

Scout Report sent out

Noted in the N D File

Location map pinned

Approval or Disapproval Letter

Date Completed, P. & A. or operations suspended 2-2-57

Pin changed on location map

A. & P. and Record of A & P

Water Shut-Off Test

Gas Shut-Off Test

Well P. & F. Filed

P
 PHILLIPS ~~REDACTED~~ OIL CO
 SHELL OIL COMPANY - WELL NO. RATHERFORD 22-12
 ADT 43 132 15845
 Sec. 12, T. 41 S, R. 23 E, San Juan County 12-22
 RATHER-FORD
 MICROFICHE
 11158
 221

FILE NOTATIONS			
Entered in NID File	<input checked="" type="checkbox"/>	Checked by Chief	<input checked="" type="checkbox"/>
Entered on S.R. Sheet	<input checked="" type="checkbox"/>	Copy NID to Field Office	<input checked="" type="checkbox"/>
Location Map Pinned	<input checked="" type="checkbox"/>	Approval Letter	<input checked="" type="checkbox"/>
Card Indexed	<input checked="" type="checkbox"/>	Disapproval Letter	<input type="checkbox"/>
IVR for State of New Land	<input type="checkbox"/>		
COMPLETION DATA			
Date Well Completed	<u>2-2-57</u>	Location Completed	<input type="checkbox"/>
GW. <input checked="" type="checkbox"/> WY. <input type="checkbox"/> TA. <input type="checkbox"/>		Bound Wellhead	<input type="checkbox"/>
GW. <input type="checkbox"/> CS. <input type="checkbox"/> PA. <input type="checkbox"/>		State of New Land	<input type="checkbox"/>
LOGS FILED			
Driller's Log	<u>3-25-57</u>		
Electric Logs (No.)	<u>3</u>		
E. <input checked="" type="checkbox"/> I. <input type="checkbox"/>	E-I. <input type="checkbox"/>	GR. <input type="checkbox"/>	GR-N. <input checked="" type="checkbox"/> Micro. <input checked="" type="checkbox"/>

UTAH OIL AND GAS CONSERVATION COMMISSION

REMARKS: 2-8-61 Notice of intention *perforate additional zones in this* *2-24-61 Subsequent Report*
of *Recompletion.*

**2-7-64 ed. w. report of perforating*
Approved for Water Injection 4.18.84

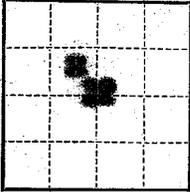
(Have Full Well Log & 2 Electric Logs)

DATE FILED **11-20-56** Nav-14-20-
LAND: FEE & PATENTED STATE LEASE NO. PUBLIC LEASE NO. INDIAN **603-246**
DRILLING APPROVED: **11-20-56** Nav. Tract 1
SPUDDED IN: **12-11-56** *2-8-61 **1-27-64
COMPLETED: **2-2-57** *2-12-61 **1-30-64
INITIAL PRODUCTION: **1350 BOPD 1200 MCF/D** *330 BOPD, 30 BWP, 152 MCFG/D **156 BOPD, 160 MCF/D
GRAVITY A. P. I. **41°** *58 WPD*
GOR: **880** *460
PRODUCING ZONES: **5472-76'; 5481-87'** ** (Lomay = 5281'-5314') (Dunk Creek = 5362'-5442')
TOTAL DEPTH: **5507'** (Parade = 5446'-87')
WELL ELEVATION: **4580.36 DF; 4582.46' KB**
DATE ABANDONED:
FIELD OR DISTRICT: **Ratherford Aneth** **020975**
COUNTY: **San Juan**
WELL NO. **RATHERFORD 22-12** (Ratherford 12-22) **APT 43-037-15845**
LOCATION: **1920** FT. FROM (N) (X) LINE, **2080** FT. FROM (E) (W) LINE. **SE NW** QUARTER - QUARTER SEC. **12**

TWP.	RGE.	SEC.	OPERATOR	TWP.	RGE.	SEC.	OPERATOR
			PHILLIP'S Petroleum Co.				

GEOLOGIC TOPS:

QUATERNARY	Star Point	Sinbad	Brazer
Recent	Wahweap	PERMIAN	Pilot shale
Alluvium	Masuk	Kaibab	Madison
Lake beds	Colorado	Coconino	Leadville
Pleistocene	Mancos	Cutler 2390'	Redwall
Lake beds	Upper	Hoskinnini	DEVONIAN
TERTIARY	Middle	DeChelly	Upper
Pliocene	Lower	White Rim	Middle
Humboldt	Emery	Organ Rock	Lower
Salt Lake	Blue Gate	Cedar Mesa	Ouray
Miocene	Ferron	Halgaite tongue	Elbert
Bishop conglomerate	Frontier	Phosphoris	Guilmette
Oligocene	Dakota	Park City	Simonson 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 Rafeal Gr.	Weber	Pogonip limestone
Middle	Summerville	Morgan	CAMBRIAN
Lower	Bluff sandstone	Hermosa 4348'	Lynch
Wasatch	Curtis	Upper	Bowman
Colton	Entrade	Lower	Tapeats
Flagstaff	Moab tongue	Molas	Ophir
Almy	Carmel	Paradox 5319'	Tintic
Paleocene	Glen Canyon Gr.	A	PRE-CAMBRIAN
Current Creek	Navajo	B	
North Horn	Kayento	C	
CRETACEOUS	Wingate	Manning Canyon	
Montana	TRIASSIC	Mississippian	
Mesaverde	Chinle 1365'	Chainman shale	
Price River	Shinarump 197'	Humbug	
Blackhawk	Moenkapi 50'	Joana limestone	



(SUBMIT IN TRIPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Indian Agency Mineral
North, Arizona
Allottee Navajo-Tribal Lands
Lease No. 11-10-01-016

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)

November 16, 1956

Well No. 22-12 is located 1000 ft. from N line and 800 ft. from W line of sec. 12
SE 1/4 12 12E 23E 11N
(1/4 Sec. and Sec. No.) (Twp.) (Range) (Meridian)
North Coast Creek San Juan Utah
(Field) (County or Subdivision) (State or Territory)

The elevation of the derrick floor above sea level is 1291 ft. (approx. ground)

DETAILS OF WORK

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

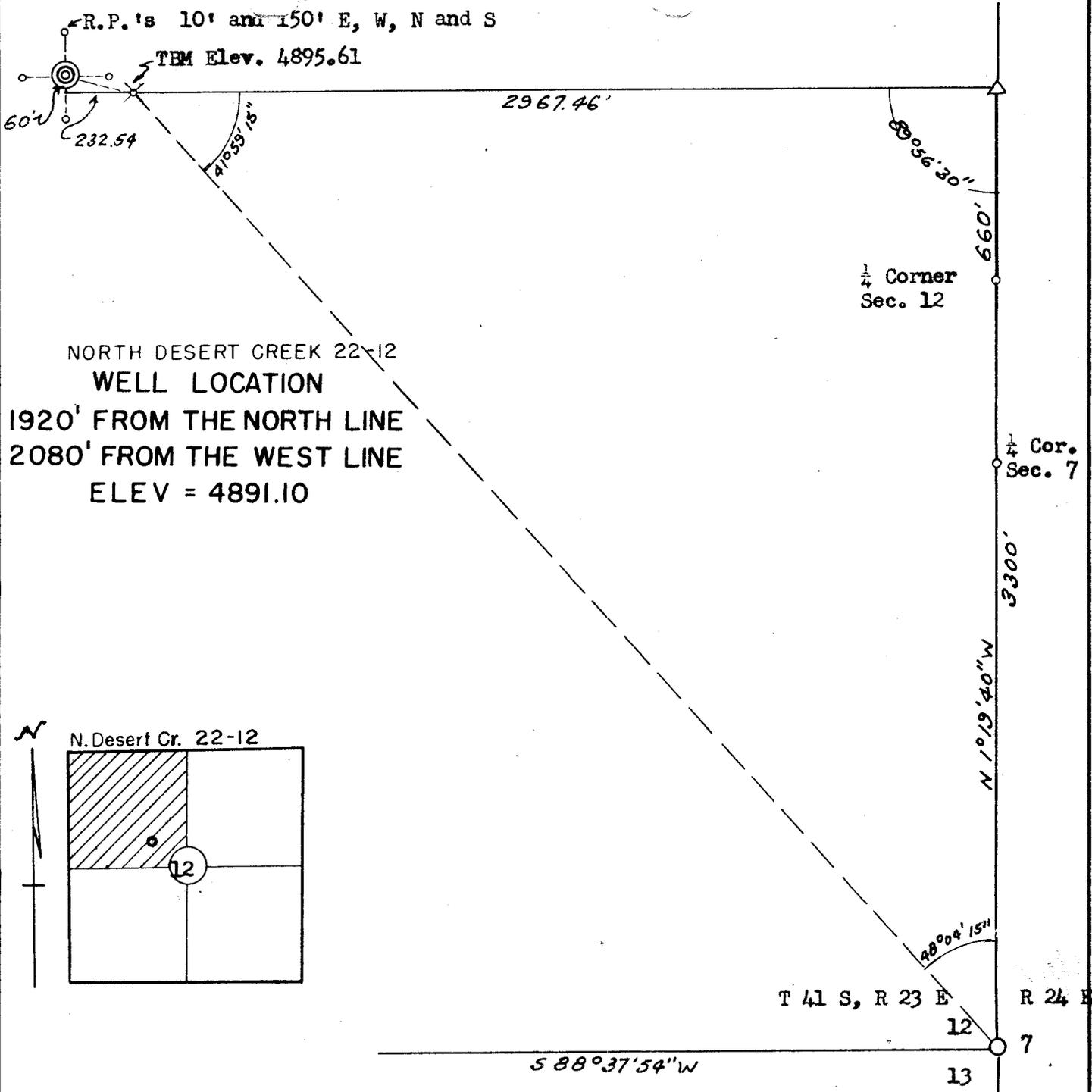
1. Drill 11" hole to 1250'.
2. Run and cement 3 5/8" casing at 1250' with MS necks construction cement.
3. Drill 7 7/8" hole to total depth of 1700'.
4. If commercial production is obtained a supplementary completion notice will be filed; otherwise, plug and abandon in accordance with U.S.G.S. regulations.

Surface formation is the Mesquite.

Nation Wide Bond #7509759 with the U.S. Guarantee Co. is on file with USBIM.

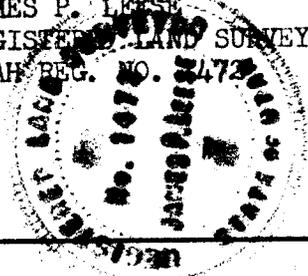
I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company Shell Oil Company
Address 33 Richards Street
Salt Lake City, Utah
By B W Shepard
B. W. Shepard
Title Exploration Engineer



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

James P. Leese
 JAMES P. LEESE
 REGISTERED LAND SURVEYOR
 UTAH REG. NO. 472



SHELL OIL CO.	
WELL LOCATION SE 1/4 NW 1/4 SECTION 12 T41S R23E SLM SAN JUAN CO. UTAH	
12 November 1956	Scale 1" = 500'
Drawn by: DM	
San Juan Engineering Company Farmington, New Mexico	

6
5

November 20, 1956

Shell Oil Company
33 Richards Street
Salt Lake City, Utah

Gentlemen:

This is to acknowledge receipt of your notice of intention to drill Well No. North Desert Creek 22-12, which is to be located 1920 feet from the north line and 2080 feet from the west line of Section 12, Township 41 South, Range 23 East, S1EM, San Juan County.

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

Yours very truly,

OIL & GAS CONSERVATION COMMISSION

CLEON B. FEIGHT
SECRETARY

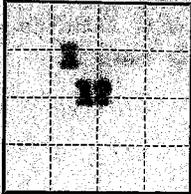
CBF:en

cc: Phil McGrath

31

(SUBMIT IN TRIPLICATE)

Indian Agency _____



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Allottee _____

Lease No. _____

Notes
CAH
1-7-57

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	
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NOTICE OF INTENTION TO SHOOT OR ACIDIZE	SUBSEQUENT REPORT OF ABANDONMENT	
NOTICE OF INTENTION TO PULL OR ALTER CASING	SUPPLEMENTARY WELL HISTORY	
NOTICE OF INTENTION TO ABANDON WELL		

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

December 27

19 56

Well No. 2241 is located North Desert Creek 1920 ft. from N line and 2000 ft. from E line of sec. 12
SE 1/4 12 112 23E S.1.R.42.
(1/4 Sec. and Sec. No.) (Twp.) (Range) (Meridian)
North Desert Creek Salt Flats Utah
(Field) (County or Subdivision) (State or Territory)

The elevation of the derrick floor above sea level is 1096 ft. (approx. ground)

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 12-11-56)
12-15, 16-56

Drilled. Run and cemented (1130') 3 5/8", 28 #/ft. 11-40 casing at 1151 with 260 sacks construction cement. (Left 90 sacks cement unused because of cement bulker conveyor drive failure) no returns to surface. Water flow to surface. Cemented on outside of casing with 42 sacks construction cement, water flow continued. Shot four 1/2" jet holes at 105', could not obtain circulation through holes. Cemented through holes with 41 sacks construction cement treated with calcium chloride and floccul. Held 300 psi for 3 hrs. Water flow continuing.

(over)

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

Company Shell Oil Company
 Address 13 Richards Street
Salt Lake City, Utah

G. E. Holliday
G. E. Holliday

By _____
 Title Mechanical Engineer

12-17-56

Cleaned out cement to 315'. Pumped plug with 900 psi, 15 min, OK. Shot four 1/2" jet holes at 335'. Pumped plug with 1000 psi at 900 psi (no circulation). Displaced 90 sacks construction cement treated with calcium chloride and flocculant. Fair cement returns to surface. Cemented on outside of casing with 90 sacks cement. Cleaned out to 315'. Water flowed from holes at 335'.

YIVSUS JACIDCLOED

12-18-56

Squeezed 90 sacks construction cement treated with calcium and sodium chloride. Water flow continued. Squeezed 150 sacks cement treated as above, staged last 45 sacks over 60 min period, final pressure 800 psi, hold 5 1/2 hrs. Pressure tested plug with 1000 psi, OK. Located hard cement at 315'. Cleaned out to 337', pressure tested holes with 1100 psi, OK. Cleaned out to 1011', pressure tested casing with 1000 psi, OK. Drilled to 1190', encountered high pressure water flow (3" stream flowing from casing)

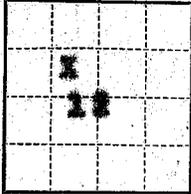
12-19-56

Set retainer at 1045'. Mixed 100 sacks treated cement, displaced 80 sacks out of shoe. After 5 hrs drilled out hard cement to 1172'. Well still flows 1/2" to 3/4" stream of water when pump is stopped.

JAN 2 1957

(SUBMIT IN TRIPLICATE)

Indian Agency Navajo



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Allottee Tribal Lands

Lease No. 14-20-603-246

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	
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NOTICE OF INTENTION TO SHOOT OR ACIDIZE		SUBSEQUENT REPORT OF ABANDONMENT	
NOTICE OF INTENTION TO PULL OR ALTER CASING		SUPPLEMENTARY WELL HISTORY	X
NOTICE OF INTENTION TO ABANDON WELL			

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

January 24, 19 57

North Desert Creek
Well No. 22-12 is located 1920 ft. from $\left\{ \begin{matrix} N \\ S \end{matrix} \right\}$ line and 2080 ft. from $\left\{ \begin{matrix} E \\ W \end{matrix} \right\}$ line of sec. 12
SS NW 12 118 23E S.L.B. & M.
(1/4 Sec. and Sec. No.) (Twp.) (Range) (Meridian)
North Desert Creek **San Juan** **Utah**
(Field) (County or Subdivision) (State or Territory)

The elevation of the ~~terrace~~ **Kelly Dushing** floor above sea level is 4582 ft.

DETAILS OF WORK

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

1-20-57 DST #1 5230-5340 packer failed

1-21-57 DST 1A 5275-5340. (Upper Hermosa (C)/Pennsylvanian),
Initial shut in 22 minutes. Open 3 hours 20 minutes, gas to surface 4 minutes, rate 130 MCF/D. Oil to surface 35 minutes. Flowed oil at 720 B/D rate, cut 0.8% BSW, 41° API gravity. Final shut in 1 hour 35 minutes. IWP 995, RFP 888, ISIP 2195, PSIP 2065 (still rising), HP 3085.

(over)

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

Company Shell Oil Company

Address 33 Richards Street
Salt Lake City, Utah

By B W Shepard
B. W. Shepard
Title Exploitation Engineer

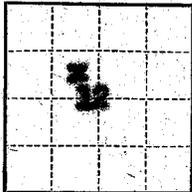
1-22-57

WPT #2 5355-5412 (Purdon/Pam) Initial shut in 20 minutes. Open 2 hrs, immediate moderate blow strong blow 1 hr 45 min, gas to surface in 5 min, rate 15 MCF/D. Shut in 1 hr 30 min, recovered 1000' (10.88) gas cut oil, 41° gravity API, cut 0.1%. WSP 2120, IWP 130 WPP 140 WSP 2065 (nearly stab. after 40 min), WP 2955.

JAN 29 1957

(SUBMIT IN TRIPLICATE)

Indian Agency Navajo



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Allottee Tribal Lands

Lease No. 11-20-603-246

SUNDRY NOTICES AND REPORTS ON WELLS

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

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

January 29, 1957

North Desert Creek
Well No. 22-12 is located 1920 ft. from N line and 2000 ft. from W line of sec. 12

SE NW 12
(¼ Sec. and Sec. No.)

11S
(Twp.)

23E
(Range)

S10M
(Meridian)

North Desert Creek
(Field)

San Juan
(County or Subdivision)

Utah
(State or Territory)

The elevation of the Kelly Bushing ~~surface~~ above sea level is 4582 ft.

DETAILS OF WORK

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

1-26-57 DST #3 5462-5498 (Paradox/Penn) Initial shut in 20 minutes, open 2 hours 5 minutes, immediate moderate blow, gas to surface in 1 hour 59 minutes, rate nil. Final shut in 1 hour 1 minute. Recovered 32h' (1.6 B) slightly oil and gas cut mud (est. 1% oil), salinity 7100 ppm (t), mud before test 6300 ppm (r). ISIP 1640 (still rising), IFF 35, FFP 105, PSIP 1635 (still rising), HP 2965.

1-27-57 DST #4 5409-5498 (Paradox/Penn) Initial shut in 20 minutes, open 2 hours 40 minutes, immediate moderate blow, strong after 1 minute, gas to surface in 1 minute, rate 500 MFP/D, oil to surface in 13 minutes, flowed oil at 1400 B/D rate, 43.5° API gravity, cut 0.1%. Final shut in 1 hour 42 min. ISIP 2200, IFF 825, FFP 1400, PSIP 2160 (stabilized after 10 min), HP 2900.

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

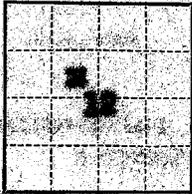
Company Shell Oil Company

Address 33 Richards Street

Salt Lake City, Utah

By B W Shepard
B. W. Shepard

Title Exploitation Engineer



(SUBMIT IN TRIPPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Indian Agency Navajo
Allottee Tribal Lands
Lease No. 14-22-603-246

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	<input checked="" type="checkbox"/>	SUBSEQUENT REPORT OF ABANDONMENT	
NOTICE OF INTENTION TO PULL OR ALTER CASING		SUPPLEMENTARY WELL HISTORY	
NOTICE OF INTENTION TO ABANDON WELL			
* * * to Complete Well	<input checked="" type="checkbox"/>		

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

January 11, 1957

Well No. North Desert Creek 22-12 is located 1920 ft. from N line and 2080 ft. from EW line of sec. 12

SE NW 12 41S 23E S.L.B. & M.
(1/4 Sec. and Sec. No.) (Twp.) (Range) (Meridian)
North Desert Creek San Juan Utah
(Field) (County or Subdivision) (State or Territory)

The elevation of the ~~center~~ Kelly Bushing above sea level is 4582 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)

Status - Total Depth: 5554'
Casing: 8 5/8" at 1151'
Hole Size: 7 7/8" from 1151' to total depth.

Proposed Work

1. Cement 5 1/2" casing at 5539' with 250 sacks construction cement.
2. Clean out to 5515'.
3. Displace mud with water, run neutron log with collar locator.
4. Perforated four 1/2" jet holes per foot intervals 5472-5476 and 5481-5487'.

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

Company Shell Oil Company
Address 33 Richards Street
Salt Lake City, Utah

By B. W. Shepard
B. W. Shepard
Title Exploitation Engineer

13

(SUBMIT IN TRIPLICATE)

UNITED STATES

DEPARTMENT OF THE INTERIOR



5. Inject through perforations 5000 gal. (XFW) acid treated with a radioactive tracer (Iodine #131). Run Gamma Ray log (through tubing) to determine location of acid.

6. Make 8 hour production test.

7. Contingent on #5, acid petroleum (through tubing) with 5000 gal., last 2500 gal. containing 1/2 gal. sand, all treated with a radioactive tracer (Iodine #131). Run Gamma Ray log (through tubing).

8. Make 8 hour production test.

9. Set aluminum bridge plug at 5470'±.

10. Perforate four 1/2" jet holes per foot interval 5350-5400'.

11. Inject 5000 gal. (XFW) acid through perforations.

12. Make 8 hour production test.

13. Perforate four 1/2" jet holes per foot interval 5440-5465'.

14. Inject 500 gal. mud acid through perforations.

15. Make 8 hour production test.

16. Clean out bridge plug.

17. Place well on production and establish initial rate.

FEB 1 1957

U. S. LAND OFFICE Window Rock, Ariz.
SERIAL NUMBER 14-20-603-246
LEASE OR PERMIT TO PROSPECT _____

		X				
			12			

LOCATE WELL CORRECTLY

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

LOG OF OIL OR GAS WELL

Company Shell Oil Company Address 33 Richards Street, Salt Lake City, Ut.
Lessor or Tract Tribal Lands Field North Desert Creek State Utah
Well No. 22-12 Sec. 12 T. 41S R. 23E Meridian S.L.B. & M. County San Juan
Location 1920 ft. S. of N. Line and 2080 ft. E. of W. Line of Section 12 Elevation KB 4582
(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 B. W. Shepard
B. W. Shepard
Title Exploitation Engineer

Date February 2, 1957

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

Commenced drilling December 11, 1956 Finished drilling January 24, 1957

OIL OR GAS SANDS OR ZONES

(Denote gas by G)

No. 1, from 5472 to 5476 No. 4, from _____ to _____
No. 2, from 5481 to 5487 No. 5, from _____ to _____
No. 3, from _____ to _____ No. 6, from _____ to _____

IMPORTANT WATER SANDS

No. 1, from 335 to 1190 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>8-5/8</u>	<u>32#</u>	<u>8</u>	<u>-</u>	<u>1138</u>	<u>Baker</u>	<u>--</u>	<u>-</u>	<u>-</u>	<u>Surface</u>
<u>5-1/2</u>	<u>15#</u>	<u>8</u>	<u>-</u>	<u>528</u>	<u>Baker</u>	<u>5472</u>	<u>5476</u>	<u>5481</u>	<u>5487</u>

MUDDING AND CEMENTING RECORD

Size casing	Where set	Number sacks of cement	Method used	Mud gravity	Amount of mud used
<u>8-5/8</u>	<u>1151</u>	<u>260</u>	<u>DISPLACEMENT</u>	<u>-</u>	<u>-</u>
<u>5-1/2</u>	<u>5502</u>	<u>250</u>	<u>DISPLACEMENT</u>	<u>-</u>	<u>-</u>

PLUGS AND ADAPTERS

Running plug—Material Cement Length Cleaned out to 5497
Adapters—Material _____ Size _____

SHOOTING RECORD

FOLD MARK

74
 Plug Material Cement Length Cleaned out ~~DEPTH~~ 2471
 Adapters—Material Size

SHOOTING RECORD

Size	Shell used	Explosive used	Quantity	Date	Depth shot	Depth cleaned out
			None			

TOOLS USED

Rotary tools were used from 0 feet to 507 feet, and from - feet to - feet
 Cable tools were used from - feet to - feet, and from - feet to - feet

DATES

February 2, 1957 Put to producing February 2, 1957

The production for the first 24 hours was 1350 barrels of fluid of which 99.3% was oil; -% emulsion; -% water; and 0.7% sediment. Gravity, 38.7° API

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

Rock pressure, lbs. per sq. in. -

EMPLOYEES George Noland Drilling Company

C. E. Swisher, Driller

W. G. Wise, Driller

G. S. Connors, Driller

FORMATION RECORD

FROM-	TO-	TOTAL FEET	FORMATION
1365	2197	832	Chinle
2197	2250	53	Shinarump
2250	2390	140	Moenkopi
2390	4348	1958	Cutler
4348	5319	971	Hermosa
5319	-	-	Paradox

INDEX

NO

FORMER

(OVER)

FORMER

16-48094-4

FORMATION RECORD—CONTINUED

TABLE 2 1957

North Desert Creek
 (FIELD)
 San Juan, Utah
 (COUNTY)

DRILLING REPORT
 FOR PERIOD ENDING
 12-5-56

12
 (SECTION OR LEASE)
 T. 41 S., R. 23 E.
 (TOWNSHIP OR RANCHO)

DAY	DEPTHS		REMARKS
	FROM	TO	
56			
			Location: 1980' N and 4000' W of southeast corner, Section 12, T. 41 S., R. 23 E., S.L.B.M., San Juan County, Utah.
11-24	0	21	Spudded 7:00 A.M.
11-25	21		Cemented 10-3/4" casing at 21' with 8 sacks cement.
11-26 to 12-5	21	612	Drilled. Well started flowing at 588'. Ran and cemented 6-5/8" (20 jts) at 437', equipped with Baker cement collar and umbrella. Cemented with 100 sacks construction cement treated with 2% calcium chloride, cleaned out cement to 470'. Installed swedge and valve. Tested well (flowing) 30 gal/minute.

Drilling and Coring Exploration Co.
 Farmington, New Mexico

Driller: R. Brack

CONDITION AT BEGINNING OF PERIOD				
HOLE			CASING SIZE	DEPTH SET
SIZE	FROM	TO		
			10-3/4"	21'
			6-5/8"	437'
DRILL PIPE 2-7/8 SIZES				

K. A. Hauptfleisch

SIGNED

North Desert Creek

DRILLING REPORT

12

FOR PERIOD ENDING

(FIELD)
San Juan, Utah

12-19-56

(SECTION OR LEASE)
T. 14 S., R. 23 E.

(COUNTY)

(TOWNSHIP OR RANCHO)

DAY	DEPTHS		REMARKS
	FROM	TO	
56			
			<p>Location: 1920' S. and 2080' E. of the Northwest corner, Section 12, T. 14 S., R. 23 E., S.L.B.M., San Juan County, Utah.</p> <p>Elevations: DF 4580.36' MAT 4569.86' KB 4582.46'</p>
12-11	0	35	Drilled 35'. Spudded 6:00 A.M. 12-11-56.
12-12 to 12-14	35	1160	Drilled 1125'. Ran and cemented (1138') 8-5/8", 32#/ft., J-55 casing at 1151 with 260 sacks treated construction cement. No cement returns to surface. Water flow to surface.
12-15 to 12-16	1160		Cemented on outside of casing with 42 sacks construction cement, water flow continued. Shot four 1/2" jet holes at 405', could not obtain circulation through holes. Cemented through holes with 60 sacks construction cement. Treated with calcium chloride and Floseal. Held 300 psi for 8 hours. Water flow continued.
12-17 to 12-19	1160	1190	<p>Drilled 30'. Cleaned out to 370'. Tested plug with 900 psi for 15 minutes, OK. Shot four 1/2" jet holes at 335'. Pumped away water 2 bbl/min., at 800 psi (no circulation). Displaced 90 sacks construction cement treated with calcium chloride and Floseal, fair cement returns to surface. Cemented on outside of casing with 50 sacks cement. Cleaned out to 340'. Water flowed from holes at 335'. Squeezed 50 sacks construction cement, treated with calseal and calcium chloride. Water flow continued. Squeezed 150 sacks cement treated as above, staged last 45 cubic feet over 60 minute period, final pressure 200 psi, held 5-1/2 hours. Pressure tested plug with 1000 psi, OK. Located hard cement at 315'. Cleaned out to 337', pressure tested holes with 1100 psi, OK. Cleaned out to 1011', pressure tested casing with 1000 psi, OK. Drilled to 1190', encountered high pressure water flow (3" stream flowing from casing). Set retainer. Mixed 100 sacks treated cement displaced 80' out of shoe. After 5 hours drilled out hard cement to 1172'.</p> <p>Checked BOP daily</p>

CONDITION AT BEGINNING OF PERIOD				
HOLE			CASING SIZE	DEPTH SET
SIZE	FROM	TO		
DRILL PIPE SIZES				

Mid Summary 12-11 - 12-19

Wt. 9.1#/gal.
Vis. 50 sec.

J. R. Anklam

SIGNED

North Desert Creek

DRILLING REPORT

FOR PERIOD ENDING

12

(FIELD)
San Juan, Utah

12-31-56

(SECTION OR LEASE)
T. 41 S., R. 23E.

(COUNTY)

(TOWNSHIP OR RANCHO)

DAY	DEPTHS		REMARKS
	FROM	TO	
56			
12-20 to 12-24	1190	2225	<u>Drilled 1035'</u> .
12-25 to 12-26	2225	2264	<u>Drilled 39'</u> . Installed new rotary table.
12-27 to 12-31	2264	3230	<u>Drilled 966'</u> . Treated mud with salt gel, starch, gypsum, preservative.
<p>Checked BOP daily</p> <p>Mud Summary 12-20 - 12-31-56</p> <p>Wt. 10.8#/gal. Vis. 45-58 sec W.L. 6.0 - 10 cc FC 1-2/32 in</p>			

CONDITION AT BEGINNING OF PERIOD				
HOLE			CASING SIZE	DEPTH SET
SIZE	FROM	TO		
11	0	1160	8-5/8"	1151'
7-7/8"	1160	1190		
DRILL PIPE SIZES			4-1/2	

J. R. Anklam

SIGNED

North Desert Creek

DRILLING REPORT

WELL NO.

(FIELD)

FOR PERIOD ENDING

12

San Juan, Utah

1-27-57

T. 41 S., R. 23 E.

(COUNTY)

(TOWNSHIP OR RANCHO)

DAY	DEPTHS		REMARKS
	FROM	TO	
57			
1-1 to 1-20	3230	5340	Drilled 2110'. Attempted DST #1, 5230-5340, packer failed. Treated mud with mylogel, preservative and gypsum.
1-21	5340	5352	Drilled 12'. DST #1-A, 5275-5340. Halliburton testers. Ran tester with 2 7" Exp. shoe packers at 5268' and 5275', 4 inside pressure recorders, 2 BTPRD at 5250 and 5260, 1 BTPRD at 5330 and 1 PRD at 5335'. 1" subsurface bean and 1" surface bean, perforations 5275-5297' and 5327-5340'. Used 29' (.14 bbl) air cushion. Tool initially shut in 22 minutes, open 3 hours 20 minutes, final shut in 1 hour 35 minutes. Immediate moderate blow, strong blow after 12 minutes. Gas to surface 4 minutes, 130 MCF/D, oil to surface 35 minutes, flowed at rate of 720 B/D, oil, green 41° A.P.I. gravity, cut 0.7% water (1800 ppm NaCl (t)) and 0.1% sediment. Salinity mud before test 6000 ppm NaCl (t). IFP 595, FFP 888, ISIP 2195, FSIP 2065 (still rising), HP 3085.
1-22	5352	5415	Drilled 63'. DST #2, 5356-5415 Halliburton Testers. Ran tester with 2 7" Exp. shoe packers at 5349' and 5356', four inside pressure recorders 2 BTPRD at 5325' and 5329', 1 BTPRD at 5405' and 1 PRD at 5410', 1" subsurface bean, 1" surface bean, perforations 5356-5372' and 5402-5415'. Used 59' (.29 bbl) air cushion. Initially shut in 20 minutes, open 2 hours. Final shut in 1 hour 30 minutes. Immediate moderate blow, strong blow after 1 hour 45 minutes. Gas to surface in 5 minutes, rate 15 MCF/D. Recovered 1000' (10.8 bbl) gas cut oil, green 0.1% cut, 41° A.P.I. gravity. Salinity mud in pits 6000 ppm (R). IFP 130, FFP 448, ISIP 2128, FSIP 2065, (nearly stabilized after 40 minutes), HP 2955.
1-23	5415	5487	Drilled 72'.
1-24	5487	5507 T.D.	Drilled 20'. Ran Schlumberger Electrical Survey, Microlog, Gamma-Ray-Neutron Log and Velocity Survey.
1-25 to 1-27	5507	T.D.	DST #3 5462-5498'. Johnston Testers. Ran tester with 2 - 6-5/8" bobtail packers at 5456' and 5462', 4 inside pressure recorders, 1 "T" at 5481', 1 Amerada at 5486', 2 "L" at 5494 and 5497', 3/4" subsurface bean and 1" surface bean, perforations 5462-5498. Used 30' (.15 bbl) air cushion. Initially shut in 20 minutes, open 2 hours 9 minutes.

CONDITION AT BEGINNING OF PERIOD

HOLE			CASING SIZE	DEPTH SET
SIZE	FROM	TO		
11	0	1160	8-5/8	1151
7-7/8	1160	3230		
DRILL PIPE SIZES				
4-1/2				

Checked BQP daily

Mud Summary 1-1 - 1-27-57

Wt. 10.5 - 10.6#/gal.
 Vis. 42-65 sec.
 W.L. 7.5 - 12 cc
 F.C. 2-5/32
 pH 6-7

J. R. Anklam

SIGNED

North Desert Creek

DRILLING REPORT

FOR PERIOD ENDING

1-31-57

12

(FIELD)
San Juan, Utah
(COUNTY)

(SECTION OR LEASE)
T. 41 S., R. 23 E.
(TOWNSHIP OR RANCHO)

DAY	DEPTHS		REMARKS
	FROM	TO	
57	5507	T.D.	Final shut in 1 hour 1 minute. Immediate moderate blow, gas to surface 1 hour 59 minutes, rate nil. Recovered 324' (1.6 bbl) slightly oil and gas cut mud, salinity 7100 ppm NaCl (t). 7.8#/gal, mud before test 6300 ppm NaCl (R), 10.7#/gal. IFP 35, FFP 105, ISIP 1640 (still rising) FSIP 1635 (still rising), HP 2965.
1-28 to 1-29			DST #4 5409-5498'. Johnston Testers. Ran tester with 2 - 6-5/8" bobtail sackers at 5403 and 5409, 4 inside pressure recorders, 1 "WT" at 5481', 1 Amerada at 5486' and 2 "L" at 5494' and 5497', 3/4" sub-surface bean, 1" surface bean, perforations 5409-5417' and 5475-5498'. Used 89' (.29 bbl) air cushion. Initially shut in 20 minutes. Open 2 hours 40 minutes, final shut in 1 hour 42 minutes. Immediate moderate blow, strong blow 1 minute. Gas to surface 1 minute, rate 500 MCF/D. Oil to surface 13 minutes, rate 1400 B/D, green, cut 0.1%, 43.5° A.P.I. gravity. Reversed out fluid. IFP 825, FFP 1400, ISIP 2200, FSIP 2160, (stabilized after 10 minutes), HP 2900.
1-28 to 1-29			Ran and cemented 5526' of 5-1/2", 15#, J-55 casing at 5539' with 250 sacks treated construction cement. Finished 3:45 A.M. Waited on cement. Pressure tested plug with 1500 psi, OK. Cleaned out to 5515'. Ran Gamma Ray Log with collar locator, found 5-1/2" casing at 5502 (error in measurement). Set Baker Wire Line Bridge plug at 5497'. Perforated with four 1/2" jets/ft. intervals 5472-5476 and 5481-5487'. Ran tubing and BOGL packer, packer at 5441', tail to 5447'.
1-30 to 1-31			Swabbed tubing dry, no fluid entry. Started to acidize, line parted in lubricator leaving 5300' of line and sonde in hole with tubing full of radio active acid. Released packer and back scuttled radioactive acid. Ran spear, located line and sonde at 300-400', recovered. Pulled tubing reran and set packer tail at 5487'.

CONDITION AT BEGINNING OF PERIOD

HOLE			CASING SIZE	DEPTH SET
SIZE	FROM	TO		
11	0	1160	8-5/8	1151
7-7/8	1160	5507		
DRILL PIPE SIZES				

J. R. Anklem

SIGNED

SHELL OIL COMPANY

WELL NO. 22-12

North Desert Creek

DRILLING REPORT

12

(FIELD)
San Juan, Utah

FOR PERIOD ENDING

(SECTION OR LEASE)
T. 41 S., R. 23E.

(COUNTY)

2-2-57

(TOWNSHIP OR RANCHO)

DAY	DEPTHS		REMARKS
	FROM	TO	
57			
2-1 to 2-2	5507 5497	T.D. PBTD	<p>Spotted 500 gallons mud acid opposite perforations. Packer failed. Pulled tubing and packer, found packer torn up. Ran bit, pushed loose strands of wire to bottom. Reran tubing and packer, injected 1500 gallons (XFW) acid with radioactive iodine 131 tracer, maximum pressure 2200 psi, broke to 1600 psi, minimum pressure 1200 psi, average rate 4.4 bbl/min. Displaced with 25 bbl. water. Log showed acid with tracer had penetrated nearly to Upper Paradox Shale indicating communication over Paradox interval. Swabbed and well kicked off. Flowed to sump to clean up and made 2 hour test.</p> <p><u>INITIAL PRODUCTION</u> Flowing, 1350 B/D gross, 1341 B/D oil, cut 0.7%, 48/64" bean, 1200 MCF/D gas, GOR 880, 41° gravity API. Shut well in. Released rig 8:00 PM 2-2-57. Officially completed 2-2-57.</p>

CONDITION AT BEGINNING OF PERIOD

HOLE			CASING SIZE	DEPTH SET
SIZE	FROM	TO		
11	0	1160	8-5/8	1151
7-7/8	1160	5507	5-1/2	5502
<p>DRILL PIPE SIZES</p>				

George Noland Drilling Company

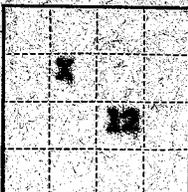
Pusher: H. E. Clements
 Drillers: C. E. Swisher
 G. S. Connors
 W. G. Wise

J. R. Anklam

SIGNATURE

(SUBMIT IN TRIPLICATE)

Copy to HC
Budget Bureau No. 42-R359.4
Approval expires 12-31-60
Indian Agency Navajo



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Allottee Shell Oil
Lease No. 14-50-402-24

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	X	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)

February 2, 1961

North Desert Creek
Well No. 22-12 is located 1920 ft. from N line and 2800 ft. from E line of sec. 12

SE NW 12 41 S 23 E S1B & M
(1/4 Sec. and Sec. No.) (Twp.) (Range) (Meridian)

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

Kelly Bushing

The elevation of the derrick floor above sea level is 4082 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)

Status: Total Depth 5507'
Casing: 5-1/2" @ 5502' with 250 sacks
Perforations: 5472-5476 and 5481-5487
Completion: 2-2-57 IP Flowing 1350 B/D gross, cut 0.7%, GOR 890.
Cumulative production to 1-1-61 301,000 hbbls.

Proposed Work:

1. Set retrievable bridge plug at 5380'.
2. Perforate four 1/2" jet holes/ft. 5281-86, 5289-93, 5296-5303 and 5308-14. (15 mo)
3. Inject 3500 gal. regular acid into perforations.
4. Pull bridge plug (depending on production rate).
5. Return well to production.

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

Company Shell Oil Company

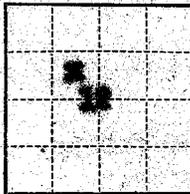
Address P. O. Box 1200
Farmington, New Mexico

Original Signed By
W. M. MARSHALL

By W. M. Marshall
Title Division Exploitation Engineer

(SUBMIT IN TRIPLICATE)

Indian Agency Navajo



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Allottee Tribal Lands

Lease No. 14-30-603-246

*Noted
Cott
2-18-57*

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	<input checked="" type="checkbox"/>
NOTICE OF INTENTION TO TEST WATER SHUT-OFF	SUBSEQUENT REPORT OF ALTERING CASING	
NOTICE OF INTENTION TO REDRILL OR REPAIR WELL	SUBSEQUENT REPORT OF REDRILLING OR REPAIR	
NOTICE OF INTENTION TO SHOOT OR ACIDIZE	SUBSEQUENT REPORT OF ABANDONMENT	
NOTICE OF INTENTION TO PULL OR ALTER CASING	SUPPLEMENTARY WELL HISTORY	
NOTICE OF INTENTION TO ABANDON WELL	<u>Subsequent Report of Well Completion</u>	<input checked="" type="checkbox"/>

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

February 5, 1957

North Desert Creek
Well No. 22-12 is located 1920 ft. from N line and 2030 ft. from W line of sec. 12

SE NW 12 (1/4 Sec. and Sec. No.) 13E (Twp.) 23E (Range) SL&M (Meridian)
North Desert Creek (Field) San Juan (County or Subdivision) Utah (State or Territory)

The elevation of the Kelly Bushing ~~ground floor~~ above sea level is 4582 ft.

DETAILS OF WORK

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

1-27 to 2-2-57 Ran and cemented 5 1/2", 15#, J-55 casing at 5539' with 250 sacks construction cement. Finished 3:45 A.M. 1-28-57. Waited on cement. Cleaned out to 5515'. Ran Gamma Ray log with collar locator and found 5 1/2" casing at 5502' (error in measurement). Set Baker wire line bridge plug at 5497'. Perforated with four 1/2" jets/ft. intervals 5472-5476' and 5481-5487'. Ran tubing and packer at 5411', tail to 5447'. Gunned tubing dry, no fluid entry. Started to acidize and line parted in lubricator leaving 5300' of line and sonde in hole with tubing full of radioactive acid. Released packer, back scuttled radioactive acid. Ran spear, located line and sonde at 300-400', recovered. Spotted 50 gal. mud acid opposite perforations, packer failed. Pulled tubing and packer, found packer torn up. Ran

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

Company Shell Oil Company

Address 33 Richards Street

Salt Lake City, Utah

By B W Shepard
B. W. Shepard

Title Exploitation Engineer

(SUBMIT IN TRIPLICATE)

UNITED STATES

DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

bit, pushed loose strands of wire to bottom. Reran tubing and packer. Injected 1500 gal. (XFW) acid with radioactive iodine I31 tracer, maximum pressure 2200 psi, broke to 1600 psi, minimum pressure 1200 psi, average flow 4.4 bbl/min. Displaced with 25 bbl water. Log showed acid with tracer had penetrated nearly to Upper Paradise Shale indicating communication over Paradise Interval. Stabbed and well kicked off. Flowed to pump to clean up and made 2 hour test.

INITIAL PRODUCTION

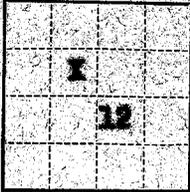
Flowing, 1350 M/D gross, 1341 M/D oil, cut 0.7%, 48/60° beam, 1200 MCF/D gas, GOR 890, 41° gravity API.

Shut well in. Officially completed 2-2-57.

FEB 8 1957

(SUBMIT IN TRIPLICATE)

Indian Agency Navajo



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Allottee Tribal Lands
Lease No. 14-20-603-246

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	<input checked="" type="checkbox"/>
NOTICE OF INTENTION TO TEST WATER SHUT-OFF		SUBSEQUENT REPORT OF ALTERING CASING	
NOTICE OF INTENTION TO REDRILL OR REPAIR WELL		SUBSEQUENT REPORT OF REDRILLING OR REPAIR	
NOTICE OF INTENTION TO SHOOT OR ACIDIZE		SUBSEQUENT REPORT OF ABANDONMENT	
NOTICE OF INTENTION TO PULL OR ALTER CASING		SUPPLEMENTARY WELL HISTORY	
NOTICE OF INTENTION TO ABANDON WELL		<u>Subsequent Report of Recompletion</u>	<input checked="" type="checkbox"/>

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

43 037 15845

February 20, 19 61

North Desert Creek

Well No. 22-12 is located 1920 ft. from N line and 2080 ft. from E line of sec. 12

SE NW 12 41S 23E SLB & M
(1/4 Sec. and Sec. No.) (Twp.) (Range) (Meridian)

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

Kelly Bushing

The elevation of the ~~ground floor~~ above sea level is 4582 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)

- 2-8-61 Ran and set retrievable bridge plug at 5380'.
- 2-9-61 Perforated four 1/2" jet holes/ft. 5281-86, 5289-93, 5296-5303, 5308-14.
- 2-10-61 Acidized interval 5281-5314 with 3500 gal. regular acid, average rate 4 bbls./min. Maximum pressure 2900 psi.
- 2-11-61 Representative Recompleted Initial rate.
To Pumping, 360 B/D gross, 330 B/D oil, cut 8%, 152 MCF/D gas,
- 2-12-61 GOR 460. Recompleted 2-12-61.

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

Company Shell Oil Company

Address P. O. Box 1200
Farmington, New Mexico

Original Signe: By
W. M. MARSHALL

By W. M. Marshall
Title Div. Exploitation Engineer

W. H. H. C.

PHD

(SUBMIT IN TRIPLICATE)

Indian Agency _____

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Navajo

Allottee **Tribal Lands**

Lease No. **14-20-603-246**

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 SINK Perforate & 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)

Cortez, Colorado December 16, 1963

Ratherford Unit (formerly Shell Oil Co. North Desert Creek 22-12)

Well No. **12-22** is located **1920** ft. from **[N]** line and **2090** ft. from **[W]** line of sec. **12**

Sec. 12 SE NW 12

(¼ Sec. and Sec. No.)

41E

(Twp.)

23E

(Range)

31EM

(Meridian)

Ratherford

(Field)

San Juan

(County or Subdivision)

Utah

(State or Territory)

Kelly bushing

The elevation of the ~~drum floor~~ above sea level is **4582** 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 Bridge Plug, perforate Subzone I and II of Desert Creek from 5362-74, 5394-5406, 5411-30, 5436-42 and 5446-52', acidize with 2,000 gallons regular acid, 350 gallons Sol Block, and 3000 gallons regular acid.

Present Production: 64 BOPD, 0 EOPD, 72 MCFGPD

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 *G. M. Boles*

G. M. Boles

Title **District Superintendent**

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN TRI
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verse side)

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n re-

Form approved.
Budget Bureau No. 42-R1424.

SUNDRY NOTICES AND REPORTS ON WELLS

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

5. LEASE DESIGNATION AND SERIAL NO.

14-20-602-246

6. IF INDIAN ALLOTTEE OR TRIBE NAME

Navajo Tribal

7. UNIT AGREEMENT NAME

Rutherford Unit

8. FARM OR LEASE NAME

9. WELL NO.

32-22

10. FIELD AND POOL OR WILDCAT

Greater Aneth Field

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

Sec. 12-115-23E

12. COUNTY OR PARISH

San Juan Co

13. STATE

Utah

1. OIL WELL GAS WELL OTHER

2. NAME OF OPERATOR
Phillips Petroleum Company

3. ADDRESS OF OPERATOR
P. O. Drawer 1150, Cortez, Colorado

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*
See also space 17 below.)
At surface
SE NW Sec. 12 1920' from North Line and 2080' from West Line

14. PERMIT NO.

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

4582 KB

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

NOTICE OF INTENTION TO:

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

SUBSEQUENT REPORT OF:

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

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

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

1-27-64 through 1-30-64: Pulled rods and tubing and retrievable bridge plug at 5380', perforated Desert Creek Subzone I and II 5362-74', 5394-5406', 5411-30', 5436-42', and 5446-52' with 4 jets per foot. Acidized all Ismay and Desert Creek perforations with 2000 gallons regular acid, 350 gallons Sol Block and 3000 gallons regular acid. Placed well back on pump. Started pumping 1-30-64. Well is producing from Ismay perforations 5281-86, 5289-93, 5296-5303, 5308-14 and Desert Creek perforations 5362-74, 5394-5406, 5411-30, 5436-42, and 5446-52, 5472-76 and 5481-87' in Greater Aneth - Paradox formation.

Present Production: 156 BOPD, 160 MCF Gas/Day, 5 BWPD

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

SIGNED C.M. Boles

TITLE Area Supt.

DATE 2-7-64

(This space for Federal or State office use)

APPROVED BY _____
CONDITIONS OF APPROVAL, IF ANY:

TITLE _____ DATE _____

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN TRIP DATE*
(Other instructions on re-
verse side)

Form approved.
Budget Bureau No. 42-R1424.

5. LEASE DESIGNATION AND SERIAL NO.

14-20-603-353

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

Navajo Tribal

7. UNIT AGREEMENT NAME

SW-I-4192

8. FARM OR LEASE NAME

Rutherford Unit

9. WELL NO.

12-22

10. FIELD AND POOL, OR WILDCAT

Greater Aneth Field

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

Section 12-41S-23E

12. COUNTY OR PARISH

San Juan

13. STATE

Utah

SUNDRY NOTICES AND REPORTS ON WELLS

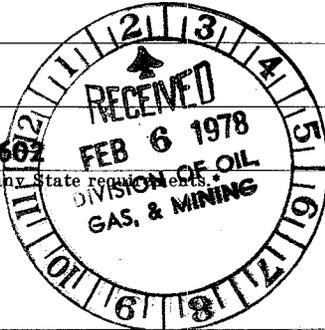
(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir.
Use "APPLICATION FOR PERMIT—" for such proposals.)

1. OIL WELL GAS WELL OTHER

2. NAME OF OPERATOR
~~Phillips Petroleum Company~~ Shell Oil

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

4. LOCATION OF WELL (Report location clearly and in accordance with any State regulations.
See also space 17 below.)
At surface
1920' FNL and 2080' FWL (SE/NW)



14. PERMIT NO.

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

4570' G.L.

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

NOTICE OF INTENTION TO:

SUBSEQUENT REPORT OF:

TEST WATER SHUT-OFF

PULL OR ALTER CASING

WATER SHUT-OFF

REPAIRING WELL

FRACTURE TREAT

MULTIPLE COMPLETION

FRACTURE TREATMENT

ALTERING CASING

SHOOT OR ACIDIZE

ABANDON*

SHOOTING OR ACIDIZING

ABANDONMENT*

REPAIR WELL

CHANGE PLANS

(Other)

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

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

Well is perforated in Ismay (5281-5314') and Zone I (5362-5430'). Plan to squeeze cement Zone I perfs, drill out cement to 5434', and reperforate Zone I from 5362-64; 5394-5406; and 5411-20'. Will proceed to acidize the Ismay and Zone I perfs (5281-5420') with 7500 gallons 28% HCL and return to production.

APPROVED BY THE DIVISION OF
OIL, GAS, AND MINING
DATE: Feb. 6, 1978
BY: Ph. Ansell

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

Original Signed By:

SIGNED D. J. FISHER
D. J. Fisher

TITLE Operations Superintendent

DATE February 3, 1978

(This space for Federal or State office use)

APPROVED BY
CONDITIONS OF APPROVAL, IF ANY:

TITLE DATE

*See Instructions on Reverse Side

- 3 - USGS, Farmington, NM
- 2 - Utah Oil & Gas Conservation Commission
- 1 - Superior Oil Co., Cortez, CO
- 1 - File

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN TRIPLICATE*
(Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1424.

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

<p>1. OIL WYELL <input checked="" type="checkbox"/> GAS WYELL <input type="checkbox"/> OTHER <input type="checkbox"/></p> <p>2. NAME OF OPERATOR Phillips Petroleum Company</p> <p>3. ADDRESS OF OPERATOR P. O. Box 2920, Casper, Wyoming 82602</p> <p>4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface 1920' FNL & 2080' FWL, SE NW</p> <p>14. PERMIT NO.</p>	<p>5. LEASE DESIGNATION AND SERIAL NO. U-20-603-246</p> <p>6. IF INDIAN, ALLOTTEE OR TRIBE NAME Navajo - Tribal</p> <p>7. UNIT AGREEMENT NAME SW-I-4192</p> <p>8. FARM OR LEASE NAME Batharford Unit</p> <p>9. WELL NO. 12-22</p> <p>10. FIELD AND POOL, OR WILDCAT Greater Anoth</p> <p>11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA Sec. 12-T15-R23E</p> <p>12. COUNTY OR PARISH San Juan</p> <p>13. STATE Utah</p>							
<p>15. ELEVATIONS (Show whether DF, RT, GR, etc.) 4582' HKB</p>	<p>16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;"> <p>NOTICE OF INTENTION TO:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;"> <p>TEST WATER SHUT-OFF <input type="checkbox"/></p> <p>FRACTURE TREAT <input type="checkbox"/></p> <p>SHOOT OR ACIDIZE <input type="checkbox"/></p> <p>REPAIR WELL <input type="checkbox"/></p> <p>(Other) <input type="checkbox"/></p> </td> <td style="width: 50%; border: none;"> <p>PULL OR ALTER CASING <input type="checkbox"/></p> <p>MULTIPLE COMPLETE <input type="checkbox"/></p> <p>ABANDON* <input type="checkbox"/></p> <p>CHANGE PLANS <input type="checkbox"/></p> </td> </tr> </table> </td> <td style="width: 50%; border: none;"> <p>SUBSEQUENT REPORT OF:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;"> <p>WATER SHUT-OFF <input type="checkbox"/></p> <p>FRACTURE TREATMENT <input type="checkbox"/></p> <p>SHOOTING OR ACIDIZING <input type="checkbox"/></p> <p>(Other) <input type="checkbox"/></p> </td> <td style="width: 50%; border: none;"> <p>REPAIRING WELL <input type="checkbox"/></p> <p>ALTERING CASING <input type="checkbox"/></p> <p>ABANDONMENT* <input type="checkbox"/></p> </td> </tr> </table> <p style="text-align: center;">Acid & Re-perf Zone I, Drld to NEW FBTD & Acidized</p> <p style="font-size: small;">(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)</p> </td> </tr> </table>		<p>NOTICE OF INTENTION TO:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;"> <p>TEST WATER SHUT-OFF <input type="checkbox"/></p> <p>FRACTURE TREAT <input type="checkbox"/></p> <p>SHOOT OR ACIDIZE <input type="checkbox"/></p> <p>REPAIR WELL <input type="checkbox"/></p> <p>(Other) <input type="checkbox"/></p> </td> <td style="width: 50%; border: none;"> <p>PULL OR ALTER CASING <input type="checkbox"/></p> <p>MULTIPLE COMPLETE <input type="checkbox"/></p> <p>ABANDON* <input type="checkbox"/></p> <p>CHANGE PLANS <input type="checkbox"/></p> </td> </tr> </table>	<p>TEST WATER SHUT-OFF <input type="checkbox"/></p> <p>FRACTURE TREAT <input type="checkbox"/></p> <p>SHOOT OR ACIDIZE <input type="checkbox"/></p> <p>REPAIR WELL <input type="checkbox"/></p> <p>(Other) <input type="checkbox"/></p>	<p>PULL OR ALTER CASING <input type="checkbox"/></p> <p>MULTIPLE COMPLETE <input type="checkbox"/></p> <p>ABANDON* <input type="checkbox"/></p> <p>CHANGE PLANS <input type="checkbox"/></p>	<p>SUBSEQUENT REPORT OF:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;"> <p>WATER SHUT-OFF <input type="checkbox"/></p> <p>FRACTURE TREATMENT <input type="checkbox"/></p> <p>SHOOTING OR ACIDIZING <input type="checkbox"/></p> <p>(Other) <input type="checkbox"/></p> </td> <td style="width: 50%; border: none;"> <p>REPAIRING WELL <input type="checkbox"/></p> <p>ALTERING CASING <input type="checkbox"/></p> <p>ABANDONMENT* <input type="checkbox"/></p> </td> </tr> </table> <p style="text-align: center;">Acid & Re-perf Zone I, Drld to NEW FBTD & Acidized</p> <p style="font-size: small;">(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)</p>	<p>WATER SHUT-OFF <input type="checkbox"/></p> <p>FRACTURE TREATMENT <input type="checkbox"/></p> <p>SHOOTING OR ACIDIZING <input type="checkbox"/></p> <p>(Other) <input type="checkbox"/></p>	<p>REPAIRING WELL <input type="checkbox"/></p> <p>ALTERING CASING <input type="checkbox"/></p> <p>ABANDONMENT* <input type="checkbox"/></p>
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17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

March 21, 1978 through May 1, 1978

SEE ATTACHED FOR COMPLETE DETAILS

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

SIGNED D. J. Fisher TITLE Operations Superintendent DATE May 12, 1978

D. J. Fisher
(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

3 - USGS, Farmington, NH
2 - Utah O&G CC, Salt Lake City, UT
1 - Superior Oil Co., Conroe, TX
1 - File

*See Instructions on Reverse Side

Lease Ratherford Unit Well No. 12-22 Authorization No. P-3377

Summary of Work Performed:

March 21 through May 1, 1978 -

Squeeze cemented interval 5281-5430' OA w/200 sx Class "B". Tagged top of cement at 5084'. Drld out to New PBD 5430'. Re-perforated Zone I 5362-74', 5394-5406' and 5411-20'. Acidized w/2500 gal 28% HCL. Returned to a Pumping Oil Well.

		AVERAGE DAILY PRODUCTION		
Field and Formation		Oil	Gas	Water
		Shut Down 1/16/77	- Last Test	Before SD -
Before Work	<u>Greater Aneth - Zone I & Ismay</u>	<u>0</u>	<u>0</u>	<u>323</u>
After Work	<u>Greater Aneth - Zone I</u>	<u>21</u>	<u>NR</u>	<u>49</u>
Before Work	_____	_____	_____	_____
After Work	_____	_____	_____	_____

1978
Mar 21

DATE P.T.D. DAILY REPORT DETAILED

RATHERFORD UNIT NO. 12-22 PTD 5434. INITIAL REPORT. 3/16/78 - MI AND RU R AND R WS UNIT AT 5:00 PM, 3/15/78. SDON. 3/17/78 - PLD ALL OF 1", 7/8" AND 22 - 3/4" RODS. HAD PIN BREAK IN 22ND ROD. WIH TO FISH ROD PART, UNABLE TO KEEP TOOL LATCHED ONTO ROD BOX. COOH W/RODS AND FISHING TOOL, UNABLE TO RELEASE ANCHOR INITIALLY, FINALLY RELEASED ANCHOR, WAS ABLE TO LOWER ANCHOR ONLY 2 FEET, STOPPED. STARTED OOH W/TBG AND RODS, ANCHOR DRAGGING. REC 119 JTS TBG, ALL 1", 7/8" AND 70 - 3/4" RODS. SDON. 3/18/78 - FIN COOH W/RODS, PUMP AND TBG. INSTALLED BOP. WIH W/4-3/4" BIT AND CSG SCRAPER. RAN TO 5433 FEET TBG MEAS. CIRC HOLE FOR 1 HR. WELL STARTED FLWG, KILLED WELL. COOH W/TBG, BIT AND SCRAPER. SDON.. 3/19/78 - WIH W/TBG AND PKR AND TBG TESTER. UNABLE TO GET TEST ON TBG. COOH, FOUND 3 HOLES IN 163RD JT TBG. WIH W/TBG AND PKR. RAN PKR TO 5327 FEET. TSTD TBG, OK. PUMP IN TEST AT 5362-5430 FEET OA, 3/4 BPM AT 3000 PSI. PUMP IN TEST DOWN ANNULUS, 4 BPM AT 600 PSI. RAISED PKR TO 5133 FEET. HOWCO CMT SQUEEZED INTERVAL 5281-5430 FEET OA, MIXED AND PUMPD 200 SX CLASS "B", 10 PERCENT SALT, 1-1/4 PERCENT CFR-2. SQZD TO 3500 PSI. REVERSED OUT 88 SX. CAME UP HOLE W/PKR TO 5006 FEET. RE-PRESS TO 3500 PSI. SDON. 3/20/78 - SD OVER SUNDAY. 3/21/78 - COOH W/TBG AND PKR. STARTED IH W/4-3/4" BIT AND CSG SCRAPER. PULLING UNIT BROKE DOWN. PREPARING TO DRILL OUT CMT. AFE P-3377 ISSUED TO SQUEEZE ZONE I PERFS 5362-5430 FEET OA, DRILL AND RE-PERFORATE ZONE I, ACIDIZE ZONE I AND ISMAY PERFS 5281-5314 FEET OA, RETURN TO PRODUCING. LOCATION - 1920 FEET FNL AND 2080 FEET FWL, SE NW, SEC. 12-T41S-R23E, GREATER ANETH FIELD, SAN JUAN COUNTY, UTAH. ELEV. 4582 FEET RKB. SUB AREA CODE 26. WELL SHUT DOWN 1/16/77. UNECONOMICAL. LAST TEST BEFORE SHUT DOWN - 0 EOPD, 323 BWPD, 0 MCFGPD..

Original Signed By
D. J. Fisher

May 12, 1978

Date Prepared

District Approval

DAILY REPORT DETAILED

LEASE Ratherford Unit

WELL NO. 12-22

SHEET NO. 2

DATE	TOTAL DEPTH	NATURE OF WORK PERFORMED
------	-------------	--------------------------

1978
Mar 22
RATHERFORD UNIT NO. 12-22 PBDT 5434, PTD 5140. FIN GIH W/4-3/4" BIT AND 5-1/2" CSG SCRAPER. TAGGED TOP OF CEMENT AT 5084 FEET. STARTED DRLG OUT AT 3:00 PM, 3/21/78. DRLD 56 FEET TO 5140 FEET. SDON. WORKED ON PULLING UNIT 6 HRS..

23
RATHERFORD UNIT NO. 12-22 PBDT 5430. PREP TO PERFORATE AND ACID-GIZE. DRLD SOLID CMT FROM 5034 FT TO NEW PBDT 5430 FT. CIRC HOLE CLEAN. COOH W/TBG, BIT AND CSG SCRAPER. SDON..

24-
27
RATHERFORD UNIT NO. 12-22 PBDT 5430. SD, WO WS UNIT. 3/24/78 - COOH W/TBG AND PKR. RU MCCULLOUGH, PERFORATED 5420-11 FEET, 5406-5394 FEET, 5374-5362 FEET W/4" CSG GUN, 2 OMEGA JSPF. WIH W/TBG AND PKR. RU DOWELL. SPOTTED ACID OVER ABOVE INTERVALS. CAME UP HOLE W/PKR TO 5326 FEET AND TAILPIPE AT 5362 FEET. ACIDIZED W/2500 GAL 28 PERCENT HCL IN 3 STAGES. OVER-DISPLD EACH STAGE W/2000 GAL WTR. 1ST BLOCK - 400 LB TBA, 1200 PSI DROP, RATE 2 BPM. 2ND BLOCK - 200 LB TBA, AVG RATE 3.5 BPM AT 2000 PSI. FINAL RATE 6 BPM AT 2000 PSI. ISIP 1000 PSI, 0 PSI IN 2 MIN. TOTAL LOAD TO REC 437 BBLs ACID AND WTR. ACID CONTAINED 3 GAL/1000 W-47, 2 GAL/1000 F-78. WTR CONTAINED 1 GAL/1000 F-78. 3/25/78 - COOH W/TBG AND PKR. WIH W/TBG AND ANCHOR. RAN INTO RESTRICTION AT 5418 FEET. CAME UP HOLE TO 5401 FEET W/ANCHOR SET AT 5320 FEET, TBG INTAKE AT 5401 FEET. PUT 35 BW DN TBG TO MAKE SURE TBG WAS OPEN. REMOVED BOP. TOTAL LOAD WTR AND ACID TO REC 472 BBLs. SDON. 3/26/78 - RAN PUMP AND RODS. PUT TO PUMPING. RELEASED RIG AT 1:00 PM, 3/25/78. 3/27/78 - SD, WAITING ON WS UNIT. WELL WOULD NOT PUMP UP. PUMP PLUGGED..

28
RATHERFORD UNIT NO. 12-22 PBDT 5430. MI WS UNIT. CHANGED OUT PUMP. PUT ON PUMP. PUMP PLUGGED AGAIN..

29
RATHERFORD UNIT NO. 12-22 PBDT 5430. PREP TO CIRC OUT TO TD. UNABLE TO TEST PUMP. COOH W/PUMP. DROPPED STANDING VALVE TO CHECK FOR TBG LEAK, TBG OK. PLD STANDING VALVE..

30
RATHERFORD UNIT NO. 12-22 PBDT 5430. PMPG ON TEST. RELEASED ANCHOR CATCHER, INSTALLED STRIPPER HEAD, LOWERED TBG TO TOP OF FILL AT 5418 FEET. RU HOWCO, REVERSED MOTH BALLS OUT OF CSG 5418-5430 FEET. HOLE TOOK 350 BW WHILE REVERSING. RESET ANCHOR AT 5320 FEET, TBG INTAKE AT 5401 FEET. RAN RODS AND PUMP. WELL PUMPED UP AT 3:30 PM, 15 SPM, 85" STROKE, 1-3/4" PUMP. TOTAL LOAD TO REC, 942 BLW..

31
RATHERFORD UNIT NO. 12-22 PBDT 5430. PMPG ON TEST. PMPD 12 HRS, REC 220 BW, NO OIL. 602 BLW TO REC /CORRECTED/. 15 SPM, 85" STROKE, 1-3/4" PUMP..

DAILY REPORT DETAILED

LEASE Ratherford Unit

WELL NO. 12-22

SHEET NO. 3

DATE
NATURE OF WORK

TOTAL
DEPTH
PERFORMED

1978
April
1-3

RATHERFORD UNIT NO. 12-22 PBD 5430. 4/1/78 - 4/3/78 - OPERATIONS SHUT DOWN..

4

RATHERFORD UNIT NO. 12-22 PBD 5430. OPERATIONS SHUT DOWN..

5

RATHERFORD UNIT, NO. 12-22 PBD 5430. OPERATIONS SHUT DOWN..

6

RATHERFORD UNIT NO. 12-22 PBD 5430. OPERATIONS SHUT DOWN..

7

RATHERFORD UNIT NO. 12-22 PBD 5430. OPERATIONS SHUT DOWN..

8-10

RATHERFORD UNIT NO. 12-22 PBD 5430. OPERATIONS SHUT DOWN..

11

RATHERFORD UNIT NO. 12-22 PBD 5430. OPERATIONS SHUT DOWN..

12

RATHERFORD UNIT NO. 12-22 PBD 5430. OPERATIONS SHUT DOWN..

13

RATHERFORD UNIT NO. 12-22 PBD 5430. OPERATIONS SHUT DOWN..

14

RATHERFORD UNIT NO. 12-22 PBD 5430. OPERATIONS SHUT DOWN..

15-17

RATHERFORD UNIT NO. 12-22 PBD 5430. OPERATIONS STARTING UP TODAY..

18

RAHTERFORD UNIT NO. 12-22 PBD 5430. WAITING ON WELL TEST..

19

RATHERFORD UNIT NO. 12-22 PBD 5430. WAITING ON WELL TEST..

20

RATHERFORD UNIT NO. 12-22 PBD 5430. WAITING ON WELL TEST..

21

RATHERFORD UNIT NO. 12-22 PBD 5430. PMPG ON TEST. - 4/18/78 - STARTED UP AFTER EXTENDED SHUT DOWN DUE TO NAVAJO PROBLEMS. 4/19/78 - MI WS UNIT. FISHED ROD PART. BODY BREAK 3/4" - 76TH ROD. 4/20/78 - FIN RING RODS IN HOLE. RELEASED WS UNIT. PMPG ON TEST. 4/21/78 - PMPD 28 HR, REC 38 BO, 346 BLW. 15.8 SPM, 85" STROKE, FL 4630 FEET. 256 BLW TO REC..

DAILY REPORT DETAILED

LEASE Ratherford Unit

WELL NO. 12-22

SHEET NO. 4

DATE TOTAL
DEPTH
NATURE OF WORK PERFORMED

1978
April
22-24
RATHERFORD UNIT NO. 12-22 PBD 5430. 4/22/78 PUMPING ON TEST 24 HRS. REC 26 BO, 104 BW, 152 BLW TO BE REC. 4/24/78 PUMPING ON TEST 48 HRS. REC 60 BO, 180 BW. ALL LOAD WATER REC..

25
RATHERFORD UNIT NO. 12-22 PBD 5430. PUMPING ON TEST. PUMP BAD. MI RR WELL SERVICE UNIT. REPLACED 1 3/4" WITH 1 1/2" PUMP. HUNG WELL BACK ON..

26
RATHERFORD UNIT NO. 12-22 PBD 5440. WAIT ON WS UNIT. SHUT DOWN..

27
RATHERFORD UNIT NO. 12-22 PBD 5440 PUMPING ON TEST. MI RR WSU. SERVICED PUMP, HUNG BACK ON..

28
RATHERFORD UNIT NO. 12-22 PBD 5440. PUMPING ON TEST. 24 HRS. TESTED SHOWED 26 BO, 92 BW. PUMPED OFF..

29
May
1
RATHERFORD UNIT NO. 12-22 PBD 5430. 4/29/78 - PMPG ON TEST. PMPD 24 HRS, REC 23 BO, 54 BW. PMPD OFF. 4/30/78 - PMPD 24 HRS, REC 21 BO, 49 BW. PMPD OFF. FINAL REPORT SUMMARY. SQZ CMTD INTERVAL 5281-5430 FEET OA W/200 SX CLASS "B". TAGGED TOP OF CMT AT 5084 FEET. DRLD OUT TO NEW PBD 5430 FEET. RE-PERFORATED ZONE I 5362-74 FEET, 5394-5406 FEET AND 5411-20 FEET. ACIDIZED W/2500 GAL 28 PERCENT HCL. RETURNED TO A PUMPING OIL WELL FROM ZONE I PERFS 5362-5420 FEET OA IN THE PARADOX FORMATION, GREATER ANETH FIELD, SAN JUAN COUNTY, UTAH, WITH A FINAL TEST OF 21 BOPD, 49 BWPD. FINAL REPORT..

SUNDRY NOTICES AND REPORTS ON WELLS

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

1. OIL WELL GAS WELL OTHER

2. NAME OF OPERATOR
Phillips Oil 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
See Attached

5. LEASE DESIGNATION AND SERIAL NO.
96-004192 ✓

6. IF INDIAN, ALLOTTEE OR TRIBE NAME
Navajo

7. UNIT AGREEMENT NAME
Ratherford Unit ✓

8. FARM OR LEASE NAME

9. WELL NO.

10. FIELD AND POOL, OR WILDCAT
N/A

11. SEC., T., R., M., OR BLK. AND ACRES OR AREA
See Attached

12. COUNTY OR PARISH
San Juan

13. STATE
Utah

14. PERMIT NO.
See Attached

15. ELEVATIONS (Show whether DF, XT, OR, etc.)

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

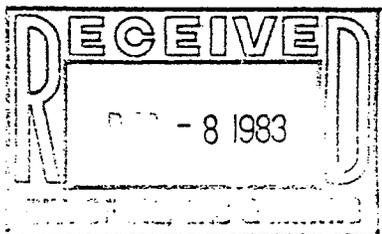
NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF <input type="checkbox"/>	PULL OR ALTER CASING <input type="checkbox"/>	WATER SHUT-OFF <input type="checkbox"/>	REPAIRING WELL <input type="checkbox"/>
FRACTURE TREAT <input type="checkbox"/>	MULTIPLE COMPLETE <input type="checkbox"/>	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) <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.)*

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.

*17-22
190*



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

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:

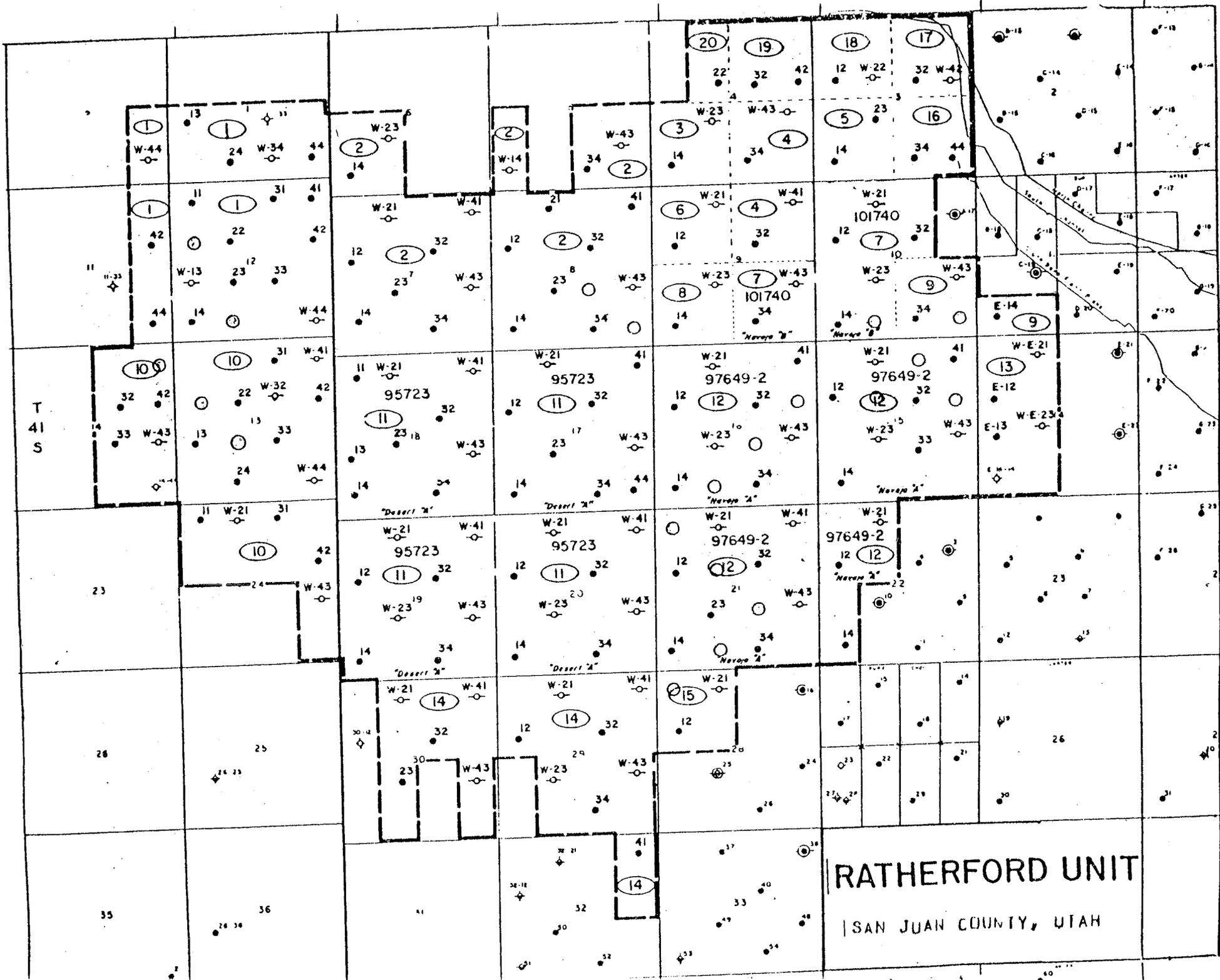
*See Instructions on Reverse Side

<u>WELL NO.</u>	<u>WELL LOCATION</u>	<u>API NO.</u>	<u>STATUS</u>
29-34	SW SE Sec. 29-T41S-R24E	43-037-15340	Act.
30-23	NE SW Sec. 30-T41S-R24E	43-037-15341	SI
30-32	SW NE Sec. 30-T41S-R24E	43-037-15342	SI
32-41	NE NE Sec. 32-T41S-R24E	43-037-15344	SI
1-13	NW SW Sec. 1-T41S-R24E	43-037-15838	Act.
1-24	SE SW Sec. 1-T41S-R24E	43-037-15839	Act.
1-44	SE SE Sec. 1-T41S-R24E	43-037-15840	Act.
6-14	SW SW Sec. 6-T41S-R24E	43-037-15894	Act.
7-12	SW NW Sec. 7-T41S-R24E	43-037-15985	SI
7-14	SW SW Sec. 7-T41S-R24E	43-037-15986	SI
7-23	NE SW Sec. 7-T41S-R24E	43-037-15987	SI
7-32	SW NE Sec. 7-T41S-R24E	43-037-15988	SI
7-34	SW SE Sec. 7-T41S-R24E	43-037-15989	Act.
11-42	SE NE Sec. 11-T41S-R23E	43-037-15841	Act.
11-44	SE SE Sec. 11-T41S-R23E	43-037-15842	Act.
12-11	NW NW Sec. 12-T41S-R23E	43-037-15843	Act.
12-14	SW SW Sec. 12-T41S-R23E	43-037-15844	Act.
12-22	SE NW Sec. 12-T41S-R23E	43-037-15845	Act.
12-23	NE SW Sec. 12-T41S-R23E	43-037-15846	Act.
12-31	NW NE Sec. 12-T41S-R23E	43-037-15847	Act.
12-33	NW SE Sec. 12-T41S-R23E	43-037-15848	Act.
12-41	NE NE Sec. 12-T41S-R23E	43-037-15849	Act.
12-42	SE NE Sec. 12-T41S-R23E	43-037-15850	Act.
13-13	NW SW Sec. 13-T41S-R23E	43-037-15851	Act.
13-22	SE NW Sec. 13-T41S-R23E	43-037-15852	Act.
13-24	SE SW Sec. 13-T41S-R23E	43-037-15853	Act.
13-31	NW NE Sec. 13-T41S-R23E	43-037-15854	Act.
13-33	NW SE Sec. 13-T41S-R23E	43-037-15855	Act.
13-42	SE NE Sec. 13-T41S-R23E	43-037-15857	Act.
14-32	SW NE Sec. 14-T41S-R23E	43-037-15858	Act.
14-33	NW SE Sec. 14-T41S-R23E	43-037-15859	SI
14-42	SE NE Sec. 14-T41S-R23E	43-037-15860	Act.
24-11	NW NW Sec. 24-T41S-R23E	43-037-15861	SI
24-31	NW NE Sec. 24-T41S-R23E	43-037-15862	Act.
E11-14	SW SW Sec. 11-T41S-R24E	43-037-16167	Act.
3-12	SW NW Sec. 3-T41S-R24E	43-037-15620	Act.
3-14	SW SW Sec. 3-T41S-R24E	43-037-15124	Act.
3-23	NE SW Sec. 3-T41S-R24E	43-037-15125	SI
3-32	SW NE Sec. 3-T41S-R24E	43-037-15621	SI
3-44	SE SE Sec. 3-T41S-R24E	43-037-15031	Act.
4-14	SW SW Sec. 4-T41S-R24E	43-037-16163	Act.
4-22	SE NW Sec. 4-T41S-R24E	43-037-15622	SI
4-32	SW NE Sec. 4-T41S-R24E	43-037-15623	SI
4-34	SW SE Sec. 4-T41S-R24E	43-037-16164	Act.
4-42	SE NE Sec. 4-T41S-R24E	43-037-15624	SI
5-34	SW SE Sec. 5-T41S-R24E	43-037-15983	SI
8-12	SW NW Sec. 8-T41S-R24E	43-037-15991	Act.
8-14	SW SW Sec. 8-T41S-R24E	43-037-15992	Act.
8-21	NE NW Sec. 8-T41S-R24E	43-037-15993	Act.
8-23	NE SW Sec. 8-T41S-R24E	43-037-15994	Act.
8-32	SW NE Sec. 8-T41S-R24E	43-037-15995	SI

6. UNIT OPERATOR (Well operator)

Phillips Petroleum Company is hereby designated as Unit Operator and by signature hereto as Unit Operator agrees and consents to accept the duties of Unit Operator for the development and production of Unitized Substances as herein provided.

Taken from the Rutherford Unit Agreement.
Operator Name Change.



RATHERFORD UNIT
 | SAN JUAN COUNTY, UTAH

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

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.)

5. LEASE DESIGNATION AND SERIAL NO.

14-20-603-246A

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

Navajo

112136

7. UNIT ASSIGNMENT NAME

SW-T-4192

8. FARM OR LEASE NAME

Ratherford Unit

9. WELL NO.

12-22

10. FIELD AND POOL, OR WILDCAT

Greater Aneth

11. SEC., T., R., M., OR B.L. AND SUBST OR AREA

Sec. 12-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
1920' FNL, 2080' FWL (SE NW)

14. PERMIT NO.
43-037-15845

15. ELEVATIONS (Show whether OF, ST, OR, etc.)
4582' RKB

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) Convert to Water Injection

PULL OR ALTER CASING

MULTIPLE COMPLETE

ABANDON*

CHANGE PLANS

SUBSEQUENT REPORT OF:

WATER SHUT-OFF

FRACTURE TREATMENT

SHOOTING OR ACIDIZING

(Other) _____

REPAIRING WELL

ALTERING CASING

ABANDONMENT*

(NOTE: Report results of multiple completion or 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 #12-22 from a Zone I producing well to a Zone I water injection well. Upon conversion the well will be acidized with approximately 5000 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. Reno
- 1-B. J. Murphy
- 1-File RC

RECEIVED
NOV 06 1986

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

DATE: 11/3/86
BY: [Signature]

Approval letter 7/18/86

DIVISION OF OIL, GAS & MINING

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

SIGNED

[Signature]
D. C. Gill

TITLE Area Manager

DATE November 3, 1986

(This space for Federal or State office use)

APPROVED BY

TITLE

DATE

CONDITIONS OF APPROVAL, IF ANY:

*See Instructions on Reverse Side



3 Triad Center • Suite 350 • Salt Lake City, UT 84180-1203 • 801-538-5340

CC: *GLH*
(DTS 2-3-87)

DIVISION OF
OIL, GAS & MINING

PRODUCING ENTITY ACTION

Operator Name Phillips Petroleum Company
Address P. O. Box 2920
City Casper State Wyoming Zip 82602
Utah Account No. N0772

Authorized Signature *Meredith K. Widiker*
Effective Date December, 1986 Telephone (307) 237-3791

ACTION CODE

- A Establish new entity for new well(s).
- B Add new well(s) to existing entity.
- C Delete well(s) from existing entity.
- D Establish new entity for well(s) being deleted from existing entity.
- E Change well(s) from one entity to another existing entity.
- F Other. (Specify using attachments if necessary.)

BRACKET WELLS TO BE GROUPED TOGETHER.

(Use black ink or typewriter ribbon.)

Action Code	Current Entity No.	New Entity No.	API No.	Well Name	Well Location					Producing Formation
					Sec.	T	R	Q/Q	County	
C	06280		4303715845	Ratherford Unit Well #12-22 ✓	12	41S	23E	SENW	San Juan	PRDX

Explanation of action:

Well converted to a water injection well effective 12/30/86.

C	06280		4303715850	Ratherford Unit Well #12-42 ✓	12	41S	23E	SENE	San Juan	DSCR
---	-------	--	------------	-------------------------------	----	-----	-----	------	----------	------

Explanation of action:

Well converted to a water injection well effective 12/23/86.

C	06280		4303715726	Ratherford Unit Well #17-12 ✓	17	41S	24E	SWNW	San Juan	PRDX
---	-------	--	------------	-------------------------------	----	-----	-----	------	----------	------

Explanation of action:

Well converted to a water injection well effective 12/12/86.

C	06280		4303715862	Ratherford Unit Well #24-31 ✓	24	41S	23E	NWNE	San Juan	PRDX
---	-------	--	------------	-------------------------------	----	-----	-----	------	----------	------

Explanation of action:

Well converted to a water injection well effective 12/13/86.



3300 Center • Suite 350 • Salt Lake City, UT 84180-1203 • 801-538-5340

CC: GLH
(OTS 2-3-87)

Commencement

JAN 30 1987

PRODUCING ENTITY ACTION

DIVISION OF
OIL, GAS & MINING

Operator Name Phillips Petroleum Company
 Address P. O. Box 2920
 City Casper State Wyoming Zip 82604
 Utah Account No. N0772

Authorized Signature Meredith K. Widaker
 Effective Date December, 1986 Telephone (307) 237-3791

ACTION CODE

- A Establish new entity for new well(s).
- B Add new well(s) to existing entity.
- C Delete well(s) from existing entity.
- D Establish new entity for well(s) being deleted from existing entity.
- E Change well(s) from one entity to another existing entity.
- F Other. (Specify using attachments if necessary.)

BRACKET WELLS TO BE GROUPED TOGETHER.

(Use black ink or typewriter ribbon.)

Action Code	Current Entity No.	New Entity No.	API No.	Well Name	Well Location				County	Producing Formation
					Sec.	T	R	Q/Q		
C	06280		4303715728	Ratherford Unit Well #17-23	17	41S	24E	NESW	San Juan	PRDX

Explanation of action:

Well converted to a water injection well effective 11/20/86.

C	06280		4303730244	Ratherford Unit Well #18-23	18	41S	24F	NESW	San Juan	DSCR
---	-------	--	------------	-----------------------------	----	-----	-----	------	----------	------

Explanation of action:

Well converted to a water injection well effective 11/17/86

C	06280		4303715840	Ratherford Unit Well #1-44 ✓	1	41S	23E	SESE	San Juan	PRDX
---	-------	--	------------	------------------------------	---	-----	-----	------	----------	------

Explanation of action:

Well converted to a water injection well effective 12/15/86

C	06280		4303715842	Ratherford Unit Well #11-44 ✓	11	41S	23E	SESE	San Juan	PRDX
---	-------	--	------------	-------------------------------	----	-----	-----	------	----------	------

Explanation of action:

Well converted to a water injection well effective 12/5/86



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	#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

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 Triad Center, Suite 350, Salt Lake City, Utah 84100-1203.

DATED this 20th day of June, 1986.

STATE OF UTAH
DIVISION OF OIL

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 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

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 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

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

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.

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,

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

San Juan Record
Legal Advertising
Box 879
Monticello, Utah 84535

Gentlemen:

RE: Cause No. UIC-083

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Sincerely,

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

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

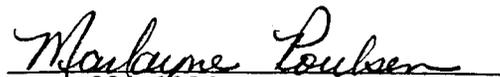
Mobil Oil Corporation
PO Box 5444
Denver, Colorado 80217

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: Sec 12 - T41S - R23E (SE NW)
FIELD: GREATER ANTH
RESERVOIR: Desert Creek Zone I

I COMPLETION: proposed
PRESENT STATUS: injector

RKB 4582
GL 4570

SURFACE CASING: 8 5/8" 28#
H-40

Well # 12W22

PRODUCTION CASING: 5 1/2" 15# J-55

1151'

PERFORATIONS: _____
5 362'-74'
5 394'-5406'
54 11'-20'

PACKER: Set Baker Model
AB Type Tension Pkr or
Similar @ 5262'

Logs on file: _____
Gamma Ray
SP
Neutron Porosity
Electrical / Resistivity
Caliper
Microlog

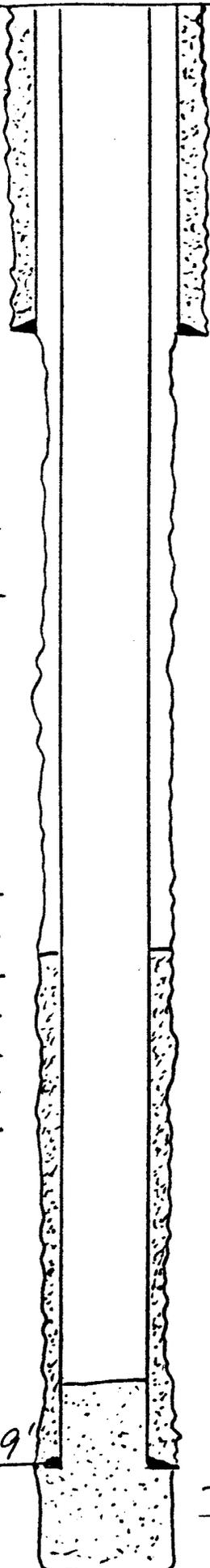
RECEIVED
JUN 12 1986

DIVISION OF
OIL, GAS & MINING

PBTD: 5430
OTD: 5554'

5539'

Phillips Petroleum Company



UIC CHECKLIST FOR APPLICATION APPROVAL

OPERATOR Phillips WELL NUMBER Ratherford 12-22
 SEC. 12 T. 41S R. 23E COUNTY San Juan
 API # 43-037-15845

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 February 1986

Reveiwed by Dorothy Swindel / Dan Jarris



PHILLIPS PETROLEUM COMPANY

CASPER, WYOMING 82602
BOX 2920

EXPLORATION AND PRODUCTION GROUP

RECEIVED
JUN 12 1986

DIVISION OF
OIL, GAS & MINING

June 9, 1986

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
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

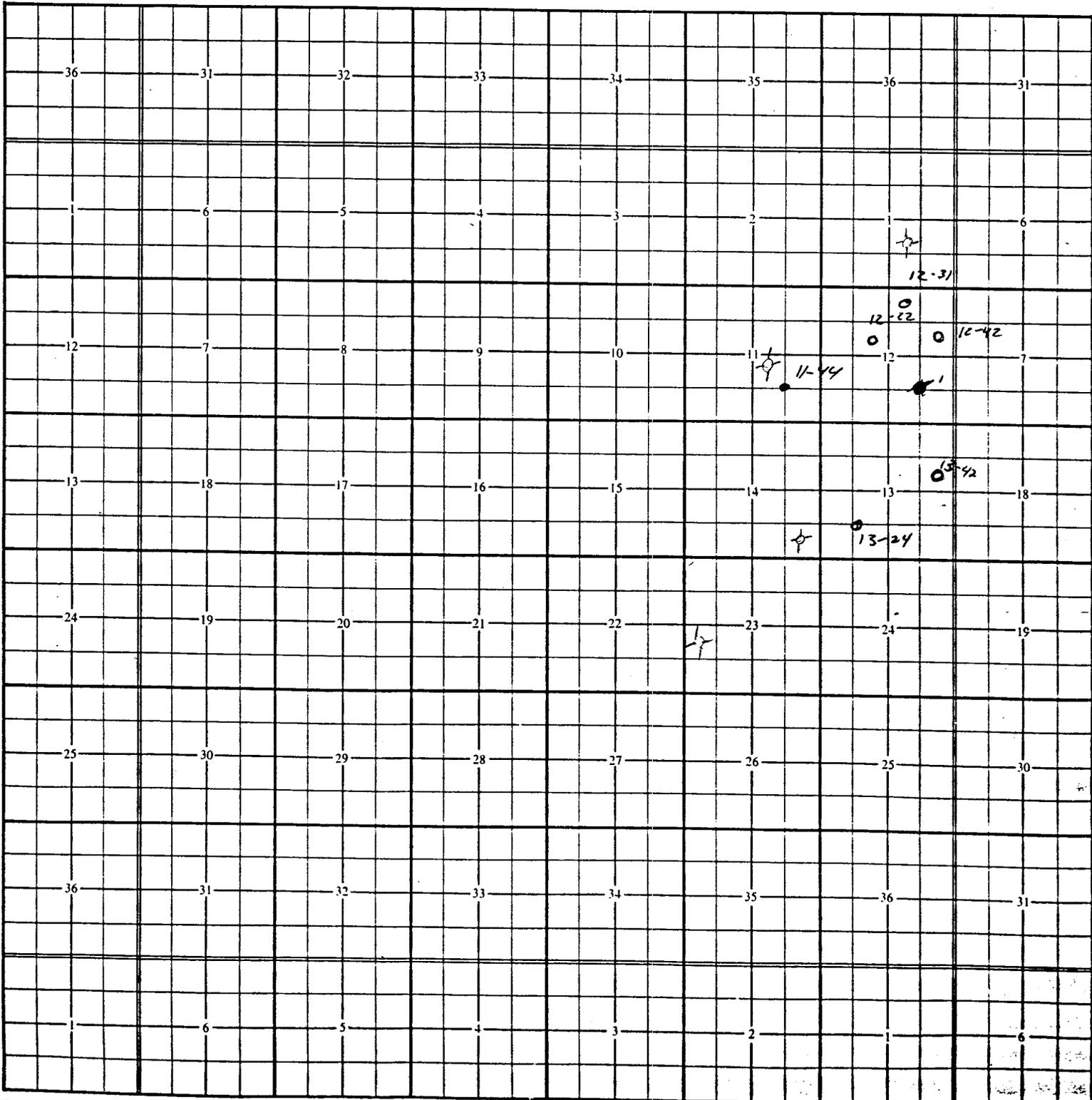
The casing and cementing program at the Ratherford Unit has been designed so that injected fluid or formation water will not be able to enter any fresh water strata. All wells have at least two strings of casing set at approximately 1600' and 5700' (TD). The majority of wells also have a string of casing 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 6/12/86

Township 41S Range 23E County SAN JUAN



P.O. Box 2920, Casper, Wyoming 82602

RECEIVED
JUN 18 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,

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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

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.

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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

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

SUBMIT IN TRIPLICATE
(Other instructions
verse side)

Form approved
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 <u>Water Injector</u></p> <p>2. NAME OF OPERATOR <u>Phillips Petroleum Company</u></p> <p>3. ADDRESS OF OPERATOR <u>P.O. Box 2920, Casper, WY 82602</u></p> <p>4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface <u>1920' FNL, 2080' FWL SE NW</u></p> <p>14. PERMIT NO. <u>API# 43-037-15845</u></p>		<p>5. LEASE DESIGNATION AND SERIAL NO. <u>14-20-603-246A</u></p> <p>6. IF INDIAN, ALLOTTEE OR TRIBE NAME <u>NAVAJO</u></p> <p>7. UNIT AGREEMENT NAME <u>SW-I-4192</u></p> <p>8. NAME OF LEASE NAME <u>Ratherford Unit</u></p> <p>9. WELL NO. <u>12W22</u></p> <p>10. FIELD AND POOL, OR WILDCAT <u>Greater Aneth</u></p> <p>11. SEC., T., R., E., OR B.L.M. AND COUNTY OR AREA <u>Sec. 12-T41S-R23E</u></p> <p>12. COUNTY OR PARISH 13. STATE <u>San Juan Utah</u></p>	
<p>15. ELEVATIONS (Show whether SF, ST, OR, etc.) <u>4582' RKB</u></p>			

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

NOTICE OF INTENTION TO:

SUBSEQUENT REPORT OF:

TEST WATER SHUT-OFF
FRACTURE TREAT
SHOOT OR ACIDIZE
REPAIR WELL
(Other)

PULL OR ALTER CASING
MULTIPLE COMPLETE
ABANDON*
CHANGE PLANS

WATER SHUT-OFF
FRACTURE TREATMENT
SHOOTING OR ACIDIZING
(Other) Convert to water injection

REPAIRING WELL
ALTERING CASING
ABANDONMENT*

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

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

Dec. 13, 1986 through Dec. 24, 1986

MI and RU 12/13/86. COOH w/tbg. CO to 5435'. Test sqzd Ismay perfs, OK. Test for Zone I & II communication. Zones I & II are comm. Drill out cement retainer that separates Zone I & II. Drill into Zone II to 5497'. Sqz Zone I & II w/190 sx Class B cmt. WOC. Drill into Zone I to 5430', new PBD. Perforate Zone I at 5362'-74', 5391-5406', and 5411-20'. Acidized Zone I w/5000 gal 28% HCL. Swabbed back load. GIH w/inj pkr and Duoline tbg. Set pkr at 5335'. Conduct UIC test. RDWS 12/24/86. HU to injection 12/30/86.

Production Before 4 BOPD, 0 BOPD
Injection After 310 BOPD @ 2350 psi

RECEIVED

AUG 4 1987

DIVISION OF OIL
GAS & MINING

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

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

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

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

SUNDRY NOTICES AND REPORTS ON WELLS

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

<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. SW-I-4192</p> <p>6. IF INDIAN, ALLOTTEE OR TRIBE NAME</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 B.L.K. 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 OF, BT, OR, etc.) OIL, GAS & MINING</p>	

RECEIVED
MAR 20 1989

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

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

44-23-12 637-15845

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

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

(This space for Federal or State office use)

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

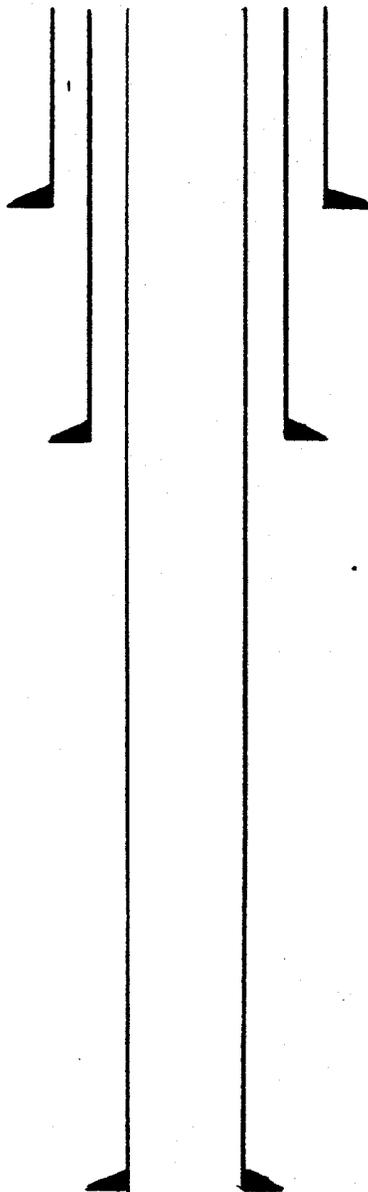
*See Instructions on Reverse Side

DOWN HOLE SCHEMATIC

Date: 8/6/87

RATHERFORD Unit # 12W22
 RKB Elev. 4582'
 GL Elev. 4570'
 RKB Above GL' 12'

Location SE NW Sec. 12
T41S-R23E
 Well Drld 1/24/57
 Well converted to injector 12/24/86



CONDUCTOR CSG ⊙ ' 1

SURFACE CSG. 8 5/8 @ 1151'

TOC 3800' CALL

Tubing 2 3/8 @ 5355' Duoline HT2

PACKER Otis Inter-lock PKR.
Ni Coated ⊙ 5355'

PERFS	<u>5,281 - 86</u>	<u>5394 - 5406</u>
	<u>5,289 - 93</u>	<u> - </u>
	<u>5,296 - 5,303</u>	<u> - </u>
	<u>5,362 - 74</u>	<u> - </u>

PBTD 5430'

PRODUCTION CSG. 5 1/2 @ 5502'
J-55, 15 #

All PERFS Zone I unless noted

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

SUNDRY NOTICES AND REPORTS ON WELLS

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

SUBMIT IN TRIPLICATE

RECEIVED
JUN 21 1991

1. Type of Well
 Oil Well Gas Well Other WTW

2. Name of Operator
Phillips Petroleum Company

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

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
Sec. 12, T41S, R23E SE/NW

5. Lease Designation and Serial No.
14-20-603-246

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 #12W22

9. API Well No.
43-037-15845

10. Field and Pool, or Exploratory Area
Greater Aneth

11. County or Parish, State
San Juan, Utah

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

TYPE OF SUBMISSION	TYPE OF ACTION
<input type="checkbox"/> Notice of Intent	<input type="checkbox"/> Abandonment
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Recompletion
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Plugging Back
	<input type="checkbox"/> Casing Repair
	<input type="checkbox"/> Altering Casing
	<input checked="" type="checkbox"/> Other <u>Clean-out</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.)*

6-4-91 thru 6-9-91

MIRU WSU. COOH with injection equipment. Cleaned out well to 5430'. Circulated hole clean. COOH w/2-3/8" workstring. LD scraper & bit. PU 2-3/8" expendable tbg test plug, redressed 5-1/2" Otis interlock pkr w/on-off tool and GIH drifting injection tbg string. Did initial PT on annulus. Held 1000 psi. Come off of on-off tool and circulate packer fluid containing 1/2 drum of Welchem WA-840 per 100 bbls of wtr. Latch back onto on-off tool. ND BOP's and NU WH. Performed UIC test for 45 minutes @ 1000 psi. Held okay. Put well back on injection 6-9-91.

Prior Injection Rate: 454 BWPD @ 1500 psi
Post Injection Rate: 322 BWPD @ 525 psi

cc: 5 - BLM, Farmington
2 - Utah Oil & Gas Com.
1 - EPA, San Francisco
1 - EPA, Window Rock

1 - P. J. Konkell 1- N. Anstine
1 - PPCo, Houston 1- Chieftain
1 - PPCo, Farmington 1- Mobil
1 - Texaco 1- Chevron

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

Signed [Signature]
F. Robinson

Title Sr. Drlg. & Prod. Engr.

Date 6-18-91

(This space for Federal or State office use)

Approved by _____
Conditions of approval, if any:

Title _____

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.

*See Instruction on Reverse Side

MONTHLY OIL AND GAS PRODUCTION REPORT

OPERATOR NAME AND ADDRESS:

ACCOUNT NUMBER: N0772

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

RECEIVED

AUG 16 1993

REPORT PERIOD (MONTH/YEAR):

6 / 93

DIVISION OF
OIL, GAS & MINING

AMENDED REPORT (Highlight Changes)

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

USRA
8-18-93

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

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

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

WELL #	API#	LEASE #	SEC., T, R	LOCATION OF WELL
01W-13	43-037-15838	14-20-603-246A	SEC. 1, T41S, R23E	NW/SW 1980 FSL; 660 FWL
01-14	43-037-31162	14-20-603-246A	SEC. 1, T41S, R23E	SW/SW 660 FSL; 660 FWL
01W-24	43-037-15839	14-20-603-246	SEC. 1, T41S, R23E	SE/SW 651 FSL; 3300 FEL
01-34	43-037-16385	14-20-603-246A	SEC. 1, T41S, R23E	SW/SE 4147 FNL; 1980 FEL
01W-44	43-037-15840	14-20-603-246A	SEC. 1, T41S, R23E	660 FSL; 661 FEL
02W-44	43-037-16386	14-20-603-246A	SEC. 2, T41S, R23E	SE/SE 810 FNL; 5110' FWL
03-14	43-037-15124	14-20-603-5445	SEC. 3, T41S, R24E	660 FSL; 660 FEL
03-12	43-037-15620	14-20-603-6506	SEC. 3, T41S, R24E	SW/NW 2140 FNL; 660 FWL
03W-42	43-037-16388	14-20-603-6505	SEC. 3, T41S, R24E	SW/NE 1980 FNL; 660 FEL
03-44	43-037-15031	14-20-603-6504	SEC. 3, T41S, R24E	520 FSL; 820 FEL
04-14	43-037-16163	14-20-603-5446	SEC. 4, T41S, R24E	500 FSL; 600 FEL
04-34	43-037-16164	14-20-603-4035	SEC. 4, T41S, R24E	660 FSL; 1980 FEL
05-34	43-037-15983	14-20-603-368	SEC. 5, T41S, R24E	SW/SE 612 FSL; 1990 FEL
05W-43	43-037-16392	14-20-603-368	SEC. 5, T41S, R24E	1400 FSL; 990 FEL
06W-14	43-037-15984	14-20-603-368	SEC. 6, T41S, R24E	SW/SW 660; FSL; 660 FWL
06W-23	43-037-16393	14-20-603-368	SEC. 6, T41S, R24E	1830 FSL; 1895 FWL
07-11	43-037-31163	14-20-603-368	SEC. 7, T41S, R24E	NW/NW 660 FNL; 710 FWL
07W-12	43-037-15985	14-20-603-368	SEC. 7, T41S, R24E	SW/NW 2140 FNL; 585 FWL
07-13	43-037-31164	14-20-603-368	SEC. 7, T41S, R24E	NW/SW 2110 FSL; 740 FWL
07W-14	43-037-15986	14-20-603-368	SEC. 7, T41S, R24E	SW/SW 1065 FSL; 660 FWL
07W-21	43-037-16394	14-20-603-368	SEC. 7, T41S, R24E	710 FNL; 1820 FWL
07-22	43-037-31165	14-20-603-368	SEC. 7, T41S, R24E	SE/NW 1980 FNL; 1980 FWL
07W-23	43-037-15987	14-20-603-368	SEC. 7, T41S, R24E	NE/SW 1980 FSL 1980 FWL
07-24	43-037-31166	14-20-603-368	SEC. 7, T41S, R24E	SE/SW 880 FSL; 2414 FWL
07W-32	43-037-15988	14-20-603-368	SEC. 7, T41S, R23E	SW/NE 1980 FNL; 1980 FEL
07-33	43-037-31167	14-20-603-368	SEC. 7, T41S, R24E	NW/SE 2105 FSL; 1876 FEL
07W-34	43-037-15989	14-20-603-368	SEC. 7, T41S, R24E	710 FSL; 2003 FEL
07W-41	43-037-15990	14-20-603-368	SEC. 7, T41S, R24E	NE/NE 585 FNL; 770 FEL
07W43	43-037-16395	14-20-603-368	SEC. 7, T41S, R24E	2110 FSL; 660 FEL
07-44	43-037-31189	14-20-603-368	SEC. 7, T41S, R24E	SE/SE 737 FSL; 555 FEL
08-12	43-037-15991	14-20-603-368	SEC. 8, T41S, R24E	SW/NW 1909 FNL; 520 FWL
08W-14	43-037-15192	14-20-603-368	SEC. 8, T41S, R24E	745 FSL; 575 FWL
08-21	43-037-15993	14-20-603-368	SEC. 8, T41S, R24E	616 FNL; 1911 FWL
08-23	43-037-15994	14-20-603-368	SEC. 8, T41S, R24E	NE/NW 1920 FSL; 2055 FWL
08-32	43-037-15995	14-20-603-368	SEC. 8, T41S, R24E	SW/NE 1980 FNL; 1980 FEL
08-34	43-037-15996	14-20-603-368	SEC. 8, T41S, R24E	SW/SE 660 FSL; 1980 FEL
08-41	43-037-15997	14-20-603-368	SEC. 8, T41S, R24E	NE/NE 660 FNL; 660 FEL
08W-43	43-037-16396	14-20-603-368	SEC. 8, T41S, R24E	1980 FSL; 660 FEL
09W-23	43-037-16398	14-20-603-5046	SEC. 9, T41S, R24E	NW/SE 1980 FSL; 1980 FWL
09-12	43-037-15126	14-20-603-5045	SEC. 9, T41S, R24E	1865 FNL; 780 FWL
09W-21	43-037-16397	14-20-603-5045	SEC. 9, T41S, R24E	660 FNL; 2080 FWL
09-14A	43-037-15127	14-20-603-5046	SEC. 9, T41S, R24E	710 FSL; 660 FWL
09-32	43-037-16165	14-20-603-4035	SEC. 9, T41S, R24E	1980 FNL; 1980 FEL
09W-41	43-037-16399	14-20-603-4035	SEC. 9, T41S, R24E	660 FNL; 660 FEL
09W-43	43-037-16400	14-20-603-4043	SEC. 9, T41S, R24E	1980 FSL; 660 FEL
10W-23	43-037-16402	14-20-603-4043	SEC. 10, T41S, R24E	1980 FSL; 1980 FWL
10-14	43-037-15713	14-20-603-4043	SEC. 10, T41S, R24E	510 FSL; 710 FWL
10-12	43-037-15712	14-20-603-4043	SEC. 10, T41S, R24E	660 FWL; 1980 FNL
10W-21	43-037-16401	14-20-603-4043	SEC. 10, T41S, R24E	810 FNL; 1980 FWL
10-34	43-037-16166	14-20-603-4037	SEC. 10, T41S, R24E	620 FSL; 1860 FEL
10W-43	43-037-16403	14-20-603-4037	SEC. 10, T41S, R24E	1980 FSL; 550 FEL
11-41	43-037-31544	14-20-603-246A	SEC. 11, T41S, R23E	NE/NE 860 FNL; 350 FEL
11-42W	43-037-15841	14-20-603-246	SEC. 11, T41S, R23E	3290 FNL; 4617 FEL
11-43	43-037-31622	14-20-603-246A	SEC. 11, T41S, R23E	1980 FSL; 660 FEL
11W-44	43-037-15842	14-20-603-246A	SEC. 11, T41S, R23E	SE/SE 660 FSL; 558 FEL
12W-11	43-037-15843	14-20-603-246A	SEC. 12, T41S, R23E	NW/NW 678 FNL; 4620 FEL
12-12	43-037-31190	14-20-603-246A	SEC. 12, T41S, R23E	SW/NW 1850 FNL; 660 FWL
12W-13	43-037-16404	14-20-603-246A	SEC. 12, T41S, R23E	1980 FSL; 4620 FEL
12-14	43-037-15844	NA	SEC. 12, T41S, R23E	660 FNL; 4622 FWL
12-21	43-037-31201	14-20-603-246A	SEC. 12, T41S, R23E	NE/NW 660 FNL; 1980 FWL
12W-22	43-037-15845	14-20-603-246	SEC. 12, T41S, R23E	NA
12-23	43-037-15846	14-20-603-246A	SEC. 12, T41S, R23E	1958 FNL; 3300 FWL
12W-24	43-037-31151	14-20-603-246A	SEC. 12, T41S, R23E	775 FSL; 1980
12-32	43-037-31203	14-20-603-246A	SEC. 12, T41S, R23E	SW/NE 1820 FNL; 1820 FEL
12W-33	43-037-15848	14-20-603-246A	SEC. 12, T41S, R23E	NW/SE 1957 FSL; 1981 FEL
12-34	43-037-31126	14-20-603-246A	SEC. 12, T41S, R23E	SW/SE 675 FSL; 1905 FEL
12-41	43-037-15849	14-20-603-246A	SEC. 12, T41S, R23E	656 FNL; 660 FEL
12W-42	43-037-15850	14-20-603-246A	SEC. 12, T41S, R23E	3275 FSL; 662 FEL

PAID
KINGEY

SEP 15 1993

DIVISION OF
OIL, GAS & MINING

PAID

PAID
PAID

14-20-603-246

SE NW 1920 FNL 2080 FWL

STATE OF UTAH
DIVISION OF OIL, GAS AND MINING

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

REGISTERED

SEP 13 1993

DIVISION OF
OIL, GAS & MINING

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

NOTICE OF INTENTION TO:

- 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
- 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:

MONTHLY OIL AND GAS DISPOSITION REPORT

OPERATOR NAME AND ADDRESS:

L.S. Sheffield
~~BRIAN BERRY~~
~~MEPNA MOBIL~~
 POB ~~219031~~ ~~1807A~~ RENTWY *P.O. DRAWER G*
 DALLAS TX 75221-9031 *CORTEZ, Co. 81321*

UTAH ACCOUNT NUMBER: N7370

REPORT PERIOD (MONTH/YEAR): 7 / 93

AMENDED REPORT (Highlight Changes)

**931006 updated. jcc*

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 ~~ASO~~ PRODUCTION REPORTS will be compiled and sent from the Cortez, Co. office IN THE FUTURE.*

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

Date: 9/5/93

Name and Signature: Lwell B Sheffield

Telephone Number: 303 865 2212
214 658 2528

Sept 29, 1993

TO: Lisha Cordova - Utah Mining
Oil & Gas

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

Here is copy of Rutherford Unit
Successor Operator,

4 pages including this one.

Re: 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 26 1993

MINERAL	_____
DATE	1/9/93
TIME	_____
BY	_____
REMARKS	3
FILE	_____
ALL SUPV.	_____
FILE	_____

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

Dear Mr. Cox:

Enclosed for your information and use is the approved Designation of Operator between the Phillips Petroleum Company and Mobil Exploration and Producing North America, Inc. for the 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, JUN 27 11:44

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

070 FARMINGTON, NM

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

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

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

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

Attached hereto as Exhibit "A"

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

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

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

Attached is the appropriate documentation relevant to this document.

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

Phillips Petroleum Company

June 17, 1993

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

Mobil Exploration and Producing
North America Inc.

June 11, 1993

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

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

APPROVED PURSUANT, TO SECRETARIAL REDELEGATION ORDER 209 DM 8 AND 230 DM 3.
This form does not constitute an information collection as defined by 44 U.S.C. 3502 and therefore does not require OMB approval.

EXHIBIT "A"

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

EXHIBIT "C"

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

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

100% Indian Lands

TOTAL 12,909.74

100.0000000

Division of Oil, Gas and Mining
PHONE CONVERSATION DOCUMENTATION FORM

Route original/copy to:

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

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

Other
OPERATOR CHANGE

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

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

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

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

OCT 23 1993

TRANSFER OF AUTHORITY TO INJECT - UIC FORM 5

DIVISION OF
OIL, GAS AND 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 VEIC 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 H. 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, SLN

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

TOWNSHIP 41 SOUTH, RANGE 24 EAST, SLN

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

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

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

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

FINDINGS OF FACT

The Commission finds that:

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

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

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

ORDER

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

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

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

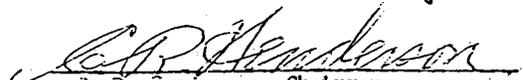
3. If, at any time or from time to time, it appears necessary or desirable to the unit operator to alter or modify the hereby approved plan of pressure maintenance, any such alteration or modification shall be submitted for

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

Dated this 13th day of September, 1961.

THE OIL AND GAS CONSERVATION
COMMISSION OF THE STATE OF UTAH


Edward W. Clyde, Commissioner, presiding


C. R. Henderson, Chairman


H. V. Hatch, Commissioner


C. S. Thomson, Commissioner


Walter G. Mann, Commissioner

SEP 14 1961

Division of Oil, Gas and Mining
OPERATOR CHANGE WORKSHEET

Routing:

1	REC/47-93
2	DP/58-474
3	VLC
4	RJF
5	JPC
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) M E P N A FROM (former operator) PHILLIPS PETROLEUM COMPANY
 (address) PO DRAWER G (address) 5525 HWY 64 NBU 3004
CORTEZ, CO 81321 FARMINGTON, NM 87401
GLEN COX (915)688-2114 PAT KONKEL
 phone (303)565-2212 phone (505)599-3452
 account no. N7370 account no. N0772(A)

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

Name:	API:	Entity:	Sec:	Twp:	Rng:	Lease Type:
SEE ATTACHED	<u>43037-15845</u>	_____	_____	_____	_____	_____
_____	API: _____	Entity: _____	Sec: _____	Twp: _____	Rng: _____	Lease Type: _____
_____	API: _____	Entity: _____	Sec: _____	Twp: _____	Rng: _____	Lease Type: _____
_____	API: _____	Entity: _____	Sec: _____	Twp: _____	Rng: _____	Lease Type: _____
_____	API: _____	Entity: _____	Sec: _____	Twp: _____	Rng: _____	Lease Type: _____
_____	API: _____	Entity: _____	Sec: _____	Twp: _____	Rng: _____	Lease Type: _____
_____	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

Yes 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)

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

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

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

LEASE INTEREST OWNER NOTIFICATION RESPONSIBILITY

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

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

FILMING

 1. All attachments to this form have been microfilmed. Date: 11.17 1993.

FILING

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

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

COMMENTS

931006 BIA/Btm Approved 7-9-93.

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.

14-20-603-246

6. If Indian, Allottee or Tribe Name

NAVAJO TRIBAL

7. If Unit or CA, Agreement Designation

RATHERFORD UNIT

8. Well Name and No.

RATHERFORD UNIT 12W-22

9. API Well No.

43-037-15845

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 EXPLORATION & PRODUCING US, AS AGENT FOR MEPNA

3. Address and Telephone No.

P. O. BOX 633, MIDLAND, TX 79702

(915) 688-2585

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

SEC. 12, T41S, R23E

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

TYPE OF SUBMISSION

Notice of Intent
 Subsequent Report
 Final Abandonment Notice

TYPE OF ACTION

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

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

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

09/21/93 MIRU. PRESS TEST TO 2000 PSI/HELD OK. RIH TO PKR @5302. WASH TO 5434'. CIRC WELL CLEAN. RDMO.

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

Signed

D. J. ... for Shirley Jodd

Title

ENV. & REG. TECHNICIAN

Date

5-20-94

(This space for Federal or State office use)

Approved by

Title

Date

Jax Credit

Conditions of approval, if any:

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

* See Instruction on Reverse Side

STATE OF UTAH
INVENTORY OF INJECTION WELLS

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

Division of Oil, Gas and Mining
OPERATOR CHANGE WORKSHEET

1- LVC	7-PL
2-LWP	8-SJ
3- DES	9-FILE
4-VLC	
5-RJF	
6-LWP	

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

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

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

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

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

Name: ** SEE ATTACHED **	API: <u>037-15845</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*) ____ (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.
DTS 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!

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 reentry to a different reservoir.

Use "APPLICATION FOR PERMIT -" for such proposals

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

5. Lease Designation and Serial No.

14-20-603-246A

6. If Indian, Allottee or Tribe Name

NAVAJO TRIBAL

7. If Unit or CA, Agreement Designation

RATHERFORD UNIT

8. Well Name and No.

RATHERFORD 12-W-22

9. API Well No.

43-037-15845

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 INJECTOR / SIDETRACK

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

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

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
1920' FNL & 2080' FWL
SEC.12, T41S, R23E (SE/NW)

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</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

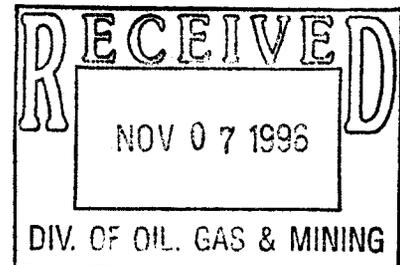
(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

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.)*

BOTTOM HOLE LOCATIONS:

LEG #1: 1070' NORTH & 1190' WEST @ 5400' OF SURFACE LOCATION (ZONE 2c).
LEG #2: 1130' SOUTH & 1130' EAST @ 5370' OF SURFACE LOCATION (ZONE 1d).
LEG #3: 985' WEST & 1260 NORTH @ 5370' OF SURFACE LOCATION (ZONE 1d).

SEE ATTACHED PROCEDURE.



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

Signed Shelley Hoochman Title ENV. & REG. TECHNICIAN Date 10-01-96

(This space for Federal or State office use)
Approved by [Signature] Title Petroleum Engineer Date 11/7/96
Conditions of approval, if any:

**Rutherford Unit Well #12-22
Multilateral Horizontal Drilling Procedure**

The objective of this procedure is to prepare this wellbore for sidetracking, sidetrack the subject well and drill multiple short radius horizontal laterals (1300-1500 ft).

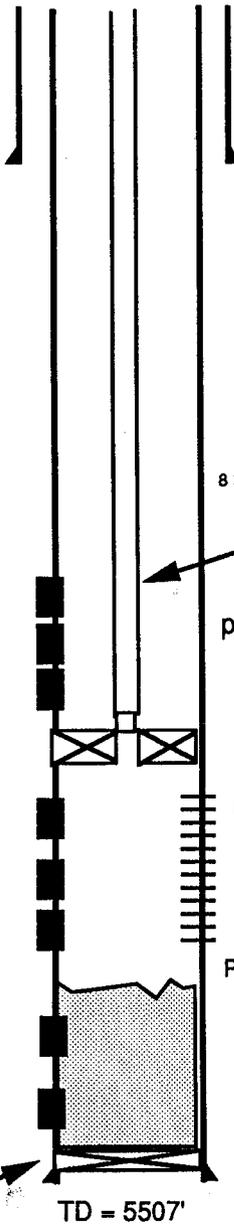
1. Prepare location and dig working pit.
2. MIRU WSU, reverse unit, and H₂S equipment. Bullhead kill weight fluid down tubing.
3. Release packer, and pick up on wellhead to remove. ND wellhead and NU BOP's.
4. Continue to POH with tubing.
5. TIH with full gauge bit and casing scraper to PBTD. TOH with bit and scraper.
6. Ensure well will circulate, and set RTBP above perms.
7. RDMO WSU.
8. MIRU 24 hr WSU.
9. PU tubing, drill collars, and drill pipe in derrick and run in hole. Then POH and stand back.
10. RU wireline company and run gauge ring for casing down to packer setting depth.
11. Run packer on wireline and set using GR/CCL log to correlate with. RD wireline.
12. PU drillpipe with UBHO sub and latch assembly.
13. Latch into packer. Run gyro and obtain orientation of keyway on packer.
14. POH w/ gyro. POH w/ drill pipe and RIH w/ whipstock oriented on the surface for window azimuth desired.
15. Shear pilot mill bolt and start milling window.
16. POH and PU window mill and watermelon mill to finish window and drill 3 ft of formation.
17. POH w/ mills and RBIH w/ new mills to clean up window.
18. PU drill pipe and directional motors to drill curve. Use the gyro to drill until the inclination dictates that the gyro must be pulled.
19. Pull five stand of drill pipe and run steering tool to finish drilling the curve.
20. POH once curve is finished and PU lateral motor to drill the lateral using MWD.
21. Once lateral TD is reached, POH w/ directional equipment.

22. RIH w/ hook and retrieve whipstock.
23. PU new whipstock with extension in body for next window and orient on surface to desired azimuth.
24. Repeat steps 15-23, for each successive planned lateral.

PRESENT CONDITION

Ratherford Unit, WELL #12-22

1920' FNL & 2080' FWL of
 Section 12, T41S, R23E
 San Juan County, Utah
 Greater Aneth Field
 API #: 43-037-15845
 GL Elev: 4570'
 RKB Elev: 4582'
 Spud Date: 12/11/56



12 1/4" OH

8 5/8" @ 1151'
 Cmt'd w/ 260 sx Howco lite- NO returns- had WTR FLOW
 Perf @ 405' (unable to circ) Sqz w/ 60 sx- cont WTR FLOW
 Perf @ 335' (unable to circ) Sqz w/90 sx CI 'C'
 flocele clean out to 340' (flow inside csg); sqz w/50 sx continued flow; sqz w/150 sx @ surf to 200psi-
 Drill out and tested @ 1011' w/1000 psi (held)- Drill out to 1190' and HAD FLOW.

8 3/4" OH 2 3/8" duoline tbg

pkR @ 5320'

Re-perf in 2/78

PBD = 5430'

5 1/2" 15.5#/J55/LTC @ 5502' ; Cmt'd w/ 250 sx

CIBP @ 5497' (2/57) TD = 5507'

Year	Interval	#perfs	sqzd	re-perf interval 2/78
1957	5472-76	16	sqzd 2/78	
	5481-87	24	sqzd 2/78	
2/61	5281-86	20	sqzd 2/78	
	5289-93	16	sqzd 2/78	
	5296-5303	28	sqzd 2/78	
1/64	5308-14	24	sqzd 2/78	
	5362-74	48	sqzd 2/78	5362-74 (18)
	5394-5406	48	sqzd 2/78	5394-5406(24)
	5411-30	76	sqzd 2/78	5411-20 (18)
	5436-42	24	sqzd 2/78	
	5446-52	24	sqzd 2/78	

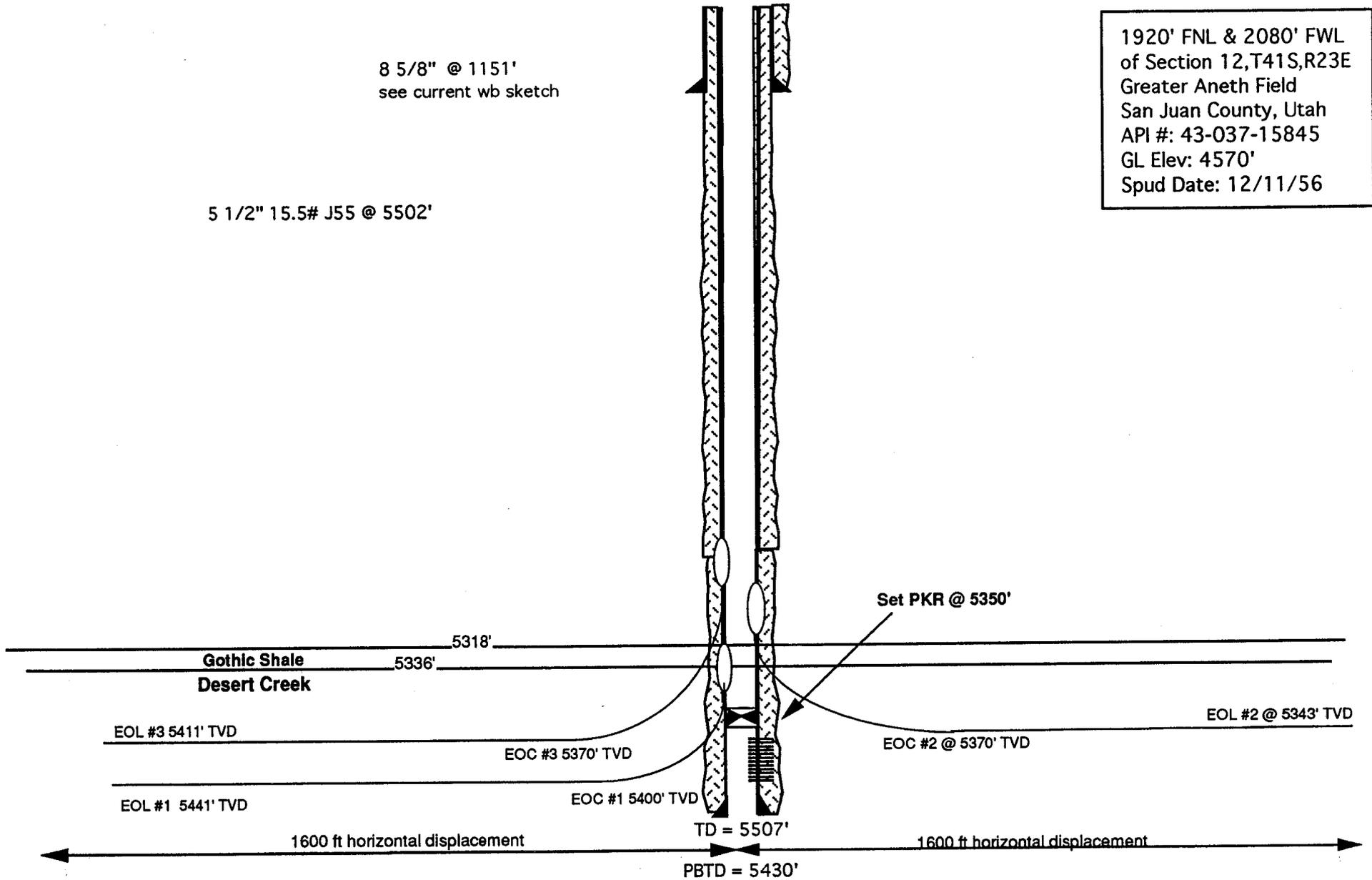
PROPOSED CONDITION

Ratherford Unit #12-22

1920' FNL & 2080' FWL
of Section 12, T41S, R23E
Greater Aneth Field
San Juan County, Utah
API #: 43-037-15845
GL Elev: 4570'
Spud Date: 12/11/56

8 5/8" @ 1151'
see current wb sketch

5 1/2" 15.5# J55 @ 5502'



WORKSHEET
APPLICATION FOR PERMIT TO DRILL

APD RECEIVED: 11/07/96

API NO. ASSIGNED: 43-037-15845

WELL NAME: RATHERFORD 12-W-22 (MULTI-LEG)
 OPERATOR: MOBIL EXPL & PROD (N7370)

PROPOSED LOCATION:
 SENW 12 - T41S - R23E
 SURFACE: 1920-FNL-2080-FWL
 BOTTOM: 0240-FNL-0750-FWL
 SAN JUAN COUNTY
 GREATER ANETH FIELD (365)

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

LEASE TYPE: IND
 LEASE NUMBER: 14-20-603-246A

PROPOSED PRODUCING FORMATION: DSCR

RECEIVED AND/OR REVIEWED:

Plat
 Bond: Federal State Fee
 (Number _____)
 Potash (Y/N)
 Oil shale (Y/N)
 Water permit
 (Number NAVAJO ALLOTMENT)
 RDCC Review (Y/N)
 (Date: _____)

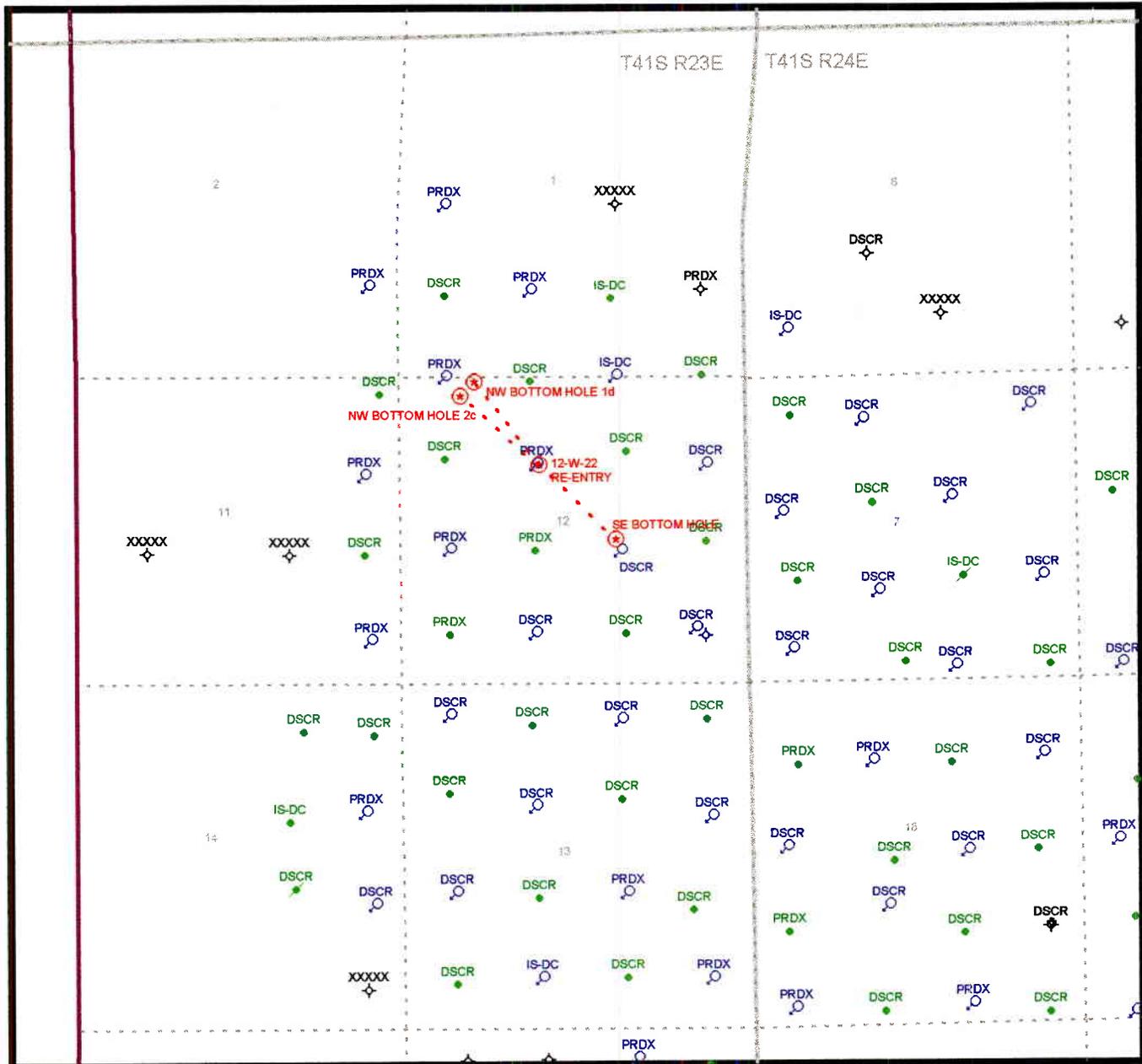
LOCATION AND SITING:

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

COMMENTS: _____

STIPULATIONS: _____

OPERATOR: MOBIL EXPL & PROD
FIELD: GREATER ANETH
SEC, TWP, RNG: 12, T41S, R23E
COUNTY: SAN JUAN
UAC: R649-2-3 RATHERFORD UNIT



PREPARED:
DATE: 7-NOV-96



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

Michael O. Leavitt
Governor
Ted Stewart
Executive Director
James W. Carter
Division Director

355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
801-538-5340
801-359-3940 (Fax)
801-538-5319 (TDD)

November 7, 1996

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

Re: Ratherford 12-W-22 (Re-entry) Well, 1920' FNL, 2080' FWL,
SE NW, Sec. 12, T. 41 S., R. 23 E., San Juan County, Utah

Gentlemen:

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

This approval shall expire one year from the above date unless substantial and continuous operation is underway, or a request for extension is made prior to the expiration date. The API identification number assigned to this well is 43-037-15845.

Sincerely,

A handwritten signature in black ink, appearing to read 'R. J. Firth'.

R. J. Firth
Associate Director

lwp

Enclosures

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

Operator: Mobil Exploration & Producing
Well Name & Number: Ratherford 12-W-22 (Re-entry)
API Number: 43-037-15845
Lease: 14-20-603-246A
Location: SE NW Sec. 12 T. 41 S. R. 23 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 Jimmie Thompson at (801)538-5336.

Notify the Division prior to commencing operations to plug and abandon the well. Contact Frank Matthews at (801)538-5334 or Mike Hebertson at (801)538-5333.

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

DIVISION OF OIL, GAS AND MINING

SPUDDING INFORMATION

Name of Company: MOBIL E & P

Well Name: RATHERFORD UNIT 12-22 (RE-ENRTY)

Api No. 43-037-15845

Section 12 Township 41S Range 23E County SAN JUAN

Drilling Contractor BIG"A"

Rig # 25

SPUDDED:

Date 1/7/97

Time _____

How ROTARY

Drilling will commence _____

Reported by BENNY BRIGGS

Telephone # _____

Date: 1/6/97 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.

14-20-603-246A

6. If Indian, Allottee or Tribe Name

NAVAJO TRIBAL

7. If Unit or CA, Agreement Designation

RATHERFORD UNIT

8. Well Name and No.

RATHERFORD 12-W-22

9. API Well No.

43-037-15845

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 INJECTOR / SIDETRACK

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

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

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
1920' FNL & 2080' FWL
SEC.12, T41S, R23E (SE/NW)

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

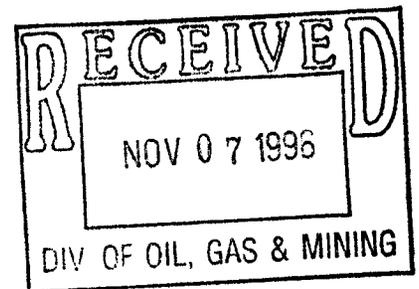
(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

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.)*

BOTTOM HOLE LOCATIONS:

- LEG #1: 1070' NORTH & 1190' WEST @ 5400' OF SURFACE LOCATION (ZONE 2c).
LEG #2: 1130' SOUTH & 1130' EAST @ 5370' OF SURFACE LOCATION (ZONE 1d).
LEG #3: 985' WEST & 1260 NORTH @ 5370' OF SURFACE LOCATION (ZONE 1d).

SEE ATTACHED PROCEDURE.



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

Signed Shelley Hoachino Title ENV. & REG. TECHNICIAN Date 10-01-96

(This space for Federal or State office use)
Approved by [Signature] Title Section Engineer Date 11/7/96
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.

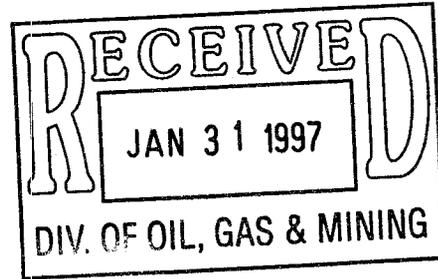


ROCKY MOUNTAIN GEO-ENGINEERING CORP.

Well Logging • Consulting Geology • Coal Bed Methane Services • Computerized Logging Equipment & Software

2450 INDUSTRIAL BLVD. • GRAND JUNCTION, CO 81505

(970) 243-3044 • (FAX) 241-1085



Wednesday, January 29, 1997

Division of Oil & Gas Mining
State of Utah
355 W. North, Suite 350
Salt Lake City, UT 84180-1203

Re: Ratherford Unit #12-22, Legs 1, 2, &3
Sec. 12, T41S, R23E
San Juan County, Utah

43 037 15845
RE-ENTRY DRL
1920 FNL 2080 FWL
3ENW

Dear Sirs:

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

^{copy}
IN FILE WITH
OTHER LOGS

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 *dn*
Senior Geologist

BN/dn

Enc. 1 Final Computer Colored Log w/Geology Report for Each Leg

cc Letter Only; Dana Larson; Mobil Oil; Midland, TX

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WELL SUMMARY

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

NAME: RATHERFORD UNIT #12-22 NW LOWER HORIZONTAL
LATERAL
LEG #1 IN 2C LOWER POROSITY BENCH, DESERT CREEK

LOCATION: SECTION 12, T41S, R23E

COUNTY/STATE: SAN JUAN, UTAH

ELEVATION: KB:4570' GL:4582'

SPUD DATE: 1/09/97

COMPLETION DATE: 1/13/97

DRILLING ENGINEER: DENNIS RUSSELL/BENNY BRIGGS

WELLSITE GEOLOGY: DAVE MEADE / MARVIN ROANHORSE

**MUDLOGGING:
ENGINEERS** DAVE MEADE / MARVIN ROANHORSE

**CONTRACTOR:
TOOLPUSHER:** BIG "A" RIG 25
DEAN SIPE

HOLE SIZE: 4 3/4"

CASING RECORD: SIDETRACK IN WINDOW AT 5288' MEASURED DEPTH

**DRILLING MUD:
ENGINEER:
MUD TYPE:** NA
NA
PRODUCTION WATER/POLYMER SWEEPS

**ELECTRIC LOGS:
ENGINEER:
TYPE LOGS:** NA

TOTAL DEPTH: 6900' MEASURED DEPTH

STATUS: PULL BACK UP HOLE AND TO SET WHIPSTOCK PRIOR TO
DRILLING LEG #2

DRILLING CHRONOLOGY

MOBIL
RATHERFORD UNIT #12-22
NW LOWER 2-C HORIZONTAL LATERAL LEG #1

DATE	DEPTH	DAILY	ACTIVITY
1/08/97	5288'	0'	RIG PRESSURE TESTING BOP RIG UP K JET WIRE LINE-MAKE UP BHA-PICK UP GYRO TOOL & JUNK BASKET-TIH-RUN GYRO SURVEYS-TOH
1/09/97	5288'	8'	PICK 10 DC-PU WHIPSTOCK & ORIENT-SET WHIPSTOCK-MILL WINDOW-TOH-TIH W/MILL & MILL-WORK MILL THOUGH WHIPSTOCK-NOTE: RMGE FID UNIT #31 ON LOCATION & RIGGED UP FOR TWO MAN GEOLOGICAL CONSULTING & LOGGING
1/10/97	5296'	76'	TOH-PICK UP MUD MOTOR & BIT-ORIENT -TIH-RIG UP & GYRO-TIME DRILLING 5296' TO 5304'-PULL GYRO-RESET & RUN GYRO-TIME DRILLING 5340' TO 5316'-SURVEY-PULL GYRO TOOL-RIG UP & RUN IN STEERING TOOL-DRILLING AHEAD AND SURVEYING
1/11/97	5372'	360'	DRILLING AHEAD AND SURVEYING-CIR & LAY DOWN 9 JTS DRL PIPE-PULL WIRE LINE TOOL-LAY DOW 36 JTS DRL PIPE-TOH-LAY DOWN CURVE MUD MOTOR-PICK UP LATERAL MUD MOTOR & NEW BIT & MWD TOOL-TIH-CIR-DRILLING AHEAD AND SURVEYING
1/12/97	5732'	857'	DRILLING AHEAD AND SURVEYING
1/13/97	6589'	311'	DRILLING AND SURVEYING-REACHED TOTAL DEPTH OF 6900' MEASURED DEPTH, 5440' TRUE VERTICAL DEPTH, CIRCULATE BOTTOMS UP, RUN SWEEP, TOH FOR WHIPSTOCK FOR LEG #2

DAILY ACTIVITY

Operator: MOBIL

Well Name: RATHERFORD UNIT #12-22 NW LOWER 2-C HORIZONTAL LATERAL LEG #1

DATE	DEPTH	DAILY	DATE	DEPTH	DAILY
1/09/97	5288'	8'			
1/10/97	5296'	76'			
1/11/97	5372'	360'			
1/12/97	5732'	857'			
1/13/97	6589'	311'			
TD	6900'				

BIT RECORD

OPERATOR: MOBIL

WELL NAME: RATHERFORD UNIT #12-22 NW LOWER 2-C HORIZONTAL LATERAL

LEG#1

RUN	SIZE	MAKE	TYPE	IN/OUT	FTG	HRS	FT/HR
#1 BIT #RR	4 3/4"	STC	MF3P	5296'/ 5470'	174'	13	13.4'
#2 BIT	4 3/4"	HTC	ATJ-22	5702'/ 6900'	1430'	44	32.5'

SPERRY-SUN DRILLING SERVICES
SURVEY DATA

Customer ... : Mobil
Platform ... : CA-MJ-70005
Slot/Well .. : /12-22, 1A1, L1

MEASURED DEPTH	ANGLE DEG	DIRECTION DEG	TVD	NORTHINGS FEET	EASTINGS FEET	VERTICAL SECTION	DOG LEG
5288.01	0.88	203.42	5285.55	38.72 N	91.74 W	94.09	0.00
5296.00	3.90	308.50	5293.53	38.83 N	91.98 W	94.34	52.76
5306.00	8.40	308.31	5303.47	39.49 N	92.82 W	95.41	45.00
5316.00	13.50	308.12	5313.29	40.67 N	94.31 W	97.30	51.00
5326.00	18.80	307.90	5322.89	42.38 N	96.50 W	100.07	53.00
5336.00	23.30	307.75	5332.22	44.58 N	99.34 W	103.66	45.00
5346.00	27.70	307.56	5341.24	47.21 N	102.75 W	107.95	44.01
5356.00	33.10	307.37	5349.87	50.29 N	106.76 W	112.99	54.01
5366.00	37.50	307.18	5358.03	53.78 N	111.36 W	118.75	44.01
5376.00	40.70	307.00	5365.79	57.59 N	116.39 W	125.03	32.02
5386.00	44.90	306.80	5373.12	61.67 N	121.82 W	131.80	42.02
5396.00	50.00	306.60	5379.88	66.07 N	127.73 W	139.13	51.02
5406.00	55.30	306.42	5385.95	70.79 N	134.12 W	147.04	53.02
5416.00	60.20	306.24	5391.28	75.80 N	140.93 W	155.45	49.02
5426.00	65.20	306.10	5395.87	81.05 N	148.10 W	164.29	50.02
5436.00	70.80	305.80	5399.61	86.49 N	155.60 W	173.51	56.07
5446.00	76.20	308.50	5402.45	92.28 N	163.24 W	183.06	59.88
5454.00	81.30	305.30	5404.01	96.98 N	169.51 W	190.87	74.85
5464.00	86.00	306.40	5405.12	102.80 N	177.57 W	200.75	48.25
5470.00	87.10	306.80	5405.48	106.37 N	182.37 W	206.71	19.50
5485.32	87.80	308.30	5406.16	115.70 N	194.51 W	221.97	10.80
5516.43	89.60	310.20	5406.86	135.38 N	218.59 W	253.03	8.41
5548.25	89.50	308.10	5407.11	155.47 N	243.26 W	284.81	6.61
5579.95	87.80	310.40	5407.86	175.51 N	267.80 W	316.46	9.02
5611.78	87.70	310.60	5409.11	196.17 N	291.99 W	348.25	0.70
5643.63	87.50	312.70	5410.44	217.32 N	315.77 W	380.07	6.62
5675.44	87.80	312.70	5411.75	238.87 N	339.12 W	411.85	0.94
5707.34	89.00	312.50	5412.64	260.46 N	362.60 W	443.74	3.81
5739.12	88.30	312.00	5413.39	281.82 N	386.11 W	475.51	2.71
5770.09	89.00	312.30	5414.12	302.59 N	409.07 W	506.47	2.46
5801.83	91.10	314.30	5414.09	324.36 N	432.16 W	538.20	9.14
5833.54	91.80	314.60	5413.29	346.56 N	454.79 W	569.87	2.40
5865.37	88.90	314.50	5413.09	368.89 N	477.47 W	601.66	9.12
5897.02	87.50	314.10	5414.09	390.98 N	500.11 W	633.27	4.60
5928.90	86.00	314.30	5415.90	413.17 N	522.93 W	665.08	4.75
5960.65	88.30	315.00	5417.47	435.45 N	545.49 W	696.75	7.57
5991.62	88.20	315.00	5418.42	457.34 N	567.38 W	727.66	0.32
6022.61	88.70	315.00	5419.26	479.25 N	589.28 W	758.60	1.61

SPERRY-SUN DRILLING SERVICES
SURVEY DATA

Customer ... : Mobil
Platform ... : CA-MJ-70005
Slot/Well .. : /12-22, 1A1, L1

MEASURED DEPTH	ANGLE DEG	DIRECTION DEG	TVD	NORTHINGS FEET	EASTINGS FEET	VERTICAL SECTION	DOG LEG
6054.46	88.90	315.20	5419.92	501.80 N	611.76 W	790.40	0.89
6085.09	89.00	314.80	5420.49	523.46 N	633.41 W	820.98	1.35
6116.91	88.90	314.60	5421.07	545.84 N	656.03 W	852.76	0.70
6148.73	88.90	314.30	5421.68	568.11 N	678.74 W	884.54	0.94
6180.48	89.70	314.60	5422.07	590.35 N	701.40 W	916.26	2.69
6212.30	89.00	314.50	5422.43	612.67 N	724.08 W	948.05	2.22
6244.15	87.60	313.40	5423.37	634.76 N	747.00 W	979.86	5.59
6276.04	87.30	312.70	5424.79	656.51 N	770.28 W	1011.72	2.39
6307.93	87.10	312.20	5426.35	678.01 N	793.78 W	1043.57	1.69
6339.71	86.70	311.60	5428.07	699.20 N	817.40 W	1075.30	2.27
6371.46	87.80	311.70	5429.59	720.28 N	841.10 W	1107.01	3.48
6403.27	88.60	311.50	5430.59	741.38 N	864.87 W	1138.81	2.59
6435.11	88.20	311.10	5431.48	762.39 N	888.78 W	1170.63	1.78
6466.90	87.80	310.90	5432.59	783.23 N	912.76 W	1202.40	1.41
6498.64	88.80	311.50	5433.53	804.13 N	936.63 W	1234.12	3.67
6530.39	89.30	312.00	5434.06	825.27 N	960.31 W	1265.87	2.23
6562.13	89.20	312.30	5434.47	846.57 N	983.84 W	1297.60	1.00
6593.78	88.70	312.70	5435.05	867.95 N	1007.17 W	1329.25	2.02
6625.63	88.60	313.10	5435.80	889.62 N	1030.50 W	1361.08	1.29
6657.45	88.60	313.20	5436.58	911.38 N	1053.71 W	1392.89	0.31
6689.20	88.40	313.60	5437.41	933.18 N	1076.77 W	1424.62	1.41
6721.08	88.90	314.10	5438.16	955.26 N	1099.75 W	1456.47	2.22
6752.82	88.10	314.50	5438.99	977.42 N	1122.46 W	1488.17	2.82
6783.87	89.10	315.20	5439.75	999.32 N	1144.47 W	1519.18	3.93
6815.74	90.00	315.90	5440.00	1022.07 N	1166.78 W	1550.98	3.58
6846.57	90.20	316.70	5439.95	1044.35 N	1188.08 W	1581.73	2.67
6869.00	89.60	316.60	5439.99	1060.66 N	1203.48 W	1604.08	2.71
6900.00	89.60	316.60	5440.21	1083.19 N	1224.78 W	1634.98	0.00

THE DOGLEG SEVERITY IS IN DEGREES PER 100.00 FEET.
N/E COORDINATE VALUES GIVEN RELATIVE TO WELL SYSTEM REFERENCE POINT.
TVD COORDINATE VALUES GIVEN RELATIVE TO WELL SYSTEM REFERENCE POINT.
THE VERTICAL SECTION ORIGIN IS WELL HEAD.
THE VERTICAL SECTION WAS COMPUTED ALONG 312.00 (TRUE).
CALCULATION METHOD: MINIMUM CURVATURE.

6900 IS A PROJECTION

MUD REPORT

OPERATOR: MOBIL

WELL NAME: RATHERFORD UNIT #12-22 NW LOWER 2-C HORIZONTAL LATERAL LEG #1

DATE	DEPTH	WT	VIS	FLS	YLD	GEL	PH	WL	CK	CHL	CA	SD	SOL	WTR
1/09/97	5288'	8.4	26	-	-	-	8.5	N/C	N/C	4600	800	-	-	100
1/10/97	5297'	8.4	26	-	-	-	8.5	N/C	N/C	4600	800	-	-	100
1/11/97	5508'	8.4	26	-	-	-	11.5	N/C	N/C	4700	60	-	-	100
1/12/97	6210'	8.4	26	-	-	-	11.5	N/C	N/C	4800	60	-	-	100
1/13/97	6853'	8.6	26	-	-	-	11.5	N/C	N/C	7000	60	-	-	100

SAMPLE DESCRIPTIONS

OPERATOR: MOBIL

WELL NAME: RATHERFORD UNIT 12-22 NW LOWER 2-C HORIZONTAL LATERAL LEG #1

DEPTH	LITHOLOGY
5294.00 5308.00	"LS: ltgy-wh-crm frm plty crp-micxln"
5300.00 5310.00	"LS ltgy-wh-crm,occ brn,crpxl-micxl,frm-sft,rthy-occ slty,cln/rr xln anhy,mrly ip,grdg to lmy SLTST,tt,NFSOC"
5310.00 5317.00	"DOL tan-ltbrngy,brn,crpxl-micxl,occ mic suc,frm-mfrm,rthy,sl shy ip,pred cln/rr blk SH strk,tt-tr vug POR,spty brit yel FLOR,tr spty blk STN,slow dif mlky strm CUT"
5322.00 5330.00	"SH blk-dkbrnblk,sbblky-sbplty,frm-sft,rthy-slty ip,tr pp mica,carb,sooty"
5330.00 5338.00	"DOL m-ltbrn-brngy,micxl-micsuc,occ crpxl,mfrm-hd,rthy-slty ip,sl shy,tt-tr intxl POR,v dull orng mnrl FLOR,NSOC "
5340.00 5344.00	"CHT bf,trnsl-clr,hd,amor"
5343.00 5350.00	"LS tan-crm-wh,occ ltgybrn-brn,crpxl-micxl,frm-mfrm,cln,shy-sl slty,chky,tr cht,rr mic fos,occ mrly,tt-tr intxl POR,f dull-brit spotty gn yel FLOR,slow stm CUT,n vis STN"
5356.00 5366.00	"LS crm-tan-off wh,occ brn,crpxl-micxl,rthy-shy,occ sl slty,sl mrly ip,chky,sl chty,rr mic fos,cln,dns,tt- tr intxl POR,p-f spotty dull-brit gn yel FLOR,f slow blooming mlky CUT,n vis STN"
5370.00 5379.00	"DOL mbrn,occ dk-ltbrn,micxl-micsuc,mfrm-frm,rthy,sl slty,occ shy ip,sl lmy/rr LS incl,tr intxl/rr vug POR,f-g even dull gn yel FLOR,g-f blooming gn yel CUT, n-tr d o STN"
5383.00 5394.00	"DOL mbrn,occ dk-ltbrn,micxl-micsuc,mfrm-frm,rthy,sl slty,occ shy ip,tr intxl/rr vug POR,f-g even dull gn yel FLOR,g-f blooming gn yel CUT, n-tr d o STN"
5400.00 5410.00	"LS crm-tan-off wh,occ brn,crpxl-micxl,rthy-shy,occ sl slty,chky,rr mic fos,cln,dns-sl mrly,tt-tr intxl POR,g even brit-dull gn yel FLOR,p-f slow crush CUT,n vis STN"
5413.00 5417.00	"SH blk-dkbrnblk,sbblky-sbplty,frm-sft,rthy-slty ip,tr pp mica,carb,sooty"
5422.00 5431.00	"LS tan-crm-wh,ltgybrn,crpxl-micxl,frm-mfrm,rthy,v sl slty,sl chky,cln,dns,tt-tr intxl POR,f-g even dull-brit gn yel FLOR,p dif ring CUT,n vis STN"
5432.00 5442.00	"LS tan-crm-wh,ltgybrn,micxl-micsuc,occ crpxl,frm,rthy-slty,sl chky,cln,dns,tr intxl POR,g-f even brit-dull gn yel FLOR,p blooming gn yel CUT,n vis STN"
5444.00 5454.00	"LS clr-wh-ltgy,crpxl-vfxl,occ micsuc,frm-mhd,rthy-cln,v sl dol,occ anhy-rr xl,v rr carb SH ptgs,tt-fr intxl-ool POR,fr-g dull-bri yel FLOR,n-v rr ltbrn STN,fr slow dif-ring CUT,w/tr ltbrn micsuc DOL incl,tr intrg POR,fr yel FLOR,v rr ltbrn STN,p dif CUT"

DEPTH	LITHOLOGY
5462.00	5468.00 "LS AA,v sl anhy-v rr ANHY xl,v sl dol-v rr lmy DOL incl,fr-g intxl POR,fr-g bri-dull yel FLOR,n-v rr vis STN,n-v p slow dif CUT,NOTE SPL PROB V FLUSHED "
5480.00	5490.00 "LS m-ltbrn-brngy,tan,m-ltbrngy,occ crm-wh,micxl-micsuc,occ crpxl,mfrm-frm,occ hd,rthy-slty,tr COR fos,sl-v dol,occ sl sdy,dns,grdg to lmy DOL ip,f intxl-tr vug POR,g-f even dull-bri yel FLOR,p res ring CUT,n-rr vis blk d o STN"
5490.00	5500.00 "LS AA,sl incr slty,tr CRIN fos,occ grdg to lmt DOL ip,g even bri yel FLOR,f-g res ring CUT,n-rr vis blk dd o STN"
5500.00	5510.00 "LS m-ltbrn-brngy,tan,occ crm-wh,micsuc-micxl,occ crpxl,mfrm-hd,rthy,slty/tr sdy strk,dol ip,tr bf CHT,tr CRIN fos,occ grdg to lmy DOL,dns,tt-tr intxl POR,f-p even bri-dull yel FLOR,p res ring CUT,n-rr blk dd o STN,w/ DOL AS BELOW"
5514.00	5525.00 "DOL brn,micsuc-suc,occ micxl,frm-mfrm,occ hd,rthy,slty-sl sdy ip,sl lmy ip,cln,dns,tt-tr intxl POR,g even bri yel FLOR,p res ring CUT,n-tr blk dd o STN,w/ LS AA"
5528.00	5538.00 "LS m-ltbrn-brngy,tan,occ crm-wh,micsuc-micxl,occ crpxl,mfrm-hd,rthy,slty,dol ip,grdg to lmy DOL,dns,tt-tr intxl POR,f-p even bri-dull yel FLOR,p res ring CUT,n-rr blk dd o STN,w/ DOL AA"
5540.00	5549.00 "DOL brn,micsuc-suc,occ micxl,frm-mfrm,occ hd,rthy,slty-sl sdy ip,lmy ip,cln,dns,tt-tr intxl POR,g even bri yel FLOR,p res ring CUT,n-tr blk dd o STN,w/ LS AA"
5552.00	5563.00 "LS AA,mfrm-frm,rthy,dol ip,grdg to lmy DOL,dns,tt-tr intxl POR,f-g even bri-dull yel FLOR,p res ring CUT,n-rr blk dd o STN"
5562.00	5571.00 "DOL AA,frm-mfrm,occ sft,incr lmy,grdg to dol LS,f intxl POR-tt,f even-spotty dull-bri yel FLOR,p res ring CUT,n-tr vis blk dd o STN"
5573.00	5582.00 "LS m-ltbrngy,m-ltbrn,tan,occ crm,micxl-micsuc,occ crpxl,rthy,slty ip,v sl chky,dol ip,grdg to lmy DOL ip,tt-tr intxl POR,g even bri yel FLOR,g-f blooming CUT,n-tr vis dd o STN,w/DOL AA"
5585.00	5595.00 "DOL AA,frm-mfrm,occ sft,incr lmy,grdg to dol LS,f intxl POR-tt,f even-spotty dull-bri yel FLOR,p res ring CUT,n-tr vis blk dd o STN,w/ LS AA"
5597.00	5605.00 "LS AA,micsuc-micxl,occ crpxl,rthy,slty,v sl chky,tr GAST fos,occ dol ip,tt-tr intxl POR,g even bri yel FLOR,g-f res ring CUT,n-tr vis dd o STN,w/DOL AA"
5610.00	5620.00 "DOL brn,occ ltbrn,micsuc-micxl,mfrm-sft,occ hd,rthy,sl slty ip,occ sl lmy,cln,dns,tt-tr intxl POR,f-g even bri yel FLOR,f-g res ring cut,n-rr blk pp dd o STN,intbd in LS AA"
5625.00	5636.00 "LS tan,ltgybrn,crm,occ off wh,crpxl-micxl,hd-mfrm,rthy,sl chky,tr xln ANHY,tr mic fos,dol ip,dns,cln,occ grdg to lmy DOL,dns,tt-tr intxl POR,f spotty-even bri yel FLOR,p-f res ring CUT,n-tr blk dd o STN,w/intbd DOL AA"
5640.00	5650.00 "LS tan-frm-wh,occ ltbrngy,crpxl,occ micxl,mfrm-brit,occ sft,rthy-chky,tr GAST fos,occ v sl slty,cln,dns,tt-rr inlxl POR,f dull-bri spotty-occ even yel FLOR,p res ring CUT,n vis STN,w/intbd DOL AA"

DEPTH	LITHOLOGY
5654.00 5664.00	"LS AA,rthy,sl incr chky,occ sl shy,tr mic fos,cln/rr blk SH prtg,dns,tt-rr intxl POR,f-g even-spotty bri-dull yel FLOR,p fnt res ring CUT,n-tr blk dd o STN"
5664.00 5672.00	"DOL brn,micsuc-micxl,frm-occ hd,rthy,sl slty/occ sdy strk,occ v sl arg,sl lmy,tt-tr intxl POR,f-g even bri yel FLOR,p fnt res ring CUT,n-rr blk dd o STN,pred thn intbds in LS AA"
5680.00 5692.00	"LS tan-crm-wh,occ ltblrn-ltblrngy,crpxl,occ micxl,mfrm-brit,occ sft,rthy,sl-incr chky/depth,occ sl slty,v sl arg,tr mic fos,tr xln ANHY incl,cln,dns,tt-tr intxl POR,f-g spotty-even bri yel FLOR,p blooming mlky dull yel CUT,n vis STN"
5691.00 5701.00	"LS AA/incr wh,crpxl,frm-sft,chky-rthy,occ sl mrly,arg-v sl slty ip,tr intxl POR,g even bri yel FLOR,f-p blooming mlky yel CUT,n vis STN"
5703.00 5712.00	"LS tan-crm-wh,occ ltgybrn,crpxl-micxl,brit-mfrm,occ hd,rthy,sl chky,occ sl-v sl slty,sl arg,sl dol,dns,tr intxl/rr vug POR,f-g even-occ spotty bri yel FLOR,g blooming mlky dull yel CUT,rr blk dd o STN,w/v thn intbd gran ltblrn DOL,fr POR,tr dull yel FLOR,n-v rr ltblrn STN,tr slow stmg CUT"
5714.00 5724.00	"LS AA/bcmg incr lt-mgybrn,brn,micxl-crpxl,occ micsuc,mfrm-hd,rthy,sl slty-occ v sl sdy,tr GAST fos,occ sl dol,f-g spotty bri yel FLOR,g-f blooming mlky dull yel CUT,tr blk dd o STN"
5727.00 5738.00	"LS lt-mbrngy,tan-crm,occ off wh,micxl-crpxl,occ micsuc,mfrm-brit,occ hd,rthy-slty,occ sl arg,tr mic fos,v sl chky,dns,tr intxl/vrr vug POR,g even bri yel FLOR,f res ring CUT,tr blk dd o STN"
5742.00 5750.00	"LS AA,g even bri yel FLOR,g blooming bri-dull mlky CUT,tr blk dd o STN"
5750.00 5760.00	"LS m-ltblrngy,m-ltblrn-tan,occ crm,micxl-micsuc,occ crpxl,rthy,slty ip,v sl chky,tt-tr intxl POR,g-f even bri yel FLOR,p-vp fnt res ring CUT,n-tr vis dd o STN"
5771.00 5782.00	"LS m-ltblrngy,m-ltblrn,tan-crm,micxl-crpxl,occ micsuc,rthy,occ slty,sl arg,v sl chky,tt-tr intxl POR,g even bri yel FLOR,f-p fnt res ring CUT,n-tr vis dd o STN"
5789.00 5801.00	"LS m-ltblrngy,tan-crm,occ lt-mbrn,micxl,occ micsuc-crpxl,rthy,occ slty,v sl chky,occ sl arg,tt-tr intxl POR,g even bri yel FLOR,p-f fnt res ring CUT,n-tr vis dd o STN"
5803.00 5816.00	"DOL brn,micsuc-micxl,frm-sft,rthy,sl slty,pred intbd in LS,occ grdg to dol LS,tt-rr intxl POR,f even bri yel FLOR,p fnt res ring CUT,n vis STN"
5816.00 5828.00	"LS AA/bcmg incr lt-mgybrn,brn,micxl-micsuc,occ crpxl,mfrm-hd,rthy,sl slty-occ v sl sdy,tr mic fos,occ v sl dol,g vug POR,g even-spotty bri yel FLOR,g fast strm mlky brit yel CUT,abnt blk dd o STN"
5840.00 5850.00	"DOL brn,micsuc-micxl,frm-sft,rthy,sl slty,pred intbd in LS,occ grdg to dol LS,tr intxl POR,fr even bri yel FLOR,p fnt res ring CUT,tr vis STN,thnly intbd in LS AA"
5849.00 5860.00	"LS m-ltblrngy,tan-crm,occ lt-mbrn,micxl,occ micsuc-crpxl,rthy,occ slty,v sl chky,occ sl arg,g intxl/tr vug POR,g even bri yel FLOR,g fast blooming-slow strm mlky dull yel CUT,abnt vis dd o STN"

DEPTH	LITHOLOGY
5868.00 5883.00	"LS m-ltbrngy,tan-crm,occ lt-mbrn,micxl,occ micsuc-crpxl,rthy,occ slty,v sl chky,occ sl arg,g intxl/tr vug POR,g even bri yel FLOR,g fast blooming-slow strm mlky dull yel CUT,abnt vis dd o STN"
5888.00 5899.00	"LS m-ltbrn,tan-crm,occ lt-mbrngy,micxl-crpxl,occ micsuc,rthy,occ slty,v sl chky,occ sl arg,g intxl/tr vug POR,g even bri yel FLOR,g fast blooming-slow strm mlky dull yel CUT,abnt vis dd o STN"
5900.00 5909.00	"DOL lt-mbrn,micxl-vfxl,micsuc ip,frm,rthy,v sl slty,lmy,grdg to v dol LS,v sl anhy,fr intxl POR,fr-g dull-bri yel FLOR,tr brn stn,g fast stmg mlky CUT"
5915.00 5926.00	"LS ltbrn-wh-crm,occ ltgy,crpxl-vfxl,micsuc ip,mfrm-mhd,cln-rthy,v sl slty,occ sl dol,sl anhy-v rr ANHY incl-xl,w/scat ltbrn,micsuc DOL incl,tt-g intxl-pp vug POR,fr bri yel FLOR,tr ltbrn-rr spty blk dd o STN,fr slow dif-rr mod fast stmg mlky CUT"
5930.00 5939.00	"DOL lt-mbrn,micxl-vfxl,micsuc ip,frm,rthy,v sl slty,lmy,grdg to v dol LS,v sl anhy,fr intxl POR,fr-g dull-bri yel FLOR,tr brn stn,g fast stmg mlky CUT, intbd in LS AA"
5940.00 5960.00	"LS ltbrn-wh-crm,occ ltgy,crpxl-vfxl,micsuc ip,mfrm-mhd,cln-rthy,v sl slty,occ sl dol,sl anhy-tr ANHY incl-xl,w/v rr scat ltbrn,micsuc DOL incl,tt-g intxl-pp vug POR,fr-g bri yel FLOR,tr-fr ltbrn-rr spty blk dd o STN,fr slow dif-rr mod fast stmg mlky CUT"
5960.00 5971.00	"DOL lt-mbrn,micxl-vfxl,micsuc ip,frm,rthy,v sl slty,lmy,grdg to v dol LS,v sl anhy,fr intxl POR,fr-g dull-bri yel FLOR,tr brn stn,g fast stmg mlky CUT,pred v thn incl in LS"
5970.00 5980.00	"LS pred ltbrn,occ wh-ltgy,crpxl-vfxl,micsuc ip,sft-mhd,rthy-cln,sl anhy-v sl dol,rr-tr ANHY incl-xl,rr POR fl,v rr mic fos,occ scat blk carb SH ptgs,fr-g intxl-pp vug POR,fr-g dull-bri yel FLOR,tr ltbrn STN,rr scat blk dd o stn,fr-g slow dif-mod fast CUT"
5990.00 6000.00	"LS pred ltbrn,occ wh-ltgy,crpxl-micxl,vfxl-micsuc ip,sft-mhd,cln,occ rthy,sl anhy-v sl dol,w/rrltbrn micsuc DOL inc,rr ANHY incl-xl,tr POR fl,tr-fr intxl-rr pp vug POR,fr dull-bri yel FLOR,tr ltbrn STN,rr scat blk dd o stn,fr-g mod fast-fast stmg CUT"
6007.00 6010.00	"DOL ltbrn,micxl-micsuc,frm,rthy,sl slty,vlmy,grdg to dol LS,g intxl POR,fr dull yel FLOR,rr ltbrn STN,fr mod fast stmg CUT, thnly intbd in LS AA"
6014.00 6030.00	"LS pred ltbrn,occ wh-ltgy,crpxl-micxl,vfxl-micsuc ip,sft-mhd,cln,occ rthy,sl anhy-v sl dol,w/rr ltbrn micsuc DOL incl,rr ANHY incl-xl,tr POR fl,tr-fr intxl-rr pp vug POR,fr dull-bri yel FLOR,tr ltbrn STN,rr scat blk dd o stn,fr-g mod fast-fast stmg CUT"
6030.00 6050.00	"LS pred ltbrn,occ wh-ltgy,crpxl-micxl,vfxl-micsuc ip,sft-mhd,cln,occ rthy,sl anhy,w/rr ltbrn micsuc DOL ptgs,rr ANHY incl-xl,tr POR fl,tr-fr intxl-fr pp vug POR,fr dull-bri yel FLOR,tr ltbrn STN,abnt blk dd o stn,fr-g mod fast-fast stmg CUT"
6050.00 6069.00	"LS pred ltbrn,occ wh-ltgy,crpxl-vfxl,micsuc ip,sft-mhd,cln,occ rthy,sl anhy-rr ANHY incl-xl,tr POR fl,n-v rr ltbrn micsuc DOL-rr blk carb SH ptgs,tr intxl-fr-g pp vug POR,fr-g dull-bri yel FLOR,tr ltbrn STN,abnt blk dd o stn,fr-g slow-fast stmg CUT"

DEPTH	LITHOLOGY
6069.00 6081.00	"LS pred ltbrn,occ wh-ltgy,crpxl-vfxl,micsuc ip,sft-mhd,cln,occ rthy,sl anhy-rr ANHY incl-xl,tr POR fl,n-v rr ltbrn micsuc DOL-rr blk carb SH ptgs,tr-fr intxl-rr pp vug POR,fr dull-bri yel FLOR,tr ltbrn STN,rr scat blk dd o stn,fr-g mod fast-fast stmg CUT"
6083.00 6100.00	"LS pred ltbrn,occ wh-ltgy,crpxl-vfxl,micsuc ip,sft-mhd,cln,occ rthy,sl anhy-rr ANHY incl-xl,rr POR fl,v rr ltbrn micsuc DOL-v rr blk carb SH ptgs,fr-g intxl-pp vug POR,fr-g dull-bri yel FLOR,tr ltbrn STN,abnt scat blk dd o stn,fr-g mod fast-fast stmg CUT"
6101.00 6109.00	"DOL ltbrn,micxl-micsuc,frm,rthy,sl slty,vlmy,grdg to dol LS,pred v thn incl in LS,g intxl POR,fr dull yel FLOR,rr ltbrn STN,fr mod fast stmg CUT"
6110.00 6130.00	"LS pred ltbrn,occ wh-ltgy,crpxl-vfxl,micsuc ip,sft-mhd,cln,occ rthy,sl anhy-rr ANHY incl-xl,rr POR fl,rr ltbrn micsuc DOL,rr-tr intxl-fr-g pp vug POR,fr-g dull-bri yel FLOR,tr ltbrn STN,abnt blk dd o STN,fr-g slow-mod fast-fast stmg CUT,occ dif CUT"
6130.00 6150.00	"LS pred ltbrn,occ wh-ltgy,crpxl-vfxl,micsuc ip,sft-mhd,cln,occ rthy,sl anhy-occ ANHY incl-xl,tr POR fl,rr ltbrn micsuc DOL-v rr blk carb SH ptgs,fr-g intxl-pp vug POR,fr-g dull-bri yel FLOR,tr ltbrn STN,tr-abnt blk dd o stn,fr-g slow-fast stmg CUT"
6150.00 6170.00	"LS pred ltbrn,occ wh-ltgy,crpxl-vfxl,micsuc ip,sft-mhd,cln,occ rthy,sl anhy-occ ANHY incl-xl,tr POR fl,rr ltbrn micsuc DOL-occ grdg to v lmy brn DOL,fr-g intxl-pp vug POR,fr-g dull-bri yel FLOR,tr-fr ltbrn STN,tr-fr blk dd o stn,fr fast stmg-dif CUT"
6170.00 6183.00	"LS pred ltbrn,occ wh-ltgy,crpxl-vfxl,micsuc ip,sft-mhd,cln,occ rthy,sl anhy-occ ANHY incl-xl,tr POR fl,rr ltbrn micsuc DOL-occ grdg to v lmy brn DOL,fr-g intxl-pp vug POR,fr-g dull-bri yel FLOR,tr ltbrn STN,tr dd o stn,fr-g slow-fast stmg CUT"
6185.00 6206.00	"LS pred ltbrn,occ wh-ltgy-crm,crpxl-micxl,vfxl-micsuc ip,sft-mhd,cln,occ rthy,sl anhy-occ ANHY incl-xl,tr POR fl,rr ltbrn micsuc DOLincl,v rr mic fos,fr-g intxl-pp vug POR,fr-g dull-bri yel FLOR,tr ltbrn STN,tr-abnt blk dd o stn,fr-g modfast stmg CUT"
6207.00 6216.00	"LS AA,tr-fr intxl-pp vug POR,FLOR-STN-CUT AA,w/tr thn blk carb SH ptgs & v thn ltbrn-brn,micsuc-suc DOL incl,w/fr intxl POR,tr dull yel FLOR,fr brn STN,fr slow-mod fast stmg mlky CUT"
6220.00 6237.00	"LS ltbrn-crm-ltgy,occ wh,crpxl-vfxl,micsuc ip,mfrm-mhd,cln,occ sl anhy,v sl dol,w/v rr carb SH plts,tr ANHY fl vug POR,v rr mic fos,micritic,tt-fr pp vug-tr intxl POR,n-tr ltbrn STN,scat blk dd o STN,fr-g slow-mod fast stmg-tr dif CUT"
6238.00 6243.00	"DOL lt-mbrn,micxl-vfxl,micsuc,frm,rthy-cln,v lmy ip,sl slty,occ anhy,tr-fr intxl POR,tr-fr dull-bri yel FLOR,fr brn STN,tr-fr slow-mod fast stmg CUT"
6250.00 6267.00	"LS ltbrn-crm-ltgy,occ wh,crpxl-vfxl,micsuc ip,mfrm-mhd,cln,occ sl anhy,sl dol,w/v rr carb SH plts,tr ANHY fl vug POR,v rr mic fos,incr alg,w/tr gran DOL,tr-g pp vug-tr intxl POR,tr-fr ltbrn STN,abnt blk dd o STN,fr-g slow-mod fast stmg-tr dif CUT"
6266.00 6292.00	"LS ltbrn-crm-ltgy,occ wh,crpxl-vfxl,micsuc ip,mfrm-mhd,cln,occ sl anhy,sl dol,w/n-v rr carb SH plts,tr ANHY fl vug POR,v rr mic fos,decr alg,w/tr-tr gran DOL,tr-fr pp vug-tr-fr intxl POR,tr-fr ltbrn STN,tr blk dd o STN,fr-g slow-mod fast stmg-tr dif CUT"

DEPTH

LITHOLOGY

- 6292.00 6299.00 "DOL lt-mbrn,micxl-vfxl,micsuc,frm,rthy-cln,v lmy ip,sl slty,occ anhy,tr-fr intxl POR,tr-fr dull-bri yel FLOR,fr brn STN,tr-fr slow-mod fast stmg CUT, thnly intbd in LS"
- 6303.00 6315.00 "LS ltbrn-crm-ltgy,crpxl-vfxl,micsuc ip,mfrm-mhd,cln,occ sl anhy,sl dol-tr ltbrn gran DOL . incl,tr ANHY fl vug POR,v rr mic fos,alg,w/v rr blk carb SH ptgs,tt-fr pp vug-tr intxl POR,tr ltbrn STN,fr blk dd o STN,fr-g slow-mod fast stmg-tr dif CUT"
- 6319.00 6322.00 "DOL AA,v lmy,grdg to v dol LS,POR-FLOR-STN-CUT AA,pred thn intbds in LS AA"
- 6322.00 6336.00 "LS ltbrn-crm-ltgy,crpxl-vfxl,micsuc ip,mfrm-mhd,cln,occ sl anhy,sl dol-tr ltbrn gran DOL incl,tr ANHY fl vug POR,v rr mic fos,decr alg,tt-fr pp vug-tr intxl POR,tr ltbrn STN,fr blk dd o STN,fr-g slow-mod fast stmg-tr dif CUT"
- 6339.00 6357.00 "LS ltbrn-crm-ltgy,wh ipcrpxl-vfxl,micsuc-gran ip,mfrm-mhd,cln,occ sl anhy,sl dol-v rr ltbrn gran DOL incl,rr-tr ANHY fl vug POR,v rr mic fos,alg ip,fr-g pp vug-fr intxl POR,tr ltbrn STN,fr blk dd o STN,fr-g slow-mod fast stmg-tr dif CUT"
- 6360.00 6370.00 "DOL m-occ dkbrn,micsuc-micxl,frm,rthy,sl slty,lmy,grdg to dol LS,fr intxl POR,g even bri yel FLOR,tr blk dd o STN,g slow stmg CUT, pred thnly intbd in LS"
- 6370.00 6381.00 "LS ltbrn-crm-ltgy,wh ipcrpxl-vfxl,micsuc-gran ip,mfrm-mhd,cln,occ sl anhy,sl dol-v rr ltbrn gran DOL incl,rr-tr ANHY fl vug POR,v rr mic fos,alg ip,fr-g pp vug-fr intxl POR,tr ltbrn STN,fr blk dd o STN,fr-g slow-mod fast stmg-tr dif CUT"
- 6390.00 6401.00 "LS pred ltbrn,occ crm-wh,micsuc-crpxl-vfxl,occ gran ip,mfrm-mhd,cln,occ sl anhy,sl dol-v rr ltbrn gran DOL incl,tr COR & GAST fos,alg ip,fr-g pp vug-fr intxl POR,tr ltbrn STN,fr blk dd o STN,fr-g slow-mod fast stmg-tr dif CUT"
- 6404.00 6416.00 "LS ltbrn,occ crm-ltgy-wh,crpxl-vfxl,micsuc-gran ip,mfrm-mhd,cln,occ trnsf xln ANHY,sl dol-v rr ltbrn gran DOL incl,rr-tr ANHY fl vug POR,tr COR fos,fr-g pp vug-fr intxl POR,g even bri yel FLOR,tr ltbrn STN,fr blk dd o STN,fr-g slow-mod fast stmg CUT"
- 6422.00 6433.00 "LS pred ltbrn,occ crm-wh,micsuc-crpxl-vfxl,occ gran ip,mfrm-mhd,cln,occ sl anhy,sl chky,sl dol,tr trnsf xln ANHY incl,tr mic fos,alg ip,fr-g pp vug-fr intxl POR,g even bri yel FLORtr ltbrn STN,fr blk dd o STN,fr-g mod fast stmg CUT"
- 6438.00 6451.00 "LS AA,incr micsuc-gran,crpxl ip,mfrm-mhd,cln,occ sl anhy,sl dol-v rr ltbrn gran DOL incl,v rr mic fos,fr-g inxl-tr pp vug POR,g even bri yel FLOR,tr-fr blk dd o STN,fr-g mod fast stmg CUT"
- 6450.00 6463.00 "LS ltbrn,crm-ltgy-wh,crpxl-vfxl-micsuc,occ gran ip,mfrm-mhd,cln,tr trnsf xln ANHY,v sl dol,tr mic fos,fr intxl POR,g even bri yel FLOR,fr blk dd o STN,fr-g slow-mod fast stmg CUT"
- 6465.00 6475.00 "LS AA,incr micsuc-gran,crpxl ip,mfrm-mhd,cln,tr trnsf xln ANHY,sl dol-v rr ltbrn gran DOL incl,tr mic fos,fr-g inxl POR,g even bri yel FLOR,tr-fr blk dd o STN,fr-g mod fast stmg milky CUT"
- 6480.00 6492.00 "LS ltbrn,ltgybrn,occ crm-wh,micsuc-vfxl-gran,occ crpxl,mfrm-mhd,cln,tr trnsf xln ANHY incl,sl dol/rr ltbrn DOL incl,tr GAST fos,sl chky,fr-g pp vug-fr intxl POR,tr ltbrn STN,fr-g blk dd o STN,fr-g slow-mod fast stmg-milky CUT"

DEPTH	LITHOLOGY
6495.00	6504.00 "DOL m-occ dkbrn,micsuc-micxl,frm,rthy,sl slty,lmy,grdg to dol LS,fr intxl-rr pp vug POR,g even bri yel FLOR,tr blk dd o STN,g slow stmg CUT,pred thn intbds in LS"
6505.00	6517.00 "LS ltbrn,ltgybrn-crm-occ wh,micsuc-vfxl-gran,occ crpxl,mfrm-mhd,cln,tr trns1 xln AHNY incl,sl dol/rr ltbrn DOL incl,tr GAST fos,sl chky,fr-g pp vug-fr intxl POR,tr ltbrn STN,fr-g blk dd o STN,fr-g slow-mod fast stmg-mlky CUT"
6523.00	6538.00 "LS ltbrn,crm-ltgy-wh,crpxl-vfxl-micsuc,occ gran ip,mfrm-mhd,cln,tr trns1 xln ANHY,v sl . dol,tr mic fos,fr intxl POR,g even bri yel FLOR,fr-g blk dd o STN,fr-g slow-mod fast stmg CUT"
6539.00	6553.00 "LS AA,incr micsuc-gran,crpxl ip,mfrm-mhd,cln,tr trns1 xln ANHY,sl dol-v rr ltbrn gran DOL incl,tr mic fos,fr-g inxl POR,g even bri yel FLOR,abnt blk dd o STN,fr-g mod fast stmg mlky CUT"
6552.00	6560.00 "DOL lt-m brn,micsuc-micxl,frm,rthy,sl slty,lmy,grdg to dol LS,fr intxl POR,g even bri yel FLOR,n-rr blk dd o STN,g slow stmg CUT"
6561.00	6574.00 "LS ltbrn,ltgybrn-crm-occ wh,micsuc-vfxl-gran,occ crpxl,mfrm-mhd,cln,tr trns1 xln AHNY incl,sl dol,rr mic fos,sl chky,fr intxl POR,g even bri yel FLOR,fr-mod blk dd o STN,fr-g slow-mod fast stmg-mlky CUT"
6580.00	6593.00 "LS ltbrn,ltgybrn-crm-occ wh,micxl-vfxl-crpxl,occ micsuc,mfrm-mhd,cln,tr trns1 xln AHNY,dol ip/tr ltbrn DOL incl,rr mic fos,vsl-sl chky,fr intxl POR,g-fr spotty-even bri yel FLOR,fr blk dd o STN,fr-g slow-mod fast stmg-mlky CUT"
6596.00	6605.00 "LS AA,incr micsuc-gran,crpxl ip,mfrm-mhd,cln,tr trns1 xln ANHY,sl dol-v rr ltbrn gran DOL incl,tr mic fos,fr-g inxl POR,g even bri yel FLOR,abnt blk dd o STN,fr-g mod fast stmg mlky CUT"
6610.00	6620.00 "DOL lt-m brn,micsuc-micxl,occ vf xln-sl gran ip,frm-m hd,rthy,lmy ip/ltbr-tan LS incl,occ grdg to dol LS,fr-p intxl POR,g even-fr spotty bri yel FLOR,rr dk brn STN,g slow stmg CUT, w/LS AA"
6626.00	6640.00 "LS ltbrn,occ ltgybrn-crm-wh,micxl-vfxl-crpxl,occ micsuc,mfrm-mhd,cln,tr trns1 xln AHNY,dol ip/tr ltbrn DOL incl,rr mic fos,vsl chky,fr intxl POR,g-fr spotty-even bri yel FLOR,fr blk dd o STN,g mod fast stmg-mlky CUT, w/intbd DOL AA"
6643.00	6654.00 "LS AA,grdg to v lmy DOL,POR-FLOR-STN-CUT AA"
6650.00	6661.00 "DOL ltbrn-mbrn,micxl-vfxl,micsuc-suc ip,frm,cln-sl slty,lmy-v lmy,sl anhy-v rr ANHY xl,v rr mic fos,rr-g intxl-tr pp vug POR,fr-g dull-bri yel FLOR,fr-g ltbrn STN,v rr blk dd o STN,fr-g mod fast stmg mlky CUT, w/intbd LS AA"
6670.00	6680.00 "DOL ltbrn-mbrn,micxl-vfxl,micsuc-suc ip,frm,cln-sl slty,lmy-v lmy,alg ip,sl anhy-v rr ANHY xl,v rr mic fos,rr-g intxl-tr pp vug POR,fr-g dull-bri yel FLOR,fr-g ltbrn STN,v rr blk dd o STN,fr-g mod fast stmg mlky CUT, w/intbd LS AA"
6687.00	6698.00 "LS crm-ltbrn,ltgy,crpxl-micxl,occ micsuc ip,mfrm-mhd,cln,sl dol-dol,sl alg,occ chk,v rr mic fos,anhy ip,occ grdg to lmy DOL,tt-tr intxl-pp vug POR,incr tt,rr-tr dull-bri yel FLOR,n-v rr ltbrn-blk dd o STN,rr-fr slow dif-mod fast stmg CUT, w/intbd DOL AA"

DEPTH	LITHOLOGY
6701.00	6715.00 "DOL ltbrn-mbrn,micxl-vfxl,micsuc-suc ip,frm,cln-sl slty,lmy-v lmy,alg ip,sl anhy-v rr ANHY xl,v rr mic fos,rr-g intxl-tr pp vug POR,fr-g dull-bri yel FLOR,fr-g ltbrn STN,v rr blk dd o STN,fr-g mod fast stmg mlky CUT, w/intbd LS AA"
6716.00	6727.00 "LS crm-ltbrn,ltgy,crpxl-micxl,occ micsuc ip,mfrm-mhd,cln,sl dol-dol,sl alg,occ chk,v rr mic fos,anhy ip,occ grdg to lmy DOL,tt-tr intxl-pp vug POR,incr tt,rr-tr dull-bri yel FLOR,n-v rr ltbrn-blk dd o STN,rr-fr slow dif-mod fast stmg CUT, w/ intbd DOL AA"
6735.00	6747.00 "DOL ltbrn-mbrn,micxl-vfxl,micsuc-suc ip,frm,cln-sl slty,lmy-v lmy,alg ip,sl anhy-v rr ANHY xl,v rr mic fos,rr-g intxl-tr pp vug POR,fr-g dull-bri yel FLOR,fr-g ltbrn STN,v rr blk dd o STN,fr-g mod fast stmg mlky CUT, w/intbd LS AA"
6748.00	6760.00 "LS crm-ltbrn,ltgy,crpxl-micxl,occ micsuc ip,mfrm-mhd,cln,sl dol-dol,sl alg,occ chk,v rr mic fos,anhy ip,occ grdg to lmy DOL,tt-tr intxl-pp vug POR,incr tt,rr-tr dull-bri yel FLOR,n-v rr ltbrn-blk dd o STN,rr-fr slow dif-mod fast stmg CUT"
6764.00	6780.00 "LS crm-ltbrn,ltgy,crpxl-micxl,occ micsuc ip,mfrm-mhd,cln,sl dol,occ grdg to lmy DOL,v sl alg,occ chk,v rr mic fos,anhy ip,w rr carb SH ptg,tt-tr intxl-pp vug POR,incr tt,rr-tr dull-bri yel FLOR,n-v rr ltbrn-blk dd o STN,rr-fr slow dif-mod fast stmg CUT, w/intbd DOL AA"
6782.00	6788.00 "DOL ltbrn-mbrn,occ ltgybrn,micxl-vfxl,micsuc ip,frm,cln-sl slty,lmy-v lmy,v sl alg ip,sl anhy-v rr ANHY xl,fos,rr-g intxl-v rr pp vug POR,fr-g dull-bri yel FLOR,fr-g ltbrn STN,v rr blk dd o STN,fr-g mod fast stmg mlky CUT, w/intbd LS AA"
6796.00	6812.00 "LS crm-wh-ltgy-tan,crpxl-micxl,occ vfxl,mfrm-mhd,cln-chky,sl anhy,dol ip,occ grdg to v lmy DOL,n-sl alg,v rr COR fos,tt-rr intxl-rr pp vug POR,fr-g bri yel FLOR,n-v rr ltbrn STN,v rr blk dd o STN,n-rr slow-mod fast stmg CUT"
6813.00	6829.00 "DOL ltbrn,occ mbrn,micxl-vfxl,micsuc,occ suc,frm,cln-sl slty,lmy-v lmy,v sl alg ip,sl anhy-v rr ANHY xl,v rr mic fos,rr-g intxl-v rr pp vug POR,fr-g dull-bri yel FLOR,fr-g ltbrn STN,v rr blk dd o STN,fr-g mod fast stmg mlky CUT, w/intbd LS AA"
6829.00	6849.00 "LS crm-wh-ltgy-tan,crpxl-micxl,occ vfxl,mfrm-mhd,cln-chky,sl anhy,dol ip,occ grdg to v lmy gran DOL,n-sl alg,v rr COR fos,tt-rr intxl-rr pp vug POR,fr-g bri yel FLOR,n-v rr ltbrn STN,v rr blk dd o STN,n-rr slow-mod fast stmg CUT,w/intbd DOL AA"
6845.00	6860.00 "DOL ltbrn,occ mbrn,micxl-vfxl,micsuc,occ suc,frm,cln-sl slty,lmy-v lmy,v sl alg ip,sl anhy-v rr ANHY xl,fr-g intxl-v rr pp vug POR,fr-g dull-bri yel FLOR,fr ltbrn STN,v rr blk dd o STN,fr-g mod fast stmg-slow dif mlky CUT,w/intbd LS AA,tt-rr vug POR,AA"
6862.00	6881.00 "LS crm-wh-ltgy-tan,crpxl-micxl,occ vfxl,mfrm-mhd,cln-chky,sl anhy,dol ip,occ grdg to v lmy gran DOL,n-sl alg,v rr COR fos,tt-rr intxl-rr pp vug POR,fr-g bri yel FLOR,n-v rr ltbrn STN,v rr blk dd o STN,n-rr slow-mod fast stmg CUT,w/intbd DOL AA"
6878.00	6898.00 "DOL ltbrn,occ mbrn,micxl-vfxl,micsuc,occ suc,frm,cln-sl slty,lmy-v lmy,v sl alg ip,sl anhy-v rr ANHY xl,fr-g intxl-v rr pp vug POR,fr-g dull-bri yel FLOR,fr ltbrn STN,v rr blk dd o STN,fr-g mod fast stmg-slow dif mlky CUT,w/intbd tt-sl alg LS AA,"
6894.00	6900.00 "INTBD LS & DOL AA,POR-FLOR-STN-CUT AA"

FORMATION TOPS

OPERATOR: MOBIL

WELL NAME: RATHERFORD UNIT #12-22 NW LOWER 2-C HORIZONTAL LATERAL LEG #1

FORMATION NAME	SAMPLES MEASURED DEPTH	SAMPLES TRUE VERTICAL DEPTH	DATUM
LOWER ISMAY			
GOTHIC SHALE	5315'	5310'	-728
DESERT CREEK	5327'	5323'	-741
DC-1A	5333'	5330'	-748
DC-1B	5350'	5344'	-762
DC-1C	5359'	5351'	-769
DC-1D	5369'	5361'	-779
DC-2A	5390'	5375'	-793
DC-2B	5404'	5383'	-801
DC-2C	5420'	5393'	-811
DC-2C POROSITY	5439'	5400'	-818

GEOLOGICAL SUMMARY

AND

ZONES OF INTEREST

The Mobil Exploration and Production U.S. Inc., Ratherford Unit #12-22 Horizontal Leg #1, Section 12, T41S, R23E, was a re-entry of the Mobil Ratherford Unit #12-22, a sidetrack in a northwesterly direction from 5296' measured depth, 5296' true vertical depth, on January 9, 1997. Leg #1 reached a measured depth of 6900', true vertical depth of 5440' at total depth, horizontal displacement of 1600' and true vertical plane 316.6 degrees, on January 13, 1997. The lateral was drilled without any significant problems.

The primary objective of the Ratherford Unit #12-22 Horizontal Lateral Leg 1 was the Lower 2C Porosity Bench, to identify and define the porosity bench, its effective porosity, staining and reservoir properties in the Desert Creek Member of the Upper Paradox Formation.

The Gothic Shale Member, the 1A through 1D and the 2A through 2B were encountered while drilling Leg 1. Kick off point for this lateral was in the lower Ismay Member, with only minor shows of staining or porosity near the base. The top of the Gothic Shale is 5315' measured depth, 5310' true vertical depth. The Gothic Shale was predominantly dark gray to black, silty, carbonaceous, brittle to firm, subblocky to blocky to platy, calcareous to slightly dolomitic and slightly micaceous. The top of the Gothic was gradational from very thin interbedding of very argillaceous, carbonaceous limestone and very argillaceous, limy dolomite, with the dolomite grading into very dolomitic, carbonaceous shale. The top of the Gothic was picked predominantly by the decrease in penetration rate and the decreased percentage of shale in the samples. Correlation with open hole log has the sample pick somewhat higher than the sample log.

Between the Gothic Shale and Desert Creek Porosity Members is a transitional zone, which appears to be gradational. In this well the zone was predominantly a limestone; which was gray to white to light brown, cryptocrystalline to microcrystalline, with some granular limestone, very slightly sandy, with very thinly interbedded dolomite which was brown to light gray brown, microcrystalline to granular, slightly limy and occasionally silty. The limestone was predominately tight with very rare intercrystalline porosity that showed some anhydrite fillings. Through this transitional zone there appeared to be some interbedding or possibly cyclic deposits consisting of dolomitic to slightly calcareous, black, carbonaceous mudstones and very slightly dolomitic siltstones. The porosities ranged from none to very poor intergranular, with traces of calcite to anhydrite fillings. No visible staining was noted and had predominately a very rare spotty, very poor, faint dull yellow fluorescence, with no to very rare residue ring cut.

The top of the Desert Creek 1-A zone was picked at 5332' measured depth, 5328' true vertical depth. The pick is base on the rate of penetration, only slightly influenced by sample interpretation. The top was picked in this lateral mainly based on the first significant increase in the limestone below the Desert Creek top and the occurrence of a light brown to medium brown, microcrystalline to microsucrosic, dolomite, interbedded in the limestone. The limestone was predominately tight with very rare streaks of intercrystalline porosity, some chert fragments, and no to very rare visible fluorescence, poor faint light brown stain and a poor slow residual ring near the base.

The top of the Desert Creek 1-B zone appeared to occur at 5348' measured depth, 5344' true vertical depth. The pick is base on the rate of penetration, only slightly influenced by sample interpretation. The top was picked in this lateral mainly based on the overall consistent decrease penetration rate in the limestone below the Desert Creek top of the 1-A. The limestone was predominately tight with very rare, very thin streaks of intercrystalline porosity, some thin black carbonaceous shale laminations to partings, and no visible fluorescence, stain or cut.

The very thin porosity zone marking the very top of the 1-C zone, occurred at a measured depth of 5359' and a true vertical depth of 5351'. The limestones of the 1-C zone were cream to tan, cryptocrystalline to microcrystalline, clean to very slightly silty, occasionally very slightly marly, occasional scattered micro fossils and chert fragments. The upper 3' had a trace of intercrystalline porosity, with a spotty dull to bright yellow fluorescence, no visible stain and a very good streaming cut. The lower 10' became increasingly tighter and more dolomitic, with very rare light to medium brown, microcrystalline to micosucrosic interbedded dolomites. These thin dolomites were predominately tight, as was the surrounding limestone, with very thin streaks of intercrystalline porosity, very rare spotty dull yellow fluorescence, no to a trace of dead oil stain and a fair streaming cut, near the 1-C and 1-D contact.

The top of the 1-D zone was marked by a thin hard streak in the drilling time and an increase in the samples of a microsucrosic to microcrystalline, light to medium to dark brown dolomite, at a measured depth of 5372' with a true vertical depth of 5363'. Thin interbedded cream to tan to off-white, cryptocrystalline to microcrystalline, predominately tight, slightly dolomitic limestone were noted through out the zone. The dolomites and limestones had traces of intercrystalline and vuggular porosity, a trace to fair dull-bright yellow fluorescence, none to a trace of spotty black dead oil stain, with a fair slow to fast cut. A significant increase in the background gas was also noted over this zone.

The 2-A zone of the Desert Creek lays below the 1-D zone with a marked decrease in the penetration rate and an increase in the percentage of limestones in the samples, with a measured depth of 5390' and a true vertical depth of 5375'. The limestones are cream to white to tan, occasionally brown, cryptocrystalline to microcrystalline, slightly chalky, with rare scattered micro fossils and very thin black carbonaceous shale laminations. The limestone mainly tight, with very rare, very thin streaks of intercrystalline porosity. This limestone had traces of dead oil stain and no to poor crush cut.

At a measured depth of 5404' and a true vertical depth of 5383' the tight limestones at the top of the 2-B zone were encountered. These limestones were cream to tan, occasionally brown, cryptocrystalline to microcrystalline, very slightly silty, predominately dense, with very rare micro fossils, very slightly anhydritic, with very thin black carbonaceous shale laminations to partings. Also noted in the 2-B zone were very thin streaks of porosity, very thin even given the angle at which the zone was drilled at. These porosity streaks in the limestone showed traces of fair intercrystalline porosity, fair to good dull to bright yellow fluorescence, but only a poor diffuse to residual ring cut and no visible oil staining.

The top of the main objective, the 2-C zone, was picked at a measured depth of 5439', 5400' true vertical depth, in a dolomitic limestone. As the curve was being completed in the 2-C zone the limestone became cleaner and increasing granular. While drilling curve through the section, it appeared that the 2-C porosity bench was possibly defined by the interval 5439' measured depth, 5400' true vertical depth to possibly 5475' measured depth, 5410' true vertical depth. The top of the porosity Bench was marked by facies change, which was somewhat gradational since the drilling the. The top of the best porosity in the 2 -C bench was marked by increase in rate of penetration and increase in intercrystalline porosity. The base of the porosity zone was marked by a significant increase in brown, granular to microsucrosic, limy dolomite.

At a measured depth of 5470', 5405' true vertical depth, with a horizontal displacement of 206' in the basal limestones of the 2-C porosity horizon, a trip was made to change the bottom hole assembly and pick up the MWD tool. Through out the drilling of the 2-C lateral the porosity was predominately in a light to medium brown to cream to white, microcrystalline to very fine crystalline, microsucrosic to occasionally sucrosic, slightly anhydritic with rare dark algal material, traces to abundant micro fossils, traces of scattered dark brown to black oil stain residue* in intercrystalline matrix and vugs. Predominantly trace to good vuggy and fair to good intercrystalline porosity, some calcite/anhydrite filled casts in the algal porosity. Through the interval the staining was moderate to fair and cut ranging from moderate milky residue/ring to good moderately fast to slow steady streaming. A slight decrease in porosity and penetration was noted at 5606' measured depth, 5409' true vertical depth, with an increase the dolomites noted in the samples. The decrease in penetration rate was due to a slide of the drill pipe needed to turn upward toward horizontal. After the slide, the pipe was again rotated, and the penetration rated increased and the lithology return to clean tan to cream, limestone with good intercrystalline to vuggular porosity.

The well was continued gradually downward at a very shallow angle from 5643' measured depth, 5410' true vertical depth, to 6600' measured depth, 55435' true vertical depth, a horizontal displacement of 940'. During this interval rare, very thin scattered dolomites, light to medium brown, microsucrosic to granular, with the porosity remaining fair intercrystalline, with fair staining, and moderate to fair cut, were encountered in the limestones. This change in facies appeared to be very thin and patchy, with the dolomites being possibly thin inclusions or secondary cementation in the limestone.

At a measured depth of 6600', 5435' true vertical depth, with a horizontal displacement of approximately 1312', a decrease in the limestones was noted and the lithology became increasingly dolomite. The dolomites became increasingly granular, and were predominately light to medium brown to brown, microcrystalline to very fine crystalline and microsucrosic to sucrosic to granular, with slightly algal to good intercrystalline porosities, with fair to good dull to occasionally bright yellow fluorescence, rare to trace black dead oil to fair light brown live oil stain and a fair to good moderately fast streaming cut. The facies change to a more granular dolomite appeared to be a vertical as well as a horizontal facies change.

As the lateral continued from 6600' measured depth, 5435' true vertical depth, to a total depth of 6900' measured depth and a horizontal displacement of 1600', the predominate lithology was a granular to microcrystalline, light brown to medium brown, dolomite, with no significant change in porosity, or sample show. However the sample show did show more dull yellow fluorescence, a decrease in the amount of staining and moderately fast to fast streaming milky cut, which was due to the occurrence of tight limestones in the samples..

In tracking the target line through the upper bench, there were several facies changes, predominately vertical with only one obvious horizontal change. Predominant facies changes were associated with the rock type. Even with these classification changes, porosity for the most part was continuous, but the effective or the better porosity was associated with the facies in which fair to good, intercrystalline porosity as well as algal porosity, and the absence of any major anhydrite plugging and dolomitic mud filling in the limestone supported porosities.

From the top of the 2-C porosity bench to 6600' measured depth, the limestone lithology was consistent, tan to cream to white, cryptocrystalline to microcrystalline to very fine crystalline, occasionally microsucrosic to occasionally granular, with scattered very rarely dolomite matrixes. The limestone had predominantly fair to moderate intercrystalline to micropore and possible vuggular porosity, grading to or having interbedded cyclic deposits, of very rare microcrystalline to microsucrosic, granular dolomite. These limestones had varying amounts of dark algal material with dark brown to black oil stain residue and at times calcite, and occasionally anhydrite filled casts having an effect on continuous effective porosity. The staining, fair to moderate to occasionally good,

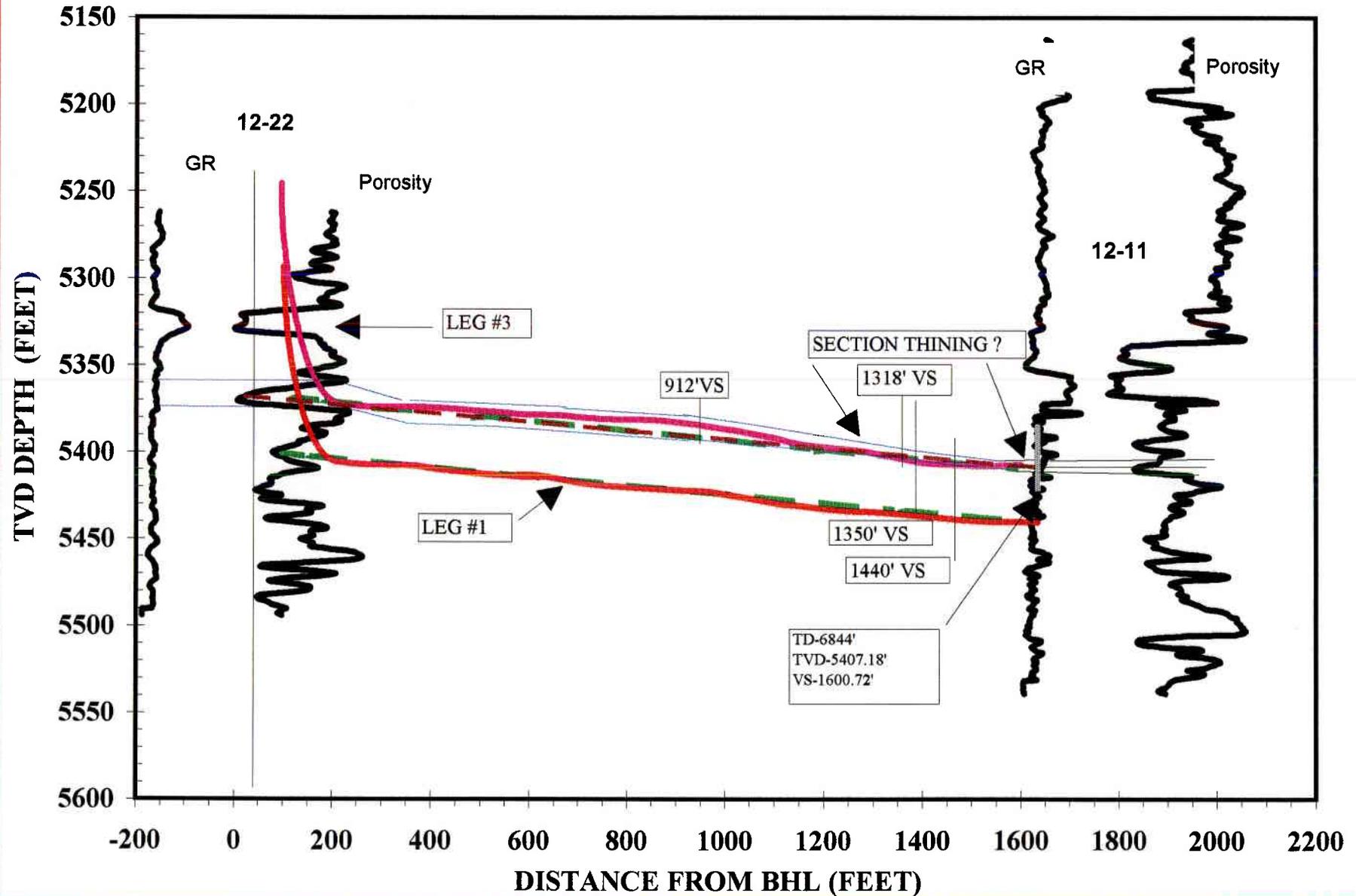
however remained rather consistent and continuous through out bench. Fluorescence, like the staining was consistent and continuous, and was a dull to bright yellow gold, with cuts ranging from moderate to good ring (diffuse) to moderate to good steady fast streaming cut. And from 6600' to a total measured depth of 6900' the dolomite lithology was a rather consistent light to occasionally medium brown, microcrystalline to microsucrosic granular dolomite with scattered interbedded tight to algal limestones. The dolomites had fair to good intercrystalline to very rare algal porosities and a good constant dull to bright yellow fluorescence, with noticeable decreases when noticeable amounts of tight limestone was present. The staining in the dolomites ranged from trace to good light brown to traces of black dead oil stain and the associated cuts being trace to good slow to fast streaming and occasion slow diffuse cuts.

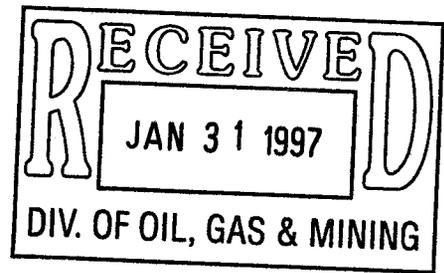
The conclusion drawn from the northeast 2-C porosity bench Lateral Leg 1, is in this area some primary dolomitization (due to the lack of limestone cements and framework), to possibly secondary dolomitization has occurred possibly enhancing the predominantly intercrystalline to algal porosity in the limestones. However, at times the vertical facies changes had an effect on porosity, not well developed at times, and further reducing effective porosity when encountering calcite and anhydrite filled casts. Also, having an effect on the porosity, microsucrosic to algal limestone did grade to or was thinly interbedded with microcrystalline dolomite, which in turn grade to very fine grain, dolomitic grainstone with dense matrix in part. Some staining was trapped in the matrix and along the anhydrite to limestone contact surfaces but, with trace to good intergranular to intercrystalline porosity. Staining was fair to moderate and there were significant sections where staining was moderately good. The lateral used the a proposed projected target line as a reference point through the bench, drilling tried to follow the target line while maintaining contact with best porosity. It appears that the effective porosity is continuous, even with the horizontal facies encountered.

While drilling, the lateral did make varying amounts of gas, which due to the significant amounts of heavies noted on the chromatograph (C₃ and C₄) indicated the presence of live oil. I would interpret this lateral to have good reservoir qualities since it did give up some oil and gas while drilling. I believe that the porosities are well enough developed to enhance the overall performance of the zone.

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

MOBIL, Ratherforn Unit #12-22, Northwest Laterals





MOBIL

**RATHERFORD UNIT #12-22
HORIZONTAL LATERAL LEG #2
UPPER 1-D POROSITY BENCH DESERT CREEK
SECTION 12, T41S, R23E
SAN JUAN, UTAH**

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

MICROPHONE

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WELL SUMMARY

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

NAME: RATHERFORD UNIT #12-22 SE UPPER HORIZONTAL LATERAL
LEG #2 IN 1-D UPPER POROSITY BENCH, DESERT CREEK

LOCATION: SECTION 12, T41S, R23E

COUNTY/STATE: SAN JUAN, UTAH

ELEVATION: KB:4570' GL:4582'

SPUD DATE: 1/14/97

COMPLETION DATE: 1/19/97

DRILLING ENGINEER: DENNIS RUSSELL/LOUIS

WELLSITE GEOLOGY: DAVE MEADE / MARVIN ROANHORSE

**MUDLOGGING:
ENGINEERS** DAVE MEADE / MARVIN ROANHORSE

CONTRACTOR: BIG "A" RIG 25
TOOLPUSHER: DEAN SIPE

HOLE SIZE: 4 3/4"

CASING RECORD: SIDETRACK IN WINDOW AT 5262' MEASURED DEPTH

**DRILLING MUD:
ENGINEER:
MUD TYPE:** M-I DRILLING FLUIDS
DANNE BEASON
PRODUCTION WATER/POLYMER SWEEPS

**ELECTRIC LOGS:
ENGINEER:
TYPE LOGS:
TOTAL DEPTH:** NA
6747' MEASURED DEPTH

STATUS: PULL BACK UP HOLE AND TO SET WHIPSTOCK PRIOR TO
DRILLING LEG #3

DRILLING CHRONOLOGY

MOBIL RATHERFORD UNIT #12-22 SE UPPER HORIZONTAL LATERAL LEG #2

DATE	DEPTH	DAILY	ACTIVITY
1/14/97	5262'	9'	TOH-LAY DOWN WHIPSTOCK TOOLS-PICK UP WHIPSTOCK-TIH & ORIENT-TAG & SET WHIPSTOCK @ 5262'-MILL FROM 5262' TO 5264'-WORK MILL THRU WHIPSTOCK-TOH-MAKE UP WINDOW-TIH-MILL 5264' TO 5271'-PUMP SWEEP TOH
1/15/97	5271'	3'	TOH-PRESSURE TEST BOP-PICK UP MUD MOTOR, ORIENT & TEST-TIH W/BIT #1(RR)-THAW OUT STD PIPE, AIR HEATER-TIH W/GYRO- TIME DRLG-THAW OUT MUD PUMP-TIME DRLG 5271-5274'
1/16/97	5274'	100'	TIME DRLG-PULL GYRO-RESET & RUN GYRO-TIME DRILLING 5275' TO 5278'-PULL GYRO-RESET & RUN GYRO-TIME DRLG 5278'-5291'-PULL GYRO-RIG UP & RUN IN STEERING TOOL-DRILLING AHEAD AND SURVEYING
1/17/97	5374'	433'	DRILLING AHEAD AND SURVEYING-CIR & TOH-LAY DOWN STEERING-PICK UP LATERAL MUD MOTOR & NEW BIT & MWD TOOL-TEST- MOTOR & ORIENT-TIH-DRILLING AHEAD AND SURVEYING
1/18/97	5807'	757'	DRILLING AHEAD AND SURVEYING
1/19/97	6564'	182'	DRILLING AND SURVEYING-10 STD SHORT TRIP TO WIPE HOLE-DRILLING AND SURVEYING-REACHED TOTAL DEPTH OF 6747' MEASURED DEPTH, 5352.33' TRUE VERTICAL DEPTH- CIRCULATE-TOH-LAY DOWN MWD & MUD MOTOR-PICK UP RETRIEVING TOOLS-TIH

DAILY ACTIVITY

Operator: MOBIL

Well Name: RATHERFORD UNIT #12-22 SE UPPER HORIZONTAL LATERAL LEG #2

DATE	DEPTH	DAILY	DATE	DEPTH	DAILY
1/14/97	5262'	9'			
1/15/97	5271'	3'			
1/16/97	5274'	100'			
1/17/97	5374'	433'			
1/18/97	5807'	757'			
1/19/97	6564'	183'			
TD	6747'				

BIT RECORD

OPERATOR: MOBIL

WELL NAME: RATHERFORD UNIT #12-22 SE UPPER HORIZONTAL LATERAL LEG #2

RUN	SIZE	MAKE	TYPE	IN/OUT	FTG	HRS	FT/HR
#2 BIT (RR)	4 3/4"	HTC	ATJ-22	5271'/ 5430'	159'	15.5	10.3
#3 BIT	4 3/4"	HTC	STR-20	5430'/ 6747'	1317'	50	26.3

SPERRY-SUN DRILLING SERVICES
SURVEY DATA

Customer ... : Mobil
Platform ... : CA-MJ-70005
Slot/Well .. : /12-22, 2A1, L2

MEASURED DEPTH	ANGLE DEG	DIRECTION DEG	TVD	NORTHINGS FEET	EASTINGS FEET	VERTICAL SECTION	DOG LEG
5263.00	0.78	201.61	5260.56	39.04 N	91.60 W	-92.38	0.00
5271.00	3.60	135.00	5268.55	38.81 N	91.44 W	-92.10	42.09
5281.00	8.70	133.84	5278.49	38.07 N	90.67 W	-91.03	51.01
5291.00	14.40	132.68	5288.29	36.70 N	89.21 W	-89.03	57.04
5301.00	20.60	131.52	5297.82	34.69 N	86.98 W	-86.03	62.10
5311.00	27.00	130.36	5306.96	32.05 N	83.93 W	-82.01	64.17
5321.00	31.80	129.20	5315.67	28.91 N	80.16 W	-77.12	48.33
5331.00	36.70	128.00	5323.94	25.40 N	75.76 W	-71.53	49.46
5341.00	42.10	126.88	5331.66	21.55 N	70.72 W	-65.24	54.46
5351.00	46.60	125.72	5338.81	17.42 N	65.08 W	-58.34	45.72
5361.00	50.90	124.56	5345.40	13.09 N	58.94 W	-50.93	43.87
5371.00	55.30	123.40	5351.41	8.62 N	52.30 W	-43.08	44.97
5381.00	61.40	122.24	5356.65	4.02 N	45.15 W	-34.77	61.79
5391.00	67.40	121.08	5360.97	0.71 S	37.48 W	-26.00	60.90
5401.00	73.30	119.90	5364.33	5.49 S	29.37 W	-16.88	60.04
5411.00	79.30	118.45	5366.70	10.22 S	20.89 W	-7.54	61.63
5421.00	86.40	117.00	5367.94	14.83 S	12.11 W	1.93	72.44
5430.00	89.30	117.70	5368.28	18.96 S	4.12 W	10.50	33.15
5454.17	89.50	119.70	5368.53	30.57 S	17.08 E	33.69	8.32
5485.92	90.20	122.90	5368.62	47.06 S	44.20 E	64.53	10.32
5516.87	90.70	126.00	5368.37	64.57 S	69.72 E	94.96	10.15
5548.54	90.60	129.70	5368.01	84.00 S	94.72 E	126.37	11.69
5580.39	91.90	132.50	5367.32	104.93 S	118.71 E	158.14	9.69
5612.23	91.80	133.10	5366.29	126.55 S	142.06 E	189.94	1.91
5644.00	91.40	134.50	5365.40	148.53 S	164.98 E	221.69	4.58
5675.88	91.40	133.90	5364.63	170.75 S	187.83 E	253.55	1.88
5707.63	91.30	134.30	5363.88	192.84 S	210.63 E	285.29	1.30
5738.69	91.20	135.50	5363.20	214.75 S	232.62 E	316.34	3.88
5770.53	90.70	136.00	5362.67	237.56 S	254.84 E	348.18	2.22
5802.34	90.50	135.20	5362.34	260.28 S	277.09 E	379.98	2.59
5833.17	89.70	135.20	5362.28	282.16 S	298.81 E	410.81	2.59
5864.92	91.30	135.90	5362.01	304.82 S	321.05 E	442.56	5.50
5896.66	92.00	136.60	5361.09	327.74 S	342.99 E	474.28	3.12
5928.45	91.60	136.20	5360.10	350.75 S	364.90 E	506.04	1.78
5959.54	90.50	136.40	5359.53	373.22 S	386.37 E	537.12	3.60
5991.38	90.70	136.40	5359.19	396.28 S	408.33 E	568.95	0.63
6023.29	90.80	135.70	5358.77	419.25 S	430.47 E	600.85	2.22
6055.02	90.80	135.70	5358.33	441.96 S	452.63 E	632.57	0.00

SPERRY-SUN DRILLING SERVICES
SURVEY DATA

Customer ... : Mobil
Platform ... : CA-MJ-70005
Slot/Well .. : /12-22, 2A1, L2

MEASURED DEPTH	ANGLE DEG	DIRECTION DEG	TVD	NORTHINGS FEET	EASTINGS FEET	VERTICAL SECTION	DOG LEG
6086.65	90.70	135.50	5357.92	464.56 S	474.76 E	664.20	0.71
6118.48	90.40	136.00	5357.61	487.35 S	496.97 E	696.02	1.83
6150.31	90.20	135.90	5357.45	510.23 S	519.10 E	727.85	0.70
6182.14	90.30	136.00	5357.31	533.11 S	541.23 E	759.67	0.44
6213.95	91.30	136.40	5356.86	556.07 S	563.25 E	791.47	3.39
6245.78	92.50	137.40	5355.81	579.29 S	584.98 E	823.27	4.91
6277.49	90.80	137.80	5354.89	602.70 S	606.36 E	854.93	5.51
6308.12	89.70	137.60	5354.76	625.35 S	626.97 E	885.53	3.65
6339.68	90.40	138.30	5354.73	648.79 S	648.11 E	917.04	3.14
6371.45	88.70	138.30	5354.98	672.51 S	669.24 E	948.76	5.35
6403.43	87.30	137.30	5356.10	696.18 S	690.71 E	980.68	5.38
6435.28	89.10	138.00	5357.10	719.71 S	712.15 E	1012.48	6.06
6467.10	88.90	136.70	5357.65	743.11 S	733.71 E	1044.27	4.13
6498.93	90.80	137.10	5357.74	766.35 S	755.45 E	1076.08	6.10
6530.69	91.00	136.20	5357.24	789.44 S	777.25 E	1107.82	2.90
6562.52	91.40	135.50	5356.57	812.27 S	799.42 E	1139.64	2.53
6594.21	92.40	134.80	5355.52	834.73 S	821.76 E	1171.31	3.85
6626.09	92.90	134.30	5354.05	857.07 S	844.45 E	1203.16	2.22
6657.84	92.50	133.60	5352.55	879.08 S	867.28 E	1234.86	2.54
6689.74	90.40	133.40	5351.75	901.03 S	890.41 E	1266.74	6.61
6717.00	89.10	132.30	5351.86	919.57 S	910.40 E	1293.98	6.25
6747.00	89.10	132.30	5352.34	939.76 S	932.58 E	1323.94	0.00

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

MUD REPORT

OPERATOR: MOBIL

WELL NAME: RATHERFORD UNIT #12-22 SE UPPER HORIZONTAL LATERAL LEG #2

DATE	DEPTH	WT	VIS	PLS	YLD	GEL	PH	WL	CK	CHL	CA	SD	SOL	WTR
1/14/97	5263'	8.4	26	-	-	-	11.5	N/C	N/C	9700	60	-	-	100
1/15/97	5271'	8.4	26	-	-	-	11.5	N/C	N/C	11000	60	-	-	100
1/16/97	5278'	8.4	26	-	-	-	11.5	N/C	N/C	11500	60	-	-	100
1/17/97	5430'	8.4	26	-	-	-	11.5	N/C	N/C	11500	60	-	-	100
1/18/97	6230'	8.4	27	-	-	-	11.5	N/C	N/C	11500	60	-	-	100
1/19/97	6689	8.4	29	1	2	0/1	11.5	N/C	N/C	11600	40	-	-	100

SAMPLE DESCRIPTIONS

OPERATOR: MOBIL

WELL NAME: RATHERFORD UNIT 12-22 SE UPPER HORIZONTAL LATERAL LEG #2

DEPTH	LITHOLOGY
5271.00 5280.00	"LS ltgy-brn, mgybrn, occ tan-crm, crpxl-micxl, occ micsuc, rthy, v sl mrly, v arg-v sl dol, occ grd to v lmy MRLST, tt-rr intxl POR, rr-tr dull-bri yel FLOR, n vis STN, p-vf v slow dif-stmg CUT"
5280.00 5291.00	"LS AA, incr wh-crm, crpxl, cln-sl mrly, chty ip, tt-rr intxl POR, tr dull-bri spty yel FLOR, n-v rr ltbrn stn, n-tr slow dif-stmg CUT, w/occ intbd thn lmy MRLST"
5293.00 5306.00	"LS mgybrn, m-ltgy, occ ltbrn, wh, crpxl-micxl ip, frm-sl brit, rthy-sl mrl, occ v sl chky, dol ip/tr brn DOL prt, tr mic fos-rr ALG, tr trnsl xl ANHY, tt-fr intxl POR, tr-fr g even-spotty bri gnyel FLOR, vp resid ring CUT, tr blk dd o STN"
5300.00 5310.00	"DOL mbrn, occ ltbrn, crpxl-micsuc ip, mfrm-hd, v sl gran, rthy, lmy/tr ltbrn LS incl, grd to dol LS, tr intxl POR, fr-p dull gnyel FLOR/tr fnt v dull orng mnrl FLOR, vp residid ring CUT, n vis STN"
5320.00 5330.00	"SH dkbrnblk-blk, sbply-sbblky, sft-mfrm, occ brit, carb, slty ip, sl-v calc, occ grd to shy carb SLTST, sooty"
5330.00 5340.00	"LS ltgybrn-gy, occ brn, off wh, micxl-gran-crpxl, sft-frm, rthy, pred mrly-arg, occ sl slty, chky, tr intxl POR/abnt lmy mrly fl, tr fnt dull orng mnrl FLOR, rr dk brn STN, no CUT"
5340.00 5350.00	"LS ltgy-gybrn-wh, occ brn, crpxl-micxl, frm-brit, rthy, v chky, mrly/occ gran LS incl, tr mic fos, tt-tr intxl POR/mod lmy mrl fl, fr spotty-occ even bri yel FLOR, p slow strm-fr resid ring CUT, tr dk brn STN"
5350.00 5360.00	"DOL mbrn, occ dkbrn, crpxl-occ micxl ip, hd,, rthy, lmy/tr ltbrn LS incl, grd to dol LS, tt-rr intxl POR, no-tr fnt dull-rr bri gnyel FLOR, vp resid ring CUT, n vis STN"
5370.00 5380.00	"LS ltbrn-ltgybrn, crm-wh, cpxl-occ micxl, rthy-mrly, occ v chky, sl arg, chty, occ sl dol, tr mic fos, occ grd to lmy MRLSt, tt-tr intxl POR/occ lmy mrl fl, tr p-fr spotty dull-occ bri yel FLOR, p fnt resid ring CUT, rr dk brn STN, w/CHT bf, occ trnsl, hd, amor"
5380.00 5390.00	"LS AA, chty, tr blk SH lam, bcmg incr dol, grd to lmy DOL, tt-tr intxl POR/mod lmy fl, v fntdull yel-yelorg FLOR, v p resid ring cut, n vis STN "
5390.00 5400.00	"DOL m-dkbrn, micxl-crpxl, occ gran, rthy, lmy/tr ltbrn LS incl, grd to dol LS, tt-tr intxl POR/rr pp vug POR, tr dull spotty-rr bri even yel FLOR, mod slow srtm-f-g resid ring CUT, tr blk dd o STN"
5410.00 5420.00	"DOL brn, micsuc, occ mic-vf xln, rthy, sl gran, v sl lmy/tr tan LS incl, rr CRIN & mic fos, tt-tr intxl POR, f-g even dull-tr bri yel FLOR, f mod fast strm/g resid ring CUT, n vis STN"
5420.00 5430.00	"DOL AA, micsuc, occ micxl-sl gran, rthy, cln, dns, tt-tr intxl-rr pp vug POR, g even bri yel FLOR, fast strm mlky CUT, rr dkbrn-blk STN"
5433.00 5443.00	"DOL lt-mbrn-brn, micxl-micsuc, occ suc, rthy-v sl slty, lmy ip, v rr mic fos, tr-fr dull yel FLOR, tr-fr ltbrn STN, tr-fr slow dif CUT"

DEPTH	LITHOLOGY
5442.00	5450.00 "DOL AA,sl incr in suc,sl alg,occ tt,fr intxl-v rr pp vug POR,fr-g dull yel FLOR,fr-g brn STN,tr blk dd o STN,tr slow dif CUT"
5450.00	5460.00 "DOL brn-mbrn,micxl-vfxl,micsuc-suc,rr crpxl,alg ip,occ sl arg,v sl slty,v rr LS ptgs,tt-g intxl-tr pp vug POR,g dull yel FLOR,g brn-tr blk dd o STN,fr-g slow dif-ring CUT"
5460.00	5470.00 "DOL AA,w/occ scat ANHY xl-incl,occ POR fl,tr-g intxl-pp vug POR,g dull yel FLOR,fr brn-tr blk dd o STN,fr-g slow dif-ring CUT"
5470.00	5480.00 "DOL AA,POR-FLOR-STN-CUT AA"
5477.00	5490.00 "DOL brn-mbrn,occ choc brn,micxl-micsuc,suc ip,occ crpxl,cln-rthy,occ alg,v sl slty,w/occ scat ANHY xl-incl,tr ANHY fl POR,g dull yel FLOR,fr-g brn-tr blk dd o STN,fr-g slow dif-ring CUT"
5490.00	5500.00 "DOL AA,w/occ thn crpxl,dns,LS ptgs-incl,tr ANHY incl-POR fl,fr-g intxl-fr pp vug POR,g dull yel FLOR,fr-g brn-tr blk dd o STN,fr-g slow dif-ring CUT"
5500.00	5510.00 "DOL brn-choc brn-mbrn,micxl-suc,sl slty,v sl anhy,occ alg,w/v rr crpxl DOL incl,tt-g intxl-pp vug POR,g dull yel FLOR,g even brn STN,rr blk dd o STN,g slow dif-ring CUT"
5510.00	5520.00 "DOL AA,incr ANHY xl-incl-POR fl,rr scat crpxl tan-crm LS ptgs-frag,fr-g intxl-fr pp vug POR,g even dull yel FLOR,fr-g brn-tr blk dd o STN,fr-g slow dif-ring CUT"
5520.00	5530.00 "DOL AA/occ dkbrn-brnblk,tr ANHY AA,fr -g intxl/sl incr g pp vug POR,g even yel FLOR,g-fr brn/mod blk dd o STN,g fast strmg CUT"
5530.00	5540.00 "DOL AA/incrdk brn-brnblk,ANHY AA,vrr LS AA,g-fr intxl/fr-g pp vug POR,g even yel FLOR,g brn-f blk dd o STN,g fast strmg CUT"
5540.00	5550.00 "DOL,AA,rr scat tan LS ptgs,g-fr intxl/g-fr tr pp vug POR,g even yel FLOR,g brn-fr blk dd o incr STN,g fast strmg CUT"
5550.00	5560.00 "DOL AA/occ dkbrn-brnblk,rr ANHY AA,fr-g intxl/sl incr g pp vug POR,g even yel FLOR,g-fr brn/mod blk dd o STN,g fast strmg CUT"
5560.00	5570.00 "DOL brn-dkbrn-blkbrn,micxl-micsuc,rr crpxl,alg ip,v sl slty,v rr LS ptgs/ANHY incl,tt-g intxl-g pp vug POR,g dull yel FLOR,g brn-blk dd o STN,g slow-mod fast strmg CUT"
5570.00	5580.00 "DOL AA,occ choc,pred micsuc-micxl,alg ip,tt-fr intxl-g pp vug POR,fr-g yel FLOR,g brn-blk dd o STN,g slow-mod fast strmg CUT"
5581.00	5590.00 "DOL AA,POR-FLOR-STN-CUT AA"
5590.00	5600.00 "DOL brn,dkbrn-blkbrn,occ choc,micxl-micsuc,rr crpxl,alg ip,v sl slty,tt-g intxl-g pp vug POR,g dull yel FLOR,g brn-blk dd o STN,g slow-mod fast strmg CUT"
5600.00	5610.00 "DOL AA,rr tan LS incl,fr-g intxl/g pp vug POR,g even yel FLOR,g-fr brn/mod blk dd o STN,g fast strmg CUT"

DEPTH	LITHOLOGY
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5610.00 5620.00 "DOL AA,w/occ thn crpxl,dns,rr LS ptgs-incl,rr ANHY incl/POR fl,fr-g intxl-fr pp vug POR,g even dull yel FLOR,fr-g brn/tr blk dd o STN,g fast strmg CUT"

5620.00 5630.00 "DOL AA,sl incr ANHY xl-incl/tr POR fl,v rr scat crpxl tan-crm LS ptgs-frag,fr-g intxl-fr pp vug POR,g even dull yel FLOR,slow strmg CUT"

5630.00 5640.00 "DOL brn,dkbrn-blkbrn,occ choc,micxl-micsuc,rr crpxl,alg ip,tr tan LS prtg-incl,v sl slty,tt-g intxl-g pp vug/blk dd o STN fl POR,g even yel FLOR,g brn-blk dd o STN,g slow-mod fast strmg CUT"

5640.00 5650.00 "DOL AA,w/occ thn crpxl,dns,rr LS ptgs-incl,rr ANHY incl/POR fl,fr-g intxl-fr pp vug POR,g even dull yel FLOR,fr-g brn/tr blk dd o STN,fast strmg CUT"

5650.00 5660.00 "DOL brn,dkbrn-blkbrn,occ choc,micxl-micsuc,rr crpxl,alg ip,tr trnsl ANHY incl,v sl slty,tt-g intxl-g pp vug POR,g even dull yel FLOR,g brn-blk dd o STN,g mod fast strmg CUT"

5660.00 5671.00 "DOL AA,rr tan LS incl,fr-g intxl/g pp vug POR,g even yel FLOR,g-fr brn/mod blk dd o STN,g fast strmg CUT"

5670.00 5680.00 "DOL brn,dkbrn-brnblk,occ choc,micsuc-micxl,occ crpxl strk,alg ip,cln,v sl slty,tt-fr intxl-rr pp vug POR,g even mod dull yel FLOR,f brn-blk dd o STN,"

5680.00 5690.00 "DOL AA,POR-FLOR-STN-CUT AA"

5690.00 5700.00 "DOL AA,rr tan LS incl,fr-g intxl/tr pp vug POR,g even yel FLOR,g-fr brn/mod blk dd o STN,g fast strmg CUT"

5700.00 5710.00 "DOL brn,occ choc brn-mbrn,micsuc-crpxl,cln,sl slty,v sl anhy,occ alg,tt-g intxl-pp vug POR/tr blk dd o fl,g even dull yel FLOR,f-g brn-occ blk dd o STN,g fast strmg CUT"

5710.00 5720.00 "DOL AA,cln,dns,rr LS ptgs-incl,rr ANHY incl,fr intxl-rr pp vug POR,g dull even yel FLOR,fr-tr brn-tr blk dd o STN,g fast strmg CUT"

5720.00 5730.00 "DOL AA,cln,dns,tr LS ptgs-incl,tr ANHY incl/POR fl,fr-g intxl-rr pp vug POR,g even dull yel FLOR,tr brn-rr blk dd o STN,g fast strmg CUT"

5730.00 5740.00 "DOL brn,occ choc brn-mbrn,micsuc-crpxl,cln,sl slty,tr tan LS prtg-incl,v sl anhy,occ alg,tt-f intxl-rr pp vug POR/tr blk dd o fl,g even dull yel FLOR,f-g brn-occ blk dd o STN,g fast strmg CUT"

5740.00 5750.00 "DOL AA,cln,dns,tr LS ptgs-incl,tr ANHY incl/POR fl,tt-fr intxl POR,g even dull yel FLOR,tr brn-rr blk dd o STN,g fast strmg CUT"

5750.00 5760.00 "DOL brn,occ choc-brnblk,micsuc-micxl,cln\sl incr ANHY incl/tr POR fl,v rr scat crpxl tan-crm LS ptgs-frag,fr intxl POR,g even dull yel FLOR,g brn-rr blk dd o STN,g fast strmg CUT"

5760.00 5770.00 "DOL AA,cln,dns,tr LS ptgs-incl,rr ANHY incl,tt-fr intxl POR,g even dull yel FLOR,tr brn-rr blk dd o STN,g fast strmg CUT"

DEPTH	LITHOLOGY
5770.00 5780.00	"DOL AA,POR-FLOR-STN-CUT AA"
5780.00 5790.00	"DOL brn-occ brnblk,micsuc-micxl/occ crpxl strk,cln,sl slty,tr ANHY incl,rr tan fos LS incl,tt-p intxl-rr pp vug POR,g even yel FLOR,g brn-incr blk dd o STN,g fast strmg CUT"
5790.00 5800.00	"DOL AA, sl incr ANHY prts-incl,rr ltgy dol incl,sl alg ip,tt-tr intxl POR,g even yel FLOR,g brn-blk dd o STN,fast strmg CUT"
5800.00 5810.00	"DOL brn,occ drkbrnblk-choc brn,micsuc-micxl-occ crpxl,pred cln-tr trnsL ANHY incl-prtgs,sl alg,occ sl slty,tt-tr inxl POR,g brn-tr blk dd o STN,g fast strmg CUT"
5810.00 5820.00	"DOL AA,sl incr ANHY,rr ltgy dol slty prtgs,tt-tr micinxl POR,g even-occ spotty FLOR,g brn-tr blk dd o STN,g fast strmg CUT"
5820.00 5830.00	"DOL AA,rr trnsL ANHY prtgs-incl,tt-tr intxl-rr pp vug POR,g even yel FLOR,g brn-occ blk dd o STN,g fast strmg CUT"
5830.00 5840.00	"DOL brn-choc brn,occ dk brn-brnblk,micsuc-micxl/occ crpxl strk,cln,dns,rr ANHY prtgs-incl,v sl slty,tt-tr intxl-rr pp vug POR,g even yel FLOR,g fast strmg CUT"
5840.00 5850.00	"DOL AA,cln,rr ANHY prtgs/rr POR fl,tt-tr inxl POR,g even yel FLOR,g brn-tr blk dd o STN,g fast-mod slow CUT"
5850.00 5860.00	"DOL brn,occ choc-dk brnblk,micxl-crpxl,occ micsuc,cln,rr ANHY prtgs-POR fl,dns,sl slty,rr tan LS prtgs,tt-tr inxl POR,g even yel FLOR,g brn-rr blk dd o STN,g fast strmg CUT"
5860.00 5870.00	"DOL pred brn,AA,tt-tr intxl POR,g even yel FLOR, g brn-rr scat blk dd o STN,mod slow strmg-g resid ring CUT"
5870.00 5880.00	"DOL brn,micxl-crpxl,occ micsuc,cln,rr wh-occ trnsL ANHY prtgs-incl,rr tan-crm LS prtgs,sl slty,rr alg ip,tt-tr inxl-rr pp vug POR,g even yel FLOR,g brn-v rr scat blk dd o STN,fr-g resid ring CUT"
5880.00 5890.00	"DOL AA,cln,rr wh ANHY incl/tr trnsL prtgs,rr ltgy dol slty prtgs,sl slty,rr alg,tt-tr intxl POR,g even yel FLOR,g brn-tr scat pp blk dd o STN,g fast strmg CUT"
5890.00 5900.00	"DOL brn,occ dk brnblk,crpxl-micxl,occ micsuc,cln,sl slty,rr ltgy DOL/wh ANHY incl,rr ltgybrn LS prtgs,tt-tr intxl POR,g even yel FLOR,g brn-tr blk pp dd o STN,g fast-mod slow strmg CUT"
5900.00 5910.00	"DOL brn,occ choc brn,crpxl-micxl,occ micsuc,cln,rr ANHY prtgs-POR fl,dns,sl slty,tt-tr inxl POR,g even yel FLOR,g brn-rr blk dd o STN,g fast strmg CUT"
5910.00 5920.00	"DOL pred brn,AA,tt-tr intxl POR,g even yel FLOR, g brn-rr scat pp blk dd o STN,g fast strmg CUT"
5920.00 5930.00	"DOL brn,crpxl=micxl.occ micsuc,cln,sl slty,rr lt gy slty DOL prtgs/wh ANHY incl,tt-tr intxl POR,g even yel FLOR,g brn/tr scat blk pp dd o STN,"

DEPTH	LITHOLOGY
5930.00 5940.00	"DOL AA,tt-tr intxl-rr pp vug POR,g even yel FLOR,g brn-tr blk-dk brnblk pp dd o STN,g fast-mod slow CUT"
5940.00 5950.00	"DOL brn,micxl-crpxl.occ micsuc,cln,sl slty,dns,tr CRIN fos,rr wh ANHY incl,tt-tr intxl-v rr pp vug POR,g even yel FLOR,g brn-v rr blk pp dd o STN,g fast strmg CUT"
5950.00 5960.00	"DOL ltbrn-brn,occ m-dkbrn,micxl-micsuc,occ suc-gran,rthy-v sl slty,sl anhy,occ v sl lmy,v rr mic fos,v rr ANHY xl-incl,tr-g intxl POR,fr-g dull yel flor,fr ltbrn-rr dkbrn-blk STN,g slow dif-tr sl stmg CUT"
5960.00 5970.00	"DOL AA,w/rr ltgy crpxl LS incl,tr-fr intxl-rr pp vug POR,FLOR-STN-CUT"
5970.00 5980.00	"DOL ltbrn-brn,occ m-dkbrn,micxl-micsuc,occ suc-gran,rthy-v sl slty,sl anhy,occ v sl lmy-v rr cryxl ltgy LS frag,v rr mic fos,v rr ANHY xl-incl,tr-g intxl POR,fr-g dull yel flor,fr ltbrn-rr dkbrn-blk STN,g slow dif-tr sl stmg CUT"
5980.00 5990.00	"DOL AA,w/rr ltgy crpxl LS incl,tr-fr intxl-rr pp vug POR,FLOR-STN-CUT"
5990.00 6000.00	"DOL ltbrn-brn,occ m-dkbrn,micxl,occ-micsuc-suc-gran,rthy-v sl slty,sl anhy,occ v sl lmy-v rr cryxl ltgy LS frag,v rr mic fos,v rr ANHY xl-incl,tr-g intxl POR,fr-g dull yel flor,fr ltbrn-rr dkbrn-blk STN,g slow dif-tr sl stmg CUT"
6000.00 6010.00	"DOL AA,w/rr ltgy crpxl LS incl,tr-fr intxl-rr pp vug POR,FLOR-STN-CUT"
6010.00 6020.00	"DOL ltbrn-brn,micxl,occ micsuc-vfxl,gran ip,rthy-sl slty,occ cln,v sl lmy-v rr LS frag,rr ANHY xl-incl,v rr mic fos,tr-g intxl-v rr pp vug POR,fr-g dull yel FLOR,fr ltbrn-v rr blk dd o STN,g slow dif-rr slow stmg CUT"
6024.00 6030.00	"DOL AA,tr-fr intxl-rr pp vug POR,FLOR-STN-CUT"
6030.00 6040.00	"DOL brn-ltbrn,micxl-micsuc,occ vfxl-suc,cln-sl rthy,v sl slty,w/rr ANHY xl-incl & v rr crpxl LS frag-incl,rr-fr intxl-rr pp vug POR,fr-g dull yel FLOR,fr ltbrn STN-n-v rr blk dd o STN,fr-g slow dif-tr slow stmg CUT"
6040.00 6050.00	"DOL AA,tr-fr intxl-rr pp vug POR,FLOR-STN-CUT"
6050.00 6060.00	"DOL brn,occ ltbrn,AA,tr-g intxl-rr pp vug POR,fr-g dull yel FLOR,fr ltbrn STN,v rr blk dd o STN,fr-g slow dif-rr slow stmg CUT"
6060.00 6070.00	"DOL brn,-ltbrn,micxl-vfxl,occ micsuc-suc,gran,cln-sl rthy,v sl slty,w/v rr v thn ltgy crpxl dns LS incl-v rr ANHY xl,tr-g intxl POR,fr-g dull yel FLOR,fr ltbrn STN,fr slow dif-v rr slow stmg CUT"
6070.00 6080.00	"DOL AA,w/v rr Crin fos,tr-g intxl-rr-tr pp vug POR,fr-g dull yel FLOR,fr ltbrn STN,fr-g slow-mod fast dif-v rr slow stmg CUT,w/rr LS AA"
6080.00 6090.00	"DOL AA,occ dkbrn,POR AA-incr pp vug POR,lt-m brn STN,rr-tr blk dd o STN,fr-fr slow-mod fast dif-rr v slow stmg CUT,incr crpxl dns ltgy-tan sl anhy LS frag,v rr Crin fos"

DEPTH	LITHOLOGY
6090.00	6100.00 "DOL AA,POR-FLOR-STN-CUT AA,w/LS ltgy-wh,occ tan,crpxl,v rr micxl,cln-dns,occ chk,v sl dol,v sl chty,anhy,tt & scat blk carb SH lams"
6100.00	6110.00 "DOL brn,occ m-dkbrn,micxl-vfxl,micsuc-suc,gran,rthy,occ cln,v sl slty,occ sl lmy,w/LS incl AA,rr Crin fos,fr-g intxl-v rr pp vug POR,fr-g dull-rr bri FLOR,fr-g ltbrn-tr dkbrn STN,rr blk dd o STN,fr slow dif-rr slow stmg CUT"
6110.00	6120.00 "DOL AA,incr LS AA,POR-FLOR-STN-CUT AA"
6120.00	6130.00 "DOL AA,POR-FLOR-STN-CUT AA,w/LS tan-crm-wh,mot,crpxl-micxl,cln-chk,dol,abnt mic fos,anhy,v sl chty,pred tt-v rr intxl POR,n-v rr FLOR,NSOC"
6130.00	6140.00 "DOL brn,lt-mbrn,micxl-vfxl,micsuc ip,cln-sl rthy,v sl slty,lmy ip,w/intbd LS AA,v sl styl,tr-fr intxl-v rr pp vug POR,fr-g dull-rr bri yel FLOR,tr-fr brn-rr blk dd o STN,fr slow dif-v rr slow stmg CUT"
6140.00	6150.00 "DOL & LS AA,POR-FLOR-STN-CUT AA"
6150.00	6160.00 "DOL AA,grdg to dol LS ip,POR-FLOR-STN-CUT AA,w/intbd LS tan-crm-wh,occ mot,crpxl-micxl,occ cln,dol-v dol,v sl chk,occ chty,anhy,tt,n-v rr spty mnrl FLOR,NSOC"
6160.00	6170.00 "DOL lt-mbrn,brn,micxl-micsuc,vfxl-gran,cln-sl rthy,lmy-v lmy,w/intbd LS AA,v rr Crin fos,tt-fr intxl POR,n vis vug-alg POR,tr-fr ltbrn-rr blk dd o STN,fr slow dif-v rr slow stmg CUT"
6170.00	6180.00 "DOL AA,w/thn intbd LS wh-tan-crm,crpxl,occ micxl,cln-dns,chk ip,sl chty,anhy,dol,grdg to lmy DOL,tt,rr spty mnrl FLOR,NSOC"
6180.00	6190.00 "DOL AA,w/fr-g intxl-v rr pp vug POR,fr-g dull yel FLOR,fr ltbrn-v rr blk dd o STN,fr-g slow dif-slow-mod fast stmg CUT,w/LSAA"
6190.00	6200.00 "DOL AA,w/thn intbd LS wh-tan-crm,crpxl,occ micxl,cln-dns,chk ip,sl chty,anhy,dol,grdg to lmy DOL,tt,rr spty mnrl FLOR,NSOC"
6200.00	6210.00 "DOL lt-mbrn-brn,micxl-micsuc,vfxl-gran,sl anhy-rr ANHY xl,lmy w/LS incl AA,occ rthy-slty,v sl fos,fr-g intxl-rr pp vug POR,fr-g dull yel FLOR,tr-fr ltbrn-rr blk dd o STN,fr slow dif-slow-mod fast stmg CUT"
6210.00	6220.00 "DOL AA,LS AA,tr ANHY xl-incl,occ scat trnsl-tan CHT frag"
6220.00	6227.00 "DOL AA,FLOR-STN-CUT AA,w/thn crpxl-micxl,sl fos,chk,v sl chty LS incl,tt,NFSOC"
6230.00	6240.00 "DOL lt-mbrn,brn,micxl-vfxl,gran,occ micsuc-suc,rthy-sl slty,rr ANHY incl-xl,sl chty,lmy ip,w/occ v thn LS AA incl-intbd,tt-g intxl-v rr pp vug POR,fr-g dull yel flor,fr ltbrn-rr blk dd o STN,fr-g slow dif-mod fast stmg CUT"
6240.00	6250.00 "DOL AA,POR-FLOR-STN-CUT AA,w/LS crm-wh-tan,occ mot,crpxl,micxl ip,rthy-chk,occ cln,dns,sl chty,tt-NFSOC"
6250.00	6260.00 "DOL AA,W/LS AA,POR-FLOR-STN-CUT AA,v sl anhy-rr ANHY xl,v rr scat CHT frag"

DEPTH	LITHOLOGY
6260.00	6280.00 "DOL lt-mbrn,brn,micxl-vfxl,micsuc-gran,rr crpxl,rthy-sl slty,tr ANHY xl-incl,v rr Crin fos,sl lmy,w/crm-tan,mot,crpxl-micxl,dns,chk LS incl,occ tan-trnsl CHT frag,tt-fr intxl-v rr pp vug POR,fr-g dull yel FLOR,fr lt-mbrn STN,rr blk dd o STN,fr-g slow dif-slow-mod fast stmg CUT"
6280.00	6290.00 "DOL AA,w/POR-FLOR-STN-CUT AA,sl incr LS ltgy-crm-tan,mot,crpxl-micxl,anhy,sl chty,dns,tt,occ grdg to v lmy DOL"
6290.00	6300.00 "DOL lt-mbrn,occ mgybrn,micxl-vfxl,micsuc-gran,rr crpxl,cln-lmy,sl slty,occ v sl arg,w/rr ANHY xl-incl,tr Crin fos,v rr trnsl-wh CHT frag,tt-g intxl-v rr sply vug POR,fr dull yel flor,tr-fr ltbrn-v rr sply blk dd o STN,fr slow dif-tr mod fast stmg CUT,w/tt chky LS AA"
6300.00	6310.00 "DOL AA,POR-FLOR-STN-CUT AA,w/LS AA,occ scat trnl-ltbrn,mlky wh CHT frac,v fos"
6314.00	6321.00 "DOL AA,POR-FLOR-STN-CUT AA,w/LS tan-ltbrn,wh-crm,crpxl,occ micxl,rthy-chk,anhy,chytr ltbrn-trnsl-wh CHT frag,dns,tt,v rr mnrl FLOR,NSOC"
6320.00	6337.00 "DOL lt-mbrn,occ dkbrn,micxl-vfxl,occ micsuc-gran,v rr crpxl,cln-sl lmy,occ rthy-sl slty,sl anhy ip,tr Crin fos,tt-fr intr POR,fr-g dull-occ bri yel FLOR,fr-g ltbrn-v rr dkbrn STN,n-v rr sply blk dd o STN,fr-g slow-mod fast stmg CUT,w/LS AA"
6340.00	6350.00 "DOL AA,POR-FLOR-STN-CUT AA,w/tan-wh-crm,occ ltgy,crpxl-micxl,rthy-cln,occ chk,sl chty LS,dns,n-v rr mnrl FLOR,NSOC"
6350.00	6360.00 "DOL AA,occ crpxl,incr lmy,grdg to dol LS ip,sl anhy,tr Crin fos,tr-fr intxl POR,fr dull yel FLOR,fr lt-mbrn STN,fr slow-mod fast stmg CUT,w/scat trnsl-wh CHT frag & intbd w/crpxl wh-tan,mot crpxl-micxl,dol LS,tt,NFSOC"
6360.00	6380.00 "LS tan-crm,mot wh-brn,occ ltgy,crpxl-micxl,rthy-chk,dol,anhy,w/scat wh-trnsl-ltbrn CHT frag,rr fos,tt-v rr intxl POR,n-v rr bri yel FLOR,n-v p STN,n-p ring CUT,W/DOL AA,POR-FLOR-STN-CUT AA"
6380.00	6400.00 "LS AA,v rr ANHY incl-xl,w/scat wh-trnsl-ltbrn CHT frag,rr fos,tt-v rr intxl POR,n-v rr bri yel FLOR,n vis STN-CUT,W/DOL ltbrn-brn,micxl-micsuc,occ vfxl,crpxl ip,lmy,rthy-sl slty,anhy ip,tr intxl PLR,fr dull yel FLOR,fr-brn STN,fr slow-mod fast stmg CUT"
6400.00	6410.00 "LS AA,W/DOL AA,tr Crin fos,scat trnsl-bf-wh,occ mot CHT frag,POR-FLOR-STN-CUT AA"
6410.00	6420.00 "DOL lt-mbrn,occ dkbrn,micxl-micsuc,vfxl,occ suc-gran,v sl slty-rthy,occ lmy,w/rr LS incl,v sl chty,rr Crin fos,v sl anhy-v rr ANHY xl,tr-g intxl POR,fr-g dull yel FLOR,fr lt-mbrn STN,fr-g mod fast-fast stmg CUT"
6420.00	6430.00 "DOL AA,POR-FLOR-STN-CUT AA,w/occ thn LS incl-rr CHT frag"
6430.00	6444.00 "DOL lt-dkbrn,occ dkgybrn,micxl-vfxl,micsuc-suc,gran,rthy-sl slty,v rr ANHY xl-incl,rr LS incl,v sl lmy,rr scat CHT frag,tr CRIN fos,fr-g intxl-tr pp vug POR,fr-g dull-occ bri yel FLOR,fr-g lt-dkbrn STN,v rr blk dd o STN,fr-g mod fas-fast stmg CUT"

DEPTH	LITHOLOGY
6440.00	6460.00 "DOL lt-dkbrn,occ dkgybrn,micxl-vfxl,micsuc-suc,gran,rthy-sl slty,v rr ANHY xl-incl,rr LS incl,v sl lmy,v rr scat CHT frag,tr CRIN fos,fr-g intxl-tr-fr pp vug POR,fr-g dull-occ bri yel FLOR,fr-g lt-dkbrn STN,v rr blk dd o STN,fr-g mod fas-fast stmg CUT"
6460.00	6474.00 "DOL lt-dkbrn,occ dkgybrn,micxl-vfxl,micsuc-suc,gran,rthy-sl slty,v rr ANHY xl-incl,tr LS incl,v sl lmy,rr scat CHT frag,tr CRIN fos,alg ip,g intxl-tr-fr pp vug POR,g dull-rr bri yel FLOR,g lt-dkbrn STN,rr blk dd o STN,fr-g mod fas-fast stmg CUT"
6480.00	6492.00 "DOL lt-dkbrn,occ dkblk,micxl-vfxl,micsuc-suc,gran,rthy-sl slty,rr ANHY xl-incl,rr LS incl,sl lmy,v rr scat CHT frag,tr CRIN fos,alg ip,g intxl-fr pp vug POR,g dull-tr bri yel FLOR,g lt-dkbrn STN,v rr blk dd o STN,fr-g mod fas-fast stmg CUT"
6490.00	6500.00 "DOL brn,occ dkbrn-brnblk,micsuc-micxl,gran,rthy-occ slty,tr tan LS incl,tr CRIN fos,rr wh CHT,sl alg ip,g-fr intxl-tr vug POR,g-fr mod bri yel FLOR,g brn-fr blk dd o STN,"
6500.00	6510.00 "DOL AA,tr CRIN fos,mod tr wh CHT,tr tan LS incl-prtg,trnsL ANHY incl,fr-g intxl-rr pp vug POR,g even bri yel FLOR,g brn-fr blkdd o STN,g fast strm yel CUT"
6510.00	6520.00 "DOL AA,decr amt wh CHT,FLOR-STN-CUT AA"
6520.00	6530.00 "DOL brn,occ dkbrn-brnblk,tr tan LS incl,tr CRIN fos,v sl alg,rr trnsL ANHY incl-POR fl,g even dull yel FLOR,g brn-occ dkbrn-blk dd o STN,fast strmg yel CUT"
6530.00	6540.00 "LS tan,occ ltbrngy,wh,crpxl,cln,occ intbd in brn DOL,tr trnsL-wh ANHY incl,tr wh-trnsL CHT,sl chky,tt-tr intxl POR,g even dull/scat pp bri yel FLOR,g slow-mod fast strmg CUT"
6540.00	6550.00 "CHT wh-trnsL,occ bf-tan,hd,pred amor/rr inbd trnsL cubic LS incl"
6540.00	6550.00 "DOL brn,occ dkbrn-brnblk,micsuc,occ micxl-suc,cln,tr tan LS incl,tr CRIN fos,v sl agl,f-g intxl-rr pp vug POR,g even bri yel FLOR,g brn-f blk dd o STN,slow-mod fast strmg CUT"
6560.00	6570.00 "DOL brn-dkbrn,occ brnblk,micsuc-micxl,tr thin crpxl strk,cln,v sl slty,tr tan LS incl,tr wh sil-CHT incl,tr CRIN fos,sl agl,fr-g intxl POR/tr ANHY fl,gbri yel FLOR,g brn-fr dkbrn-blk STN,g fast strm CUT"
6570.00	6580.00 "DOL AA/incr amt tan-crm-occ wh LS,DOL POR-FLOR-STN-CUT AA"
6580.00	6590.00 "CHT wht,occ bf,hd,sl chky,sil ip"
6590.00	6600.00 "DOL mbrn-brn,occ dkbrn-brnblk,micsuc-micxl,occ crpxl strk,cln/scat tan-trnsL LS incl,tr trsl ANHY incl,tr CRIN fos,sl agl,rr ltgy suc-gran LS/lmy mtrx,fr-mod tr intxl-rr pp vug POR,g bri yel FLOR,g brn-blk dd o STN,g fast strm CUT"
6600.00	6610.00 "LS tan,crm-off wh,occ ltgybrn,crpxl,cln-sl mot ip,tr trnsL-bf CHT incl,sl anhy,v sl chky,tt-tr inxl POR,fr fint-rr scat bri yel FLOR,rr tr dk brn STN,fr slow strmg CUT"
6610.00	6620.00 "LS tan-crm,mot wh-brn,occ ltgy,crpxl-micxl,rthy-chk,dol,anhy,w/scat wh-trnsL-ltbrnCHT frag,rr fos,tt-v rr intxl POR,n-v rr bri yel FLOR,n-v p STN,n-p ring CUT,W/DOL AA,POR-FLOR-STN-CUT AA"

DEPTH	LITHOLOGY
6620.00	6630.00 "LS AA,v rr ANHY incl,tr scat wh-trnsl-ltbrn CHT,tr CRIN fos,tt-v rr intxl POR,fr dull-scat bri yel FLOR,STN-CUT AA,W/DOL ltbrn-brn,micxl-micsuc,occ crpxl,rthy-sl slty,anhy ip,tr intxl POR,fr dull yel FLOR,fr brn/rr pp blk STN,fr slow-mod fast stmg CUT"
6640.00	6650.00 "LS AA,w/lt-mbrn,micxl-micsuc,vfxl,DOL,rthy-sl slty,lmy,v sl anhy,tr Crin fos,tr-fr intxl POR,tr of fr dull yel FLOR,g-fr ltbrn-brn STN,tr fr slow-mod fast stmg CUT"
6650.00	6660.00 "LS tan-crm,mot wh-brn,occ ltgy,crpxl-micxl,rthy-chk,dol,anhy,w/scat wh-trnsl-ltbrnCHT frag,rr fos,tt-v rr intxl POR,n-v rr bri yel FLOR,n-v p STN,n-p ring CUT,W/DOL AA,POR-FLOR-STN-CUT AA"
6667.00	6680.00 "LS AA,w/lt-mbrn,micxl-micsuc,vfxl,DOL,rthy-sl slty,lmy,v sl anhy,tr Crin fos,tr-fr intxl POR,tr of fr dull yel FLOR,g-fr ltbrn-brn STN,tr fr slow-mod fast stmg CUT"
6680.00	6700.00 "DOL brn-choc brn,micxl-micsuc,vfxl-gran,suc ip,sl rthy-v sl slty,lmy,occ sl arg,v sl anhy-rr ANHY xl-incl,scat Crin fos,v rr CHT frag,tr-g intxl-rr pp vug POR,fr-g dull yel FLOR,tr-fr brn-v rr blk dd o STN,fr-g mod fast-fast stmg mlky CUT,W/LS AA"
6700.00	6710.00 "DOL AA,w/fr-g intxl-rr pp vug POR,fr-g dull-rr bri yel FLOR,fr-g lt-mbrn STN,v rr blk dd o STN,fr-g mod fast-fast stmg CUT,w/LS crm-wh,tan,mot wh-tan,crpxl-micxl,rthy-chk ip,cln,dns,occ dol-anhy,cht,y,w/wh-tan CHT frag,tt-v rr intxl POR,n vis STN-CUT"
6713.00	6726.00 "LS tan-ltbrn,mot wh-tan,occ crm-ltgy,crpxl-micxl,plty,rthy-chk,occ cln,dol ip,AA,w/tr DOL ltbrn-brn,micxl-micsuc,occ vfxl,rthy,sl slty,lmy-v lmy,POR-FLOR-STN-CUT AA,scat tan-wh CHT frag"
6724.00	6733.00 "DOL & LS AA,incr POR-FLOR-STN CUT AA,incrCHT frag"
6734.00	6747.00 "LS crm-ltbrn,occ tan,mot wh-tan,crpxl-micxl,plty,chk,occ rthy,sl chty-tr trnsl-wh-ltbrn CHT frag,sl anhy,rr Crin fos,tt-v rr intxl POR,rr-tr dull-bri yel FLOR,n vis STN-CUT,w/lt-mbrn micxl-micsuc DOL,lmy,tr-fr intxl POR,rr ltbrn STN,rr slow stmg CUT"

FORMATION TOPS

OPERATOR: MOBIL
WELL NAME: RATHERFORD UNIT #12-22 SE UPPER HORIZONTAL LATERAL LEG #2

FORMATION NAME		SAMPLES	SAMPLES	DATUM
		MEASURED DEPTH	TRUE VERTICAL DEPTH	
LOWER ISMAY				
GOTHIC SHALE		5321'	5315'	-733
DESERT CREEK		5336'	5328'	-746
DC-1A		5340'	5331'	-749
DC-1B		5358'	5343'	-761
DC-1C		5368'	5349'	-767
DC-1D POROSITY		5388'	5359'	-777

GEOLOGICAL SUMMARY

AND

ZONES OF INTEREST

The Mobil Exploration and Production U.S. Inc., Ratherford Unit #12-22 Horizontal Leg #2, Section 12, T41S, R23E, was a re-entry of the Mobil Ratherford Unit #12-22. This was a sidetrack drilled in a southeasterly direction and up the apparent dip, from 5271' measured depth, 5271' true vertical depth, on January 14, 1997. Leg #2 reached a measured depth of 6747', true vertical depth of 5352' at total depth, horizontal displacement of 1324' and bearing 133.3 degrees, on January 19, 1997. The lateral was drilled without any significant problems.

The primary objective of the Ratherford Unit #12-22 Horizontal Lateral Leg 2 was the Upper 1-D Porosity Bench, to identify and define the porosity bench, its effective porosity, staining and reservoir properties in the Desert Creek Member of the Upper Paradox Formation.

The Gothic Shale Member, the 1A through 1C were encountered while drilling Leg 1. Kick off point for this lateral was in the lower Ismay Member, with only minor shows of staining or porosity near the base. The top of the Gothic Shale is 5321' measured depth, 5315' true vertical depth. The Gothic Shale was predominantly dark gray to black, silty, carbonaceous, brittle to firm, subblocky to blocky to platy, calcareous to slightly dolomitic and slightly micaceous. The top of the Gothic was gradational from very thin interbedding of very argillaceous, carbonaceous limestone and very argillaceous, limy dolomite, with the dolomite grading into very dolomitic, carbonaceous shale. The top of the Gothic was picked predominantly by the decrease in penetration rate and the decreased percentage of shale in the samples. Correlation with open hole log has the sample pick somewhat higher in the sample log due to the well being drill up dip to the correlation log.

The top of the Desert Creek is picked at the top of a transitional zone, which lies between the base of the Gothic Shale and the top of the Desert Creek submembers. This zone appears to be gradational. In this well the zone was predominantly a limestone; which was gray to white to light brown, cryptocrystalline to microcrystalline, with some granular limestone, very slightly sandy, with very thinly interbedded dolomite which was brown to light gray brown, microcrystalline to granular, slightly limy and occasionally silty. The limestone was predominately tight with very rare intercrystalline porosity that showed some anhydrite fillings. Through this transitional zone there appeared to be some interbedding or possibly cyclic deposits consisting of dolomitic to slightly calcareous, black, carbonaceous mudstones and very slightly dolomitic siltstones. The porosities ranged from none to very poor intergranular, with traces of calcite to anhydrite fillings. No visible staining was noted and had predominately a very rare spotty, very poor, faint dull yellow fluorescence, with no to very rare residue ring cut.

The top of the Desert Creek 1-A zone was picked at 5340' measured depth, 5331' true vertical depth. The pick is base on the rate of penetration, only slightly influenced by sample interpretation. The top was picked in this lateral mainly based on the first significant increase in the limestone below the Desert Creek top and the occurrence of a light brown to medium brown, microcrystalline to microsucrosic, dolomite, interbedded in the limestone. The limestone was predominately tight with very rare streaks of intercrystalline porosity, some chert fragments, and had no to very rare visible fluorescence, poor faint light brown stain and a poor slow residual ring near the base.

The top of the Desert Creek 1-B zone appeared to occur at 5358' measured depth, 5343' true vertical depth. The pick is based on the rate of penetration, only slightly influenced by sample interpretation. The top was picked in this lateral mainly based on the overall consistent decrease in penetration rate in the limestone below the Desert Creek top of the 1-A. The limestone was predominately tight with very rare, very thin streaks of intercrystalline porosity, some thin black carbonaceous shale laminations to partings, and no visible fluorescence, stain or cut.

The very thin porosity zone marking the very top of the 1-C zone, occurred at a measured depth of 5368' and a true vertical depth of 5349'. The limestones of the 1-C zone were cream to tan, cryptocrystalline to microcrystalline, clean to very slightly silty, occasionally very slightly marly, occasional scattered micro fossils and chert fragments. The upper 3' had a trace of intercrystalline porosity, with a spotty dull to bright yellow fluorescence, no visible stain and a very good streaming cut. The lower 10' became increasingly tighter and more dolomitic, with very rare light to medium brown, microcrystalline to microsucrosic interbedded dolomites. These thin dolomites were predominately tight, as was the surrounding limestone, with very thin streaks of intercrystalline porosity, very rare spotty dull yellow fluorescence, no to a trace of dead oil stain and a fair streaming cut, near the 1-C and 1-D contact.

The top of the 1-D zone was marked by a thin hard streak in the drilling time and an increase in the samples of a microsucrosic to microcrystalline, light to medium to dark brown dolomite, at a measured depth of 5388' with a true vertical depth of 5359'. Thin interbedded cream to tan to off-white, cryptocrystalline to microcrystalline, predominately tight, slightly dolomitic limestone were noted at and near the top of the zone. The 1-D porosity zone was a brown to dark to medium brown, microcrystalline to very finely crystalline, microsucrosic to sucrosic, earthy to clean, occasionally slightly silty dolomites, with scattered anhydrite crystals and inclusions. Also noted in the dolomites were Crinoid fossils. The dolomite porosity ranged from a trace to fair intercrystalline and scattered traces of vuggy porosity, with a trace to fair dull-bright yellow fluorescence, fair brown stain and none to a trace of spotty black dead oil stain, with a slow diffuse to fair slow to fast cut. A significant increase in the background gas was also noted upon drilling in to this zone.

At a measured depth of 5430', 5368' true vertical depth, with a horizontal displacement of 75' in the dolomites of the 1-D porosity horizon, a trip was made to change the bottom hole assembly and pick up the MWD tool, upon completion of building the curve section of the lateral. Through out the drilling of the 1-D lateral the porosity was predominately in a light to medium brown, microcrystalline to very fine crystalline, microsucrosic to occasionally sucrosic dolomite, clean to slightly silty, with scattered anhydrites, and very rare dark algal material, traces to abundant Crinoid and micro fossils, traces of scattered dark brown to black oil stain residue* in intercrystalline matrix and vugs. The dolomites in the porosity had predominantly trace to good vuggy and fair to good intercrystalline porosity, some calcite/anhydrite filled casts in the algal porosity. Through the interval the staining was fair to good and had cuts ranging from moderate milky residue/ring to good moderately fast to slow steady streaming. A slight decrease in porosity and penetration was noted at 6096' measured depth, 5357' true vertical depth, with light gray to white, cryptocrystalline to microcrystalline, platy and chalky limestones in samples. The decrease in penetration rate was due to encountering the upper boundary of the 1-D zone. The well bore was oriented almost horizontal to decrease the upward angle of climb and the lithology temporarily returned to brown dolomite with good inter crystalline to vuggy porosity.

The well was continued gradually upward at a very shallow angle from 6096' measured depth, 5357' true vertical depth, to 6352' measured depth, 5554' true vertical depth, with a horizontal displacement of 933'. During this interval, increasing amounts of white to cream, tan to mottled white and tan, cryptocrystalline to microcrystalline, platy to occasionally blocky, clean to chalky, slightly dolomitic, tight limestones were encountered. This change in facies was a vertical change indicating the top of the 1-D. At 6352' the well bore was oriented downward to drop 3 feet in measured depth to move away from the upper boundary limestones. After the downward orientation, the lithology returned to the good granular dolomites, with good porosity.

At a measured depth of 6500', 5357.7' true vertical depth, with a horizontal displacement of approximately 1046', the well was again oriented upward at a shallow angle in the dolomite porosity. The dolomites were granular, and were predominately light to medium brown to brown, microcrystalline to very fine crystalline and microsugrosic to sugrosic to granular, with slightly algal to good intercrystalline porosities, with fair to good dull to occasionally bright yellow fluorescence, rare to trace black dead oil to fair light brown live oil stain and a fair to good moderately fast streaming cut.

As the lateral continued from 6500' measured depth, 5357.7' true vertical depth, to a depth of 6600' measured depth, 5355' true vertical depth, and a horizontal displacement of 1144', an increasing amount of mottled tan and white, cryptocrystalline to microcrystalline, platy to occasionally blocky, clean to chalky, slightly dolomitic, tight limestones were encountered, and became the predominate lithology, with the granular to microcrystalline, light brown to medium brown, dolomites becoming the secondary lithology, as once again the top of the 1-D zone was tagged. The samples showed a decrease in visible porosity, fluorescence, staining and cut, which was due to the occurrence of tight limestones in the samples. This limestone lithology remained predominate through out the last 147' of the lateral.

Lateral leg #2 was ended at a measured depth of 6747', 5352.33' true vertical, with a horizontal displacement of 1324', at or very near the upper boundary of the 1-D porosity zone. This lateral was ended short of the projected 1600' horizontal displacement due to a decreasing rate of penetration, the lack of good porosity in the samples, as well as a concern as the condition of the drill bit.

In tracking the target line through the upper bench, there were several facies changes, predominately vertical changes. Predominant facies changes were associated with the rock type. Even with these classification changes, porosity for the most part was continuous, but the effective or the better porosity was associated with the dolomite facies in which fair to good, intercrystalline porosity as well rare possible algal porosity was evident, and the absence of any major anhydrite plugging and limestone filling in the dolomite porosities.

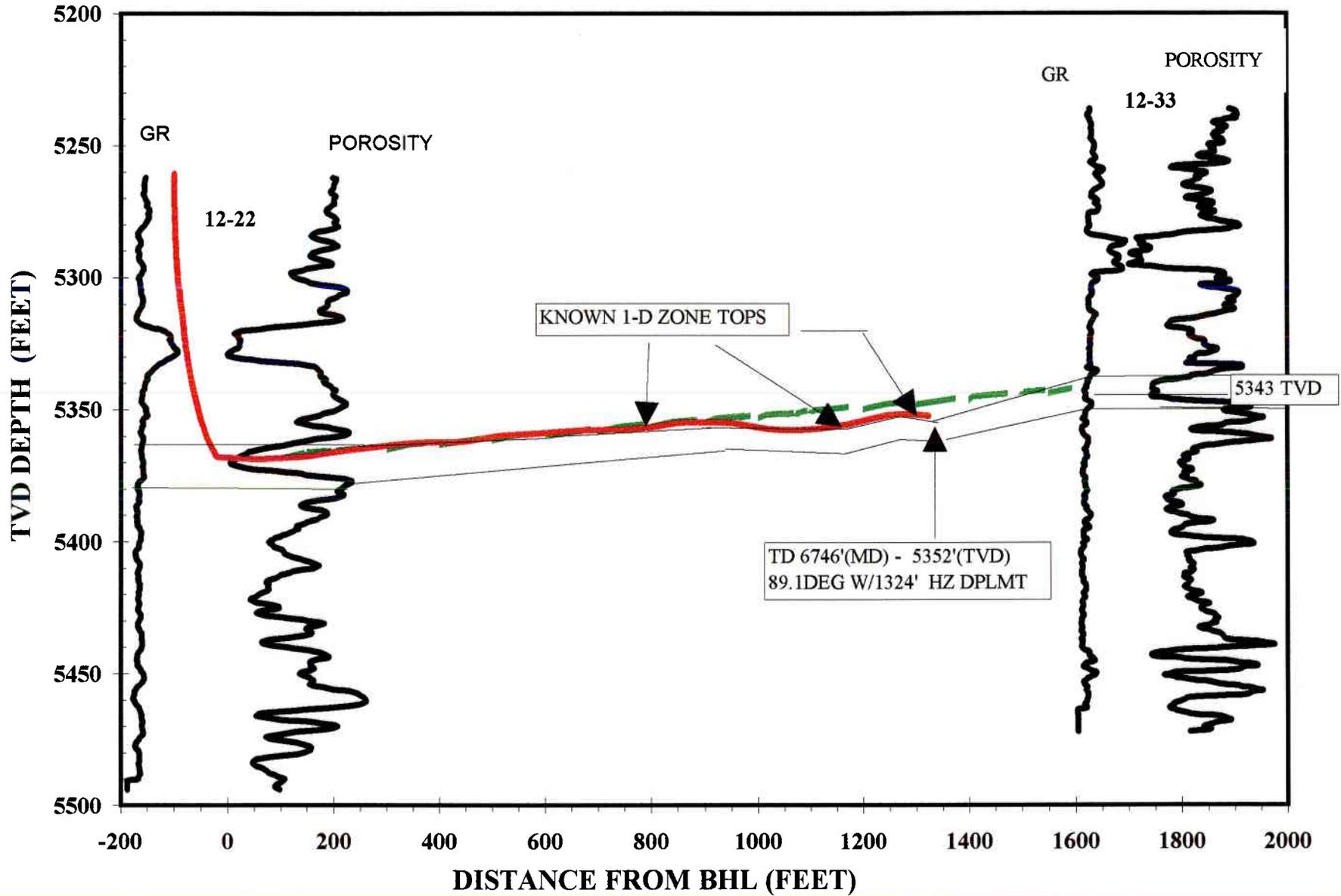
From the top of the 1-D porosity bench to 6747' measured depth, the dolomite lithology appeared to be consistent, light to dark brown, microcrystalline to very fine crystalline, microsugrosic to occasionally sugrosic to granular. The dolomite had predominantly moderate to good intercrystalline and scattered vuggular porosity, grading to deposits, of cryptocrystalline to microcrystalline, predominately tight, chalky and platy limestone at the upper boundary. The dolomites had rare dark algal material with dark brown to black oil stain residue and at times calcite, and occasionally anhydrite filled casts having an effect on continuous effective porosity. The staining,, fair to moderate to occasionally good, however remained rather consistent and continuous through out bench. Fluorescence, like the staining is consistent and continuous, a dull to bright yellow gold, cut ranging from moderate to good ring (diffuse) to moderate to good steady fast streaming cut. And from 6600' to a total measured depth of 6747' the limestone lithology was a rather consistent cream to tan, mottled tan and white, cryptocrystalline to microcrystalline, platy to occasionally blocky, chalky and tight with scattered very thin intercrystalline porosities. The limestones had very rare, poor dull to bright yellow fluorescence, the staining in the limestones ranged from very rare to rare light brown and the associated cuts were very rare and very poor slow diffuse cuts.

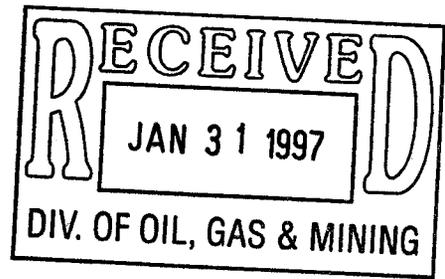
The conclusion drawn from the southeast 1-D porosity bench in Lateral Leg 2, is in this area primary dolomitization (due to the lack of limestone cements and framework), to possibly secondary dolomitization has occurred. However, at times the amounts of anhydrite filled casts had an effect on the visible porosity. Also, having an effect on the porosity, were the thin, scattered cryptocrystalline to microcrystalline limestone fragments and laminations encountered in good dolomite porosity. Over all the dolomites had a fair to good intergranular to intercrystalline porosity. Staining was fair to moderate and there were significant sections where staining was moderately good. The lateral used a proposed projected target line as a reference point through the bench, drilling tried to follow the target line while maintaining contact with best porosity. It appears that the effective porosity is continuous, even with the vertical facies changes encountered at the top of the zone.

While drilling, the lateral did make varying amounts of gas, which due to the significant amounts of heavies noted on the chromatograph (C₃ and C₄) indicated the presence of live oil, with a thin film of live oil noted on the pits starting at approximately 6190'. I would interpret this lateral to have good reservoir qualities since it did give up some oil and gas while drilling. I believe that the porosities are well enough developed to enhance the overall performance of the zone.

*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 predicible 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 #12-22, Southeast Lateral (135 °)





MOBIL

**RATHERFORD UNIT #12-22
HORIZONTAL LATERAL LEG #3
UPPER 1-D POROSITY BENCH DESERT CREEK
SECTION 12, T41S, R23E
SAN JUAN, UTAH**

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

MICROPHONE

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WELL SUMMARY

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

NAME: RATHERFORD UNIT #12-22 NW UPPER HORIZONTAL LATERAL
LEG #3 IN 1-D UPPER POROSITY BENCH, DESERT CREEK

LOCATION: SECTION 12, T41S, R23E

COUNTY/STATE: SAN JUAN, UTAH

ELEVATION: KB:4570' GL:4582'

SPUD DATE: 1/21/97

COMPLETION DATE: 1/25/97

DRILLING ENGINEER: DENNIS RUSSELL/LEWIS SIMON

WELLSITE GEOLOGY: DAVE MEADE / MARVIN ROANHORSE

MUDLOGGING:
ENGINEERS DAVE MEADE / MARVIN ROANHORSE

CONTRACTOR: BIG "A" RIG 25
TOOLPUSHER: DEAN SIPE

HOLE SIZE: 4 3/4"

CASING RECORD: SIDETRACK IN WINDOW AT 5262' MEASURED DEPTH

DRILLING MUD: M-I DRILLING FLUIDS
ENGINEER: DANNE BEASON
MUD TYPE: PRODUCTION WATER/POLYMER SWEEPS

ELECTRIC LOGS: NA
ENGINEER:
TYPE LOGS:

TOTAL DEPTH: 6900' MEASURED DEPTH; 540' TVD

STATUS: TOH TO BEGIN SETTING EQUIPMENT FOR INJECTION
PROCEDURES

DRILLING CHRONOLOGY

MOBIL
RATHERFORD UNIT #12-22
NW UPPER HORIZONTAL LATERAL LEG #3

DATE	DEPTH	DAILY	ACTIVITY
1/20/97	6746'	4'	CUT DRLG LINE-TIH-RETRIEVE WHIPSTOCK-TOH--PICK UP NEW WHIPSTOCK-TIH & ORIENT-TAG & SET WHIPSTOCK @ 5248'-TOH-TIH W/ STARTER MILL FROM 5248' TO 5250'-WORK MILL THRU WHIPSTOCK-TOH-PICK UP NEW MILL-TIH-MILL 5248' TO 5252'
1/21/97	5252'	28'	MILL 5252' TO 5257'-TOH-PICK UP CURVE BHA & NEW BIT-TIH-RIG UP K-JET STEERING TOOL & GYRO-TIME DRLG 5257' TO 5279'-PULL & LAY DOWN GYRO-RIG UP & RUN STEERING TOOL-BIT PLUGGED-TRY TO UNPLUG BIT
1/22/97	5280'	161'	PULL STEERING TOOL-UNPLUG BIT-RUN STEERING TOOL-DRILLING AHEAD AND SURVEYING-CIR. SPLS @ 5441'-PULL & RIG DOWN K-JET WIRELINE-TOH-LAY DOWN CURVE BHA-PRESS, TEST BOP
1/23/97	5441'	554'	TIH-SURVEY-DRILLING AHEAD AND SURVEYING
1/24/97	5995'	448'	DRILLING AHEAD AND SURVEYING
1/25/97	6475'	369'	DRILLING AND SURVEYING-REACHED TOTAL DEPTH OF 6844' MEASURED DEPTH- 5407' TRUE VERTICAL DEPTH- CIR. BOTTOMS UP- RUN SWEEP- SURVEY-SHORT TRIP-CIR.
1/26/97	6844'	TD	TOH & LAY DOWN PIPE & START RIGGING DOWN PRIOR TO RIG MOVE

DAILY ACTIVITY

Operator: MOBIL

Well Name: RATHERFORD UNIT #12-22 NW UPPER HORIZONTAL LATERAL LEG #3

DATE	DEPTH	DAILY	DATE	DEPTH	DAILY
1/20/97	6746'	4'			
1/21/97	5252'	28'			
1/22/97	5280'	161'			
1/23/97	5441'	554'			
1/24/97	5995'	480'			
1/25/97	6475'	369'			
1/26/97	6844'	TD			

BIT RECORD

OPERATOR: MOBIL

WELL NAME: RATHERFORD UNIT #12-22 NW UPPER HORIZONTAL LATERAL LEG 3

RUN	SIZE	MAKE	TYPE	IN/OUT	FTG	HRS	FT/HR
#1 BIT (RR)	4 3/4"	STC	MF-3P	5257'/ 5441'	184'	14.5	12.7
#2 BIT	4 3/4"	HTC	SRT-20	5441'/ 6844'	1403'	64	21.9

SPERRY-SUN DRILLING SERVICES
SURVEY DATA

Customer ... : Mobil
Platform ... : CA-MJ-70005
Slot/Well .. : /12-22, 3A1, L3

MEASURED DEPTH	ANGLE DEG	DIRECTION DEG	TVD	NORTHINGS FEET	EASTINGS FEET	VERTICAL SECTION	DOG LEG
5248.00	0.72	200.29	5245.56	39.23 N	91.53 W	87.27	0.00
5257.00	3.50	312.00	5254.55	39.36 N	91.75 W	87.51	42.50
5267.00	8.30	311.61	5264.50	40.05 N	92.52 W	88.52	48.00
5277.00	13.40	311.22	5274.32	41.29 N	93.93 W	90.37	51.00
5287.00	17.90	310.83	5283.94	43.06 N	95.97 W	93.02	45.01
5297.00	22.00	310.44	5293.34	45.28 N	98.56 W	96.36	41.02
5307.00	26.10	310.05	5302.47	47.91 N	101.67 W	100.35	41.03
5317.00	30.30	309.66	5311.28	50.94 N	105.30 W	104.97	42.04
5327.00	33.50	309.27	5319.77	54.30 N	109.38 W	110.12	32.07
5337.00	36.50	308.88	5327.96	57.91 N	113.83 W	115.71	30.08
5347.00	39.70	308.49	5335.83	61.77 N	118.65 W	121.72	32.09
5357.00	44.80	308.10	5343.23	65.93 N	123.92 W	128.25	51.07
5367.00	50.20	307.71	5349.98	70.46 N	129.74 W	135.40	54.08
5377.00	55.40	307.32	5356.03	75.31 N	136.05 W	143.10	52.09
5387.00	62.40	306.93	5361.19	80.47 N	142.88 W	151.37	70.08
5397.00	67.30	306.54	5365.44	85.88 N	150.13 W	160.10	49.13
5410.00	75.60	306.20	5369.57	93.18 N	160.05 W	171.96	63.89
5420.00	81.50	306.10	5371.55	98.96 N	167.96 W	181.39	59.01
5430.00	86.60	306.90	5372.59	104.88 N	175.95 W	190.97	51.62
5441.00	89.20	307.80	5372.99	111.54 N	184.69 W	201.60	25.01
5452.48	88.90	308.80	5373.18	118.66 N	193.69 W	212.75	9.09
5484.23	89.20	312.20	5373.71	139.27 N	217.83 W	243.86	10.75
5515.18	90.00	314.50	5373.93	160.52 N	240.33 W	274.45	7.87
5546.84	90.30	317.60	5373.84	183.31 N	262.30 W	305.94	9.84
5578.68	89.80	319.60	5373.82	207.19 N	283.36 W	337.72	6.47
5610.51	89.50	319.70	5374.01	231.45 N	303.97 W	369.52	0.99
5642.26	89.10	320.60	5374.40	255.82 N	324.31 W	401.25	3.10
5674.13	88.60	320.10	5375.04	280.35 N	344.64 W	433.10	2.22
5705.88	88.60	320.80	5375.81	304.83 N	364.85 W	464.83	2.20
5736.93	89.00	322.00	5376.46	329.09 N	384.22 W	495.87	4.07
5768.76	88.90	321.80	5377.05	354.13 N	403.86 W	527.70	0.70
5800.56	88.90	321.70	5377.66	379.10 N	423.54 W	559.49	0.31
5831.39	89.10	322.00	5378.20	403.34 N	442.58 W	590.32	1.17
5863.14	89.00	322.00	5378.72	428.36 N	462.13 W	622.06	0.31
5894.88	88.90	321.70	5379.30	453.31 N	481.73 W	653.80	1.00
5926.68	89.00	321.30	5379.89	478.20 N	501.52 W	685.59	1.30
5957.78	89.30	321.70	5380.35	502.53 N	520.88 W	716.69	1.61
5989.61	89.40	321.80	5380.71	527.53 N	540.58 W	748.51	0.44

SPERRY-SUN DRILLING SERVICES
SURVEY DATA

Customer ... : Mobil
Platform ... : CA-MJ-70005
Slot/Well .. : /12-22, 3A1, L3

MEASURED DEPTH	ANGLE DEG	DIRECTION DEG	TVD	NORTHINGS FEET	EASTINGS FEET	VERTICAL SECTION	DOG LEG
6021.50	89.40	323.60	5381.04	552.89 N	559.91 W	780.40	5.64
6053.21	90.10	323.20	5381.18	578.35 N	578.81 W	812.10	2.54
6084.83	88.70	325.00	5381.51	603.96 N	597.35 W	843.69	7.21
6116.64	88.80	324.80	5382.21	629.98 N	615.64 W	875.45	0.70
6148.46	88.60	325.50	5382.93	656.08 N	633.82 W	907.22	2.29
6180.29	87.30	326.10	5384.07	682.39 N	651.70 W	938.96	4.50
6212.09	87.40	326.20	5385.54	708.77 N	669.39 W	970.64	0.44
6243.97	87.40	326.60	5386.98	735.30 N	687.01 W	1002.39	1.25
6275.67	87.40	326.80	5388.42	761.77 N	704.40 W	1033.95	0.63
6306.29	87.20	326.80	5389.86	787.36 N	721.15 W	1064.43	0.65
6337.95	86.00	326.60	5391.74	813.78 N	738.50 W	1095.93	3.84
6369.72	85.70	326.40	5394.04	840.20 N	755.99 W	1127.52	1.13
6401.58	88.00	325.90	5395.79	866.62 N	773.71 W	1159.25	7.39
6433.43	88.20	326.10	5396.84	892.97 N	791.48 W	1190.96	1.00
6465.24	88.90	326.60	5397.65	919.45 N	809.11 W	1222.67	2.70
6497.05	88.20	325.70	5398.45	945.85 N	826.82 W	1254.38	3.58
6528.80	87.10	325.50	5399.75	972.03 N	844.74 W	1286.04	3.52
6559.80	86.80	326.20	5401.40	997.65 N	862.12 W	1316.93	2.45
6591.57	86.70	325.50	5403.20	1023.90 N	879.92 W	1348.58	2.22
6623.32	86.70	325.40	5405.03	1050.00 N	897.90 W	1380.22	0.31
6655.16	88.60	324.10	5406.34	1075.98 N	916.26 W	1411.99	7.23
6686.96	89.30	323.80	5406.92	1101.69 N	934.97 W	1443.77	2.39
6718.75	89.30	324.00	5407.31	1127.37 N	953.70 W	1475.54	0.63
6750.56	89.60	323.20	5407.61	1152.97 N	972.58 W	1507.33	2.69
6782.31	90.40	324.10	5407.61	1178.55 N	991.39 W	1539.07	3.79
6813.00	90.40	324.10	5407.40	1203.40 N	1009.39 W	1569.74	0.00
6844.00	90.40	324.10	5407.18	1228.52 N	1027.57 W	1600.72	0.00

THE DOGLEG SEVERITY IS IN DEGREES PER 100.00 FEET.
N/E COORDINATE VALUES GIVEN RELATIVE TO WELL SYSTEM REFERENCE POINT.
TVD COORDINATE VALUES GIVEN RELATIVE TO WELL SYSTEM REFERENCE POINT.
THE VERTICAL SECTION ORIGIN IS WELL HEAD.
THE VERTICAL SECTION WAS COMPUTED ALONG 322.00 (TRUE).
CALCULATION METHOD: MINIMUM CURVATURE.

GYRO TIE-ON SURVEY @ 5248.00' MD

* BIT PROJECTION SURVEY @ 6844.00' MD

↳ FIRST MWD SURVEY @ 5410' MD

MUD REPORT

OPERATOR: MOBIL

WELL NAME: RATHERFORD UNIT #12-22 NW UPPER HORIZONTAL LATERAL LEG 3

DATE	DEPTH	WT	VIS	PLS	YED	GEL	PH	WE	CK	CHI	CA	SD	SOL	WTR
1/20/97	6746'	8.4	30	1	4	0/1	11.5	N/C	N/C	10600	40	-	-	100
1/21/97	5257'	8.4	30	1	4	0/1	11.5	N/C	N/C	10600	40	-	-	100
1/22/97	5330'	8.4	30	1	4	0/1	11.5	N/C	N/C	8000	40	-	-	100
1/23/97	5550'	8.4	29	1	4	1/1	11.0	N/C	N/C	8000	40	-	-	100
1/24/97	6190'	8.4+	31	2	4	1/1	11.0	N/C	N/C	6000	40	-	-	100
1/25/97	6630'	8.4+	31	2	4	1/2	11.0	N/C	N/C	5000	40	-	-	100
1/26/97	6844'	8.4+	31	2	4	1/2	11.0	N/C	N/C	5000	40	-	-	100

SAMPLE DESCRIPTIONS

OPERATOR: MOBIL

WELL NAME: RATHERFORD UNIT 12-22 NW UPPER HORIZONTAL LATERAL LEG 3

DEPTH	LITHOLOGY
5260.00 5270.00	"DOL brn-m-ltbrngy,micxl-micsuc,rthy,chy,anhy,sl slty-v sl shy,occ intbd/blk carb SH & dk brn-smky CHT,lmy ip,tt-tr intxl POR,tr fr spotty bri FLOR,tr brn-rr pp blk dd o STN,mod fast strmg CUT"
5270.00 5280.00	"CHT dkbrn-smky,hd,amor,intbd in brn DOL-AA"
5280.00 5290.00	"LS wh-tan-ltgybrn,crpxl-micxl,occ mic suc,cln,cky,tr trnsl ANHY,occ sl slty-shy,tt-tr intxl-rr vug/blk fl dd o STN,g spotty bri yel FLOR,mod fast strmg CUT"
5290.00 5300.00	"LS ltgybrn-ltgy-off wh,tan,crpxl,occ micxl-micsuc ip,cln,tr trnsl ANHY incl-prtg,cky/occ intxl POR fl,sl dol/rr brn DOL strk,fr intxl-rr vug POR,fr-g spotty dull-bri yel FLOR,rr blk dd o STN AA,g slow strmg CUT"
5304.00 5310.00	"LS AA,w/incr ANHY xl-incl-tr POR fl,rr ltbrn micxl DOL tt v lmy stks,v rr intxl-v rr pp vug POR,tr-fr spty dull-bri yel FLOR,rr ltbrn STN,p slow dif-slow strmg CUT"
5316.00 5320.00	"LS AA,POR-FLOR-STN-CUT AA,incr ANHY,w/tr ltbrn-gybrn,micxl,rthy,occ arg DOL,w/rr intxl POR,n-v rr ltbrn STN,v p v slow dif CUT,v rr thn carb SH lams"
5320.00 5330.00	"LS & DOL AA,POR-FLOR-STN-CUT AA,w/blk,blky-plty,sl dol,carb SH"
5330.00 5340.00	"SH blk,blky-sbblky,occ plty,sft-brit,rthy,sl calc-dol,v sl mica,carb,sooty,w/v thn LS & DOL incl"
5340.00 5350.00	"LS crm-wh,tan-brn,crpxl-micxl,cln-chk,occ slty-v slty,tr mic fos,v sl anhy,chy w/dkbrn-blk CHT frag,occ intbd ltbrn arg DOL & blk carb SH,tt-v rr intxl POR,n vis STN,n-v p slow resid ring CUT"
5350.00 5360.00	"LS AA,w/v thn DOL & SH AA,v rr scat dkbrn CHT frag,tt-v rr intxl-frac POR,tr spty bri yel FLOR,n vis STN,n-v p slow dif CUT"
5360.00 5370.00	"LS crm-wh-ltgy,occ tan,crpxl-micxl,rthy-chk,occ cln,occ abnt mic fos,v sl dol,occ sl anhy,v rr thn carb SH lams-brn micxl DOL incl,tt-v rr intxl POR,n-rr spty bri yel FLOR,n vis STN,v p slow dif CUT "
5370.00 5390.00	"LS AA,w/tr carb SH & CHT frag AA,incr DOL lt-mbrn-gybrn,micxl,occ crpxl,arg,w/scat ANHY incl,sl lmy,rr fos,tt-tr intxl POR,tr dull-bri yel FLOR,n vis STN,tr slow dif-rr slow strmg CUT"
5390.00 5400.00	"DOL ltbrn-brn,gybrn,micxl-crpxl,occ micsuc,rthy,arg,lmy,tr Crin fos,v rr ANHY xl-incl,occ intbd LS AA,v sl chy,tt-tr intxl POR,tr-fr dull yel FLOR,n-v rr vis STN,tr slow dif-v rr slow strmg CUT"
5403.00 5410.00	"LS ltgy-tan,occ crm-wh,crpxl-micxl,cln,occ rthy-chk,sl anhy,tr mic fos,dol,tt-v rr intxl POR,n-v rr bri yel FLOR,n-v rr dkbrn STN,n-v p slow dif CUT,W/DOL AA"

DEPTH	LITHOLOGY
5410.00	5425.00 "DOL brn,occ ltbrn,micxl-micsuc,occ crpxl,rthy-v sl slty,occ cln,w/v rr ANHY xl-incl,occ intbd thn ltgy-tan,crpxl LS,tr-fr intxl POR,tr-fr dull-rr bri yel FLOR,tr ltbrn-v rr spty blk dd o STN,fr slow dif-tr slow stmg CUT"
5425.00	5441.00 "DOL AA,w/POR-FLOR-STN-CUT AA,occ tr ltgy-tan,occ mot,crpxl,sl chk,dol LS"
5440.00	5450.00 "DOL ltbrn-brn,micxl-micsuc,occ vfxl-gran,rthy-cln,occ sl slty,v sl lmy,v rr ANHY xl,v rr mic fos,tr-fr intxl POR,mod g dull yel FLOR,fr ltbrn STN,n-v rr blk dd o STN,fr slow dif-slow stmg CUT"
5450.00	5460.00 "DOL AA,POR-FLOR-STN-CUT AA,w/LS crm-ltgy-ltgybrn,crpxl-micxl,v dol,occ chk,dns,tt,grdg to lmy DOL,NFSOC"
5460.00	5480.00 "DOL ltbrn-brn,occ m brn,micxl-micsuc,occ vfxl-gran,rthy-sl slty,lmy ip,w/occ ANHY xl-incl,v rr mic fos,tr-fr intxl POR,mod g dull yel FLOR,tr-fr ltbrn STN,v rr dd o STN,fr slow dif-slow-mod fast stmg CUT,w/LS ltgy-ltgybrn,crpxl-micxl,dns,"
5476.00	5479.00 "dol,grdg to lmy DOL,sl anhy,tt,NFSOC"
5480.00	5490.00 "DOL AA,POR-FLOR-STN-CUT AA,w/ LS lams AA"
5490.00	5510.00 "DOL ltbrn-brn,micxl-micsuc,gran-vfxl ip,sl rthy,occ sl slty,cln,v sl lmy,w/tr ANHY xl-incl,v rr LS ptgs,rr scat mic-Crin fos,fr-g intxl POR,mod g-g dull-occ bri yel FLOR,fr brn STN,v rr spty blk dd o STN,fr-g slow-mod fast stmg CUT"
5510.00	5520.00 "DOL AA,occ crpxl,incr lmy,w/tr ltgy-tan crpxl,v dol LS incl,tr Crin-mic fos,grdg to dol LS ip,rr dkbrn CHT frag,tt-g intxl POR,tr-fr dull yel FLOR,tr-fr ltbrn STN,v rr spty blk dd o STN,fr-g slow dif-mod fast stmg CUT"
5520.00	5530.00 "DOL ltbrn-brn,micxl-micsuc,gran,v rr crpxl,sl slty i,occ lmy & grdg to dol LS ip,rr scat brn CHT frag,occ ANHY xl,tt-fr intxl POR,fr ltbrn STN,v rr v spty blk dd o STN,g slow dif-tr mod fast stmg CUT"
5530.00	5540.00 "DOL AA,w/sl incr tan,crpxl lmy DOL & dol LS,sl incr Crin fos,tr-fr intxl POR,FLOR-STN-CUT AA"
5540.00	5550.00 "DOL AA,incr Crin fos,scat xl ANHY incl,w/POR-FLOR-STN-CUT AA,w/tr tan-wh-ltgy crpxl,dns,occ v dol LS incl,tt,NFSOC"
5550.00	5560.00 "DOL ltbrn-brn,micxl-micsuc,occ vfxl-gran,crpxl ip,cln-sl slty,lmy ip,occ anhy-rr ANHY incl,tr Crin fos,v sl chty,tt-tr intxl POR,tr lt brn STN,n-v rr spty blk dd o STN,fr slow dif-tr mod fast stmg CUT,w/LS AA"
5564.00	5570.00 "DOL AA,occ crpxl lmy DOL,abnt Crin fos,scat xl ANHY incl,w/POR-FLOR-STN-CUT AA,w/tr tan-wh-ltgy crpxl,dns,occ v dol LS incl,tt,NFSOC"
5570.00	5590.00 "DOL ltbrn-brn,tan,crpxl-micxl,micsuc-gran ip,dns,occ sl slty,rthy ip,v sl anhy-rr ANHY incl, lmy,grdg to dol LS ip,tr Crin fos,v sl chty,tt-tr intxl POR,tr-fr ltbrn STN,fr slow dif-mod fast stmg CUT,w/LS tan-ltgy,occ ltgybrn,crpxl,dns,dol,anhy,sl chty, tt,n vis POR,NFSOC "

DEPTH	LITHOLOGY
5590.00 5610.00	"LS tan,occ ltgy-crm,crpxl,occ micxl,fos,dol,anhy ip,v sl chty,occ grdg to lmy,dol,tt-v rr intxl POR,spty bri yel FLOR,n vis STN-CUT,w/DOL AA"
5610.00 5620.00	"LS AA,scat CHT pred tt,v rr intxl POR,rr spty bri yel FLOR,n vis STN,n-v p slow dif CUT,w/DOL brn-ltbrn,micxl-micsuc,occ crpxl,sl slty,v fos-abnt Crin fos,lmy ip,occ grdg to dol LS,tt-tr intxl POR,tr-fr dull yel FLOR,tr ltbrn STN,tr fr mod fast stmg CUT"
5620.00 5630.00	"LS AA,w/intbd DOL AA,POR-FLOR-STN-CUT AA,tr tan-trnsl CHT frag"
5630.00 5650.00	"DOL ltbrn-brn,tan,crpxl-micxl,micsuc-gran ip,dns,occ sl slty,rthy ip,v sl anhy-rr ANHY incl-xl,lmy,grdg to dol LS ip,tr Crin fos,v sl chty,tt-tr intxl POR,tr-fr ltbrn STN,fr slow dif-mod fast stmg CUT,w/LS tan-ltgy,occ ltgybrn,crpxl,dns,dol,anhy,sl chty w/trnsl-tan CHT frag,tt-v rr intxl POR,n-v rr dull-bri yel FLOR,n vis stn,v p slow dif CUT"
5650.00 5660.00	"LS AA,w/intbd DOL AA,POR-FLOR-STN-CUT AA"
5660.00 5670.00	"LS tan,occ ltgy-crm,crpxl,occ micxl,fos,dol,anhy ip,w/tan-trnsl CHT frag,occ grdg to lmy,dol,tt-v rr intxl POR,spty bri yel FLOR,n vis STN-CUT,w/DOL AA,POR-FLOR-STN-CUT AA"
5670.00 5690.00	"DOL ltbrn-brn,occ tan,micxl-micsuc,occ crpxl-vfxl,sl slty,v sl anhy-rr ANHY xl-incl,tr Crin fos,lmy-v lmy,occ grdg to v dolLS,tt-fr intxl POR,fr-g dull yel FLOR,rr-tr ltbrn STN,tr fr-g slow dif-mod fast stmg CUT,w/intbd LS AA,tt-v rr intxl POR,FLOR-STN-CUT AA,w/tr tnsl-ltbrn CHT frag "
5690.00 5710.00	"DOL brn,micsuc,occ micxl-vfxl,sl slty,sl anhy-rr tnsl ANHY xl incl,tr CRIN fos,rr-tr bf CHT incl,fr-tr intxl POR,tr lt brn-rr blk STN,fr-g even dull-occ bri spotty yel FLOR,fr-g mod fast strmg CUT,intbd/tan LS AA,POR-FLOR-STN-CUT AA "
5710.00 5720.00	"LS tan,occ crm-off wh,crpxl,pred cln-intbd in brn DOL AA,sl-occ v chky,tr bf-rr wh sil-CHT incl,tr ANHY incl-prtg,tt-tr intxl POR,fr even dull-tr spotty bri FLOR,rr ltbrn STN,mod fast strmg CUT"
5720.00 5730.00	"DOL brn,micxl-vfxl,occ micsuc/tr crpxl str,pred cln/tr tan LS incl,tr tnsl-wh ANHY incl,tr bf CHT incl,tr CRIN fos,tt-tr intxl POR,fr even dull yel FLOR,tr brn-vrr blk STN,fr slow strmg CUT"
5730.00 5750.00	"DOL brn,micxl-vfxln-micsuc,occ crpxl str,cln,intbd/chky tan-occ wh LS,tr wh ANHY incl,tr bf CHT,tr CRIN fos,occ lmy-grdg to dolLS ip,tt-tr intxl POR,fr even dull yel FLOR,tr brn-rr blk STN,fr-p slow stmg CUT,intbd LS AA,POR-FLOR-STN-CUT AA"
5750.00 5770.00	"DOL brn,occ choc brn,micxl-micsuc-vfxl,tr crpxl strk,cln,tr tan-occ tnsl-crm LS incl,rr bf CHT incl,v sl anhy,tr CRIN fos,occ sl slty,tr-fr intxl POR,fr-g dull even-tr bri spotty yel FLOR,tr brn-occ dkbrn STN,mod fast strmg CUT"
5770.00 5780.00	"LS tan,occ ltgybrn-crm-wh,crpxl,occ micxl strk,cln,sl-v chky ip,tr bf CHT incl,tr wh ANHY incl,dol ip,tt-tr intxl POR,fr even dull yel FLOR,n-rr ltbrn STN,slow strmg CUT"
5780.00 5800.00	"DOL brn,micsuc-micxl,occ vfxl,cln,tr CRIN fos,tr bf CHT,tr tnsl xl ANHY,occ sl slty,fr intxl POR-occ tt,g even bri-dull yel FLOR,tr brn STN,slow-mod fast strmg CUT,intbd/tan-occ chky wh LS-grdg to incl/depth,AA,POR-FLOR-STN-CUT AA"

DEPTH	LITHOLOGY
5800.00	5810.00 "LS tan,occ crm-wh,crpxl,cln,sl-v chky ip,tr bf CHT incl,rr wh ANHY incl,dol ip,tt-tr intxl POR,fr even dull yel FLOR,n-rr ltbrn STN,slow strmg CUT"
5810.00	5830.00 "DOL brn,micsuc-micxl,occ vfxl,cln,tr dkbrn-smky CHT,rr trnsf xl ANHY,occ sl slty,fr-g intxl POR,g even bri-dull yel FLOR,rr brn STN,slow-mod fast strmg CUT,tr tan-occ chky wh LS incl,crpxl-micxl,occ micsuc ip/lmy chky fl,cln,tr wh sil-bf CHT include" ,v sl anhy,tt-tr intxl POR,rr dull evevn-bri spotty yel FLOR,rr brn STN,fr slow strmg-v fnt res ring CUT"
5830.00	5840.00 "CHT dkbrn-smky,hd,amor,intbd in DOL AA,POR-FLOR-STN-CUT AA"
5840.00	5850.00 "DOL brn,micsuc-micxl,occ vf xln,cln-occ v sl slty,rr dk brn-smky CHT,rr tan-crm-wh LS incl,fr intxl-tr vug POR,g even yel FLOR,fr brn-rr blk dd o STN,g fast strmg CUT "
5850.00	5860.00 "DOL brn,micsuc-micxl,rthy,cln,occ v sl slty,rr tan LS incl,dns,fr intxl POR,g even bri yel FLOR,fr brn-rr pp blk dd o STN,fast strmg CUT"
5860.00	5870.00 "DOL AA,cln,rr tan LS incl,occ sl slty,fr intxl POR,g even yel FLOR,fr brn-rrblk pp dd o STN,fast strmg CUT"
5870.00	5880.00 "DOL brn,micsuc-micxl,tr crpxl strk,cln,occ sl slty,rr tan LS incl,dns,fr intxl POR,g even yel FLOR,fr brn STN,fast strmg CUT"
5880.00	5890.00 "DOL brn,micsuc-micxl,cln,tr tan crpxl-occ sl chky LS incl,sl slty,fr-g intxl POR,g even yel FLOR,fr brn STN,g fast strmg CUT"
5890.00	5900.00 "DOL brn,micsuc-micxl,rthy,cln,occ v sl slty,rr dkbrn-smky CHT,rr tan LS incl,dns,fr intxl POR,g even bri yel FLOR,fr brn STN,g fast strmg CUT"
5900.00	5910.00 "DOL brn,micsuc-micxl,rthy,cln,rr tan crpxl LS incl,v rr trnsf xl ANHY,occ slty ip,fr intxl-vrr pp vug POR,g even yel FLOR,fr brn STN,g mod fast strmg CUT"
5910.00	5920.00 "DOL brn,micsuc-micxl,rthy,pred cln/vrr ltgy-gybrn sil slty incl,rr tan LS incl,dns,fr-tr intxl POR,g even yel FLOR,g mod fast strmg CUT"
5920.00	5930.00 "DOL AA/sl incr tan LS incl,tr CRIN fos,rr wh sil-CHT incl,dns,fr-p intxl POR,g even yel FLOR,rr brn STN,fr slow-mod fast strmg CUT"
5930.00	5940.00 "DOL brn,micsuc-micxl,rthy,cln,rr tan/occ wh chky LS incl,tr CRIN fos,rr ltgybrn-gy hd sil-CHT incl,fr intxl POR,g even yel FLOR,fr brn STN,fr slow strmg-g res ring CUT"
5940.00	5950.00 "LS tan-crm-off wh,occ ltgybrn,crpxl-micxl,cln-occ sl chky,dol ip,v sl anhy,rr CRIN fos,rr wh sil-CHT incl,occ grdg to lmy DOL,tt-rr intxl POR,p v fnt-rr bri spotty yel FLOR,n vis STN,fr v fnt res ring CUT"
5950.00	5960.00 "DOL brn,micsuc-micxl,cln,tr LS incl AA,sl slty,fr intxl POR,g even yel FLOR,fr brn STN,fr slow strmg-g res ring CUT"
5960.00	5970.00 "DOL brn,micsuc-micxl,rthy,cln,rr tan/occ wh chky LS incl,fr intxl POR,g even yel FLOR,fr brn STN,fr slow strmg-g res ring CUT"

DEPTH	LITHOLOGY
5970.00 5980.00	"DOL AA/vrr tan LS incl,rr trnsl xln ANHY,vrr bf CHT incl,dns,fr-p intxl POR,g even yel FLOR,tr brn STN,fr mod fast strmg CUT"
5980.00 6000.00	"DOL brn,micsuc-micxl,cln,tr CRIN fos,sl slty,fr intxl POR,g even yel FLOR,fr brn STN,g fast strmg-g res ring CUT,intbd/tan-occ crm LS,crpxl,cln-sl chky,v sl anhy,rr wh sil-CHT incl,dol ip,tt-rr intxl POR,tr fnt yel FLOR,n vis STN,p v fnt res ring CUT"
6000.00 6010.00	"DOL brn,micsuc-micxl,rthy,pred cln/tr ltgy-gybrn dol-sil slty incl-prtg,rr tan LS incl,dns,fr intxl POR,g even yel FLOR,g mod fast strmg CUT"
6010.00 6020.00	"DOL brn,micsuc-micxl,rthy,pred cln/tr ltgy-gybrn sil-chty slty hd incl-prtg,dns,fr intxl POR,g even yel FLOR,g mod fast strmg CUT"
6020.00 6040.00	"DOL brn,micsuc-micxl,rthy,pred cln/tr ltgy-gybrn dol-sil slty incl,dns,fr intxl POR,g even yel FLOR,g brn-rr dkbrnblk STN, mod fast strmg CUT,tr intbd tan-crm LS,crpxl,cln,sl chky,tt-rr intxl POR,v fnt dull yel FLOR,p slow strmg-p res ring CUT"
6040.00 6050.00	"DOL brn,micsuc-micxl,rthy,pred cln/tr ltgy-gybrn dol-sil slty incl-prtg,vrr wh chky LS incl-prtg,dns,fr intxl POR,g even yel FLOR,fr slow strmg-fr res ring CUT"
6050.00 6060.00	"DOL brn,micsuc-micxl,rthy,cln,rr ltgy-gybrn,occ wh mfrm-hd sil-chty incl-prtg,dns,fr intxl POR,g even yel FLOR,p-fr slow strmg-p res ring CUT"
6060.00 6070.00	"LS tan-crm-off wh,occ ltgybrn,crpxl-micxl,cln-sl chky,occ mrly,dol ip,occ grd to lmy DOL,tt-rr intxl POR,p v fnt-rr bri spotty yel FLOR,n vis STN,fr v fnt res ring CUT"
6070.00 6090.00	"DOL brn,micsuc-micxl,rthy,cln,tr ltgy-gybrn mrly-sl chky LS prtgdns,fr intxl POR,g even yel FLOR,g brn STN, mod fast strmg CUT,/tr intbd tan-crm LS,crpxl,cln,chky,tt-rr intxl POR,v fnt dull yel FLOR,p slow strmg-p res ring CUT"
6090.00 6100.00	"DOL brn,micsuc-micxl,rthy,cln,tr tan/occ wh chky LS incl,tr ltgy-gybrn slty dol incl,fr intxl POR,g even yel FLOR,fr brn-rr blk dd o STN,g fast strmg CUT"
6100.00 6110.00	"DOL brn,micsuc-micxl,rthy,cln,tr ltgy-gybrn slty dol-sl lmy prtgdns,fr intxl POR,g even yel FLOR,p-fr slow strmg-p res ring CUT"
6110.00 6120.00	"LS tan-crm-off wh,occ ltgybrn,crpxl-micxl,cln-sl chky,occ mrly,dol ip,occ grd to lmy DOL,tt-rr intxl POR,p v fnt-rr bri spotty yel FLOR,n vis STN,fr v fnt res ring CUT"
6120.00 6130.00	"DOL brn,micsuc-micxl,rthy,cln,tr ltgy-gybrn slty dol prtgdns,fr intxl POR,g even yel FLOR,p-fr slow strmg-p res ring CUT"
6130.00 6150.00	"DOL lt-mbrn,brn,micxl-micsuc,vfxl-gran,occ suc ip,sl slty,occ sl lmy,w/tr tt tan-ltgy-occ wh,crpxl,dns,sl dol & chky LS incl,DOL-v rr CHT frag,sl anhy,fr-g intxl POR,w/g dull yel FLOR,tr-fr ltbrn STN,tr-fr slow dif-mod fast stmg CUT"
6150.00 6160.00	"DOL AA,POR-FLOR-STN-CUT AA,w/LS tan,occ wh-ltgy,crpxl,dol,sl anhy-v rr ANHY xl,dns,sl chty,tt,scat trnsl-wh CHT frag-ANHY xl,NFSOC"

DEPTH	LITHOLOGY
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6160.00 6180.00 "DOL lt-mbrn,micxl-vfxl,micsuc,occ suc-gran,rthy,v sl slty,rr Crin fos,scat LS incl AA,rr trnsl-wh CHT frag,tr ANHY xl,v rr blk carb stks,tr-g intxl POR,occ ANHY fl,fr-mod g ltbrn STN,fr-g slow dif-tr-fr slow stmg CUT"

6180.00 6189.00 "LS tan,rr wh-crm,crpxl,rr micxl,dns,sl dol,anhy,v sl chty,w/scat Crin fos,n-v rr intxl POR,n-v p yel FLOR,n vis STN,n-v p v slow dif CUT,scat wh-trnsl CHT frag,w/intbd & grdg to DOL AA,POR-FLOR-STN-CUT AA"

6190.00 6200.00 "DOL AA,scat ANHY xl-incl,v rr CHT frag,tr-mod g intxl POR,mod g dull yel flor,tr-fr brn STN,n-v rr blk dd o STN,mod g slow-mod fast stmg CUT,w/LS AA"

6200.00 6220.00 "DOL lt-mbrn,micxl-vfxl,micsuc,occ suc-gran,rthy,v sl slty,rr Crin fos,scat LS incl AA,rr trnsl-wh CHT frag,tr ANHY xl,v rr blk carb stks,tr-g intxl POR,occ ANHY fl,fr-mod g ltbrn STN,fr-g slow dif-tr-fr slow stmg CUT"

6220.00 6240.00 "DOL lt-mbrn,brn,micxl-micsuc,vfxl-gran ip,sl suc,tr crpxl DOL incl,w/tr ANHY xl-incl,v sl slty,lmy ip,w/v rr dol LS incl-intbd,v rr CHT frag,occ Crin-mic fos,bcmg tt,tr-fr intxl POR,fr-g dull yel FLOR,tr ltbrn-rr blk dd o STN,fr-g slow dif-mod fast CUT"

6240.00 6260.00 "DOL AA,incr crpxl,lmy grdg to dol LS,fr-g intxl POR,tr fr dull yel FLOR,rr-tr ltbrn STN,fr slow dif-fast stmg CUT,w/LS crm-tan,ltgy-ltgybrn,crpxl,rr micxl,cln-dns,rr chky,tr wh-trnsl CHT frag,dol,tt-v rr intxl POR,v rr yel FLOR,n STN,v p slow d dif CUT"

6260.00 6271.00 "DOL lt-mbrn,brn,micxl-micsuc,vfxl-gran ip,sl suc,tr crpxl DOL incl,w/tr ANHY xl-incl,v sl slty,lmy ip,w/v rr dol LS incl-intbd,v rr CHT frag,occ Crin-mic fos,bcmg tt,tr-fr intxl POR,fr-g dull yel FLOR,tr ltbrn-rr blk dd o STN,fr-g slow dif-mod fast CUT"

6270.00 6291.00 "LS tan,occ wh-crm-ltgy,crpxl,v rr micxl,cln-chk,dns,sl anhy-anhy,occ chty,dol-v dol,grdg to v lmy DOL,tt-v rr intxl POR,tr bri yel FLOR,n vis STN,n-v rr p slow dif CUT,w/intbd DOL AA,POR-FLOR-STN-CUT AA"

6290.00 6300.00 "LS AA,n-v rr intxl POR,v rr spty bri yel FLOR,n vis STN,n-v p slow dif CUT,w/intbd & grdg to DOL AA,occ tt,fr intxl POR,fr ltbrn STN,v rr spty blk dd o STN,fr-g slow dif-mod fast stmg CUT"

6300.00 6310.00 "LS tan,occ wh-crm-ltgy,crpxl,v rr micxl,cln-chk,dns,sl anhy-anhy,occ chty,dol-v dol,grdg to v lmy DOL,tt-v rr intxl POR,tr bri yel FLOR,n vis STN,n-v rr p slow dif CUT,w/intbd DOL AA,POR-FLOR-STN-CUT AA"

6310.00 6320.00 "DOL & LS AA,POR-FLOR-STN-CUT AA"

6330.00 6340.00 "LS tan,occ wh-crm-ltgy,crpxl,v rr micxl,cln-chk,dns,sl anhy-anhy,tr bf-wh CHT,dol-v dol,grdg to v lmy DOL,tt-v rr intxl POR,fr even-tr bri yel FLOR,n vis STN,p v fnt res ring CUT,w/intbd DOL AA,POR-FLOR-STN-CUT AA"

6340.00 6360.00 "DOL lt-mbrn,brn,micxl-micsuc,vfxl-gran ip,sl suc,tr crpxl DOL incl,w/tr ANHY xl-incl,v sl slty,lmy ip,w/v rr dol LS incl-intbd,v rr CHT frag,occ CRIN-mic fos,bcmg tt,tr-fr intxl POR,fr-g dull yel FLOR,tr ltbrn-rr blk dd o STN,fr-g mod fast strmg CUT"

6360.00 6370.00 "DOL brn,micxl-micsuc,occ vfxl,rthy,cln,dns,tr CRIN fos,tr wh CHT-sil incl,tr tan crpxl LS incl,tt-tr intxl POR,fr duu even yel FLOR,fr brn STN,fr slow strmg CUT"

DEPTH

LITHOLOGY

- 6370.00 6390.00 "DOL brn,micxl-micsuc,tr crpxl strk,rthy,occ v sl slty,tr tan-mbrn crpxl LS incl,rr ltgy-gybrn sil-chty dol prtg,vrr wh pp CHT-sil incl,tr CRIN-rr mic fos,occ sl chky/tr POR fl,tt-fr intxl POR,g even dull-tr spotty bri yel FLOR,fr brn STN,frslow strmg CUT"
- 6386.00 6390.00 "TR CHT dkbrn-smky,hd,amor,"
- 6390.00 6400.00 "LS tan-crm-wh,crpxl,cln-occ sl chky,sl chty/bf-rr wh CHT,intbd in DOL AA,tr CRIN fos,occ sl-v dol,tt-tr intxl POR,g even-tr bri spotty yel FLOR,n-rr blk dd o STN,fr slow strmg-p res ring CUT"
- 6400.00 6420.00 "LS AA,intbd in brn DOL AA,pred cln-bcmg mrly/occ mot brgy strk,v chky ip,occ v sl slty-arg ip,tr trnsf-bf CHT,tr CRIN fos,occ grdg to lmy MRLST ip,g bri spotty FLOR,n vis-rr blk dd o STN,fr slow strmg-p v fnt res ring CUT"
- 6420.00 6430.00 "DOL brn,micsuc-micxl,occ crpxl strk,rthy,cln,v sl slty ip,intbd/crpxl LS AA,tr bf-trnsf CHT,tr CRIN fos,sl lmy-occ grdg to dol LS ip,tt-fr intxl POR,g even yel FLOR,fr brn-tr blk dd o STN,g fast strmg CUT"
- 6430.00 6450.00 "LS ltgybrn-wh-tan,crpxl-micxl,cln,sl-v chky,occ grdg to lmy MRLST ip,tr trnsf xln ANHY incl,tr wh-bf CHT,tr CRIN & mic fos,int bd in DOL AA,tt-tr intxl POR,fr even dull-tr bri spotty yel FLOR,n-rr brnblk STN,p slow strmg-v fnt res ring CUT"
- 6450.00 6460.00 "DOL brn,micxl-micsuc,tr crpxl strk,rthy,occ v sl slty,intbd/crpxl LS AA,tr bf-vrr wh CHT-sil incl,tr CRIN fos,occ lmy-grdg to sl mrly dol LS ip,tt-fr intxl POR,g even dull-tr spotty bri yel FLOR,fr brn STN,g fast strmg CUT"
- 6460.00 6470.00 "LS tan-crm-occ wh,crpxl,cln,sl chky,tr bf-rr wh CHT,intbd in DOL AA,tr CRIN fos,occ sl-v dol,tt-tr intxl POR,g even-tr bri spotty yel FLOR,n-rr dkbrn STN,fr slow strmg/p fnt res ring CUT"
- 6470.00 6490.00 "DOL brn,micsuc-micxl,tr crpxl strk,rthy,sl slty,intbd/crpxl LS AA,tr trnsf-rr wh CHT,tr CRIN fos,occ lmy-grdg to sl dol LS ip,fr-g intxl POR,g even dull-tr spotty bri yel FLOR,fr brn/tr dkbrn-rr brnblk STN,g mod fast strmg CUT"
- 6490.00 6500.00 "LS AA,crpxl,cln,sl-v chky,tr bf CHT,intbd in DOL AA,tr CRIN fos,occ sl-v dol,tt-tr intxl POR,g even-fr bri spotty yel FLOR,n-rr dkbrn STN,fr slow strmg/p fnt res ring CUT"
- 6500.00 6510.00 "DOL brn,micsuc-micxl/occ crpxl strk,rthy,cln,sl slty ip,intbd/crpxl LS AA,tr bf-trnsf CHT,tr CRIN fos,sl lmy-occ grdg to dol LS ip,tt-fr intxl POR,g even yel FLOR,fr brn-rr blk pp dd o STN,g fast strmg CUT"
- 6510.00 6520.00 "LS AA,intbd in brn DOL AA,POR-FLOR-STN-CUT AA"
- 6520.00 6540.00 "LS tan,wh-crm-ltgybrn,crpxl,v rr micxl,cln-chk,dns,sl anhy-anhy,occ chty,dol-v dol,grdg to v lmy DOL,tt-v rr intxl POR,tr bri yel FLOR,n vis STN,n-v rr p slow dif CUT,w/intbd DOL AA,POR-FLOR-STN AA,fr slow strmg-fr res ring CUT"
- 6540.00 6550.00 "DOL brn,occ dkbrn,micsuc-micxl,rthy,sl slty,intbd/crpxl LS AA,tr CRIN fos,tr bf CHT,sl lmy,tr-fr intxl POR,g even dull-tr spotty bri yel FLOR,fr brn-tr dkbrn STN,p slow strmg-v fnt res ring CUT"
- 6550.00 6560.00 "LS AA,crpxl,v rr micxl,cln-chk,dns,v sl anhy,tr bf CHT,v sl dol,tt-rr intxl POR,fr even-tr bri yel FLOR,n vis STN,v fnt res ring CUT,w/intbd DOL AA,POR-FLOR-STN AA,fr slow strmg-fr res ring CUT"

DEPTH	LITHOLOGY
6560.00 6570.00	"LS AA,occ plty,cht,y,rr scat CHT frag,w/DOL AA,POR-FLOR-STN-CUT AA"
6570.00 6586.00	"LS tan-crm,occ wh,crpxl,micxl ip,occ plty,sl dol,chk ip,anhy ip,rr scat ANHY xl,v rr mic fos,cht,y-scat tr trnsl-mot CHT frag,occ grdg to lmy DOL,n-v rr intxl POR,n-v rr spty bri yel FLOR,n vis STN,n-v rr slow-mod fast dif CUT,W/DOL AA,POR-FLOR-STN-CUT AA"
6586.00 6600.00	"LS AA,POR-FLOR-STN-CUT AA,scat CHT frag,w/DOL tan-brn,crpxl-vfxl,micsuc-gran,v rr ANHY xl,lmy,occ grdg dol LS,rr Crin fos,v sl slty,tt-g intxl POR,mod fr dull yel FLOR,fr ltbrn STN,fr-mod g slow-mod fast stmg CUT"
6600.00 6620.00	"DOL tan-brn,occ gybrn-ltgy,crpxl-micxl,occ vfxl-micsuc,bcmg dns,v lmy,grdg to dol ltgy alg LS,alg ip,v rr mic fos,anhy-rr ANHY xl-incl,occ ANHY fl POR,tt,rr intxl-pp vug POR,rr-mod fr dull-rr bri yel FLOR,rr dkbrn-occ blk dd o STN,fr-g mod fast stmg CUT in vugs "
6620.00 6630.00	"DOL ltbrn-brn,micxl-micsuc,gran-vfxl,rthy,v sl slty,lmy ip,w/crpxl tan dns LS incl,v rr mic fos,fr-g intxl POR,mod g dull yel FLOR,fr ltbrn STN,n-v rr spty blk dd o STN,fr slow dif-tr mod fast stmg CUT"
6630.00 6640.00	"DOL AA,bcmg mrly,arg ip,lmy,w/LS AA,POR-FLOR-STN-CUT AA"
6640.00 6650.00	"DOL tan-brn,occ gybrn-ltgy,crpxl-micxl,occ vfxl-micsuc,bcmg dns,v lmy,grdg to dol ltgy alg LS,alg ip,v rr mic fos,anhy-rr ANHY xl-incl,occ ANHY fl POR,tt,rr intxl-pp vug POR,rr-mod fr dull-rr bri yel FLOR,rr dkbrn-occ blk dd o STN,fr-g mod fast stmg CUT in vugs "
6660.00 6670.00	"LS tan-crm-wh,occ ltgy,crpxl,v rr micxl,cln-dns,occ chk,anhy-scat ANHY xl-incl,dol ip,v rr mic fos,mrly ip,tt-v rr intxl POR,n-v rr spty bri yel FLOR,n vis STN,n-v p slow dif CUT,w/DOL AA,micsuc,bcmg mrly,arg,v lmy ip,POR-FLOR-STN-CUT AA"
6680.00 6700.00	"LS AA,w/DOL ltbrn-brn,micxl-vfxl,micsuc,occ crpxl,cln-sl rthy,lmy-v lmy ip,occ grdg to dol LS,v rr Crin-mic fos,v rr ANHY xl,rr-fr intxl POR,fr-mod g dull-v rr spty bri yel FLOR,fr ltbrn STN,n vis blk dd o STN,fr-g slow dif-mod fast stmg CUT"
6700.00 6710.00	"LS tan-crm,occ wh,mot,crpxl,occ micxl,occ plty,cln-dns,occ rthy-chk,dol ip,occ grdg to v lmy DOL,sl chty-scat tan-trnsl-wh CHT frag,v rr mic fos,tt-v rr intxl POR,n-v rr bri yel FLOR,n-v rr v p vis STN,n-p slow dif CUT,w/DOL AA,POR-FLOR-STN-CUT AA"
6720.00 6736.00	"LS AA,w/DOL ltbrn-brn,micxl-vfxl,micsuc,occ crpxl,cln-sl rthy,lmy-v lmy ip,occ grdg to dol LS,v rr Crin-mic fos,v rr ANHY xl,rr-fr intxl POR,fr-mod g dull-v rr spty bri yel FLOR,fr ltbrn STN,n vis blk dd o STN,fr-g slow dif-mod fast stmg CUT"
6736.00 6750.00	"LS tan-crm,occ wh,mot,crpxl,occ micxl,occ plty,cln-dns,occ rthy-chk,dol ip,occ grdg to v lmy DOL,sl chty-scat tan-trnsl-wh CHT frag,v rr mic fos,tt-v rr intxl POR,n-v rr bri yel FLOR,n-v rr v p vis STN,n-p slow dif CUT,w/DOL AA,POR-FLOR-STN-CUT AA"
6680.00 6700.00	"LS AA,w/DOL ltbrn-brn,micxl-vfxl,micsuc,occ crpxl,cln-sl rthy,lmy-v lmy ip,occ grdg to dol LS,v rr Crin-mic fos,v rr ANHY xl,rr-fr intxl POR,fr-mod g dull-v rr spty bri yel FLOR,fr ltbrn STN,n vis blk dd o STN,fr-g slow dif-mod fast stmg CUT"
6700.00 6710.00	"LS tan-crm,occ wh,mot,crpxl,occ micxl,occ plty,cln-dns,occ rthy-chk,dol ip,occ grdg to v lmy DOL,sl chty-scat tan-trnsl-wh CHT frag,v rr mic fos,tt-v rr intxl POR,n-v rr bri yel FLOR,n-v rr v p vis STN,n-p slow dif CUT,w/DOL AA,POR-FLOR-STN-CUT AA"

DEPTH	LITHOLOGY
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6720.00 6736.00 "LS AA,w/DOL ltbrn-brn,micxl-vfxl,micsuc,occ crpxl,cln-sl rthy,lmy-v lmy ip,occ grdg to dol LS,v rr Crin-mic fos,v rr ANHY xl,tr-fr intxl POR,fr-mod g dull-v rr spty bri yel FLOR,fr ltbrn STN,n vis blk dd o STN,fr-g slow dif-mod fast stmg CUT"

6736.00 6750.00 "LS tan-crm,occ wh,mot,crpxl,occ micxl,occ plty,cln-dns,occ rthy-chk,dol ip,occ grdg to v lmy DOL,sl chty-scat tan-trnsl-wh CHT frag,v rr mic fos,tt-v rr intxl POR,n-v rr bri yel FLOR,n-v rr v p vis STN,n-p slow dif CUT,w/DOL AA,POR-FLOR-STN-CUT AA"

6760.00 6775.00 "LS tan-crm,occ wh,mot,crpxl,occ micxl,occ plty,cln-dns,occ rthy-chk,dol ip,occ grdg to v lmy DOL,sl chty-scat tan-trnsl-wh CHT frag,v rr mic fos,tt-v rr intxl POR,n-v rr bri yel FLOR,n-v rr v p vis STN,n-p slow dif CUT,w/DOL AA,POR-FLOR-STN-CUT AA"

6775.00 6790.00 "DOL ltbrn-brn,micxl-micsuc,vfxl-gran ip,rthy,sl slty,occ sl mrlly,v rr CHT frag,n-v rr mic-Crin fos,lmy,occ grdg to dol LS,tt-g intxl POR,tr-mod g dull yel FLOR,tr ltbrn STN,tr fr-g slow-mod fast stmg CUT,w/LS AA,n-v rr bri yel FLOR,n vis STN,n-v rr CUT"

6790.00 6805.00 "LS tan-crm,occ wh,mot,crpxl,occ micxl,occ plty,cln-dns,occ rthy-chk,dol ip,occ grdg to v lmy DOL,sl chty-scat tan-trnsl-wh CHT frag,v rr mic fos,tt-v rr intxl POR,n-v rr bri yel FLOR,n-v rr v p vis STN,n-p slow dif CUT,w/DOL AA,POR-FLOR-STN-CUT AA"

6807.00 6830.00 "DOL ltbrn-brn,micxl-micsuc,vfxl-gran ip,rthy,sl slty,occ sl mrlly,v rr CHT frag,n-v rr mic-Crin fos,lmy,occ grdg to dol LS,tt-g intxl POR,tr-mod g dull yel FLOR,tr ltbrn STN,tr fr-g slow-mod fast stmg CUT,w/LS AA,n-v rr bri yel FLOR,n vis STN,n-v rr CUT"

6830.00 6844.00 "LS tan-crm,occ wh,mot,crpxl,occ micxl,occ plty,cln-dns,occ rthy-chk,dol ip,occ grdg to v lmy DOL,sl chty-scat tan-trnsl-wh CHT frag,v rr mic fos,tt-v rr intxl POR,n-v rr bri yel FLOR,n-v rr v p vis STN,n-p slow dif CUT,w/DOL AA,POR-FLOR-STN-CUT AA"

FORMATION TOPS

OPERATOR: MOBIL
WELL NAME: RATHERFORD UNIT #12-22 NW UPPER HORIZONTAL LATERAL LEG 3

FORMATION NAME		SAMPLES MEASURED DEPTH	SAMPLES TRUE VERTICAL DEPTH	DATUM
LOWER ISMAY				
GOTHIC SHALE		5325'	5318'	-736
DESERT CREEK		5343'	5332'	-750
DC-1A		5349'	5337'	-755
DC-1B		5359'	5345'	-763
DC-1C		5369'	5350'	-768
DC-1D POROSITY		5396'	5365'	-783

GEOLOGICAL SUMMARY

AND

ZONES OF INTEREST

The Mobil Exploration and Production U.S. Inc., Ratherford Unit #12-22 Horizontal Leg #3, Section 12, T41S, R23E, was a re-entry of the Mobil Ratherford Unit #12-22. This was a sidetrack drilled in a northwesterly direction and down the apparent dip, from 5248' measured depth, and 5248' true vertical depth, on January 20, 1997. Leg #3 reached a measured depth of 6844', true vertical depth of 5407' at total depth, horizontal displacement of 1600' and bearing 306 degrees, on January 25, 1997. The lateral was drilled without any significant problems.

The primary objective of the Ratherford Unit #12-22 Horizontal Lateral Leg 3 was the Upper 1-D Porosity Bench, to identify and define the porosity bench, its effective porosity, staining and reservoir properties in the Desert Creek Member of the Upper Paradox Formation.

The Gothic Shale Member, the 1A through 1C were encountered while drilling Leg 1. Kick off point for this lateral was in the lower Ismay Member, with only minor shows of staining or porosity near the base. The top of the Gothic Shale is 5325' measured depth, 5318' true vertical depth. The Gothic Shale was predominantly dark gray to black, silty, carbonaceous, brittle to firm, subblocky to blocky to platy, calcareous to slightly dolomitic and slightly micaceous. The top of the Gothic was gradational from very thin interbedding of very argillaceous, carbonaceous limestone and very argillaceous, limy dolomite, with the dolomite grading into very dolomitic, carbonaceous shale. The top of the Gothic was picked predominantly by the decrease in penetration rate and the decreased percentage of shale in the samples. Correlation with open hole log has the sample pick somewhat higher in the sample log due to the well being drill up dip to the correlation log.

The top of the Desert Creek is picked at the top of a transitional zone, which lies between the base of the Gothic Shale and the top of the Desert Creek submembers at 5343' measured depth, and 5332' true vertical depth. This zone appears to be gradational. In this well the zone was predominantly a limestone; which was gray to white to light brown, cryptocrystalline to microcrystalline, with some granular limestone, very slightly sandy, with very thinly interbedded dolomite which was brown to light gray brown, microcrystalline to granular, slightly limy and occasionally silty. The limestone was predominately tight with very rare intercrystalline porosity that showed some anhydrite fillings. Through this transitional zone there appeared to be some interbedding or possibly cyclic deposits consisting of dolomitic to slightly calcareous, black, carbonaceous mudstones and very slightly dolomitic siltstones. The porosities ranged from none to very poor intergranular, with traces of anhydrite fillings. No visible staining was noted and had predominately a very rare spotty, very poor, faint dull yellow fluorescence, with no to very rare residue ring cut.

The top of the Desert Creek 1-A zone was picked at 5349' measured depth, 5337' true vertical depth. The pick is base on the rate of penetration, only slightly influenced by sample interpretation. The top was picked in this lateral mainly based on the first significant increase in the limestone below the Desert Creek top and the occurrence of a light brown to medium brown, microcrystalline to microsucrosic, dolomite, interbedded in the limestone. The limestone was predominately tight with very rare streaks of intercrystalline porosity, some chert fragments, and no to very rare visible fluorescence, poor faint light brown stain and a poor slow residual ring near the base.

The top of the Desert Creek 1-B zone appeared to occur at 5359' measured depth, 5345' true vertical depth. The pick is based on the rate of penetration, only slightly influenced by sample interpretation. The top was picked in this lateral mainly based on the overall consistent decrease in penetration rate in the limestone below the Desert Creek top of the 1-A. The limestone was predominately tight with very rare, very thin streaks of intercrystalline porosity, some thin black carbonaceous shale laminations to partings, and no visible fluorescence, stain or cut.

The very thin porosity zone marking the very top of the 1-C zone, occurred at a measured depth of 5369' and a true vertical depth of 5350'. The limestones of the 1-C zone were cream to tan, cryptocrystalline to microcrystalline, clean to very slightly silty, occasionally very slightly marly, occasional scattered micro fossils and chert fragments. The upper 6' was a tight cryptocrystalline, dense limestone. The middle 10' (uncorrected for angle) had a trace of intercrystalline porosity, with a spotty dull to bright yellow fluorescence, no visible stain and a very good streaming cut, with an associated gas increase of 500 units and C₁ through C₄. The lower 10' became increasingly tight and more dolomitic with depth, with very rare light to medium brown, microcrystalline to microsugrosic interbedded dolomites. These thin dolomites were predominately tight, as was the surrounding limestone, with very thin streaks of intercrystalline porosity, very rare spotty dull yellow fluorescence, no to a trace of dead oil stain and a fair streaming cut, near the 1-C and 1-D contact.

The top of the 1-D zone was marked by a thin hard streak in the drilling time and an increase in the samples of a microsugrosic to microcrystalline, light to medium to dark brown dolomite, at a measured depth of 5396' with a true vertical depth of 5365'. Thin interbedded cream to tan to off-white, cryptocrystalline to microcrystalline, predominately tight, slightly dolomitic limestone were noted at and near the top of the zone. The 1-D porosity zone was a brown to dark to median brown, microcrystalline to very finely crystalline, microsugrosic to sugrosic, earthy to clean, occasionally slightly silty dolomites, with scattered anhydrite crystals and inclusions. Also noted in the dolomites were Crinoid fossils. The dolomite porosity ranged from a trace to fair intercrystalline and scattered traces of vuggy porosity, with a trace to fair dull-bright yellow fluorescence, fair brown stain and none to a trace of spotty black dead oil stain, with a slow diffuse to fair slow to fast cut. A significant increase in the background gas was also noted upon drilling in to this zone.

At a measured depth of 5440', 5373' true vertical depth, with a horizontal displacement of 203' in the dolomites of the 1-D porosity horizon, a trip was made to change the bottom hole assembly and pick up the MWD tool upon completion of building the curve section of the lateral. Through out the drilling of the 1-D lateral the porosity was predominately in a light to medium brown, microcrystalline to very fine crystalline, microsugrosic to occasionally sugrosic dolomite, clean to slightly silty, with scattered anhydrites, and very rare dark algal material, traces to abundant Crinoid and micro fossils, traces of scattered dark brown to black oil stain residue* in intercrystalline matrix and vugs. The dolomites in the porosity had predominantly fair to good intercrystalline porosity, some anhydrite inclusions in the porosity. Through the interval the staining was fair to good and had cuts ranging from moderate milky residue/ring to good moderately fast to slow steady streaming.

At 5560' measured depth, 5373' true vertical depth, with a horizontal displacement of 310', a light gray to white, cryptocrystalline to microcrystalline, platy and chalky limestones was noted in samples along with a decrease in penetration and decrease in the sample show. The decrease in penetration rate was due to encountering the upper boundary of the 1-D zone. The well bore was oriented downward to move away from the upper boundary. As the well continued its downward angle, the lithology returned to brown dolomite with good intercrystalline porosity.

The well was continued gradually downward at a shallow angle from 5560' measured depth, 5373' true vertical depth, to 6150' measured depth, 5383' true vertical depth, with a horizontal displacement of 910'. During this interval the dolomites were light to medium brown, microsugrosic to granular, with the porosity remaining fair to good intercrystalline, with fair staining, and moderate to fair cut.

At a measured depth of 6150', 5383' true vertical depth, with a horizontal displacement of approximately 910', a decrease in the penetration rate and an increase in limestones were noted. The limestones were tan to white to cream, cryptocrystalline, occasionally microcrystalline, earthy to clean, some chalky, anhydritic in part, with scattered translucent to tan to white cherts, and no to very rare intercrystalline porosities, with rare faint dull to occasionally bright yellow fluorescence, no to very rare faint oil stain and a very poor slow diffuse to ring cut. The facies change to a more was a vertical change as the upper boundary was encountered. From 6150' measured depth to a measured depth of 6406', 5396' true vertical depth, and a horizontal displacement range of 910' to 1162', the upper boundary was encountered several times as the 1-D zone upper boundary began dipping toward the target line. The lithology returned to predominately microsucrosic brown dolomites from a measured depth of 6406' to a measured depth of 6510'.

As the lateral continued downward from 6510' measured depth, 5399 true vertical depth, with a horizontal displacement of 1267' to a total depth of 6844' measured depth and a horizontal displacement of 1600', the 1-D zone appeared to thin as the samples showed increases in the limestones of the upper boundary, as well as the limestones of the lower boundary. The lower boundary limestones were white to cream, cryptocrystalline, occasionally dolomitic to very dolomitic, with traces of algal and vuggular porosities and a trace to fair sample show. At a measured depth of 6600', 5404' true vertical depth, and a horizontal displacement of 1356' the basal boundary limestones were first encountered. At this time the well was oriented closer to horizontal and moved away from the base in an attempt to return to the dolomite porosity. Due to the thinning of the zone, the samples from 6600' measured depth to a total depth of 6800', contained limestone from the upper boundary in varying amounts and the granular to microcrystalline, light brown to medium brown, dolomite, with no significant change in porosity, or sample show. However the sample show did show more dull yellow fluorescence, a decrease in the amount of staining and moderately fast to fast streaming milky cut, which was due to the occurrence of tight limestones in the samples..

In tracking the target line through the upper bench, there were several facies vertical changes. Predominant facies changes were associated with the rock type. Even with these classification changes, porosity for the most part was continuous, but the effective or the better porosity was associated with the facies in which fair to good, intercrystalline porosity, and the absence of any major anhydrite plugging in the porosities and the tight dense limestones of the upper boundary. The algal, very dolomitic limestones of the lower boundary, even though showing traces of algal and vuggular porosity, did show some anhydrite plugging, but it was unclear from penetration rate and the samples as to how well interconnected the vugs were.

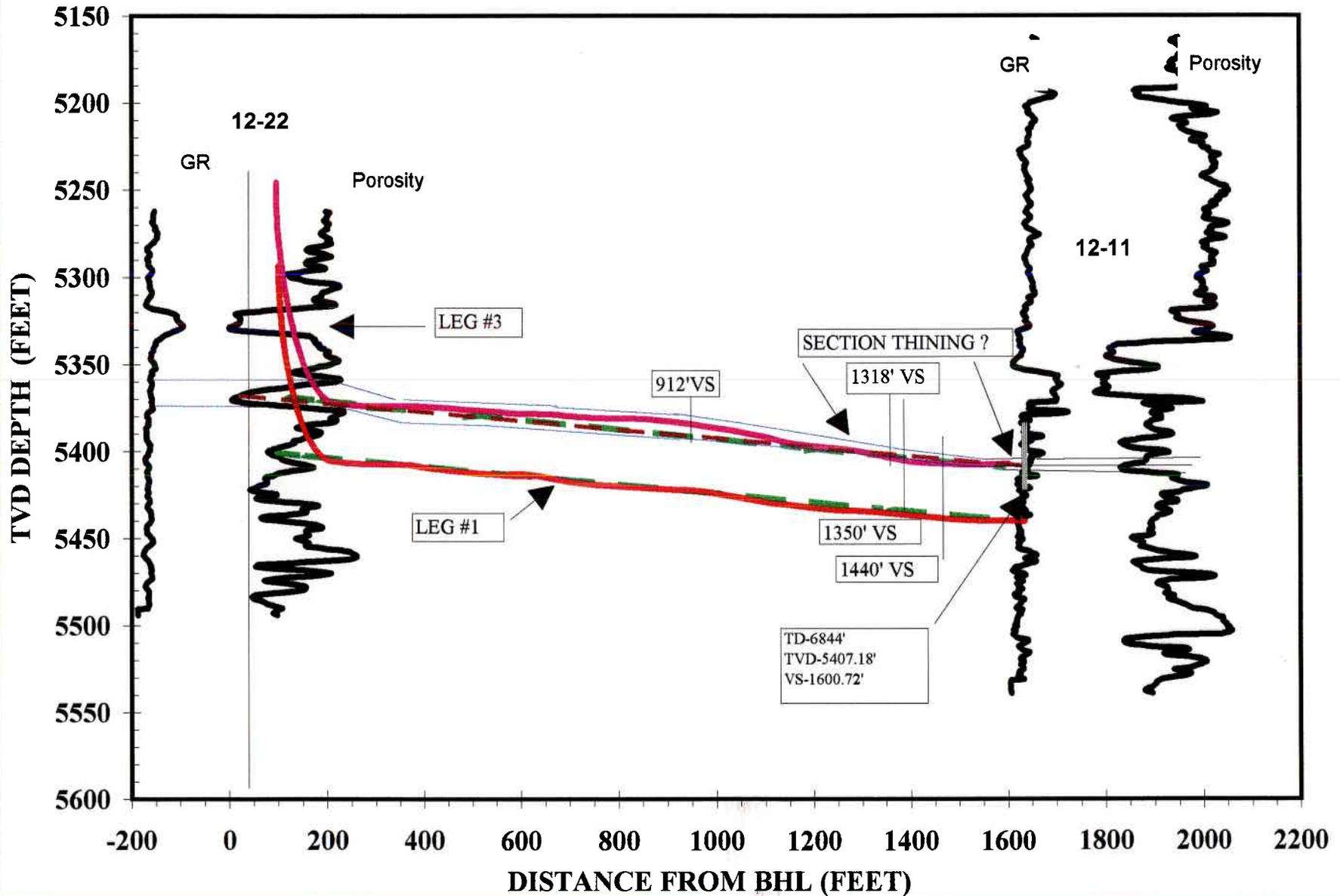
From the top of the 1-D porosity bench to 6500' measured depth, the dolomite lithology was consistent, light brown to brown, microcrystalline to very fine crystalline, microsucrosic to occasionally granular, with scattered very rarely limestone cement. The dolomite had predominantly fair to good intercrystalline to micropore porosity, with traces of microsucrosic to very granular dolomite. These dolomites had varying amounts of dark brown to black oil stain residue and at times anhydrite inclusions having an effect on continuous effective porosity. Staining,, fair to moderate to occasionally good, however remained rather consistent and continuous through out bench. Fluorescence, like the staining is consistent and continuous, a dull to bright yellow gold, cut ranging from moderate to good ring (diffuse) to moderate to good steady fast streaming cut. And from 6600' to a total measured depth of 6844' the dolomite lithology was a rather consistent light to occasionally medium brown, microcrystalline to microsucrosic granular dolomite with scattered interbedded tight to algal limestones. The dolomites had fair to good intercrystalline porosities and a good constant dull to very rare bright yellow fluorescence, with noticeable decreases when noticeable amounts of tight limestone was present. The staining in the dolomites ranged from trace to good light brown to traces of black dead oil stain and the associated cuts being trace to good slow diffuse to moderately fast to fast streaming .

The conclusion drawn from the northwest 1-D porosity bench Lateral Leg 3, is in this area the dolomite has good intercrystalline porosity. However, at times the vertical facies changes had an effect on porosity, and further reducing effective porosity when encountering calcite and anhydrite filled casts. Also, having an effect on the porosity, was the thinning of the zone to the northwest toward the 12-11. The lateral used the a proposed projected target line as a reference point through the bench, drilling tried to follow corrected the target line while maintaining contact with best porosity. It appears that the effective porosity is continuous, even with the vertical facies encountered.

While drilling, the lateral did make varying amounts of gas, which due to the significant amounts of heavies noted on the chromatograph (C₃ and C₄) indicated the presence of live oil. I would interpret this lateral to have good reservoir qualities since it did give up some oil and gas while drilling. I believe that the porosities are well enough developed to enhance the overall performance of the zone.

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

MOBIL, Ratherform Unit #12-22, Northwest Laterals



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

SUBMIT IN DUPLICATE*

(See other instructions on reverse side)

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

WELL COMPLETION OR RECOMPLETION REPORT AND LOG*

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

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

2. NAME OF OPERATOR **Mobil Exploration & Producing U.S. Inc.**
as Agent for Mobil Producing TX & NM Inc.

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

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)*
At surface **1920' FNL & 2080' FWL (SE/NW)**
At top prod. interval reported below

At total depth

5. LEASE DESIGNATION AND SERIAL NO.
14-20-603-246A

6. IF INDIAN, ALLOTTEE OR TRIBE NAME
NAVAJO TRIBAL

7. UNIT AGREEMENT NAME
RATHERFORD UNIT

8. FARM OR LEASE NAME, WELL NO.
RATHERFORD 12-W-22

9. API WELL NO.
43-037-15845

10. FIELD AND POOL, OR WILDCAT
GREATER ANETH

11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA
12, T41S, R23E

14. PERMIT NO. DATE ISSUED
11-7-96

12. COUNTY OR PARISH **SAN JUAN** 13. STATE **UTAH**

15. DATE SPUN **10-14-96** 16. DATE T.D. REACHED **01-26-1997** 17. DATE COMPL. (Ready to prod.) **2.20.97 Per JPB** 18. ELEVATIONS (DF, RKB, RT, GR, ETC.)* **4570' GR** 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** 25. WAS DIRECTIONAL SURVEY MADE **YES**

26. TYPE ELECTRIC AND OTHER LOGS RUN **MUD LOG LOGS 1,2,3 1-31-97** 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
8 5/8	32#	1151'	12 1/4"		
5 1/2	15.5#	5502'	8 3/4"	CALC 3914'	

29. LINER RECORD 30. TUBING RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)	SIZE	DEPTH SET (MD)	PACKER SET (MD)
					2 3/8		5198'

31. PERFORATION RECORD (Interval, size and number)

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
5450-6844' OHZ	LATERAL #3A1 ACIDIZE W/24000 GALS 15% HCL ACID.
** #37	CONTINUED **

33.* PRODUCTION

DATE FIRST PRODUCTION **1-3-97** PRODUCTION METHOD (Flowing, gas lift, pumping - size and type of pump) WELL STATUS (Producing or shut-in)

DATE OF TEST **4-3-97** HOURS TESTED CHOKE SIZE PROD'N. FOR TEST PERIOD OIL - BBL. GAS - MCF. WATER - BBL. GAS - OIL RATIO **2391**

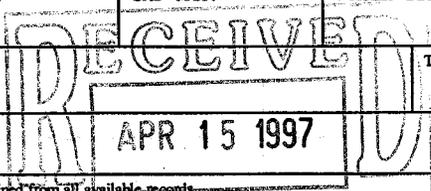
FLOW. TUBING PRESS. CASING PRESSURE **2750** CALCULATED 24-HOUR RATE OIL - BBL. GAS - MCF. WATER - BBL. OIL GRAVITY - API (CORR.)

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

35. LIST OF ATTACHMENTS **DIRECTIONAL SURVEY REPORT**

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

SIGNED Shirley Houchins TITLE ENV. & REG. TECHNICIAN DATE 3-31-97



*(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, flowing and shut-in pressures, and recoveries):

38. GEOLOGIC MARKERS

FORMATION	TOP	BOTTOM	DESCRIPTION, CONTENTS, ETC.	NAME	TOP	
					MEAS. DEPTH	TRUE VERT. DEPTH
* #20			LATERAL #1(5288-6900'TMD)(5288-5440'TVD) OHZ			
			LATERAL #2(5263-6747'TMD)(5263-5352'TVD) OHZ			
			LATERAL #3(5248-6844'TMD)(5247-5407TVD) OHZ			
** #32	5450'	6746'	LATERAL #2A1 ACIDIZED W/24000 GALS 15% HCL			
	5500'	6900'	LATERAL #1A1 ACIDIZED W/24000 GALS 15% HCL			

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 reentry to a different reservoir.
Use "APPLICATION FOR PERMIT - " for such proposals

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

5. Lease Designation and Serial No.

14-20-603-246A

6. If Indian, Allottee or Tribe Name

NAVAJO TRIBAL

7. If Unit or CA, Agreement Designation

RATHERFORD UNIT

8. Well Name and No.

RATHERFORD 12-W-22

9. API Well No.

43-037-15845

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 INJECTOR / SIDETRACK

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

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

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
1920' FNL & 2080' FWL
SEC.12, T41S, R23E (SE/NW)

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

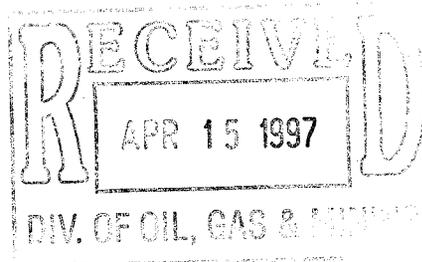
(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

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.)*

BOTTOM HOLE LOCATIONS:

LEG #1: 1083' NORTH & 1225' WEST @ 5440' OF SURFACE LOCATION.
LEG #2: 940' SOUTH & 933' EAST @ 5352' OF SURFACE LOCATION.
LEG #3: 1229' NORTH & 1028' WEST @ 5407' OF SURFACE LOCATION.

SEE ATTACHMENT.



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

Signed Shirley Houchens

Title ENV. & REG. TECHNICIAN

Date 03-31-97

(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

WO tax credit 7/98

ATTACHMENT - FORM 3160-5
RATHERFORD UNIT - WELL #12-W-22
14-20-603-246A
NAVAJO TRIBAL
SAN JUAN, UTAH

- 10-14-96 MIRU PU & SUPPORT EQUIP, PRESS. TEST ANNULUS TO 500#, ATTEMPT TO RELEASE PKR.
- 10-15-96 MOVE OUT INJ. TBG., MOVE IN WS. RIH W/4.750" BIT/2 7/8"TBG TO 5300 RU SWIVEL & C/O OUT TO 5417 (SLM), POOH LAY DOWN REMAIN WS.
- 10-16-96 RU SCHLUMBERGER. RIH W/ULTRASONIC IMAGER AND LOG FROM 5404' (WLTD) TO 4000'. RIH W/GR/COMPENSATED NEUTRON & LOG FROM 5404'-4000'. RD SCHLUMBERGER. CLEAN OUT CMT. CELLAR. BRADEN HD. CORRODED & HOLE ON BODY OF HD. ATTEMPT TO DIG AROUND BRADEN HD. TO CUT OFF CSG. BTM OF CELLAR FULL OF CMT.
- 10-17-96 BUST OUT CMT. CELLAR & CMT. AROUND WELLHEAD. ND BOP. SPEAR 5 1/2" CSG. CUT EXISTING TBG. HD. & BRADEN HD OFF. CUT & DRESS 8 5/8" & 5 1/2" CSG. EXTEND BOTH. RD PU & RELEASE UNIT. (FINAL REPORT THIS UNIT).
- 01-02-97 BLEED WELL TO TANK & PIT, POOH & LD 2 3/8' TBG.
- 01-03-97 SICP 50 PSI, BLEED TO PIT/RIH W/RBP @ 4000', RDMO BASIN
- 01-07-97 RIGGING UP NWI #25, NOTIFIED JIM THOMPSON W/STATE OF UTAH @ 17:42 OF INTENT TO START DRILLING OPERATIONS.
- DRILLING
- 01-08-97 REL. RBP, WO/SETTING SLEEVE, RIH W/ 5 1/2" WHIPSTOCK PKR.
- 01-09-97 SET TEST PLUG, PRESS. TESTED BOP. RIH W/WHIPSTOCK, SET @ 5288, CUT WINDOW W/STARTING MILL/POOH. RIH W/ WINDOW & WATERMELLON MILLS.
- 01-09-97 RIH W/WHIPSTOCK PKR, SET @ 5300', RUN GYRO FIND PKR KEYWAY @ 50 DEG AZ, FINAL REPORT FOR RE-ENTRY.
- 01-10-97 RIH/SPERRY SUN CURVE DRILLING ASSEMBLY, TIME DRILL CURVE 1A1, FROM 5296-5404'. FIN RIH W/MILLS. CUT WINDOW FROM 5288-5294' DRILLED FORMATION TO 5296', PUMP, SWEEP, CIRC HOLE CLEAN,
- 01-11-97 DRILL CURVE 1A1 FROM 5304-5470', TVD 5405.65., CIRC CLEAN, POH W/STEERING TOOL, POH W/MUD MOTOR, RIH W/CURVE DRILLING BHA.
- 01-12-97 FISH RIH W/2.875" AOHP TO 5470', SLIDE & ROTATE DRILL LATERAL 1A1 IN 2C DESERT CREEK FORMATION F/5470-6308'
- 01-13-97 SLIDE & ROTATE, DRILL LATERAL SECTION 1A1 IN IIC DESERT CREEK FORMATION FROM 6308-6900' TD (27.53 FPH) SURVEY THROUGH-OUT INTERVAL. POH W/DRILLING ASSEMBLY.

ATTACHMENT - FORM 3160-5
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NAVAJO TRIBAL
SAN JUAN, UTAH
PAGE 2

- 01-14-97 FINAL OUT OF HOLE W/LATERAL DRG. ASSM. RIH W/WEATHERFORD RETRIEVABLE TOOL TO 5291'. POH WHIPSTOCK, LAY DOWN DRILL PIPE, END REPORT FOR LATERAL 1A1.
- 01-14-97 RIH TO 5300', TAG TOP OF PKR., SET WHIPSTOCK @ 5262', MILL 19' W/STARTING MILL TO 5264', CIRC CLEAN., POH W/STARTING MILL, PICK UP NEW OD MILL W/WATERMELON MILL. RIH TO 1000', WINDOW FOR LATERAL #2.
- 01-15-97 FINISH WINDOW PREP FOR LATERAL #2, TIH W/CURVE DRILLING ASSEMBLY, WO/WEATHER.
- 01-16-97 PULLING GYRO AND RU STEERING TOOLS, WO/WEATHER.
- 01-17-97 DRILL CURVE SECTION OF LATERAL #2 F/5271-5430'MD, POOH & LD CURVE DRILL ASSEMBLY, PU LATERAL DRILL ASSM. & TIH W/SAME, ORIENT & PREP TO DRILL.
- 01-18-97 DRILL LATERAL #2, FROM 5430-6333' MD.
- 01-19-97 DRILL AHEAD, ROTATE & SLIDE F/6333-6715' MD.
- 01-20-97 DRILL FROM 6715-6747' TD LATERAL #2. POOH LD DIRECTIONAL DRILLING TOOLS, TIH W/RETRIEVE TOOL FOR WHIPSTOCK, POOH W/RETRIEVABLE WHIPSTOCK & LAY DOWN SAME.
- 01-21-97 TIH W/STARTER MILL ASSM. & CUT F/5248-5250, CIRC, POOH W/STARTER MILL, PU NEW MILL & WATERMELON MILL AND TIH W/SAME, MILL WINDOW IN CSG TO 5257' BOTTOM OF WS @ 5255', DRILL NEW HOLE TO 5257', CIRC, POOH & LAY DOWN MILLS, TIH W/CURVE DRILLING ASSEMBLY, MIRU K JET, RUN GYRO, ORIENT TOOL FACE/PREP TO TIME DRILL. LATERAL #3.
- 01-22-97 TIME DRILL START OF CURVE FROM 5257'-5279', POOH W/CURVE DRILL ASSM, GYRO, LD SAME., MADE WET CONNECT, PREP TO DRILL F/5279-5441' LAND CURVE. IN ZONE.
- 01-23-97 DRILL AHEAD 5441'-5694'.
- 01-24-97 CONTINUE TO DRILL AHEAD, LATERAL #3 F/5694-6215'.
- 01-25-97 CONTINUE TO DRILL AHEAD, LATERAL #3 F/6315-6717'
- 01-26-97 DRILL TO 6844' MD, 5407' TVD TD, LATERAL #3., FINAL SURVEY ON BOTTOM, SWEEP & CIRC TO SURFACE, RIH W/RETRIEVABLE BRIDGE PLUG, SET @ 4800', CLEAN PITS, RELEASE BIG A.

COMPLETION

- 02-04-97 SHUT IN CSG.PRESSURE @ 0 PSI., MIRU NAVAJO WEST RIG #36.
- 02-05-97 FINISH RIG UP NAVAJO WEST RIGH #36. TALLY 8 RD TBG. PU RETV HEAD FOR BRIDGE PLUG, RIH TO 4780' NIPPLE UP ANN. BOPE & TEST TO 1000 PSI. OK. RETV. BRIDGE PLUG. POH. PU & RIH W/2 Y/8 PH6 TBF (1644.59') & I RD TBG TO 5236'. SIFN.

ATTACHMENT - FORM 3160-5
RATHERFORD UNIT - WELL #12-W-22
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NAVAJO TRIBAL
SAN JUAN, UTAH
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- 02-06-97 SHUT IN TBG. PRESSURE @ 0. WO DOWELL ACID UNIT. MIRU DOWELL ACID UNIT. PUMP 30 BBLS OF ACID DOWN TBG, CLEAN OUT. RECV. OUT ACID. RIH W/WORK STRING TO 6844 POH TO 5236'. DROP FLUID CONTROL VALVE. SIFN.
- 02-07-97 RIG UP/RIH W/WORKSTRING FROM 5236' TO 6844' (TD LATERAL #3A1). SPOT 38 BBLS 15% HC. ACID, CIRC OUT ACID, POH W/WORK STRING. SIFN.
- 02-08-97 RIG UP/RIH W/KILL STRING, CSG. PRESSURE @ 0. PREP TO ACIDIZE.
- 02-09-97 LATERAL #3A1 (5257-6844') RIH SET 5.5", 15.50# HD PKR. TEST TO 750 PSI. OK. RU COILED TBG. UNIT & ACID UNIT. SIFN.
- 02-10-97 SITP @ 0 PSI, RU AND TEST PUMPS & LINES TO 3000# PSI. OK. RIH W/1.5" OD COILED TBG TO 6844' SPOT 21 BBLS 15% HCL ACID TO ENG TBG @ 6844'. (LATERAL #3A1), ACIDIZE OPEN HOLE FORMATION FROM 6844-5450' W/24,000 GALS 15% HCL ACID. POH W/COILED TBG. SWAB/FLOW WELL BACK TO TEST THAN.
- 02-11-97 SWAB/FLOW BACK WELL. (LATERAL #3A1). FLUID LEVEL CONST. @ 600'. START LATERAL #2. RU & PUMP 10 BBLS OF 10# BRINE DOWN TBG. POH W/PKR. RIH & RECOVER WHIPSTOCK. POH & LAY DOWN. SIFN.
- 02-12-97 SHUT IN CSG PRESSURE @ 0 PSI. PICK-UP WHIPSTOCK TOOLS. ORIENT TOOLS, RIH TO 5263' (LATERAL #2 5269-6746'), SET WHIPSTOCK TOOL POH. RIH W/11 JOINTS OF PH6 TBG. PKR & 2 7/8" TBG TO 5434.65. PKR @ 5093.65. SET TEST
- 02-13-97 MOVE IN RIG UP DOWELL ACID UNIT, RIG UP COILED TBG. UT., RIH TO 6746' (TD LATERAL #2A1), ACIDIZE W/24000 GALS 15% HCL ACID, POH W/COILED TBG.
- 02-14-97 RIG UP, SWAB FLUID LEVEL DOWN TO 800', RCV. 120 BBLS OF WTR. 2% OIL. START LATERAL #1A1. PUMP 10 BBLS OF 103 BRINE DOWN TBG. RELEASE PKR. POH. RIH. RELEASE WHIPSTOCK.
- 02-15-97 FINISH OUT OF HOLE W/WHIPSTOCK & TOOLS. LAY DOWN, ORIENT WHIPSTOCK TO LATERAL #1A1. RIH & SET WHIPSTOCK @ 5288'. POH. RIH W/WORK STRING AND PKR. SET PKR & TEST. OK RIG UP TO ACIDIZE.
- 02-16-97 MOVE IN RIG UP ACID PUMPS. TEST PUMPS & LINES TO 2500 PSI. OK RIH W/1.5" COILED TBG. TO 6900'. ACIDIZE OPEN HOLE FORMATION F/6900-5500' W/24000 GALS 15% HCL ACID. SHUT WELL IN. POH W/COILED TBG.
- 02-17-97 KILL WELL/RELEASE PKR. POH LAY DOWN. RETV. TOOLS FOR WHIPSTOCK, RIH TO 5288'. LATCH ON TO WHIPSTOCK. POH & LAY DOWN WORK STRING.
- 02-18-97 ND HYDRIL, WAIT ON INJECTION TBG. SPOT TBG FLOAT, TALLY PIPE. SDFN.

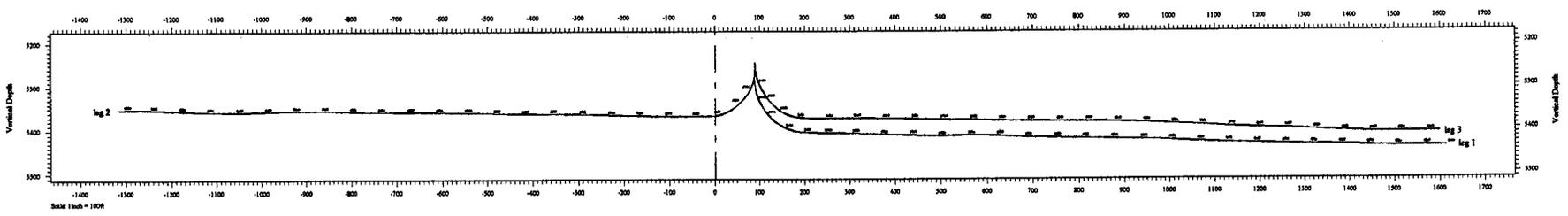
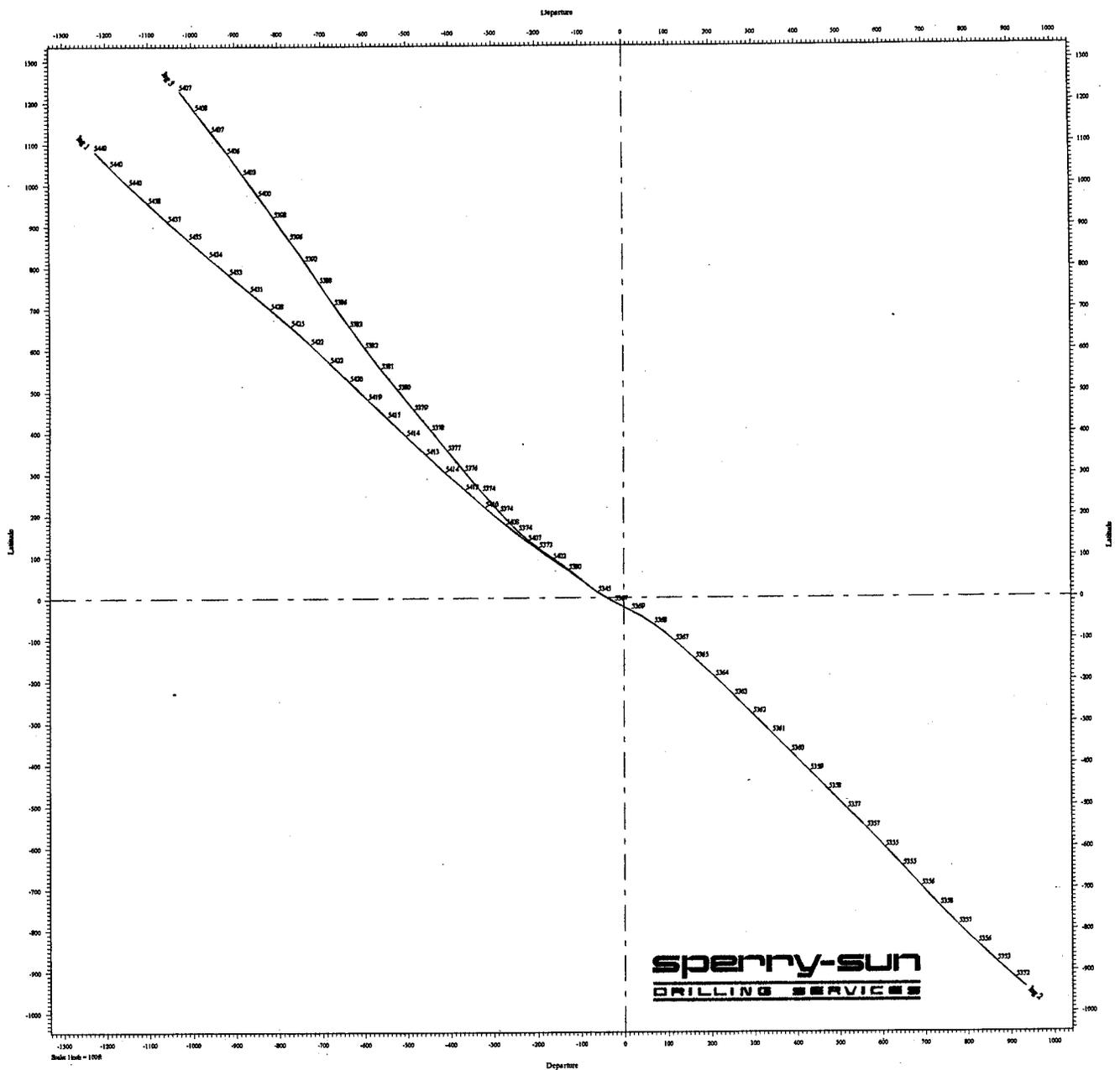
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02-19-97 RIH W/165 JTS 2 7/8" FLOURLINED TBG & INJECTION PKR. ND
BOPS, NU TREE, SET PKR @ 5198'. SIFN, READY TO CIRC. PKR
FLUID.

02-20-97 CIRC. PKR FLUID, TEST TO 1000 PSI FOR 30 MIN. OK. CLEAN
LOCATION, FILL PITS, RDMO PU, TOTP. LAST REPORT FOR THIS
JOB.

Mobil

Ratherford Unit 12-22
San Juan Country, Utah



Sperry-Sun Drilling Services

RU 12-22 - leg 1



Ratherford Unit
Big A #25

Mobil

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
5288.01	0.880	203.420	5287.80	37.26 S	16.14 W	-12.58	
5296.00	3.900	308.500	5293.53	38.83 N	91.98 W	94.63	52.758
5306.00	8.400	308.310	5303.47	39.50 N	92.82 W	95.70	45.000
5316.00	13.500	308.120	5313.29	40.67 N	94.31 W	97.60	51.001
5326.00	18.800	307.900	5322.89	42.38 N	96.50 W	100.37	53.003
5336.00	23.300	307.750	5332.22	44.59 N	99.34 W	103.96	45.003
5346.00	27.700	307.560	5341.24	47.21 N	102.75 W	108.25	44.008
5356.00	33.100	307.370	5349.87	50.29 N	106.76 W	113.30	54.008
5366.00	37.500	307.180	5358.03	53.79 N	111.36 W	119.06	44.014
5376.00	40.700	307.000	5365.79	57.59 N	116.39 W	125.35	32.020
5386.00	44.900	306.800	5373.12	61.67 N	121.82 W	132.12	42.022
5396.00	50.000	306.600	5379.88	66.07 N	127.73 W	139.46	51.021
5406.00	55.300	306.420	5385.95	70.80 N	134.11 W	147.37	53.019
5416.00	60.200	306.240	5391.28	75.81 N	140.92 W	155.79	49.024
5426.00	65.200	306.100	5395.87	81.05 N	148.10 W	164.64	50.015
5436.00	70.800	305.800	5399.61	86.49 N	155.60 W	173.86	56.069
5446.00	76.200	305.500	5402.45	92.08 N	163.39 W	183.40	54.076
5454.00	81.300	305.300	5404.01	96.62 N	169.78 W	191.20	63.797
5464.00	86.000	306.400	5405.11	102.44 N	177.83 W	201.09	48.254
5470.00	87.100	306.800	5405.48	106.01 N	182.64 W	207.05	19.504
5485.32	87.800	308.300	5406.16	115.34 N	194.78 W	222.32	10.796
5516.43	89.600	310.200	5406.86	135.01 N	218.86 W	253.40	8.411
5548.25	89.500	308.100	5407.11	155.10 N	243.53 W	285.19	6.607
5579.95	87.800	310.400	5407.86	175.15 N	268.07 W	316.85	9.020
5611.78	87.700	310.600	5409.11	195.81 N	292.26 W	348.65	0.702
5643.63	87.500	312.700	5410.44	216.95 N	316.03 W	380.47	6.617
5675.44	87.800	312.700	5411.75	238.51 N	339.39 W	412.25	0.943
5707.34	89.000	312.500	5412.64	260.09 N	362.86 W	444.13	3.814
5739.12	88.300	312.000	5413.39	281.45 N	386.38 W	475.90	2.707
5770.09	89.000	312.300	5414.12	302.23 N	409.34 W	506.86	2.459
5801.83	91.100	314.300	5414.09	324.00 N	432.43 W	538.58	9.136
5833.54	91.800	314.600	5413.29	346.19 N	455.06 W	570.24	2.402
5865.37	88.900	314.500	5413.09	368.52 N	477.74 W	602.02	9.116
5897.02	87.500	314.100	5414.09	390.61 N	500.38 W	633.61	4.600
5928.90	86.000	314.300	5415.89	412.80 N	523.20 W	665.40	4.747
5960.65	88.300	315.000	5417.47	435.09 N	545.76 W	697.06	7.571
5991.62	88.200	315.000	5418.42	456.98 N	567.65 W	727.96	0.323
6022.61	88.700	315.000	5419.26	478.88 N	589.55 W	758.88	1.613
6054.46	88.900	315.200	5419.92	501.44 N	612.03 W	790.66	0.888
6085.09	89.000	314.800	5420.48	523.09 N	633.68 W	821.23	1.346
6116.91	88.900	314.600	5421.07	545.47 N	656.30 W	852.99	0.703
6148.73	88.900	314.300	5421.68	567.75 N	679.01 W	884.76	0.943
6180.48	89.700	314.600	5422.07	589.98 N	701.67 W	916.47	2.691
6212.30	89.000	314.500	5422.43	612.30 N	724.35 W	948.24	2.222
6244.15	87.600	313.400	5423.37	634.40 N	747.27 W	980.04	5.589

Continued...

Sperry-Sun Drilling Services

RU 12-22 - leg 1



Ratherford Unit
Big A #25

Mobil

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
6276.04	87.300	312.700	5424.79	656.15 N	770.55 W	1011.89	2.386
6307.93	87.100	312.200	5426.35	677.64 N	794.05 W	1043.74	1.687
6339.71	86.700	311.600	5428.07	698.84 N	817.67 W	1075.47	2.267
6371.46	87.800	311.700	5429.59	719.91 N	841.36 W	1107.18	3.479
6403.27	88.600	311.500	5430.59	741.02 N	865.14 W	1138.97	2.592
6435.11	88.200	311.100	5431.48	762.03 N	889.05 W	1170.80	1.776
6466.90	87.800	310.900	5432.59	782.87 N	913.03 W	1202.57	1.407
6498.64	88.800	311.500	5433.53	803.77 N	936.90 W	1234.30	3.674
6530.39	89.300	312.000	5434.06	824.91 N	960.58 W	1266.04	2.227
6562.13	89.200	312.300	5434.47	846.20 N	984.11 W	1297.78	0.996
6593.78	88.700	312.700	5435.05	867.58 N	1007.44 W	1329.42	2.023
6625.63	88.600	313.100	5435.80	889.26 N	1030.77 W	1361.25	1.294
6657.45	88.600	313.200	5436.58	911.01 N	1053.98 W	1393.04	0.314
6689.20	88.400	313.600	5437.41	932.82 N	1077.04 W	1424.77	1.408
6721.08	88.900	314.100	5438.16	954.90 N	1100.02 W	1456.61	2.218
6752.82	88.100	314.500	5438.99	977.06 N	1122.73 W	1488.30	2.818
6783.87	89.100	315.200	5439.75	998.95 N	1144.73 W	1519.29	3.931
6815.74	90.000	315.900	5440.00	1021.70 N	1167.05 W	1551.07	3.578
6846.57	90.200	316.700	5439.95	1043.99 N	1188.35 W	1581.79	2.675
6869.00	89.600	316.600	5439.99	1060.30 N	1203.75 W	1604.13	2.712
6900.00	89.600	316.600	5440.20	1082.82 N	1225.05 W	1635.01	0.000

All data is in feet unless otherwise stated.

Coordinates are relative to Wellhead. Vertical depths are relative to Wellhead.

The Dogleg Severity is in Degrees per 100ft.

Vertical Section was calculated along an Azimuth of 311.474° (True).

Based Upon Minimum Curvature type calculations, at a Measured Depth of 6900.00ft.,

The Bottom Hole Displacement is 1635.01ft., in the Direction of 311.474° (True).

Sperry-Sun Drilling Services

RU 12-22 - leg 2



Ratherford Unit
Big A #25

Mobil

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
5263.00	0.780	201.610	5262.84	33.31 S	13.19 W	14.35	
5271.00	3.600	135.000	5268.55	38.81 N	91.44 W	-91.96	42.090
5281.00	8.700	133.840	5278.49	38.07 N	90.67 W	-90.89	51.013
5291.00	14.400	132.680	5288.29	36.70 N	89.21 W	-88.89	57.044
5301.00	20.600	131.520	5297.82	34.69 N	86.98 W	-85.89	62.095
5311.00	27.000	130.360	5306.96	32.05 N	83.93 W	-81.87	64.168
5321.00	31.800	129.200	5315.67	28.91 N	80.16 W	-76.98	48.335
5331.00	36.700	128.000	5323.94	25.40 N	75.76 W	-71.39	49.461
5341.00	42.100	126.880	5331.66	21.55 N	70.72 W	-65.11	54.464
5351.00	46.600	125.720	5338.81	17.41 N	65.08 W	-58.21	45.723
5361.00	50.900	124.560	5345.40	13.09 N	58.94 W	-50.81	43.874
5371.00	55.300	123.400	5351.41	8.62 N	52.30 W	-42.96	44.966
5381.00	61.400	122.240	5356.65	4.01 N	45.15 W	-34.65	61.792
5391.00	67.400	121.080	5360.97	0.71 S	37.48 W	-25.89	60.904
5401.00	73.300	119.900	5364.33	5.49 S	29.37 W	-16.79	60.036
5411.00	79.300	118.450	5366.70	10.22 S	20.89 W	-7.46	61.630
5421.00	86.400	117.000	5367.94	14.83 S	12.11 W	2.00	72.441
5430.00	89.300	117.700	5368.28	18.97 S	4.12 W	10.56	33.146
5454.17	89.500	119.700	5368.53	30.57 S	17.08 E	33.73	8.316
5485.92	90.200	122.900	5368.62	47.06 S	44.20 E	64.54	10.317
5516.87	90.700	126.000	5368.37	64.57 S	69.72 E	94.94	10.145
5548.54	90.600	129.700	5368.01	84.00 S	94.72 E	126.34	11.687
5580.39	91.900	132.500	5367.32	104.93 S	118.71 E	158.10	9.690
5612.23	91.800	133.100	5366.29	126.55 S	142.06 E	189.89	1.909
5644.00	91.400	134.500	5365.40	148.53 S	164.98 E	221.64	4.581
5675.88	91.400	133.900	5364.62	170.75 S	187.83 E	253.51	1.882
5707.63	91.300	134.300	5363.88	192.84 S	210.63 E	285.24	1.298
5738.69	91.200	135.500	5363.20	214.76 S	232.62 E	316.29	3.876
5770.53	90.700	136.000	5362.67	237.56 S	254.84 E	348.13	2.221
5802.34	90.500	135.200	5362.34	260.29 S	277.09 E	379.93	2.592
5833.17	89.700	135.200	5362.28	282.16 S	298.81 E	410.76	2.595
5864.92	91.300	135.900	5362.01	304.82 S	321.05 E	442.51	5.500
5896.66	92.000	136.600	5361.09	327.74 S	342.99 E	474.23	3.118
5928.45	91.600	136.200	5360.10	350.75 S	364.90 E	506.00	1.779
5959.54	90.500	136.400	5359.53	373.23 S	386.37 E	537.08	3.596
5991.38	90.700	136.400	5359.19	396.28 S	408.33 E	568.91	0.628
6023.29	90.800	135.700	5358.77	419.25 S	430.47 E	600.81	2.216
6055.02	90.800	135.700	5358.33	441.96 S	452.63 E	632.54	0.000
6086.65	90.700	135.500	5357.92	464.56 S	474.76 E	664.17	0.707
6118.48	90.400	136.000	5357.61	487.36 S	496.97 E	695.99	1.832
6150.31	90.200	135.900	5357.44	510.23 S	519.10 E	727.82	0.702
6182.14	90.300	136.000	5357.31	533.11 S	541.23 E	759.65	0.444
6213.95	91.300	136.400	5356.86	556.07 S	563.25 E	791.45	3.386
6245.78	92.500	137.400	5355.81	579.29 S	584.98 E	823.25	4.906
6277.49	90.800	137.800	5354.89	602.70 S	606.36 E	854.92	5.507

Continued...

Sperry-Sun Drilling Services

RU 12-22 - leg 2



Ratherford Unit
Big A #25

Mobil

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
6308.12	89.700	137.600	5354.76	625.35 S	626.97 E	885.52	3.650
6339.68	90.400	138.300	5354.73	648.79 S	648.11 E	917.04	3.137
6371.45	88.700	138.300	5354.98	672.51 S	669.24 E	948.76	5.351
6403.43	87.300	137.300	5356.10	696.18 S	690.71 E	980.69	5.379
6435.28	89.100	138.000	5357.10	719.71 S	712.15 E	1012.49	6.063
6467.10	88.900	136.700	5357.65	743.11 S	733.71 E	1044.28	4.133
6498.93	90.800	137.100	5357.74	766.35 S	755.45 E	1076.10	6.100
6530.69	91.000	136.200	5357.24	789.44 S	777.25 E	1107.85	2.903
6562.52	91.400	135.500	5356.57	812.27 S	799.42 E	1139.67	2.532
6594.21	92.400	134.800	5355.52	834.73 S	821.76 E	1171.34	3.851
6626.09	92.900	134.300	5354.05	857.07 S	844.45 E	1203.18	2.217
6657.84	92.500	133.600	5352.55	879.08 S	867.28 E	1234.89	2.537
6689.74	90.400	133.400	5351.74	901.03 S	890.41 E	1266.76	6.613
6717.00	89.100	132.300	5351.86	919.57 S	910.40 E	1294.00	6.247
6747.00	89.100	132.300	5352.33	939.76 S	932.58 E	1323.95	0.000

All data is in feet unless otherwise stated.

Coordinates are relative to Wellhead. Vertical depths are relative to Wellhead.

The Dogleg Severity is in Degrees per 100ft.

Vertical Section was calculated along an Azimuth of 135.219° (True).

Based Upon Minimum Curvature type calculations, at a Measured Depth of 6747.00ft.,

The Bottom Hole Displacement is 1323.95ft., in the Direction of 135.219° (True).

Sperry-Sun Drilling Services

RU 12-22 - leg 3



Ratherford Unit
Big A #25

Mobil

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
5248.00	0.720	200.290	5247.86	30.93 S	11.43 W	-16.39	
5257.00	3.500	312.000	5254.55	39.36 N	91.75 W	89.06	42.502
5267.00	8.300	311.610	5264.50	40.04 N	92.52 W	90.08	48.001
5277.00	13.400	311.220	5274.32	41.29 N	93.93 W	91.94	51.005
5287.00	17.900	310.830	5283.94	43.06 N	95.97 W	94.60	45.012
5297.00	22.000	310.440	5293.34	45.28 N	98.56 W	97.96	41.021
5307.00	26.100	310.050	5302.47	47.91 N	101.67 W	101.98	41.031
5317.00	30.300	309.660	5311.28	50.94 N	105.30 W	106.63	42.040
5327.00	33.500	309.270	5319.77	54.29 N	109.38 W	111.82	32.066
5337.00	36.500	308.880	5327.96	57.91 N	113.83 W	117.45	30.083
5347.00	39.700	308.490	5335.83	61.76 N	118.64 W	123.50	32.090
5357.00	44.800	308.100	5343.23	65.93 N	123.92 W	130.08	51.067
5367.00	50.200	307.710	5349.98	70.46 N	129.74 W	137.28	54.076
5377.00	55.400	307.320	5356.03	75.30 N	136.05 W	145.05	52.093
5387.00	62.400	306.930	5361.19	80.47 N	142.88 W	153.39	70.079
5397.00	67.300	306.540	5365.44	85.88 N	150.13 W	162.19	49.127
5410.00	75.600	306.200	5369.57	93.18 N	160.04 W	174.16	63.894
5420.00	81.500	306.100	5371.55	98.96 N	167.96 W	183.67	59.008
5430.00	86.600	306.900	5372.59	104.87 N	175.95 W	193.33	51.617
5441.00	89.200	307.800	5372.99	111.54 N	184.69 W	204.05	25.010
5452.48	88.900	308.800	5373.18	118.66 N	193.69 W	215.29	9.093
5484.23	89.200	312.200	5373.71	139.27 N	217.83 W	246.58	10.749
5515.18	90.000	314.500	5373.93	160.52 N	240.33 W	277.32	7.868
5546.84	90.300	317.600	5373.84	183.31 N	262.30 W	308.89	9.837
5578.68	89.800	319.600	5373.82	207.19 N	283.36 W	340.72	6.475
5610.51	89.500	319.700	5374.01	231.44 N	303.97 W	372.55	0.994
5642.26	89.100	320.600	5374.40	255.82 N	324.31 W	404.30	3.102
5674.13	88.600	320.100	5375.04	280.35 N	344.64 W	436.16	2.218
5705.88	88.600	320.800	5375.81	304.83 N	364.85 W	467.90	2.204
5736.93	89.000	322.000	5376.46	329.09 N	384.22 W	498.93	4.073
5768.76	88.900	321.800	5377.05	354.13 N	403.86 W	530.74	0.702
5800.56	88.900	321.700	5377.66	379.10 N	423.54 W	562.52	0.314
5831.39	89.100	322.000	5378.20	403.34 N	442.58 W	593.34	1.169
5863.14	89.000	322.000	5378.72	428.36 N	462.13 W	625.06	0.315
5894.88	88.900	321.700	5379.30	453.31 N	481.73 W	656.78	0.996
5926.68	89.000	321.300	5379.89	478.19 N	501.52 W	688.57	1.296
5957.78	89.300	321.700	5380.35	502.53 N	520.88 W	719.65	1.608
5989.61	89.400	321.800	5380.71	527.53 N	540.58 W	751.47	0.444
6021.50	89.400	323.600	5381.04	552.89 N	559.91 W	783.32	5.644
6053.21	90.100	323.200	5381.18	578.35 N	578.81 W	814.98	2.542
6084.83	88.700	325.000	5381.51	603.96 N	597.35 W	846.52	7.211
6116.64	88.800	324.800	5382.21	629.98 N	615.64 W	878.21	0.703
6148.46	88.600	325.500	5382.93	656.08 N	633.82 W	909.90	2.287
6180.29	87.300	326.100	5384.07	682.39 N	651.70 W	941.55	4.498
6212.09	87.400	326.200	5385.54	708.77 N	669.39 W	973.14	0.444

Continued...

Sperry-Sun Drilling Services

RU 12-22 - leg 3



Ratherford Unit
Big A #25

Mobil

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
6243.97	87.400	326.600	5386.98	735.30 N	687.01 W	1004.79	1.253
6275.67	87.400	326.800	5388.42	761.77 N	704.40 W	1036.25	0.630
6306.29	87.200	326.800	5389.86	787.36 N	721.15 W	1066.62	0.653
6337.95	86.000	326.600	5391.74	813.78 N	738.50 W	1098.02	3.842
6369.72	85.700	326.400	5394.04	840.20 N	755.99 W	1129.51	1.134
6401.58	88.000	325.900	5395.79	866.62 N	773.71 W	1161.14	7.387
6433.43	88.200	326.100	5396.85	893.01 N	791.51 W	1192.80	0.888
6465.24	88.900	326.600	5397.65	919.48 N	809.13 W	1224.41	2.704
6497.05	88.200	325.700	5398.46	945.89 N	826.84 W	1256.03	3.584
6528.80	87.100	325.500	5399.76	972.06 N	844.76 W	1287.61	3.521
6559.80	86.800	326.200	5401.41	997.68 N	862.14 W	1318.41	2.454
6591.57	86.700	325.500	5403.21	1023.93 N	879.95 W	1349.97	2.222
6623.32	86.700	325.400	5405.04	1050.04 N	897.92 W	1381.53	0.314
6655.16	88.600	324.100	5406.34	1076.01 N	916.28 W	1413.23	7.228
6686.96	89.300	323.800	5406.93	1101.72 N	934.99 W	1444.95	2.395
6718.75	89.300	324.000	5407.31	1127.40 N	953.72 W	1476.67	0.629
6750.56	89.600	323.200	5407.62	1153.01 N	972.60 W	1508.42	2.686
6782.31	90.400	324.100	5407.62	1178.58 N	991.42 W	1540.11	3.793
6813.00	90.400	324.100	5407.40	1203.44 N	1009.41 W	1570.72	0.000
6844.00	90.400	324.100	5407.19	1228.55 N	1027.59 W	1601.65	0.000

All data is in feet unless otherwise stated.

Coordinates are relative to Wellhead. Vertical depths are relative to Wellhead.

The Dogleg Severity is in Degrees per 100ft.

Vertical Section was calculated along an Azimuth of 320.090° (True).

Based Upon Minimum Curvature type calculations, at a Measured Depth of 6844.00ft.,

The Bottom Hole Displacement is 1601.65ft., in the Direction of 320.090° (True).

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

SUNDRY NOTICES AND REPORTS ON WELLS
Do not use this form for proposals to drill or to re-enter an Abandoned well. Use Form 3160-3 (APD) for such proposals.

5. Lease Serial No.
14-20-603-246A

6. If Indian, Allottee or Tribe Name
NAVAJO TRIBAL

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

8. Well Name and No.
RATHERFORD UNIT #12W22

9. API Well No.
43-037-15845

10. Field and Pool, or Exploratory Area
GREATER ANETH

11. County or Parish, State
SAN JUAN, UTAH

SUBMIT IN TRIPLICATE - Other instructions on reverse side

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

2. Name of Operator
Mobil Producing TX & NM Inc. *

3a. Address
P.O. Box 4358 Houston, TX 77210-4358

3b. Phone No. (include area code)
713-431-1197

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
Sec. 12, T41S, R23E (SE/NW) 1920' FNL & 2080' FWL

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

TYPE OF SUBMISSION	TYPE OF ACTION			
<input type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production (Start/Resume)	<input type="checkbox"/> Water Shut-Off
<input checked="" type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing	<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete	<input checked="" type="checkbox"/> Other <u>MIT RESULTS</u>
	<input type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon	
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal	

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

MIT results and chart are attached.

RECEIVED

MAY 16 2000

DIVISION OF
OIL, GAS AND MINING

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

Name (Printed/Typed) Ellen M. Carroll	Title Senior Staff Office Assistant	* ExxonMobil Production Company, A division of Exxon Mobil Corporation, acting for Mobil Producing Texas & New Mexico, Inc.
Signature <i>Ellen M Carroll</i>	Date 5/12/2000	

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

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

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make 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.

ANNULAR PRESSURE TEST

(Mechanical Integrity Test)

Operator EXXON-MOBILE E.+P., INC Date of Test 1-19-2000
Well Name RATHERFORD UNIT WELL# 12W-22 EPA Permit No. _____
Location SE NW SEC 12, T41S, R23E Tribal Lease No. 1420603246
State and County SAN JUAN COUNTY, UTAH

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

TIME	ANNULUS PRESSURE, psi		TUBING PRESSURE, psi
	0-2000 psi gauge	0-1500 psi recorder	0-300 psi gauge
1:18 pm	1080	1076	2850
1:23 pm	1080	1076	2850
1:28 pm	1080	1076	2850
1:33 pm	1080	1076	2850
1:38 pm	1080	1076	2850
1:43 pm	1080	1076	2850
1:48 pm	1080	1078	2850

MAX. INJECTION PRESSURE: 3000 PSI
MAX. ALLOWABLE PRESSURE CHANGE: 54.0 PSI (TEST PRESSURE X 0.05)
REMARKS: Passed? Failed? If failed, cease injection until well passes MIT (40CFR§144.21(c)(6)).

Active, injecting
Passed MIT

RECEIVED

MAY 16 2000

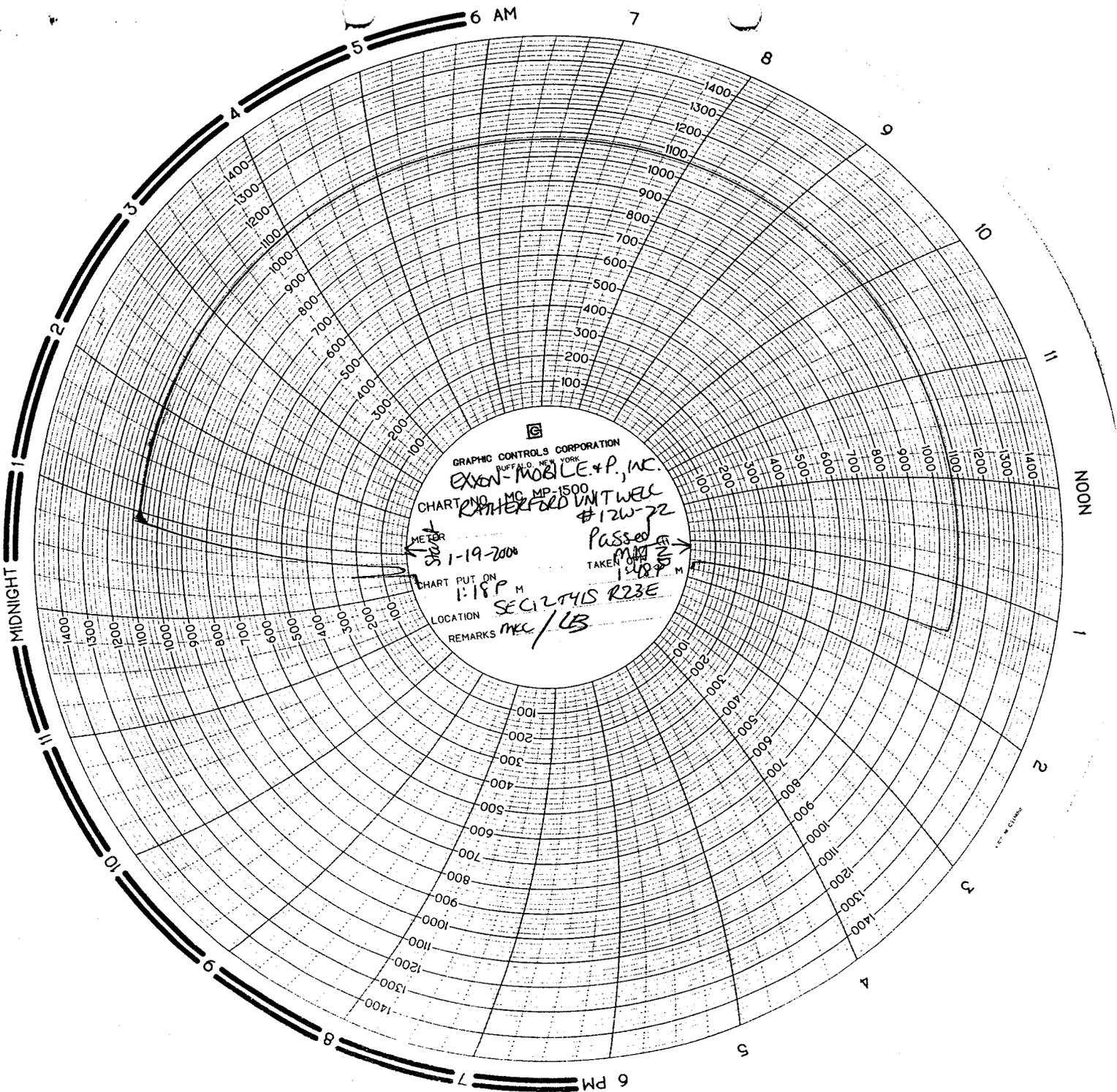
DIVISION OF
OIL, GAS AND MINING

CARRISON BLACKGATE
COMPANY REPRESENTATIVE: (Print and Sign)

1/19/00
DATE

MELVINA K. CLAH
INSPECTOR: (Print and Sign)

1-19-2000
DATE



RECEIVED

MAY 16 2000

DIVISION OF
OIL, GAS AND MINING

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.

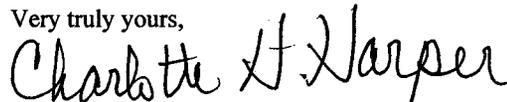
Please note the change of name of MOC to ExxonMobil Oil Corporation in your records pertaining to any MOC permits.

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

2001-08-30 11:15

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,

GENNI DENETSONE

Regional Realty Officer

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

MINERAL RESOURCES	
ADM 1	<u>QSM</u>
NATV AM MIN COORD	_____
SOLID MIN TEAM	_____
PETRO MENT TEAM	<u>2</u>
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

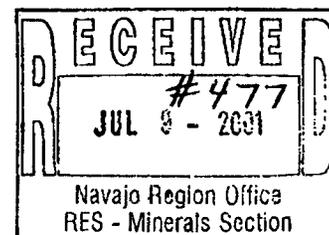
By 7/12/2001
SH
543
File

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.

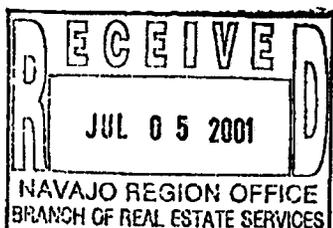
If you have any questions , please contact Alex Correa at (713) 431-1012.

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. Milligan
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

2001 West Loop South, Suite 1900, Houston, Texas 77027-3301
Telephone: (713) 297-4600 • Facsimile: (713) 297-4750

NW Bond

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

BOND NO 8027 31 97

wherein

Mobil Oil Corporation and Mobil Exploration and Producing U.S., Inc. is
named as Principal and

FEDERAL INSURANCE COMPANY AS SURETY,

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

in the amount of **\$150,000.00**

bond date: 11/01/65

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

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

TO : ExxonMobil Oil Corporation

All other terms and conditions of this Bond are unchanged.

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

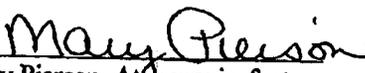
ExxonMobil Oil Corporation

By :



FEDERAL INSURANCE COMPANY

By:



Mary Pierson, Attorney-in-fact



**Chubb
Surety**

**POWER
OF
ATTORNEY**

**Federal Insurance Company
Vigilant Insurance Company
Pacific Indemnity Company**

**Attn.: Surety Department
15 Mountain View Road
Warren, NJ 07059**

Know All by These Presents, That **FEDERAL INSURANCE COMPANY**, an Indiana corporation, **VIGILANT INSURANCE COMPANY**, a New York corporation, and **PACIFIC INDEMNITY COMPANY**, a Wisconsin corporation, do each hereby constitute and appoint **R.F. Bobo**, **Mary Pierson**, **Philana Berros**, and **Jody E. Specht** of **Houston, Texas**-----

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

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

Kenneth C. Wendel, Assistant Secretary

Frank E. Robertson, Vice President

STATE OF NEW JERSEY }
County of Somerset } ss.

On this **10th** day of **May**, 2001, before me, a Notary Public of New Jersey, personally came **Kenneth C. Wendel**, to me known to be Assistant Secretary of **FEDERAL INSURANCE COMPANY**, **VIGILANT INSURANCE COMPANY**, and **PACIFIC INDEMNITY COMPANY**, the companies which executed the foregoing Power of Attorney, and the said **Kenneth C. Wendel** being by me duly sworn, did depose and say that he is Assistant Secretary of **FEDERAL INSURANCE COMPANY**, **VIGILANT INSURANCE COMPANY**, and **PACIFIC INDEMNITY COMPANY** and knows the corporate seals thereof, that the seals affixed to the foregoing Power of Attorney are such corporate seals and were thereto affixed by authority of the By-Laws of said Companies; and that he signed said Power of Attorney as Assistant Secretary of said Companies by like authority; and that he is acquainted with **Frank E. Robertson**, and knows him to be Vice President of said Companies; and that the signature of **Frank E. Robertson**, subscribed to said Power of Attorney is in the genuine handwriting of **Frank E. Robertson**, and was thereto subscribed by authority of said **Robertson** in the presence of **Karen A. Price**.



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

Notary Public

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

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

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

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

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



Kenneth C. Wendel, Assistant Secretary

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

CSC

5184334741

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

CSC

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

F010601000187

**CERTIFICATE OF AMENDMENT
OF
CERTIFICATE OF INCORPORATION
OF
MOBIL OIL CORPORATION**

CSC 45

(Under Section 805 of the Business Corporation Law)

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

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

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

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

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

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

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

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

CSC
CSC

5184334741

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

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

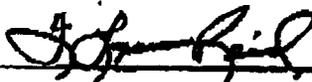
IN WITNESS WHEREOF, this Certificate has been signed this 22nd Day of May, 2001.



F. A. Risch, President 

STATE OF TEXAS)
COUNTY OF DALLAS)

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



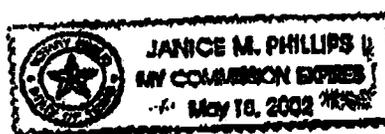
F. L. REID, Secretary

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

[SEAL]



NOTARY PUBLIC, STATE OF TEXAS



CSC
CSC

5184334741

06/01 '01 09:01 NO.411 02/02
06/01 '01 09:06 NO.155 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

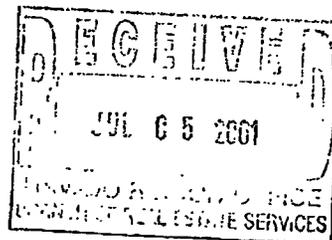
5959 Las Colinas Blvd.
(Mailing address)

TAX \$ _____
BY: *SAC*

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

ny Albany

Customer # 165578 MPJ



010601000195

State of New York }
Department of State } ss:

I hereby certify that the annexed copy has been compared with the original document in the custody of the Secretary of State and that the same is a true copy of said original.

Witness my hand and seal of the Department of State on **JUN 01 2001**



A handwritten signature in black ink, appearing to read "J. Heub", with a long horizontal line extending to the right.

Special Deputy Secretary of State

OPERATOR CHANGE WORKSHEET

ROUTING

1. GLH
2. CDW
3. FILE

Change of Operator (Well Sold)

Designation of Agent

X Operator Name Change

Merger

The operator of the well(s) listed below has changed, effective: **06-01-2001**

FROM: (Old Operator):	TO: (New Operator):
MOBIL EXPLORATION & PRODUCTION	EXXONMOBIL OIL CORPORATION
Address: P O BOX DRAWER "G"	Address: U S WEST P O BOX 4358
CORTEZ, CO 81321	HOUSTON, TX 77210-4358
Phone: 1-(970)-564-5212	Phone: 1-(713)-431-1010
Account No. N7370	Account No. N1855

CA No. Unit: RATHERFORD

WELL(S)

NAME	SEC TWN RNG	API NO	ENTITY NO	LEASE TYPE	WELL TYPE	WELL STATUS
1-24	01-41S-23E	43-037-15839	6280	INDIAN	WI	A
N DESERT CR 44-2 (2-44)	02-41S-23E	43-037-16386	99990	INDIAN	WI	A
11-42	11-41S-23E	43-037-15841	6280	INDIAN	WI	A
11-44	11-41S-23E	43-037-15842	6280	INDIAN	WI	A
12-11	12-41S-23E	43-037-15843	6280	INDIAN	WI	A
RATHERFORD 12-W-22	12-41S-23E	43-037-15845	6280	INDIAN	WI	A
12-31	12-41S-23E	43-037-15847	6280	INDIAN	WI	A
RATHERFORD 12-W-33	12-41S-23E	43-037-15848	6280	INDIAN	WI	A
12-42	12-41S-23E	43-037-15850	6280	INDIAN	WI	A
N DESERT CR 13-12 (12-13)	12-41S-23E	43-037-16404	99990	INDIAN	WI	A
RATHERFORD U 12-24	12-41S-23E	43-037-31151	6280	INDIAN	WI	A
RATHERFORD U 12-W-44A	12-41S-23E	43-037-31543	6280	INDIAN	WI	A
13-W-13	13-41S-23E	43-037-15851	6280	INDIAN	WI	A
13-22	13-41S-23E	43-037-15852	6280	INDIAN	WI	A
13-24	13-41S-23E	43-037-15853	6280	INDIAN	WI	A
13-31	13-41S-23E	43-037-15854	6280	INDIAN	WI	A
RATHERFORD 13-W-33	13-41S-23E	43-037-15855	6280	INDIAN	WI	A
13-42	13-41S-23E	43-037-15857	6280	INDIAN	WI	A
N DESERT CR 44-13 (13W44)	13-41S-23E	43-037-16407	99990	INDIAN	WI	A
RATHERFORD U 13-W-11	13-41S-23E	43-037-31152	6280	INDIAN	WI	A

OPERATOR CHANGES DOCUMENTATION

Enter date after each listed item is completed

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

6. **Federal and Indian Lease Wells:** The BLM and or the BIA has approved the merger, name change, or operator change for all wells listed on Federal or Indian leases on: BIA-06/01/01

7. **Federal and Indian Units:**

The BLM or BIA has approved the successor of unit operator for wells listed on: 06/01/2001

8. **Federal and Indian Communization Agreements ("CA"):**

The BLM or BIA has approved the operator for all wells listed within a CA on: N/A

9. **Underground Injection Control ("UIC")** The Division has approved UIC Form 5, **Transfer of Authority to Inject**, for the enhanced/secondary recovery unit/project for the water disposal well(s) listed on: N/A

NOTE: EPA ISSUES UIC PERMIT

DATA ENTRY:

1. Changes entered in the **Oil and Gas Database** on: 04/09/2002

2. Changes have been entered on the **Monthly Operator Change Spread Sheet** on: 04/9/2002

3. Bond information entered in RBDMS on: N/A

4. Fee wells attached to bond in RBDMS on: N/A

STATE WELL(S) BOND VERIFICATION:

1. State well(s) covered by Bond Number: N/A

FEDERAL WELL(S) BOND VERIFICATION:

1. Federal well(s) covered by Bond Number: N/A

INDIAN WELL(S) BOND VERIFICATION:

1. Indian well(s) covered by Bond Number: 80273197

FEE WELL(S) BOND VERIFICATION:

1. (R649-3-1) The **NEW** operator of any fee well(s) listed covered by Bond Number N/A

2. The **FORMER** operator has requested a release of liability from their bond on: N/A
The Division sent response by letter on: N/A

LEASE INTEREST OWNER NOTIFICATION:

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

COMMENTS:

Division of Oil, Gas and Mining
OPERATOR CHANGE WORKSHEET

ROUTING

1. DJJ
2. CDW

X Change of Operator (Well Sold)

Operator Name Change/Merger

The operator of the well(s) listed below has changed, effective:		6/1/2006
FROM: (Old Operator): N1855-ExxonMobil Oil Corporation PO Box 4358 Houston, TX 77210-4358 Phone: 1 (281) 654-1936	TO: (New Operator): N2700-Resolute Natural Resources Company 1675 Broadway, Suite 1950 Denver, CO 80202 Phone: 1 (303) 534-4600	
CA No.	Unit:	RATHERFORD (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 Footage: See attached list County: San Juan	Field or Unit Name Rutherford Unit
QQ, Section, Township, Range: State: UTAH	Lease Designation and Number See attached list

EFFECTIVE DATE OF TRANSFER: 6/1/2006

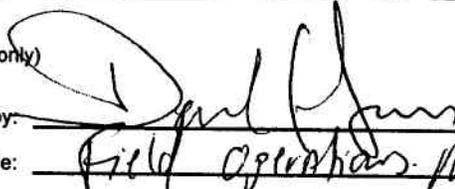
CURRENT OPERATOR

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

NEW OPERATOR

Company: Resolute Natural Resources Company Name: Dwight E Mallory
Address: 1675 Broadway, Suite 1950 Signature: 
city Denver state CO zip 80202 Title: Regulatory Coordinator
Phone: (303) 534-4600 Date: 4/20/2006
Comments: A list of affected UIC wells is attached.
New bond numbers for these wells are:
BIA Bond # PA002769 and US EPA Bond # B001252

(This space for State use only)

Transfer approved by: 
Title: Field Operations Manager

Approval Date: 6/12/06

Comments:

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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) Dwight E Malloy TITLE Regulatory Coordinator

SIGNATURE *Dwight E Malloy* DATE 4/20/2006

(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

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DIV. OF OIL, GAS & MINING

(5/2000)

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

FORM 9

SUNDRY NOTICES AND REPORTS ON WELLS		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)

RECEIVED
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: 14-20-603-246A
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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
--	--

1. TYPE OF WELL Water Injection Well	8. WELL NAME and NUMBER: RATHERFORD 12-W-22
--	---

2. NAME OF OPERATOR: RESOLUTE NATURAL RESOURCES	9. API NUMBER: 43037158450000
---	---

3. ADDRESS OF OPERATOR: 1700 Lincoln Street, Suite 2800 , Denver, CO, 80203 4535	PHONE NUMBER: 303 534-4600 Ext	9. FIELD and POOL or WILDCAT: GREATER ANETH
--	--	---

4. LOCATION OF WELL FOOTAGES AT SURFACE: 1920 FNL 2080 FWL QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: Qtr/Qtr: SENW Section: 12 Township: 41.0S Range: 23.0E Meridian: S	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: 10/10/2014 <input type="checkbox"/> SUBSEQUENT REPORT Date of Work Completion: <input type="checkbox"/> SPUD REPORT Date of Spud: <input type="checkbox"/> DRILLING REPORT Report Date:	<input checked="" 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 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 Natural Resources respectfully submits this sundry as notice of acidizing the above well. Attached are the procedures and schematic

Accepted by the Utah Division of Oil, Gas and Mining

Date: October 07, 2014

By: *Derek Duff*

NAME (PLEASE PRINT) Erin Joseph	PHONE NUMBER 303 573-4886	TITLE Sr. Regulatory Analyst
SIGNATURE N/A		DATE 10/7/2014

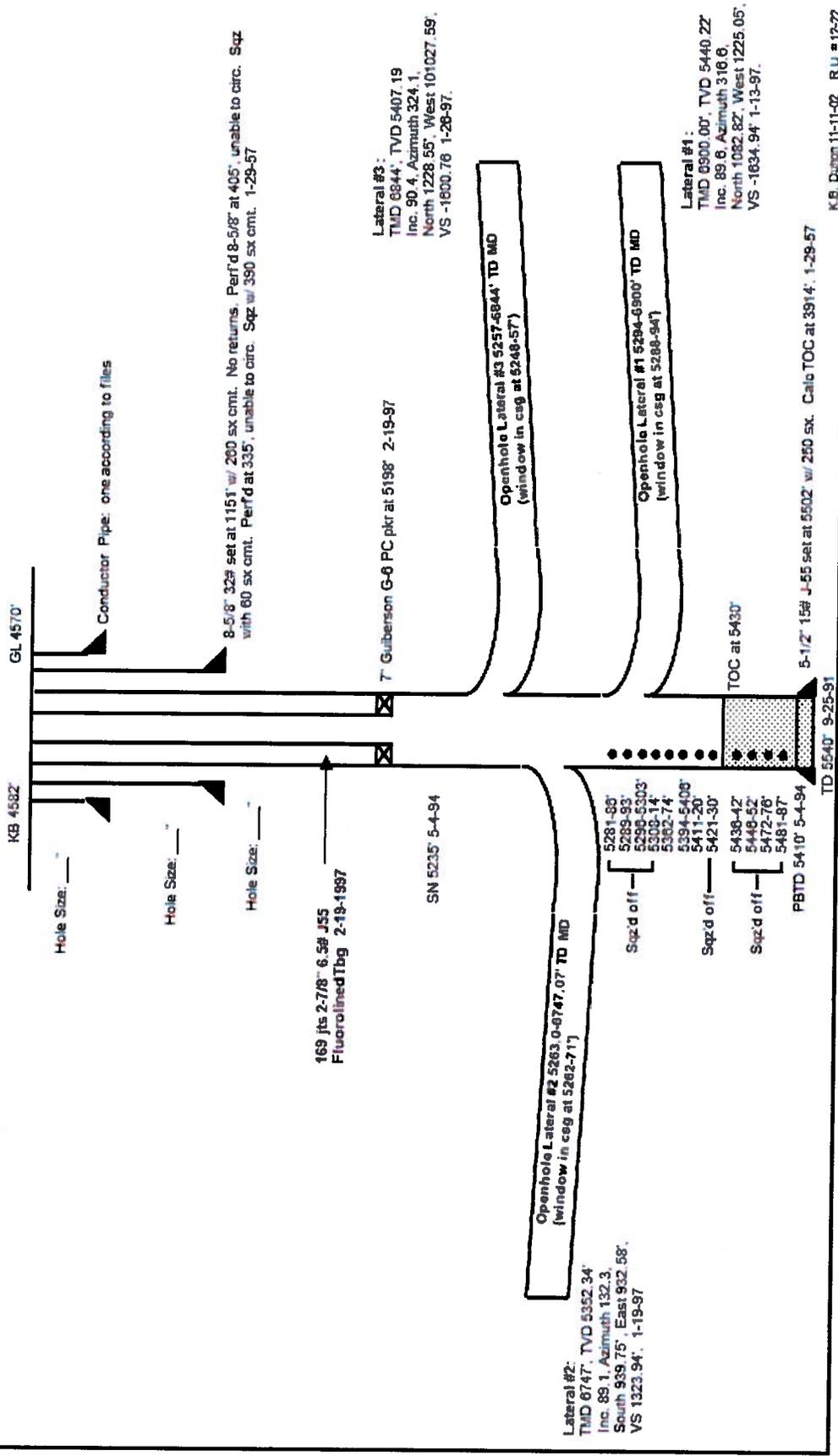
RATHERFORD UNIT # 12W-22
 GREATER ANETH FIELD
 Surface Loc: 1920' FNL & 2080' FWL
 SEC 12-T41S-R23E
 SAN JUAN COUNTY, UTAH
 API 43-037-15845
 PRISM 0042987

B.H. Location Lateral #1:
 1085' N & 1223' W of Surface
 Location

B.H. Location Lateral #3:
 1231' N & 1025' W of Surface
 Location

INJECTOR

B.H. Location Lateral #2:
 942' S & 931' E of Surface
 Location



RESOLUTE

NATURAL RESOURCES

RU Injection Wells Bullhead Acid Treatments

Well Summary Table									
RU Well No.	Well Type	Current BWIPD @ TP	Current Pattern BOPD	Tbg - Csg Sizes	Tubing Run Date	Last Acid	Bbls Wtr Displ After Acid	Comment	
1	12W-33	Vertical	909 @ 2910	160	2-3/8 - 4	Dec 2013	Nov 2013	30	
2	29W-32	Sgl Lateral	717 @ 3000	137	2-3/8 - 4	Jul 2013	Jun 2013	30	
3	12W-22	Tri Lateral	1045 @ 2950	129	2-3/8 - 5-1/2	Feb 1997	Feb 1997	40	
4	14W-42	Sgl Lateral	1598 @ 2950	123	2-3/8 - 4	Nov 2011	Mar 2013	30	
5	17W-14	Vertical	2402 @ 2710	104	2-7/8 - 5-1/2	Jun 2012	Oct 2006	45	
6	13W-11	Quad Lateral	892 @ 2850	101	2-7/8 - 7	Jun 2007	< 2000	45	
7	21W-14	Dual Lateral	1006 @ 2950	44	2-7/8 - 5-1/2	Jun 2003	Oct 2006	45	Tubing crtd in csg Jul 2003.
8	19W-12	Tri Lateral	2295 @ 2610	44	2-3/8 - 5-1/2	Sept 1997	Sept 1997	45	
9	9W-23	Vertical	1461 @ 2800	32	2-3/8 - 5-1/2	Jul 1998	Aug 2007	35	
10	16W-23	Dual Lateral	1003 @ 3000	61	2-7/8 - 5-1/2	Dec 2007	Oct 2006	45	

Procedure

Horsley Witten: Not Applicable

1. Check crown valve & wing valve for integrity to ensure pump truck can rig up to well. (All wells checked by 10-2-14; New wing valves being installed at 12W-22, 14W-42 & 19W-12)
2. MIRU frac tank, manifold & hard line for flowback. RU ABC shower trailer.
3. Backflow the well for ~400 bbls or until significant gas appears, then shut in.
4. RU pumping equipment to wellhead & PT lines. Record TP, CP, Bradenhead P (BHP).
5. Pump 400 gal xylene, 2500 gal inhibited 15% HCl, produced water displacement (see table above). **Pump at maximum rate possible, staying under 3000 psi TP.** Monitor CP and BHP while pumping.
6. Rig down pumping equipment.
7. Notify Pierce Benally (435) 619-7227 that the well is ready to return to injection.
8. Open the well to injection; Record the initial injection rate and tubing pressure.

STATE OF UTAH DEPARTMENT OF NATURAL RESOURCES DIVISION OF OIL, GAS, AND MINING		FORM 9
		5. LEASE DESIGNATION AND SERIAL NUMBER: 14-20-603-246A
SUNDRY NOTICES AND REPORTS ON WELLS		6. IF INDIAN, ALLOTTEE OR TRIBE NAME: NAVAJO
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.		7. UNIT or CA AGREEMENT NAME: RATHERFORD
1. TYPE OF WELL Water Injection Well		8. WELL NAME and NUMBER: RATHERFORD 12-W-22
2. NAME OF OPERATOR: RESOLUTE NATURAL RESOURCES		9. API NUMBER: 43037158450000
3. ADDRESS OF OPERATOR: 1700 Lincoln Street, Suite 2800 , Denver, CO, 80203 4535	PHONE NUMBER: 303 534-4600 Ext	9. FIELD and POOL or WILDCAT: GREATER ANETH
4. LOCATION OF WELL FOOTAGES AT SURFACE: 1920 FNL 2080 FWL QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: Qtr/Qtr: SENW Section: 12 Township: 41.0S Range: 23.0E Meridian: S		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 type="checkbox"/> NOTICE OF INTENT Approximate date work will start: <input checked="" type="checkbox"/> SUBSEQUENT REPORT Date of Work Completion: 10/23/2014 <input type="checkbox"/> SPUD REPORT Date of Spud: <input type="checkbox"/> DRILLING REPORT Report Date:	<input checked="" type="checkbox"/> ACIDIZE <input type="checkbox"/> ALTER CASING <input type="checkbox"/> CASING REPAIR <input type="checkbox"/> CHANGE TO PREVIOUS PLANS <input type="checkbox"/> CHANGE TUBING <input type="checkbox"/> CHANGE WELL NAME <input type="checkbox"/> CHANGE WELL STATUS <input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS <input type="checkbox"/> CONVERT WELL TYPE <input type="checkbox"/> DEEPEN <input type="checkbox"/> FRACTURE TREAT <input type="checkbox"/> NEW CONSTRUCTION <input type="checkbox"/> OPERATOR CHANGE <input type="checkbox"/> PLUG AND ABANDON <input type="checkbox"/> PLUG BACK <input type="checkbox"/> PRODUCTION START OR RESUME <input type="checkbox"/> RECLAMATION OF WELL SITE <input type="checkbox"/> RECOMPLETE DIFFERENT FORMATION <input type="checkbox"/> REPERFORATE CURRENT FORMATION <input type="checkbox"/> SIDETRACK TO REPAIR WELL <input type="checkbox"/> TEMPORARY ABANDON <input type="checkbox"/> TUBING REPAIR <input type="checkbox"/> VENT OR FLARE <input type="checkbox"/> WATER DISPOSAL <input type="checkbox"/> WATER SHUTOFF <input type="checkbox"/> SI TA STATUS EXTENSION <input type="checkbox"/> WILDCAT WELL DETERMINATION <input type="checkbox"/> OTHER	
12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.		
Resolute Natural Resources submits this sundry as notice that the acidizing on the above well was completed on 10/23/2014. please see attached activity summary for details.		Accepted by the Utah Division of Oil, Gas and Mining FOR RECORD ONLY December 09, 2014
NAME (PLEASE PRINT) Erin Joseph	PHONE NUMBER 303 573-4886	TITLE Sr. Regulatory Analyst
SIGNATURE N/A		DATE 12/8/2014



Daily Activity Summary

Well Name: RU 12-22

API Number 4303715845		Section 12	Township 41S	Range 23E	Field Name Rutherford		County San Juan	State/Province Utah
Ground Elevation (ft) 4,570.00	Original KB Elevation (ft) 4,582.00	KB-Ground Distance (ft) 12.00		Regulatory Spud Date 12/11/1956 00:00		Rig Release Date/Time 1/26/1997 00:00	First Production Date	
Job Category Workover			Primary Job Type W/O Injection Well			AFE Number		
Start Date 10/23/2014			End Date 10/23/2014			Total AFE Amount (Cost)		
Objective Job Scope: Backflow the well, RU to wellhead and pump 400 gals xylene or specified solvent, ~2500 gal 15% inhibited HCl acid, and displacement water. Return to injection.								
Contractor			Rig Number		Rig on Report Date		Rig off report date	
Report Number	Start Date	End Date	Summary					
1	10/23/2014 10:00	10/23/2014 13:30	FTP 2,800 psig, SICP 0 psig, BH press 0 psig. Flow back tbg to flowback tank. Flowed back 560 BPW. SWI @ 1,900 psig, SITP 1,950 psig, SICP 0 psig, BH 150 pig. Ppd 1/2 BFW, PT lines to 4,000 psig. Ppd 9.5 bbls xylene (400 gallons) and 32 bbls of 15% HCL acid @ 19 gal p/m @ 2,200 psi, 27 gal p/m @ 2,600 psi, SD for 20 min. Xylene below tbg. Continue to pump 15% HCL, 63 gallons p/m @ 2,750 psig. Did not have any drop in press. Displaced w/40 BFW. ISIP 2,950 psig, 5 min - 2,375#, 10 min 2,370#, 15 min 2,350 psig. RDMO H&M acid truck. Did not have any csg increase and 5 psig increase on BH. Pumped 400 gallons of Xylene and 2,500 gallons 15% HCL.					

STATE OF UTAH DEPARTMENT OF NATURAL RESOURCES DIVISION OF OIL, GAS, AND MINING	FORM 9 5.LEASE DESIGNATION AND SERIAL NUMBER: 14-20-603-246A
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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
--	---

1. TYPE OF WELL Water Injection Well	8. WELL NAME and NUMBER: RATHERFORD 12-W-22
--	---

2. NAME OF OPERATOR: RESOLUTE NATURAL RESOURCES	9. API NUMBER: 43037158450000
---	---

3. ADDRESS OF OPERATOR: 1700 Lincoln Street, Suite 2800 , Denver, CO, 80203 4535	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: 1920 FNL 2080 FWL QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: Qtr/Qtr: SENW Section: 12 Township: 41.0S Range: 23.0E 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: 10/22/2015 <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 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 checked="" 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" value="UIC Repair"/>

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

Resolute Natural Resources respectfully submits this sundry as notice of a UIC repair on the above well. Attached are the procedures and schematic

Accepted by the Utah Division of Oil, Gas and Mining

Date: October 27, 2015

By: *Derek Duff*

NAME (PLEASE PRINT) Erin Joseph	PHONE NUMBER 303 573-4886	TITLE Sr. Regulatory Analyst
SIGNATURE N/A		DATE 10/22/2015

Resolute Natural Resources

Date: October 15, 2015

Re: RU 12W-22 UIC Repair

Procedure

Horsley Witten: **YES**

1. MIRU WSU, LOTO. **NOTE: Injection rate of 2674 bwipd on Oct 7 prior to shut in suggests possible casing leak; previous rates averaged 931 bwipd.**
2. Pump 10 ppg brine & evaluate kill wt fluid. Kill well.
3. ND WH & NU BOP's. Test BOP's.
4. PU on tbg, unset 5-1/2" Guiberson G6 pkr at 5198' & TOH w/2-7/8 Fluorolined tbg & packer. Tubing will be laid down, but call Bill Albert for inspection (tbg & pkr run 1997). Tbg will be replaced with new 2-7/8 lined tubing*.
5. RIH w/bit & scraper to top window at 5248'.
6. Make extra scraper pass thru pkr seat area 5100 - 5200'. POH & LD bit & scraper.
7. RIH w/ 5-1/2" test packer & set at 5185' KB/top of packer. (Collar @ 5175' KB using 12' KB elev.) PT casing to 1000 psi/30 min. If leak is confirmed, reset packer & re-PT until the leak is isolated & located. Separate procedure will be issued if casing leak is present, and will include csg inspection log & CBL, plus Chinle isolation squeeze.
8. RIH w/ new 5-1/2" AS-1X packer on 2-7/8" injection tubing w/1.78 nipple below pkr (plug in place), 1.81 'F' profile with on-off tool above pkr; set the pkr at 5180' KB/top of packer. Csg collar @ 5175' KB using 12' KB elev.
9. Jay off & circulate packer fluid in place. Jay back on & PT tubing to 2500 psi and perform mock MIT on the csg annulus.
10. Space out & land tubing. Perform second mock MIT on csg annulus.
11. ND BOP, NU WH. PT the wellhead. RD WSU.
12. MIRU slickline unit. Test lubricator to 2500 psi.
13. RIH gauge ring, shear and retrieve 1.78 plug. RDMO slickline unit.
14. Backflow the tubing at least 75 bbls or until clean. Backflow the lateral line.
15. Schedule witnessed MIT w/NNEPA.
16. Notify Area Injection Supervisor Pierce Benally (435) 444-9957 that well is ready for reconnect & return to injection.

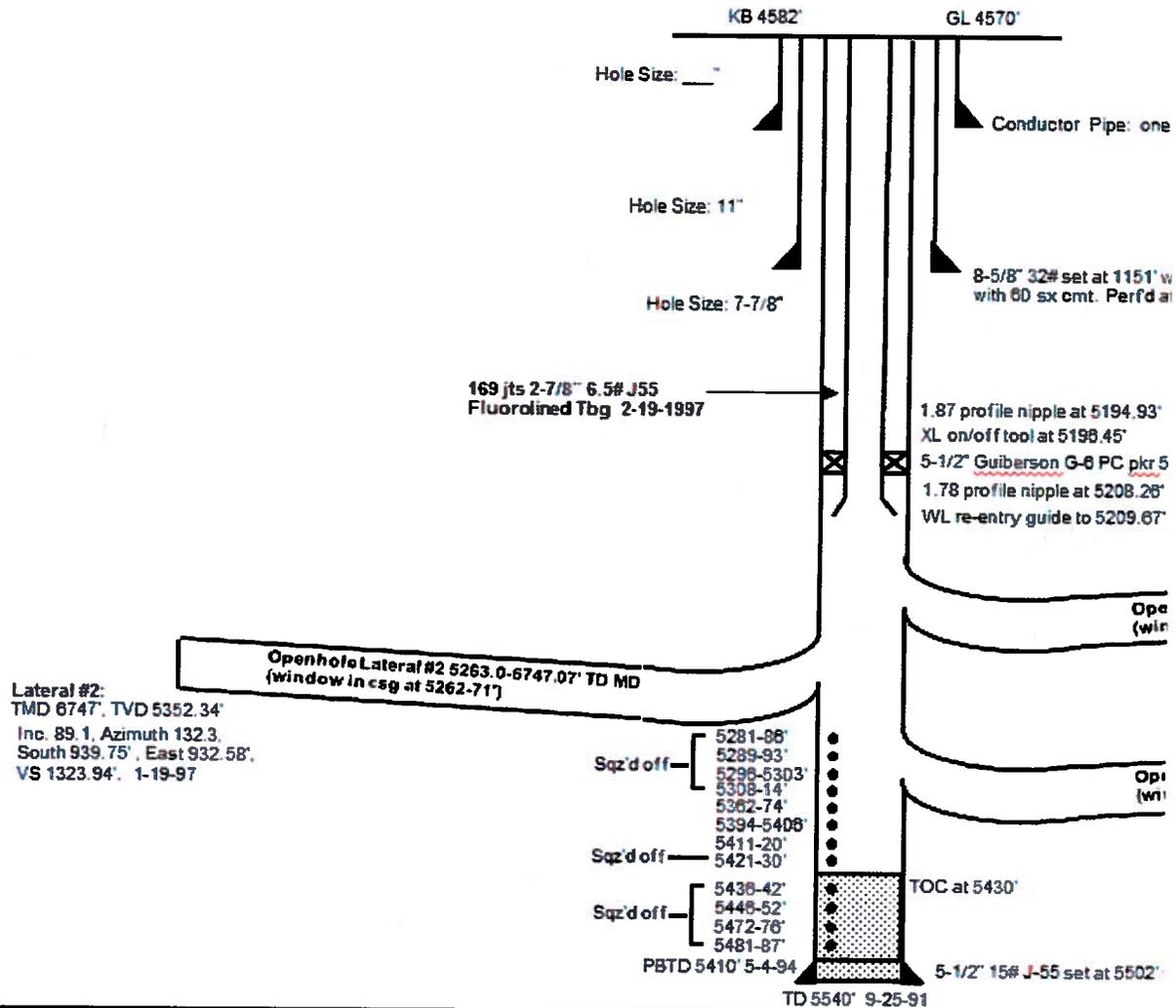
*Consult Bill Albert or Jim Styler for tbg type to be run back in the well.

RATHERFORD UNIT # 12W-22
 GREATER ANETH FIELD
 Surface Loc: 1920' FNL & 2080' FWL
 SEC 12-T41S-R23E
 SAN JUAN COUNTY, UTAH
 API 43-037-15845
 PRISM 0042987

B.H. Location Lateral #1:
 1085' N & 1223' W of Surface
 Location

B.H. Location #1:
 1231' N & 1025'
 Location

B.H. Location Lateral #2:
 942' S & 931' E of Surface
 Location



Lateral #3:
' W of Surface

INJECTOR

according to files

w/ 280 sx cmt. No returns. Perfd 8-5/8" at 405', unable to circ. Sqz
t 335', unable to circ. Sqz w/ 390 sx cmt.

1198-5202' 2-19-97

Lateral #3:
TMD 6844', TVD 5407.19
Inc. 90.4, Azimuth 324.1,
North 1228.55', West 101027.59',
VS -1600.78 1-26-97.

in hole Lateral #3 5257-6844' TD MD
(window in csg at 5248-57')

in hole Lateral #1 5294-6900' TD MD
(window in csg at 5288-94')

Lateral #1:
TMD 6900.00', TVD 5440.22'
Inc. 89.6, Azimuth 316.6,
North 1082.82', West 1225.05',
VS -1634.94' 1-13-97.

w/ 250 sx. Calc TOC at 3914'. 1-29-57

K.B. Duhon 11-11-02 R.U. # 12-22

STATE OF UTAH DEPARTMENT OF NATURAL RESOURCES DIVISION OF OIL, GAS, AND MINING		FORM 9
		5. LEASE DESIGNATION AND SERIAL NUMBER: 14-20-603-246A
SUNDRY NOTICES AND REPORTS ON WELLS		6. IF INDIAN, ALLOTTEE OR TRIBE NAME: NAVAJO
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.		7. UNIT or CA AGREEMENT NAME: RATHERFORD
		8. WELL NAME and NUMBER: RATHERFORD 12-W-22
1. TYPE OF WELL Water Injection Well	9. API NUMBER: 43037158450000	
2. NAME OF OPERATOR: RESOLUTE NATURAL RESOURCES	9. FIELD and POOL or WILDCAT: GREATER ANETH	
3. ADDRESS OF OPERATOR: 1700 Lincoln Street, Suite 2800 , Denver, CO, 80203 4535	PHONE NUMBER: 303 534-4600 Ext	9. FIELD and POOL or WILDCAT: GREATER ANETH
4. LOCATION OF WELL FOOTAGES AT SURFACE: 1920 FNL 2080 FWL QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: Qtr/Qtr: SENW Section: 12 Township: 41.0S Range: 23.0E Meridian: S		COUNTY: SAN JUAN
		STATE: UTAH
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<input type="checkbox"/> NOTICE OF INTENT Approximate date work will start: <input checked="" type="checkbox"/> SUBSEQUENT REPORT Date of Work Completion: 11/15/2015 <input type="checkbox"/> SPUD REPORT Date of Spud: <input type="checkbox"/> DRILLING REPORT Report Date:	<input type="checkbox"/> ACIDIZE <input type="checkbox"/> ALTER CASING <input type="checkbox"/> CASING REPAIR <input type="checkbox"/> CHANGE TO PREVIOUS PLANS <input type="checkbox"/> CHANGE TUBING <input type="checkbox"/> CHANGE WELL NAME <input type="checkbox"/> CHANGE WELL STATUS <input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS <input type="checkbox"/> CONVERT WELL TYPE <input type="checkbox"/> DEEPEN <input type="checkbox"/> FRACTURE TREAT <input type="checkbox"/> NEW CONSTRUCTION <input type="checkbox"/> OPERATOR CHANGE <input type="checkbox"/> PLUG AND ABANDON <input type="checkbox"/> PLUG BACK <input type="checkbox"/> PRODUCTION START OR RESUME <input type="checkbox"/> RECLAMATION OF WELL SITE <input type="checkbox"/> RECOMPLETE DIFFERENT FORMATION <input type="checkbox"/> REPERFORATE CURRENT FORMATION <input type="checkbox"/> SIDETRACK TO REPAIR WELL <input type="checkbox"/> TEMPORARY ABANDON <input type="checkbox"/> TUBING REPAIR <input type="checkbox"/> VENT OR FLARE <input type="checkbox"/> WATER DISPOSAL <input type="checkbox"/> WATER SHUTOFF <input type="checkbox"/> SI TA STATUS EXTENSION <input type="checkbox"/> WILDCAT WELL DETERMINATION <input checked="" type="checkbox"/> OTHER	
12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc. Resolute Natural Resources respectfully submits this sundry as notice that the UIC repair was completed on the above well on 11/15/2015 according to previously approved procedures		
Accepted by the Utah Division of Oil, Gas and Mining FOR RECORD ONLY January 06, 2016		
NAME (PLEASE PRINT) Erin Joseph	PHONE NUMBER 303 573-4886	TITLE Sr. Regulatory Analyst
SIGNATURE N/A	DATE 1/5/2016	

STATE OF UTAH DEPARTMENT OF NATURAL RESOURCES DIVISION OF OIL, GAS, AND MINING		FORM 9
		5. LEASE DESIGNATION AND SERIAL NUMBER: 14-20-603-246A
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		STATE: UTAH
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12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc. Resolute Natural Resources respectfully submits this sundry as notice that the UIC repair on the above well was completed on 11/3/15		
Accepted by the Utah Division of Oil, Gas and Mining FOR RECORD ONLY January 07, 2016		
NAME (PLEASE PRINT) Erin Joseph	PHONE NUMBER 303 573-4886	TITLE Sr. Regulatory Analyst
SIGNATURE N/A		DATE 1/7/2016

STATE OF UTAH DEPARTMENT OF NATURAL RESOURCES DIVISION OF OIL, GAS, AND MINING	FORM 9 5. LEASE DESIGNATION AND SERIAL NUMBER: 14-20-603-246A
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11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION		
<input checked="" type="checkbox"/> NOTICE OF INTENT Approximate date work will start: 2/10/2016 <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 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 checked="" 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 Natural Resources respectfully submits this sundry for approval of the cement squeeze detailed in the procedures and schematics attached. Verbal approval was received by Leroy Lee at NNEPA 2/9/2016

**Accepted by the
Utah Division of
Oil, Gas and Mining**

Date: February 11, 2016
 By: Derek Duff

NAME (PLEASE PRINT) Erin Joseph	PHONE NUMBER 303 573-4886	TITLE Sr. Regulatory Analyst
SIGNATURE N/A	DATE 2/10/2016	

February 10, 2016
Ratherford Unit 12-22 HZ Proposed Cement Program

During a UIC workover on RU 12W-22 injector, we have identified a casing leak in the 5-1/2" csg at 3601-34'.

The well is listed in the Horsley-Witten study as needing remediation, so we plan to cement squeeze this casing leak and perform Chinle isolation as follows:

(The Hermosa is most likely covered by cement but we will confirm this upon seeing the cement bond log results.)

1. Place 3 sx sand on existing RBP at 5183'.
2. RU Electric Line & run cement bond log and casing inspection log back to surface.
3. RIH open ended to 3650' to spot balanced cement plug over the leak 3601-34'.
4. RU cementers, mix cement, spot 10 bbls cmt balanced plug from 3650' up to 3234'. Cement will be Baker Hughes Type III at 14.6 ppg.
5. Pick up workstring out of cement to ~2500' & reverse out.
6. Close pipe rams & pressure up on the cement to 1000 psi, re-pressuring as required to hold 1000 psi on it. Do not pump more than 7.5 bbls while doing the hesitation squeeze. 7.5 bbls pumped would leave the cement top at 3546' = 55' above the top of the leak at 3601'.
7. Trap 1000 psi on top of the squeeze and leave to WOC overnight.
8. RIH with WS & tag cement top. POH with WS.
9. RU Electric Line & perforate 5-1/2" csg for Chinle squeeze at _____. {Pending log results and actual Chinle top, not accurately known at present.
10. RIH with test packer & set at ~1350'. Pump in and establish circulation up the 5-1/2 x 8-5/8 annulus. Pump 45 bbls fresh water to flush this annulus.
11. RIH & set 5-1/2" cement retainer @ ~1375'. Pump again to confirm circulation to surface via the bradenhead.
12. RU cementers, mix & pump 68 bbls Type III cement at 14.6 ppg (45.5 bbls plus 50% excess), with 6 bbls water behind the cement. (7.96 bbls to rtnr)
13. Sting out of the retainer & check that the retainer is holding (no flow back). Spot ½ bbl cmt (20') on retainer. Reverse out.
14. POOH & stand back workstring. WOC.
15. RIH with mill and drill up retainer & upper cement – top at ~1375'; then drill lower cement plug out – btm at ~3650'.
16. Pressure test casing to 1000 psi/30 min & chart the results.
17. Wash sand off RBP at 5183' & retrieve same.
18. Continue with step 8 of previous procedure – run AS-1X injection packer & injection tubing, complete the well
19. Perform NNEPA witnessed MIT.
20. RDMO WSU.

RATHERFORD UNIT # 12W-22

GREATER ANETH FIELD

Surface Loc: 1920' FNL & 2080' FWL

SEC 12-T41S-R23E

SAN JUAN COUNTY, UTAH

API 43-037-15845

PRISM 0042987

B.H. Location Lateral #1:

1085' N & 1223' W of Surface

Location

B.H. Location Lateral #2:

942' S & 931' E of Surface

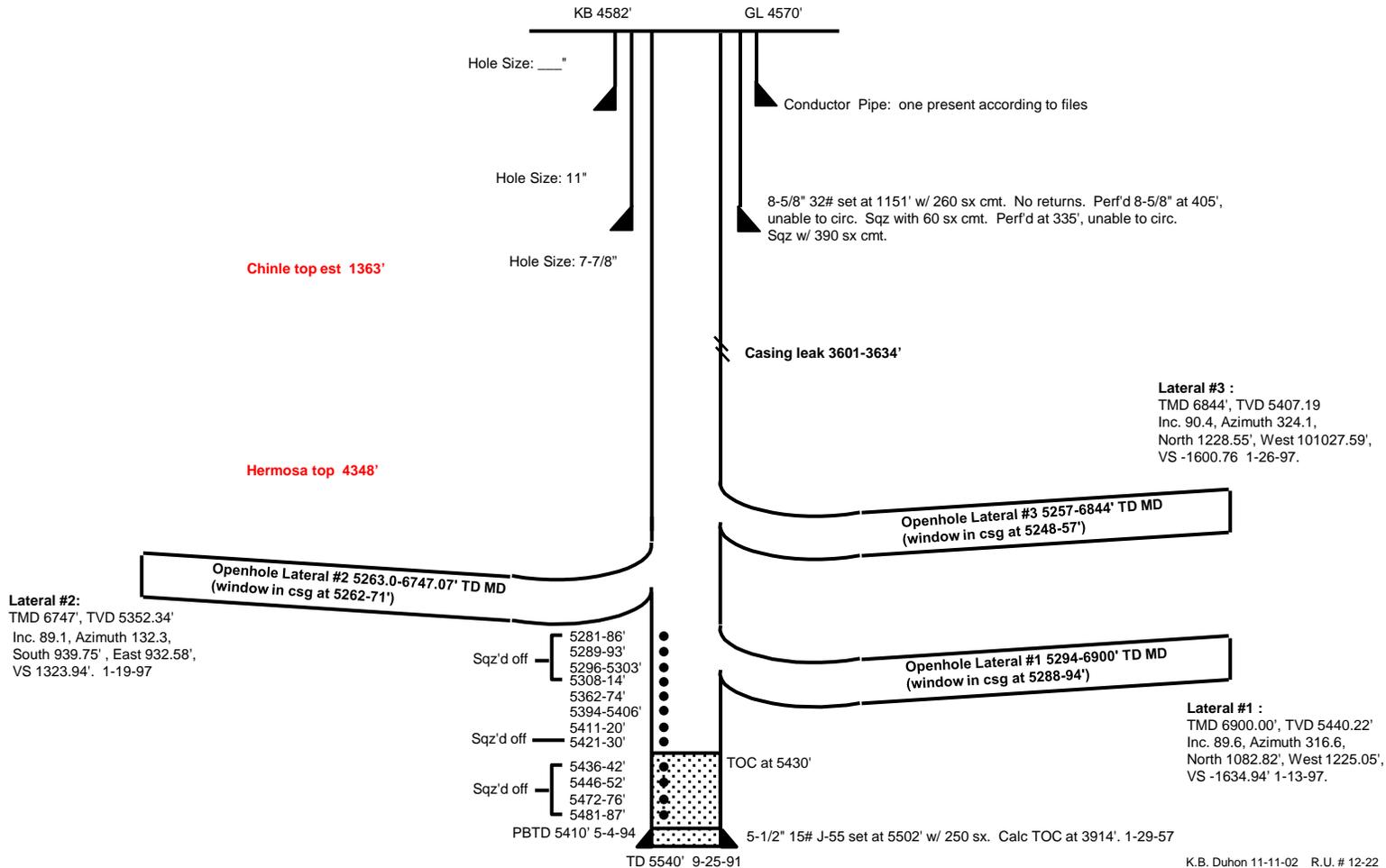
Location

B.H. Location Lateral #3:

1231' N & 1025' W of Surface

Location

INJECTOR



RATHERFORD UNIT # 12W-22

GREATER ANETH FIELD

Surface Loc: 1920' FNL & 2080' FWL

SEC 12-T41S-R23E

SAN JUAN COUNTY, UTAH

API 43-037-15845

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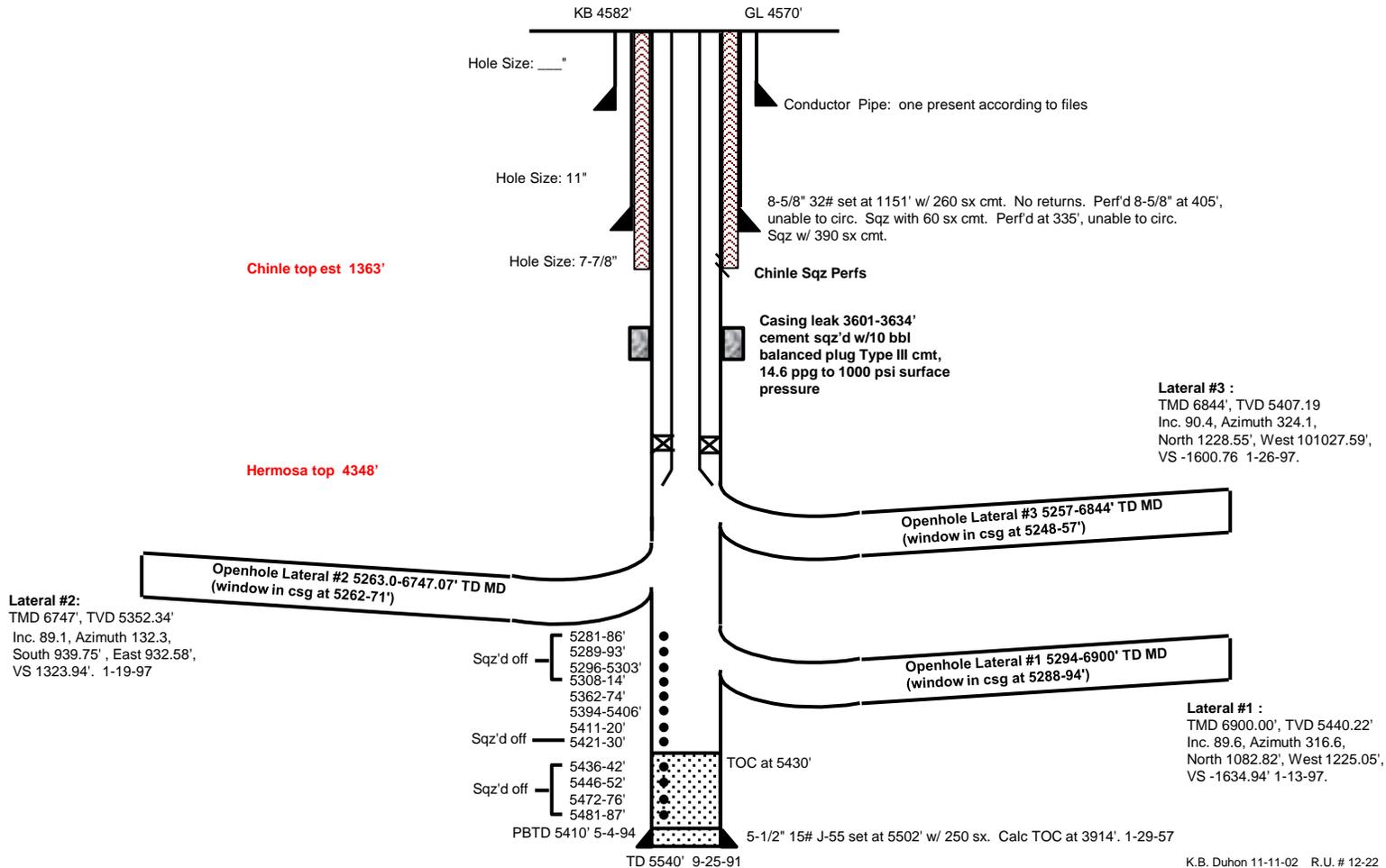
Location

B.H. Location Lateral #3:

1231' N & 1025' W of Surface

Location

INJECTOR



STATE OF UTAH DEPARTMENT OF NATURAL RESOURCES DIVISION OF OIL, GAS, AND MINING		FORM 9
SUNDRY NOTICES AND REPORTS ON WELLS Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.		5. LEASE DESIGNATION AND SERIAL NUMBER: 14-20-603-246A
1. TYPE OF WELL Water Injection Well		6. IF INDIAN, ALLOTTEE OR TRIBE NAME: NAVAJO
2. NAME OF OPERATOR: RESOLUTE NATURAL RESOURCES		7. UNIT or CA AGREEMENT NAME: RATHERFORD
3. ADDRESS OF OPERATOR: 1700 Lincoln Street, Suite 2800 , Denver, CO, 80203 4535		8. WELL NAME and NUMBER: RATHERFORD 12-W-22
4. LOCATION OF WELL FOOTAGES AT SURFACE: 1920 FNL 2080 FWL QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: Qtr/Qtr: SENW Section: 12 Township: 41.0S Range: 23.0E Meridian: S		9. API NUMBER: 43037158450000
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 type="checkbox"/> NOTICE OF INTENT Approximate date work will start:	<input type="checkbox"/> ACIDIZE <input type="checkbox"/> ALTER CASING <input type="checkbox"/> CASING REPAIR <input type="checkbox"/> CHANGE TO PREVIOUS PLANS <input type="checkbox"/> CHANGE TUBING <input type="checkbox"/> CHANGE WELL NAME <input type="checkbox"/> CHANGE WELL STATUS <input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS <input type="checkbox"/> CONVERT WELL TYPE <input type="checkbox"/> DEEPEN <input type="checkbox"/> FRACTURE TREAT <input type="checkbox"/> NEW CONSTRUCTION <input type="checkbox"/> OPERATOR CHANGE <input type="checkbox"/> PLUG AND ABANDON <input type="checkbox"/> PLUG BACK <input type="checkbox"/> PRODUCTION START OR RESUME <input type="checkbox"/> RECLAMATION OF WELL SITE <input type="checkbox"/> RECOMPLETE DIFFERENT FORMATION <input type="checkbox"/> REPERFORATE CURRENT FORMATION <input type="checkbox"/> SIDETRACK TO REPAIR WELL <input type="checkbox"/> TEMPORARY ABANDON <input type="checkbox"/> TUBING REPAIR <input type="checkbox"/> VENT OR FLARE <input type="checkbox"/> WATER DISPOSAL <input type="checkbox"/> WATER SHUTOFF <input type="checkbox"/> SI TA STATUS EXTENSION <input type="checkbox"/> WILDCAT WELL DETERMINATION <input type="checkbox"/> OTHER	
<input checked="" type="checkbox"/> SUBSEQUENT REPORT Date of Work Completion: 2/22/2016	<input type="checkbox"/> APD EXTENSION	
<input type="checkbox"/> SPUD REPORT Date of Spud:	OTHER: <input style="width: 100px;" type="text"/>	
<input type="checkbox"/> DRILLING REPORT Report Date:		
12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc. Resolute Natural Resources respectfully submits this sundry as a follow up to an operations that started as a UIC repair, then Chinle Isolation and then became a full T&A of the well. Verbal approval were obtained throughout the entire process. Attaches is the operations summary and before and after wellbore diagrams.		
Accepted by the Utah Division of Oil, Gas and Mining FOR RECORD ONLY February 24, 2016		
NAME (PLEASE PRINT) Erin Joseph	PHONE NUMBER 303 573-4886	TITLE Sr. Regulatory Analyst
SIGNATURE N/A	DATE 2/23/2016	

Activity Summary 2/04/16 – 2/22/16:

Ratherford Unit 12W-22 Injector UIC Repair, Chinle Isolation, Temporary Abandonment

This workover began with intent to repair a tubing leak that had resulted in pressure on the 7" casing annulus during water injection. During the rig operations, a 7" casing leak was confirmed, which also meant that the Horsley-Witten-required Chinle isolation had to be completed. Once these two tasks were accomplished it was determined that the additional cost to return the well to injection could not be economically justified, thus the decision to TA the well.

Moved in & rigged up WSU on 2/04/2016, killed well with 10 ppg brine. ND wellhead & wraparound tubing hanger; NU BOP/Hydril & test – good test. Released 5-1/2" Guiberson injection packer & POOH with 2-7/8 lined injection tubing. Found hole in tubing just above the on/off tool above the packer.

Pumped 10# brine down casing to kill well. PU 4-3/4" bit & csg scraper, RIH to 5236'. Top of upper lateral window at 5248'. TOOH. Ran test packer & RBP, set RBP at 5183'. Used test packer to confirm & locate casing leak. Leakoff rate into the leak was ~400 psi/5 minutes from 1050 psi test pressure. After repeated packer sets & pressure tests the leak was narrowed down to 3601-3634'. Unable to sustain a pump rate into the leak, however it repeatedly bled off 360 psi/3 minutes when pressured to 1000 psi.

At this point Resolute contacted Leroy Lee/NNEPA to report that we had located a casing leak, and a procedural outline was submitted to cement squeeze the casing leak and to carry out Chinle isolation cementing. Verbal approval was granted by Leroy on the afternoon of Feb. 9, 2016.

Placed 3 sx sand on RBP at 5183', displacing with 26 bbls FW. Pulled & LD pkr. RU electric line & ran casing inspection and cement bond tools from 5164' to surface. Rigged down E-line. Chinle top confirmed from CBL by Resolute geologist at 1274' KB. The casing inspection log located & confirmed the casing leak at 3625'.

RIH with open ended workstring to 3650' for casing leak cement squeeze. Spot in & RU cementers, PT hard lines. Spotted 10 bbls balanced plug of Type III neat cement, 14.6 ppg, 1.37 yield, with 18.9 bbls of FW displacement. Pulled up workstring to 2519' & reversed out w/20 bbls; closed pipe rams & pressured up on the cement, initially with 0.8 bbls to 1000 psi, then re-pressured with ½ barrel multiple times until 4.5 bbls were squeezed away and a final pressure of 1015 psi was reached. Held this pressure for 10 minutes, no loss. RD cementers & trapped this pressure on the tubing. Cementing ops were witnessed by N. Dishface/Navajo Nation Minerals. WOC overnight.

RIH w/open ended workstring & tag top of cement at 3448'. TOOH & stand back workstring. RU electric line & perforate 1133-35' @ 4 spf (8 holes) for Chinle remediation cementing. All shots fired. RD E-line. RIH & set test packer at 1087', pump dn tbg thru perfs and up surface csg with returns from bradenhead. Pump 60 bbls total FW to clean up this annulus pre-cement. TOH w/pkr & RIH with cement retainer. Set retainer at 1087' & pump again to confirm circ to surface.

MIRU cementers. PT lines 3500 psi – good test. Pumped 10 bbls FW ahead, then 44 bbls Type III neat cement at 14.6 ppg, yield 1.37, 2.3 bpm rate at 1943 psi, with 1.5 bbls FW behind. With 2 bbls cmt returns back at surface, shut in returns from surface casing & continued to hesitation squeeze in added cement, forcing the cement to go downward from the perforations 1133-35'. Staged in a total of 4 more bbls cement, to a final pressure of 125 psi. Stung out of retainer & spotted ½ bbl on top of retainer. PU one jt & reverse out w/15 bbls FW. TOO H with workstring. Cementing was witnessed by Larson Nez/Navajo Nation Minerals. WOC over the weekend.

RIH 4-3/4" mill, bit sub, 6 DC's, workstring & tag cement at 1052'. Milled up cement & retainer to 10' below retainer depth – began spinning, no torque. Circ clean, POOH check mill – looked OK. PU 4-3/4" magnet & made 5 runs, recovering some retainer pieces. Ran back 4-3/4" cone bit & 6 DC's – still spinning free w/no torque. Suspect lower cone from retainer is spinning on cement below it. POOH & re-ran magnet, 2 runs recovered nothing. PU & RIH 4-3/4" mill & 10 DC's, finished milling rtnr junk & cement to 1138' & broke through. Circulate clean.

Pressure test Chinle squeeze to 1100 psi, lost 550 psi in 10 minutes. Bled off & repeated the test to 1050 psi, lost 750 psi in 105 minutes.

At this point Resolute contacted Leroy Lee/NNEPA and received verbal approval on Feb 18 to perform a second cement squeeze on the Chinle.

TOOH & LD mill & DC's. RIH open ended workstring to 1212' & tagged cement. POOH & ran back w/4-3/4" bit, tag & work thru 1212', continue down to 3416' hard tag. Re-PT Chinle perms – same failing result. POOH & LD bit.

Resolute advised Leroy Lee on the morning of Feb 19 that after review of this well, it was decided for economic reasons to TA the well rather than drill out cement and complete the well to resume injection. A proposed TA wellbore drawing was also submitted.

RIH open ended to 1186'. Spot in cementers, PT hard lines to 2500 psi. Pumped 10 bbls FW ahead, then 10 bbl balanced plug of Type III cement plug from 1186' at 14.6 ppg, 1.37 yield, displaced with 4.4 bbls FW. TOO H w/workstring, closed blind rams & pressured up on cement w/1.8 bbls to 1291 psi, then hesitation squeezed in another barrel to 1415 psi final sqz pressure, 2.8 bbls total cement behind pipe. Pressure came down to 1345 psi after 40 min. Trapped pressure on the squeeze & WOC over the weekend.

RIH with workstring & tagged cement top at 812'. POOH & LD workstring & drill collars. RIH used tubing, circulate inhibited packer fluid to surface, performed MIT at 1000 psi, lost 20 psi/15 min; bled off & re-tested to 1020 psi/30 min (charted) – good test. ND BOP/hydril & land 2-7/8" tubing kill string in 3K B-1 flange, EOT at 800'. Installed master valve above B-1 flange.

Rigged down WSU & moved off.

Attachment No. 1: Final TA Wellbore Diagram, RU 12W-22

Attachment No. 2: Pressure Recorder Chart – 1000 psi PT of 7" above 812'

RATHERFORD UNIT # 12W-22

GREATER ANETH FIELD

Surface Loc: 1920' FNL & 2080' FWL

SEC 12-T41S-R23E

SAN JUAN COUNTY, UTAH

API 43-037-15845

PRISM 0042987

B.H. Location Lateral #1:

1085' N & 1223' W of Surface

Location

B.H. Location Lateral #3:

1231' N & 1025' W of Surface

Location

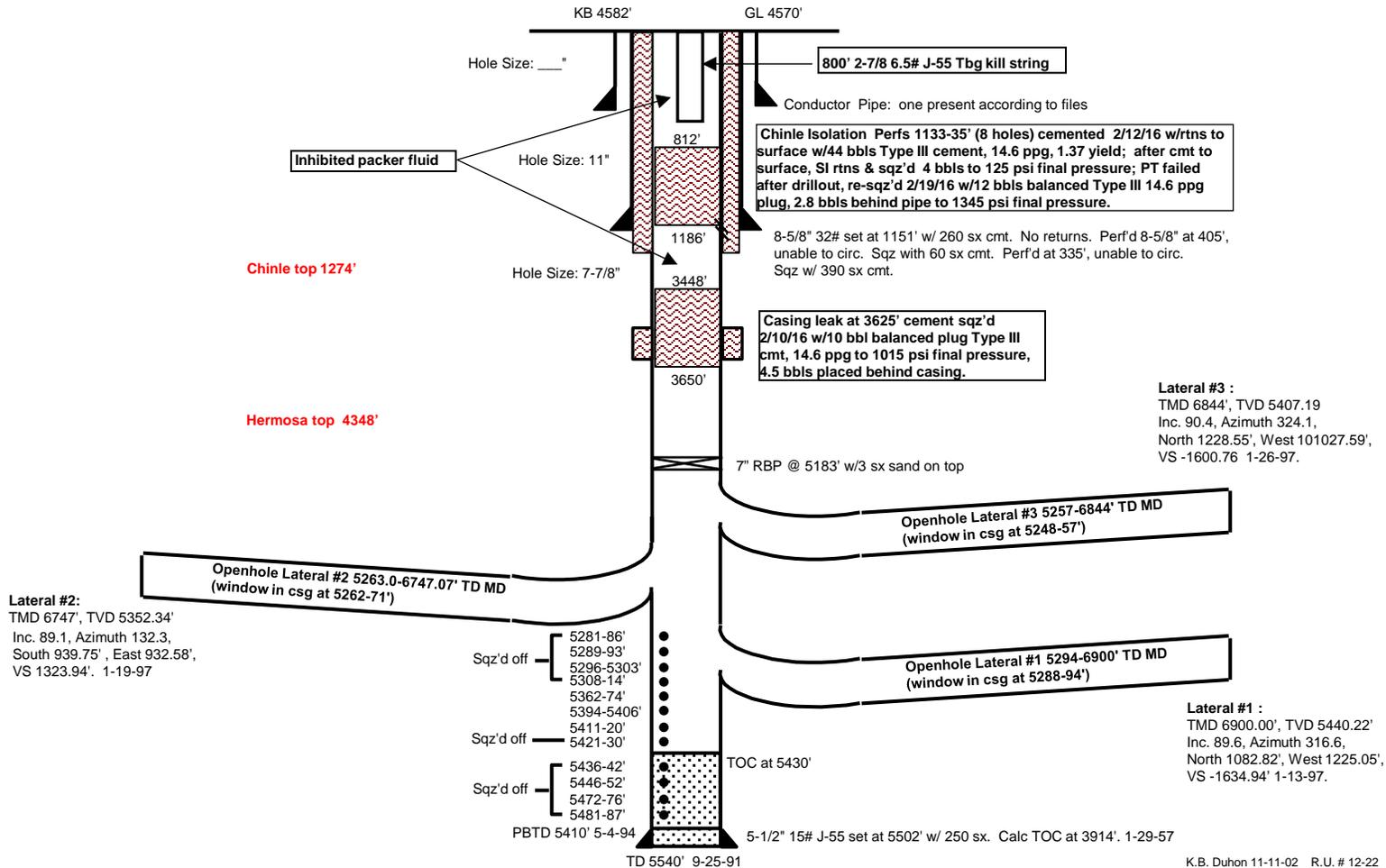
INJECTOR

B.H. Location Lateral #2:

942' S & 931' E of Surface

Location

FINAL TA WELLBORE



RATHERFORD UNIT # 12W-22

GREATER ANETH FIELD

Surface Loc: 1920' FNL & 2080' FWL

SEC 12-T41S-R23E

SAN JUAN COUNTY, UTAH

API 43-037-15845

PRISM 0042987

B.H. Location Lateral #1:

1085' N & 1223' W of Surface

Location

B.H. Location Lateral #2:

942' S & 931' E of Surface

Location

B.H. Location Lateral #3:

1231' N & 1025' W of Surface

Location

INJECTOR

PRE-WORKOVER WELLBORE

