitic oolitic to oomoldic, slightly algal limestone grain stone. The sample show and porosity was moderately good, until reaching a measured depth of 5605', 5533' true vertical depth, when a 1½' (one and one-half foot) thick streak of dense limestone packstone was encountered.

The top of the best porosity zone of the 1-C zone was drilled at a measured depth of 5618', 5534.5' true vertical depth and a horizontal displacement of 47'. This middle porosity zone of the 1-C zone was a light brown to brown, cryptocrystalline to very finely crystalline, very limey, oolitic to oomoldic to slightly algal dolomite grainstone. Interbedded in the dolomites were tan to cream to occasionally white cryptocrystalline to microcrystalline, oolitic to oomoldic, very slightly algal, and very dolomitic limestone grainstone. These interbedded dolomite and limestone grainstones had a fair to good sample show and good intercrystalline to oolitic to occasionally algal porosity. The curve portion of the hole was landed at a measured depth of 5626', true vertical depth of 5537.5', 3.5 feet above the target depth with an inclination of 85.1° and a horizontal displacement of 65'.

After landing the curve section of the lateral, and upon beginning the lateral section the well bore was oriented upward to try to remain in the porosity zone. The lithology was predominately a very dolomitic, oolitic to oomoldic limestone grainstone. At a measured depth of 5649', 5539' true vertical depth, a tight, white to cream to tan, cryptocrystalline to microcrystalline, slightly oolitic limestone packstone. This limestone has very thin streaks of slightly oolitic to oomoldic limestone grainstone. As the well bore was being turned upward toward 90°, this dense limestone streak was drilled through and was approximately 1(one) foot thick. As the well path continued to drop in true vertical depth, with the well bore continuing to be slowly turned upward toward 90°, a oolitic to oomoldic, slightly algal limestone grainstone was encountered at a measured depth of 5671', 5540' true vertical depth, just above the proposed target line. This limestone grainstone exhibited good intercrystalline to oolitic and oomoldic porosity, some scattered algal porosity, with a moderately good to good sample shows. As the well path was oriented and maintained at 90°, the base of the zone appeared to be bumped and scrapped. At a measured depth of 5835', 5542' true vertical depth and a horizontal displacement of 273', the base of the zone was very shallowly penetrated. An increase in the amount of chert, anhydrite crystals and limestone packstone was noted with a decrease in the sample shows. The lithology became predominately a dense limestone packstone with no to very thin streaks of porosity noted as the formation forced the well path upward. This dense, cherty, limestone packstone was consistent to a measured depth of 6242', 5536' true vertical depth, and a horizontal displacement of 680'. At this time it was determined that the middle porosity streak had pinched out. And upon bumping the base of the thin lower porosity zone, the well path had been turned upward into the tight packstone between the two (2) porosity streaks noted while drilling the curve and at the start of the lateral. This dense tight packstone increased significantly in thickness away from the well bore in this southeasterly direction. Almost immediately upon turning the well path downward, the upper porosity streak was encountered. This porosity streak was correlated to the upper streak of porosity seen while drilling the curve and the upper porosity noted on the electric logs in the best porosity of the 1-C zone.

The middle (best) porosity, beginning at the measured depth of 6242', was a very good microsucrosic to sucrosic, oolitic to oomoldic, slightly algal limestone grainstone, with a fair to good sample show. As the lateral section continued, the inclination of the well bore dropped to 84.5° upon encountering the porosity. The well bore was rotated and slid upward in hopes of remaining in this upper bench. Before being able to recover from the decreasing inclination. The again thin tight limestone packstone streak was encountered at a measured depth of 6326', 5540' true vertical depth and a horizontal displacement of 766'. The middle limestone grainstone porosity of the 1-C zone had a thickness of 4', which was only ½ (one half) a foot thinner than seen while landing the curve and beginning the lateral. The tight limestone packstone streak was approximately one foot (1') thick, with the very thin lower porosity streak again encountered at a measured depth of 6350', 5541' true vertical depth.

This 1' (one foot) thick lower porosity showed the good oolitic to oomoldic, slightly algal limestone grainstone and fair sample show noted earlier in the lateral after beginning the lateral section. After bringing the well path to an inclination of 90°, in the lower thin porosity streak, the decision was made to turn the well path upward in to the thicker upper porosity bench. The tight streak was again penetrated at a measured depth of 6500', 5541' true vertical depth, and a horizontal displacement of 938'. This tight, cherty, limestone packstone lithology showed thin streaks of oolitic to oomoldic limestone grainstone porosity. The sample shows became very poor to moderately good. As the well path was continued slowly upward, the base of the upper porosity zone was encountered at a measured depth of 6681', 5537.5' measured depth, with a horizontal displacement of 1119'. At this time the lithology returned to the oolitic to oomoldic, slightly algal limestone grainstone, with good sample shows. After reaching an angle of 92.5° to obtain this middle porosity zone, the angle turned toward 90°.

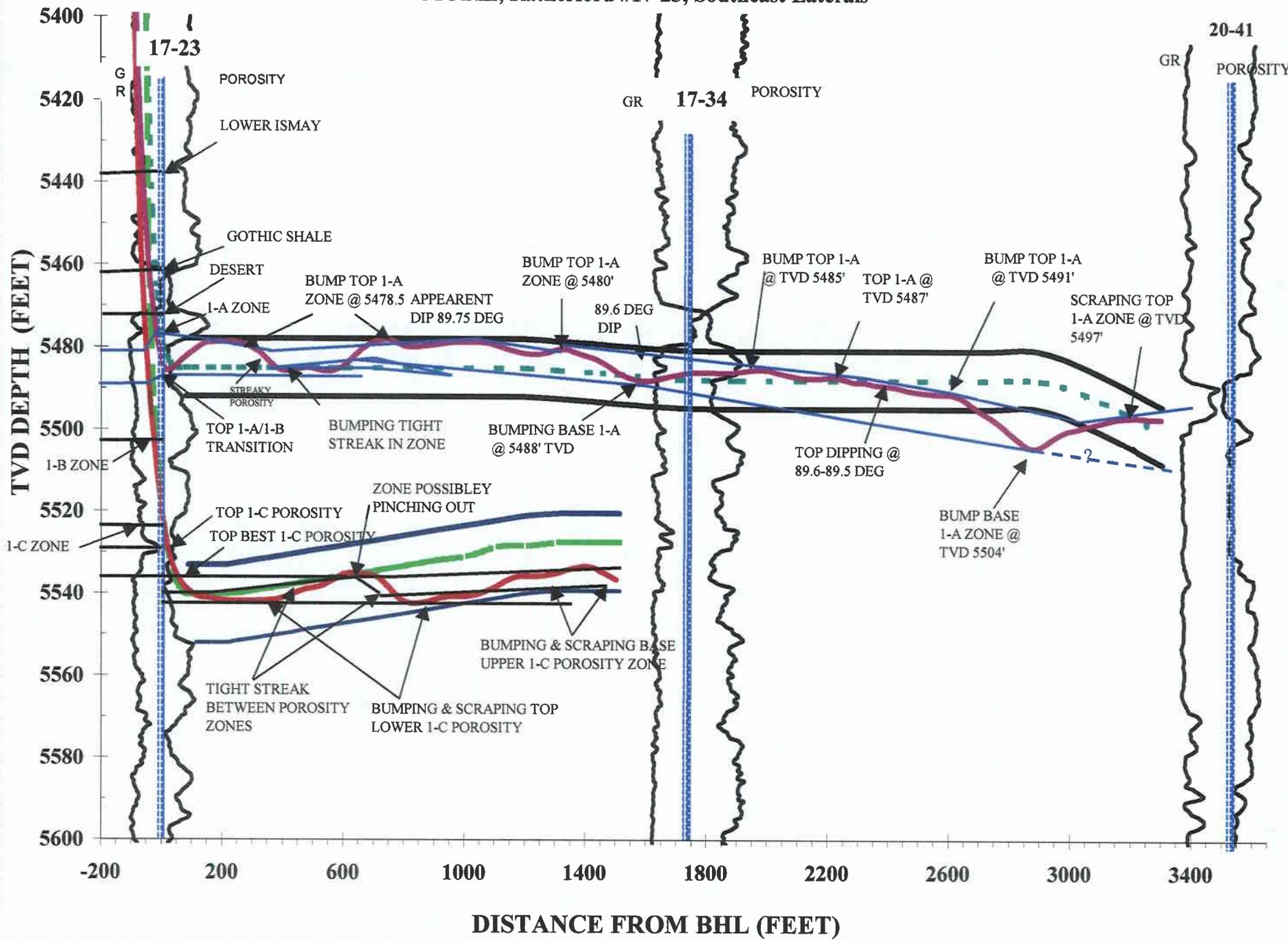
Upon reaching the true vertical depth of 5536', 6735' measured depth, the top of the middle bench of the 1-C zone was bumped. As the well path continued at a shallow upward angle, the well path again bumped the top of the 1-C zone at 6903' measured depth, 5534' true vertical depth, with a horizontal displacement of 1340'. After bumping the top, which appeared to continue upward with a dip of 90.7°, the well path turned downward to the lateral's termination. The lateral was terminated in the 1-C zone at a measured depth of 7763', 5536.4' true vertical depth, with a horizontal displacement of 1500.4', on June 10, 1998.

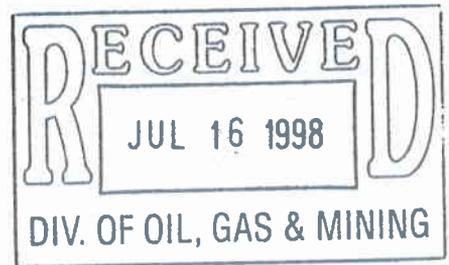
From where the 1-C zone was first penetrated in the curve, the background gas readings showed a moderate increase, but as the lateral continued the gas readings slowly decreased. Upon repenetrating the very thin lower porosity streak the gas reading again showed a very minor increase before slowly decreasing, with a minor increase near the end of the lateral. The background gas averaged 2000 to 2500 units through out the length of the lateral in the 1-C zone. When drilling in the tight streak between the porosity zones, the background gas averaged in the 1000 unit range. The amount of C₁ through C₄ gasses noted on the gas chromatograph was in proportionate to the background gas and the lateral was terminated with a small 3' to 4' flare.

It appears the slightly algal, oolitic to oomoldic limestone grainstones of the middle 1-C porosity horizon thinned and pinched out with in 300' of the well bore in the southeasterly direction. The 1' thick tight zone seen in the curve between the middle and lower zones thickened as the middle zone thinned, and increased to a thickness of at least 6'. The overall best porosity in this southeasterly lateral was in the oolitic to oomoldic and slightly algal limestone grainstones of the middle and lower 1-C zones. These at times discontinuous limestone grainstones of the 1-C did show fair intercrystalline porosity and sample shows. The tight limestone packstones, which thickened and then thinned away from the original well bore, appear to be a result of an intermoundal development. With the minor amounts of lower 1-C porosity combined with the good porosity of the middle 1-C zone, this lateral should add to the over potential of the 17-23 well. After reaching the full lateral length, of 1500' the lateral was terminated at a measured depth of 7063', a true vertical depth of 5536', on June 10, 1998, as the lateral approached within 250' of the R. U. 17-34 well bore.

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

MOBIL, Ratherford #17-23, Southeast Laterals





MOBIL

**RATHERFORD UNIT #17-23
SE HORIZONTAL LATERAL LEG #2
1-A POROSITY BENCH
DESERT CREEK MEMBER
PARADOX FORMATION
SECTION 17, T41S, R24E
SAN JUAN, UTAH**

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

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TABLE OF CONTENTS

WELL SUMMARY.....	3
DRILLING CHRONOLOGY.....	4
DAILY ACTIVITY.....	5
BIT RECORD.....	5
MUD RECORD.....	5
SURVEY RECORD.....	6
SAMPLE DESCRIPTIONS.....	10
FORMATION TOPS.....	23
GEOLOGIC SUMMARY AND ZONES OF INTEREST.....	24
WELL PLOTS.....	29

WELL SUMMARY

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

NAME: RATHERFORD UNIT #17-23 SE HORIZONTAL LATERAL
LEG #2 IN THE DESERT CREEK 1-A POROSITY BENCH

LOCATION: SECTION 17, T41S, R24E

COUNTY/STATE: SAN JUAN, UTAH

ELEVATION: KB: 4708' GL: 4696'

SPUD DATE: 6/01/98

COMPLETION DATE: 6/16/98

DRILLING ENGINEER: BENNY BRIGGS

WELLSITE GEOLOGY: DAVE MEADE

MUDLOGGING ENGINEERS: DAVE MEADE / LUKE TITUS

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

HOLE SIZE: 4 3/4"

CASING RECORD: SIDETRACK IN WINDOW AT 5363' MEASURED DEPTH

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

DIRECTIONAL DRILLING CO: SPERRY-SUN

ELECTICAL LOGGING: NA

TOTAL DEPTH: 8836' MEASURED DEPTH; TRUE VERTICAL DEPTH-5497'

STATUS: TOH & LAY DOWN TOOLS - PREPARE WELL FOR RIG MOVE TO R.U. 17-43 LOCATION

DRILLING CHRONOLOGY
RATHERFORD UNIT #17-23
SE 1-A HORIZONTAL LATERAL LEG #2

DATE	DEPTH	DAILY	ACTIVITY
6/11/98	7063'	7'	L.D. LATERAL ASSEM-P. U. RETRIEVING HOOK-TIH-LATCH INTO WHIPSTOCK #1-INSTALL TIW VALVE-CIR OUT GAST-TOH-PICK UP WHIPSTOCK #2 & STARTER MILL-ORIENT-TIH-SET WHIPSTOCK-MILL W/STARTER MILL 5356' TO 5358'-CIR-TOH-L.D. STARTER MILL- P. U. WINDOW & WATERMELON MILLS-TIH-CIR. OUT-MILL 5356' TO 5363'-PUMP SWEEP & CIR OUT-TOH-L.D. MILLS-P.U. CURVE ASSEM.-ORIENT-TEST MWD & MUD MOTOR-TIH
6/12/98	5363'	187'	TIH-CIR--RIG UP GYRO DATA-RUN GYRO-TIME DRLG 5363' TO 5365'-DIR DRLG & WIRE LINE SURVEYS TO 5388'-PULL GYRO & RIG DOWN GYRO DATA-DIR DRLG & SUREYS TO 5508'-PUMP 20 BBLs BRINE-TOH-CHANGE OUT PAD ON MUD MOTOR-TIH-DIR DRLG & SURVEYS
6/13/98	5550'	453'	DIR DRLG & SURVEYS TO 5556'-PUMP SWEEP & CIR. OUT-L.D. 116 JTS PIPE-TOH-L.D. CURVE ASSEM.-P.U. LATERAL ASSEM.& TEST MWD & MUD MOTOR-P.U. 10 DRL COLLARS-TIH-P.U. PH6 PIPE-TIH-CIR-DIR DRLG & SURVEYS
6/14/98	6003'	1030'	DIR DRLG & SURVEYS
6/15/98	7033'	1269'	DIR DRLG & SURVEYS
6/16/98	8302'	534'	DIR DRLG & SURVEYS TO 8836' (TD)-PUMP 15 BBL SWEEP & CIR SPLS-DISPLACE HOLE W/BRINE WATER-TOH-TOOK KICK-SHUT IN WELL W/300 psi ON CHOKE-CIR THRU CHOKE-DISPLACE W/ 15 # MUD-TOH
6/17/98	8836'	TD	TOH-L.D. LATERAL ASSEM.-TIH W/ RETRIEVEABLE BRIDGE PLUG-LATCH INTO WHIPSTOCK-SHEAR OFF-TOH & PREPARE WELL FOR RIG MOVE TO R.U. 17-23 LOCATION

DAILY ACTIVITY

Operator: MOBIL

Well Name: RATHERFORD UNIT #17-23 SE 1-A HORIZONTAL LATERAL LEG #2

DATE	DEPTH	DAILY	DATE	DEPTH	DAILY
6/11/98	7063'	7'			
6/12/98	5363'	187'			
6/13/98	5550'	453'			
6/14/98	6003'	1030'			
6/15/98	7033'	1269'			
6/16/98	8302'	534'			
6/17/98	8836'	TD			

BIT RECORD

OPERATOR: MOBIL

WELL NAME: RATHERFORD UNIT #17-23 SE 1-A HORIZONTAL LATERAL LEG #2

RUN	SIZE	MAKE	TYPE	IN/OUT	FTG	HRS	FT/HR
1 (RR)	4 3/4"	STC	MF-3P	5363'/ 5556'	193'	15.5	12.5
2	4 3/4"	STC	MF-37P	5556'/ 8836'	3280'	74	44.3

MUD REPORT

OPERATOR: MOBIL

WELL NAME: RATHERFORD UNIT #17-23 SE 1-A HORIZONTAL LATERAL LEG #2

DATE	DEPTH	WT	VIS	PLS	YLD	GEL	PH	WL	CK	CHL	CA	SD	OIL	WTR
6/11/98	7063'	8.9	26	1	0	0/0	10.0	NC	NC	55K	4000	1	0%	99%
6/12/98	5403'	9.0	26	1	1	0/0	11.0	NC	NC	64K	3800	1	0%	99%
6/13/98	'	9.0	26	1	1	0/0	11.0	NC	NC	74K	3800	2	4%	94%
6/14/98	'	8.7	27	2	1	0/0	12.0	NC	NC	70K	3800	3	8%	89%
6/15/98	'	8.7	27	2	1	0/0	12.0	NC	NC	68K	3400	2	6%	92%
6/16/98	'	8.8	26	1	1	0/0	10.0	NC	NC	55K	3200	2	4%	94%

SPERRY-SUN DRILLING SERVICES
SURVEY DATA

Customer ... : Mobil (Utah)
Platform ... : RATHERFORD UNIT
Slot/Well .. : BA25/17-23 2A1

MEASURED DEPTH	ANGLE DEG	DIRECTION DEG	TVD	NORTHINGS FEET	EASTINGS FEET	VERTICAL SECTION	DOG LEG
5300.00	0.42	324.80	5298.95	67.43 N	63.51 W	-92.00	0.00
5356.00	0.39	320.20	5354.95	67.75 N	63.75 W	-92.38	0.08
5363.00	3.70	130.00	5361.94	67.62 N	63.59 W	-92.18	58.35
5373.00	7.80	123.30	5371.89	67.04 N	62.78 W	-91.18	41.48
5383.00	12.10	121.20	5381.74	66.12 N	61.31 W	-89.47	43.15
5393.00	16.20	120.20	5391.43	64.88 N	59.21 W	-87.06	41.07
5403.00	20.40	119.60	5400.93	63.32 N	56.49 W	-83.97	42.04
5413.00	24.50	119.20	5410.17	61.44 N	53.16 W	-80.22	41.03
5423.00	28.60	117.60	5419.11	59.32 N	49.23 W	-75.84	41.62
5433.00	32.90	115.70	5427.70	57.03 N	44.66 W	-70.87	44.08
5443.00	36.70	114.40	5435.91	54.62 N	39.49 W	-65.36	38.72
5453.00	40.60	114.40	5443.72	52.04 N	33.80 W	-59.34	39.00
5463.00	44.80	114.80	5451.07	49.22 N	27.64 W	-52.81	42.09
5473.00	49.00	114.10	5457.90	46.20 N	20.99 W	-45.77	42.31
5483.00	52.80	113.70	5464.21	43.05 N	13.90 W	-38.32	38.13
5493.00	57.20	113.00	5469.94	39.81 N	6.38 W	-30.47	44.37
5503.00	62.30	112.60	5474.98	36.46 N	1.58 E	-22.22	51.12
5513.00	68.10	111.10	5479.17	33.09 N	10.01 E	-13.60	59.57
5523.00	74.30	110.50	5482.39	29.73 N	18.85 E	-4.67	62.26
5533.00	80.10	110.60	5484.60	26.31 N	27.98 E	4.52	58.01
5556.00	94.70	114.30	5485.65	17.56 N	49.15 E	26.37	65.47
5608.00	92.50	121.60	5482.38	6.75 S	94.96 E	77.08	14.63
5640.00	94.00	126.80	5480.56	24.70 S	121.37 E	108.86	16.89
5672.00	91.50	126.10	5479.02	43.69 S	147.08 E	140.76	8.11
5704.00	89.50	125.20	5478.75	62.34 S	173.08 E	172.66	6.85
5735.00	90.40	125.60	5478.77	80.30 S	198.35 E	203.56	3.18
5767.00	90.10	129.40	5478.63	99.77 S	223.73 E	235.52	11.91
5799.00	88.20	129.30	5479.11	120.06 S	248.48 E	267.52	5.95
5830.00	88.20	129.60	5480.08	139.75 S	272.40 E	298.50	0.97
5861.00	86.40	130.90	5481.54	159.76 S	296.03 E	329.46	7.16
5892.00	85.30	130.50	5483.79	179.92 S	319.47 E	360.38	3.77
5924.00	88.80	133.00	5485.43	201.19 S	343.31 E	392.32	13.43
5956.00	90.70	135.10	5485.57	223.44 S	366.31 E	424.23	8.85
5988.00	90.90	136.50	5485.13	246.38 S	388.61 E	456.06	4.42
6019.00	89.60	137.50	5484.99	269.05 S	409.75 E	486.83	5.29
6051.00	88.50	138.10	5485.52	292.75 S	431.25 E	518.53	3.92
6082.00	90.60	136.50	5485.76	315.53 S	452.27 E	549.28	8.52
6113.00	91.30	134.90	5485.25	337.71 S	473.91 E	580.12	5.63

SPERRY-SUN DRILLING SERVICES
SURVEY DATA

Customer ... : Mobil (Utah)
Platform ... : RATHERFORD UNIT
Slot/Well .. : BA25/17-23 2A1

MEASURED DEPTH	ANGLE DEG	DIRECTION DEG	TVD	NORTHINGS FEET	EASTINGS FEET	VERTICAL SECTION	DOG LEG
6145.00	93.90	131.40	5483.80	359.57 S	497.23 E	612.03	13.62
6177.00	94.30	132.10	5481.51	380.82 S	521.04 E	643.93	2.51
6209.00	92.60	131.00	5479.58	402.01 S	544.95 E	675.86	6.32
6241.00	91.60	129.80	5478.41	422.73 S	569.30 E	707.84	4.88
6272.00	89.60	129.30	5478.09	442.47 S	593.20 E	738.83	6.65
6304.00	87.60	127.90	5478.87	462.43 S	618.20 E	770.81	7.63
6336.00	88.90	128.70	5479.85	482.25 S	643.30 E	802.78	4.77
6368.00	90.70	129.40	5479.96	502.41 S	668.15 E	834.77	6.04
6400.00	90.60	129.60	5479.59	522.76 S	692.84 E	866.77	0.70
6431.00	90.10	130.50	5479.41	542.71 S	716.57 E	897.77	3.32
6463.00	91.00	130.90	5479.10	563.58 S	740.83 E	929.77	3.08
6495.00	90.40	131.00	5478.71	584.55 S	764.99 E	961.76	1.90
6526.00	89.60	130.90	5478.71	604.86 S	788.41 E	992.75	2.60
6558.00	90.20	130.90	5478.76	625.82 S	812.59 E	1024.75	1.87
6590.00	89.80	131.60	5478.76	646.92 S	836.65 E	1056.74	2.52
6621.00	88.90	131.40	5479.11	667.45 S	859.87 E	1087.73	2.97
6652.00	88.40	130.70	5479.84	687.81 S	883.24 E	1118.72	2.77
6684.00	88.90	130.00	5480.60	708.52 S	907.62 E	1150.71	2.69
6716.00	89.10	128.00	5481.16	728.65 S	932.48 E	1182.69	6.28
6747.00	89.40	127.20	5481.56	747.57 S	957.04 E	1213.66	2.76
6778.00	90.40	127.00	5481.62	766.27 S	981.77 E	1244.62	3.29
6810.00	91.20	126.30	5481.17	785.37 S	1007.44 E	1276.57	3.32
6841.00	91.30	125.60	5480.49	803.56 S	1032.53 E	1307.48	2.28
6873.00	88.80	125.60	5480.47	822.19 S	1058.54 E	1339.38	7.81
6905.00	88.20	124.30	5481.30	840.51 S	1084.76 E	1371.25	4.47
6937.00	88.90	124.50	5482.11	858.58 S	1111.16 E	1403.08	2.27
6968.00	88.70	126.60	5482.76	876.60 S	1136.37 E	1433.98	6.80
6999.00	86.70	125.20	5484.01	894.77 S	1161.46 E	1464.88	7.87
7031.00	87.50	125.60	5485.63	913.28 S	1187.51 E	1496.73	2.79
7063.00	88.20	127.90	5486.83	932.41 S	1213.13 E	1528.66	7.51
7095.00	88.80	128.00	5487.66	952.08 S	1238.36 E	1560.62	1.90
7127.00	89.90	128.60	5488.03	971.91 S	1263.47 E	1592.61	3.92
7158.00	90.80	128.70	5487.84	991.27 S	1287.68 E	1623.60	2.92
7190.00	91.00	129.10	5487.34	1011.37 S	1312.58 E	1655.59	1.40
7222.00	91.00	128.70	5486.78	1031.46 S	1337.48 E	1687.58	1.25
7254.00	90.60	128.90	5486.33	1051.51 S	1362.42 E	1719.57	1.40
7286.00	90.40	128.40	5486.05	1071.49 S	1387.41 E	1751.56	1.68
7317.00	89.90	128.60	5485.97	1090.79 S	1411.67 E	1782.55	1.74

SPERRY-SUN DRILLING SERVICES
SURVEY DATA

Customer ... : Mobil (Utah)
Platform ... : RATHERFORD UNIT
Slot/Well .. : BA25/17-23 2A1

MEASURED DEPTH	ANGLE DEG	DIRECTION DEG	TVD	NORTHINGS FEET	EASTINGS FEET	VERTICAL SECTION	DOG LEG
7349.00	89.90	128.20	5486.03	1110.67 S	1436.74 E	1814.53	1.25
7381.00	89.60	128.00	5486.17	1130.41 S	1461.93 E	1846.52	1.13
7413.00	90.40	127.70	5486.17	1150.05 S	1487.19 E	1878.49	2.67
7444.00	90.80	127.20	5485.84	1168.90 S	1511.80 E	1909.46	2.07
7476.00	90.40	126.80	5485.51	1188.15 S	1537.36 E	1941.41	1.77
7508.00	90.50	127.20	5485.25	1207.41 S	1562.91 E	1973.37	1.29
7540.00	88.70	128.60	5485.48	1227.07 S	1588.16 E	2005.34	7.13
7572.00	88.90	128.60	5486.15	1247.03 S	1613.16 E	2037.33	0.63
7603.00	89.20	130.00	5486.66	1266.66 S	1637.15 E	2068.32	4.62
7635.00	89.10	129.80	5487.14	1287.18 S	1661.70 E	2100.32	0.70
7667.00	90.10	130.20	5487.36	1307.75 S	1686.21 E	2132.32	3.37
7699.00	89.90	129.60	5487.36	1328.28 S	1710.76 E	2164.32	1.98
7731.00	90.50	129.30	5487.25	1348.61 S	1735.47 E	2196.31	2.10
7762.00	89.50	128.70	5487.25	1368.12 S	1759.56 E	2227.31	3.76
7794.00	88.90	128.20	5487.69	1388.01 S	1784.62 E	2259.29	2.44
7825.00	88.60	128.00	5488.37	1407.14 S	1809.01 E	2290.27	1.16
7857.00	89.80	128.70	5488.82	1426.99 S	1834.10 E	2322.25	4.34
7889.00	89.80	129.80	5488.93	1447.24 S	1858.88 E	2354.25	3.44
7920.00	89.50	129.60	5489.12	1467.04 S	1882.73 E	2385.25	1.16
7951.00	89.20	129.60	5489.47	1486.80 S	1906.61 E	2416.24	0.97
7983.00	88.90	129.60	5490.00	1507.19 S	1931.27 E	2448.24	0.94
8015.00	89.20	129.40	5490.53	1527.54 S	1955.95 E	2480.23	1.13
8047.00	89.60	128.90	5490.87	1547.74 S	1980.77 E	2512.23	2.00
8079.00	89.60	128.40	5491.09	1567.73 S	2005.76 E	2544.22	1.56
8110.00	89.70	128.40	5491.28	1586.99 S	2030.05 E	2575.21	0.32
8141.00	90.30	128.00	5491.28	1606.16 S	2054.42 E	2606.19	2.33
8172.00	87.10	127.30	5491.98	1625.08 S	2078.95 E	2637.15	10.57
8204.00	87.00	129.80	5493.63	1645.00 S	2103.94 E	2669.10	7.81
8236.00	86.80	130.30	5495.36	1665.56 S	2128.40 E	2701.05	1.68
8268.00	88.10	130.30	5496.78	1686.24 S	2152.78 E	2733.02	4.06
8299.00	86.20	129.80	5498.33	1706.16 S	2176.48 E	2763.98	6.34
8331.00	86.50	129.80	5500.36	1726.60 S	2201.02 E	2795.91	0.94
8363.00	86.70	129.40	5502.26	1746.96 S	2225.63 E	2827.85	1.40
8395.00	87.10	129.30	5503.99	1767.22 S	2250.34 E	2859.81	1.29
8426.00	91.80	131.20	5504.29	1787.24 S	2273.99 E	2890.79	16.35
8458.00	92.60	130.90	5503.06	1808.24 S	2298.10 E	2922.76	2.67
8489.00	93.50	130.70	5501.41	1828.47 S	2321.54 E	2953.72	2.97
8521.00	90.60	131.70	5500.27	1849.53 S	2345.59 E	2985.69	9.59

SPERRY-SUN DRILLING SERVICES
SURVEY DATA

Customer ... : Mobil (Utah)
Platform ... : RATHERFORD UNIT
Slot/Well .. : BA25/17-23 2A1

MEASURED DEPTH	ANGLE DEG	DIRECTION DEG	TVD	NORTHINGS FEET	EASTINGS FEET	VERTICAL SECTION	DOG LEG
8553.00	91.20	132.30	5499.76	1870.94 S	2369.37 E	3017.66	2.65
8585.00	91.30	131.70	5499.07	1892.35 S	2393.15 E	3049.64	1.90
8617.00	91.00	131.70	5498.42	1913.63 S	2417.03 E	3081.61	0.94
8648.00	91.00	132.10	5497.88	1934.33 S	2440.11 E	3112.59	1.29
8680.00	91.00	131.90	5497.32	1955.74 S	2463.88 E	3144.57	0.62
8712.00	90.20	131.70	5496.99	1977.07 S	2487.74 E	3176.55	2.58
8744.00	90.40	131.70	5496.82	1998.35 S	2511.63 E	3208.54	0.63
8776.00	89.10	131.00	5496.96	2019.49 S	2535.65 E	3240.53	4.61
8802.00	90.10	131.00	5497.14	2036.55 S	2555.27 E	3266.52	3.85
* 8836.00	90.00	131.00	5497.11	2058.86 S	2580.93 E	3300.52	0.29

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.

* 8836 EXTRAPOLATED TO BIT AT TD.

SAMPLE DESCRIPTIONS

OPERATOR: MOBIL

WELL NAME: RATHERFORD UNIT #17-23 SE 1-A HORIZONTAL LATERAL LEG #2

DEPTH	LITHOLOGY
5363.00 5370.00	"LS crm-tan-brn, occ wh-gybrn, crpxl-micxl, dns, occ chk-sl plty, arg-v sl dol, anhy ip, NFSOCw/tr trnsl-xl ANHY incl, v thn brn-gybrn micxl dns lmy arg-sl shy anhy DOL NFSOC & dkgy-gy-blk sbblky-sbplty mfrm calc-sl dol occ carb SH"
5370.00 5380.00	"LS AA, v rr mic fos, tt, n-vis POR, v spty bri yel FLOR, w/DOL pred mbrn AA, tt, NFSOC, fr rr ANHY incl AA, scat SH AA, w/incl CHT dkbrn-brn"
5380.00 5390.00	"LS tan-brn, ltgy-gybrn, occ crm-wh, crpxl-micxl, dns, occ chk-sl plty, arg-v sl dol, anhy ip, v sl mrly, NFSOC, w/thn intbd brn-mbrn-gybrn micxl dns lmy v arg-sl shy-mrly tt DOL NFSOC, lt-dkgy-blk sbblky-sbplty mfrm calc-sl dol occ carb mica slty SH & CHT AA"
5390.00 5400.00	"LS AA, v arg-sl mrly, dns, tt, NFSOC, decr DOL tt, w/NFSOC & decr SH-CHT incl-frag"
5400.00 5410.00	"LS tan-brn, gybrn, occ mot, pred arg-sl mrly, AA, n vis POR, NFSOC, incr m-dkgybrn-brn micxl arg-mrly DOL, tr CHT AA, incr gy-dkgy-blk calc-dol occ carb mica-sl slty SH"
5410.00 5420.00	"LS wh-crm-tan rthy-chk arg AA, n vis POR-NFSOC, w/decr DOL AA tt NFSOC & SH AA, rr CHT frag AA"
5420.00 5430.00	"LS tan-brn, occ crm-gybrn, wh ip, crpxl-micxl, dns, occ chk-plty, arg-v dol ip, sl anhy ip, occ mrly, NFSOC, w/brn-mbrn-gybrn crpxl-micxl dns lmy arg-sl shy-v mrly DOL tt NFSOC, gy-blk sbblky mfrm calc-dol occ carb slty-mica ip SH, rr brn-dkbrn CHT frag"
5430.00 5450.00	"LS AA, bcmg pred ltgy, v arg, chk-plty, & grdt to v slty LS w/depth, tt, NFSOC, DOL gybrn-mbrn micxl, v mrly, decr amnt w/depth, scat thn v dol mrly SH AA"
5450.00 5460.00	"LS tan-crm-wh, occ ltbrn, crpxl-micxl, rthy-chk, sl anhy, v sl dol ip, v slty & grdg to v lmy SLTST ip, tt, NFSOC, w/v thn brn-mbrn micxl rthy arg lmy v sl mrly tt DOL-NFSOC, rr scat brn-bf CHT frag & thn carb SH lams"
5460.00 5470.00	"LS crm-wh-tan, occ ltgy AA, v rr slty, rr mic fos, sl dol, tt, NFSOC, incr trnsl-brn CHT frag & brn-mbrn micxl arg-rthy DOL tt NFSOC, scat rr dkgy-blk SH lams "
5470.00 5480.00	"LS wh-crm, occ brn-mbrn, crpxl-micxl, rthy-chk, occ dns PKST, mrly ip, tt & thn DOL brn-gybrn micxl calc-arg shy tt, NFSOC, grdg to v calc-dol blk-dkgy carb SH, rr bf-brn CHT frag"

DEPTH

LITHOLOGY

- 5480.00 5490.00 "SH blk-dkgy-gy, sbblky-sbplty, sft-mfrm, sl mica, v sl slty, calc-dol, carb-sooty, w/v thn crpxl wh-brn LS & gybrn-mbrn micxl rthy DOL frag"
- 5490.00 5506.00 "LS tan-brn, occ mot wh-brn, tr crm, crpxl-micxl, bcmg vfxl-micsuc, pred arg PKST, w/thn intbd dol anhy GRNST & grdg to ooc-oom GRNST, tt-tr intxl-ool POR, rr spty fnt yel FLOR, rr spty brn STN, tr slow-rr mod fast stmg CUT, w/v thn brn arg lmy DOL, tt, NFSOC & SH AA"
- 5506.00 5530.00 "LS, AA, ltbn-tn-crm, mic-vf xln, sl suc-mdns-dns-tt mtx, bcmg pred oom/occ ool GRNST w/intrbd arg sl plty dns-tt PCKST, rr dkbn SH frgs, rthy, rr calc/anhy incl, rr cht frgs; pred tt-f interxl to oom/occ fab POR, dul v-spty yelgld FLOR, v wk slo strm CUT, prdkbnoSTN"
- 5529.00 5540.00 "LS, ltbn-tn-crm-occ offwht, mott, mic-vf xln, grn-sl suc-mdns mtx, pred oom/occ ool GRNST, sl ool ooc sl plty PCKST; pred oom-occ to tt-fr intrxl fab POR, spty mbri yelgld FLOR, pr-mf slo dif strm CUT, pr-m dkbn-ltbn o STN, spty blk dd o STN"
- 5540.00 5556.00 "LS AA, ltbn-tn-crm, sl mot-mot, mic-vf xl, sl suc-occ grn-mdns-dns mtx, oom/occ ool GRNST bcmg sl ool mdns anhy PCKST, rr cht frgs, sl rthy, chlky, anhy; pred mf-fr intrxl to oom/occ fab POR, spty mbri yelgld FLOR, wk-mfr slo/sl dif CUT, tr dkbn-bn o STN, sptyd o STN"
- 5556.00 5570.00 "LS tan-brn, occ wh-crm, crpxl-vfxl, occ gran-micsuc, intbd ooc-oom GRNST & dns tt sl ool occ plty-chk PKST, occ anhy-rr ANHY xl-incl, dol-occ DOL rich cmt, tt-mg intxl-ool POR, tr bri yel FLOR, tr ltbrn-rr blk STN, fr-g slow-mod fast CUT, w/scat DOL & SH CVGS AA"
- 5570.00 5580.00 "LS AA, sl incr dns chky-plty sl anhy-v sl ool occ fos PKST, scat CHT frag, w/intbd ooc-oom GRNST, tt-fr intxl-ool POR, tr bri yel FLOR, tr spty brn-rr blk STN, p-mfr mod fast-slow stmg CUT"
- 5580.00 5600.00 "LS crm-tan, occ wh-brn-rr ltgy, crpxl-vfxl, gran-micsuc ip, pred ooc-oom GRNST, sl dol-tr DOL cmt, rr ANHY xl, scat thn dns chk-plty sl ool PKST lams, v rr CHT frag, mfr-mg intxl-ool POR, mfr bri-dull yel FLOR, n-tr brn STN-rr blk dd o STN, fr slow-tr mod fast CUT"
- 5600.00 5610.00 "LS AA, sl incr dns PKST AA, fr bri yel FLOR, fr-mg intxl-ool POR, STN-CUT AA, scat trnsl-bf CHT frag"
- 5610.00 5640.00 "LS tan-brn, occ crm-rr wh, micxl-vfxl, gran-micsuc ip, pred ooc-oom GRNST, sl dol-tr DOL cmt, rr ANHY xl, scat crpxl dns chk-plty v sl ool PKST lams, v rr CHT frag, fr-mg intxl-ool POR, fr bri-dull yel FLOR, fr brn STN-tr blk dd o STN, mfr slow-fr mod fast CUT"
- 5640.00 5660.00 "LS tan-ltbrn, occ brn, rr wh-crm, micxl-vfxl, gran-micsuc, pred ooc-oom GRNST, w/rr scat dns sl ool PKST AA, v rr trnsl-bf CHT frag, v sl anhy-v rr ANHY xl, fr-g intxl-ool POR, mfr-fr bri-tr dull yel FLOR, fr-mg brn STN-rr blk dd o STN, fr-mg mod fast-fast stmg CUT "
- 5660.00 5670.00 "LS AA, POR-FLOR-STN-CUT AA"

DEPTH

LITHOLOGY

5670.00 5690.00 "LS tan-brn,rr crm-wh,micxl-vfxl,gran-micsuc ip,pred ooc-oom GRNST,sl dol-tr DOL cmt,rr ANHY xl,scat crpxl dns chk-plty v sl ool PKST lams,v rr CHT frag,mg intxl-ool POR,mfr-fr bri-dull yel FLOR,fr brn STN-tr blk dd o STN,mfr slow-mg mod fast CUT"

5690.00 5710.00 "LS AA,fr-g intxl-ool POR,mfr-fr bri-dull FLOR,mg ltbrn STN-tr blk dd o STN,fr slow-mod fast-rr fast stmg mlky CUT"

5710.00 5720.00 "LS AA,POR-FLOR-STN-CUT AA"

5720.00 5740.00 "LS tan-brn,rr crm-wh,micxl-vfxl,gran-micsuc ip,pred ooc-oom GRNST,sl dol-tr DOL cmt,rr ANHY xl,incr crpxl dns chk-plty v sl ool PKST lams,v rr CHT frag,mg intxl-ool POR,mfr-fr bri-dull yel FLOR,fr brn STN-tr blk dd o STN,mfr slow-mg mod fast CUT"

5740.00 5760.00 "LS AA,mg intxl-ool POR,fr-g bri-dull FLOR,mg ltbrn STN-tr blk dd o STN,fr-g mod fast-fr fast stmg mlky CUT"

5760.00 5780.00 "LS,ltbn-tn-crm,mott,mic-vf xln,sl suc-occ grn-mdns mtx,pred oom-ool rich GRNST,thnly intrbd ool dns PCKST,sl rthy,sl chlky,rr calc frac flgs;pred fr-intrxl to patchy oom/ool fab POR,mf-g slo strm CUT,g-ltbn-dkbn o STN,spty mbri-bri yelgld FLOR"

5780.00 5800.00 "LS AA,POR-FLOR-STN-CUT AA"

5800.00 5820.00 "LS,ltbn-tn-crm,mott,mic-vf xln,sl suc-occ grn mtx,mdns mtx,pred oom/ool mdns ool GRNST,dns sl ool to ool chlky PCKST w/f-intrxl fab POR,tr chlky/any fld casts;pred fr-interxln to red-mfr oom/ool fab POR,spty mbri yelgld FLOR,mfr-slo strm CUT,mf-o STN"

5820.00 5840.00 "LS AA,pr-slo sl dif strm CUT,spty mbri yelgld FLOR,pred ltbn-dkbn o STN,spty dd blk cast fld o STN"

5840.00 5860.00 "LS,ltbn-tn-crm,mott,mic-vf xln,microsuc-occ grn-mdns mtx,pred intrbd oom/ool GRNST w/ ool rich mdns mf-f intrxln PCKST,tr calc cast flgs;FLOR AA, o STN AA,CUT AA"

5860.00 5880.00 "LS,ltbn-tn,mott,mic-vf xln,mdns mtx,scat microsuc-grn mtx,v/sl dolo,pred scat oom ooc ool rich GRNST to sl ool to ool mdns/dns PCKST,tr chlky offwht carb mat,rr calc frac flgs;pred mf-f interxln to reduced-mf to scat f oom/ool fab POR,m fast to slostrCUT"

5880.00 5900.00 "LS AA,POR-CUT,spty mbri-occ bri yelgld FLOR"

5900.00 5920.00 "LS,ltbn-tn,mott,mic xln,sl microsuc to mdns-dns mtx,pred ool rich PCKST to oom/ool ool GRNST,abunt offwht chlky carb mat,tr any xls,incr in calc/any cast flgs;pred mf-f intrxl to pr-occ mg oom/ool fab POR,pr-m slo strm/sl dif CUT,tr-mf ltbn-dkbn o STN"

DEPTH

LITHOLOGY

5920.00 5940.00 "LS,tn-crm-occ ltbn,sl mott,pred crpt-mic-v-scat vf xln,mdns-dns-tt mtx,sl dolo,pred sl plty tt sl ool PCKST,v/thnly intrbd ool oom/oc GRNST,chlky,anhy,offwht chlky carb mat;pred tt pr intrxln to rr oom/oc fab POR,wk slo strm CUT,pr-ltbn o STN"

5940.00 5960.00 "LS AA,v-spty dul-mbri yelgld FLOR,wk-slo strmg CUT,v-pr ltbn o STN,spty blk dd o STN"

5960.00 5980.00 "LS AA,ltgybn-tn,crpt xln,dns-tt mtx,pred chlky tt PCKST;pred pr-intrxln to compact xln fab POR,spty dul-mbri yelgld FLOR,wk-slo strmg CUT,v-pr ltbn o STN,spty blk dd o STN"

5980.00 6000.00 "LS,ltgybn-tn-crm-offwht,crpt-mic xln,dns-tt mtx,pred v-sl ool chlky occ anhy PCKST,rr chlky carb mat;pred compact xln to pr-intrxln fab POR,v-spty blk dd o STN,pr-ltbn o STN,v-wk slo strm CUT,sl milky ring,spty sl even dul yelgld FLOR"

6000.00 6010.00 "LS AA,POR AA-CUT AA-FLOR AA"

6010.00 6030.00 "LS,tn-crm-offwht,crpt-mic xln,dns-tt mtx,pred sl plty chlky dns occ sl ool PCKST,tr chlky carb mat,tr xln anhy;pred compact xln to pr-interxln fab POR,no CUT,spty dul yelgld FLOR,pr-ltbn o STN,tr blk dd oSTN res"

6030.00 6050.00 "LS,ltbn-tn-crm-offwht,pred crpt-mic xln,occ vf xln,mdns-tt mtx,rr grn mtx,pred sl ool chlky dns sl plty PCKST thnly intrbd w/ool oom/oc GRNST;pred pr-mf intrxln to comp xln w/sme v/scat oom/oc fab POR,sl milky dif wk slo strm CUT,pr-ltbn-dkbn o STN"

6050.00 6070.00 "LS AA, dul-mbri even yelgld FLOR,mf fst slo dif strm CUT,pr-ltbn-occ dkbn o STN,spty blk dd o STN res"

6070.00 6090.00 "LS crm-tan,occ wh-brn,crpxl-vfxl,tr gran-micsuc,sl ooc-oom GRNST w/intbd dns chk-plty sl ool anhy ip dns PKST,rr trnsf-bf CHT frag,tr DOL cmt,tt-fr mg ip intxl-tr ool POR,mfr-fr dull-bri yel FLOR,mfr ltbrn-brn-rr blk dd o STN,fr slow-tr mod fast stmg CUT"

6090.00 6110.00 6091.36 0 "LS wh-crm-tan,occ ltbrn,crpxl-micxl,rr vfxl-gran,pred v sl ool dns chk-occ plty rr mic fos v sl anhy PKST,v rr sl ooc-oom GRNST stks,v rr CHT frag,tt-tr intxl-v rr ool POR,tr-mfr bri yel FLOR,v spty ltbrn-blk STN,n-tr slow-rr mod fast stmg CUT"

6110.00 6130.00 6113.40 0 "LS pred PKST AA,tr thn sl incr v sl ooc-oom GRNST AA,sl incr trnsf-bf CHT frag,rr-tr intxl-v rr ool POR,tr spty dull-bri yel FLOR,rr-tr spty ltbrn STN-v rr blk dd o STN,n-v p mod fast-tr slow stmg-slow dif CUT "

6130.00 6150.00 6134.59 0 "LS crm-tan,occ wh-rr ltgy,crpxl-micxl,v rr vfxl-sl gran,pred dns occ chk-plty v sl fos-ool anhy ip PKST,rr CHT AA,n-rr intxl-v rr ool POR,tr dull-bri yel FLOR,rr spty ltbrn-blk STN,n-v p slow stmg-slow dif CUT"

DEPTH

LITHOLOGY

6150.00 6160.00 "LS AA,sl decr PKST,incr sl ooc-oom GRNST,scat ANHY xl-incl-v rr trnsl-bf CHT frag,rr-tr intxl-rr ool POR,tr dull-bri yel FLOR,STN-CUT AA"

6160.00 6190.00 "LS tan-crm,occ ltbrn-rr wh,crpxl-vfxl,gran-micsuc ip,bcmg pred ooc-oom GRNST,occ DOL cmt,decr dns chk-plty ip sl ool occ anhy PKST,v rr CHT frag,tt-fr intxl-tr ool POR,mfr dull-bri yel FLOR,tr-fr ltbrn STN-rr blk dd o STN,tr-fr slow-mfr mod fast stmg CUT"

6190.00 6220.00 "LS tan-ltbrn,rr wh-brn,crpxl-vfxl,gran-micsuc ip,pred ooc-oom GRNST,occ DOL cmt,tr dns chk-plty ip sl ool PKST,sl anhy-rr ANHY xl-incl,rr CHT frag,fr intxl-ool POR,mfr dull-bri yel FLOR,fr ltbrn STN-tr blk dd o STN,fr slow-tr mod fast stmg CUT"

6220.00 6240.00 "LS tan-brn,rr crm-wh,crpxl-vfxl,gran-micsuc ip,pred ooc-oom GRNST,tr dns chk-plty ip sl ool PKST,v rr CHT frag,occ DOL cmt,scat ANHY xl-incl,tt-mg intxl-fr ool POR,fr dull-bri yel FLOR,fr ltbrn STN-rr blk dd o STN,tr slow-fr mod fast stmg CUT"

6240.0 6260.00 "LS AA,decr PKST frag,incr ool POR,fr-mg dull-bri yel FLOR,fr brn-tr blk STN,fr-mg slow-mod fast stmg CUT"

6260.00 6280.00 6266.35 0 "LS tan-ltbrn,occ crm-rr brn,pred ooc-oom GRNST,tr PKST AA,fr-g intxl-ool POR,mfr dull-bri yel FLOR,fr-mg slow-mod fast stmg CUT"

6280.00 6300.00 "LS tan-brn,rr crm-wh,crpxl-vfxl,gran-micsuc ip,pred ooc-oom GRNST,tr dns chk-plty ip sl ool PKST,v rr CHT frag,occ DOL cmt,scat ANHY xl-incl,tt-mg intxl-fr ool POR,fr dull-bri yel FLOR,fr ltbrn STN-rr blk dd o STN,tr slow-fr mod fast stmg CUT"

6300.00 6320.00 "LS tan-brn,mot ip,rr crm-wh,crpxl-vfxl,gran-micsuc ip,pred ooc-oom GRNST,tr dns chk-plty ip sl ool PKST,v rr CHT frag,occ DOL cmt,scat ANHY xl-incl,mfr-fr intxl-fr ool POR,fr dull-bri yel FLOR,fr ltbrn STN-tr blk dd o STN,fr-mg slow-mod fast stmg CUT"

6320.00 6340.00 "LS AA,w/thn PKST frag AA,incr ool POR AA,fr-mg dull-bri yel FLOR,fr brn-tr blk STN,fr-mg slow-mod fast stmg CUT"

6340.00 6360.00 "LS AA,occ suc,pred ooc-oom GRNST w/tr v thn PKST AA,POR-FLOR-STN-CUT AA"

6360.00 6380.00 "LS tan-brn,mot ip,rr crm,crpxl-vfxl,gran-micsuc ip,rr suc,pred ooc-oom GRNST,rr dns chk-plty ip sl ool PKST,n-rr CHT frag,occ DOL cmt,rr ANHY xl-incl,fr-mg intxl-fr ool POR,fr-mg dull-bri yel FLOR,fr ltbrn STN-tr blk dd o STN,fr-mg slow-mod fast stmg CUT"

6380.00 6400.00 "LS AA,POR-FLOR-STN-CUT AA"

6400.00 6420.00 "LS pred ltbrn-tan,rr crm-wh,crpxl-vfxl,rr gran-micsuc,pred ooc-oom GRNST,scat dns v sl ool rr chk PKST,rr ANHY xl,occ DOL rich cmt,rr trnsl CHT frag,fr ool-intxl POR,fr-mg dull-bri yel FLOR,tr-fr ltbrn-rr blk STN,fr-mg slow-fast stmg CUT"

DEPTH	LITHOLOGY
6420.00 6440.00	"LS AA,fr-mg intxl-mfr ool POR,mg dull-bri yel FLOR,fr-mg ltbrn-tr brn STN,rr blk dd o STN,mg mod fast-fast stmg mlky CUT"
6440.00 6460.00	"LS AA,incr crm & vfxl-gran,sl decr ool POR,mfr-fr dull-bri yel FLOR,fr-fr ltbrn-brn STN-rr spty blk dd o STN,mfr-mg slow-fr fast stmg CUT"
6460.00 6480.00	"LS AA,fr-mg POR-FLOR-STN-CUT AA"
6480.00 6490.00	"LS pred ltbrn-tan,rr crm-wh,crpxl-vfxl,rr gran-micsuc,pred ooc-oom GRNST,scat dns v sl ool rr chk PKST,rr ANHY xl,occ DOL rich cmt,rr trnsf CHT frag,fr ool-intxl POR,fr-mg dull-bri yel FLOR,fr-fr ltbrn-rr blk STN,fr-mg slow-fast stmg CUT"
6490.00 6500.00	"LS AA,POR-FLOR-STN-CUT AA"
6500.00 6520.00	"LS,ltbn-tn,mott,mic-vf xln,mdns mtx-sl suc,rr grn mtx,pred ool oom/ooc GRNST,rr sl ool dens PCKST,sl chlky;pred ool-fr intrxln to mf-oom/ooc fab POR,g fst to mf slo dif strm CUT,pred mf-g ltbn-mbn o STN,spty blk o STN res"
6520.00 6540.00	"LS AA,rr chlky offwht carb mat,rr foss frgs,sl rthy,sl chlky,rr anhy xls;POR AA,o STN AA,mf slo strm/milky ring CUT"
6540.00 6560.00	"LS,ltbn-tn,mott,vf xln,pred mdns mtx,rr grn-microsuc mtx,sl dolo,pred ool rich GRNST,sme sl ool chlky dns PCKST,rr ltbn CHT frgs,rr calc frac flgs;pred mf-f intrxln to ool POR,even mbri yelgld FLOR,mg-fst to f slo strm CUT,milky ring,pred mg mbrno STN"
6560.00 6580.00	"LS AA,sl incr mf-f oom-occ fab POR,rr dns sl chlky PCKST,CUT AA-FLOR AA,o STN AA"
6580.00 6600.00	"LS,ltbn-tn,mott,vf xln-mic xln,microsucrosic-mdns-occ grn mtx,pred ool rich GRNST,sl rthy,rr cht frgs,rr anhy xls;pred ool mf-intrxln fab POR to oom-occ fab POR,mg-slo strm dif CUT,even mbri-spty bri yelgld FLOR,pred mg-mbn o STN,spty blk dd o STN"
6600.00 6620.00	"LS AA,rr calc frac flgs,spty blk dd cast fls o STN,pred ltbn-mbn o STN,CUT AA,FLOR AA"
6620.00 6640.00	"LS AA,CUT AA,FLOR AA,o STN AA"
6640.00 6660.00	"LS,ltbn-tn,mott,mic-vf xln,mdns mtx-sl suc,rr grn mtx,pred ool oom/ooc GRNST,rr sl ool dens PCKST,sl chlky;pred ool-fr intrxln to mf-oom/ooc fab POR,g fst to mf slo dif strm CUT,pred mf-g ltbn-mbn o STN,spty blk o STN res"

DEPTH

LITHOLOGY

6660.00 6680.00 "LS,ltbn-tn,mott,mic-vf xln,microsucr-grn-mdns mtx,sl dolo,pred ool oom-oc GRNST,rr sl ool chlky dns PCKST,rr cht frgs,rr anhy xls;pred mg-oom/oc to ool mf-fr intrxl fab POR,even yelgld FLOR,spty blk o STN,mg-dkbn-mbn-ltbn o STN"

6680.00 6700.00 "LS AA,rr chlky ofwht mat,rr calc frac flgs,sme chlky/anhy fld casts;POR AA,FLOR AA,CUT AA"

6700.00 6730.00 "LS,ltbn-tn,mott,vf xln-mic xln,microsucrosic-mdns-occ grn mtx,pred ool oom/oc rch GRNST,sl rthy,rr cht frgs,rr anhy xls;pred ool mf-intrxln fab POR to oom-occ fab POR,mg-slo strm dif CUT,even mbri-spty bri yelgld FLOR,pred mg-mbn o STN,spty blk dd o STN"

6730.00 6750.00 "LS AA,sl incr microsucrosic to sucrosic mtx,POR AA,CUT AA,FLOR AA"

6750.00 6780.00 "LS,ltbn-tn-occ dkbn,mott,mic-vf xln,microsuc-occ grn mtx-mdns mtx,pred ool rich oom/occ GRNST,sl rthy,rr cht frgs,rr calc frac flgs,sme calc/anhy cast flgs;pred mf-f oom/oc to mf-f intrxln fab POR,even mbri yelgld FLOR,mf-slo dif dtrm CUT,dkbn-mbn o STN"

6780.00 6810.00 "LS AA,pred mf-f oomoldic to oolastic fab POR w/sme mf-fr intrxln fab POR,spty dd blk cast fld o STN,mf-g dkbn-mbn o STN,even mbri to spty bri yelgld FLOR,mf-fast to g slo dif strm CUT"

6810.00 6840.00 "LS,ltbn-tn-occ dkbn,mott,mic-pred vf xln,sl suc-microsuc-grn mtx,mdns mtx ip,sl dolo,pred ool oom/oc GRNST,rr cht frgs;POR AA,CUT AA,FLOR AA"

6840.00 6860.00 "LS AA,sl dcr oom/occ GRNST,sl ool to ool rich chlky sl anhy dns PCKST,rr anhy xls,chlky offwht mat,rr frac flgs;POR AA,FLOR AA,CUT AA"

6860.00 6890.00 "LS,ltbn-tn-occ dkbn,mott,mic-vf xln,microsuc-occ grn mtx-mdns mtx,pred ool rich oom/occ GRNST,sl rthy,rr cht frgs,rr calc frac flgs,sme calc/anhy cast flgs;pred mf-f oom/oc to mf-f intrxln fab POR,even mbri yelgld FLOR,mf-slo dif dtrm CUT,dkbn-mbn o STN"

6890.00 6920.00 "LS,ltbn-tn,mott,mic-vf xln,microsucr-grn-mdns mtx,sl dolo,pred ool oom-oc GRNST,rr sl ool chlky dns PCKST,rr cht frgs,rr anhy xls;pred mg-oom/oc to ool mf-fr intrxl fab POR,even yelgld FLOR,spty blk o STN,mg-dkbn-mbn-ltbn o STN"

6920.00 6950.00 "LS AA,rr sl ool PCKST,fr-mg oom/occ to mf-fr intrxln POR-FLOR-STN-CUT AA"

6950.00 6980.00 "LS,ltbn-tn,mott,vf xln,microsucr-grn mtx,pred ool rich GRNST,rr sl ool PCKS,sl chlky,sl rthy,rr cht frgs,rr anhy xls;pred ool mf-intrxln fab POR to oom-occ fab POR,mg-slo strm dif CUT,even mbri-spty bri yelgld FLOR,pred mbn-mdkbn o STN,spty blk dd o STN"

DEPTH	LITHOLOGY
6980.00 7010.00	"LS AA,ltbrn-tnvfxl,rr gran-micsuc,pred ooc-oom GRNST,scat dns v sl ool chky PKST,rr anhy xls,sl dolo cmt ip,rr crm-transl cht frags;pred mf-fintxl to oom/ooc fab POR,fr-mg even mbri-bri yel FLOR,o STN AA,fr-mg slow dif stmg CUT"
7010.00 7040.00	"LS AA,POR AA,CUT AA,even dul-mbri yelgld -spty bri yelgld FLOR"
7040.00 7070.00	"LS,ltbn-tn,mott,vf xln-mic xln,microsuc-mdns-occ grn mtx,pred ool rich GRNST,sl rthy,rr cht frgs,rr anhy xls;pred ool mf-intrxln to oom-occ fab POR,fast-mg-slo strm dif CUT,even mbri-spty bri yelgld FLOR,pred mg-mbn-dkbn o STN,spty blk cast fld dd o STN"
7070.00 7100.00	"LS AA,CUT AA,POR AA,o STN AA"
7100.00 7130.00	"LS,ltbn-tn,mott,mic-vf xln,microsucr-grn-mdns mtx,sl dolo,pred ool oom-occ GRNST,rr sl ool chlky dns PCKST,rr foss frgs,sl chlky,rr cht frgs,rr anhy xls;pred mg-oom/ooc to ool mf-fr intrxl fab POR,even yelgld FLOR,spty blk o STN,mg-dkbn-mbn-ltbn o STN"
7130.00 7160.00	"LS AA,ltbn,mott,sl suc-grn-mnd mtx,sl dolo,pred mf-f oomoldic to oolicastic fab POR to mf-fr intrxln fab POR,dd blk cast fld o STN res,mf-mbn-ltbn o STN,even mbri to spty bri yelgld FLOR,mf-fast to g slo dif strm CUT"
7160.00 7190.00	"LS AA,pred oom/occ GRNST,sl ool to ool rich chlky sl anhy dns PCKST,chlky,rr frac flgs;POR AA,FLOR AA,CUT AA"
7190.00 7200.00	"LS AA,CUT AA,POR AA,o STN AA"
7200.00 7230.00	"LS,ltbrn-tan,mott,mic-vf xln,rr grn-sl suc-micsuc,pred oom/occ ool GRNST,tr sl chk dns sl ool PCKST,rr anhy,rr trns CHT frgs;pred mf-fr intxl to mf-fr oom/ooc fab POR,g-mbri yelgld FLOR,m-slow strmg dif CUT,mf-ltbrn-mbrn o STN,spty blk dd oSTN"
7230.00 7260.00	"LS tan-ltbrn,occ crm-brn,micxl-vfxl,occ crpxl,sl gran-micsuc,pred ooc-oom GRNST,rr dns sl ool PKST,tr trns CHT frag-rr ANHY xl-incl,fr ool-intxl POR,mg dull-bri yel FLOR,fr ltbrn-brn STN,mfr ltbrn-brn STN-rr blk dd o STN,mg slow dif-tr mod fast stmg CUT"
7260.00 7290.00	"LS pred ltbrn-tan,AA,v rr trns-clr-bf CHT frag,v rr ANHY xl,occ DOL rich cmt,fr-mg intxl-ool POR,mg bri-dull yel FLOR,fr ltbrn-rr brn STN-rr-tr blk dd o STN,mg slow dif-rr-tr mod fast stmg CUT"
7290.00 7320.00	"LS AA,occ dkbrn STN,POR-FLOR-CUT AA"
7320.00 7350.00	"LS tan-ltbrn,occ crm-brn,micxl-vfxl,occ crpxl,sl gran-micsuc,pred ooc-oom GRNST,rr dns sl ool PKST,tr trns CHT frag-rr ANHY xl-incl,fr ool-intxl POR,mg dull-bri yel FLOR,fr ltbrn-brn STN,mfr ltbrn-brn STN-rr blk dd o STN,mg slow dif-tr mod fast stmg CUT"

DEPTH	LITHOLOGY
7350.00 7380.00	"LS pred crm-tan,occ ltbrn,micxl-vfxl,tr crpxl,gran-micsuc ip-rr suc,pred ooc-oom GRNST,rr sl ool dns rr chk PKST,sl DOL cmt,rr ANHY xl,v rr CHT frag,mfr-mg intxl-ool POR,mg bri-dull yel FLOR,tr-fr brn STN-rr blk dd o STN,fr mod fast-fast-tr slow stmg CUT"
7380.00 7410.00	"LS AA,w/POR-FLOR-STN-CUT AA,rr scat trnsl-bf CHT frag"
7410.00 7460.00	"LS pred tan-ltbrn,tr crm,micxl-vfxl,tr crpxl,gran-micsuc-occ suc,pred ooc-oom GRNST,rr sl ool dns rr chk PKST,sl DOL cmt,rr ANHY xl,v rr CHT frag,fr-mg intxl-fr ool POR,mg bri-dull yel FLOR,fr brn STN-tr blk dd o STN,mg mod fast-fast-fr slow stmg CUT"
7460.00 7490.00	"LS pred tan-ltbrn,occ crm-wh,AA,bcmg pred dns occ chk-plty v sl ool chty PKST ip,tr trnsl-clr-rr br CHT frag,tt-mg intxl-ool POR,mfr-fr dull-bri yel FLOR,mfr-fr ltbrn-rr brn STN-rr-tr blk dd o STN,n-mg mod fast-fast-tr slow stmg CUT"
7490.00 7510.00	"LS tan-crm,rr ltbrn-v rr wh,AA,decr scat PKST frag,n-v rr CHT FRAG,incr ool-intxl POR,fr-mg FLOR AA,tr-mfr ltbrn STN-rr-tr spty blk dd o STN,fr-mg CUT AA"
7510.00 7540.00	"LS AA,rr-tr trnsl-bf CHT frag,mfr-mg intxl-ool POR,mg dull-bri yel FLOR,mfr-fr ltbrn-rr brn STN,rr blk dd o STN,mfr-fr mod fast-tr fast-mg slow stmg CUT"
7540.00 7570.00	"LS pred crm-tan,occ ltbrn,micxl-vfxl,tr crpxl,gran-micsuc ip-rr suc,pred ooc-oom GRNST,rr sl ool dns rr chk PKST,sl DOL cmt,rr ANHY xl,v rr CHT frag,fr-mg intxl-ool POR,mg bri-dull yel FLOR,tr-fr brn STN-tr blk dd o STN,fr mod fast-fast-tr slow stmg CUT"
7570.00 7590.00	"LS pred sl ooc-oom GRNST,w/rr scat PKST AA,mfr-fr intxl-tr ool POR,mg dull-bri yel FLOR,fr ltbrn-tr brn STN,rr-tr blk dd o STN,mg slow-fast stmg mlky CUT"
7590.00 7620.00	"LS crm-tan,rr ltbrn-brn,crpxl-vfxl,gran-micsuc ip,rr suc,pred sl ooc-oom GRNST,w/rr thn dns sl ool dns v sl chk PKST,v rr CHT frag-ANHY xl,sl dol,fr-mg intxl-tr ool POR,mg dull-bri yel FLOR,tr-mfr ltbrn-blk STN,fr-mg mod fast-slow stmg mlky CUT"
7620.00 7660.00	"LS AA,rr trnsl-bf CHT frag,POR-FLOR-STN-CUT AA"
7660.00 7690.00	"LS tan-ltbrn,rr crm-brn,crpxl-vfxl,gran-micsuc ip,v rr suc,pred ooc-oom GRNST,w/ v rr thn dns sl ool dns v sl chk PKST,rr CHT frag-ANHY xl,sl DOL cmt,fr ool-intxl POR,mg dull-bri yel FLOR,tr-mfr ltbrn-rr blk STN,fr-mg mod fast-slow stmg mlky CUT"
7690.00 7720.00	"LS tan-ltbrn,occ crm,crpxl-vfxl,rr gran-micsuc,pred ooc-oom GRNST,v rr scat dns sl ool occ chk PKST,v sl DOL cmt,v rr CHT frag-ANHY xl-incl,tt-mg ool-tr intxl POR,mg dull-bri yel FLOR,fr ltbrn STN-v rr blk dd o STN,mfr-mg slow-fast stmg mlky CUT"

DEPTH	LITHOLOGY
7720.00 7750.00	"LS tan-crm-rr ltbrn,micxl-vfxl,gran-micsuc-v rr suc,pred ooc-oom GRNST,tr crpxl dns v sl ool occ chk PKST,rr trnsl CHT frag-ANHY xl,rr tt-pred fr-g intxl-ool POR,mg bri yel FLOR,mfr-mg ltbrn-brn-rr blk STN,fr-g mod fast-tr slow stmg mlky CUT "
7750.00 7780.00	"LS AA,w/v rr-tr dns chty anhy tr chk-plty PKST frag,fr-g intxl-ool POR-rr tt,n-v g bri yel FLOR,v rr-mg ltbrn-brn-rr blk dd o STN,n-vg mod fast-fast-tr slow stmg mlky CUT"
7780.00 7800.00	"LS pred ooc-oom GRNST AA,incr PKST AA,tt-vg intxl-tr ool POR,n-fr dull-bri yel FLOR,n-mg ltbrn-brn STN,tr blk dd o STN,n-vg mod fast-fast stmg CUT,occ slow dif CUT"
7800.00 7830.00	"LS,ltbn-tn-crm,mott,mic-vf xln,mdns mtx,occ-grn-sl suc mtx,pred vf xln oom/occ ool GRNST to sl ool vf xln sl chky PCKST,tr anhy xls;pred mf-fr intrxln to red-mfr oom/ooc fab POR,mg even mbri yelgld FLOR,mf-mg mbn-ltbn o STN,g-fast to slo dif strm CUT"
7830.00 7860.00	"LS AA,pred vf xln sl grn oom/occ GRNST,scat dns sl PCKST,tr anhy xls,rr calc frac flgs,rr foss frgs;pred mf-fr intrxln fab POR,o STN AA,spty blk dd o STN res,FLOR AA"
7860.00 7890.00	"LS AA,ltbn-tn-crm,occ offwht,mott-sl mott,mic-vf xln,rr crpt xln,mdns mtx-occ microsucrosic to grn mtx,sl dolo cmt,ool vf xln oom/occ GRNST to dns chky occ tt PCKST;pred ool vf xln intrxln to oom/ooc fab POR,mg-even yelgld FLOR,g-fast dif CUT,ltbn-o STN"
7890.00 7920.00	"LS,ltbn-tm,mott,mic-vf xl,sl suc-microsuc,occ grn mtx,mdns mtx,pred ool oom/ooc GRNST,tr sl ool PCKST,offwht chky mat,rr anhy xls;pred mf-fr intrxln to oom/ooc fab POR,g-even yelgld FLOR,mf fast strm CUT,mf-g ltbn-mbn o STN"
7920.00 7950.00	"LS AA,pred mfr-fr ool-intrxln to mf-g oomoldic to oollicastic fab POR,even g-mbri-bri yelgld FLOR,mf fast to g slo dif strmg CUT"
7950.00 7980.00	"LS AA,tr sl ool dns to tt PCKST,rr calc frac flgs,pred ool GRNST,POR AA,CUT AA,spty blk cast fld o STN res"
7980.00 8010.00	"LS,ltbn-tn-crm,mott,mic-vf xln,sl suc-microsuc mtx-grn mtx,pred ool oom/ooc GRNST,PCKST AA.rr transl CHT frgs,rr anhy xls, sl rthy op;pred mf-fr intrxln to oom/ooc fab POR,g-even yelgld FLOR,mf-fast to g slo strg dif CUT,spty blk o STN res,ltbn-mbn o STN"
8010.00 8040.00	"LS AA,POR AA,FLOR AA,CUT AA"
8040.00 8070.00	"LS,AA,sl incr dns sl ool chky PCKST,rr chky offwht mat,rr cht frgs,sl incr ANHY xls;pred fr-interxln to oom/ooc fab POR,g-even bri yelgld FLOR,mg-fast dif strmg CUT,pred f-mg ltbn-mbn o STN,spty blk o STN res"

DEPTH

LITHOLOGY

- 8070.00 8100.00 "LS,ltbn-tm,mott,mic-vf xl,sl suc-microsuc,occ grn mtx,mdns
mtx,pred ool oom/occ GRNST,tr sl ool PCKST,offwht chlky mat,rr anhy xls;pred
mf-fr intrxln to oom/occ fab POR,g-even yelgld FLOR,mf fast strm CUT,mf-g
ltbn-mbn o STN"
- 8100.00 8130.00 "LS AA,ltbn-tn-crm,occ offwht,mott-sl mott,mic-vf xln,rr
crpt xln,mdns mtx-occ microsucrosic to grn mtx,sl dolo cmt,ool vf xln oom/occ
GRNST to dns chlky occ tt PCKST;pred ool vf xln intrxln to oom/occ fab
POR,mg-even yelgld FLOR,g-fast dif CUT,ltbn-o STN"
- 8130.00 8160.00 "LS AA,g-even mbri-spty bri yelgld FLOR,mf fast to g slo
dif strmg CUT,pred ltbn-mbn mtx o STN,spty dd o STN,rr foss frgs"
- 8160.00 8190.00 "LS,ltbn-tn,mott,mic xln,sl microsuc to mdns,pred ool rich
PCKST to oom/occ ool GRNST,offwht chlky carb mat,tr anhy xls,incr in
calc/anhy cast flgs;pred mf-f intrxl to pr-occ mg oom/occ fab POR,mf slo
strm/sl dif CUT,mf ltbn-dkbn o STN"
- 8190.00 8220.00 "LS,ltbn-tn-occ crm,mic-vf xln,microsuc-occ grn mtx-mdns
mtx,pred ool rich oom/occ GRNST,sl rthy,rr cht frgs,rr calc frac flgs,sme
calc/anhy cast flgs;pred mf-f intrxln fab POR,even mbri-bri yelgld FLOR,mf-
fast to m-slo dif dtrm CUT,dkbn-mbn o STN"
- 8220.00 8250.00 "LS,ltbn-tn,mic-vf xln,mdns mtx-sl suc,rr grn mtx,pred ool
oom/occ GRNST,tr sl ool dens PCKST,sl chlky;pred ool-fr intrxln to scat mf-
oom/occ fab POR,g fst to mf slo dif strm CUT,pred mf-g ltbn-mbn o STN,spty
blk o STN res"
- 8250.00 8280.00 "LS AA,sl dcr oom/occ GRNST,sl ool to ool rich chlky sl
anhy dns PCKST,rr anhy xls,chlky offwht mat,rr frac flgs;POR AA,FLOR AA,CUT
AA"
- 8280.00 8310.00 "LS,ltbn-tn-occ dkbn,mott,mic-pred vf xln,occ sl suc-
microsuc-grn mtx,pred mdns mtx ip,sl dolo,pred mf-fr intrxln to ptchy ool
oom/occ GRNST,rr cht frgs;POR AA,CUT AA,FLOR AA"
- 8310.00 8340.00 "LS AA,tr chlky offwht carb mat,rr foss frgs,sl rthy,sl
chlky,rr anhy xls;POR AA,o STN AA,mf slo strm/milky ring CUT"
- 8340.00 8370.00 "LS,ltbn-tn-occ crm,mic-vf xln,microsuc-grn mtx-mdns
mtx,pred ool rich oom/occ GRNST,sl rthy,rr cht frgs,rr calc frac flgs;mf-fr
intrxln to fab POR,even mbri yelgld FLOR,mf fast to m-slo dif strm CUT,mf-
ltbn-mbn o STN"
- 8370.00 8390.00 "LS,ltbn-tn-crm,vf xln,grn-mds mtx,pred vf xln ool GRNST,tr
anhy xls,rr calc flgs;pred fr-intrxln fab POR,g-mbri yelgld FLOR,m-mf fast
dif strmg CUT,m-ltbn o STN"
- 8390.00 8400.00 "LS,ltbn-tn-crm,mic-vf xln,grn-mdns mtx,pred vf xln GRNST
to dns PCKST,sl ool,rr anhy;pred mf-f intrxln fab POR,even mbri yelgld
FLOR,m-ltbn-mbn o STN,spty blk dd o STN,fst strm dif strmg CUT"

DEPTH	LITHOLOGY
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8680.00 8700.00 "LS AA,v sl decr PKST,mfr-mg intxl-tr ool POR,fr dull-bri yel FLOR,mfr ltbrn STN-rr spty blk dd o STN,fr slow dif-tr mod fast-fast stmg mlky CUT"

8700.00 8740.00 "LS crm-ltbrn-tan,rr wh,micxl-vfxl,rr crpxl,gran-micsuc-rr suc,pred v sl ooc-oom GRNST,rr sl ool dns v sl chk PKST frag,sl dol,rr trns1 CHT frag-tr ANHY xl,mg intxl-tr ool POR,fr bri-dull yel FLOR,tr ltbrn-brn-rr blk STN,fr slow dif-tr mod fast-fast CUT"

8740.00 8770.00 "LS AA,pred sl ooc-oom GRNST,incr dns chty sl ool PKST,fr-mg intxl-mfr ool POR,fr dull-bri yel FLOR,tr ltbrn-v rr brn STN,rr spty blk dd o STN,mfr-fr slow dif-mfr slow stmg-tr mod fast stmg mlky CUT"

8770.00 8800.00 "LS tan-ltbrn,occ crm-rr wh,crpxl-vfxl,occ gran-micsuc-v rr suc,intbd sl ooc-oom GRNST & dns chk-plty ip v sl ool PKST,sl dol,rr CHT frag-ANHY xl,tt-fr intxl-tr ool POR,tr-mfr dull-bri yel FLOR,tr ltbrn-rr brn-v rr blk STN,mfr-mg slow dif-rr mod fast CUT"

8800.00 8836.00 "LS tan-ltbrn,occ crm-rr wh,crpxl-vfxl,tr gran-micsuc-v rr suc,intbd v sl ooc-oom GRNST & dns chk-plty ip v sl ool PKST,sl dol,tr CHT frag-rr ANHY xl,tr intxl-rr ool POR,tr-mfr dull-bri yel FLOR,tr ltbrn STN-v rr blk STN,mfr-fr slow dif-rr mod fast CUT"

FORMATION TOPS

OPERATOR: MOBIL
WELL NAME: RATHERFORD UNIT #17-23 SE 1-A HORIZONTAL LATERAL LEG #2

FORMATION NAME		SAMPLE MEASURED DEPTH	SAMPLE TRUE VERTICAL DEPTH	DATUM KB:4708'
UPPER ISMAY		± 5348'	± 5348'	± -640'
LOWER ISMAY		5444'	5437'	-729'
GOTHIC SHALE		5477'	5460'	-752'
DESERT CREEK		5491'	5470'	-762'
TOP DC 1-A ZONE		5502'	5474'	-766'
BASE DC 1-A ZONE		5545'	5485'	-777'

GEOLOGICAL SUMMARY

AND

ZONES OF INTEREST

The Mobil Exploration and Production U.S., Inc., Rutherford Unit #17-23 Southeast Horizontal Lateral Leg #2 was a re-entry of the Mobil Rutherford Unit #17-23 located in Section 17, T41S, R24E, and was sidetracked in a southeasterly direction from 5363' measured depth, 5362' true vertical depth, on May 31, 1998. The lateral reached a measured depth of 8836', true vertical depth of 5597' at total depth, with a horizontal displacement of 3300' and true vertical plane of 131 degrees on June 16, 1998 in the Desert Creek 1-A porosity zone. During the initial preparation of the well bore, a minor setback occurred while setting the whipstock, when the whipstock became unhooked while attempting to be set. The whipstock was retrieved, checked and then reset. However there were no problems encountered during the preparation and drilling of the curve and lateral for the southeast leg #2 in the 1-A porosity zone of the Desert Creek. The curve was landed at a measured depth of 5556', a true vertical depth of 5495', with a curve radius of 134', in the 1-A to 1-B transition zone. The curve portion of the lateral was completed and the lateral section was begun at the base of the upper 1-A porosity zone of the Desert Creek on June 13, 1998. The curve section of the hole was begun in the upper portion of the Upper Ismay, before encountering the typical section of Lower Ismay, Gothic Shale and Desert Creek members of the Upper Paradox Formation. Of note was the very minor water flow, seen as soon as the 1-A bench was penetrated. This flow remained very minor averaging approximately 5 to 10 barrels per hour until reaching a measured depth of about 7900' when the flow increased to approximately 40 barrels per hour. The flare noted throughout the 1-A zone increased from about 4 feet up to 15' in height.

Objectives of the Rutherford Unit #17-23 leg #2 horizontal lateral were to penetrate and drill the 1-A porosity horizon, to identify and define the lithology, and evaluate the porosity and to estimate the permeability of the 1-A bench of the Desert Creek. These objectives were accomplished in the 1-A zone, which had a very consistent lithology through the length penetrated, and showed only minor vertical variations in lithology, when encountering the top or base of the zone. After completing the curve section of the lateral, the lateral section required only minor amounts of sliding to try to control vertical depth and horizontal plane direction. The well path used the proposed target line throughout the 1-A zone as a reference point. Both the top and bottom of the porosity were encountered within the 1-A zone.

The top of the Upper Ismay was not observed while drill the curve portion of Leg #2, but was estimated to be at a measured depth of 5355', true vertical depth of 5355'. The Upper Ismay formation was characterized by clean to argillaceous dense limestone and thin interbedded limey argillaceous dolomite. The limestone was tan to cream to brown and occasionally gray to gray brown, microcrystalline to cryptocrystalline, clean to earthy, argillaceous, some chalky to slightly marly, with rare anhydrite inclusions. The argillaceous dolomites were predominately gray brown in color with a more argillaceous to silty texture, cryptocrystalline to microcrystalline, grading to a dolomitic marlstone in part. Scattered brown to dark brown cherts was noted in the limestones and dolomites. Also noted were very thin interbedded calcareous to dolomitic, dark gray to black, slightly carbonaceous shales. The interbedded dolomites and limestones showed none to very rare streaks of very poor intercrystalline porosity, with virtually no visible sample show. The base of the Upper Ismay from a measured depth of 5437' to the top of the Lower Ismay at a

measured depth of 5444', were very tight and marly, grading into the very thin Hovenweep Shale marker between the Upper and Lower Ismay members. The Hovenweep Shale was very poorly represented in the samples in this lateral. A minor increase in gray brown to dark gray, calcareous to slightly dolomitic, very slightly carbonaceous shales was noted in the samples from a measured depth of 5430' to 5440'.

The top of the Lower Ismay was picked at a measured depth of 5444', 5437' true vertical depth, based primarily on sample identification and a slight increase in rate of penetration. The lithology of the Lower Ismay from 5444' to 5450' measured depth was predominately limestone, light gray, occasionally cream to brown, cryptocrystalline to microcrystalline, dense and argillaceous with thin chalky to silty streaks. Thin laminations of dark brown to gray brown, cryptocrystalline to microcrystalline, dense, limey dolomites were noted. This interval had traces of translucent anhydrite crystals and had scattered very thin black carbonaceous shale laminations. The interval displayed no visible porosity or sample show. From a measured depth of 5450' to 5471', the limestones became tan to cream to white, very chalky and silty. This limestone had very thin carbonaceous shale laminations, scattered chert fragments, rare dolomite inclusions, and occasionally graded to very limey siltstone. The lower portion of the Lower Ismay from 5571' to the top of the Gothic at 5477' measured depth became increasingly argillaceous and darker in color. This portion of the section was predominately a limestone, white to cream and occasionally light to medium brown in color. The texture was mainly microcrystalline to cryptocrystalline, earthy to very marly, with thin slightly chalky streaks. The thin interbedded dolomites were brown to gray brown, dense, limey and increasingly marly with depth. The Lower Ismay showed very rare, minor intercrystalline porosity, with no visible sample show.

The Gothic Shale was penetrated at a measured depth of 5477', 5460' true vertical depth. The shales (sappropelic dolomites) were predominantly dark brown to black to dark gray shales, carbonaceous, silty, soft to slightly firm, subblocky to some platy, calcareous to slightly dolomitic and slightly micaceous, with very rare thin limestone and dolomite laminations. The top of the Gothic was picked by a slight increase in penetration rate, as well as the amount of shale in the samples. The Gothic Shale overlays the Desert Creek with a rather sharp contact.

The top of the Desert Creek member of the Upper Paradox formation was picked at a measured depth of 5491', 5470' true vertical depth. The top was picked on the increase in carbonate rocks in the samples as well as a change in the rate of penetration. The transition zone between the Gothic Shale and the 1-A zone of the Desert Creek was marked by a thin transition zone facies between the overlying Gothic Shale and the underlying 1-A porosity zone. This thin interval in this lateral was a facies of predominately brown to tan, some cream to mottled white and brown, cryptocrystalline to microcrystalline, dense limestone, which were clean to argillaceous, very slightly silty, anhydritic to slightly dolomitic. Interbedded in the limestones were dark brown to brown, microcrystalline to cryptocrystalline, dense, and argillaceous to marly dolomites and very rare thin black carbonaceous shales. This zone displayed no to a very poorly developed intercrystalline porosity with only a very poor sample show.

The top of the Desert Creek 1-A porosity zone was encountered at a measured depth of 5502', true vertical depth of 5474', which was approximately 4' high to the top of the 1-A zone on the R.U. 17-21 vertical well log. The top was noted by a significant increase in the penetration rate and a change to the oolitic to oomoldic limestone grainstones typical of the 1-A zone in this area. The limestone grainstones in the southeasterly 1-A porosity zone were tan to light brown to cream, some white, very fine crystalline to microcrystalline, with a granular to microsucrosic texture, slightly anhydritic, with a dolomitic cement. These limestone grainstones have a fair to good oolitic to moderately good intercrystalline porosity development, fair brown stain to traces of black bichimum stain*, a fair bright to occasionally dull yellow fluorescence and fair to good streaming to some slow diffused cuts. Thin interbeds of slightly oolitic limestone packstones were present throughout the 1-A porosity zone and were cream to tan in color, cryptocrystalline, some

microcrystalline, with some slightly chalky texture, but predominately dense to clean and very slightly anhydritic. The limestone packstones had no visible porosity and no visible sample shows. The 1-A porosity zone was projected to be about 8 feet thick in this southeasterly lateral, based on the 1-A zone thickness seen on the vertical well log. The top 1-A zone, in this southeast lateral, was encountered at a horizontal displacement of 22', and was seen to be approximately 11 foot thick, as the base of the zone was encountered at a measured depth of 5545', 5485' true vertical depth, while landing the curve.

The curve portion of the lateral was completed at a measured depth of 5556', 5495.6' true vertical depth, and a horizontal displacement of 26.4', with an inclination of 94.7 degrees, on June 13, 1998. Just prior to completing the curve portion of Lateral Leg #2, the base of the 1-A zone was bumped and very shallowly penetrated, at a true vertical depth of 5485', 14' horizontal displacement with a measured depth of 5545'. The 1-A zone at this point was determined to be approximately 11' thick.

The lateral section was begun with at a slight upward angle in the good oolitic to oomoldic limestone grainstones of the 1-A porosity bench. The drilling assembly was slid with a downward orientation, to avoid encountering the top of the zone. As the lateral continued, the top of the 1-A zone was "bumped" at a measured depth of 5755', 5478.5' true vertical depth and a horizontal displacement of 223'. At this time top was calculated to be dipping at approximately 89.5 degrees. The well path was oriented downward at a shallow angle to move away from the top of the zone. As the well bore was turned away from the top of the 1-A, very streaky porosity was encountered from 5834' measured depth, 5480' true vertical depth, with a horizontal displacement of 301', down to a true vertical depth of 5486', 5940' measured depth and a horizontal displacement of 410'. This interval had a lithology of interbedded fair oolitic to oomoldic limestone grainstones and dense, slightly oolitic packstones. The grainstone showed moderate to fair porosity, with some anhydrite plugging and had a very poor sample show, while the packstone had no visible porosity or sample show. As the well bore was turned slowly upward, prior to encountering the base, a tight streak was encountered at a true vertical depth of 5485.5'. The base of this streak of very dense, slightly oolitic, occasionally anhydritic to cherty packstone was bumped and scrapped until reaching a horizontal displacement of 570'. At this point the bit was able to penetrate the dense packstone streak. The base of the best and thicker porosity in the 1-A bench was encountered at a measured depth of 6158', 5483' true vertical depth, and a horizontal displacement of 6625'. At this time the lithology returned to the good oolitic to oomoldic limestone grainstone porosity, with a very good sample show. The tight streak appeared to have thickened to approximately 2.5 feet thick.

As the well bore was being leveled to 90°, the top of the 1-A porosity was again bumped at a measured depth of 6270', 5478' true vertical depth, and a horizontal displacement of 730'. The top of the bench had an apparent dip of 89.75°. The lithology remained the predominately very good oolitic to oomoldic limestone grainstones, with only very minor increases in the dense, slightly oolitic packstones, as the top was bumped. At a horizontal displacement of 1320', the top of the zone was again encountered at a true vertical depth of 5480, with an apparent dip of 89.6°. At this time the well path was turned downward sharply by the top of the formation. As the well bore was slowly turned upward toward 90°, the base of the bench was encountered at a measured depth of approximately 7130', 5488' true vertical depth, and a horizontal displacement of 1600'. The apparent thickness of the 1-A zone at this point appeared to be 8' thick. As the base of the bench was only bumped, a very minor increase in the amount of dense packstone was noted in the samples with a very minor change in the penetration rate. After bumping the base of the 1-A zone and the formation turning the well bore upward, the well path was allowed to slowly drift downward until reaching an inclination which averaged 90°.

The well path continued ahead at an average inclination of 90°, through the very good oolitic to oomoldic limestone grainstones with good sample shows, the top of the 1-A bench was again encountered at a measured depth of 7510', 5485' true vertical depth and a horizontal displacement of 1975'. From a measured depth of 7510' to a measured depth of 8150', 5491' true vertical depth and a horizontal displacement of 2615', the top of the 1-A zone was bumped and scraped as the top dipped downward at 89.6 degrees. Throughout this interval the lithology remained predominately the good light brown to tan, microcrystalline to very finely crystalline, granular to microsugrosic, oolitic to oomoldic limestone grainstones. These grainstones had fair to good sample shows and had only very minor increases in the dense, slightly oolitic limestone packstones, when the top of the 1-A zone was bumped and very shallowly penetrated. Upon reaching the measured depth of 8150' the well path was forced rather sharply downward, necessitating a series of slides to control the rate of drop. The base of the 1-A porosity zone was encountered and very shallowly penetrated at a measured depth of 8410', 5504' true vertical depth, and a horizontal displacement of 2874'. At this point the samples showed a slight increase in the amount of dense packstones, as well as a decrease in the amount of porous limestone grainstone and a decrease in the sample show.

As the well bore was turned and pushed upward away from the base, the inclination of the well bore increased sharply. After a series of slides to slow the rate of climb and to lower the well path angle, the top of the 1-A porosity bench was encountered at a measured depth of 8500', 5500' true vertical depth and a horizontal displacement of 2964'. With one short slide to control the rate of drop after bumping the top again at a true vertical depth of 5597', the well path was rotated ahead, and was allowed to slowly drift downward, until reaching a total measured depth of 8836'. At the measured depth of 8836', 5497' true vertical depth and a horizontal displacement to 3300.5', the Rutherford Unit 17-23 wells' lateral leg #2 was terminated. The lateral was terminated at or very near the top of the 1-A zone, in the good light brown to tan, microcrystalline to very finely crystalline, granular to microsugrosic, oolitic to oomoldic limestone grainstones, with fair sample shows, on June 16, 1998.

Throughout the lateral section of the 1-A porosity zone, the lithology was predominately the good tan to cream to brown, cryptocrystalline to very finely crystalline, oolitic to oomoldic limestone grainstones, which had minor anhydrite crystals and some anhydritic to dolomitic cement. When the top and base of the zone was encountered a slight increase in white to cream, some tan, occasionally oolitic, slightly chalky to platy limestone packstone, with rare silty streaks was noted. These packstones had no to very poor sample shows, and had very thin streaks of porosity, when the packstones at the top of the zone were very shallowly penetrated. The good oolitic to oomoldic limestone grainstones showed predominately fair to good sample shows, with scattered intervals of decreased sample shows, as the top of the zone was approached or very shallowly penetrated and also when the base of the zone was encountered.

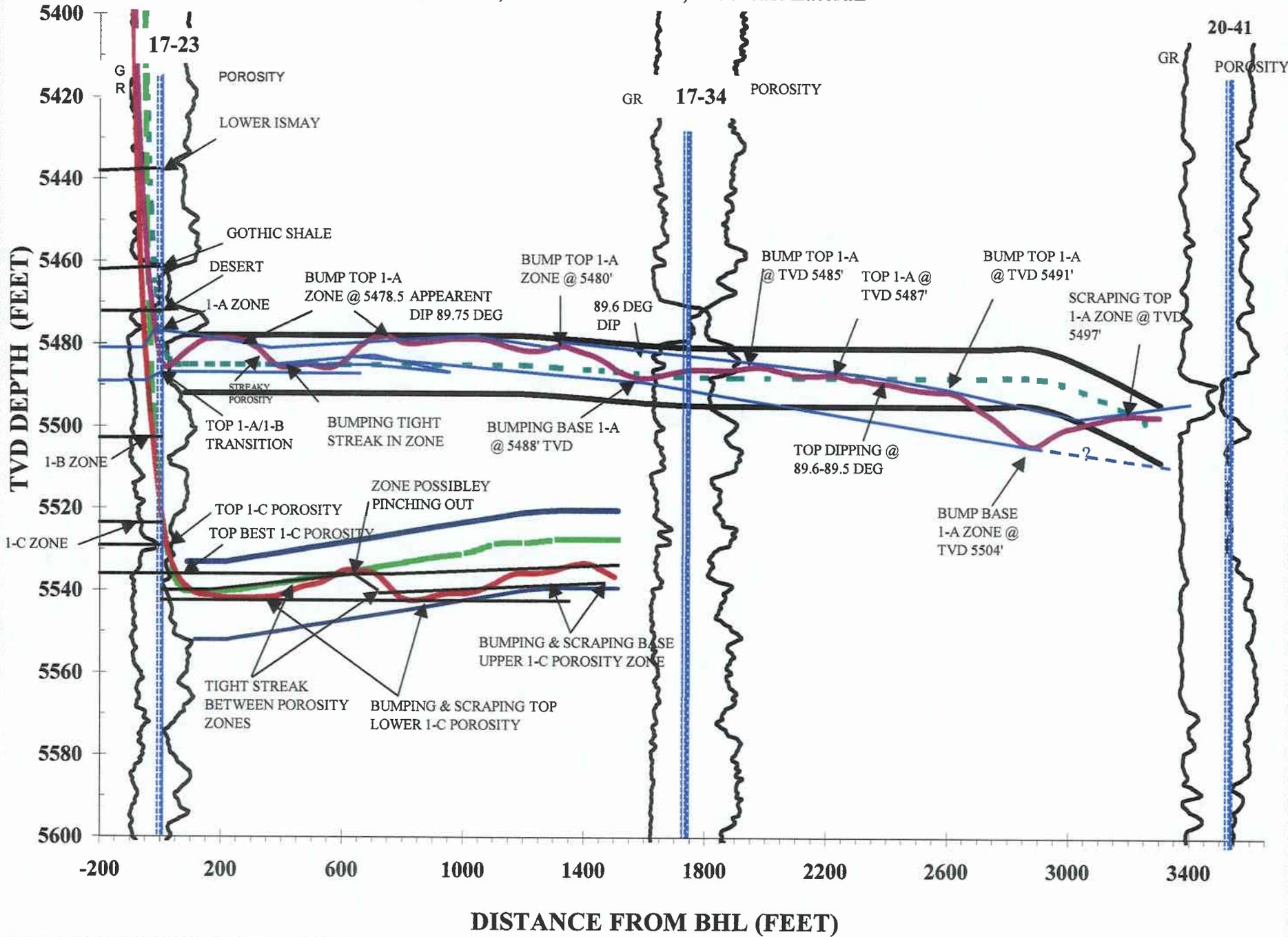
The 17-27 lateral leg #2 had a very minor amount of water throughout it's length, which increased from approximately 5 to 10 barrels to about 40 barrels of fluid per hour at a measured depth of 7800'. This flow decreased to about 30 barrels of fluid per hour just prior to the lateral's termination. Also noted throughout the length of the lateral was a flare that ranged from 4' up to 20' in height. The sample show noted in the good limestone porosities, varied only slightly in quality with the amount of flushing created by the water flow. Also the background gases showed a very minor influence from the water flow, and averaged 6000 units, throughout the length of the lateral. As the well path neared the end of the lateral, the amount of background gas decreased slightly.

From the beginning of the lateral section on June 13th, to its termination on June 16, 1998, at a measured depth of 8836', 5495' true vertical depth and a horizontal displacement of 3300.5', the lithology remained very consistent. With the exception of minor increases in dense limestone packstones as the top or base of the 1-A porosity zone was encountered, the lithology of the zone remained predominately in the good oolitic to oomoldic limestone grainstones described above,

with minor chert fragments and scattered anhydrite filled porosities. The sample shows remained predominately good, with only minor variations as indicated above. In tracking the well path through the 1-A, the limestone grainstone porosity is well developed enough to enhance the overall performance of the zone when returning the well to water flood.

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

MOBIL, Ratherford #17-23, Southeast Laterals



UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

SUNDRY NOTICES AND REPORTS ON WELLS

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

5. Lease Designation and Serial No.

14-20-603-353

6. If Indian, Allottee or Tribe Name

NAVAJO TRIBAL

7. If Unit or CA, Agreement Designation

RATHERFORD UNIT

8. Well Name and No.

RATHERFORD 17-W-23

9. API Well No.

43-037-15728

10. Field and Pool, or exploratory Area

GREATER ANETH

11. County or Parish, State

SAN JUAN UT

SUBMIT IN TRIPLICATE

1. Type of Well

Oil Well Gas Well Other

2. Name of Operator

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

3. Address and Telephone No.

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

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

SEC. 17, T41S, R24E
(NE/SW) 1980' FWL & 1880' FSL

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

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

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

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

BHL: LATERAL #1 833' SOUTH & 1248' EAST F/SURFACE SPOT.
LATERAL #2 2059' SOUTH & 2581' EAST F/SURFACE SPOT.

SEE ATTACHED.

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

Signed

Shirley Houchins

Title

SHIRLEY HOUCHINS/ENV & REG TECH

Date

08-18-98

(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.

DRILLED FOOTAGE CALCULATION FOR DIRECTIONAL AND HORIZONTAL WELLS

Unit, Well Name: Ratherford Unit, Well 17-W-23
API Well #: 43-037-15728
Well Completion: Horizontal, Injector, 2 Laterals

First leg description:	Lateral #1
KOP MD:	5380.00
EOL MD:	7063.00
Footage drilled:	1683.00
Max. TVD Recorded	5542.30

Second leg description:	Lateral #2
KOP MD:	5356.00
EOL MD:	8836.00
Footage drilled:	3480.00
Max. TVD Recorded	5504.29

Total Footage Drilled (MD):	5163.00
Deepest point (TVD):	5542.30

ATTACHMENT - FORM 3160-5
RATHERFORD UNIT #17-W-23
14-20-603-353
NAVAJO TRIBAL
SAN JUAN, UTAH

- 05-26-98 DENNIS RUSSELL CALLED NAVAJO EPA ABOUT PREP JOB 5/18/98-0800. CALLED BLM @ 0811, TALKED TO LARRY PIXLEY. MIRU, KILL TBG CHANGE RAMS IN BOP, NDWH, NUBOP. WORK W/ OTIS INTERLOCK PKR TO RELEASE, TOH W TBG, PKR, LEFT APPROX 25STNDS IN FOR KILL STRING SI & SDFN. NAVAJO WEST 26.
- 05-27-98 WHP=100, KILL WELL, TIH W GUIB W/L SET RBP & SET @ 5350' R/D W/L TEST PLUG & CSG TO 1000#-HELD 30 MIN, SI & SDFN.
- 05-28-98 WHP=50, FINISH TIH W TBG. LD TBG RD FLOOR & TONGS. NDBOP, NDWH, 5.5" OR WAS BUBBLING W/ SLIGHT FLOW OF FLUID WAIT FOR BLEED OFF, DID NOT STOP, NUWH & INSTALL FLOWBACK LINE SD UNIT FOR NIGHT.
- 05-29-98 SIP=400, BLED OFF, NDWH, NUBOP, P/U RBP, TIH & SET DN @ 952, GET OFF TOH NDBOP, CHANGE OUT W/H, SEAL PLATE @ SURFACE. NUBOP, RU FLOOR & TONGS. TIH, LATCH ON RBP, TEST CSG TOP TO BOTTOM, PSI DN TO 625 FROM 1000 TOH W/ RBP. P/U GUIB UNI-V1 PKR, TIH 40 JTS AT A TIME TESTING @ 1266', 2521', 3783', 4531', CSG HOLDING AT EACH PT, TBG LOSING PSI, SET PKR @ 4531', SI & SDFN.
- 05-30-98 SICP-0, SITP=80. TIH, SET PKR TEST CSG BELOW PKR TO 1000', HELD 15 MIN, TEST ANN TO 1000'-HELD 15 MIN-GOOD, TOH LD TBG. NDBOP, NUWH, REPAIR SEAL PLATE ON SURF HD TEST TO 1000', RD AUX EQUIPT, RD UNIT CLEAN UP LOC & MOVE OFF.
- 05-31-98 MI NAVAJO RIG #25. (NOTIFIED STATE OF UTAH MI TO RATHERFORD UNIT 17-23)
- 06-01-98 FINISH RU AND NU NAVAJO RIG #25. SINGLE JACK TESTED BOP STACK TO 2000 PSI HIGH AND 250 PSI LOW. TIH W/RETRIEVING HD, AOHDP TO TOP OF RBP @5350'. RELEASE RBP. CIRC. HOLE W/10# BRINE. POOH W/ RBP. NU HALLIBURTON WL W/ LUBRICATOR. TIH W/ TIW PKR.
- 06-01-98 WL SET TIW PKR @ 5395' RDWL. TIH W/ ANCHOR LATCH ASSY. LATCH INTO PKR @ 5395'. RU GYRO DATA. TIH W/ GYRO. RD WL. POOH W/ ANCHOR LATCH ASSY.
- 06-02-98 PU TIH W/ LATCH ASSY AND WHIPSTOCK. WHILE TRIPPING IN HOLE LOST WHIPSTOCK. ATTEMPT TO ENGAGE ANCHOR LATCH INTO TIW PKR. TOOH W/ STARTING MILL. TIH W/ RETRIEVING HOOK. ENGAGE WHIPSTOCK AND PULL 17K OVER TBG. WT. POOH W/ RETRIEVING HOOK. TIH W/STARTING MILL.
- 06-03-98 PU SWIVEL, BREAK CIRC. MILL FROM 5380-5382'. TOOH W/ MILL. TIH W/ CSG. AND WATERMELLON MILL. PU SWIVEL, BREAK CIRC. MILL 5.5" CSG. FROM 5379-5386' PLUS 1' FORMATION TO 5387'. CIRC. SWEEP. POOH W/ MILLS. FINAL REPORT LATERAL 1
- 06-03-98 RIH W/ AHODP TO TOP OF WINDOW @ 5379'. PU POWER SWIVEL AND BREAK CIRC. RU GYRO DATA. RIH TIME DRILL FROM 5387-5388'
- 06-04-98 TIME DRILL FROM 5388-89'. DRILL AND SURVEYS FROM 5389-5420' (W/GYRO) RD GYRODATA. SLIDE/DRILL AND SURVEYS FROM 5420-5580'. (SURVEY @ 5557' MD, 5519.85 TVD).
- 06-05-98 SLIDE DRILL FROM 5580-5592'. PULL INTO CSG. SECURE WELL. FORCE MAJEURE SD. (SD PENDING FUGITIVE MANHUNT BY LAW ENFORCEMENT AGENCIES IN IMMEDIATE AREA).

ATTACHMENT - FORM 3160-5
RATHERFORD UNIT #17-W-23
14-20-603-353
NAVAJO TRIBAL
SAN JUAN, UTAH
PAGE 2

06-06-98 FORCE MAJEURE SD
06-07-98 FORCE MAJEURE SD. TRIP TO BTM (5592') SLIDE DRILL AND SURVEYS
FROM 5592-5626' TD CURVE SECTION. (5626' MD, 5536.85 TVD)
06-08-98 CIRC. SWEEP. POOH LAYING DN. AOHDP AND CURVE BUILDING ASSY. TH
W/ NEW BIT. PH6 TBG., SLIP DRLG. LINE. CONTINUE IN HOLE TO 5626'. RU
POWER SWIVEL, LOAD DRILL-STRING AND BREAK CIRC. SLIDE/ROTATE
DRILL AND SURVEYS FROM 5626-5890'.
06-09-98 SLIDE & ROTATE DRILLED LATERAL 1A1 FROM 5890-6330'.
06-10-98 SLIDE & ROTATE DRILLED LATERAL 1A1 FROM 6330-6861'
06-11-98 SLIDE & ROTATE DRILLED LATERAL 1A1 FROM 6881-7063' TD, 5536' TVD,
PUMPED SWEEP & CIRC HOLE CLEAN. RIH W/ SUPERHOOK, CAUGHT & REL
WHIPSTOCK. POH & LD WHIPSTOCK. FINAL REPORT FOR LATERAL 1A1.
06-11-98 RIH W/ TIW ANCHOR LATCH ASSEMBLY, WHIPSTOCK, STARTING MILL, &
AOHDP, LATCHED INTO TIW BIG BORE KEYWAY PKR @ 5395' TOP OF
WHIPSTOCK @ 5356' CUT WINDOW FROM 5356-5358', CIRC CLEAN POH W/
STARTING MILL.
06-12-98 RIH W/ WINDOW & WATERMELLON MILLS. CUT WINDOW FROM 5356-5362'
& FORMATION TO 5363'. POH & LD MILLS. FINAL REPORT FOR LATERAL 2.
06-12-98 RIH W/ BIT, & AOHDP, RIH W/ GYRO DATA GYRO. ORIENT & TIME DRILL
FROM 5363-5366'. SLIDE DRILLED CURVE 2A1 W/ GYRO FROM 5366-5466'
06-13-98 SLIDE DRILLED CURVE 2A1 W/ MWD FROM 5388-5556', LANDED CURVE @
5556' MD, 5485' TVD, LD CURVE DRILLING ASSEMBLY RIH W/ BIT, PH6 TBG,
SLIDE DRILLED LATERAL 2A1 FROM 5556-5670'.
06-14-98 SLIDE & ROTATE DRILLED LATERAL 2A1 FROM 5670-6401', 6'-10' FLARE, NO
H2S OR WATER FLOW.
06-15-98 SLIDE & ROTATE DRILLED LATERAL 2A1 FROM 6401-7796', 10'-12' FLARE, 15
BBLs/HRS FLOW.
06-16-98 SLIDE & ROTATE DRILLED LATERAL 2A1 FROM 7796-8836' TD, 5497' TVD,
DRILLING W/ 20'-25' FLARE, WELL FLOWING 40 BBLs/HR 15% OIL. PUMPED
POLYMER SWEEP & CIRC HOLE CLEAN.
06-17-98 POH W/ AODHP & PH6 TBG TO 800'. KILLED WELL. POH & LD MWD & MUD
MOTOR. RIH W/ PH6 TBG, 5 1/2" GUIBERSON UNI-6 PKR, TOP OF PKR @ 5158'.
POH & LD AOHDP, PH6 TBG, & DC'S.
06-18-98 ND BOP, MUD GAS SEPARATOR, CAPPED TBG HEAD W/ FLANGED
WELLHEAD, CLEANED PITS, RD RIG. FINAL REPORT FOR LATERAL 2A1.

COMPLETION:

06-23-98 MIRU NAVAJO WEST RIG #36. SI PRESSURE @ 9:30 WAS 0 PSI. PU
GUIBERSON ON/OFF TOOL. RIH TO 5158' PKR DEPTH OF 5158'. END OF PH-6
TAIL PIPE @ 5650'. RIH AND LATCH ONTO PKR WITH ON/OFF TOOL. RU
AND TEST PKR TO 500 PSI OK. MIRU TEFTELLAR SLICKLINE UNIT. RIH TO
5158'. RELEASE 'F' PLUG. POH. RDMO TEFTELLAR. RU FLOW LINES TO
TEST TANK. SIFN.
06-24-98 MIRU DOWELL COILED TBG. UNIT. SHUT IN PRESSURE @ 8:30 WAS 567 PSI.
RIH W/ COILED TBG. TO 8836'. DOWELL ACIDIZE LATERAL 2A1 FROM 8836'

ATTACHMENT - FORM 3160-5
RATHERFORD UNIT #17-W-23
14-20-603-353
NAVAJO TRIBAL
SAN JUAN, UTAH
PAGE 3

- TO 5650' 45,738 GAL. OF 15% HCL ACID. POH W/ COILED TBG. WELL SI RD DOWELL COILED TBG. UNIT. WELLHEAD PRESSURE OF 1000 PSI. SHUT WELL IN.
- 06-25-98 SI TBG. PRESSURE @ 6:30 WAS 875 PSI. OPEN TO TEST TANK. FLOW WELL. RU TO PUMP, KILL WELL RELEASE PKR. POH. LD PKR. PU RETV. TOOLS, FOR WHIPSTOCK. RIH TO 5359'. LATCH WHIPSTOCK, RELEASE, RIH W/ OPEN END PH-6 TBG. TO 4759'. SIFN.
- 06-26-98 SI PRESSURE @ 7:30 WAS 400 PSI. RU AND KILL WELL. ORIENT WHIPSTOCK. RIH TO 5395'. SET WHIPSTOCK FOR LATERAL 1A1. POH FROM 5396' TO 5320'. SIFN.
- 06-27-98 SI TBG. PRESSURE @ 7:30 WAS 400 PSI. RU AND KILLWELL. WELL DEAD. POH W/ RUNNING TOOLS FOR RETV. WHIPSTOCK AND LD. RIH W/ PH-6 TAIL PIPE PKR, AND 2.875" PH-6 TBG. TO 5571.08'. (PKR DEPTH OF 5155.70') SET PKR. TEST TO 250 PSI. OK. SIFN.
- 06-28-98 MIRU DOWELL COILED TBG. UNIT. SI PRESSURE @ 5:30 WAS 400 PSI. RIH W. COILED TBG. 7063'. DOWELL ACIDIZE LATERAL 1A1 FROM 7063' TO 5576' W/ 20,622 GAL. OF 15% HCL ACID. POH W/ 1.75" COILED TBG. RDMO DOWELL COILED TBG. SIFN.
- 06-29-98 SI PRESSURE @ 6:30 WAS 1200 PSI. KILL WELL RELEASE PKR. POH, PKR, TAIL PIPE. LD PKR. PU RETV. TOOLS FOR RETV. WHIPSTOCK. RIH TO 5386'. LATCH ONTO WHIPSTOCK, RELEASE, POH. RIH WITH OPEN END TBG. TO 5310'. SIFN.
- 06-30-98 SI PRESSURE @ 7:30 WAS 550 PSI. RU AND KILL WELL. RU TO RUN 2.875" CMT. LINED TBG. GUIBERSON G V1 PKR. PKR DEPTH OF 5263.40'. SIFN.
- 07-01-98 SI PRESSURE @ 7:30 WAS 300 PSI. MAKE UP X/O SUB. RIH TO 5263', SCREW INTO ON/OFF TOOL. RELEASE PKR. POH FROM 5263' TO 5200'. SIFN.
- 07-02-98 SI TBG. PRESSURE @ 7:30 WAS 150 PSI. SI CSG. PRESSURE @ 7:30 WAS 150 PSI. RU TEFTELLER SLICK LINE UNIT. RIH TO 5143'. PULL 'F' PLUG, POH, RDMO SLICKLINE UNIT. RU AND KILL WELL. COULD NOT RELEASE PKR @ 5143'. UNLATCH FROM PKR WITH ON/OFF. STAND BACK 2.875" CMT. LINED TBG. PU AND RIH WITH OPEN END PH-6 TBG. 4945.52' SIFN.
- 07-03-98 SI PRESSURE @ 7:30 WAS 600 PSI. RU AND KILL WELL. PU AND RIH W/ LATCH ONTO PKR, JAR FREE, POH. LD PKR. LD FISHING TOOLS, RIH W/ 2.875" PH-6 TBG. TO 4945.52'. SIFN.
- 07-06-98 SIP 550# RIH W/ 5.5" GUIB. G-6 PKR ON/OFF TOOL. UNABLE TO SET PKR @ 5263' TRIED TO MOVE DN 1-JT NO SUCCESS ATTEMPT ONE ABOVE NO SUCCESS TRY TO PUMP AROUND PKR UNABLE TO SWISDFN.
- 07-07-98 SICP 600# RIH W/ 5.5" GUIB. G-6 PKR ON 2.875" CMT LINE TBG. DRIFT TO 5232' INSTALLED WRAPAROUND LAND & SET.
- 07-08-98 SICP 0# SITP 0#, REL OFF ON/OFF TOOL. NIP DN HYDRIL/BOP INSTALLED INJ TREE. LATCHED ON TO ON/OFF TOOL TEST CSG TO 1000# FOR 30 MIN OK FLANGED UP TREE, PRESSURE UP TO 1800# ON TBG TO PUMP OUT PLUG. FLOW WELL BACK TO CLEAN UP. RD CLEAN LOC. MOVE EQUIP.

Mobil

**San Juan County
Utah
Ratherford Unit
RU 17-23 - MWD Survey Leg #1**

SURVEY REPORT

16 July, 1998

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

Survey Ref: svy2925

Sperry-Sun Drilling Services

Survey Report for RU 17-23



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	0.370	273.280	100.00	0.02 N	0.32 W	-0.27	0.370
300.00	0.300	289.060	300.00	0.23 N	1.46 W	-1.33	0.058
500.00	0.460	331.890	499.99	1.11 N	2.34 W	-2.55	0.157
700.00	1.070	326.890	699.97	3.38 N	3.73 W	-5.00	0.307
900.00	1.450	305.700	899.93	6.42 N	6.81 W	-9.26	0.298
1100.00	1.590	310.350	1099.86	9.69 N	10.98 W	-14.55	0.093
1300.00	1.650	310.230	1299.78	13.35 N	15.29 W	-20.18	0.030
1500.00	1.840	311.710	1499.68	17.34 N	19.89 W	-26.24	0.098
1700.00	1.820	317.720	1699.58	21.83 N	24.42 W	-32.52	0.096
1900.00	1.630	319.450	1899.49	26.34 N	28.41 W	-38.38	0.098
2100.00	1.450	315.740	2099.42	30.32 N	32.02 W	-43.62	0.103
2300.00	1.290	302.510	2299.36	33.34 N	35.69 W	-48.35	0.177
2500.00	1.410	297.430	2499.31	35.68 N	39.77 W	-53.04	0.085
2700.00	1.170	291.180	2699.25	37.55 N	43.86 W	-57.46	0.139
2900.00	1.220	301.280	2899.21	39.40 N	47.58 W	-61.57	0.108
3100.00	1.150	309.090	3099.17	41.77 N	50.96 W	-65.70	0.088
3300.00	1.080	312.960	3299.13	44.32 N	53.89 W	-69.57	0.051
3500.00	1.100	331.420	3499.10	47.29 N	56.19 W	-73.15	0.175
3700.00	0.860	323.680	3699.07	50.18 N	58.00 W	-76.29	0.137
3900.00	0.560	328.790	3899.05	52.23 N	59.39 W	-78.61	0.153
4100.00	0.700	335.100	4099.04	54.17 N	60.42 W	-80.56	0.078
4300.00	0.770	350.040	4299.02	56.60 N	61.16 W	-82.57	0.102
4500.00	0.730	351.560	4499.00	59.19 N	61.58 W	-84.39	0.022
4700.00	0.900	353.650	4698.98	62.01 N	61.94 W	-86.31	0.086
4900.00	0.640	348.530	4898.97	64.66 N	62.34 W	-88.15	0.134
5100.00	0.340	334.200	5098.96	66.29 N	62.82 W	-89.48	0.161
5300.00	0.420	324.800	5298.95	67.43 N	63.50 W	-90.69	0.051
MWD Survey Leg #1							
5380.00	0.380	318.050	5378.95	67.86 N	63.85 W	-91.22	0.077
5387.00	3.000	125.000	5385.95	67.78 N	63.71 W	-91.06	48.161
5397.00	7.600	118.100	5395.90	67.31 N	62.91 W	-90.14	46.357
5407.00	12.300	116.400	5405.75	66.53 N	61.38 W	-88.43	47.087
5417.00	16.900	115.600	5415.43	65.43 N	59.11 W	-85.95	46.043
5427.00	20.500	106.400	5424.90	64.30 N	56.12 W	-82.85	46.439
5437.00	23.300	113.700	5434.18	63.01 N	52.62 W	-79.25	39.008
5447.00	24.300	103.200	5443.33	61.75 N	48.81 W	-75.40	43.479
5457.00	28.300	107.500	5452.29	60.56 N	44.54 W	-71.23	44.282
5467.00	32.600	110.100	5460.91	58.92 N	39.75 W	-66.36	44.965

Continued...

Sperry-Sun Drilling Services

Survey Report for RU 17-23



Mobil
San Juan County

Utah
Ratherford Unit

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
5477.00	36.600	110.100	5469.14	56.97 N	34.42 W	-60.87	40.000
5487.00	41.000	115.400	5476.94	54.54 N	28.65 W	-54.75	55.094
5497.00	45.400	117.600	5484.23	51.48 N	22.53 W	-47.98	46.501
5507.00	49.000	122.100	5491.02	47.83 N	16.17 W	-40.68	48.833
5517.00	52.200	126.200	5497.37	43.48 N	9.79 W	-32.96	45.020
5527.00	53.100	122.100	5503.44	39.02 N	3.21 W	-25.01	33.809
5537.00	56.000	116.900	5509.24	35.02 N	3.88 E	-16.91	51.323
5547.00	57.300	112.600	5514.74	31.53 N	11.46 E	-8.69	38.195
5557.00	61.100	113.000	5519.86	28.20 N	19.38 E	-0.30	38.155
5567.00	65.500	115.700	5524.35	24.51 N	27.51 E	8.48	50.173
5577.00	71.200	115.800	5528.04	20.48 N	35.88 E	17.65	57.008
5587.00	75.500	115.700	5530.90	16.32 N	44.51 E	27.10	43.011
5602.00	78.600	121.700	5534.27	9.30 N	57.32 E	41.62	44.116
5626.00	85.800	128.400	5537.53	4.35 S	76.76 E	65.37	40.791
5656.00	86.100	131.100	5539.64	23.49 S	99.76 E	95.19	9.033
5688.00	89.500	132.600	5540.87	44.82 S	123.58 E	126.93	11.611
5719.00	89.600	131.700	5541.12	65.62 S	146.56 E	157.69	2.921
5750.00	89.400	130.300	5541.39	85.96 S	169.95 E	188.52	4.562
5782.00	89.500	130.200	5541.69	106.63 S	194.38 E	220.38	0.442
5814.00	90.000	128.000	5541.83	126.81 S	219.21 E	252.30	7.050
5846.00	90.000	125.900	5541.83	146.04 S	244.78 E	284.28	6.562
5876.00	90.400	125.600	5541.73	163.57 S	269.13 E	314.28	1.667
5908.00	90.100	124.900	5541.59	182.04 S	295.26 E	346.28	2.380
5940.00	90.700	124.500	5541.37	200.26 S	321.57 E	378.27	2.253
5971.00	91.600	125.400	5540.74	218.01 S	346.97 E	409.27	4.105
6002.00	92.000	124.900	5539.77	235.85 S	372.30 E	440.25	2.065
6033.00	91.000	124.900	5538.96	253.58 S	397.72 E	471.24	3.226
6065.00	90.400	124.900	5538.57	271.89 S	423.96 E	503.24	1.875
6097.00	91.900	125.100	5537.93	290.24 S	450.17 E	535.23	4.729
6129.00	93.100	126.100	5536.53	308.85 S	476.16 E	567.20	4.879
6161.00	91.800	126.100	5535.16	327.68 S	501.99 E	599.16	4.062
6192.00	88.900	125.200	5534.97	345.75 S	527.18 E	630.16	9.795
6224.00	90.100	126.100	5535.25	364.40 S	553.18 E	662.15	4.687
6255.00	89.200	126.800	5535.44	382.82 S	578.12 E	693.14	3.678
6287.00	86.700	125.800	5536.59	401.75 S	603.89 E	725.11	8.413
6319.00	84.500	124.300	5539.04	420.07 S	630.01 E	757.01	8.313
6351.00	87.200	124.500	5541.36	438.10 S	656.34 E	788.92	8.460
6382.00	89.400	124.200	5542.28	455.58 S	681.92 E	819.91	7.162
6414.00	90.500	122.800	5542.30	473.24 S	708.60 E	851.89	5.564
6446.00	91.300	122.200	5541.80	490.43 S	735.59 E	883.86	3.125
6478.00	91.400	122.100	5541.05	507.46 S	762.67 E	915.81	0.442
6509.00	89.900	122.900	5540.70	524.11 S	788.81 E	946.78	5.484
6541.00	90.400	124.500	5540.61	541.87 S	815.44 E	978.77	5.238
6573.00	90.000	124.900	5540.50	560.08 S	841.74 E	1010.77	1.768
6605.00	91.400	125.600	5540.11	578.55 S	867.87 E	1042.76	4.891

Continued...

Sperry-Sun Drilling Services

Survey Report for RU 17-23



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)
6636.00	91.700	125.400	5539.27	596.54 S	893.10 E	1073.75	1.163
6668.00	92.300	124.700	5538.15	614.91 S	919.28 E	1105.73	2.880
6700.00	92.500	124.200	5536.81	633.00 S	945.65 E	1137.70	1.682
6732.00	91.000	123.300	5535.84	650.77 S	972.24 E	1169.68	5.466
6764.00	89.400	122.600	5535.73	668.17 S	999.09 E	1201.66	5.458
6795.00	90.400	121.500	5535.78	684.62 S	1025.37 E	1232.61	4.795
6827.00	90.700	121.000	5535.47	701.22 S	1052.72 E	1264.54	1.822
6858.00	90.700	122.900	5535.09	717.62 S	1079.02 E	1295.50	6.129
6890.00	92.200	122.800	5534.28	734.97 S	1105.90 E	1327.46	4.698
6922.00	90.100	124.300	5533.64	752.66 S	1132.56 E	1359.44	8.064
6954.00	91.100	125.200	5533.31	770.89 S	1158.85 E	1391.44	4.204
6985.00	88.300	125.800	5533.47	788.89 S	1184.08 E	1422.44	9.237
7017.00	87.500	124.500	5534.64	807.30 S	1210.23 E	1454.41	4.768
7029.00	87.800	124.300	5535.13	814.08 S	1220.12 E	1466.40	3.004
7063.00	87.800	124.300	5536.44	833.22 S	1248.19 E	1500.37	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 125.000° (True).

Based upon Minimum Curvature type calculations, at a Measured Depth of 7063.00ft., The Bottom Hole Displacement is 1500.75ft., in the Direction of 123.725° (True).

Mobil

**San Juan County
Utah
Ratherford Unit
RU 17-23 - MWD Survey Leg #2**

SURVEY REPORT

16 July, 1998

sperry-sun
DRILLING SERVICES
A DIVISION OF BREMER FOUNTAIN, INC.

Survey Ref: svy2927

Sperry-Sun Drilling Services

Survey Report for RU 17-23



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	0.370	273.280	100.00	0.02 N	0.32 W	-0.26	0.370
300.00	0.300	289.060	300.00	0.23 N	1.46 W	-1.27	0.058
500.00	0.460	331.890	499.99	1.11 N	2.34 W	-2.50	0.157
700.00	1.070	326.890	699.97	3.38 N	3.73 W	-5.03	0.307
900.00	1.450	305.700	899.93	6.42 N	6.81 W	-9.34	0.298
1100.00	1.590	310.350	1099.86	9.69 N	10.98 W	-14.64	0.093
1300.00	1.650	310.230	1299.78	13.35 N	15.29 W	-20.29	0.030
1500.00	1.840	311.710	1499.68	17.34 N	19.89 W	-26.38	0.098
1700.00	1.820	317.720	1699.58	21.83 N	24.42 W	-32.74	0.096
1900.00	1.630	319.450	1899.49	26.34 N	28.41 W	-38.69	0.098
2100.00	1.450	315.740	2099.42	30.32 N	32.02 W	-44.02	0.103
2300.00	1.290	302.510	2299.36	33.34 N	35.69 W	-48.77	0.177
2500.00	1.410	297.430	2499.31	35.68 N	39.77 W	-53.40	0.085
2700.00	1.170	291.180	2699.25	37.55 N	43.86 W	-57.73	0.139
2900.00	1.220	301.280	2899.21	39.40 N	47.58 W	-61.77	0.108
3100.00	1.150	309.090	3099.17	41.77 N	50.96 W	-65.88	0.088
3300.00	1.080	312.960	3299.13	44.32 N	53.89 W	-69.77	0.051
3500.00	1.100	331.420	3499.10	47.29 N	56.19 W	-73.44	0.175
3700.00	0.860	323.680	3699.07	50.18 N	58.00 W	-76.69	0.137
3900.00	0.560	328.790	3899.05	52.23 N	59.39 W	-79.07	0.153
4100.00	0.700	335.100	4099.04	54.17 N	60.42 W	-81.10	0.078
4300.00	0.770	350.040	4299.02	56.60 N	61.16 W	-83.24	0.102
4500.00	0.730	351.560	4499.00	59.19 N	61.58 W	-85.22	0.022
4700.00	0.900	353.650	4698.98	62.01 N	61.94 W	-87.31	0.086
4900.00	0.640	348.530	4898.97	64.66 N	62.34 W	-89.32	0.134
5100.00	0.340	334.200	5098.96	66.29 N	62.82 W	-90.73	0.161
5300.00	0.420	324.800	5298.95	67.43 N	63.50 W	-91.98	0.051
MWD Survey Leg #2							
5356.00	0.390	320.200	5354.95	67.74 N	63.74 W	-92.37	0.079
5363.00	3.700	130.000	5361.95	67.61 N	63.58 W	-92.17	58.349
5373.00	7.800	123.300	5371.90	67.03 N	62.77 W	-91.17	41.477
5383.00	12.100	121.200	5381.74	66.12 N	61.30 W	-89.46	43.146
5393.00	16.200	120.200	5391.44	64.87 N	59.20 W	-87.05	41.071
5403.00	20.400	119.600	5400.93	63.31 N	56.48 W	-83.96	42.042
5413.00	24.500	119.200	5410.17	61.44 N	53.15 W	-80.21	41.028
5423.00	28.600	117.600	5419.11	59.31 N	49.22 W	-75.83	41.616
5433.00	32.900	115.700	5427.71	57.03 N	44.65 W	-70.86	44.079
5443.00	36.700	114.400	5435.92	54.61 N	39.48 W	-65.35	38.716

Continued...

Sperry-Sun Drilling Services

Survey Report for RU 17-23



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)
5453.00	40.600	114.400	5443.72	52.03 N	33.79 W	-59.33	39.000
5463.00	44.800	114.800	5451.07	49.21 N	27.63 W	-52.79	42.087
5473.00	49.000	114.100	5457.90	46.19 N	20.98 W	-45.76	42.309
5483.00	52.800	113.700	5464.21	43.05 N	13.89 W	-38.31	38.126
5493.00	57.200	113.000	5469.94	39.80 N	6.37 W	-30.46	44.372
5503.00	62.300	112.600	5474.98	36.46 N	1.59 E	-22.21	51.117
5513.00	68.100	111.100	5479.17	33.08 N	10.02 E	-13.59	59.575
5523.00	74.300	110.500	5482.39	29.72 N	18.86 E	-4.66	62.259
5533.00	80.100	110.600	5484.61	26.30 N	27.99 E	4.53	58.008
5556.00	94.700	114.300	5485.65	17.55 N	49.16 E	26.38	65.470
5608.00	92.500	121.600	5482.38	6.76 S	94.97 E	77.10	14.635
5640.00	94.000	126.800	5480.56	24.71 S	121.38 E	108.87	16.887
5672.00	91.500	126.100	5479.03	43.70 S	147.09 E	140.77	8.112
5704.00	89.500	125.200	5478.75	62.35 S	173.09 E	172.67	6.854
5735.00	90.400	125.600	5478.78	80.31 S	198.36 E	203.57	3.177
5767.00	90.100	129.400	5478.64	99.78 S	223.74 E	235.54	11.912
5799.00	88.200	129.300	5479.11	120.07 S	248.49 E	267.53	5.946
5830.00	88.200	129.600	5480.09	139.76 S	272.41 E	298.51	0.967
5861.00	86.400	130.900	5481.55	159.76 S	296.04 E	329.48	7.160
5892.00	85.300	130.500	5483.79	179.92 S	319.48 E	360.39	3.775
5924.00	88.800	133.000	5485.44	201.20 S	343.32 E	392.33	13.434
5956.00	90.700	135.100	5485.58	223.45 S	366.32 E	424.24	8.850
5988.00	90.900	136.500	5485.13	246.38 S	388.62 E	456.08	4.419
6019.00	89.600	137.500	5484.99	269.06 S	409.76 E	486.84	5.291
6051.00	88.500	138.100	5485.52	292.76 S	431.26 E	518.54	3.915
6082.00	90.600	136.500	5485.77	315.54 S	452.28 E	549.29	8.516
6113.00	91.300	134.900	5485.25	337.72 S	473.92 E	580.13	5.633
6145.00	93.900	131.400	5483.80	359.58 S	497.24 E	612.04	13.615
6177.00	94.300	132.100	5481.51	380.83 S	521.05 E	643.94	2.515
6209.00	92.600	131.000	5479.59	402.02 S	544.96 E	675.87	6.324
6241.00	91.600	129.800	5478.42	422.74 S	569.31 E	707.85	4.879
6272.00	89.600	129.300	5478.09	442.48 S	593.21 E	738.84	6.650
6304.00	87.600	127.900	5478.87	462.44 S	618.21 E	770.82	7.628
6336.00	88.900	128.700	5479.85	482.26 S	643.31 E	802.79	4.769
6368.00	90.700	129.400	5479.96	502.42 S	668.16 E	834.79	6.035
6400.00	90.600	129.600	5479.60	522.77 S	692.85 E	866.78	0.699
6431.00	90.100	130.500	5479.41	542.72 S	716.58 E	897.78	3.321
6463.00	91.000	130.900	5479.10	563.58 S	740.84 E	929.78	3.078
6495.00	90.400	131.000	5478.71	584.55 S	765.00 E	961.77	1.901
6526.00	89.600	130.900	5478.71	604.87 S	788.42 E	992.77	2.601
6558.00	90.200	130.900	5478.77	625.82 S	812.60 E	1024.76	1.875
6590.00	89.800	131.600	5478.77	646.92 S	836.66 E	1056.75	2.519
6621.00	88.900	131.400	5479.12	667.46 S	859.88 E	1087.74	2.974
6652.00	88.400	130.700	5479.85	687.81 S	883.25 E	1118.73	2.774
6684.00	88.900	130.000	5480.60	708.53 S	907.63 E	1150.72	2.688

Continued...

Sperry-Sun Drilling Services

Survey Report for RU 17-23



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)
6716.00	89.100	128.000	5481.16	728.66 S	932.49 E	1182.71	6.280
6747.00	89.400	127.200	5481.57	747.57 S	957.05 E	1213.68	2.756
6778.00	90.400	127.000	5481.62	766.27 S	981.78 E	1244.64	3.290
6810.00	91.200	126.300	5481.17	785.37 S	1007.45 E	1276.58	3.322
6841.00	91.300	125.600	5480.50	803.57 S	1032.54 E	1307.49	2.280
6873.00	88.800	125.600	5480.47	822.19 S	1058.55 E	1339.40	7.812
6905.00	88.200	124.300	5481.31	840.52 S	1084.77 E	1371.26	4.473
6937.00	88.900	124.500	5482.12	858.59 S	1111.17 E	1403.10	2.275
6968.00	88.700	126.600	5482.77	876.61 S	1136.38 E	1433.99	6.803
6999.00	86.700	125.200	5484.01	894.77 S	1161.47 E	1464.89	7.873
7031.00	87.500	125.600	5485.63	913.29 S	1187.52 E	1496.74	2.794
7063.00	88.200	127.900	5486.83	932.42 S	1213.14 E	1528.67	7.508
7095.00	88.800	128.000	5487.67	952.09 S	1238.37 E	1560.64	1.901
7127.00	89.900	128.600	5488.03	971.92 S	1263.48 E	1592.62	3.916
7158.00	90.800	128.700	5487.84	991.28 S	1287.69 E	1623.61	2.921
7190.00	91.000	129.100	5487.34	1011.37 S	1312.59 E	1655.60	1.397
7222.00	91.000	128.700	5486.78	1031.47 S	1337.49 E	1687.59	1.250
7254.00	90.600	128.900	5486.33	1051.51 S	1362.42 E	1719.58	1.398
7286.00	90.400	128.400	5486.06	1071.50 S	1387.41 E	1751.57	1.683
7317.00	89.900	128.600	5485.97	1090.80 S	1411.68 E	1782.56	1.737
7349.00	89.900	128.200	5486.03	1110.67 S	1436.75 E	1814.54	1.250
7381.00	89.600	128.000	5486.17	1130.42 S	1461.93 E	1846.53	1.127
7413.00	90.400	127.700	5486.17	1150.05 S	1487.20 E	1878.50	2.670
7444.00	90.800	127.200	5485.84	1168.90 S	1511.81 E	1909.47	2.065
7476.00	90.400	126.800	5485.51	1188.16 S	1537.37 E	1941.43	1.768
7508.00	90.500	127.200	5485.26	1207.42 S	1562.92 E	1973.38	1.288
7540.00	88.700	128.600	5485.48	1227.07 S	1588.17 E	2005.36	7.126
7572.00	88.900	128.600	5486.15	1247.03 S	1613.17 E	2037.34	0.625
7603.00	89.200	130.000	5486.67	1266.66 S	1637.16 E	2068.33	4.618
7635.00	89.100	129.800	5487.14	1287.19 S	1661.71 E	2100.33	0.699
7667.00	90.100	130.200	5487.36	1307.76 S	1686.22 E	2132.33	3.366
7699.00	89.900	129.600	5487.36	1328.28 S	1710.77 E	2164.33	1.976
7731.00	90.500	129.300	5487.25	1348.62 S	1735.48 E	2196.33	2.096
7762.00	89.500	128.700	5487.25	1368.12 S	1759.57 E	2227.32	3.762
7794.00	88.900	128.200	5487.70	1388.02 S	1784.63 E	2259.31	2.441
7825.00	88.600	128.000	5488.38	1407.14 S	1809.01 E	2290.28	1.163
7857.00	89.800	128.700	5488.82	1427.00 S	1834.11 E	2322.26	4.341
7889.00	89.800	129.800	5488.93	1447.24 S	1858.89 E	2354.26	3.437
7920.00	89.500	129.600	5489.12	1467.04 S	1882.74 E	2385.26	1.163
7951.00	89.200	129.600	5489.47	1486.80 S	1906.62 E	2416.26	0.968
7983.00	88.900	129.600	5490.01	1507.20 S	1931.28 E	2448.25	0.938
8015.00	89.200	129.400	5490.54	1527.55 S	1955.96 E	2480.25	1.127
8047.00	89.600	128.900	5490.87	1547.75 S	1980.78 E	2512.24	2.001
8079.00	89.600	128.400	5491.09	1567.74 S	2005.77 E	2544.23	1.562
8110.00	89.700	128.400	5491.28	1586.99 S	2030.06 E	2575.22	0.323

Continued...

Sperry-Sun Drilling Services

Survey Report for RU 17-23



Mobil
San Juan County

Utah
Ratherford Unit

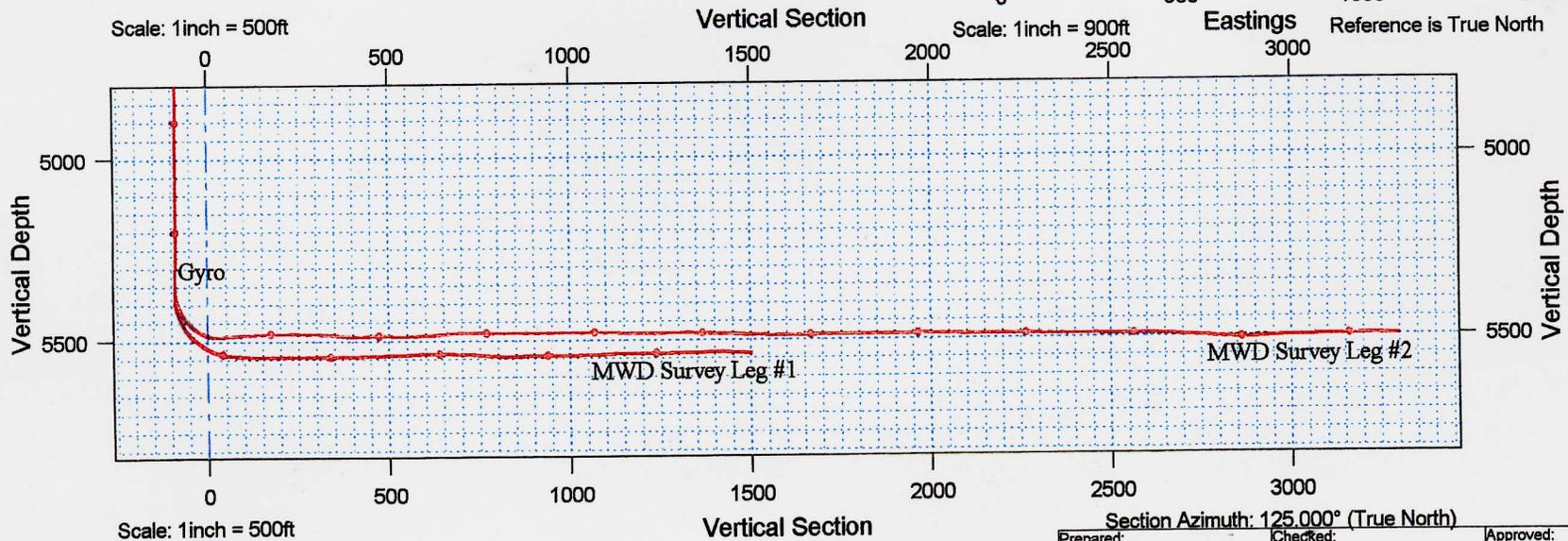
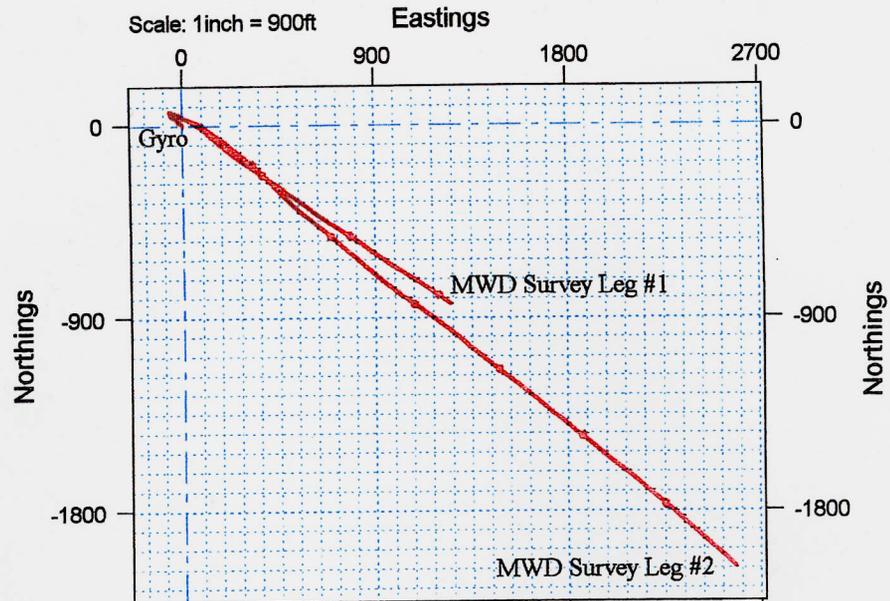
Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
8141.00	90.300	128.000	5491.28	1606.16 S	2054.42 E	2606.20	2.326
8172.00	87.100	127.300	5491.99	1625.09 S	2078.96 E	2637.16	10.566
8204.00	87.000	129.800	5493.63	1645.01 S	2103.95 E	2669.11	7.808
8236.00	86.800	130.300	5495.36	1665.57 S	2128.41 E	2701.06	1.681
8268.00	88.100	130.300	5496.79	1686.24 S	2152.79 E	2733.03	4.062
8299.00	86.200	129.800	5498.33	1706.16 S	2176.49 E	2763.99	6.337
8331.00	86.500	129.800	5500.37	1726.61 S	2201.02 E	2795.92	0.938
8363.00	86.700	129.400	5502.26	1746.97 S	2225.64 E	2827.87	1.396
8395.00	87.100	129.300	5504.00	1767.23 S	2250.35 E	2859.82	1.288
8426.00	91.800	131.200	5504.29	1787.25 S	2274.00 E	2890.81	16.353
8458.00	92.600	130.900	5503.06	1808.25 S	2298.11 E	2922.78	2.670
8489.00	93.500	130.700	5501.41	1828.48 S	2321.55 E	2953.73	2.974
8521.00	90.600	131.700	5500.27	1849.54 S	2345.60 E	2985.70	9.585
8553.00	91.200	132.300	5499.77	1870.95 S	2369.38 E	3017.67	2.651
8585.00	91.300	131.700	5499.07	1892.36 S	2393.16 E	3049.65	1.900
8617.00	91.000	131.700	5498.43	1913.64 S	2417.04 E	3081.63	0.938
8648.00	91.000	132.100	5497.89	1934.34 S	2440.11 E	3112.60	1.290
8680.00	91.000	131.900	5497.33	1955.75 S	2463.89 E	3144.58	0.625
8712.00	90.200	131.700	5496.99	1977.07 S	2487.75 E	3176.56	2.577
8744.00	90.400	131.700	5496.83	1998.36 S	2511.64 E	3208.55	0.625
8776.00	89.100	131.000	5496.96	2019.50 S	2535.66 E	3240.54	4.614
8802.00	90.100	131.000	5497.15	2036.56 S	2555.28 E	3266.53	3.846
8836.00	90.000	131.000	5497.12	2058.86 S	2580.94 E	3300.53	0.294

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 8836.00ft.,
The Bottom Hole Displacement is 3301.54ft., in the Direction of 128.580° (True).

**San Juan County
 Utah
 Rutherford Unit
 RU 17-23 Legs #1 & #2**



Prepared: _____ Checked: _____ Approved: _____

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

SUBMIT IN DUPLICATE

(See other instructions on reverse side)

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

WELL COMPLETION OR RECOMPLETION REPORT AND LOG*

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

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

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

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

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)*
At surface
1880' FSL & 1980' FWL (NW/SW)
At top prod. interval reported below

At total depth
***#37**

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

15. DATE SPUNDED **5-26-98** 16. DATE T.D. REACHED **6-18-98** 17. DATE COMPL. (Ready to prod.) **7-08-98** 18. ELEVATIONS (DF, RKB, RT, GR, ETC.)* **GR: 4696', KB: 4708'** 19. ELEV. CASINGHEAD

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

24. PRODUCING INTERVAL(S), OF THIS COMPLETION - TOP, BOTTOM, NAME (MD AND TVD)* ****#37** *P.R.D.* 25. WAS DIRECTIONAL SURVEY MADE **YES**

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

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

CASING SIZE/GRADE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	TOP OF CEMENT, CEMENTING RECORD	AMOUNT PULLED
13 3/8"	27.1#		ORIGINAL		
8 5/8"	24#		CASING		
5 1/2"	15.3#		UNDISTURBED		
5 1/2"	14#				

29. LINER RECORD 30. TUBING RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)	SIZE	DEPTH SET (MD)	PACKER SET (MD)
					2 7/8"	5263'	5232'

31. PERFORATION RECORD (Interval, size and number) **RECEIVED**
AUG 20 1998
DIV. OF OIL, GAS & MINING

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
8836'-5650' TMD	LAT #2A1 ACIDIZE W/ 45,738 GALS OF 15% HCL ACID
7063'-5576' TMD	LAT #1A1 ACIDIZE W/ 20,622 GALS OF 15% HCL ACID

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

DATE OF TEST **8-5-98** HOURS TESTED CHOKE SIZE PROD'N. FOR TEST PERIOD OIL - BBL. GAS - MCF. WATER - BBL. GAS - OIL RATIO **500**

FLOW. TUBING PRESS. **3000 PSI** CASING PRESSURE CALCULATED 24-HOUR RATE OIL - BBL. GAS - MCF. WATER - BBL. OIL GRAVITY - API (CORR.)

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

35. LIST OF ATTACHMENTS **DIRECTIONAL SURVEY**

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

SIGNED *Shirley Houchins* TITLE **SHIRLEY HOUCHINS/ENV & REG TECH** DATE **8-18-98**

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

37. SUMMARY OF POROUS ZONES: (Show all important zones of porosity and contents thereof; cored intervals; and all drill-stem, tests, including depth interval tested, cushion used, time tool open, flowing and shut-in pressures, and recoveries):

38.

GEOLOGIC MARKERS

FORMATION	TOP	BOTTOM	DESCRIPTION, CONTENTS, ETC.	NAME	TOP	
					MEAS. DEPTH	TRUE VERT. DEPTH
* #4			LAT #1A1 833' FSL & 1248' FEL, F/SURF SPOT LAT #2A1 2059' FSL & 2581' FEL, F/SURF SPOT			
**#20 & #21			LAT #1A1 (5387' -7063' TMD)(5386' -5536' TVD) LAT #2A1 (5363' -8836' TMD)(5362' -5497' TVD)			
			ACTUAL BOTTOM-HOLE LOCATIONS: LATERAL 1 -- 1047 FSL 2052 FEL; SEC 17, T41S, R24E LATERAL 2 -- 0179 FNL 0719 FEL; SEC 20, T41S, R24E			

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

SUNDRY NOTICES AND REPORTS ON WELLS

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

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

6. If Indian, Allottee or Tribe Name

NAVAJO TRIBAL

7. If Unit or CA, Agreement Designation
RATHERFORD UNIT

8. Well Name and No.
RATHERFORD 17-W-23

9. API Well No.
43-037-15728

10. Field and Pool, or exploratory Area
GREATER ANETH

11. County or Parish, State
SAN JUAN UT

SUBMIT IN TRIPLICATE

1. Type of Well

Oil Well Gas Well Other

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

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

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
SEC. 17, T41S, R24E
(NE/SW) 1980' FWL & 1880' FSL

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

TYPE OF SUBMISSION

Notice of Intent
 Subsequent Report
 Final Abandonment Notice

TYPE OF ACTION

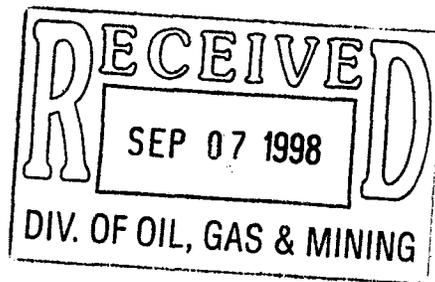
Abandonment
 Recompletion
 Plugging Back
 Casing Repair
 Altering Casing
 Other **FAILED MIT**
 Change of Plans
 New Construction
 Non-Routine Fracturing
 Water Shut-Off
 Conversion to Injection
 Dispose Water

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

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

BHL: LATERAL #1 833' SOUTH & 1248' EAST F/SURFACE SPOT.
LATERAL #2 2059' SOUTH & 2581' EAST F/SURFACE SPOT.

SEE ATTACHED PROCEDURE. MIT & CHART WILL BE SENT.



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

Signed *Shirley Houchins* for Title **SHIRLEY HOUCHINS/ENV & REG TECH** Date **09-03-98**

(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.

IV. Supplemental Procedure

The goal of this procedure is to find the reason this well did not pass an MIT test on 8/27/98.

History

- During the completion of the well, two different attempts were made to

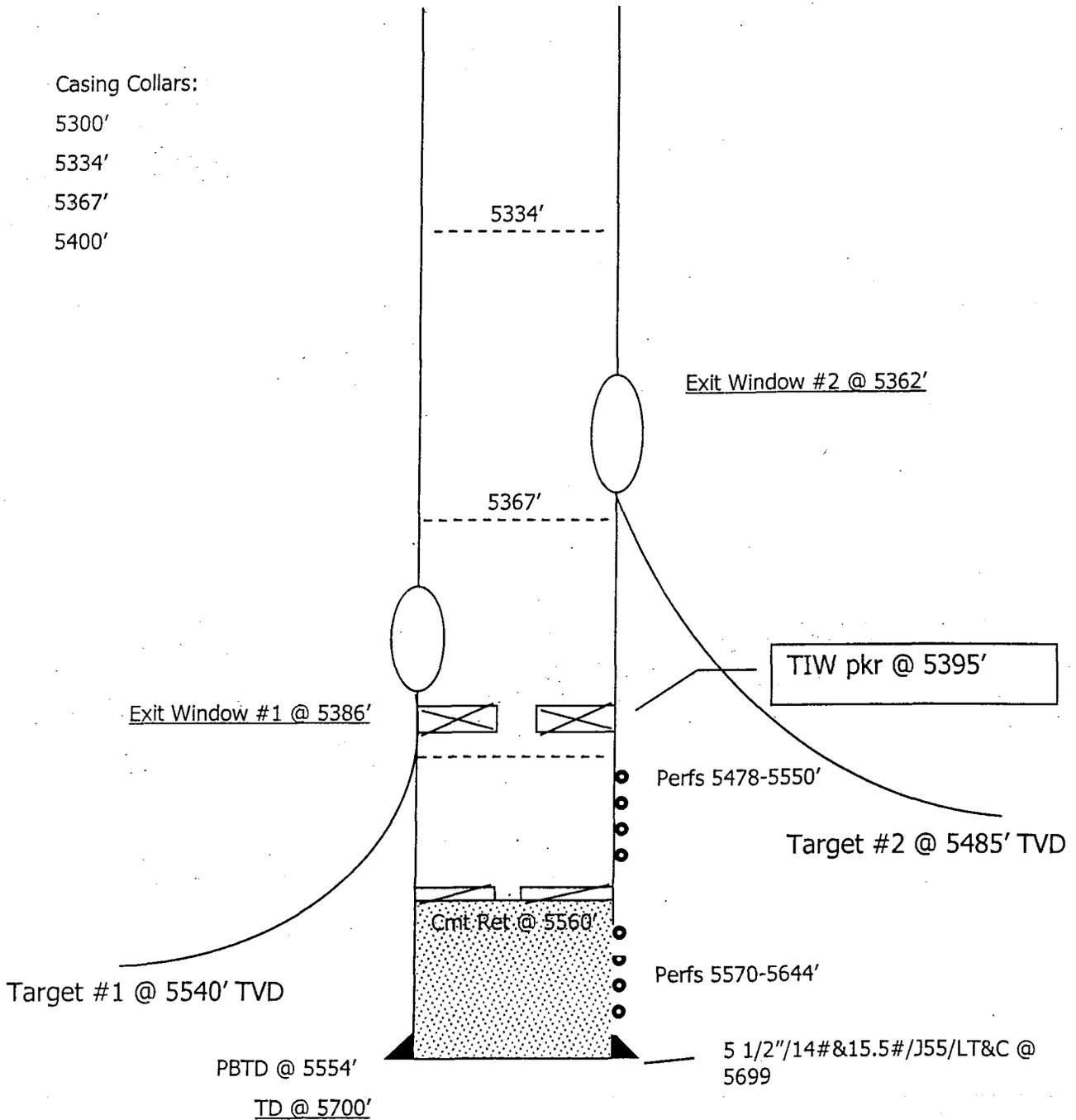
Flow well down before starting work.

Bottom Hole Assembly:

<u>Item</u>	<u>Depth</u>
➤ 2.375" re-entry guide w/ pump out plug	5235
➤ 2.375"X5.5" 13-15.5# G-6 guiberson pkr	5234
➤ 2.375"X5.5"XL on/off tool w/1.81" F profile 316 SS PC	5231
➤ 2.375"X1.87" GF Profile 316 SS	5229
➤ 2.375"X 2.875" KCTS XO	5227
➤ 168 jts 2.875" KCTS cmt lined tbg	
➤ 1 jt 2.875" KCTS cmt lined landing jt	

1. RU to run MIT test before starting workover. Test annulus to 1000 psi and chart.
 2. If pressure leaks off, RU WSU and RU slickline and set a plug in 1.81" F profile. POH w/slickline and RD.
 3. Test tbg to 1000 psi and monitor annulus to check on/off tool. If leaking to annulus, ND wellhead and NU BOP's and test using chart.
 4. If annulus is leaking only, J-off on/off tool and circ CaCl₂ brine to kill well up to 11.6 ppg using 0.1% Safebreak CBF by volume.
 5. PU workstring and on/off tool half to RIH and latch onto on/off tool. J-on and unset pkr.
 6. PU pkr one joint and see if it will hold at that depth. If not POH w/pkr and replace, RIH and set one joint higher than it was previously set @ 5204'. Use a pump out disc at the end of the assembly not a pump out plug, if possible.
- Talked to ~~████~~ okay with them.
- Jim Walker - EPA
(415) 744-1833
verbal approval
7. J-off on/off tool and circ pkr fluid. J-on on/off tool. ND BOP's and NU wellhead.
 8. Run MIT test to 1000 psi and chart. RDMO.

Ratherford Unit #17-23



Window	Btm-Top of Window	Ext length	Curve Radius	Bearing	Horiz Displ
1	5386-80	-----	154	125	1500
2	5362-56	24	123	130	3300

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.

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

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Use "APPLICATION FOR PERMIT - " for such proposals

SUBMIT IN TRIPLICATE

1. Type of Well

Oil Well Gas Well Other

2. Name of Operator

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

3. Address and Telephone No.

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

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

SEC. 17, T41S, R24E
(NE/SW) 1980' FWL & 1880' FSL
BHL: LATERAL 1A1 & 2A1 (BELOW)

5. Lease Designation and Serial No.

14-20-603-353

6. If Indian, Allottee or Tribe Name

NAVAJO TRIBAL

7. If Unit or CA, Agreement Designation

RATHERFORD UNIT

8. Well Name and No.

RATHERFORD 17-W-23

9. API Well No.

43-037-15728

10. Field and Pool, or exploratory Area

GREATER ANETH

11. County or Parish, State

SAN JUAN UT

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

TYPE OF SUBMISSION

Notice of Intent
 Subsequent Report
 Final Abandonment Notice

TYPE OF ACTION

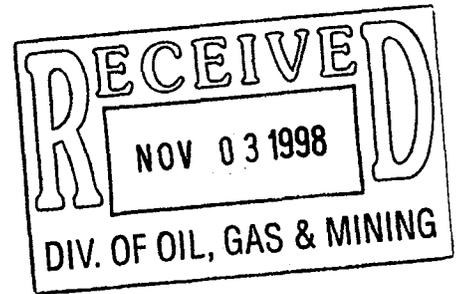
Abandonment
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 Change of Plans
 New Construction
 Non-Routine Fracturing
 Water Shut-Off
 Conversion to Injection
 Dispose Water

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

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BHL: LATERAL #1 833' SOUTH & 1248' EAST F/SURFACE SPOT.
LATERAL #2 2059' SOUTH & 2581' EAST F/SURFACE SPOT.

SEE ATTACHED PROCEDURE AND COPY OF MIT & CHART.



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

Signed Shirley Houchins Title SHIRLEY HOUCHINS/ENV & REG TECH Date 10-29-98

(This space for Federal or State office use)

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

ATTACHMENT - FORM 3160-5
RATHERFORD UNIT - WELL #17-W-21
14-20-603-353
NAVAJO TRIBAL
SAN JUAN, UTAH

- 09-18-98 MIRU NAVAJO WEST 15, LD FLOW LINE TO TANKS, TBG PSI, 1500#, CSG PSI 1400#. SHUT ANNULAS IN. POSSIBLE 5 1/2" CSG LEAK. SWIFN.
- 09-19-98 TEFTELLER WL CO RAN F PLUG & SET IN NIPPLE @ 5231'. ND WH TREE, NU BOPS, REL ON/OFF TOOL. PLUG CAME OUT OF THE NIPPLE, LATCH ON/OFF TOOL & PULL, PKR STILL SET. WO/TEFTELLER WL CO. RIH & RET PLUG, NO INDICATION OF DAMAGE TO THE PLUG, REDRESS & RERUN PLUG & SET IN NIPPLE @ 5231', PRESS PLUG TO 2000#, FAILED TO HOLD, PUMP PAST THE PLUG, RIH & RET PLUG, REDRESS PLUG & SET, PRESS TO 1700#, PUMPING PAST PLUG, RIH & RET PLUG. SWIFN.
- 09-20-98 SHUT UNIT DOWN UNIT FOR WEEKEND.
- 09-21-98 SI TBG 1400#, CSG @ 700#. WAIT ON BRINE WTR. RU & KILL WELL, POH W/CMT LINED TBG & PKR, NO INDICATION THAT PKR WAS LEAKING. RIH W/GUIBERSON RBP & PKR ON WS TBG, SET RBP @ 5212', PKR @ 5181'. SWIFN.
- 09-22-98 SIP @ 8:00 WAS 0, PRESS TEST DOWN TBG BETWEEN RBP @ 5142' & PKR @ 5173', HELD 5 MIN @ 1000 PSI. POH W/WS TO 1784', TEST DN TBG TO 1075 PSI, LEAKED 20 PSI IN 20 MIN. POH W/TBG. MIRU SCHLUMBERGER LOGGING UT. RIH W/CAG INSPECTION LOG TO 5142', TO SURFACE. BAD CSG F/2485', RDMO SCHLUMBERGER. RIH W/GUIBERSON PKR TO 2501', SET PKR, TEST ANN SIDE TO 1040 PSI. LEAKED 35 PSI IN 30 MIN. POH TO 2469', SET PKR, TEST ANN TO 1000 PSI, HELD, OK 15 MIN. RIH TO 5232', SET PKR, TEST ANN TO 1020 PSI, LEAKED 20 PSI IN 20 MIN. CSG PRESS TO 100 W/PRESS ON ANN SIDE. 0 PSI, NO PRESS ON ANN SIDE. TEST DN TBG @ 2532', TEST TO 1000 PSI, HELD 20 MIN. RU & PUMP DN ANN TO EST. RATE COULD NOT ESTABLISH RATE. SWIFN.
- 09-23-98 PRESS TEST CSG TO 1040 PSI, & RECORD ON CHART. LOST 25 PSI IN 30 MIN. RIH TO 5142' WASH DN THROUGH 70' OF CACL THAT FELL OUT OF SOLUTION. LATCH ONTO RBP & REL, WELL DEAD, RBP @ 5212', TOOH LD WS, STAND BK 2504', WS, ND PKR & RBP, TIH OPEN ENDED W/KILL STRING.
- 09-24-98 CALLED NAVAJO EPA & LEFT MESSAGE TO NOTIFY OF INTENT TO RUN MIT TEST ON THE ANNULUS, WILL CALL BACK 9-25-98 TO SEE WHEN AN INSPECTOR CAN WITNESS THE MIT TEST. KILL WELL, LD WS, RU FRONTIER INSPECTION RIH TEST PLUG, TEST FIALED, TOOH W/PKR, INSPECT PLUG, BAD, NU PKR W/PMP OUT PLUG, TIH W PMP OUT PLUG, RIH W/PLUG, TEST TBG, TEST GOOD, SI. SDFN.
- 09-25-98 TALKED TO CHARMAINE HOSTEEN ON 9-25-98, PERMISSION TO RUN MIT W/O NAVAJO EPA BEING PRESENT. MAIL CHART & TBG PRESSURE DATA TO CHARMAINE HOSTEEN, NAVAJO EPA, SHIPROCK, NM, MIT TEST WENT PERFECT, ZERO PRESS DROP ON THE CAS. ZERO CHANGE IN TBG PRESS.
- 09-26-98 FLOW WELL OUT OF TBG, SI, CLEAN PIT, RDMO.

ANNULAR PRESSURE TEST

(Mechanical Integrity Test)

Operator Mobil E. & P., Inc. Date of Test 8-27-98
 Well Name RU # 17W23 EPA Permit No. _____
 Location Sec. 17, T41S-R24E Tribal Lease No. 1420603353
 State and County San Juan County, Utah

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

Was bled off in to chemical truck on site

TIME	ANNULUS PRESSURE, psi	TUBING PRESSURE, psi
12:50 pm <i>mcc</i>	1100 <i>mcc 1180</i>	1550
12:59 pm	1215	1550
1:04 pm	1210 <i>1225</i> <i>mcc</i>	1550
1:09 pm	1240	1550
1:14 pm	1240	1550
1:19 pm	1245	1550
1:24 pm	1250	1555

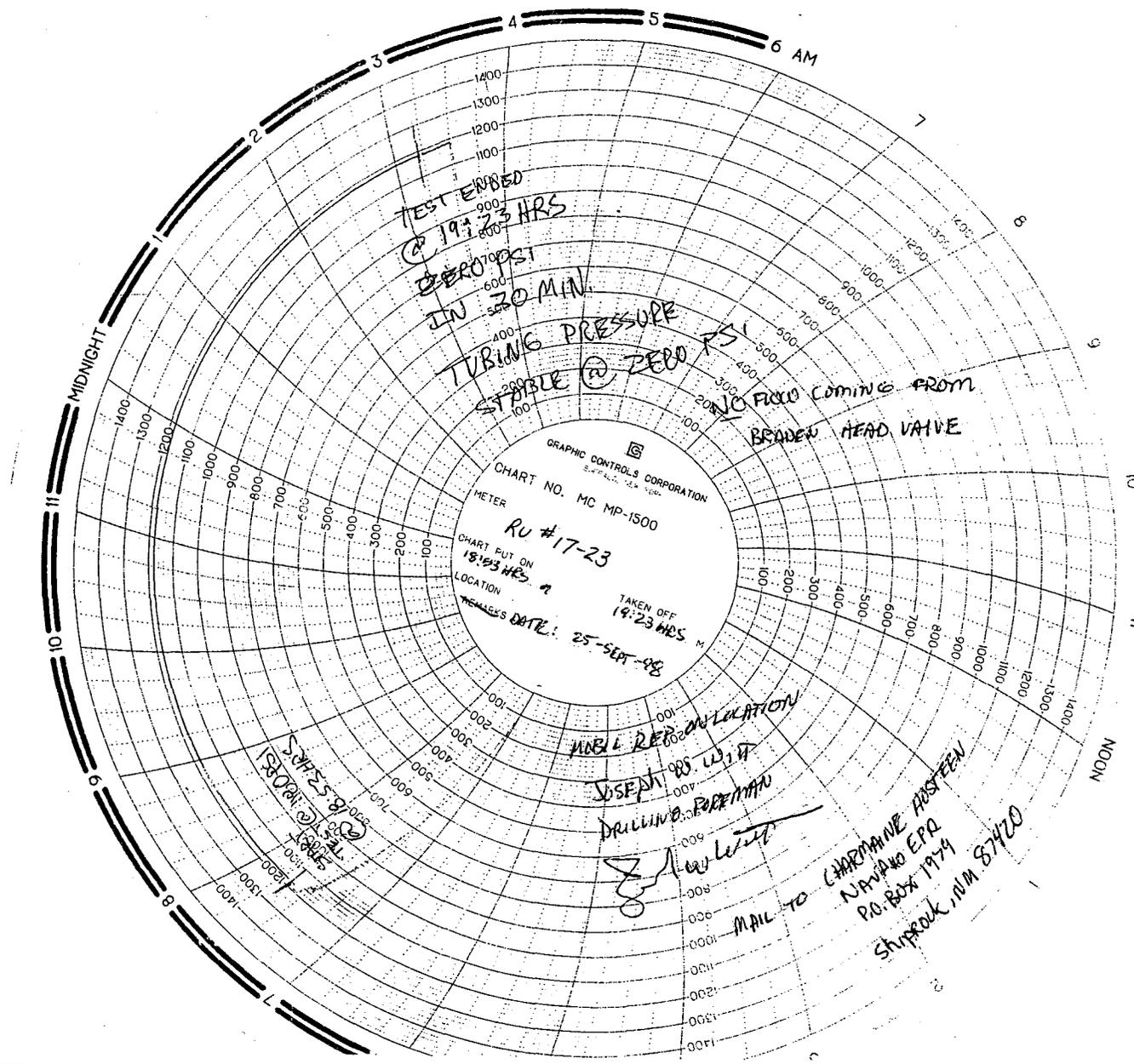
MAX. INJECTION PRESSURE: 3000 PSI
 MAX. ALLOWABLE PRESSURE CHANGE: 59.00 PSI (TEST PRESSURE X 0.05)

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

The MIT pressure is 1050 - 1100 psi. The casing was not bled off. There was pressure on the backside of this well. The pressure was bled off the tubing from the previous workover. Then it was repressured and valves opened for the beginning of testing. Failed MIT. Mobil shut in the well on site. The problem may be occurring in the tubing according to Mobil.

Ernie Thomas
 COMPANY REPRESENTATIVE: _____ (Print and Sign)
 MELVINA K. CLAH
 Melvin Capitan Jr. *Melvin Capitan Jr.*
 INSPECTOR: _____ (Print and Sign)

8-27-98
 DATE
 8-27-98
 DATE



TEST ENDED
@ 19:23 HRS
ZERO PSI
IN 30 MIN

TUBING PRESSURE
STABLE @ ZERO

NO FLOW COMING FROM
BRADEN HEAD VALVE

GRAPHIC CONTROLS CORPORATION
CHART NO. MC MP-1500
METER
RU #17-23
CHART PUT ON 18:23 HRS
LOCATION
TAKEN OFF 19:23 HRS
MESSAGE DATE: 25-SEPT-98

MOBILE RECORDING LOCATION
JOSEPH W. H.
DRILLING PERMANENT

MAIL TO CHARMAINE HOUSTEN
NAWAHO EPA
P.O. BOX 1974
SHIPROCK, NM 87420

SEP 25 1998
18:23 HRS

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

SUNDRY NOTICES AND REPORTS ON WELLS

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

5. Lease Designation and Serial No.

14-20-603-353

6. If Indian, Allottee or Tribe Name

NAVAJO TRIBAL

7. If Unit or CA, Agreement Designation
RATHERFORD UNIT

8. Well Name and No.

RATHERFORD 17-W-23

9. API Well No.

43-037-15728

10. Field and Pool, or exploratory Area

GREATER ANETH

11. County or Parish, State

SAN JUAN UT

SUBMIT IN TRIPLICATE

1. Type of Well

Oil Well Gas Well Other

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

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

3. Address and Telephone No.

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

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

**SEC. 17, T41S, R24E
(NE/SW) 1980' FWL & 1880' FSL**

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

TYPE OF SUBMISSION

Notice of Intent
 Subsequent Report
 Final Abandonment Notice

TYPE OF ACTION

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

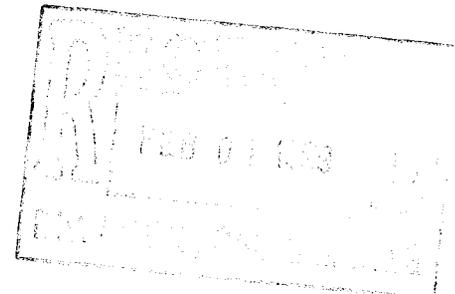
(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

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

**BHL: LATERAL #1 833' SOUTH & 1248' EAST F/SURFACE SPOT.
LATERAL #2 2059' SOUTH & 2581' EAST F/SURFACE SPOT.**

5-26-98 -- 7-08-98 HORIZONTAL RECOMPLETION.

ATTACHED FORM 15.



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

Signed *Shirley Houchins*

Title **SHIRLEY HOUCHINS/ENV & REG TECH**

Date **1-28-99**

(This space for Federal or State office use)

Approved by _____ Title _____ Date _____

Conditions of approval, if any:

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

* See Instruction on Reverse Side

*WTC-99
3-1-99
RJK*

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

June 27, 2001

ExxonMobil
Production

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

Change of Name – Mobil Oil Corporation to
ExxonMobil Oil Corporation

Dear Mr. Thompson

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

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

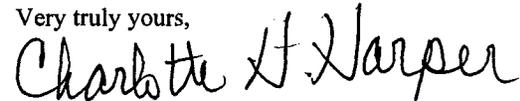
Please note the change of name of MOC to ExxonMobil Oil Corporation in your records pertaining to any MOC permits.

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

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

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

Very truly yours,



Charlotte H. Harper
Permitting Supervisor

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

RECEIVED

JUN 29 2001

DIVISION OF
OIL, GAS AND MINING



United States Department of the Interior

BUREAU OF INDIAN AFFAIRS

XXXXXXXXXXXXXXXXXXXX
Navajo Area Office
NAVAJO REGION

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

AUG 30 2001

IN REPLY REFER TO:

RRES/543

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

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

Dear Ms. Harper:

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

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

Sincerely,

CEMIAT DENETSONE

Regional Realty Officer

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

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

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

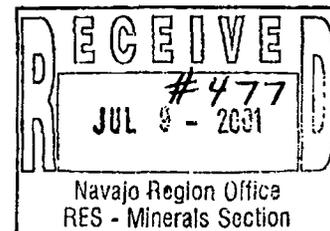
AS 7/12/2001
SH
543
File

June 27, 2001

ExxonMobil
Production

Certified Mail
Return Receipt Requested

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



Change of Name -
Mobil Oil Corporation to
ExxonMobil Oil Corporation

Dear Ms. Denetsone:

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

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

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

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

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

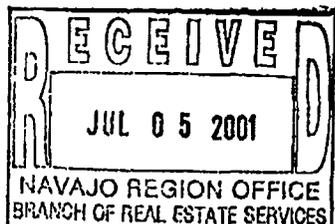
If you have any questions , please contact Alex Correa at (713) 431-1012.

Very truly yours,

Charlotte H. Harper

Charlotte H. Harper
Permitting Supervisor

Attachments



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

NOTE: Check forwarded to Ella Issac

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

Gentlemen:

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

OFFICERS

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

DIRECTORS

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

Sincerely,



Alex Correa

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



Signature

AGENT AND ATTORNEY IN FACT

Title

CERTIFICATION

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

CHANGE OF COMPANY NAME

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

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

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

ExxonMobil Oil Corporation",

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

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

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

D. A. Mullen
Assistant Secretary

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

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

Janice M. Phillips
Notary Public



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

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

6/1/01

CHUBB GROUP OF INSURANCE COMPANIES

One Chubb Place, Suite 1400, Houston, Texas 77027-3301
Houston, TX 77027-4600 • Facsimile: (713) 297-4750

NW Bond

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

BOND NO 8027 31 97

wherein

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

FEDERAL INSURANCE COMPANY AS SURETY,

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

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

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

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

TO : ExxonMobil Oil Corporation

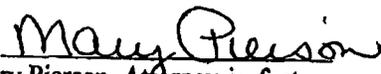
All other terms and conditions of this Bond are unchanged.

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

ExxonMobil Oil Corporation

By: 

FEDERAL INSURANCE COMPANY

By: 
Mary Pierson, Attorney-in-fact



POWER OF ATTORNEY

Federal Insurance Company
Vigilant Insurance Company
Pacific Indemnity Company

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

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

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

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

Kenneth C. Wendel
Kenneth C. Wendel, Assistant Secretary

Frank E. Robertson
Frank E. Robertson, Vice President

STATE OF NEW JERSEY } ss.
County of Somerset

On this 10th day of May, 2001, before me, a Notary Public of New Jersey, personally came Kenneth C. Wendel, to me known to be Assistant Secretary of FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, and PACIFIC INDEMNITY COMPANY, the companies which executed the foregoing Power of Attorney, and the said Kenneth C. Wendel being by me duly sworn, did depose and say that he is Assistant Secretary of FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, and PACIFIC INDEMNITY COMPANY and knows the corporate seals thereof, that the seals affixed to the foregoing Power of Attorney are such corporate seals and were thereto affixed by authority of the By-Laws of said Companies; and that he signed said Power of Attorney as Assistant Secretary of said Companies by like authority; and that he is acquainted with Frank E. Robertson, and knows him to be Vice President of said Companies; and that the signature of Frank E. Robertson, subscribed to said Power of Attorney is in the genuine handwriting of Frank E. Robertson, and was thereto subscribed by authority of said Companies in the deponent's presence.



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

Karen A. Price
Notary Public

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

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

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

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

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



Kenneth C. Wendel
Kenneth C. Wendel, Assistant Secretary

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

CSC

5184334741

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

CSC

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

F010601000187

CERTIFICATE OF AMENDMENT

OF

CERTIFICATE OF INCORPORATION

OF

MOBIL OIL CORPORATION

CSC 45

(Under Section 805 of the Business Corporation Law)

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

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

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

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

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

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

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

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

CSC
CSC

5184334741

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

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

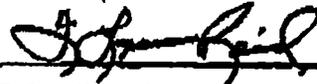
IN WITNESS WHEREOF, this Certificate has been signed this 22nd Day of May, 2001.



F. A. Risch, President 

STATE OF TEXAS)
COUNTY OF DALLAS)

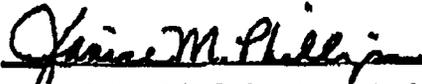
F. L. REID, being duly sworn, deposes and says that he is the Secretary of MOBIL OIL CORPORATION, the corporation mentioned and described in the foregoing instrument; that he has read and signed the same and that the statements contained therein are true.



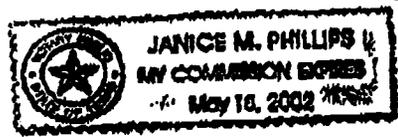
F. L. REID, Secretary

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

[SEAL]



NOTARY PUBLIC, STATE OF TEXAS



CSC
CSC

5184334741

06/01 '01 09:01 NO.411 02/02
06/01 '01 09:06 NO.153 04/04
F010601000187

CSC 45

CERTIFICATE OF AMENDMENT

OF

MOBIL OIL CORPORATION

Under Section 805 of the Business Corporation Law

SAC

**STATE OF NEW YORK
DEPARTMENT OF STATE**

100 cc

Filed by: EXXONMOBIL CORPORATION
(Name)

FILED JUN 01 2001

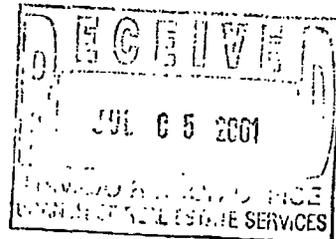
6949 Las Colinas Blvd.
(Mailing address)

TAX \$ _____
BY: *SAC*

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

ny Albany

Case Ref # 165578 MPJ



010601000195

State of New York }
Department of State } ss:

I hereby certify that the annexed copy has been compared with the original document in the custody of the Secretary of State and that the same is a true copy of said original.

Witness my hand and seal of the Department of State on **JUN 01 2001**



Special Deputy Secretary of State

OPERATOR CHANGE WORKSHEET

ROUTING

1. GLH
2. CDW
3. FILE

Change of Operator (Well Sold)

Designation of Agent

X Operator Name Change

Merger

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

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

CA No. Unit: RATHERFORD

WELL(S)

NAME	SEC TWN RNG	API NO	ENTITY NO	LEASE TYPE	WELL TYPE	WELL STATUS
NAVAJO A-9 (RATHERFORD 16W23)	16-41S-24E	43-037-15722	99990	INDIAN	WI	A
NAVAJO A-12 (RATHERFORD 16W21)	16-41S-24E	43-037-16414	99990	INDIAN	WI	A
RATHERFORD 16W43	16-41S-24E	43-037-16415	99990	INDIAN	WI	A
RATHERFORD 17-W-12	17-41S-24E	43-037-15726	6280	INDIAN	WI	A
17-14	17-41S-24E	43-037-15727	6280	INDIAN	WI	A
RATHERFORD 17-W-23	17-41S-24E	43-037-15728	6280	INDIAN	WI	A
17-32	17-41S-24E	43-037-15729	6280	INDIAN	WI	A
17-34	17-41S-24E	43-037-15730	6280	INDIAN	WI	A
17-41	17-41S-24E	43-037-15731	6280	INDIAN	WI	I
RATHERFORD 17-W-21	17-41S-24E	43-037-16416	99990	INDIAN	WI	A
RATHERFORD 17W43	17-41S-24E	43-037-16417	99990	INDIAN	WI	A
RATHERFORD 18-W-14	18-41S-24E	43-037-15735	6280	INDIAN	WI	A
18-W-32	18-41S-24E	43-037-15736	6280	INDIAN	WI	A
RATHERFORD 18-W-34	18-41S-24E	43-037-15737	6280	INDIAN	WI	A
DESERT A-4 (RATHERFORD 18W41)	18-41S-24E	43-037-15738	99990	INDIAN	WI	A
DESERT A-3 (RATHERFORD 18-W-21)	18-41S-24E	43-037-16418	99990	INDIAN	WI	A
18-23	18-41S-24E	43-037-30244	6280	INDIAN	WI	A
RATHERFORD U 18-W-12 (SDTRK)	18-41S-24E	43-037-31153	6280	INDIAN	WI	A
RATHERFORD UNIT 18-W-43B	18-41S-24E	43-037-31718	6280	INDIAN	WI	A
RATHERFORD U 19-W-12	19-41S-24E	43-037-15739	6280	INDIAN	WI	A

OPERATOR CHANGES DOCUMENTATION

Enter date after each listed item is completed

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

6. **Federal and Indian Lease Wells:** The BLM and or the BIA has approved the merger, name change, or operator change for all wells listed on Federal or Indian leases on: BIA-06/01/01

7. **Federal and Indian Units:**

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

8. **Federal and Indian Communization Agreements ("CA"):**

The BLM or BIA has approved the operator for all wells listed within a CA on: N/A

9. **Underground Injection Control ("UIC")** The Division has approved UIC Form 5, **Transfer of Authority to Inject**, for the enhanced/secondary recovery unit/project for the water disposal well(s) listed on: N/A

NOTE: EPA ISSUES UIC PERMIT

DATA ENTRY:

- Changes entered in the **Oil and Gas Database** on: 04/11/2002
- Changes have been entered on the **Monthly Operator Change Spread Sheet** on: 04/11/2002
- Bond information entered in RBDMS on: N/A
- Fee wells attached to bond in RBDMS on: N/A

STATE WELL(S) BOND VERIFICATION:

- State well(s) covered by Bond Number: N/A

FEDERAL WELL(S) BOND VERIFICATION:

- Federal well(s) covered by Bond Number: N/A

INDIAN WELL(S) BOND VERIFICATION:

- Indian well(s) covered by Bond Number: 80273197

FEE WELL(S) BOND VERIFICATION:

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

LEASE INTEREST OWNER NOTIFICATION:

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

COMMENTS:

Division of Oil, Gas and Mining
OPERATOR CHANGE WORKSHEET

ROUTING
1. DJJ
2. CDW

X Change of Operator (Well Sold)

Operator Name Change/Merger

The operator of the well(s) listed below has changed, effective:		6/1/2006
FROM: (Old Operator): N1855-ExxonMobil Oil Corporation PO Box 4358 Houston, TX 77210-4358 Phone: 1 (281) 654-1936	TO: (New Operator): N2700-Resolute Natural Resources Company 1675 Broadway, Suite 1950 Denver, CO 80202 Phone: 1 (303) 534-4600	
CA No.	Unit:	RATHERFORD (UIC)

OPERATOR CHANGES DOCUMENTATION

Enter date after each listed item is completed

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

DATA ENTRY:

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

BOND VERIFICATION:

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

LEASE INTEREST OWNER NOTIFICATION:

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

COMMENTS:

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

UIC FORM 5

TRANSFER OF AUTHORITY TO INJECT

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

EFFECTIVE DATE OF TRANSFER: 6/1/2006

CURRENT OPERATOR

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

NEW OPERATOR

Company: Resolute Natural Resources Company Name: Dwight E Mallory
 Address: 1675 Broadway, Suite 1950 Signature: 
city Denver state CO zip 80202 Title: Regulatory Coordinator
 Phone: (303) 534-4600 Date: 4/20/2006
 Comments: A list of affected UIC wells is attached.
 New bond numbers for these wells are:
 BIA Bond # PA002769 and US EPA Bond # B001252

(This space for State use only)

Transfer approved by: 
 Title: Field Operations Manager Approval Date: 6/12/06

Comments:

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APR 24 2006

DIV. OF OIL, GAS & MINING

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

FORM 9

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

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

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

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

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

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

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

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

(This space for State use only)

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

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

(5/2000)

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

FORM 9

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

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

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

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

ExxonMobil Oil Corporation is transferring operatorship of Greater Aneth field, Ratherford lease to Resolute Natural Resources Company. All change of operator notices should be made effective as of 7:00 AM MST on June 1, 2006.

Attached please find a listing of injection wells included in the transfer.

NAME (PLEASE PRINT) Laurie Kilbride TITLE Permitting Supervisor

SIGNATURE *Laurie S. Kilbride* DATE 4/19/2006

(This space for State use only) **APPROVED** 6/27/06
Earlene Russell
Division of Oil, Gas and Mining
Earlene Russell, Engineering Technician
(See Instructions on Reverse Side)

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APR 21 2006

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

STATE OF UTAH DEPARTMENT OF NATURAL RESOURCES DIVISION OF OIL, GAS, AND MINING	FORM 9 5. LEASE DESIGNATION AND SERIAL NUMBER: 14-20-603-353
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SUNDRY NOTICES AND REPORTS ON WELLS Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.	6. IF INDIAN, ALLOTTEE OR TRIBE NAME: NAVAJO 7. UNIT or CA AGREEMENT NAME: RATHERFORD
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1. TYPE OF WELL Water Injection Well	8. WELL NAME and NUMBER: RATHERFORD 17-W-23
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2. NAME OF OPERATOR: RESOLUTE NATURAL RESOURCES	9. API NUMBER: 43037157280000
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3. ADDRESS OF OPERATOR: 1675 Boradway Ste 1950 , Denver, CO, 80202	PHONE NUMBER: 303 534-4600 Ext	9. FIELD and POOL or WILDCAT: GREATER ANETH
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4. LOCATION OF WELL FOOTAGES AT SURFACE: 1880 FSL 1980 FWL QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: Qtr/Qtr: NESW Section: 17 Township: 41.0S Range: 24.0E Meridian: S	COUNTY: SAN JUAN STATE: UTAH
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11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION		
<input checked="" type="checkbox"/> NOTICE OF INTENT Approximate date work will start: 10/18/2013 <input type="checkbox"/> SUBSEQUENT REPORT Date of Work Completion: <input type="checkbox"/> SPUD REPORT Date of Spud: <input type="checkbox"/> DRILLING REPORT Report Date:	<input type="checkbox"/> ACIDIZE <input type="checkbox"/> CHANGE TO PREVIOUS PLANS <input type="checkbox"/> CHANGE WELL STATUS <input type="checkbox"/> DEEPEN <input type="checkbox"/> OPERATOR CHANGE <input type="checkbox"/> PRODUCTION START OR RESUME <input type="checkbox"/> REPERFORATE CURRENT FORMATION <input checked="" type="checkbox"/> TUBING REPAIR <input type="checkbox"/> WATER SHUTOFF <input type="checkbox"/> WILDCAT WELL DETERMINATION	<input type="checkbox"/> ALTER CASING <input type="checkbox"/> CHANGE TUBING <input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS <input type="checkbox"/> FRACTURE TREAT <input type="checkbox"/> PLUG AND ABANDON <input type="checkbox"/> RECLAMATION OF WELL SITE <input type="checkbox"/> SIDETRACK TO REPAIR WELL <input type="checkbox"/> VENT OR FLARE <input type="checkbox"/> SI TA STATUS EXTENSION <input type="checkbox"/> OTHER	<input type="checkbox"/> CASING REPAIR <input type="checkbox"/> CHANGE WELL NAME <input type="checkbox"/> CONVERT WELL TYPE <input type="checkbox"/> NEW CONSTRUCTION <input type="checkbox"/> PLUG BACK <input type="checkbox"/> RECOMPLETE DIFFERENT FORMATION <input type="checkbox"/> TEMPORARY ABANDON <input type="checkbox"/> WATER DISPOSAL <input type="checkbox"/> APD EXTENSION OTHER: <input style="width: 100px;" type="text"/>

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

Resolute proposes to make repairs to the tubing and/or packer in the subject well. Attachment includes proposed procedure and well bore diagram. Work is expected to commence 10-18-13.

Accepted by the Utah Division of Oil, Gas and Mining

Date: October 17, 2013

By: *Derek Quist*

NAME (PLEASE PRINT) Sherry Glass	PHONE NUMBER 303 573-4886	TITLE Sr Regulatory Technician
SIGNATURE N/A		DATE 10/14/2013

RESOLUTE

NATURAL RESOURCES

Ratherford Unit 17w-23
1880' FSL, 1980' FWL
NESW section 17-T41S-R24E
43-037-15728

UIC repair

Job Scope

Job Scope: Pull tubing & examine tubing connections and the packer on/off tool; run a bit and scraper, re-run or replace tubing, on/off tool, and packer as necessary.

Procedure

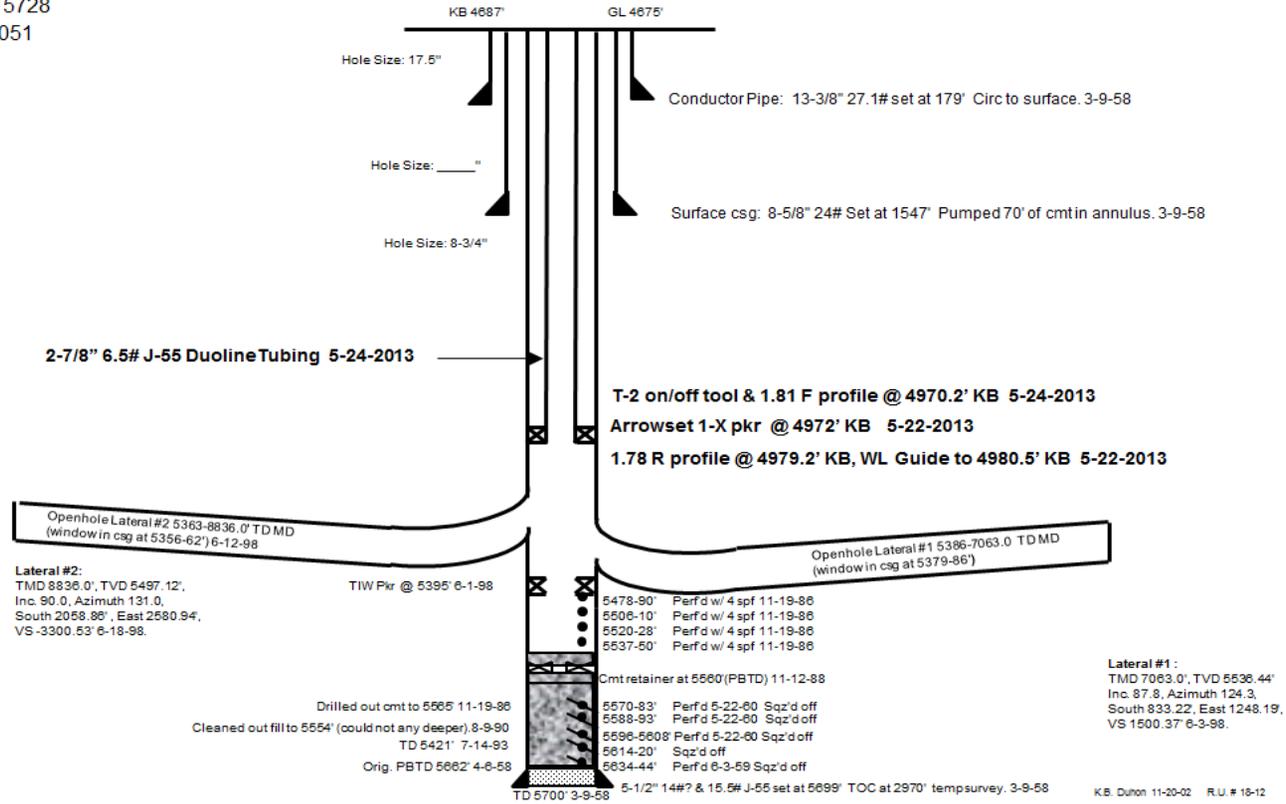
1. MIRU WSU, LOTO.
2. Establish KWF & kill well as necessary.
3. ND WH, NU BOPE.
4. Pressure Test BOP against landing donut.
5. Jay off packer & circulate KWF. Jay back on, release pkr & POOH, standing back 2-7/8" Duoline tbg (run 5-24-2013), examining tubing connections on trip out. Examine on/off tool and packer seals.
6. PU a work string and TIH w bit and scaper to 5355'. (top of window @ 5363'). TOH w bit and scraper, lay
7. RU E-line.
8. Set new 5-1/2" AS-1X packer w/1.81 plug in place on E-line & set packer at 5025' KB (elem) using 1/31/13 CIL for reference.
9. Close blind rams & perform mock MIT to 1000 psi.
10. RIH 2-7/8" Duoline injection tbg & new dual seal on/off tool if available, applying the specified torque for each connection.
11. Circ pkr fluid, jay onto pkr, space out & land tubing. Perform mock MIT after landing tubing.
12. ND BOP/ NU WH. MIRU slickline unit. Test lubricator to 2500 psi.
13. RIH, shear and retrieve 1.81 plug. RDMO slickline unit.
14. Re-MIT. If MIT fails, consider pulling & re-setting the packer at another depth, or multi-element packer.
15. RD WSU.
16. Schedule witnessed MIT w/NNEPA.
17. Backflow the tubing at least 250 bbls or until clean fluid.
18. Notify the Area Production Supervisor that well is ready to return to injection.
19. RDMOL.

RATHERFORD UNIT # 17-W-23
GREATER ANETH FIELD

Injector

Surface Loc: 1980' FWL & 1880' FSL
 SEC 17-T41S-R24E
 SAN JUAN COUNTY, UTAH
 API 43-037-15728
 PRISM 0043051

B.H. Location Lateral #1: 833' S & 1248' E of Surface Loc
B.H. Location Lateral #2: 2059' S & 2581' E of Surface Loc



STATE OF UTAH DEPARTMENT OF NATURAL RESOURCES DIVISION OF OIL, GAS, AND MINING	FORM 9 5. LEASE DESIGNATION AND SERIAL NUMBER: 14-20-603-353
SUNDRY NOTICES AND REPORTS ON WELLS Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.	6. IF INDIAN, ALLOTTEE OR TRIBE NAME: NAVAJO 7. UNIT or CA AGREEMENT NAME: RATHERFORD
1. TYPE OF WELL Water Injection Well	8. WELL NAME and NUMBER: RATHERFORD 17-W-23
2. NAME OF OPERATOR: RESOLUTE NATURAL RESOURCES	9. API NUMBER: 43037157280000
3. ADDRESS OF OPERATOR: 1675 Boradway Ste 1950 , Denver, CO, 80202	PHONE NUMBER: 303 534-4600 Ext
4. LOCATION OF WELL FOOTAGES AT SURFACE: 1880 FSL 1980 FWL QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: Qtr/Qtr: NESW Section: 17 Township: 41.0S Range: 24.0E Meridian: S	9. FIELD and POOL or WILDCAT: GREATER ANETH COUNTY: SAN JUAN STATE: UTAH

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

TYPE OF SUBMISSION	TYPE OF ACTION		
<input checked="" type="checkbox"/> NOTICE OF INTENT Approximate date work will start: 12/2/2013 <input type="checkbox"/> SUBSEQUENT REPORT Date of Work Completion: <input type="checkbox"/> SPUD REPORT Date of Spud: <input type="checkbox"/> DRILLING REPORT Report Date:	<input type="checkbox"/> ACIDIZE <input type="checkbox"/> CHANGE TO PREVIOUS PLANS <input type="checkbox"/> CHANGE WELL STATUS <input type="checkbox"/> DEEPEN <input type="checkbox"/> OPERATOR CHANGE <input type="checkbox"/> PRODUCTION START OR RESUME <input type="checkbox"/> REPERFORATE CURRENT FORMATION <input checked="" type="checkbox"/> TUBING REPAIR <input type="checkbox"/> WATER SHUTOFF <input type="checkbox"/> WILDCAT WELL DETERMINATION	<input type="checkbox"/> ALTER CASING <input type="checkbox"/> CHANGE TUBING <input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS <input type="checkbox"/> FRACTURE TREAT <input type="checkbox"/> PLUG AND ABANDON <input type="checkbox"/> RECLAMATION OF WELL SITE <input type="checkbox"/> SIDETRACK TO REPAIR WELL <input type="checkbox"/> VENT OR FLARE <input type="checkbox"/> SI TA STATUS EXTENSION <input type="checkbox"/> OTHER	<input type="checkbox"/> CASING REPAIR <input type="checkbox"/> CHANGE WELL NAME <input type="checkbox"/> CONVERT WELL TYPE <input type="checkbox"/> NEW CONSTRUCTION <input type="checkbox"/> PLUG BACK <input type="checkbox"/> RECOMPLETE DIFFERENT FORMATION <input type="checkbox"/> TEMPORARY ABANDON <input type="checkbox"/> WATER DISPOSAL <input type="checkbox"/> APD EXTENSION OTHER: <input style="width: 100px;" type="text"/>

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

Resolute had proposed to attempt to repair the tubing in the subject well and a sundry was approved on 10-17-13. During work, which started 12-2-13, engineers decided it would be best to also install a liner and cement back to surface. The proposed procedure for this casing liner, well bore schematic (current) and proposed well bore schematic are attached. Work is on-gong, waiting on approval of liner placement to proceed.

**Accepted by the
Utah Division of
Oil, Gas and Mining**

Date: December 19, 2013

By: *Derek Quist*

NAME (PLEASE PRINT) Sherry Glass	PHONE NUMBER 303 573-4886	TITLE Sr Regulatory Technician
SIGNATURE N/A	DATE 12/16/2013	

RESOLUTE

ENERGY COMPANY

RU 17W-23
1880' FSL, 1980' FWL
NESW section 17-T41S-R24E
43-037-15728

Install Casing Liner

Job Scope includes installation and cementing to surface of a 4" 10.46# J-55 FL4S liner from ~5290', cleanout of the liner shoe back to PBD at 5395' below the two laterals, acid stimulation, and installation of a new 4" injection packer and new 2-3/8" Duoline injection tubing.

Work History

Workover Dates	Description	
11/21/2012	UIC Workover: Pulled tbg & pkr, cleaned out upper (#2) lateral to 8836' PBD, acidized #2 w/ 2500 gal 20% HCl, ran new AS-1X pkr, ran new 2-7/8" Duoline tubing. Failed WMIT on 12/10/2012.	
1/29/2013	UIC Workover: Pulled tbg & pkr, ran CIL 5300-4700', ran new pkr to 5020', PT failed; ran new pkr #2 to 5040', unable to set – moving uphole; set new pkr #3 at 5010', ran 2-7/8 Duoline tbg.	
5/20/2013	UIC Workover: Attempted to release pkr, moved uphole. LD tbg & pkr, ran new WL set pkr to 5010', ran 2-7/8 Duoline tbg, tag pkr high at 4972' (38' high), landed tubing, RDMO.	
6/25/2013	Shut in for 3000 psi CP. 6/27/13 Audio Log – no clear outcome but pkr seems to be unset. Pulled 1.78 plug on Aug 2.	
Recent Injectivity	Injected only about 6 weeks total since the Nov 2012 UIC workover; Avg rates varied from 167 to 541 bwpd; most recent week was ~200 bwpd at 3000 psi.	

Procedure

Perform all necessary Lock-out-tag-out operations, Perform daily tailgate safety meeting with all persons working on location to discuss the workover procedures and identify any potential problems or hazards associated with the job. Ensure all persons working on location have proper PPE. Check pressures of all annuli daily and note observations on the morning report. Discuss safe blow down or well killing procedures. Complete necessary JSA/JSC forms.

Prior to rigging up, check tubing and casing pressure. Report annular pressures and discuss safe appropriate blow down procedures. Dig earth pit, fence, line and net (fill out Excavating Permit), if pit is necessary.

NOTES

- **5-1/2" 14# & 15.5# J-55 casing run to 5699' in 1958.**
 - **Dual 4-3/4" open hole SE laterals, 3474' and 1677' in length, window tops at 5356' and 5379', drilled in 1998.**
 - **This procedure begins during the LOE UIC workover, after running CBL & CIL logs above the RBP at 5020'.**
- 1) RIH w/RBP retrieving tool to ~5010', circulate KWF. Latch & retrieve RBP at 5020'.
 - 2) RU Electric Line & run a 5-1/2" composite plug for 15.5# csg, set at 5300' (element).
 - 3) Bail 10' cement (10.0 gallons) on top of the composite plug. Min ID = 4.85" & Max ID 4.94" in the 15.5# csg at 5300' from the 1-31-13 CIL.
 - 4) Run & set RBP at ~300' KB (element) for wellhead change.
 - 5) Dig 6' x 6' x 6' hole around wellhead to prepare for wellhead revamp and the necessary cutting of casing strings to lower the tbg head flange to ~ground level.
 - 6) Move rig off ramp & move ramp away from wellhead.
 - 7) Coordinate wellhead work with WSI: New 8-5/8 x 5-1/2 csg head on 8-5/8 new stub; re-land 5-1/2 csg; new 5-1/2 x 4" spool to receive the 4" liner.
 - 8) Test 5-1/2 x 4" csg head seals to 2000 psi.
 - 9) Backfill the hole and level up the ground around wellhead.
 - 10) Move ramp back to wellhead, spot rig on ramp. Level up rig & raise derrick.
 - 11) NU & test BOP's.
 - 12) RIH and retrieve the RBP at ~300'.
 - 13) Unload, strap & RIH 4" 10.46# J-55 FL4S liner (3.476" ID) with landing collar on top of the float shoe, (no shoe joint of cement to drill out), no centralizers.
 - 14) RIH w/liner & tag cement on composite plug at ~5290', PU 2' & prepare for cementing.
 - 15) Cement to surface using 25% excess (59 bbls total slurry): Lead slurry = 46.4 bbls lt premium at 12.4 density, 1.86 yield; Tail slurry = 12.6 bbls premium G at 15.8 density, 1.15 yield.
 - 16) ND BOP, raise up BOP & set slips. Cut off 4".
 - 17) NU BOPE. RIH w/mill & DC's to drill out cement, float collar, and float shoe. PT the liner to 1500 psi before drilling out any cement.
 - 18) Continue below 4" shoe & mill up the cement & composite plug at 5300'. **Be prepared to control the pressure below this plug.** Circ clean to PBD at the TIW sump packer at 5395'. POOH.
 - 19) RIH w/4" treating packer w/bypass & 4 joints of tailpipe to acidize both laterals w/5000 gal inhibited 20% HCl.
 - 20) Set packer at ~ 5225' w/TP to ~5350'.
 - 21) Open bypass & spot acid to the end of TP. Close bypass.
 - 22) Put 500 psi on backside; Pump acid away at max rate possible, staying under 3500 psi TP. Monitor annulus pressure.

- 23) Overdisplace past the end of TP with 115 bbls fresh water (volume of the two laterals). Record ISIP, 5 min, 10 min, and 15 min SI pressures.
- 24) Re-kill the well with brine & POOH w/treating packer & TP.
- 25) PU, RIH with 4" Arrowset 1-X packer with 1.50 F plug in place.
- 26) Set packer w/element at ~5275' KB.
- 27) J-off packer, circulate packer fluid up backside.
- 28) Perform mock MIT to 1000#. POOH LD workstring.
- 29) PU & RIH new 2-3/8" Duoline tubing and on/off tool.
- 30) Jay onto packer, space out & land tubing. Perform mock MIT after landing tubing.
- 31) ND BOP, NU WH.
- 32) MIRU slickline unit. Test lubricator to 2500 psi.
- 33) RIH gauge ring, shear plug, and retrieve plug. RDMO slickline unit.
- 34) RD WSU.
- 35) Schedule MIT w/NNEPA.
- 36) Notify the Operations Group that the well is ready to return to injection.

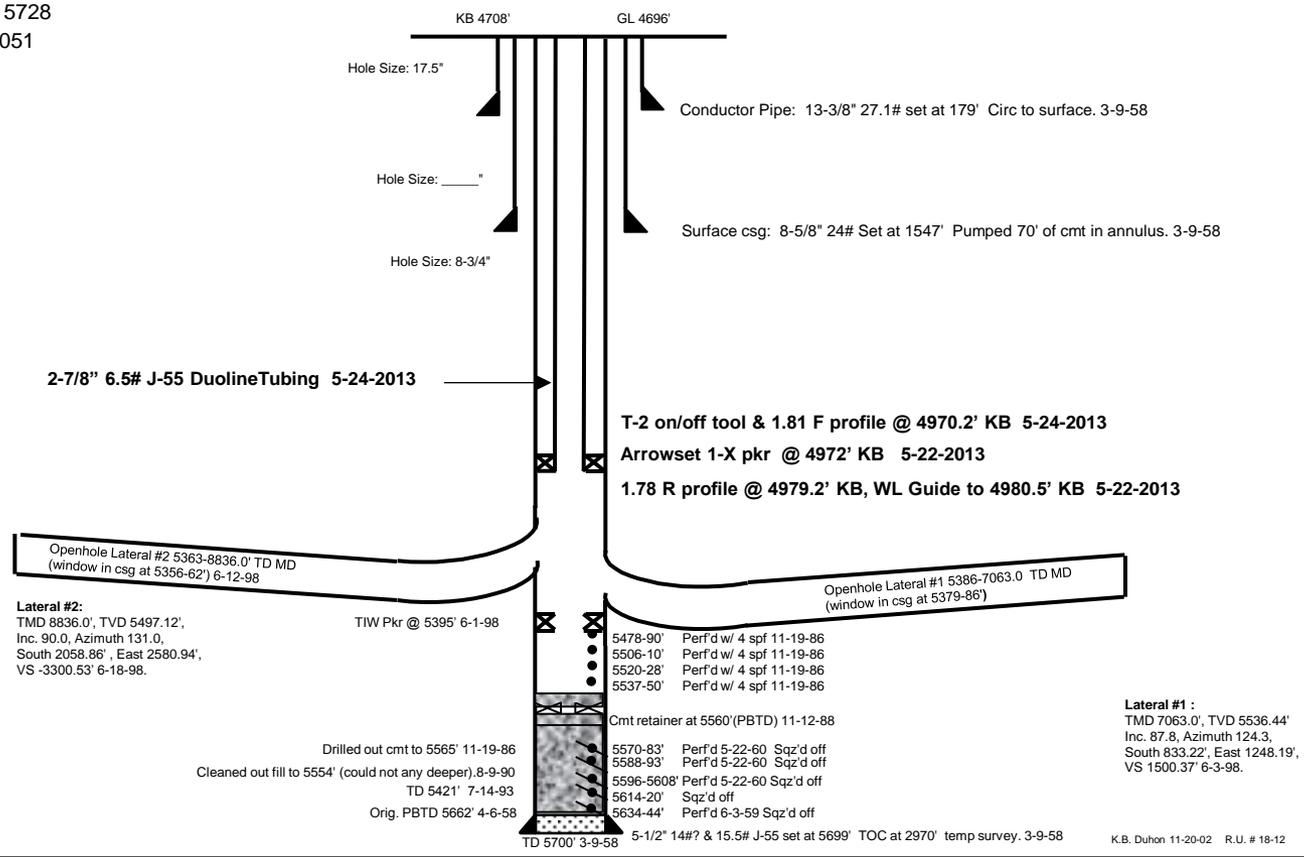
IMPORTANT: After rig release, flow the lateral line to a tank until clean before resuming injection.

RATHERFORD UNIT # 17-W-23 GREATER ANETH FIELD

Injector

Surface Loc: 1980' FWL & 1880' FSL
SEC 17-T41S-R24E
SAN JUAN COUNTY, UTAH
API 43-037-15728
PRISM 0043051

B.H. Location Lateral #1: 833' S & 1248' E of Surface Loc
B.H. Location Lateral #2: 2059' S & 2581' E of Surface Loc



RATHERFORD UNIT # 17W-23 GREATER ANETH FIELD

Injector

Surface Loc: 1980' FWL & 1880' FSL
SEC 17-T41S-R24E
SAN JUAN COUNTY, UTAH
API 43-037-15728
PRISM 0043051

B.H. Location Lateral #1: 833' S & 1248' E of Surface Loc
B.H. Location Lateral #2: 2059' S & 2581' E of Surface Loc

Attachment 1: Proposed Wellbore

