UTAH OIL AND GAS CONSERVATION COMMISSION

REMARKS: 12-1-83 Operator name change

931006 Phillips to MEPNA eff. 7-1-93:
950803 Oper Name Change From MEPNA
950824 Commenced Injection eff. 7-25-95

(Have File) Well Log & 3 Electric Logs

DATE FILED 9- 2-58

LAND: FEE & PATENTED STATE LEASE NO. PUBLIC LEASE NO. INDIAN Nav-14-20-603-~~4495~~ 353

DRILLING APPROVED: 9- 2-58

SPUDDED IN: 9-8-58

COMPLETED: 9-26-58 Put to Producing: 10-3-58

INITIAL PRODUCTION: 912 BOPD & 531 MCFPD & 5 BWPD

GRAVITY A. P. I. 41

GOR: 582:1

PRODUCING ZONES: 5456 - 5612' (PRDX)

TOTAL DEPTH: 5660'

WELL ELEVATION: 4733 GR 4746 DF

DATE ABANDONED:

FIELD OR DISTRICT: ~~Rathertford~~ Greater Aneth RATHERFORD UNIT

COUNTY: San Juan

WELL NO. DESERT A - 17 (Ratherford 19-12) API 43-037-15739

LOCATION: 1980 FT. FROM (N) (S) LINE, 600 FT. FROM (E) (W) LINE. SW NW QUARTER - QUARTER SEC. 19

TWP.	RGE.	SEC.	OPERATOR	TWP.	RGE.	SEC.	OPERATOR
				41 S	24 E	19	~~PHILLIPS PETROLEUM CO.~~ MEPNA ~~MOBIL EXPLOR & PRODUCING~~

QUATERNARY	Star Point	Sinbad	Brazer
Recent	Wahweap	PERMIAN	Pilot shale
Alluvium	Masuk	Kaibab	Madison
Lake beds	Colorado	Coconino	Leadville
Pleistocene	Mancos	Cutler 2403'	Redwall
Lake beds	Upper	Hoskinnini Equivalent	DEVONIAN
TERTIARY	Middle	DeChelly 2550'	Upper
Pliocene	Lower	White Rim	Middle
Humboldt	Emery	Organ Rock 2730'	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 4450'	Lynch
Wasatch	Curtis	Upper	Bowman
Colton	Entrade	Lower	Tapeats
Flagstaff	Moab tongue	Molas	Ophir
Almy	Carmel	Paradox 5292'	Tintic
Paleocene	Glen Canyon Gr.	A	PRE-CAMBRIAN
Current Creek	Navajo	B	Paplee 5296
North Horn	Kayento	C	ABAJO 5451
CRETACEOUS	Wingate	Manning Canyon	
Montana	TRIASSIC	Mississippian	
Mesaverde	Chinle 1435'	Chainman shale	
Price River	Shinarump 2260'	Humbug	
Blackhawk	Moenkapi 2385'	Joana limestone	

ACME VISIBLE CROZET VIRGINIA #78846-8

Form 9-331 b
(April 1952)

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

(SUBMIT IN TRIPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Indian Agency Navajo

Allottee Tribal

Lease No. 14-20-603-4495

SUNDRY NOTICES AND REPORTS ON WELLS

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

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

Cortez, Colorado August 27, 1958, 19

Desert "A"
Well No. 17 is located 1980 ft. from {N/S} line and 600 ft. from {E/W} line of sec. 19

SW NW Sec. 19 (¼ Sec. and Sec. No.) 41S (Twp.) 24E (Range) SLM (Meridian)

Rathole ford (Field) San Juan County (County or Subdivision) Utah (State or Territory)

The elevation of the ~~derrick floor~~ Ungraded Ground above sea level is 4232.8 ft.

DETAILS OF WORK

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

Drill 17-1/2" hole to approximately 150', set 150' of 13-3/8" conductor pipe and cement to surface. Drill 11" hole to approximately 1500', set 8-5/8" casing and cement to surface. Drill 7-7/8" hole to total depth of approximately 5650', run 5-1/2" casing and cement with approximately 250 sx. cement. Complete in Paradox formation.

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

Company Phillips Petroleum Co.

Address Box 548
Cortez, Colorado

By F. W. Shelton
Title Dist. Supt.

Company PHILLIPS PETROLEUM COMPANY

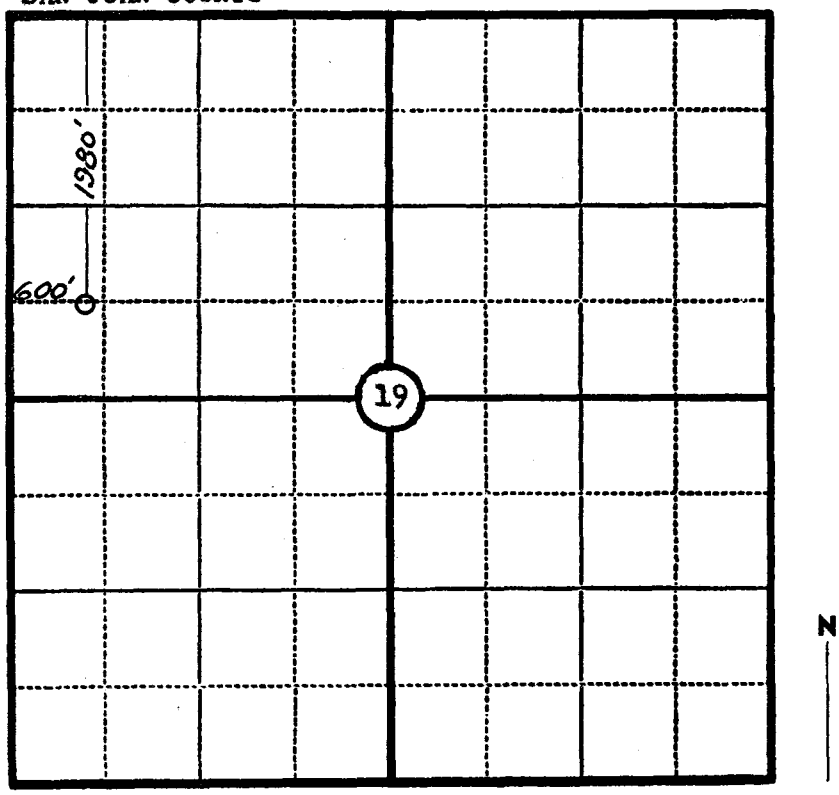
Lease DESERT Well No. 17

Sec. 19, T. 41 SOUTH, R. 24 EAST S.L.M.

Location 1980' FROM THE NORTH LINE AND 600' FROM THE WEST LINE.

Elevation 4732.8 UNGRADED GROUND

SAN JUAN COUNTY UTAH



Scale—4 inches equal 1 mile.

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

James P. Leese

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

Surveyed 22 DECEMBER, 19 57

SAN JUAN ENGINEERING COMPANY, FARMINGTON, N. M.

September 2, 1958

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

Attention: F. W. Shelton, District Superintendent

Gentlemen:

This is to acknowledge receipt of your notice of intention to drill Well No. Desert A - 17, which is to be located 1980 feet from the north line and 600 feet from the west line of Section 19, Township 41 South, Range 24 East, SLBM, San Juan County, Utah.

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

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

Yours very truly,

OIL & GAS CONSERVATION COMMISSION

GLENN B. FRIGHT
SECRETARY

GBF:co

cc: Phil McGrath
USGS, Farmington,
New Mexico

Form 9-331 b
(April 1952)

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

(SUBMIT IN TRIPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Indian Agency Navajo

Allottee Tribal

Lease No. 14-20-603-353

SUNDRY NOTICES AND REPORTS ON WELLS

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

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

Cortez, Colorado September 11, 19 58

Well No. Desert "A" 17 is located 1980 ft. from {N} line and 600 ft. from {W} line of sec. 19

SW NW Sec. 19 (¼ Sec. and Sec. No.) 41S (Twp.) 24E (Range) S.L.M. (Meridian)

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

The elevation of the Ungraded Ground above sea level is 4732.8 ft.

DETAILS OF WORK

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

Spudded 3 AM 9-8-58. Drilled 17-1/2" hole to 172'. Set and cemented 4 jts. 13-3/8" OD 27.1# Armco SW SJ "A" Cond. casing at 172.00' RKB, with 175 sx. Neat Reg. Cement. Pumped plug to 142' at 1:30 P.M. 9-8-58. Cement circulated. WOC 24 hours. Tested casing with 250# for 30 min. Tested okay.

Drilled 11" hole to 1447'. Set & cemented 8-5/8" "A" Cond. casing at 1446.85' RKB with 330 sx. Neat Reg. cement, 126 sx. Diacel "D", 620# Calcium Chloride, 165# Flocele, 660# Tuff Plug, followed w/ 125 sx. Neat Regular Cement on bottom. Pumped plug to 1413' at 11:20 A.M. 9-10-58. Cement circulated but fell back. Recemented to surface with approx. 15 sx. neat reg. cement down annulus. WOC 24 hours. Tested casing with 750# for 30 minutes - okay.

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. Box 548

Cortez, Colorado

By C. M. Boles

Title District Superintendent

3

W

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

Form 9-331 b
(April 1952)

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

Indian Agency Navajo

(SUBMIT IN TRIPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Allottee Tribal

Lease No. 14-20-603-353

N/H
12-31

SUNDRY NOTICES AND REPORTS ON WELLS

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

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

Cortez, Colorado December 3, 1958

Desert "A"

Well No. 17 is located 1980 ft. from {N/S} line and 600 ft. from {E/W} line of sec. 19

SW NW Sec 19 (¼ Sec. and Sec. No.) 41S (Twp.) 24E (Range) SLM (Meridian)

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

The elevation of the ~~derrick floor~~ ungraded ground above sea level is 4732.8 ft.

DETAILS OF WORK

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

Drilled 7-7/8" hole to 5660'. Ran Welex Electric-Induction contact and guard logs to 5659. Set and cemented 139 jts 5-1/2" OD 15.5# and 14# J-55, ST&C casing at 5656.51' w/132 sx cement, 100 sx Diacel D, 496# calcium chloride. Pumped plug to 5624' at 10:50 AM 9/28/58. WOC 24 hrs and tested casing to 750# - 30 min. tested o.k.

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

Company Phillips Petroleum Company

Address Box 548
Cortez, Colorado

By C. M. Boles
Title District Superintendent

W

Form 9-330

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

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

LOCATE WELL CORRECTLY

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

LOG OF OIL OR GAS WELL

Company Phillips Petroleum Company Address P. O. Box 548, Cortez, Colorado
Lessor or Tract Desert "A" Field Ratherford State Utah
Well No. 17 Sec. 19 T. 41S R. 24E Meridian SLM County San Juan
Location 1980 ft. {N. / S.} of N Line and 600 ft. {E. / W.} of W Line of Sec. 19 Elevation 4746 (Derrick floor relative to sea level)

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

Signed [illegible]

Date January 16, 1959 Title District Superintendent

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

Commenced drilling September 8, 1958 Finished drilling September 26, 1958

OIL OR GAS SANDS OR ZONES

(Denote gas by G)

No. 1, from 5456 to 5612 No. 4, from to
No. 2, from to No. 5, from to
No. 3, from to No. 6, from to

IMPORTANT WATER SANDS

Water shows in all sands from surface to 1435 and from 2550 to 2730'

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

CASING RECORD

Size casing	Weight per foot	Threads per inch	Make	Amount	Kind of shoe	Cut and pulled from	Perforated From—	Perforated To—	Purpose
13-3/8"	27.1#	SMSJ	Armco	162	Baker		5456	5464	Oil Prod
8-5/8"	24#	8 rd	J-55	1444	"		5468	5492	" "
5-1/2"	15#	8 rd	J-55	157	"		5574	5590	" "
5-1/2"	14#	8 rd	J-55	5518	"		5594	5604	" "
							5609	5612	" "

MUDDING AND CEMENTING RECORD

Size casing	Where set	Number sacks of cement	Method used	Mud gravity	Amount of mud used
13-3/8	172	175	Circ		
8-5/8	1447	800 cu ft	Circ (15 sx added down annulus)		
5-1/2	5657	550 cu ft	Halliburton		

PLUGS AND ADAPTERS

Heaving plug—Material Length Depth set

FOLD | MARK

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

Adapters—Material ..... Size .....

SHOOTING RECORD

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

TOOLS USED

Rotary tools were used from 0 feet to 5660 feet, and from ..... feet to ..... feet

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

DATES

January 16, 1959 Put to producing October 3, 1958

The production for the first 24 hours was 912 barrels of fluid of which 100 % was oil; ..... % emulsion; ..... % water; and ..... % sediment. Gravity, °Bé. 41

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

Rock pressure, lbs. per sq. in. 200

EMPLOYEES

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

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

FORMATION RECORD

FROM—	TO—	TOTAL FEET	FORMATION
1435	2260	825	Chinle
2260	2325	65	Shinarump
2325	2403	78	Moenkopi
2403	2550	147	Cutler - Moskinini Equivalent
2550	2730	180	Cutler - De Chelly Member
2730	4450	1720	Cutler - Organ Rock Member
4450	5660	1210	Hermosa Group
5292	5660	368	Paradox
5660	5624	36	PBTD Top cement plug

16—43094-4

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

HISTORY OF OIL OR GAS WELL

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

Spudded 3AM 9-8-58. Drilled 17-1/2" hole to 172'. Set and cemented 4 jts 13-3/8" OD 27.1# Armco SW SJ "A" conditioned casing at 172.00' RKB, with 175 sacks neat regular cement. Pumped plug to 142' at 1:30 PM 9-8-58. Cement circulated. WOC 24 hours. Tested casing with 250# for 30 min. Tested o.k.

Drilled 11" hole to 1447'. Set and cemented 8-5/8" "A" conditioned casing at 1446.85' RKB with 330 sx neat regular cement, 126 sx. Diacel "D", 620# calcium chloride, 165# Flocele, 660# tuff plug,followed with 125 sx neat regular cement on bottom. Pumped plug to 1413' at 11:20 A.M. 9-10-58. Cement circulated but fell back. Recemented to surface with approximately 15 sacks neat regular cement down annulus. WOC 24 hours. Tested casing with 750# for 30 minutes. Tested o.k.

Drilled 7-7/8" hole to 5660'. Ran Welex Electric-Induction contact and guard logs to 5659'. Set and cemented 139 jts 5-1/2" OD 15.5# and 14# J-55, ST&C casing at 5656.51' with 132 sacks cement, 100 sacks Diacel "D", 496# calcium chloride. Pumped plug to 5624' at 10:50 AM 9/28/58. WOC 24 hours and tested casing to 750# for 30 minutes - tested o.k.

Ran Welex Gamma Ray-Neutron Collar locator log to 5625'. Perforated 5-1/2" casing w/4holes per foot Star Jets from 5456-64, 5468-92, 5574-90, 5594-5604, 5609-12. Total 61' - 244 holes. Ran 2-7/8" EUE tubing and set at 5613.88' with Packer free at 5354'. Dowell displaced water with 95 BO. Spotted acid on formation. Set Packer. Acidized perforations with 6000 gallons Dowell regular 15% acid. Flushed with 36 BO. Maximum pressure 3600#, minimum pressure 3000#, average treating rate 7.7 BPM at 3200#, average flush rate 7.2BPM at 3200#. Shut in pressure 0# in 4 minutes.

Form 9-331
(May 1963)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN TRIPLICATE*
(Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1424.

SUNDRY NOTICES AND REPORTS ON WELLS

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

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

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

1. OIL WELL [X] GAS WELL [ ] OTHER

7. UNIT AGREEMENT NAME: SW-I-4192

2. NAME OF OPERATOR: Phillips Petroleum Company

8. FARM OR LEASE NAME: Ratherford Unit

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

9. WELL NO.: 19-12

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface: 1980' FNL and 600' FWL (SW NW

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

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: Sec. 19-41S-24E

14. PERMIT NO.:

15. ELEVATIONS (Show whether DF, RT, GR, etc.): 4746 DF

12. COUNTY OR PARISH: San Juan

13. STATE: Utah

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

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

Squeeze cement zones II and III perfs. (5574'-5612' O.A.) Acidize zone I perfs (5456-64' and 5468-92'), return to zone I only production.

RECEIVED AUG 22 1977

APPROVED BY THE DIVISION OF OIL, GAS, AND MINING
DATE: August 22, 1977
BY: P. L. Driscoll

3 - USGS-Farmington, N.M.
2 - Utah Oil & Gas Cons. Comm.
1 - Superior Oil Co., Cortez, CO
1 - File

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

SIGNED: A.T. Crump (A. T. Crump) TITLE: Area Superintendent DATE: August 19, 1977

(This space for Federal or State office use)

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

*See Instructions on Reverse Side

1-B'Ville 1-Patterson
1-Denver 1-File

FINAL REPORT INDIVIDUAL WELL STATUS

Lease Ratherford Unit Well No. 19-12 Authorization No. P-3222

Summary of Work Performed: November 17 through November 28, 1977 -

Set Cement Retainer at New PTD 5546'. Cement squeezed Zones II & III 5574-5612' OA w/250 sx Class "B" to 3000 psi holding press. Acidized Zone I 5456-64' and 5468-92' w/6000 gal 28% HCL in 3 stages. Returned to Pumping.

AVERAGE DAILY PRODUCTION

	Field and Formation	Oil	Gas	Water
Before Work	Paradox - Zone Greater Aneth - I, II & III	8	NR	422
After Work	" - Paradox - Zone I	148	NR	100
Before Work				
After Work				

DATE	P.T.D.	DAILY REPORT DETAILED

1977 Nov. 17

RATHERFORD UNIT NO. 19-12 PTD 5624. INITIAL REPORT. MI AND RU R AND R WS UNIT AT 4:00 PM, 11/15/77. PLD TBG AND RODS. TIH W/4-3/4" BIT AND 5-1/2" CSG SCRAPER. RAN TO 5610 FEET. STARTED COOH. SDON.. PREP TO COOH W/BIT AND SCRAPER. AFE P-3222 ISSUED TO SQUEEZE CEMENT ZONES II AND III PERFS 5574-5612 FEET OA, ACIDIZE ZONE I PERFS 5456-64 FEET AND 5468-92 FEET, RETURN TO ZONE I ONLY PRODUCTION. LOCATION 1980 FEET FNL AND 600 FEET FWL, SW NW, SEC. 19-T41S-R24E, GREATER ANETH FIELD, SAN JUAN CO., UTAH. ELEV. 4747 FEET RKB. SUB AREA CODE 626. WELL HAS BEEN SHUT DOWN SINCE 7/14/77. LAST TEST BEFORE SHUT DOWN - 8 BOPD, 7 MCFGPD, 422 BWPD..

18

RATHERFORD UNIT NO. 19-12 PTD 5546. PREP TO ACIDIZE ZONE I. COOH W/BIT AND SCRAPER. WIH W/CMT RETAINER AND SET AT 5546 FEET. LOADED ANNULUS AND TESTED TO 1000 PSI, OK. TSTD TBG TO 3500 PSI, OK. ESTABLISHED PUMP IN RATE 6 BPM AT 2700 PSI. MIXED AND PMPD 250 SX CLASS "B" W/10 PERCENT SALT, 1-1/4 PERCENT CFR-2. SQZD ZONES II AND III, 5574-5612 FEET OA, TO 3000 PSI HOLDING PRESS. REVERSED OUT 98 SX. COOH. SDON..

19-21

RATHERFORD UNIT NO. 19-12 PTD 5546. PREP TO FIN RNG TBG AND RODS. 11/19/77 - WIH RETRIEVAMATIC PKR, TBG TESTER AND 4 JTS TAILPIPE. WITH TAILPIPE AT 5490 FEET, TSTD TBG TO 3500 PSI, OK. SPOTTED ACID ACROSS PERF 5456-92 FEET OA. PLD UP HOLE AND SET PKR AT 5250 FEET W/TAILPIPE AT 5374 FEET. ACIDIZED PERFS W/6000 GAL 28 PERCENT HCL IN 3 STAGES W/OVER DISPLACEMENT OF 3500 GAL BEHIND EACH STAGE. MAX TREATING PRESS 3500 PSI. AVG 3000 PSI AT 6-7 BPM. ISIP 2000 PSI, 5 MIN 1200 PSI. GOOD BLOCKING ACTION BETWEEN STAGES. OPENED TO BATTERY AND FLWD 20 BBL AND DIED. COOH. STARTED IH W/PMPG EQUIP. LOAD TO RECOVER - 443 BW. SDON. 11/20/77 - STARTED RNG TBG, BUT SD DUE TO HIGH WINDS. 11/21/77 - SD OVER SUNDAY..

22

RATHERFORD UNIT NO. 19-12 PTD 5546. PMPG ON TEST. FIN RNG TBG AND RODS AND STARTED PMPG. NO GAUGE..

February 24, 1978
Date Prepared

Original Signed By
D. J. Fisher
District Approval

Form 903 R0-60

DAILY REPORT DETAILED

LEASE Ratherford Unit WELL NO. 19-12 SHEET NO. 2

DATE	NATURE OF WORK PERFORMED	TOTAL DEPTH
1977 NOV 23	RATHERFORD UNIT NO. 19-12 PTD 5546. PMPG ON TEST. PMPD 24 HRS, REC 77 BO, 179 BLW. 264 BLW TO REC. 17 SPM, 67-1-3/4"..	
	RATHERFORD UNIT NO. 19-12 PTD 5546. 11/24/77 - PMPD 24 HRS, REC 177 BO, 88 BLW. 176 BLW TO REC. 16 X 67 X 1-3/4. 11/25/77 - PMPD 24 HRS, REC 154 BO, 102 BLW. 74 BLW TO REC. 16 X 67 X 1-3/4. 11/26/77 - PMPD 24 HRS, REC 140 BO, 74 BLW, 25 BFW. 16 X 67 X 1-3/4. 11/27/77 - PMPD 20 HRS, REC 149 BO, 70 BW. DN 4 HRS, POWER FAILURE. 11/28/77 - PMPD 24 HRS, REC 148 BO, 100 BW. 19 X 67 X 1-3/4. FINAL REPORT SUMMARY. SET CMT RETAINER AT NEW PTD 5546 FEET. SQZD ZONE II AND III PERFS 5574 - 5612 FEET OA WITH 250 SX CLASS "B" CMT. HOLDING PRESS 3000 PSI. REVERSED OUT 98 SX. ACIDIZED ZONE I PERFS 5456-64 FEET AND 5468-92 FEET W/6000 GAL 28 PERCENT HCL IN 3 STAGES W/OVER DISPLACEMENT OF 3500 GAL BEHIND EACH STAGE. RETURNED TO A PUMPING OIL WELL FROM DESERT CREEK ZONE 1 PERFS 5456-5492 FEET OA, IN THE PARADOX FORMATION, GREATER ANETH FIELD, SAN JUAN CO., UTAH, WITH A FINAL TEST OF 148 BOPD, 100 BWPD. FINAL REPORT..	

24 - 28

Form 9-331
(May 1963)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN TRIPLICATE*
(Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1424.

SUNDRY NOTICES AND REPORTS ON WELLS

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

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

6. IF INDIAN, ALLOTTEE OR TRIBE NAME
Navajo - Tribal

1. OIL WELL [X] GAS WELL [ ] OTHER

7. UNIT AGREEMENT NAME
SW-I-4192

2. NAME OF OPERATOR
Phillips Petroleum Company

8. FARM OR LEASE NAME
Ratherford Unit

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

9. WELL NO.
19-12

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.)
At surface
1980' FNL & 600' FWL, SW NW

10. FIELD AND POOL, OR WILDCAT
Greater Aneth

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec. 19-T41S-R24E

14. PERMIT NO.

15. ELEVATIONS (Show whether DF, RT, GR, etc.)
4747' RKB

12. COUNTY OR PARISH
San Juan

13. STATE
Utah

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

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	[ ]	PULL OR ALTER CASING	[ ]	WATER SHUT-OFF	[ ]	REPAIRING WELL	[ ]
FRACTURE TREAT	[ ]	MULTIPLE COMPLETE	[ ]	FRACTURE TREATMENT	[ ]	ALTERING CASING	[ ]
SHOOT OR ACIDIZE	[ ]	ABANDON*	[ ]	SHOOTING OR ACIDIZING	[ ]	ABANDONMENT*	[ ]
REPAIR WELL	[ ]	CHANGE PLANS	[ ]	(Other) Sqz cmt Zones II & III, Acidize Zone I			
(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.) *

November 17 through November 28, 1977

SEE ATTACHED FOR COMPLETE DETAILS

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

SIGNED D. J. Fisher TITLE Operations Superintendent DATE February 24, 1978

D. J. Fisher

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

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

*See Instructions on Reverse Side

STATE OF UTAH

OIL & GAS CONSERVATION COMMISSION

SUBMIT IN TRIPLICATE* (Other instructions on reverse side)

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 [XX] 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 SURVEY OR AREA: See Attached

12. COUNTY OR PARISH: San Juan

13. STATE: Utah

14. PERMIT NO.: See Attached

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

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

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

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

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

RECEIVED DEC - 8 1983

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

WELL NO.	WELL LOCATION	API NO.	STATUS
E14-12	SW NW Sec.14-T41S-R24E	43-037-15998	Act.
E14-13	NW SW Sec.14-T41S-R24E	43-037-15999	SI
10-44	SE SE Sec.10-T41S-R24E	43-037-30451	Act.
15-12	SW NW Sec.15-T41S-R24E	43-037-15715	Act.
15-14	SW SW Sec.15-T41S-R24E	43-037-15716	SI
15-22	SE NW Sec.15-T41S-R24E	43-037-30449	Act.
15-32	SW NE Sec.15-T41S-R24E	43-037-15717	Act.
15-33	NW SE Sec.15-T41S-R24E	43-037-15718	SI
15-41	NE NE Sec.15-T41S-R24E	43-037-15719	Act.
15-42	SE NE Sec.15-T41S-R24E	43-037-3-448	SI
16-12	SW NW Sec.16-T41S-R24E	43-037-15720	Act.
16-14	SW SW Sec.16-T41S-R24E	43-037-15721	Act.
16-32	SW NE Sec.16-T41S-R24E	43-037-15723	Act.
16-34	SW SE Sec.16-T41S-R24E	43-037-15724	SI
16-41	NE NE Sec.16-T41S-R24E	43-037-15725	Act.
17-12	SW NW Sec.17-T41S-R24E	43-037-15726	Act.
17-14	SW SW Sec.17-T41S-R24E	43-037-15727	Act.
17-23	NE SW Sec.17-T41S-R24E	43-037-15728	Act.
17-32	SW NE Sec.17-T41S-R24E	43-037-15729	Act.
17-34	SW SE Sec.17-T41S-R24E	43-037-15730	Act.
17-41	NE NE Sec.17-T41S-R24E	43-037-15731	Act.
17-44	SE SE Sec.17-T41S-R24E	43-037-15732	Act.
18-11	NW NW Sec.18-T41S-R24E	43-037-15733	SI
18-13	NW SW Sec.18-T41S-R24E	43-037-15734	Act.
18-14	SW SW Sec.18-T41S-R24E	43-037-15735	Act.
18-23	NE SW Sec.18-T41S-R24E	43-037-30244	Act.
18-32	SW NE Sec.18-T41S-R24E	43-037-15736	Act.
18-34	SW SE Sec.18-T41S-R24E	43-037-15737	Act.
19-12	SW NW Sec.19-T41S-R24E	43-037-15739	Act.
19-14	SW SW Sec.19-T41S-R24E	43-037-15740	SI
19-32	SW NE Sec.19-T41S-R24E	43-037-15743	Act.
19-34	SW SE Sec.19-T41S-R24E	43-037-15744	Act.
20-12	SW NW Sec.20-T41S-R24E	43-037-15746	Act.
20-14	SW SW Sec.20-T41S-R24E	43-037-15747	Act.
20-32	SW NE Sec.20-T41S-R24E	43-037-15749	Act.
20-34	SW SE Sec.20-T41S-R24E	43-037-15750	Act.
21-12	SW NW Sec.21-T41S-R24E	43-037-15752	Act.
21-14	SW SW Sec.21-T41S-R24E	43-037-15753	Act.
21-23	NE SW Sec.21-T41S-R24E	43-037-13754	Act.
21-32	SW NE Sec.21-T41S-R24E	43-037-15755	Act.
21-33	NW SE Sec.21-T41S-R24E	43-037-30447	SI
21-34	SW SE Sec.21-T41S-R24E	43-037-15756	Act.
22-12	SW NW Sec.22-T41S-R24E	43-037-15757	SI
22-14	SW SW Sec.22-T41S-R24E	43-037-15758	SI
24-42	SE NE Sec.24-T41S-R24E	43-037-15863	Act.
28-11	NW NW Sec.28-T41S-R24E	43-037-30446	Act.
28-12	SW NW Sec.28-T41S-R24E	43-037-15336	Act.
29-12	SW NW Sec.29-T41S-R24E	43-037-15337	Act.
29-32	SW NE Sec.29-T41S-R24E	43-037-15339	Act.

Mobil Oil Corporation

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

May 14, 1986

RECEIVED
MAY 16 1986
DIVISION OF
OIL, GAS & MINING

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

Attn: R. J. Firth
Associate Director

SUPERIOR OIL COMPANY MERGER

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

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

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

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

Very truly yours,

R. D. Baker
Environmental Regulatory Manager

CNE/rd
CNE8661

Form 3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

SUNDRY NOTICES AND REPORTS ON WELLS

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

SUBMIT IN TRIPLICATE

DEC 24 1990

DIVISION OF OIL, GAS & MINING

1. Type of Well: [X] Oil Well [ ] Gas Well [ ] Other
2. Name of Operator: Phillips Petroleum Company
3. Address and Telephone No.: P. O. Box 1150, Cortez, CO 81321 (303) 565-3426
4. Location of Well (Footage, Sec., T., R., M., or Survey Description): 600' FWL & 1980' FNL, Sec. 19-T41S-R24E
5. Lease Designation and Serial No.: 14-20-603-353
6. If Indian, Allottee or Tribe Name: Navajo Tribal
7. If Unit or CA, Agreement Designation: SW-I-4192 Ratherford Unit
8. Well Name and No.: Ratherford Unit #19-12
9. API Well No.: 43-037-15739 POW
10. Field and Pool, or Exploratory Area: Greater Aneth
11. County or Parish, State: San Juan County, Utah

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

TYPE OF SUBMISSION	TYPE OF ACTION	
[ ] Notice of Intent	[ ] Abandonment	[ ] Change of Plans
[X] Subsequent Report	[ ] Recompletion	[ ] New Construction
[ ] Final Abandonment Notice	[ ] Plugging Back	[ ] Non-Routine Fracturing
	[ ] Casing Repair	[ ] Water Shut-Off
	[ ] Altering Casing	[ ] Conversion to Injection
	[X] Other Perforate, Acidize	[ ] 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.)*

December 3, 1990 Through December 7, 1990

MI & RU well service unit 12/3/90. COOH w/rods and pump. ND wellhead, NU BOP, COOH w/177 jts 2-7/8" production tbg. GIH w/bit & scraper & cleaned out well to 5538'. COOH w/bit & scraper. Install packoff, GIH w/wireline and ran GR-CCL from 5546-4546'. Perforated from 5496-5502' w/4" csg gun 2 JSPF. COOH & RD wireline. GIH w/189' 2-7/8" tbg tailpipe & Model R pkr. Ran tailpipe to 5500'. Acidized w/total of 5000 gal 15% HCL and 200 gals diverter, flushed w/100 bbls water, 8 bpm at avg pressure of 700 psi. ISIP 0 psi. Swbd & flwd back load. COOH w/pkr. Ran production tbg, set TAC at 5407'. ND BOP, NU wellhead. Ran rods & pump. RD well service unit and returned well to pumping 12/7/90.

Test Prior to Work: 81 BOPD, 3 BWPD, 35 MCFGPD
Test After Work: 148 BOPD, 8 BWPD, 64 MCFGPD

Distribution:

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

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

Signed S. H. Oden S. H. Oden Title District Superintendent Date 12/18/90

(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

FORM 10

STATE OF UTAH
DIVISION OF OIL, GAS AND MINING

MONTHLY OIL AND GAS PRODUCTION REPORT

RECEIVED
AUG 16 1993
DIVISION OF
OIL, GAS & MINING

OPERATOR NAME AND ADDRESS:

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

UTAH ACCOUNT NUMBER: N0772

REPORT PERIOD (MONTH/YEAR): 6 / 93

AMENDED REPORT ☐ (Highlight Changes)

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

USW 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 Konkel

Telephone Number: 505 599-3452

(6/93)

FORM 11

STATE OF UTAH
/ISION OF OIL, GAS AND MINING

MONTHLY OIL AND GAS DISPOSITION REPORT

OPERATOR NAME AND ADDRESS:

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

UTAH ACCOUNT NUMBER: N7370

REPORT PERIOD (MONTH/YEAR): 7 / 93

AMENDED REPORT ☐ **(Highlight Changes)**

*931001 updated. fc

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

RECEIVED
SEP 13 1993
DIVISION OF
OIL, GAS & MINING

COMMENTS: PLEASE NOTE ADDRESS CHANGE. MOBIL ~~ASSU~~ PRODUCTION REPORTS WILL BE COMPILED AND SENT from the Cortez, Co. Office IN THE FUTURE.

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

Date: 9/5/93

Name and Signature: Lowell B Sheffield

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

(6/93)

FORM=NR0003.FRM 07/2

FORM 9

STATE OF UTAH
DIVISION OF OIL, GAS AND MINING

5. LEASE DESIGNATION & SERIAL NO.

SUNDRY NOTICES AND REPORTS ON WELLS

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

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

1. OIL WELL ☐ GAS WELL ☐ OTHER

7. UNIT AGREEMENT NAME: RATHERFORD UNIT

2. NAME OF OPERATOR: MOBIL OIL CORPORATION

8. FARM OR LEASE NAME

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

9. WELL NO.

RECEIVED SEP 13 1993

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

At proposed prod. zone

DIVISION OF OIL, GAS & MINING

10. FIELD AND POOL, OR WILDCAT: GREATER ANETH

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

14. API NO.

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

12. COUNTY: SAN JUAN

13. STATE: UTAH

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

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

APPROX. DATE WORK WILL START _____

DATE OF COMPLETION _____

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

* Must be accompanied by a cement verification report.

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

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

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

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

See Instructions On Reverse Side

(3/89)

Sept 29, 1993

TO: Lisha Cordova - Utah Mining Oil & Gas

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

Here is copy of Rathertford Unit Successor Operator.

4 pages including this one.

Re: Rathrford Unit (GC)

RECEIVED
BLM
27 AM 11:44
070 FARMINGTON, NM

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

ARES/543

JUL 2 6 1993

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

Dear Mr. Cox:

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

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

Sincerely,

ACTING Area Director

Enclosure

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS

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

DESIGNATION OF OPERATOR

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

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

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

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

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

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

Attached hereto as Exhibit "A"

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

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

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

Attached is the appropriate documentation relevant to this document.

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

Phillips Petroleum Company

June 17, 1993 By: M. B. [illegible] C. J.
Attorney-in-Fact

Mobil Exploration and Producing
North America Inc.

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

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

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

EXHIBIT "A"

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

EXHIBIT "C"

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

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

Division of Oil, Gas and Mining

PHONE CONVERSATION DOCUMENTATION FORM

Route original/copy to:

[] Well File _____

(Location) Sec___Twp___Rng___

(API No.) _____

[] Suspense

(Return Date) _____

(To - Initials) _____

XXX Other

OPERATOR CHANGE

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

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

Talked to:

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

of (Company/Organization) MOBIL

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

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

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

4. Highlights of Conversation:

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

MEPNA-

PO DRAWER G

CORTEZ, CO 81321

(303)565-2212

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

Division of Oil, Gas and Mining
OPERATOR CHANGE WORKSHEET

Routing:

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

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

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

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

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

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

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

Name:	API:	Entity:	Sec	Twp	Rng	Lease Type:
SEE ATTACHED	43-037-15739					

OPERATOR CHANGE DOCUMENTATION

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

Lec 2. (Rule R615-8-10) Sundry or other legal documentation has been received from new operator (Attach to this form). (Reg. 8-31-93) (Rec'd 9-14-93)

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

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

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

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

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

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

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

- OVER -

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

ENTITY REVIEW

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

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

BOND VERIFICATION (Fee wells only)

Lec/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.

DTS 11-10-93

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

FILMING

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

FILING

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

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

COMMENTS

931006 BIA/Blm Approved 7-9-93.

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

Form 3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

SUNDRY NOTICES AND REPORTS ON WELLS

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

RECEIVED JUN 23 1994 DIV. OF OIL, GAS & MINING

SUBMIT IN TRIPLICATE

5. Lease Designation and Serial No.: 14-20-603-353
6. If Indian, Allottee or Tribe Name: Navajo
7. If Unit or CA, Agreement Designation: Ratherford
8. Well Name and No.: RU 19-14
9. API Well No.: 43-037-15740
10. Field and Pool, or Exploratory Area: Greater Aneth
11. County or Parish, State: San Juan, Ut.

1. Type of Well: [x] Oil Well [ ] Gas Well [ ] Other
2. Name of Operator: MEPUS for MPT&NM and MEPNA* (915) 688-2114
3. Address and Telephone No.: P.O. Box 633, Midland, Tx. 79702 Attn: Glen Cox
4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
Surface: SWSW19-41s-24e
BHL: N/A

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

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

*Mobil Exploration & Producing U. S. Inc. as agent for Mobil Producing Texas & New Mexico Inc. and Mobil Exploration & Producing North America Inc.

Will bury water injection pipeline ≈30" deep. (Application to convert well will be filed separately.) Pipeline will be ≈1200' long and run north from well to existing injection pipeline just north of 19-13. All in unit. All on Navajo Tribal Trust. All sites avoided.

Pipeline will be ≈3-1/2" OD coiled steel tubing. Wall thickness is 0.190". Pipe rated to API5LX42. Maximum operating pressure will be ≈500 psi. Hydrotested to ≈5800 psi. Burst pressure is ≈7200 psi. Tubing will be unreeled from spool mounted on bulldozer.

cc: BIA, BLM, Cox, UDOGM

14. I hereby certify that the foregoing is true and correct
Signed: Brian Wood Title: Consultant Date: 6-20-94

(This space for Federal or State office use)

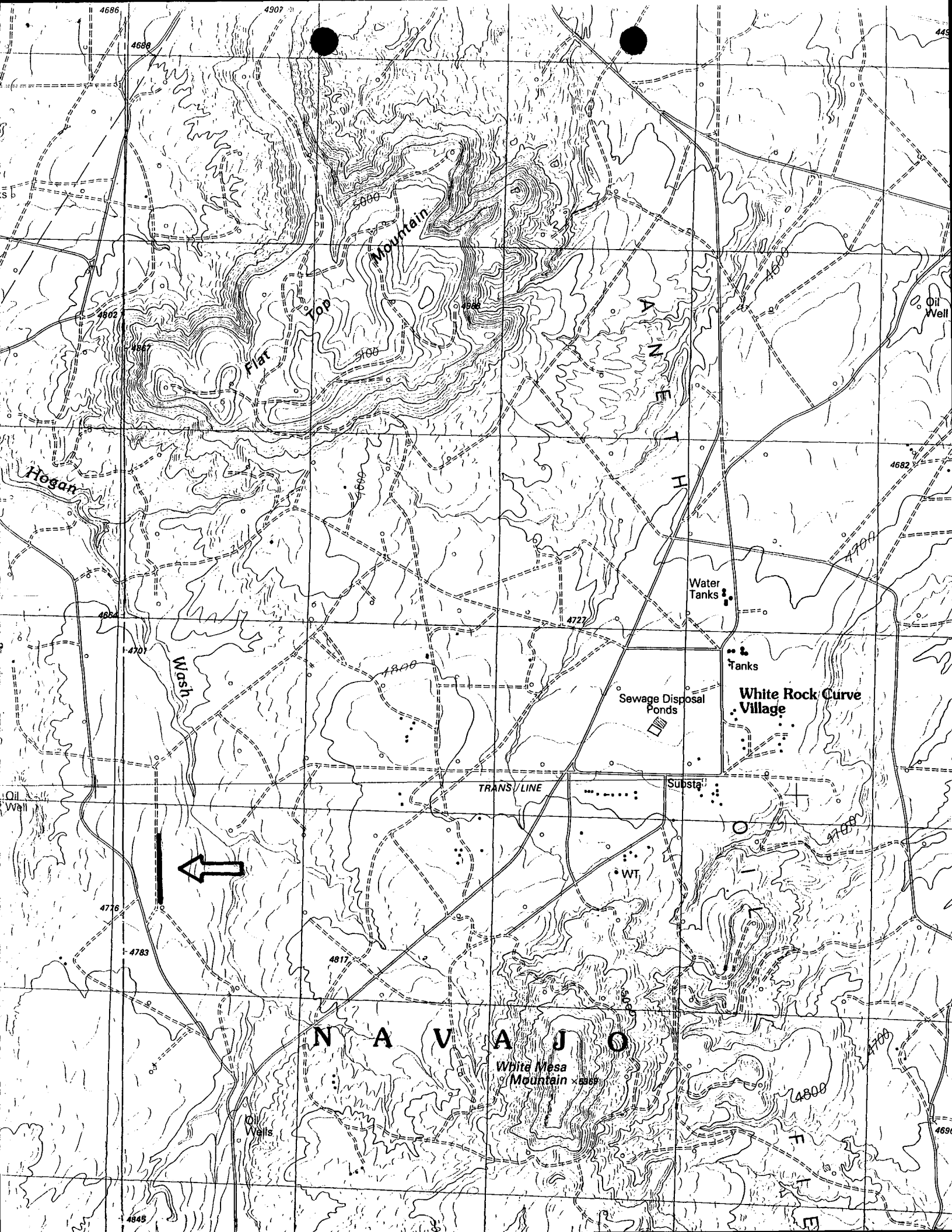
Approved by _____ Title _____ Date _____
Conditions of approval, if any:

Accepted by the Utah Division of Oil, Gas and Mining

FOR RECORD ONLY

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


Flat Top Mountain
Hogan Wash
Oil Well
Water Tanks
Tanks
Sewage Disposal Ponds
White Rock Curve Village
TRANS LINE
Substa
WT
N A V A J O
White Mesa Mountain
Oil Wells
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4688
4602
4667
4682
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4727
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Form 3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

JUN 23 1994
DIV. OF OIL, GAS & MINING

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

SUNDRY NOTICES AND REPORTS ON WELLS

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Use "APPLICATION FOR PERMIT—" for such proposals

SUBMIT IN TRIPLICATE

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11. County or Parish, State: San Juan, Ut.

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2. Name of Operator: MEPUS for MPT&NM and MEPNA* (915) 688-2114
3. Address and Telephone No.: P.O. Box 633, Midland, Tx. 79702
4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
Surface: SWNW19-41s-24e
BHL: N/A

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

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

*Mobil Exploration & Producing U. S. Inc. as agent for Mobil Producing Texas & New Mexico Inc. and Mobil Exploration & Producing North America Inc.

Will bury water injection pipeline ≈30" deep. (Application to convert well to be filed separately.) Pipeline will be ≈1100' long and run south from well to existing injection pipeline just north of 19-13. All in unit. All on Navajo Tribal Trust. All sites avoided.

Pipeline will be ≈3-1/2" OD coiled steel tubing. Wall thickness is 0.190". Pipe rated to API5LX42. Maximum operating pressure will be ≈500 psi. Hydrotested to ≈5800 psi. Burst pressure is ≈7200 psi. Tubing will be unreeled from spool mounted on bulldozer.

cc: BIA, BLM, Cox, UDOGM

14. I hereby certify that the foregoing is true and correct
Signed: Brian Wood Title: Consultant Date: 6-20-94

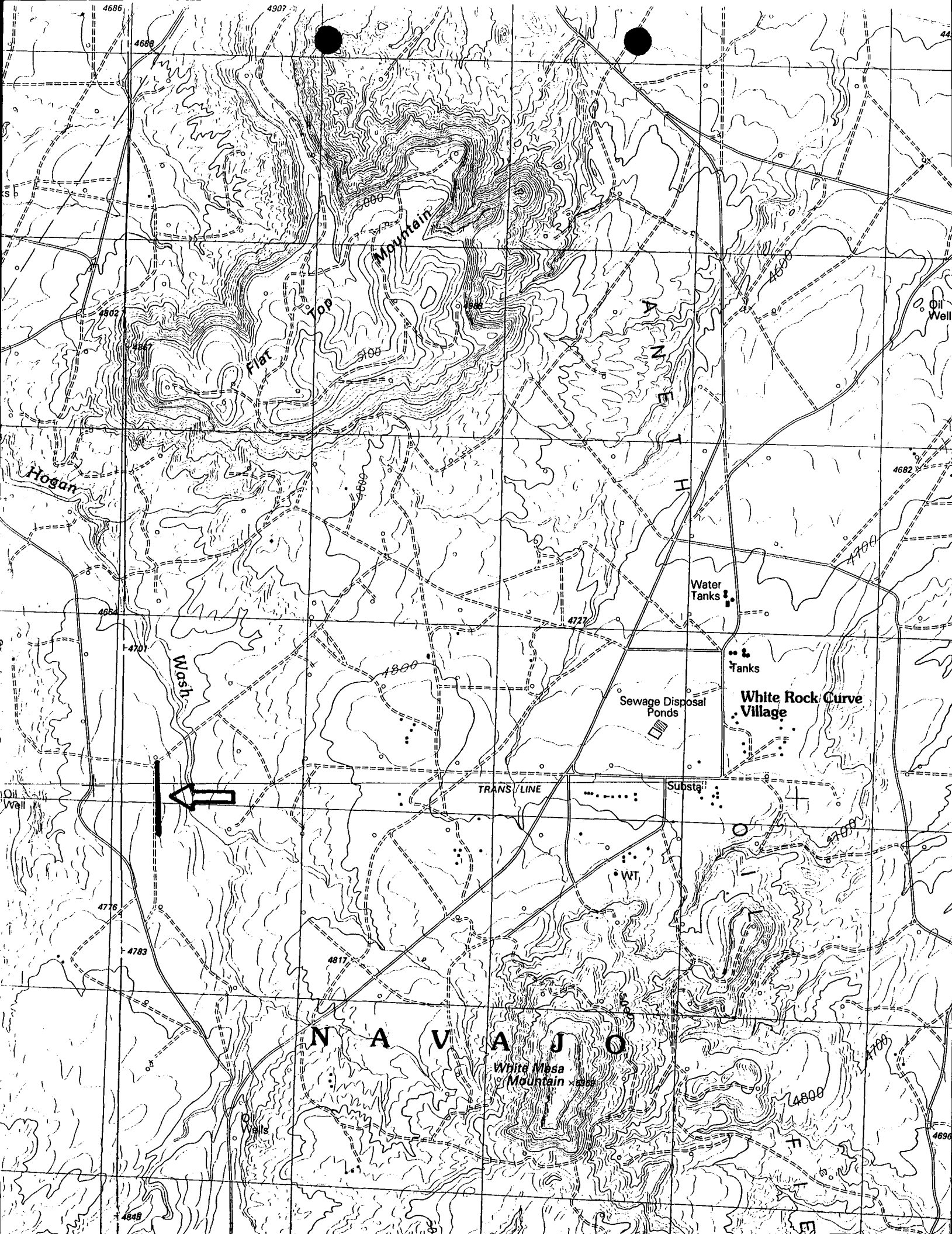
(This space for Federal or State office use)

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

Accepted by the Utah Division of Oil, Gas and Mining
FOR RECORD ONLY

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


Flat Top Mountain
Hogan Wash
Oil Well
Water Tanks
Tanks
Sewage Disposal Ponds
White Rock Curve Village
TRANS LINE
Substa
WT
N A V A J O
White Mesa Mountain
Oil Wells
4686
4907
4688
4802
4867
4682
4654
4701
4727
4776
4783
4817
4848
4696
5000
5100
4900
4800
4700

Form 3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

SUNDRY NOTICES AND REPORTS ON WELLS

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

SUBMIT IN TRIPLICATE

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

6. If Indian, Allottee or Tribe Name
NAVAJO TRIBAL

7. If Unit or CA, Agreement Designation
RATHERFORD UNIT

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

8. Well Name and No.
RATHERFORD UNIT 19-12

2. Name of Operator
MOBIL EXPLORATION & PRODUCING US, AS AGENT FOR MEPNA

9. API Well No.
43-037-15739

3. Address and Telephone No.
P. O. BOX 633, MIDLAND, TX 79702 **(915) 688-2585**

10. Field and Pool, or exploratory Area
GREATER ANETH

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
1980' FNL, 600' FWL; SEC 19, T41S, R24E

11. County or Parish, State
SAN JUAN, UT

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

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

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

06/27/94 TOH W/RODS & TBG. TIH W/BIT & SCRAPER. TAG CIBP @ 5466'.

06/28/94 DRILLED OUT CSG AND THROUGH CIBP F/5466-5540'. PERF CSG W/4 JSPF F/5520-40'.

06/29/94 ACDZ 5456-5540' W/3100 GALS 15% NEFE HCL ACID.

06/30/94 RIH W/PRODUCTION TBG & RODS. RDMO. RELEASED TO PROD.

14. I hereby certify that the foregoing is true and correct
Signed [signature] for Shirley Todd Title **ENV. & REG. TECHNICIAN** Date **07/14/94**

(This space for Federal or State office use)

Approved by _____ Title _____ Date tax credit 9/4/94

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

Form 3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

RECEIVED
APR 17 1995
DIV. OF OIL, GAS & MINING

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

SUNDRY NOTICES AND REPORTS ON WELLS

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

SUBMIT IN TRIPLICATE

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

6. If Indian, Allottee or Tribe Name
NAVAJO TRIBAL

7. If Unit or CA, Agreement Designation
RATHERFORD UNIT

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

8. Well Name and No.
RATHERFORD 19-12

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

9. API Well No.
43-037-15739

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

10. Field and Pool, or exploratory Area
GREATER ANETH

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
600' FWL; 1980' FNL
SEC. 19, T41S, R24E

11. County or Parish, State
SAN JUAN UT

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

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

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

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

03-25-95 POOH LAYING DOWN 178 JNTS. 2 7/8" PROD. TBG.
03-28-95 DOWNHOLE W/AIR AND UNLOAD HOLE. CUT WINDOW IN 5 1/2" CSG. FROM 5542-5568' CIRC HOLE CLEAN. TOOH W/ 170 JTS. AND 10-3 1/2" DC'S.
03-29-95 RIH TO 5450'. PRESSURE TEST DP TO 3000# OK. CICR AND CIR. HOLE. PRESSURE ANNULUS TO 500#. PUMP DOWN ANNULUS AND UNPLUG. CIRC. POOH W/ DP AND STRINGER. RIH W/ 4 3/4" BIT, DRILL COLLARS TO 5540. RU POWER SWIVEL.
03-30-95 START DRILLING ON CICR AT 5450' DRILL CICR AND PUSH DOWNHOLE TO 5628'. POOH W/ DP, DC'S AND BI. RIH W/ CICR ON 2 7/8" DP TO 5450.
04-01-95 DRILL CMT FROM 5288-5450'. DRILL CICR AT 5450'. DRILL CMT TO 5462' CIRC. HOLE CLEAN. PULL SWIVEL UPHOLE.
04-03-95 RD POWER SWIVEL. DRILL FROM 5469-5546' (WINDOW @ 5542-5568) CIR HOLE W/ CLEAN FRESH WATER. POOH LAYING DOWN DP, DRILL COLLARS AND BIT. CLOSE WELL IN.
04-04-95 ND BOP. NU WELLHEAD. RD MO.

14. I hereby certify that the foregoing is true and correct
Signed Shirley Robertson Title ENV & REG TECHNICIAN Date 4-11-95

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

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

* See Instruction on Reverse Side

Form 3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

RECEIVED
MAY 3 1995
DIV. OF OIL, GAS & MINING

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

SUNDRY NOTICES AND REPORTS ON WELLS

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

SUBMIT IN TRIPLICATE

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

6. If Indian, Allottee or Tribe Name
NAVAJO TRIBAL

7. If Unit or CA, Agreement Designation
RATHERFORD UNIT

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

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

8. Well Name and No.
RATHERFORD 19-12

9. API Well No.
43-037-15739

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

10. Field and Pool, or exploratory Area
GREATER ANETH

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
600' FWL; 1980' FNL
SEC. 19, T41S, R24E

11. County or Parish, State
SAN JUAN UT

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

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

WORK WILL COMMENCE UPON APPROVAL OF AREA WIDE PERMIT FROM EPA.

SEE ATTACHMENT

14. I hereby certify that the foregoing is true and correct
Signed Shirley Robertson Title ENV & REG TECHNICIAN Date 4-27-95

(This space for Federal or State office use)

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

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* See Instruction on Reverse Side

Ratherford Unit 19-12
Injection Well Conversion

AFE # 4AD2

1. Lock and tag out all power sources. Clamp off polish rod. Remove horse head. RU pump and pump lines to casing annulus and kill well with lease water.

2. MI workover rig. ND pump tee. NU and PT BOP's. POH with sucker rods and rod pump laying down same. Release tubing anchor and POH standing back production tubing.

3. RIH with 4-3/4" rock bit without nozzles and casing scraper for 5-1/2", 15.5 lb/ft casing on 2-7/8" tubing to 5540'. POH.

4. RIH with squeeze packer on 2-7/8" tubing and set at 5420'. PT casing to 1000 psi. If PT fails, locate and squeeze casing leak using a RBP with sand dumped on top to isolate completion interval, and 100 sxs of class B cement containing 2 percent calcium chloride. Clean out cement and retest casing string to 1000 psi. Resqueeze as necessary. Wash sand off RBP and retrieve same. POH laying down workstring.

5. RIH with a Guiberson G-6 injection packer on new 2-7/8", 6.5 lb/ft J-55 KCTS (Threadmasters Torque Ring) Fluorolined Tubing to 5406'. Reverse circulate fresh water packer fluid containing 1 percent by volume of Tretolite CRW137 corrosion inhibitor/oxygen scavenger. Set packer at 5406'. PT backside to 1000 psi. ND BOP's. NU injection head (Ken Britton with Big Red Tool at 505/325-5045).

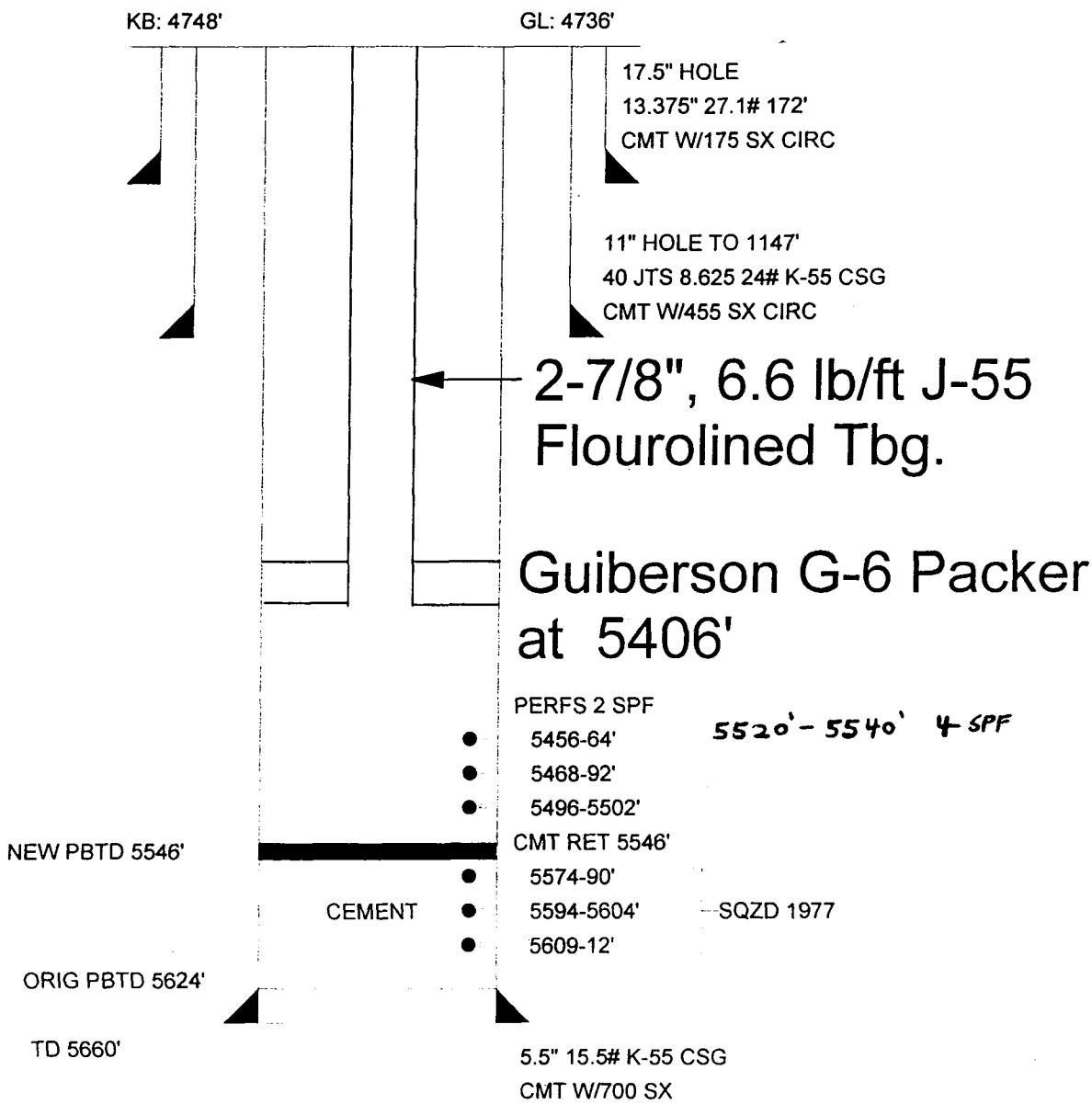
NOTE: A. All new KCTS tubing to be torque turned to 2250 ft-lbs (Tong Rentals at 512/668-9774). All connections of seal assembly and tubing to be made up using permiserts, permetek, and Baker Super B thread compound. Supervision of make-up/running KCTS tubing from Bill Allman with Permian Enterprises at 505/632-8702.

B. Rabbit tubing with 2.0" O.D. rabbit.

6. Perform Mechanical Integrity Test (MIT) for EPA. Contact Jim Walker of the Navajo EPA in Shiprock at 505/368-1040 to witness. Use chart recorder to record test. Send copies of chart to Shirley Todd, Midland - 1206 MOB, Ed Barber, Aneth, and Ratherford files. After obtaining an acceptable MIT, place well on water injection at 500 BWPD.

4AD2

Ratherford Unit 19-12
Proposed



Form 3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

RECEIVED
JUL 31 1995
DIV. OF OIL, GAS & MINING

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

6. If Indian, Allottee or Tribe Name
Navajo Nation

7. If Unit or CA, Agreement Designation
Ratherford Unit

8. Well Name and No.
19-12

9. API Well No.
43-037-15739

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

2. Name of Operator
MOBIL OIL CORPORATION

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

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
660' FWL, 1980' FNL
Sec. 19, T41S, R24E

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

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

Commenced Injection on 7-25-95

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

Signed Shirley Robertson Title Env. & Reg. Tech. Date 7-27-95

(This space for Federal or State office use)

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

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

Form 3160-5
(June 1990)

UNITED STATES
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BUREAU OF LAND MANAGEMENT

RECEIVED
JUL 31 1995
DIV. OF OIL, GAS & MINING

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

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Use "APPLICATION FOR PERMIT—" for such proposals

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

6. If Indian, Allottee or Tribe Name
Navajo Nation

7. If Unit or CA, Agreement Designation
Ratherford Unit

8. Well Name and No.
19-12

9. API Well No.
43-037-15739

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

2. Name of Operator
MOBIL OIL CORPORATION

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

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
660' FWL, 1980' FNL
Sec. 19, T41S, R24E

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

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	☐ Casing Repair	☐ Water Shut-Off
	☐ Altering Casing	☐ Conversion to Injection
	☐ Other Commenced 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.)*

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(June 1990)

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BUREAU OF LAND MANAGEMENT

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

SUNDRY NOTICES AND REPORTS ON WELLS

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Use "APPLICATION FOR PERMIT - " for such proposals

SUBMIT IN TRIPLICATE

5. Lease Designation and Serial No.: 14-20-603-353
6. If Indian, Allottee or Tribe Name: NAVAJO TRIBAL
7. If Unit or CA, Agreement Designation: RATHERFORD UNIT
8. Well Name and No.: RATHERFORD 19-12
9. API Well No.: 43-037-15739
10. Field and Pool, or exploratory Area: GREATER ANETH
11. County or Parish, State: SAN JUAN UT

1. Type of Well: [ ] Oil Well [ ] Gas Well [X] Other INJECTOR
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): 600' FWL, 1980' FNL SEC. 19, T41S, R24E

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

TYPE OF SUBMISSION	TYPE OF ACTION	
[ ] Notice of Intent	[ ] Abandonment	[ ] Change of Plans
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	[ ] Casing Repair	[ ] Water Shut-Off
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13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

07-12-95 MIRU POOH W/TBG. RIH W/BIT & SCRAPPER.
07-13-95 PRESS TEST CSG TO 1000#/30 MIN/OK
07-14-95 CUT CSG HEAD OFF. ADD TO 5 1/2" CSG. 8 X 11 X 3000# DOUBLE STUDDED ADAPTOR., 11 X 3000# X 1 1/16 X 3000# CSG HEAD. PRESS TEST HEAD TO 1000#/30 MIN/OK.
07-17-95 RIH W/170 JTS 2 7/8 KCTS TBG. SET PKR AT 5405'. FILL CSG W/ PKR FLUID. PRESS TEST CSG TO 1000#/30 MIN/OK. RDMO.

RECEIVED
SEP 05 1995
DIV. OF OIL, GAS & MINING

14. I hereby certify that the foregoing is true and correct
Signed Shirley Robertson Title ENV. & REG. TECHNICIAN Date 8-31-95

(This space for Federal or State office use)
Approved by _____ Title _____ Date Tax Credit 7/26/95
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.

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Form 3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

SUNDRY NOTICES AND REPORTS ON WELLS

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SUBMIT IN TRIPLICATE

5. Lease Designation and Serial No.: 14-20-603-353
6. If Indian, Allottee or Tribe Name: NAVAJO TRIBAL
7. If Unit or CA, Agreement Designation: RATHERFORD UNIT
8. Well Name and No.: RATHERFORD 19-12
9. API Well No.: 43-037-15739
10. Field and Pool, or exploratory Area: GREATER ANETH
11. County or Parish, State: SAN JUAN UT

1. Type of Well: [ ] Oil Well [ ] Gas Well [X] Other INJECTOR
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): 600' FWL, 1980' FNL SEC. 19, T41S, R24E

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

TYPE OF SUBMISSION	TYPE OF ACTION	
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	[ ] Recompletion	[ ] New Construction
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[ ] Final Abandonment Notice	[ ] Altering Casing	[X] Conversion to Injection
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07-14-95 CUT CSG HEAD OFF. ADD TO 5 1/2" CSG. 8 X 11 X 3000# DOUBLE STUDDED ADAPTOR., 11 X 3000# X 1 1/16 X 3000# CSG HEAD. PRESS TEST HEAD TO 1000#/30 MIN/OK.
07-17-95 RIH W/170 JTS 2 7/8 KCTS TBG. SET PKR AT 5405'. FILL CSG W/ PKR FLUID. PRESS TEST CSG TO 1000#/30 MIN/OK. RDMO.

RECEIVED
SEP 05 1995
DIV. OF OIL, GAS & MINING

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Signed Shirley Robertson Title ENV. & REG. TECHNICIAN Date 8-31-95

(This space for Federal or State office use)
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* See Instruction on Reverse Side

FORM 10

STATE OF UTAH
DIVISION OF OIL, GAS AND MINING
355 West North Temple, 3 Triad, Suite 350, Salt Lake City, UT 84180-1203

MONTHLY OIL AND GAS PRODUCTION REPORT

OPERATOR NAME AND ADDRESS:

C/O MOBIL OIL CORP
M E P N A
PO DRAWER G
CORTEZ CO 81321

UTAH ACCOUNT NUMBER: N7370

REPORT PERIOD (MONTH/YEAR): 6 / 95

AMENDED REPORT ☐ **(Highlight Changes)**

Well Name API Number	Entity	Location	Producing Zone	Well Status	Days Oper	Production Volumes OIL(BBL)	GAS(MCF)	WATER(BBL)
#18-13 4303715734	06280	41S 24E 18	PRDX					
#19-12 4303715739	06280	41S 24E 19	PRDX					
#19-14 4303715740	06280	41S 24E 19	DSCR					
RATHERFORD UNIT 19-32 (RE-ENTRY) 4303715743	06280	41S 24E 19	DSCR					
RATHERFORD UNIT 19-34 (RE-ENTRY) 4303715744	06280	41S 24E 19	DSCR					
RATHERFORD 20-12 (RE-ENTRY) 4303715746	06280	41S 24E 20	DSCR					
THERFORD UNIT 20-14 (RE-ENTRY) 4303715747	06280	41S 24E 20	DSCR					
RATHERFORD UNIT 20-32 (RE-ENTRY) 4303715749	06280	41S 24E 20	DSCR					
RATHERFORD 20-34 (RE-ENTRY) 4303715750	06280	41S 24E 20	DSCR					
#21-12 4303715752	06280	41S 24E 21	DSCR					
RATHERFORD UNIT 21-14 (RE-ENTRY) 4303715753	06280	41S 24E 21	DSCR					
#21-32 4303715755	06280	41S 24E 21	DSCR					
#21-34 4303715756	06280	41S 24E 21	DSCR					
					TOTALS			

OMMENTS:

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

Name and Signature: Telephone Number:

(12/93)

Division of Oil, Gas and Mining

PHONE CONVERSATION DOCUMENTATION FORM

Route original/copy to:

[] Well File _____

(Location) Sec___ Twp___ Rng___

(API No.) _____

[] Suspense

(Return Date) _____

(To - Initials) _____

XXX Other

OPER NM CHG

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

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

Talked to:

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

of (Company/Organization) _____

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

4. Highlights of Conversation:

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

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

Division of Oil, Gas and Mining
OPERATOR CHANGE WORKSHEET

Routing:

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

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

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

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

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

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

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

Name:	API:	Entity:	Sec	Twp	Rng	Lease Type:
** SEE ATTACHED **	037-15739					

OPERATOR CHANGE DOCUMENTATION

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

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

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

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

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

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

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

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

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

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

ENTITY REVIEW

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

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

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

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

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

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

LEASE INTEREST OWNER NOTIFICATION RESPONSIBILITY

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

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 6 19 95.

FILING

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

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

COMMENTS

950803 UIC F5/Not necessary!

Form 3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

SUNDRY NOTICES AND REPORTS ON WELLS

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

SUBMIT IN TRIPLICATE

5. Lease Designation and Serial No.: 14-20-603-353
6. If Indian, Allottee or Tribe Name: Navajo
7. If Unit or CA, Agreement Designation: Ratherford
8. Well Name and No.: 19-12
9. API Well No.: 43-037-15739
10. Field and Pool, or Exploratory Area: Greater Aneth
11. County or Parish, State: San Juan, Ut.

1. Type of Well: [x] Oil Well [ ] Gas Well [ ] Other
2. Name of Operator: MEPUS for MPT&NM and MEPNA* (915) 688-2114
3. Address and Telephone No.: P.O. Box 633, Midland, Tx. 79702 Attn: Glen Cox
4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
Surface: SWNW 19-41s-24e
BHL: Same

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

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

*Mobil Exploration & Producing U. S. Inc. as agent for Mobil Producing Texas & New Mexico Inc. and Mobil Exploration & Producing North America Inc.

Will install 2,712' long overhead ≤25 kv powerline from Ratherford Unit 19-12 to Ratherford Unit 24-42 and Ratherford Unit Sec. 24 Satellite. Powerline will link two portions of Mobil's powerline grid and better balance power supply and demand in northwest portion of unit. Current imbalances are shutting down pumps.

RECEIVED
NOV 8 1 1996
DIV. OF OIL, GAS & MINING

cc: BIA, BLM, UDOGM

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

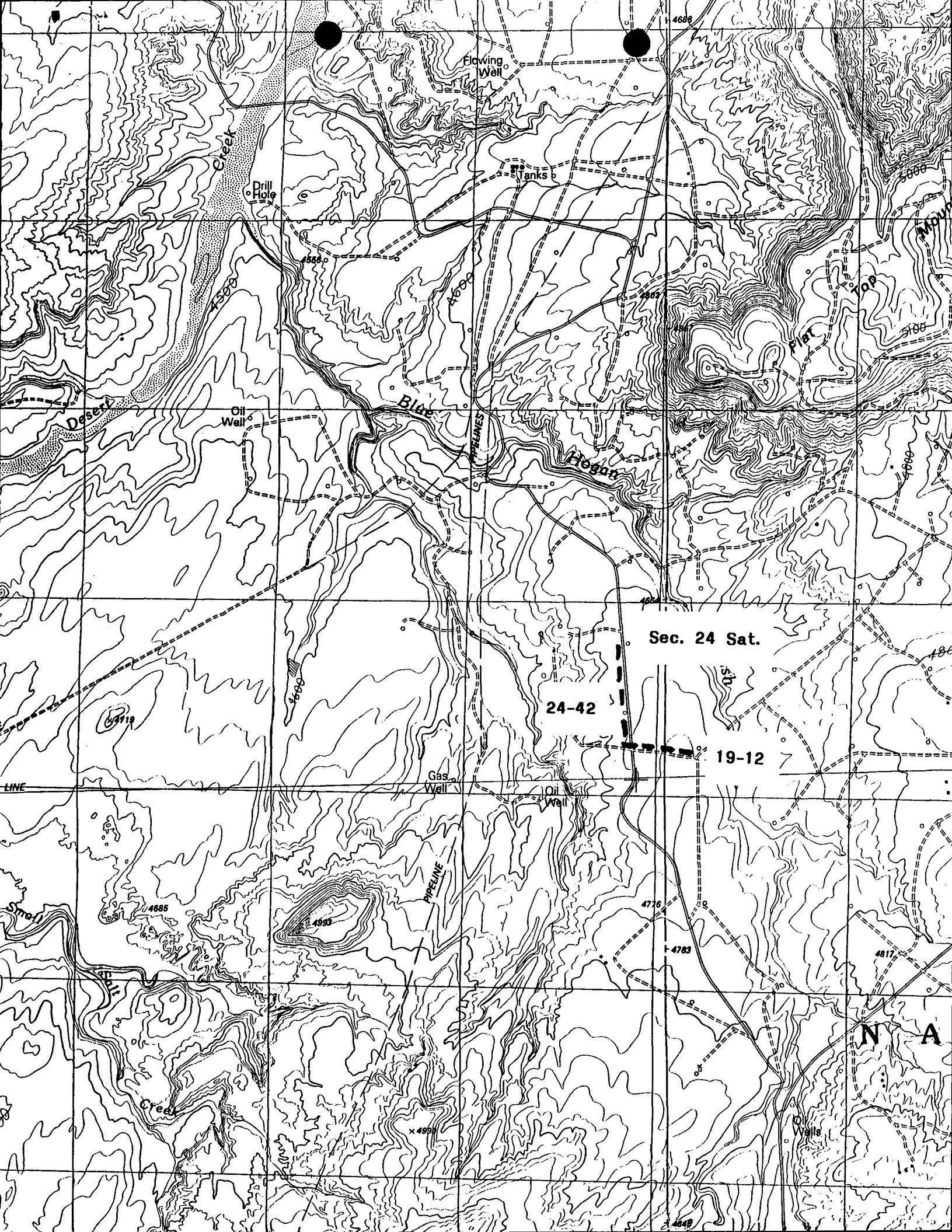
Signed _____ Title Staff ~~Landman~~ Date 11-6-96

(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


Flowing Well
Tanks
Drill Hole
Creek
Desert
Oil Well
Blue
Hogan
PIPELINES
Flat
Top
Sec. 24 Sat.
24-42
19-12
Gas Well
Oil Well
PIPELINE
Small
Salt
Creek
Oil Wells
N
A
4686
4588
4602
4654
4719
4685
4993
4716
4783
4817
4848

Form 3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

SUNDRY NOTICES AND REPORTS ON WELLS

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

SUBMIT IN TRIPLICATE

5. Lease Designation and Serial No.: 14-20-603-353
6. If Indian, Allottee or Tribe Name: NAVAJO TRIBAL
7. If Unit or CA, Agreement Designation: RATHERFORD UNIT
8. Well Name and No.: RATHERFORD 19-W-12
9. API Well No.: 43-037-15739
10. Field and Pool, or exploratory Area: GREATER ANETH
11. County or Parish, State: SAN JUAN UT

1. Type of Well: [ ] Oil Well [ ] Gas Well [X] Other INJECTOR/SIDETRACT
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): 600' FWL & 1980' FNL SEC.19, T41S, R24E

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

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

LATERAL #1 BHL: 1042' SOUTH & 1079' EAST F/SURFACE SPOT ZONE 1a/ab. 318, 329
LATERAL #2 BHL: 2000' NORTH & 3464' WEST F/SURFACE SPOT ZONE 1b/1c. 610, 1056
LATERAL #3 BHL: 2828' NORTH & 2828' WEST F/SURFACE SPOT ZONE 1a. 862, 862 [illegible] FEL

658.6 [illegible] 667 FSL SEC. 13 T41S R23E

SEE ATTACHED PROCEDURE.

RECEIVED
JUL 21 1997
DIV. OF OIL, GAS & MINING

14. I hereby certify that the foregoing is true and correct
Signed Shirley Douchins Title ENV. & REG. TECHNICIAN Date 07-16-97

(This space for Federal or State office use)
Approved by John R. Baza Title Petroleum Engineer Date 7/25/97
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

Ratherford Unit Well #19-12
Multilateral Horizontal Drilling Procedure

The objective of this procedure is to prepare this wellbore for sidetracking, sidetrack the subject well and drill multiple short and medium radius horizontal laterals (1500-4000 ft).

1. Prepare location and dig working pit.

2. MIRU WSU, reverse unit, and H_2S equipment. Bullhead kill weight fluid down tubing.

3. Release packer, and pick up on wellhead to remove. ND wellhead and NU BOP's. Pressure test 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 perfs. **Pressure test casing to 1000 psi.**

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 stands 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.

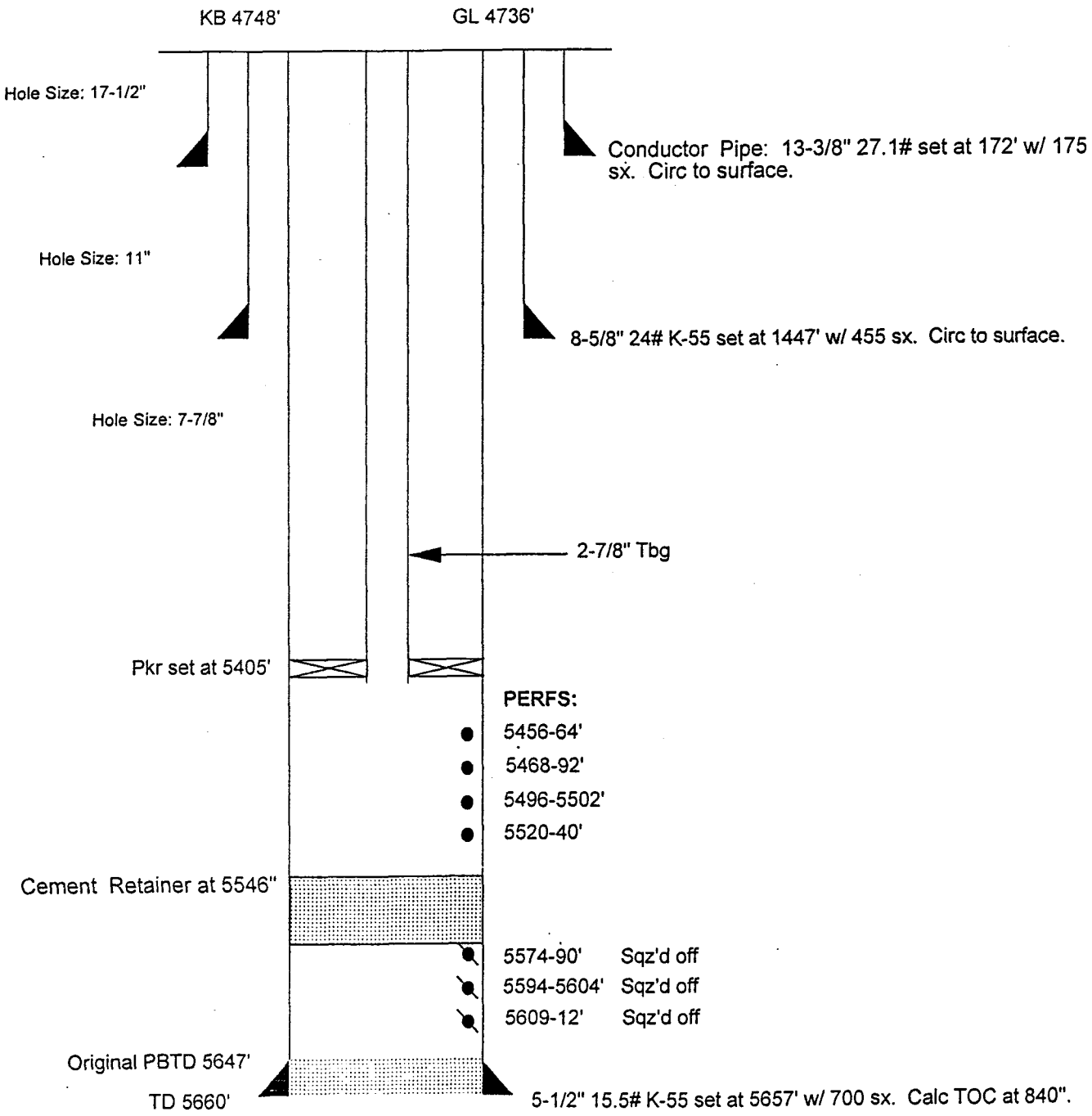
24. Repeat steps 15-23, for each successive planned lateral.

RATHERFORD UNIT # 19-12

GREATER ANETH FIELD
1980' FNL & 600' FWL
SEC 19-T41S-R24E
SAN JUAN COUNTY, UTAH
API 43-037-15739
PRISM 0043077

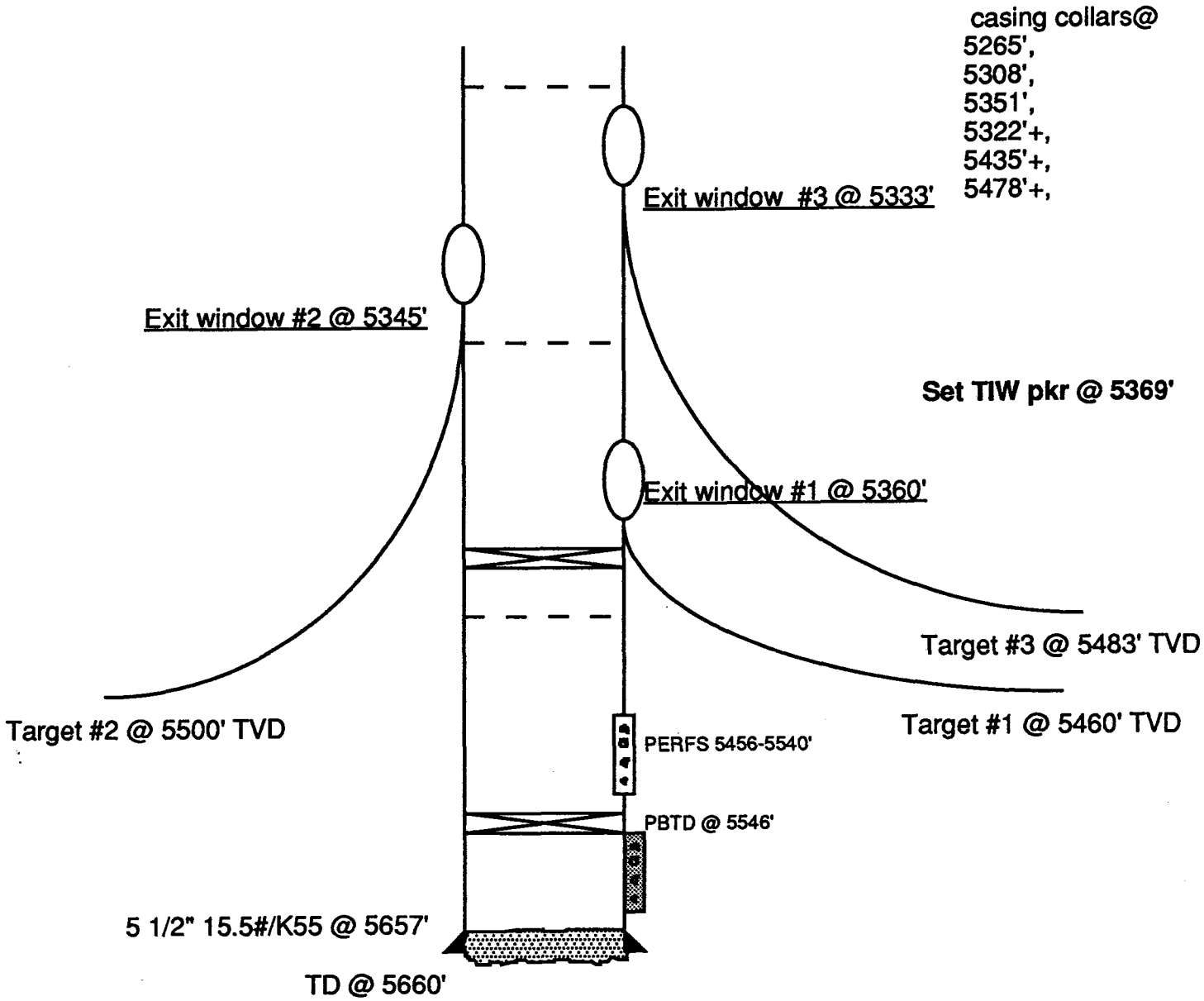
INJECTOR

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



L. A. TUCKER 7-1-96 R.U. # 19-12

Whipstock plan for Ratherford #19-12



Window	Btm-Top of window	Extension length	Curve radius	Bearing	Horiz Displ
1	5360-54	-	100	134	1500
2	5345-39	15	155	300	4000
3	5333-27	27	150	315	4000

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

WORKSHEET
APPLICATION FOR PERMIT TO DRILL

APD RECEIVED: 07/21/97

API NO. ASSIGNED: 43-037-15739

WELL NAME: RATHERFORD UNIT 19-W-12
OPERATOR: MOBIL EXPL & PROD (N7370)

PROPOSED LOCATION:
SWNW 19 - T41S - R24E
SURFACE: 1980-FNL-0600-FWL
BOTTOM: 0667-FSL-2161-FEL
SAN JUAN COUNTY
GREATER ANETH FIELD (365)

LEASE TYPE: IND
LEASE NUMBER: 14-20-603-353

PROPOSED PRODUCING FORMATION: PRDX

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

RECEIVED AND/OR REVIEWED:

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

LOCATION AND SITING:

✓ R649-2-3. Unit: GREATER ANETH

___ R649-3-2. General.

___ R649-3-3. Exception.

___ Drilling Unit.
Board Cause no: _____
Date: _____

COMMENTS: _____

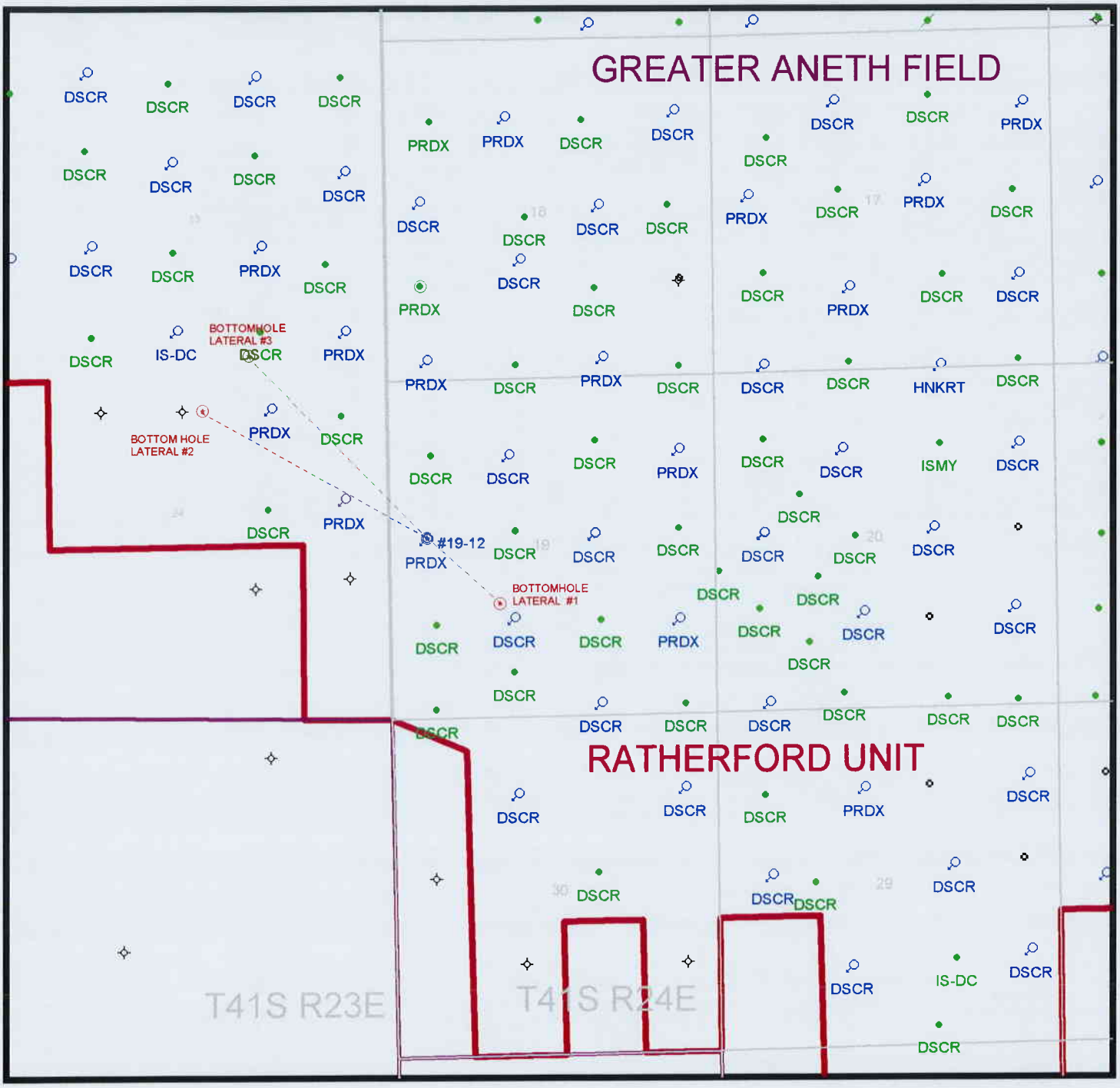
STIPULATIONS: 1. Directional drilling

OPERATOR: MOBIL (N7370)

FIELD: GREATER ANETH (365)

SEC, TWP, RNG: SEC. 19, T41S, R24E

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



PREPARED:
DATE: 22-JULY-97

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

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

July 25, 1997

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

Re: Ratherford 19-W-12 Well, 1980' FNL, 600' FWL, SW NW, Sec. 19, T. 41 S., R. 24 E., San Juan County, Utah

Gentlemen:

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

This approval shall expire one year from the above date unless substantial and continuous operation is underway, or a request for extension is made prior to the expiration date. The API identification number assigned to this well is 43-037-15739.

Sincerely,

John R. Baza
Associate Director

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

Operator: Mobil Exploration & Producing

Well Name & Number: Ratherford 19-W-12

API Number: 43-037-15739

Lease: 14-20-603-353

Location: SW NW **Sec.** 19 **T.** 41 S. **R.** 24 E.

Conditions of Approval

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

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

   Notify the Division prior to commencing operations to plug and abandon the well. Contact John R. Baza (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 19-12 RE-ENTRY

Api No. 43-037-15739

Section: 19 Township: 41S Range: 24E County: SAN JUAN

Drilling Contractor: BIG "A"

Rig # 25

SPUDDED:

Date: 8/28/97

Time: _____

How: ROTARY

Drilling will commence: _____

Reported by: BENNY BRIGGS

Telephone NO.: 1-801-651-3473

Date: 9/4/97 Signed: JLT

RECEIVED
OCT 01 1997
DIV. OF OIL, GAS & MINING

MOBIL

RATHERFORD UNIT #19-12

NW HORIZONTAL LATERAL LEG #2 &
LEG #1 SIDETRACK
1-A & 1-B POROSITY BENCHES
DESERT CREEK MEMBER
PARADOX FORMATION
SECTION 19, T41S, R24E
SAN JUAN, UTAH

GEOLOGY REPORT
by

JASON BLAKE / MARVIN ROANHORSE
ROCKY MOUNTAIN GEO-ENGINEERING CORP.
GRAND JUNCTION, COLORADO
(970) 243-3044

MICROFICHE

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WELL SUMMARY

OPERATOR:	MOBIL EXPLORATION & PRODUCTION U.S. INC.
NAME:	RATHERFORD UNIT #19-12 NW HORIZONTAL LATERAL LEG #2 IN 1-A & 1-B POROSITY BENCHES, DESERT CREEK
LOCATION:	SECTION 19, T41S, R24E
COUNTY/STATE:	SAN JUAN, UTAH
ELEVATION:	KB: 4748' GL: 4736'
SPUD DATE:	08/28/97
COMPLETION DATE:	09/13/97
DRILLING ENGINEER:	SIMON BARRERA
WELLSITE GEOLOGY:	DAVE MEADE / MARVIN ROANHORSE
MUDLOGGING ENGINEERS:	DAVE MEADE / MARVIN ROANHORSE
CONTRACTOR:	BIG "A" RIG 25
TOOLPUSHER:	J. DEES
HOLE SIZE:	4 3/4"
CASING RECORD:	SIDETRACK IN WINDOW AT 5333' MEASURED DEPTH
DRILLING MUD:	M-I
ENGINEER:	RON WESTENBERG/ DANNE BEASON
MUD TYPE:	FRESH WATER & BRINE WATER W/ POLYMER SWEEPS
DIRECTIONAL DRILLING CO:	SPERRY-SUN
ELECTICAL LOGGING:	NA
TOTAL DEPTH:	9385' MEASURED DEPTH; 5521.03' TRUE VERTICAL DEPTH
STATUS:	PREPARING TO MOVE RIG

DRILLING CHRONOLOGY
RATHERFORD UNIT #19-12
1-A/1-B NW HORIZONTAL LATERAL LEG #2& LEG #1 SIDETRACK

DATE	DEPTH	DAILY	ACTIVITY
9/03/97	5326'	8'	TOH & LD WHIPSTOCK #1- PU WHIPSTOCK & STARTER MILL ASSEMBLY #2- ORIENT AND TIH- PU SWIVEL & BREAK CIRC.- MILL FROM 5326'-5328'- CIRC. OUT & TOH & LD STARTER MILL- PU WINDOW MILL ASSEMBLY & TIH- PU SWIVEL AND BREAK CIRC. MILL WINDOW FROM 5328' TO 5334'- BOTTOM OF WINDOW AT 5333'-PUMP SWEEP & CIRC. OUT- TOH & LD WINDOW MILL ASSEMBLY- PU & MU CURVE ASSEMBLY- BIT#1(RR), MTR,MWD & UBHO- ORIENTATE & TEST
9/04/97	5334'	119'	PU 20 JTS PH6 TBG- PUMP & TEST MWD- PU SWIVEL & BREAK CIRC.- TAG AT 5334'- RU & RUN GYRO-WORK PIPE FOR GYRO TOOL FACE- TIME DRILL 5334'-5336'- DRLG-& SURVEYS 5336'-5359'- PULL & LD GYRO- DIR DRLG & SURVEYS-5359'-5453'
9/05/97	5453'	153'	DIR DRLG & SURVEYS TO 5600'- BASE OF CURVE SECTION @ 12:01PM- PUMP SWEEP & CIRC. OUT- TOH & LD CURVE ASSEMBLY-P.U. MWD & NB#2-TIH-P.U. 14 JTS PIPE-TIH-CIR. OUT H2S (20 ppm)
9/06/97	5606'	1044'	DIR DRLG & SURVEYS (NOTE: WELL STARTED FLOWING +/- 20 BBLS/HR @ +/-6300')
9/07/97	6650'	990'	DIR DRLG & SURVEYS
9/08/97	7640'	623'	DIR DRLG & SURVEYS -PUMP 10 BBL SWEEP & CIR OUT SPLS- PUMP BRINE WATER & TOH TO COLLARS- PU 55 JTS PH6-TIH-CHANGE OUT GRANT HEAD RUBBER-CIR- DIR DRLG & SURVEYS
9/09/97	8263'	650'	DIR DRLG & SURVEYS
9/10/97	8912'	101'	DIR DRLG & SURVEYS TO 9013' TD OF LEG #2-CIR. & COND HOLE FOR BIT TRIP-TOH-DECISION MADE TO PULL BACK TO 8390' AND SIDETRACK LEG #2
9/11/97	8407'	378'	TIH-LD 18 JNTS AOH D.P.-P.U. SWIVEL,BREAK CIR-WORK TOOL FACE & TROUGH FROM 8390'-8407'-TIME DRLG @ 4 MINS/INCH FROM 8405'-8408'; 2 MINS/INCH FROM 8402'-8420'-DIR DRLG & SURVEYS
9/12/97	8785'	328'	DIR DRLG & SURVEYS

DATE	DEPTH	DAILY	ACTIVITY
9/13/97	9113'	272'	DIR DRLG & SURVEYS TO TD OF 9385' MD,5521.03' PROJECTED TVD-CIR OUT SMPLS & SWEEP 160 BBLS BRINE WATER-TOH-PUMP 80 BBLS OF 11.6 MUD-TOH-L.D. LATERAL ASSEMBLY-M.U. BRIDGE PLUG ASSEMBLY-TIH W/BRIDGE PLUG & SET @ 5243'-DISPLACE HOLE W/10# BRINE WATER @ 2117 STRKS & 637 STRKS FRESH WATER

DAILY ACTIVITY

Operator: **MOBIL**
Well Name: **RATHERFORD UNIT #19-12 NW 1-A/1-B HORIZONTAL LATERAL LEG #2 & LEG #1 SIDETRACK**

DATE	DEPTH	DAILY	DATE	DEPTH	DAILY
9/03/97	5326'	8'			
9/04/97	5334'	119'			
9/05/97	5453'	153'			
9/06/97	5606'	1044'			
9/07/97	6650'	990'			
9/08/97	7640'	623'			
9/09/97	8263'	649'			
9/10/97	8912'	101'			
TD	9013'				
BEGIN SIDETRACK					
9/11/97	8405'	380'			
9/12/97	8785'	328'			
9/13/97	9113'	272'			
TD	9385'				

BIT RECORD

OPERATOR: MOBIL
WELL NAME: RATHERFORD UNIT #19-12 NW 1-A/1-B HORIZONTAL LATERAL LEG #2& LEG #1 SIDETRACK

RUN	SIZE	MAKE	TYPE	IN/OUT	FTG	HRS	FT/HR
#1 (RR)	4 3/4"	HTC	STR-30	5334'/ 5600'	266'	27.5	9.7
#2	4 3/4"	HTC	STR-20	5600'/ 9013'	3413'	98.0	34.8
#3 SIDETRACK	4 3/4"	HTC	STR-20	8405'/ 9385'	980'	60.5	16.2

SPERRY-SUN DRILLING SERVICES
SURVEY DATA

Customer ... : Mobil (Utah)
Platform ... : RATHERFORD UNIT
Slot/Well .. : BA25/19-12L2S1, 2B1

MEASURED DEPTH	ANGLE DEG	DIRECTION DEG	TVD	NORTHINGS FEET	EASTINGS FEET	VERTICAL SECTION	DOG LEG
5300.00	0.97	285.86	5299.80	12.59 N	31.73 W	31.34	0.00
5326.00	0.93	280.69	5325.80	12.69 N	32.15 W	31.71	0.36
5334.00	4.70	298.60	5333.79	12.86 N	32.50 W	32.08	47.82
5344.00	9.00	310.00	5343.71	13.56 N	33.46 W	33.25	44.89
5354.00	13.60	310.20	5353.52	14.82 N	34.96 W	35.20	46.00
5364.00	18.70	312.30	5363.12	16.66 N	37.04 W	37.97	51.33
5374.00	23.20	314.60	5372.45	19.12 N	39.63 W	41.55	45.74
5384.00	26.90	317.30	5381.51	22.17 N	42.57 W	45.78	38.72
5394.00	30.50	321.90	5390.28	25.83 N	45.67 W	50.56	42.21
5404.00	35.10	321.30	5398.69	30.07 N	49.04 W	55.94	46.11
5414.00	38.90	318.20	5406.67	34.66 N	52.93 W	61.94	42.32
5424.00	41.70	314.40	5414.30	39.33 N	57.40 W	68.40	37.25
5434.00	43.40	311.80	5421.67	43.95 N	62.34 W	75.16	24.45
5444.00	46.50	314.50	5428.74	48.78 N	67.49 W	82.22	36.39
5454.00	49.20	312.50	5435.45	53.88 N	72.87 W	89.63	30.80
5464.00	52.30	310.50	5441.78	59.01 N	78.67 W	97.35	34.65
5474.00	55.90	310.90	5447.64	64.29 N	84.81 W	105.43	36.15
5484.00	59.40	312.60	5452.99	69.92 N	91.11 W	113.86	37.83
5494.00	62.30	314.90	5457.87	75.96 N	97.41 W	122.59	35.27
5504.00	66.80	317.30	5462.16	82.46 N	103.67 W	131.62	49.94
5514.00	69.80	320.10	5465.86	89.44 N	109.80 W	140.89	39.71
5524.00	71.90	322.30	5469.14	96.81 N	115.72 W	150.28	29.54
5534.00	75.40	320.10	5471.96	104.28 N	121.73 W	159.81	40.87
5544.00	77.60	316.10	5474.29	111.52 N	128.22 W	169.52	44.68
5554.00	78.50	312.80	5476.36	118.37 N	135.21 W	179.30	33.52
5564.00	78.30	308.50	5478.37	124.74 N	142.64 W	189.07	42.17
5578.00	84.80	305.70	5480.43	133.09 N	153.67 W	202.77	50.46
5600.00	92.70	303.50	5480.91	145.57 N	171.76 W	224.39	37.27
5637.37	91.30	307.50	5479.60	167.25 N	202.16 W	261.22	11.33
5669.18	91.30	311.40	5478.88	187.46 N	226.71 W	292.86	12.26
5700.91	89.70	314.70	5478.61	209.11 N	249.90 W	324.57	11.56
5732.11	90.00	314.40	5478.69	231.00 N	272.13 W	355.77	1.36
5763.98	89.90	314.20	5478.71	253.26 N	294.94 W	387.63	0.70
5794.96	89.40	316.20	5478.90	275.24 N	316.77 W	418.61	6.65
5826.76	90.20	315.60	5479.02	298.07 N	338.90 W	450.41	3.14
5858.51	90.00	314.70	5478.96	320.58 N	361.29 W	482.16	2.90
5890.24	90.30	315.30	5478.88	343.02 N	383.73 W	513.89	2.11
5921.07	89.40	317.70	5478.96	365.38 N	404.94 W	544.70	8.31

SPERRY-SUN DRILLING SERVICES
SURVEY DATA

Customer ... : Mobil (Utah)
Platform ... : RATHERFORD UNIT
Slot/Well .. : BA25/19-12L2S1, 2B1

MEASURED DEPTH	ANGLE DEG	DIRECTION DEG	TVD	NORTHINGS FEET	EASTINGS FEET	VERTICAL SECTION	DOG LEG
5952.93	89.60	317.40	5479.24	388.89 N	426.45 W	576.53	1.13
6016.44	90.20	316.70	5479.35	435.37 N	469.72 W	640.00	1.45
6080.06	91.00	316.70	5478.68	481.67 N	513.35 W	703.59	1.26
6143.62	89.60	316.30	5478.35	527.77 N	557.10 W	767.12	2.29
6207.23	91.00	313.90	5478.01	572.83 N	602.00 W	830.72	4.37
6269.94	91.80	313.30	5476.48	616.06 N	647.39 W	893.40	1.59
6333.51	92.70	313.50	5473.99	659.70 N	693.55 W	956.89	1.45
6396.25	92.60	316.00	5471.09	703.82 N	738.05 W	1019.56	3.98
6458.83	89.70	315.80	5469.83	748.75 N	781.59 W	1082.11	4.65
6522.54	89.40	316.00	5470.33	794.50 N	825.92 W	1145.81	0.57
6585.47	88.20	315.80	5471.65	839.68 N	869.71 W	1208.72	1.93
6649.07	90.70	317.90	5472.26	886.07 N	913.20 W	1272.27	5.13
6712.69	92.70	319.70	5470.37	933.92 N	955.08 W	1335.72	4.23
6774.85	91.50	319.70	5468.09	981.29 N	995.26 W	1397.63	1.93
6837.59	87.90	317.70	5468.42	1028.41 N	1036.66 W	1460.22	6.56
6900.29	91.60	319.70	5468.69	1075.51 N	1078.03 W	1522.78	6.71
6962.92	89.40	316.90	5468.15	1122.26 N	1119.68 W	1585.29	5.69
7026.47	90.70	315.50	5468.09	1168.13 N	1163.67 W	1648.83	3.01
7090.03	89.70	313.90	5467.87	1212.83 N	1208.84 W	1712.38	2.97
7121.77	86.40	312.80	5468.95	1234.60 N	1231.91 W	1744.09	10.96
7153.52	85.30	311.90	5471.25	1255.94 N	1255.31 W	1775.72	4.47
7184.69	87.40	312.50	5473.23	1276.83 N	1278.35 W	1806.79	7.01
7216.58	88.70	313.30	5474.32	1298.52 N	1301.70 W	1838.63	4.79
7248.34	90.20	313.50	5474.62	1320.34 N	1324.77 W	1870.38	4.76
7279.31	91.10	313.90	5474.27	1341.74 N	1347.16 W	1901.34	3.18
7311.06	92.80	313.00	5473.19	1363.56 N	1370.20 W	1933.06	6.06
7342.81	88.90	312.60	5472.72	1385.13 N	1393.48 W	1964.77	12.35
7374.62	86.40	311.60	5474.02	1406.43 N	1417.06 W	1996.51	8.46
7406.47	87.40	313.30	5475.75	1427.90 N	1440.53 W	2028.28	6.19
7437.48	88.70	314.00	5476.80	1449.29 N	1462.95 W	2059.27	4.76
7469.22	89.80	314.60	5477.22	1471.46 N	1485.67 W	2091.00	3.95
7500.88	90.70	315.10	5477.08	1493.78 N	1508.11 W	2122.66	3.25
7532.65	89.60	313.90	5477.00	1516.05 N	1530.77 W	2154.43	5.12
7564.39	89.60	313.90	5477.22	1538.06 N	1553.64 W	2186.16	0.00
7596.13	88.70	313.30	5477.69	1559.94 N	1576.62 W	2217.89	3.41
7627.10	89.80	312.80	5478.09	1581.08 N	1599.25 W	2248.84	3.90
7658.79	89.00	312.80	5478.43	1602.61 N	1622.50 W	2280.50	2.52
7690.64	88.20	311.80	5479.20	1624.04 N	1646.05 W	2312.31	4.02

SPERRY-SUN DRILLING SERVICES
SURVEY DATA

Customer ... : Mobil (Utah)
Platform ... : RATHERFORD UNIT
Slot/Well .. : BA25/19-12L2S1, 2B1

MEASURED DEPTH	ANGLE DEG	DIRECTION DEG	TVD	NORTHINGS FEET	EASTINGS FEET	VERTICAL SECTION	DOG LEG
7722.32	89.00	312.30	5479.98	1645.25 N	1669.57 W	2343.93	2.98
7754.05	88.60	314.00	5480.64	1666.95 N	1692.71 W	2375.64	5.50
7785.82	90.40	313.90	5480.92	1689.00 N	1715.58 W	2407.40	5.67
7817.66	90.90	314.40	5480.56	1711.17 N	1738.43 W	2439.24	2.22
7849.54	89.70	315.80	5480.39	1733.75 N	1760.93 W	2471.11	5.78
7869.32	89.70	315.60	5480.50	1747.91 N	1774.74 W	2490.89	1.01
7900.40	89.10	315.30	5480.82	1770.06 N	1796.55 W	2521.97	2.16
7932.24	88.70	315.50	5481.43	1792.72 N	1818.90 W	2553.80	1.40
7964.01	88.40	315.50	5482.24	1815.38 N	1841.16 W	2585.56	0.94
7995.84	88.20	315.60	5483.18	1838.09 N	1863.44 W	2617.38	0.70
8027.58	88.90	314.70	5483.98	1860.58 N	1885.82 W	2649.11	3.59
8058.52	90.00	314.70	5484.28	1882.34 N	1907.81 W	2680.04	3.56
8090.15	91.20	315.30	5483.95	1904.71 N	1930.17 W	2711.67	4.24
8121.95	90.40	314.70	5483.51	1927.19 N	1952.66 W	2743.47	3.14
8153.77	90.60	314.20	5483.23	1949.47 N	1975.37 W	2775.28	1.69
8184.74	90.30	314.00	5482.98	1971.03 N	1997.61 W	2806.25	1.16
8216.53	89.90	314.70	5482.93	1993.25 N	2020.34 W	2838.04	2.54
8248.45	90.40	315.10	5482.85	2015.78 N	2042.95 W	2869.96	2.01
8280.29	91.10	316.90	5482.43	2038.68 N	2065.07 W	2901.79	6.07
8311.36	89.40	316.30	5482.29	2061.25 N	2086.41 W	2932.84	5.80
8343.18	88.80	316.50	5482.79	2084.29 N	2108.35 W	2964.65	1.99
8374.23	89.10	316.20	5483.36	2106.76 N	2129.78 W	2995.69	1.37
8405.33	89.80	316.20	5483.66	2129.20 N	2151.31 W	3026.78	2.25
8439.03	86.50	311.80	5484.75	2152.59 N	2175.53 W	3060.44	16.31
8469.99	86.90	309.80	5486.53	2172.79 N	2198.92 W	3091.27	6.58
8501.75	88.60	309.30	5487.78	2192.99 N	2223.39 W	3122.86	5.58
8533.50	90.90	308.20	5487.92	2212.87 N	2248.15 W	3154.42	8.03
8565.34	91.50	307.90	5487.25	2232.49 N	2273.22 W	3186.01	2.11
8597.21	90.30	308.10	5486.75	2252.10 N	2298.33 W	3217.64	3.82
8628.36	88.00	308.20	5487.21	2271.34 N	2322.82 W	3248.56	7.39
8660.10	88.10	307.90	5488.29	2290.89 N	2347.80 W	3280.05	1.00
8691.82	87.60	307.70	5489.48	2310.32 N	2372.85 W	3311.50	1.70
8723.58	87.80	310.20	5490.76	2330.27 N	2397.53 W	3343.06	7.89
8754.53	89.40	310.00	5491.51	2350.20 N	2421.19 W	3373.88	5.21
8786.36	89.50	310.00	5491.82	2370.66 N	2445.57 W	3405.59	0.31
8818.14	88.20	310.50	5492.46	2391.19 N	2469.82 W	3437.25	4.38
8849.12	86.70	309.60	5493.83	2411.10 N	2493.51 W	3468.09	5.64
8880.86	87.40	308.90	5495.47	2431.16 N	2518.06 W	3499.62	3.12

SPERRY-SUN DRILLING SERVICES
SURVEY DATA

Customer ... : Mobil (Utah)
Platform ... : RATHERFORD UNIT
Slot/Well .. : BA25/19-12L2S1, 2B1

MEASURED DEPTH	ANGLE DEG	DIRECTION DEG	TVD	NORTHINGS FEET	EASTINGS FEET	VERTICAL SECTION	DOG LEG
8912.60	86.80	310.00	5497.07	2451.30 N	2542.54 W	3531.17	3.94
8944.42	86.50	311.90	5498.93	2472.12 N	2566.53 W	3562.86	6.03
8976.18	86.40	313.70	5500.90	2493.65 N	2589.79 W	3594.53	5.67
9007.93	85.00	316.20	5503.28	2516.02 N	2612.19 W	3626.19	9.01
9039.66	83.80	316.00	5506.38	2538.77 N	2634.09 W	3657.76	3.83
9071.46	83.30	313.50	5509.95	2561.01 N	2656.53 W	3689.36	7.97
9103.18	84.30	313.20	5513.38	2582.66 N	2679.46 W	3720.88	3.29
9135.03	86.20	312.60	5516.01	2604.27 N	2702.71 W	3752.60	6.25
9166.03	86.90	311.80	5517.88	2625.05 N	2725.63 W	3783.50	3.43
9197.70	87.60	311.80	5519.40	2646.14 N	2749.21 W	3815.09	2.21
9229.46	88.20	311.60	5520.56	2667.25 N	2772.91 W	3846.77	1.99
9261.19	88.90	311.60	5521.36	2688.31 N	2796.63 W	3878.44	2.21
9292.10	89.60	311.90	5521.77	2708.89 N	2819.69 W	3909.29	2.46
9323.84	90.10	310.90	5521.85	2729.88 N	2843.50 W	3940.97	3.52
9354.77	91.00	310.40	5521.55	2750.03 N	2866.96 W	3971.81	3.33
9385.01	91.00	310.40	5521.03	2769.62 N	2889.99 W	4001.95	0.00

THE DOGLEG SEVERITY IS IN DEGREES PER 100.00 FEET.
N/E COORDINATE VALUES GIVEN RELATIVE TO WELL SYSTEM REFERENCE POINT.
TVD COORDINATE VALUES GIVEN RELATIVE TO WELL HEAD.
THE VERTICAL SECTION ORIGIN IS WELL HEAD.
THE VERTICAL SECTION WAS COMPUTED ALONG 315.00 (TRUE).
CALCULATION METHOD: MINIMUM CURVATURE.

SURVEYS: 5300 GYRO TIEON, 5326 INTERPOLATED GYRO
SURVEYS: 5334-5384 INTERPOLATED MWD AZMUYHS, 5394-
5444 MAGNETIC INTERFERENCE,9385 EXTRAPOLATED TO BIT

MUD REPORT

OPERATOR: MOBIL
WELL NAME: RATHERFORD UNIT #19-12 NW 1-A/1-B HORIZONTAL LATERAL LEG #2 & LEG #1 SIDETRACK

DATE	DEPTH	WT	VIS	PLS	YLD	GEL	pH	WL	CK	CHL	CA	SD	OIL	WTR
9/02/97	6832'	8.5	28	2	1	0/0	9.6	16.0	NC	40000	5200	–	11%	89%
9/03/97	5328'	8.5	28	2	1	0/0	9.0	16.0	NC	40000	5200	–	12%	88%
9/04/97	5336'	8.5+	28	2	1	0/0	9.5	20.0	NC	46000	5200	–	12%	88%
9/05/97	5516'	8.6	28	2	1	0/0	10.3	16.0	NC	52000	4000	–	8%	92%
9/06/97	5876'	8.6	28	2	1	0/0	10.0	16.0	NC	56000	4000	–	12%	88%
9/07/97	7027'	8.6	28	2	1	0/0	9.0	20.0	NC	48000	8000	–	10%	90%
9/08/97	7882'	8.6	28	2	1	0/0	9.5	20.0	NC	50000	6800	–	8%	92%
9/09/97	8548'	8.6	28	2	1	0/0	9.3	26.0	NC	48000	6000	–	9%	91%
9/10/97	9010'	8.6	28	2	1	0/0	9.5	30.0	NC	48000	6800	–	11%	89%
9/11/97	8409'	9.1	28	2	1	0/0	9.5	NC	NC	98000	20000	–	12%	88%
9/12/97	8942'	9.0	28	2	1	0/0	9.3	NC	NC	82000	1600	–	10%	90%
9/13/97	9264'	8.9	28	2	1	0/0	9.3	NC	NC	70000	1200	–	11%	89%

FORMATION TOPS

OPERATOR: MOBIL
WELL NAME: RATHERFORD UNIT #19-12 NW 1-A/1-B HORIZONTAL LATERAL LEG #2 & LEG #1 SIDETRACK

FORMATION NAME		SAMPLES MEASURED DEPTH	SAMPLES TRUE VERTICAL DEPTH	DATUM KB:4748'
LOWER ISMAY		5384'	5382'	-632'
GOTHIC SHALE		5454'	5435'	-687.5'
DESERT CREEK		5480'	5451'	-703'
DC 1-A ZONE		5493'	5458'	-710'
DC 1-B ZONE		5582'	5480'	-732'
DC 1-C ZONE		8802'	5501'(LEG#2)/ 5503'(ST)	-753'/ -755'

GEOLOGICAL SUMMARY

AND

ZONES OF INTEREST

The Mobil Exploration and Production U.S. Inc., Ratherford Unit #19-12 Horizontal Lateral Leg 2 was a re-entry of the Mobil Ratherford Unit #19-12 located in Section 19, T41S, R24E, and was sidetracked in a northwesterly direction from 5334' measured depth, 5334' true vertical depth, on September 3, 1997. The curve section was completed on September 5, 1997 at a measured depth of 5600', 5481' true vertical depth, and the lateral section was begun in the 1-B porosity zone. The lateral was drilled with no problems, until reaching 9013' in the base of the 1-C zone. The lateral was drilled to a measured depth of 9013', 5513.8' true vertical depth, with a horizontal displacement of 3630', in the tight limestones below the base of the 1-C porosity, on September 10, 1997. At this time a trip was made for the bit and the decision was made to pull back up hole and attempt to sidetrack the lateral at 8405' in the lower 1-A to upper 1-B porosity zone. The reason for the sidetrack was to open as much of the 1-C porosity as possible. The sidetrack was begun on September 11, at a measured depth of 8405', 5483.6' true vertical depth, and a horizontal displacement of 3027'. The lateral and sidetrack used an oil and water emulsion with polymer sweeps as the drilling fluid. The lateral made a considerable amount of oil and water while drilling both the 1-A and 1-B porosity zones, as the well began flowing water at a rate of 20 to 30 barrels per hour beginning at approximately 1000' of horizontal section. The background gases noted on the accompanying mud log showed substantial increases while drilling the 1-A porosity in the curve and lateral sections and continued in to the 1-B and 1-A zones, as well as a slight increase in the 1-C zone in the lateral. A gradual tapering off of gas was seen beginning at a measure depth of approximately 6300' after encountering a water flow in the lateral. The samples had good oil shows throughout the drilling of the curve, lateral and sidetrack in the 1-A, 1-B and 1-C zones.

The primary objectives of the Ratherford Unit #19-12 Leg 2 horizontal lateral were the effective porosity, staining and reservoir properties in 1-A through the 1-C zones of the Desert Creek Member of the Upper Paradox Formation. The lower 1/2 of the Upper Ismay, the entire Lower Ismay, Gothic Shale, and transition zone at the top of the Desert Creek were drilled during the curve section of the lateral. Kick off point for this lateral was 5334', measured depth and 5334' true vertical depth, in the lower portion of the Upper Ismay member of the Paradox Formation, with the kick off point for the sidetrack at a measured depth of 8405', 5484' true vertical depth.

The lower half of the Upper Ismay was predominately light brown to brown, gray, occasionally cream to tan, cryptocrystalline to microcrystalline, chalky to clean and slightly argillaceous, very dolomitic limestone with common dark gray to black chert and occasional fossil remnants. Also present were occasional very thin, marly, gray brown to dark brown, cryptocrystalline, slightly calcareous dolomites and very thin dark gray brown to black, carbonaceous, slightly calcareous to dolomitic shales. The Upper Ismay showed no to very slight fracture to very rare intercrystalline porosity noted with no visible fluorescence, stain or cut. No significant gas increases were noted. The very dolomitic limestones at the base of the Upper Ismay were marked by the very thin, carbonaceous, dolomitic shale of the Hovenweep.

The top of the Lower Ismay was picked at 5384' measured depth, 5382' true vertical depth, at the base of the Hovenweep Shale. The Lower Ismay was predominately limestone, light gray to brown, light to medium gray brown, occasionally dark brown, cryptocrystalline to microcrystalline, dense-firm to soft, with a chalky to silty texture, slightly sandy in part and argillaceous with scattered light to medium brown to translucent chert and rare fossil remnants. No visible porosity, stain, fluorescence or cut was noted. The Lower Ismay had very thinly interbedded dolomites, light to medium brown, cryptocrystalline to microcrystalline, calcareous, slightly shaley, and very rare scattered, very thin, very fine-grained calcareous sandstone. The sandstones have been noted in other wells in this area in the basal Upper Ismay to Lower Ismay zones. These sandstones are the remnant of a slump feature from a higher platform to the east, present during middle Lower Ismay to early Upper Ismay deposition. The lower most portion of the Lower Ismay, just above the Gothic Shale, was a light gray brown to cream to off white, occasionally light gray to medium brown limestone, cryptocrystalline to micro-crystalline, chalky, anhydritic with a trace of crystalline anhydrite inclusions and scattered dark brown to brown chert fragments. This basal dolomitic limestone graded into the underlying Gothic Shale. No shows were noted in the Lower Ismay.

The top of the Gothic Shale was picked at 5454' measured depth, 5435' true vertical depth and was predominantly gray to dark gray to black, silty, carbonaceous, soft to slightly firm, subblocky to blocky, calcareous to slightly dolomitic and slightly micaceous. Scattered within the Gothic were very thin, cryptocrystalline to microcrystalline, earthy, limestone and dolomite partings and inclusions, with very rare scattered anhydrite crystals. The top of the Gothic appeared to be gradational. Drilling time was somewhat erratic throughout the basal Lower Ismay and Gothic Shale, with the top of the Gothic being picked predominantly from the facies change from the overlaying limestones to the black carbonaceous shales and a slight increase in penetration rate. The increase in shale at the top of the Gothic was quite sharp and showed a marked increase in shale content in the samples.

The top of the Desert Creek is commonly picked at the Gothic Shale to transition zone facies change, which in this leg occurred at a measured depth of 5480' and a true vertical depth of 5451'. In this well the zone was a very slightly silty, argillaceous, very slightly dolomitic limestone, light gray brown to cream to light brown in color, microcrystalline, slightly chalky with scattered oolites and very rare fossil remnants and scattered anhydrite inclusions. Interbedded within the light gray limestones were brown dolomites, cryptocrystalline to microcrystalline, dense with scattered fossil fragments. A minor amount of gray to dark gray soft, dolomitic shale laminations was also noted. The limestones had no visible to very rare intercrystalline porosity, with no stain, fluorescence or cut.

The top of the Desert Creek 1-A porosity zone was picked at 5949' measured depth, 5458' true vertical depth and was based on sample identification as well as a significant increase in the penetration rate. This was 3 feet low to the top of the porosity as seen on the porosity log for the 19-12 well. Both the 1-A and 1-B porosity zones were 3 and 2 feet respectively, low to the tops in the original well bore. The reason for the tops being low was simply a matter of the dips encountered in the lateral. The top in this lateral was in an oolitic, clean, slightly anhydritic to very slightly algal limestone grainstone, which had very rare traces of dolomite cement and no to very rare scattered chert fragments. Noted in the limestone were thinly interbedded tight, cryptocrystalline, occasionally platy, anhydritic to very slightly dolomitic, slightly oolitic, tight limestone packstones near the top and scattered in varying amounts as inclusions and fragments through out the lateral. The limestone was tan, light brown to occasionally brown, with predominately fair to good intercrystalline to inter-oolitic porosity grading laterally into oolicastic to oomoldic fabric porosity. The lithology of the 1-A porosity remained fairly consistent throughout the curve section and in later in the lateral section with mainly minor variations of porosity type being noted. The base of the 1-A porosity was encountered at a measured depth of 5980', 5480' TVD as the curve was continued downward to penetrate and land in 1-B zone.

The 1-B porosity was penetrated at a measured depth of 5982' and a true vertical depth of 5480.5'. The lithology of the transition between the 1-A and 1-B porosity zones was predominately a slightly oolitic limestone packstone, tan to cream to light brown in color, microcrystalline to cryptocrystalline, dense, slightly chalky with a slight increase in dolomite cement. The transition zone was very thin and did not show up well in the penetration rate and was picked mainly on a slight increase in tighter oolitic limestone packstone. The 1-B porosity zone was only very slightly more oolitic and algal than the 1-A, with a very similar limestone grainstone. The limestone grainstones were brown to light brown to tan, occasionally dark brown to cream in part, very fine to microcrystalline, with traces of dolomite cement and scattered to common anhydrite inclusions and very rare crystalline anhydrite throughout. As in the 1-A zone above, rare, scattered of cream to tan, tight, cryptocrystalline, occasionally platy limestones were noted. The 1-B zone was characterized by well developed oolmoldic to oolicastic porosity with scattered possible algal porosity, and associated good even brown stain, even bright yellow to yellow-gold fluorescence and good to excellent streaming cuts. The porosity of the 1-B becomes predominately intercrystalline to interoolitic near the top. The top of the 1-B zone was encountered at a measured depth of 6245', 5477' TVD, as the well bore was oriented in an upward direction to reenter the 1-A porosity zone.

The transition zone from the 1-B to the 1-A zones was very thin and, as was noted in the curve section, by a very slight decrease in the penetration rate, from a measured depth of 6245', 5477' true vertical depth, with to a measured depth of 6278', 5476' true vertical depth. A slight increase in slightly oolitic, tight, very slightly platy limestone packstone. A very slight decrease in porosity and sample show was also noted. Upon reacquiring the 1-A porosity zone at a measured depth of 6278', 5477' true vertical depth, the porosity returned to the tan, light brown to occasionally brown, microcrystalline to very finely crystalline, oolicastic to oolmoldic, slightly anhydritic to very slightly algal limestone grainstone, with very rare chert fragments and some dolomite cement, noted in the 1-A zone while drilling the curve section. A gradual change from oolicastic to oolmoldic limestone to an oolicastic to oolmoldic dolomite was first noted at a measured depth of 7720', 5480' true vertical depth, and a horizontal displacement of 2343' and by a measured depth of 8000' the lithology was a dolomite with limestone cement. Even with the change from a limestone to a dolomite, the porosity remained good oolitic to intercrystalline, with a good fluorescence, stain and cut. This lithology remained to a measured depth of 8580', 5485' true vertical depth, with a horizontal displacement of 3200', when the base of the 1-A zone was penetrated. The top of the 1-A zone had been encountered while drilling the lateral at depths of 7013' (5468' tvd w/ 1640' vs), 7333' (5473' tvd w/1956' vs), and was scraped along from a measured depth of 8314' to 8515', true vertical depths of 5482' and 5483', with horizontal displacements of 2935' and 3137'. At 8515' the well bore was turned downward to drill to the 1-C porosity.

The top of the 1-B porosity was encountered at a measured depth of 8596', 5485.5' true vertical depth, and a horizontal displacement of 3218'. The lithology was predominately a light to medium brown, some brown, very oolicastic to oolmoldic dolomite grainstone, with tight slightly oolitic, cherty, anhydritic dolomite packstone and very thin grainstones at the top and at the base of the 1-B zone. The dolomite grainstones of the porosity, as with the limestone grainstones noted in the porosity of the curve section, had rare scattered chert fragments and scattered anhydrite inclusions to crystals. The dolomites at base of the 1-B zone below the porosity became increasingly tighter and limy with depth as the 1-B to 1-C transition zone was penetrated. The 1-B to 1-C transition zone was from a measured depth to 8770', 5499' true vertical depth, with a horizontal displacement of 3390', to a measured depth of 8802', 5501' true vertical depth, and a horizontal displacement of 3423'. The transition zone was interbedded tight, slightly oolitic, limy, cherty, light brown to brown, cryptocrystalline to microcrystalline dolomite packstone, with occasionally streaky, very finely crystalline to microsucrosic dolomite grainstone and thin cream to white, cryptocrystalline to microcrystalline, dolomitic, platy, cherty limestone packstones.

At 8802' the top of the 1-C zone was penetrated. The top was picked on the slight increase in limestone inclusions, and an increase in dolomite grainstones. The top of the 1-C porosity was picked at 8834' measured depth, 5504' true vertical depth, with a horizontal displacement of 3454'. The porosity was in a tan to light brown to brown, microcrystalline to very finely crystalline, oolicastic to oolmoldic dolomite grainstone, with rare anhydrite crystals to inclusions and scattered translucent chert fragments and a fair to good fluorescence, stain and cut. As the well bore was continued downward, the base of the 1-C porosity (not the base of the overall 1-C zone) was encountered at a measured depth of 8962', 5512' true vertical depth, and a horizontal displacement of 3582'. The lithology of the 1-C below the porosity zone was a tight, cherty, limy, slightly oolitic dolomite packstone which graded to a platy, very slightly silty, dolomitic limestone packstone. At a measured depth of 9013', 5414' true vertical depth and a horizontal displacement of 3631', approximately 2' below the base of the 1-C porosity zone, a trip was made for a new bit. At this time the decision was made to pull back up hole, back up into the 1-A porosity zone and attempt a sidetrack. The reason for the sidetrack was due to the angle at which the base of the 1-C porosity zone was penetrated and the amount of lateral section needed to reacquire the porosity zone.

The sidetrack was begun at a measured depth of 8405', 5483.7' true vertical depth, and a horizontal displacement of 3027', in the oolicastic to oolmoldic dolomite grainstones of the basal 1-A zone. The sidetrack was begun at a slightly downward angle and then oriented approximately horizontal. At a measured depth of 8600',a true vertical depth of 5488', with 3220' of horizontal displacement, the well path was turned downward through the base of the 1-A zone into the dolomite grainstones of the 1-B porosity zone. The dolomites of the 1-B, were, as seen in the original lateral, were slightly oolicastic to oolmoldic, with rare chert fragments, and had good intercrystalline to rare oolitic porosity, and a good sample show. This lithology continued, as the well path was continued downward, to a measured depth of 8870', 5494' true vertical depth and a horizontal displacement of 3490'. At 8870' the dolomite became increasingly a cryptocrystalline packstone, with very thin grainstone inclusions. As the well path continued downward the 1-B to 1-C transition was encountered. The penetration rate began decreasing at 8870' and increasing amounts of dense, occasionally platy limestone packstone fragments.

The 1-B to 1-C transition zone was from a measured depth of 8870', 5494' true vertical depth, to a measured depth of 9026', 5505' true vertical depth, and a horizontal displacement of 3647'. The transition zone was predominately interbedded tan to light brown, slightly oolitic, tight dolomite packstone and cream to white, cryptocrystalline, very slightly fossiliferous, dense, occasionally platy limestone packstone. Also noted in the transition zone were very thin, brown, microcrystalline to very finely crystalline, slightly oolitic to oolmoldic dolomite grainstone, which had a fair sample show. The background gases decreased as the transition zone was penetrated.

The top of the 1-C porosity zone was penetrated at a measured depth of 9026'. The top was pick on an increase in penetration rate and an increase in tan to brown, occasionally cream and medium brown, cryptocrystalline to very finely crystalline, dolomite grainstone and thin scattered packstones. The grainstones had very good intercrystalline porosity and sample show. Of note was the background gases remaining low through most of the 1-C zone. The base of the 1-C zone was bumped at a measured depth of 9230', 5520' true vertical depth and a horizontal displacement of 3846'. As the lateral bumped the base of the 1-C zone and then was slowly oriented toward the horizontal, an increase in white to cream, slightly dolomitic, occasionally platy, limestone packstone was noted. The lithology, as the lateral continued and neared termination, remained predominately a tan to brown, slightly oolicastic to oolmoldic, dolomite grainstone, with thin interbedded dolomite and limestone packstones. The lateral was continued at a slight upward angle in the 1-C porosity zone to a total depth of 9385', 5521' true vertical depth, with a horizontal displacement of 4002', on September 13, 1997.

In tracking the well bore through the 1-A, 1-B and 1-C porosity benches, the oolicastic and oomoldic to intercrystalline porosity was very good and consistent, with predominately vertical changes from oomoldic to oolicastic fabrics and intercrystalline porosity to dense limestone and dolomite packstones of the transition zones. Sample shows were predominated good and stayed consistent throughout the length of the lateral and the sidetrack in the 1-A, 1-B and 1-C porosity zones. The associated background gases remained high throughout the lateral until near the base of the 1-B where they began decreasing as the transition zone between the 1-B and 1-C zone was penetrated. The background gases did not begin increasing until near the end of the sidetrack as the well path was turned upward in the downward dipping 1-C porosity zone. The effective or better porosity was associated with the oolicastic to oomoldic fabric porosity in all three porosity horizons associated with the dolomite grainstone facies which had fair to good, intercrystalline to oolitic porosities. Minor anhydrite plugging was noted throughout. A water flow of up to 50 barrels per hour, averaging about 30 barrels per hour was noted beginning at approximately 6300'. This water flow remained constant to the end of the original lateral and also in the sidetrack. Also of note was the H_2S gas encountered, with amounts of up to 50 ppm measured while drilling the original lateral.

SAMPLE DESCRIPTIONS

OPERATOR: MOBIL
WELL NAME: RATHERFORD UNIT #19-12 NW 1-A/1-B HORIZONTAL LATERAL LEG #2

DEPTH	LITHOLOGY
5334.00 5340.00	"LS grd to DOLO LS,tn-lt brn-off wht ip,mic-crypxln,dens-sl chky ip,scat blk shl ptgs,scat DOLO,dkgr,vfn-micxln,v argil grd to DOLO SHL ip,dk gr,blky,frm;rr frac POR,rr blk resid STN,no FLUOR,vsl strm CUT"
5340.00 5350.00	"LS grd to DOLO LS,dk gr-tn-brn,mic-cryptxln,dens-md hd to sft-chky/grny tex ip,argil,scat dolo shl grd to v agril DOLO,com gr-dkgr transl CHT,NSFOC"
5350.00 5360.00	"LS grd to DOLO LS,dk gr-tn-brn,mic-cryptxln,dens,intrbd ls,off wht-crm,micxln,sft,,chky/slty tex ip,argil,scat calc incl,scat carb flks,scat gr-dkgr transl CHT,NSFOC"
5360.00 5370.00	"LS grd to DOLO LS,dk gr-tn-brn,mic-cryptxln,dens,intrbd ls,off wht-crm,micxln,sft,,chky/slty tex ip,argil,grd to calc sltstn ip, scat calc incl,scat carb flks,scat gr-dkgr transl CHT,NSFOC"
5380.00 5390.00	"LS,brn-lt brn-tn ip,mic-cryptxln,dens,md hd,intrbd LS,lt gr-crm,vfn-micxln,sft,slty,chky tex grd to calc SLTSTN ip,scat-com m-dk gr transl CHT;NSFOC"
5390.00 5400.00	"DOL ltbrn-brn,occ mbrn,crpxl,dns,sl shy-occ v arg,calc,grdg to dol LS,NFSOC"
5400.00 5410.00	"LS m-ltgybrn,ltgy,dkbrngy,ltbrn,occ dkbrn-blk,crpxl-micxl,dns-plty,v chky,sl slty,mot-occ cln,dol ip,tr tan-ltbrn-trnsl CHT,NFSOC"
5410.00 5420.00	"SH blk-dkbrnblk,sblky-sbsplty-ireg,frm-sft,carb,calc-sl lmy,occ slty,sooty"
5420.00 5430.00	"LS lt-mgybrn,ltgy,brn,occ dkbrn,dkgy,crpxl-micxl,occ vfxl,pred mot,occ slty-sl sdy ip,sl shy-arg ip,v sl dol,chky-anhy,tr scat lt-mbrn-trnsl CHT & trnsl-wh ANHY frag,tt,NFSOC"
5430.00 5440.00	"SS m-ltgy,vfgr,sbrd-ang-rd,wsrt,w-mcmt/slcalc-lmy cmt,tr arg fl,tr rexl qtz frac fl-incl,tr LS incl-lmy mtx,tt-tr intgr POR,v fnt dull orng mnrl FLOR,NSOC"
5440.00 5450.00	"LS AA,crpxl-micxl,occ vfxl,pred mot,occ slty ip,sl shy-arg ip,v sl dol,chky-anhy,tr scat lt-mbrn-trnsl CHT & trnsl-wh ANHY frag,tt,NFSOC"
5450.00 5460.00	"LS ltgybrn-crm-tan,occ ltgy,mgybrn,brn,crpxl,occ micxl,v chky-anhy,scat xln ANHY,tr CHT AA,dns-plty,tt-tr intxl POR,tr scat spty dullyel FLOR,NSOC"
5460.00 5470.00	"SH dkbrnblk-blk,sbblky-sbplty-splty,sft-frm,carb,sl slty,vrr trnsl ANHY incl,vrr pp mica incl,calc ip,sooty"
5470.00 5480.00	"SH dkbrnblk-blk,sbblky,sft-sl frm,carb,sl slty,vrr trnsl ANHY incl,vrr pp mica incl,calc/dolo,sooty"
5480.00 5490.00	"SH dkbrn-dkgr-blk,aa,LS & intrbd DOLO,crm-tn,mic-cryptxln,dens xln to chky/slty,anhyd incl & xln ANHY,NSFOC"

DEPTH	LITHOLOGY
5490.00 5500.00	"SHL,dkgr-dkbrn-blk,blky-tab,calc,LS,crm-lt grbrn,micxln,dens-chky-slty tex,anhy aa,no shows + LS GRNSTN,lt brn-brn-tn,vfn-micxln,oolitic;fr even brn-dk brn STN,fr-gd oomold-intrxln POR,bri yel FLUOR,fr-gd strm-diff CUT"
5500.00 5520.00	"LS,tn-lt brn-brn ip,vfn-micxln,dens-sl chky ip-sl suc,scat ANHY incl,oolitic;fr-gd oomold/oolicast-intrxln POR,gd brn-dk brn-blk STN in por,mod-bri yel FLUOR,fr-gd strm-diff CUT,sl shows in dens LS"
5520.00 5530.00	"LS GRNSTN,tn-lt brn-brn ip,ool aa,intrbd LS PCKSTN,crm-tn,mic-crptxln,dens-sl chky,scat ANHY incl;fr-gd intxln/ppt-sl ooml POR,brn STN ip,bri yel FLUOR,fr-gd strm CUT"
5530.00 5540.00	"LS GRNSTN,brn,fn xln,suc,algal,sl ANHY incl,gd-ex algal POR,even brn STN,bri-mod yel FLUOR,fr strm-diff CUT,FO in spl"
5540.00 5560.00	"LS GRNSTN,tn-lt brn-brn,vfn-micxln,grny-sl suc tex,ool ip,scat ANHY incl,intrbd LS PCKSTN,crm-tn,mic-crptxln,dens-sl chky;fr-gd intxln/ppt-oomold-rr algal POR,brn STN in por,bri yel FLUOR,fr-gd strm CUT"
5560.00 5580.00	"LS GRNSTN,brn-lt brn,sl mott,vfn-micxln,ool to sl algal,rr ANHY incl,sl dolo cem,intrbd LS PCKSTN,off wht-crm-tn,micxln,dens-slchky,fr-gd intrxln-oomold-introol POR,even brn-dk brn STN,even bri yel FLUOR,fr strm-diff CUT"
5580.00 5590.00	"LS grd to DOLO LS,brn-lt brn,vfn-mic xln,grny-sl suc tex,ool,rr anhy incl,com dolo cem,gd even brn-dk brn STN,wl dev oomoldic fabric grd to introol-intrxln POR,mod even yel-gld FLUOR,gd-ex strm-flash diff CUT"
5590.00 5600.00	"LS grd to DOLO LS,ool,rr ANHY aa,gd even brn-dk brn STN,wl dev oomoldic fabric grd to introol-intrxln POR,mod even yel-gld FLUOR,gd-ex strm-flash diff CUT"
5600.00 5620.00	"LS m-dkbrn,tan-ltbrn,occ blk,ltgy-ltgybrn,vfxl-gran,sl crpxl,ool-ooc GRNST/DOL cmt,tr scat dns PCKSTsl chky-anhy/rr xln ANHY incl,tr bf-tan CHT incl,g ooc-ool-sl oom/tr pp agal POR,g even mod bri yel FLOR,g brn-dkbrn-blk STN,g fast strm-blooming mlky CUT"
5620.00 5630.00	"LS AA,pred ooc-ool-occ oom GRNST AA/tr PCKST AA,POR-FLOR AA,incr brn-dkbrn-scat blk dd o STN,g blooming-fast strm mlky CUT"
5630.00 5640.00	"LS AA,POR-FLOR-STN-CUT AA/scat blk-dkbrnblk SH,carb,prob cvgs"
5640.00 5650.00	"LS AA,ooc-ool-oom GRNST/DOL cmt,tr scat dns-rr chky plty PCKST,sl anhy-rr POR fl,tr tan-bf CHT incl,g ooc-ool-oom POR/tr inxl-vrr pp agal POR,FLOR-STN-CUT AA"
5650.00 5670.00	"LS m-dkbrn,occ tan-ltbrn,blk,rr ltgy-crm,vfxl-gran,sl crpxl,ool-ooc GRNST/DOL cmt,tr-rr dns PCKST,sl chky-anhy/tr POR fl,tr bf-tan CHT incl,g ooc-ool-oom/rr pp agal POR,g even mod bri-dull yel FLOR,g brn-dkbrn-blk dd o STN,g fast strm-blooming mlky CUT"
5670.00 5680.00	"LS AA,pred ooc-ool-occ oom GRNST AA/tr PCKST AA,POR-FLOR AA,incr brn-dkbrn-scat blk dd o STN,g blooming-fast strm mlky CUT"
5680.00 5690.00	"LS AA,ooc-ool-oom GRNST/DOL cmt,tr dns intbd PCKST,sl chky-anhy/rr xln ANHY frag,tr tan-bf CHT incl,POR AA,g bri yel FLOR,STN-CUT AA"

DEPTH	LITHOLOGY

5690.00 5700.00 "LS AA,ooc-ool-oom GRNST AA,tr intbd PCKST AA,g ooc-ool-oom POR/rr pp agal POR,g bri-mod bri yel FLOR,g dkbrn-brn-blk dd o STN,g fast strm mlky CUT"

5700.00 5710.00 "LS lt-dkbrn,occ tan-crm,micxl-vfxl,gran-suc,occ crpxl,pred ooc-oom GRNST,v sl alg,occ scat tt v sl ool PKST,abnt ANHY xl-incl,sl dol,v rr trnsl CHT frag,g dull-bri yel FLOR,g ool-intxl POR,g brn-tr blk STN,g fast stmg CUT"

5710.00 5720.00 "LS AA,incr ltbrn-tan,v sl incr PKST,POR-FLOR-STN-CUT AA"

5720.00 5740.00 "LS ltbrn-tan,occ dkbrn-crm,micxl-vfxl,gran-micsuc,crpxl ip,pred ooc-oom GRNST,sl poss alg,rr scat tt sl ool PKST,rr ANHY xl-incl,sl dol,rr trnsl CHT frag,g dull-bri yel FLOR,fr-g ool-intxl POR,fr-g lt-dkbrn STN,rr-tr blk STN,g mod fast-fast stmg CUT"

5740.00 5760.00 "LS AA,POR-FLOR-STN-CUT AA"

5760.00 5780.00 "LS ltbrn-tan,rr dkbrn-crm,crpxl-vfxl,gran-micsuc,pred ooc-oom GRNST,sl poss alg,rr scat tt v sl ool PKST,rr-tr ANHY xl-incl,sl dol,rr trnsl-wh trip CHT frag,g dull-bri yel FLOR,fr-g ool-intxl POR,fr-g ltbrn STN,rr blk STN,g mod fast-fast stmg CUT"

5780.00 5800.00 "LS AA,pred ooc-oom GRNST,scat tt v sl ool PKST,tr ANHY xl-incl,rr trnsl-wh trip CHT frag,scat Ost fos,g dull-bri yel FLOR,fr-g ool-intxl POR,fr-g lt-dkbrn STN,rr blk STN,g mod fast-fast stmg CUT"

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

5820.00 5850.00 "LS ltbrn-brn-tan,v rr dkbrn-crm,crpxl-vfxl,gran-micsuc,pred ooc-oom GRNST,v sl alg,tr scat tt v sl ool PKST,tr ANHY xl-incl,sl dol,rr trnsl CHT frag,fr-g bri yel FLOR,fr-g ool-intxl-v rr alg POR,fr-g brn STN,v rr blk STN,g mod fast-fast stmg CUT"

5850.00 5870.00 "LS AA,occ ltgybrn ip,micxl-vfxl,gran-micsuc,occ crpxl,occ Ost fos,tr ANHY xl-incl-occ POR fl,rr CHT frag,fr-g bri yel FLOR,fr-g ool-intxl-v rr alg POR,fr-g ltbrn-brn STN,v rr blk STN,g mod fast-fast stmg CUT"

5870.00 5900.00 "LS ltbrn-brn-tan,v rr dkbrn-crm,crpxl-vfxl,gran-micsuc,AA,tr ANHY xl-incl-occ sl incr POR fl,fr-g bri yel FLOR,fr-g ool-intxl-v rr alg POR,fr-g brn STN,v rr blk STN,g mod fast-fast stmg CUT"

5900.00 5920.00 "LS tan-ltbrn,occ brn-ltgybrn-crm,micxl-vfxl,gran-micsuc,suc ip,v rr alg,rr crpxl,pred ooc-oom GRNST,w/rr v sl ool tt PKST,occ dol,scat ANHY xl-incl-rr POR fl,rr trnsl-clr CHT frag,g intxl-fr ool-rr alg POR,fr-g bri yel FLOR,g ltbrn-rr blk STN,g fast CUT"

5920.00 5950.00 "LS AA,v sl incr ANHY xl-incl,rr POR fl,incr intxl POR,scat alg POR,g FLOR-STN-CUT

5950.00 5970.00 "LS tan-ltbrn,occ brn-ltgybrn-crm,micxl-vfxl,gran-micsuc,suc ip,rr-tr alg,rr crpxl,pred GRNST,w/rr tt PKST,decr ooc-oom mat,occ dol,scat ANHY xl-incl-rr POR fl,rr trnsl-clr CHT frag,g intxl-fr ool-rr alg POR,fr-g bri yel FLOR,g ltbrn-rr blk STN,g fast CUT"

5970.00 5990.00 "LS tan-ltbrn,occ brn-ltgybrn-crm,micxl-vfxl,gran-micsuc,suc ip,v rr alg,rr crpxl,sl ooc-oom,pred GRNST,w/scat sl ool PKST,occ dol,scat ANHY xl-incl-rr POR fl,rr clr CHT frag,g intxl-fr-tr ool-tr alg POR,fr-g bri yel FLOR,g ltbrn-rr blk STN,g fast CUT"

5990.00 6010.00 "LS AA,sl incr ooc-oom mat,occ scat Ost fos,fr-g intxl-tr-fr ool-tr alg POR,FLOR-STN-CUT

DEPTH	LITHOLOGY

6010.00 6030.00 "LS tan-ltbrn,occ mbrn-crm,micxl-vfxl,gran-micsuc,suc ip,v rr alg,rr crpxl,incr ooc-oom mat,pred GRNST,w/rr sl ool PKST,occ dol,scat ANHY xl-incl-rr POR fl,rr clr CHT frag,g intxl-fr-ool-tr alg POR,fr-g bri yel FLOR,g ltbrn-rr blk STN,g fast CUT"

6030.00 6050.00 "LS AA,sl incr trnsl-occ ltbrn CHT frag,scat Ost fos,sl decr POR,FLOR-STN-CUT AA"

6050.00 6070.00 "LS tan-ltbrn,occ brn-ltgybrn-crm,micxl-vfxl,gran-micsuc,suc ip,v rr alg,rr crpxl,pred ooc-oom GRNST,w/rr v sl ool tt PKST,occ dol,scat ANHY xl-incl-rr POR fl,rr trnsl-clr CHT frag,g intxl-fr ool-rr alg POR,fr-g bri yel FLOR,g ltbrn-rr blk STN,g fast CUT"

6070.00 6090.00 "LS AA,decr ooc-oom mat,decr CHT frag,POR-FLOR-STN-CUT AA"

6090.00 6110.00 "LS tan-ltbrn,occ mbrn-crm,micxl-vfxl,gran-micsuc,suc ip,rr alg,rr crpxl,tr ooc-oom mat,pred GRNST,w/rr v sl ool PKST,occ dol,scat ANHY xl-incl-rr POR fl,rr Ost fos,tr trnsl CHT frag,g intxl-tr-ool-alg POR,fr-g bri yel FLOR,g ltbrn-rr blk STN,g fast CUT"

6110.00 6130.00 "LS AA,v sl incr CHT-ANHY,v sl decr POR,FLOR-STN-CUT AA"

6130.00 6150.00 "LS tan-ltbrn,occ brn-crm ip,micxl-vfxl,gran-micsuc,occ crpxl,scat alg-ooc-oom mat,pred GRNST w/scat tt PKST,occ dol,scat ANHY xl-incl-occ POR fl,rr CHT frag,fr-g intxl-tr ool-alg POR,fr-g bri yel FLOR,g ltbrn-brn STN,rr spty blk STN,g mod fast-fast CUT"

6150.00 6160.00 "LS AA,v sl incr CHT-ANHY,fr intxl-tr alg-rr ool POR,FLOR-CUT AA,fr-g ltbrn STN,tr blk dd o STN"

6160.00 6180.00 "LS AA,incr v sl ool anhy PKST,scat Ost-v rr Crin fos,fr intxl-tr ool-rr alg POR,fr-g dull-bri yel FLOR,fr ltbrn-v rr blk STN,fr-g mod fast-fast stmg CUT"

6180.00 6200.00 "LS tan-ltbrn,occ brn-ltgybrn-crm,micxl-vfxl,gran-micsuc,suc ip,v rr alg,rr crpxl,pred ooc-oom GRNST,w/rr v sl ool tt PKST,occ dol,scat ANHY xl-incl-rr POR fl,rr trnsl-clr CHT frag,g intxl-fr ool-rr alg POR,fr-g bri yel FLOR,g ltbrn-rr blk STN,g fast CUT"

6200.00 6220.00 "LS tan-ltbrn-crm,occ brn,crpxl-vfxl,gran-micsuc,scat ooc-oom-alg mat,pred GRNST w/tr crpxl-plty v sl ool PKST,sl dol,rr CHT frag,scat ANHY xl-incl-tr POR fl,rr 0st fos,fr-g intxl-tr ool-alg POR,fr-g dull-bri yel FLOR,fr brn-v rr blk STN,fr-g mod fast CUT"

6220.00 6240.00 "LS AA,incr trnsl-clr-smky gybrn CHT frag,sl decr plty PKST,POR-FLOR-STN-CUT AA"

6240.00 6260.00 "LS tan-ltbrn-crm,occ brn,crpxl-vfxl,gran-micsuc,tr ooc-oom-alg mat,pred intbd GRNST & PKST AA,sl dol,v rr trnsl-clr CHT frag,scat ANHY xl-tr POR fl,v rr 0st fos,fr-g intxl-tr ool-alg POR,fr-g dull-bri yel FLOR,fr brn-v rr blk STN,fr-g mod fast CUT"

6260.00 6280.00 "LS ltbrn-tan,occ brn,crm,vfxl-gran-micsuc,crpxl,pred ooc-oom GRNST,occ agal mat,DOl cmt,tr PKST AA,v rr tan-bf CHT frag,tr ANHY xl-POR fl,v rr ool,g intxl/tr ool-alg POR,g even mod bri yel FLOR,fr-g ltbrn-brn/v rr pp blk dd o STN,g mod fast-blooming CUT"

6280.00 6300.00 "LS AA,pred ool-ooc-sl agal mat GRNST/tr DOL cmt,tr intbd dns-occ rr scat chky plty PCKST,tr tan-bf CHT frag,sl anhy/tr xl frag-POR fl,rr Ost-ool fos,g-fr intxl-ool-ooc-occ oom POR,g even mod bri yel FLOR,g ltbrn-brn/vrr blk pp dd o STN,g fast strm CUT "

DEPTH	LITHOLOGY

6300.00 6320.00 "LS ltbrn-tan,occ brn,crm,vfxl-gran-micsuc,crpxl,pred ooc-oom GRNST/tr DOL cmt,incr dns crpxl PKST frag-incl,sl anhy/rr xl ANHY-POR fl,tr CHT AA,rr Ostr & ool fos,g intxl-ool-ooc POR,FLOR AA,fr-g ltbrn-brn/rr pp blk dd o STN,g fast strm-blooming mlky CUT"

6320.00 6340.00 "LS ltbrn-tan,occ brn,crm,vfxl-gran-micsuc ip,occ crpxl,ooc-ool GRNST/DOL cmt,tr dns PCKST incl-frag,sl anhy-chky/rr POR fl & xln ANHY frag,rr tan CHT incl,g intxl-ooc-ool POR,g even mod bri yel FLOR,STN & CUT AA"

6340.00 6360.00 "LS tan-ltbrn,occ brn,crm,vfxl-gran-micsuc,occ crpxl,ooc-ool GRNST intbd/sl incr dns PCKST,DOL cmt,sl anhy/tr xln ANHY frag-incl,tr CHT AA,g intxl-ooc-ool-occ oom POR/rr anhy POR fl,FLOR-STN AA,g slow strm mlky CUT"

6360.00 6370.00 "LS AA,pred ooc-ool-sl oom GRNST/DOL cmt,tr intbd-scat dns PCKST,sl anhy/tr POR fl & xln ANHY frag,tr CHT AA,rr ool & Ostr fos,FLOR-STN-CUT AA"

6370.00 6380.00 "LS AA,pred ooc-ool-sl oom GRNST/DOl cmt,tr scat-intbd dns PCKST,sl anhy/tr xln ANHY frag,g intxl-ooc-ool POR,g even bri yel FLOR,g-fr ltbrn-occ brn STN/rr blk pp dd o STN,g slow dif-mod slow strm mlky CUT"

6380.00 6400.00 "LS AA,vfxl-gran-micsuc,occ crpxl,ooc-ool GRNST intbd/tr dns PCKST,DOL cmt,sl anhy/tr xln ANHY frag-incl,tr trnsl-wh CHT incl,g intxl-ooc-ool/tr oom POR/rr anhy POR fl,FLOR-STN AA,g slow strm mlky CUT"

6400.00 6420.00 "LS tan-crm,ltbrn,occ brn,vfxl-gran-micsuc,occ crpxl,pred ooc-ool-sl oom GRNST/DOL cmt,rr agal mat,tr scat-inbd dns PCKST,sl anhy/rr POR fl & tr xln ANHY frag-incl,rr trnsl CHT incl,g ooc-ool-intxl POR,g even bri yel FLOR,g ltbrn-occ brn/rr blk STN,CUT AA"

6420.00 6440.00 "LS AA,ooc-ool-sl oom GRNST/scat-occ intbd dns PCKST,sl anhy/tr scat xln ANHY frag-occ anhy POR fl,DOL cmt,incr intbd trnsl-wh CHT,rr ool,g ool-ooc-oom POR/vrr pp agal POR,g even bri yel FLOR,g-fr ltbrn-brn STN/rr blk pp dd o STN,g mod fast strm mlky CUT"

6440.00 6458.00 "LS AA,pred ooc-ool GRNST/DOL cmt,tr scat-intbd dns PCKST,sl incr anhy/xln ANHY frag-POR fl,POR-FLOR-STN-CUT AA"

6460.00 6480.00 "LS tan-ltbrn,occ wh-crm,brn,vfxl-micsuc-gran,occ crpxl,pred GRNST AA/sl incr intbd-scat dns-tr chky plty PCKST,anhy/sl incr xln ANHY frag,rr CHT AA,g ool-ooc-intxl POR/rr ppagal POR,g even bri yel FLOR,g ltbrn-tr brng slow dif/tr slow strm mlky CUT "

6480.00 6490.00 "LS AA,pred ooc-ool GRNST/DOL cmt,tr scat-intbd dns-sl incr chky plty PCKST,tr anhy/xln ANHY frag-POR fl,POR-FLOR-STN-CUT AA"

6490.00 6510.00 "LS tan-crm-trnsl ip,occ grdg to ltbrn,crpxl-vfxl,gran,occ micsuc,pred ooc-ool GRNST grdg to intbd PCKST/anhy-chky POR fl,tr scat dns PCKST frag,tr sact xln ANHY frag,g-fr intxl-ool POR,g even mod bri yel FLOR,g-fr ltbrn-tr brn STN,g slow-mod fast CUT"

6510.00 6520.00 "LS AA,pred ooc-ool GRNST/DOL cmt,tr scat-intbd dns PCKST,tr incr anhy/xln ANHY frag-POR fl,vrr ool,POR-FLOR-STN-CUT AA"

DEPTH	LITHOLOGY

6520.00 6540.00 "LS tan-crm-sl trnsl ip,grdg to ltbrn,occ wh,pred ooc-ool GRNST/DOL cmt,intbd dns & scat/chky plty PCKST,anhy/tr xln ANHY frag,tr chky-anhy POR fl,g-fr ooc-intxl/occ ool POR,g even mod bri yel FLOR,g-fr ltbrn STN,g fast dif mlky/tr slow strm mlky CUT"

6540.00 6550.00 "LS AA,pred ooc-sl ool & oom GRNST,occ sl DOL cmt,incr intbd-scat dns-chky plty PCKST,anhy/tr xln ANHY frag,tr anhy-chky POR fl,POR-FLOR-STN AA,g mod fast strm/tr slow dif mlky CUT"

6550.00 6560.00 "LS AA,pred ooc-ool GRNST/DOL cmt,intbd/dns & scat/chky plty PCKST,anhy/tr xln ANHY frag,tr chky-anhy POR fl,POR-FLOR-STN-CUT AA"

6560.00 6580.00 "LS tan-crm-sl trnsl ip,grdg to ltbrn,occ wh,vfxl-gran,crpxl,occ micsuc ip,pred ooc-ool GRNST/DOL cmt,intbd-scat dns-incr chky plty PCKST,anhy/ANHY AA,rr wh CHT,tr chky-anhy POR fl,POR-FLOR-STN AA,g fast dif mlky/tr slow strm mlky CUT"

6580.00 6600.00 "LS AA,pred GRNST AA,occ DOL cmt,scat-intbd dns-chky plty PCKST frag,anhy/tr xln ANHY frag-occ incl,tr anhy-chky POR fl,tr trnsl-wh CHT incl,FLOR AA,g-fr intxl-ool/tr ooc POR,fr ltbrn-tr brn STN,CUT AA"

6600.00 6620.00 "LS ltbrn-tan-crm,occ wh-trnsl,brn,vfxl-gran-micsuc ip,crpxl-micxl,pred ooc-ool-sl oom GRNST/DOL cmt,tr scat-occ intbd dns-chky plty PCKST,anhy/tr scat xln ANHY frag-occ POR fl,tan CHT incl-frag,g ooc-ool-oom POR,FLOR-STN AA,g mod fast strm mky CUT"

6620.00 6640.00 "LS tan-crm,ltbrn,occ wh-trnsl,brn,vfxl-gran,micsuc-micxl,crpxl,ooc-ool-occ oom GRNST/DOL cmt,tr scat PCKST AA,anhy/tr POR fl & rr xln ANHY frag,incr scat CHT AA,POR-FLOR AA,g ltbrn-incr brn STN/rr blk pp dd o STN,g mod fast strm mlky CUT"

6640.00 6650.00 "LS AA/sl incr crpxl,pred GRNST AA/sl incr dns-chky plty PCKST,anhy AA,scat CHT AA,fr-g ooc-ool-intxl POR,FLOR-STN-CUT AA"

6650.00 6670.00 "LS ltbrn-tan-crm,occ wh-trnsl,brn,vfxl-gran-micsuc,crpxl-micxl,pred ooc-ool-sl oom GRNST/DOL cmt,tr PCKST AA,anhy/tr scat xln ANHY frag-incl/occ POR fl,tr CHT AA,g ooc-ool-oom POR,FLOR AA,g ltbrn/incr brn & blk pp dd o STN,g fast strm-blooming mky CUT"

6670.00 6680.00 "LS AA,pred GRNST AA/tr dns-chky plty PCKST,anhy AA,scat CHT AA/rr ool incl,g ooc-ool-intxl POR,FLOR-STN-CUT AA"

6680.00 6700.00 "LS tan-crm-ltbrn,occ wh-trnsl,brn,vfxl-gran-micsuc,crpxl-micxl,pred ooc-ool-sl oom GRNST/DOL cmt,sl incr dns PCKST,anhy/rr xln ANHY frag/occ POR fl,tr CHT AA,g ooc-ool-oom POR,FLOR AA,g ltbrn-tr brn & blk pp dd o STN,g fast strm-blooming mky CUT"

6700.00 6720.00 "LS tan-crm-sl trnsl ip,grdg to ltbrn,occ wh,vfxl-gran,crpxl,occ micsuc,pred ooc-ool GRNST/DOL cmt,incr intbd-scat dns-tr chky plty PCKST,anhy/ANHY AA,rr tan CHT,tr chky-anhy POR fl,POR-FLOR-STN AA,g fast dif/tr mod fast strm mlky CUT"

6720.00 6740.00 "LS AA,pred GRNST AA/tr intbd-scat dns-rr chky plty PCKST,anhy AA,tr CHT AA/rr ool incl,g ooc-ool-intxl POR,g even mod bri/tr scat bri yel FLOR,g-fr ltbrn/scat brn & blk dd o STN,g fast dif-strm mlky CUT"

DEPTH	LITHOLOGY

6740.00 6760.00 "LS tan-crm-sl trnsl ip,occ ltbrn,wh,vfxl-gran,crpxl,occ micsuc-micxl,pred ooc-ool-sl oom GRNST/DOL cmt,tr intbd-scat dns-vrr chky plty PCKST,anhy/rr xl ANHY,tr tan-bf CHT,tr chky-anhy POR fl,POR-FLOR-STN AA,g fast dif/tr mod fast strm mlky CUT"

6760.00 6780.00 "LS AA,vfxl-gran-micsuc ip,sl incr crpxl,pred GRNST AA/sl incr intbd-scat dns PCKST,rr chky plty PCKST frag,anhy/tr POR fl,tr scat-intbd tan-bf CHT,fr-g ooc-ool-intxl POR,g even bri yel FLOR,fr-g ltbrn-tr brn STN,g-fr fast dif/tr slow strm mlky CUT"

6780.00 6800.00 "LS tan-crm-sl trnsl ip,occ ltbrn,wh,vfxl-gran,crpxl,occ micsuc-micxl,pred ooc-ool-sl oom GRNST/DOL cmt,tr intbd-scat dns-agal mat PCKST,sl chky-anhy/rr xl ANHY,tr tan-bf CHT,tr chky-anhy POR fl,POR-FLOR-STN AA,g fast
strm mlky CUT"

6800.00 6820.00 "LS AA,vfxl-gran-micsuc ip,incr crpxl,pred ooc-oom GRNST/incr intbd-scat dns PCKST,rr chky plty PCKST frag,anhy/tr POR fl,rr scat-intbd tan-bf CHT,fr-g ooc-intxl-tr ool POR,g even bri yel FLOR,fr-g ltbrn-tr brn STN,g fast strm mlky CUT"

6820.00 6840.00 "LS AA,pred ooc-oom-occ oom GRNST/DOL cmt,scat-intbd dns PCKT,rr chky & agal mat PCKST,anhy/tr POR fl,vrr xln ANHY frag-incl,tr CHT AA,g intxl-ooc/tr oom-ool POR,g even bri yel FLOR,fr-g ltbrn/tr brn & blk pp dd o STN,g fast strm mlky CUT"

6840.00 6860.00 "LS tan-crm,occ ltbrn,wh-sl trnsl,vfxl-gran,crpxl,micsuc,pred ooc-ool-sl oom GRNST/DOL cmt,tr intbd-scat dns-rr agal mat PCKST,incr chky-anhy/occ POR fl,rr xl ANHY,tr tan-bf CHT,g ooc-ool-intxl POR,g even bri yel FLOR,STN AA,g fast strm mlky CUT"

6860.00 6880.00 "LS AA,pred GRNST AA/tr scat-intbd dns-sl agal mat PCKST,chky-anhy/tr POR fl AA,g ooc-ool-intxl POR,g even mod bri yel FLOR,g-fr ltbrn/tr brn & blk pp dd o STN,g fast strm mlky CUT"

6880.00 6900.00 "LS tan-crm-sl trnsl ip,occ ltbrn,wh,vfxl-gran,crpxl,occ micsuc-micxl,pred ooc-sl oom GRNST/DOL cmt,tr intbd-scat dns PCKST,anhy/rr xl ANHY,rr tan-bf CHT,tr chky-anhy POR fl,POR-FLOR-STN AA,g fast strm mlky CUT"

6900.00 6920.00 "LS tan-crm,occ ltbrn,crpxl-vfxl,gran-micsuc ip,rr suc,pred ooc-oom GRNST w/scat tt v sl ool PKST,v rr alg mat,v sl chty,occ sl dol,occ ANHY xl-rr incl-POR fl,fr-g ool-fr intxl-v rr alg POR,g bri-rr dull yel FLOR,fr ltbrn-brn-rr spty blk STN,fr-g fast CUT"

6920.00 6940.00 "LS AA,scat tr micrite,n-v rr vis CHT frag,sl alg-v sl incr alg POR,POR-FLOR-STN-CUT AA"

6940.00 6960.00 "LS AA,v sl incr PKST,fr intxl-ool-rr alg POR,fr-g bri-dull yel FLOR,fr-g ltbrn-brn STN,v rr spty blk STN,fr-g mod fast-fast stmg CUT"

6960.00 6980.00 "LS tan-crm,occ ltbrn-brn,crpxl-vfxl,gran-micsuc ip,pred ooc-oom GRNST w/scat tt sl ool PKST,rr alg mat,rr trnsl CHT frag,occ dol,occ ANHY xl-rr incl-POR fl,fr-g ool-fr intxl-rr alg POR,g bri-rr dull yel FLOR,fr ltbrn-brn-rr spty blk STN,fr-g fast CUT"

6980.00 7000.00 "LS AA,fr-g intxl-ool POR,fr-g dull-bri yel FLOR,fr lt-mbrn STN,tr blk dd o STN,g mod fast-fast stmg CUT"

DEPTH	LITHOLOGY

7000.00 7020.00 "LS tan-crm-ltbrn,occ wh,micxl-vfxl,tr crpxl,gran-micsuc,pred ooc-oom GRNST w/scat tt occ plty v sl ool PKST,v rr alg mat,rr-tr ANHY xl-incl,sl dol,v rr clr CHT frag,rr tt,fr-g intxl-ool-rr alg POR,fr-g dull-bri yel FLOR,fr ltbrn-brn-rr blk STN,CUT AA"

7020.00 7040.00 "LS AA,pred ooc-oom GRNST,scat-sl incr tt occ plty sl chk-wh PKST,tt-g intxl-ool-rr alg POR,fr-g dull-bri yel FLOR,fr-g ltbrn-brn STN,occ spty blk dd o STN,fr-g mod fast-fast CUT"

7040.00 7070.00 "LS tan-ltbrn,occ crm-wh,micxl-vfxl,tr crpxl,gran-micsuc,pred ooc-oom GRNST w/tt occ plty v sl ool PKST incr w/depth,rr alg mat,rr ANHY xl-incl,sl dol,rr clr CHT frag,occtt-fr-g intxl-ool-rr alg POR,fr-g dull-bri yel FLOR,fr ltbrn-brn-rr blk STN,CUT AA"

7070.00 7100.00 "LS crm-tan-ltbrn,occ wh,crpxl-vfxl,gran-micsuc ip,intbd ooc-oom GRNST & tt-occ plty PKST,rr scat alg mat,rr-tr ANHY xl-incl-rr POR fl,occ DOL cmt,v rr scat trnsl-clr CHT frag,tr-g ool-intxl-v rr alg POR,fr-g dull-bri yel FLOR,fr ltbrn-rr blk STN,fr CUT"

7100.00 7110.00 "LS AA,pred intbd ooc-oom GRNST & tt occ plty sl chk PKST,fr-g intxl-ool-v rr alg POR,fr dull-bri yel FLOR,fr ltbrn-brn-v rr blk dd o STN,fr-g mod fast-fast stmg CUT"

7110.00 7120.00 "LS AA,incr tt occ plty-chk crm-tan v sl ool PKST,tt-g intxl-ool-v rr alg POR,g dull-fr bri yel FLOR,tr-fr intxl-ool-occ alg Por,tr-fr ltbrn-rr brn STN,rr spty blk dd o STN,tr g mod fast stmg CUT"

7120.00 7140.00 "LS crm-tan-ltbrn,occ wh,crpxl-vfxl,gran-micsuc ip,intbd ooc-oom GRNST & tt-occ plty-chk PKST,v rr scat alg mat,rr ANHY xl-incl,occ DOL cmt,v rr scat trnsl-clr CHT frag,tr-fr ool-intxl-v rr alg POR,fr-g dull-bri yel FLOR,fr ltbrn-rr blk STN,tr fr fast CUT"

7140.00 7160.00 "LS AA,incr & bcmg pred ooc-oom GRNST w/scat PKST AA,rr scat trnsl-clr CHT frag,fr intxl-ool-v rr spty alg POR,fr-g dull-bri yel FLOR,tr-fr ltbrn-brn STN,rr spty blk dd o STN,tr-fr g mod fast-fast stmg CUT"

7160.00 7180.00 "LS tan-ltbrn,rr crm-wh,micxl-vfxl,rr crpxl,gran-micsuc,pred ooc-oom GRNST w/tr tt occ plty v sl ool PKST,rr alg mat,rr ANHY xl-incl,sl dol,rr clr CHT frag,fr-g intxl-ool-rr alg POR-rr tt,fr-g dull-bri yel FLOR,fr ltbrn-brn-rr blk spty STN,fr-g fast CUT"

7180.00 7200.00 "LS tan-ltbrn,occ crm-brn,crpxl-vfxl,occ gran-micsuc,tt-chk ip,pred ooc-oom GRNST w/thn intbd chk PKST,v sl alg,v sl dol,occ sl anhy-v rr ANHY xl,v rr trnsl CHT frag,tt-g intxl-ool-rr alg POR,g dull-bri yel FLOR,fr ltbrn-v rr spty blk STN,g mod fast CUT"

7200.00 7220.00 "LS tan-ltbrn,occ crm-rr wh,crpxl-vfxl,occ gran-micsuc,pred sl ooc-oom GRNST,v sl alg,w/thn intbd tt sl ool PKST,v sl dol,scat ANHY xl-incl,v rr trnsl-clr CHT frag,fr-g intxl-ool-v rr alg POR,fr-g bri-dull yel FLOR,fr ltbrn-v rr blk STN,fr-g mod fast CUT"

7220.00 7240.00 "LS AA,incr tt-v sl ool PKST,sl decr intxl-ool POR,FLOR-CUT AA,fr ltbrn-v rr spty blk STN"

7240.00 7260.00 "LS crm-tan-ltbrn,rr wh,crpxl-vfxl,gran-micsuc ip,intbd ooc-oom GRNST & tt-occ plty-chk PKST,rr scat alg mat,rr ANHY xl-incl,occ DOL cmt,v rr scat trnsl-clr CHT frag,tr-fr ool-intxl-v rr alg POR,fr-g dull-bri yel FLOR,fr ltbrn-rr blk STN,fr g mod fast CUT"

7260.00 7270.00 "LS AA,pred ooc-oom GRNST,g intxl-fr ool-v rr alg POR,fr-g dull-bri yel FLOR,fr-g ltbrn-rr brn STN,rr blk dd o STN,fr-g mod fast-fast stmg CUT"

DEPTH	LITHOLOGY

7270.00 7280.00 "LS AA,ooc-ool-occ oom GRNST,sl incr scat-occ intbd dns-tr chky plty PCKST,anhy/rr xln frag,rr CHT AA,POR-FLOR-STN-CUT AA"

7280.00 7300.00 "LS tan-crm-grdg to ltbrn,occ brn,wh,vfxl-micxl-gran,crpxl,occ micsuc,ooc-oom-sl ool GRNST/tr DOL cmt,scat-intbd dns-occ agal mat PCKST,sl anhy/tr xln ANHY frag,tr chky-anhy POR fl,fr-g ooc-oom-intxl/tr ool POR,FLOR AA,g-fr ltbrn-brn/rr blk STN,CUT AA"

7300.00 7310.00 "LS AA,pred ooc-oom-sl ool GRNST/tr DOL cmt,sl incr scat-intbd PCKST,anhy/tr xln ANHY AA,POR-FLOR-STN-CUT AA"

7310.00 7320.00 "LS AA,pred GRNST AA,scat dns-tr chky plty PCKST,anhy/rr xln ANHY frag,vrr bf-tan CHT incl,g ooc-oom/tr ool & intxl POR,g even bri yel FLOR,fr ltbrn-tr brn/rr blk dd o STN,g fast strm mlky CUT"

7320.00 7340.00 "LS tan-crm-grdg to ltbrn,occ brn,wh,vfxl-gran-micsuc,crpxl,ooc-oom-sl ool GRNST/tr DOL cmt,scat-occ intbd dns-chky plty PCKST,anhy/tr xln ANHY frag,tr chky-anhy POR fl,rr CHT AA, POR-FLOR-STN-CUT AA "

7340.00 7350.00 "LS AA,vfxl-gran-micsuc,crpxl,ooc-oom-sl ool GRNST/tr DOL cmt,scat-occ intbd dns-chky plty PCKST,anhy,rr xln ANHY frag,tr chky-anhy POR fl,POR-FLOR-STN-CUT AA "

7350.00 7360.00 "LS AA,vfxl-micsuc,gran,incr crpxl,ooc-oom-sl ool GRNST/tr DOL cmt,incr scat-occ intbd dns-chky plty PCKST,anhy/tr xln ANHY frag,incr chky-anhy POR fl,POR-FLOR-STN-CUT AA "

7360.00 7380.00 "LS tan-crm-ltbrn,occ brn,wh,vfxl-micsuc,gran-micxl,crpxl,ooc-ool-sl oom GRNST/DOL cmt,scat-occ intbd dns-tr chky plty PCKST,sl anhy/tr xln ANHY,rr anhy POR fl,vrr tan CHT,g ooc-intxl/tr oom POR,g even bri yel FLOR,fr ltbrn-tr brn STN,g mod slow strm CUT "

7380.00 7400.00 "LS AA,vfxl-micsuc,gran,crpxl-micxl,pred ooc-ool-sl oom GRNST/scat-occ intbd dns-rr chky plty PCKST,DOL cmt,sl anhy/rr xln ANHY-POR fl,g ooc-intxl/tr oom POR,g even bri yel FLOR,fr ltbrn-tr brn STN,g mod fast-slow strm mlky CUT "

7400.00 7420.00 "LS tan-crm,ltbrn,occ brn,wh,sl trnsl ip,vfxl-gran-micsuc,crpxl,pred ooc-ool-sl oom GRNST/DOL cmt,scat dns-rr chky plty PCKST,sl anhy/rr xl ANHY,tr tan-bf CHT,tr chky-anhy POR fl,occ sl dol,POR-FLOR-STN AA,g mod fast-fast strm mlky CUT"

7420.00 7440.00 "LS tan-ltbrn,crm,occ brn,wh,vfxl-micsuc-gran,crpxl,pred ooc-ool-sl oom GRNST/DOL cmt,tr scat dns-rr chky plty PCKST,sl anhy/rr xln ANHY-POR fl,vrr bf-trnsl CHT incl,POR AA,g even bri yel FLOR,fr ltbrn-incr brn STN,g fast strm-blooming mlky CUT "

7440.00 7460.00 "LS tan-crm,ltbrn,occ brn,wh,vfxl-gran,micsuc,crpxl,pred ooc-ool-sl oom GRNST/DOL cmt/tr brn micsuc DOL incl,occ grdg lmy DOL,scat PCKST AA,sl anhy AA,g ooc-ool/tr intxl-oom POR,FLOR AA,fr ltbrn/tr brn STN,g fast strm-blooming mlky CUT"

7460.00 7480.00 "LS AA,vfxl-gran-micxl,micsuc,crpxl,pred ooc-ool-sl oom GRNST,scat dns-vrr chky plty PCKST frag,sl anhy/tr xln ANHY frag,POR-FLOR-STN AA,g slow strm mlky CUT/intbd DOL brn,micsuc,cln-sl calc,g intxl POR,g bri yel FLOR,g brn STN,g blooming-fast strm CUT"

7480.00 7490.00 "LS AA,pred GRNST AA/tr scat PCKST AA,decr intbd DOL AA,POR-FLOR-STN CUT AA"

DEPTH	LITHOLOGY

7490.00 7510.00 "LS tan-crm,ltbrn,occ brn,wh,vfxl-gran-micxl,micsuc,crpxl,pred ooc-ool-sl oom GRNST,scat dns-vrr chky plty PCKST frag,DOL cmt-occ dol ip,sl anhy/tr POR fl-vrr xln ANHY frag,g ooc-intxl/tr oom POR-FLOR AA,fr ltbrn/tr brn STN,g fast strm mlky CUT/tr DOL AA"

7510.00 7530.00 "DOL brn-occ mbrn,micsuc-micxl,cln-calc,occ grdg to dol LS,g intxl-sl ooc POR,g bri yel FLOR,g brn STN,g blooming CUT,intbd/LS AA,pred ooc-ool-sl oom GRNST/DOl cmt-sl dol ip,tr PCKST AA,sl anhy AA,FLOR-STN-CUT AA"

7530.00 7550.00 "LS tan-crm-ltbrn,occ brn,wh,vfxl-gran-micsuc,crpxl,pred ooc-ool GRNST/DOL cmt-dol ip,tr dns-sl chky PCKST,sl anhy/rr xl ANHY,rr chky-anhy POR fl,POR-FLOR-STN AA,g mod fast-fast strm mlky CUT/scat DOL frag AA"

7550.00 7570.00 "LS tan-crm,ltbrn,occ brn,wh,vfxl-gran,micsuc,crpxl,pred ooc-ool-sl oom GRNST/DOL cmt-dol ip,tr dns-rr chky plty PCKST,sl anhy/rr xl ANHY,vrr CHT AA,g ooc-oom-intxl/tr ool POR/tr anhy fl,FLOR AA,fr ltbrn/tr brn STN,fast strm-blooming mlky CUT/decr DOL AA"

7570.00 7590.00 "LS AA,vfxl-gran-micsuc,micxl-crpxl,pred ooc-ool-sl oom GRNST,scat dns-vrr chky plty PCKST frag,DOL cmt-occ dol ip,incr intbd/brn micsuc DOL AA,sl anhy/tr xln ANHY frag,g ooc-ool/tr intxl-oom POR/sl incr ahny-chky fl,FLOR AA,fr ltbrn/tr brn STN,CUT AA"

7590.00 7610.00 "LS tan-crm-ltbrn,occ brn,wh,vfxl-gran,micsuc,crpxl,pred ooc-ool-sl oom GRNST/DOL cmt-dol ip,tr dns-chky plty PCKST,sl anhy/vrr xl ANHY,g ooc-oom-intxl-tr ool POR/tr anhy fl,g even bri yel FLOR,fr ltbrn/tr brn STN,g fast strm-blooming mlky CUT/scat DOL AA"

7610.00 7630.00 "DOL brn-occ mbrn,micsuc-micxl,cln-calc,sl arg,occ grdg to dol LS,g intxl-sl ooc POR,g bri yel FLOR,g brn STN,g blooming CUT,intbd/LS AA,pred ooc-ool-sl oom GRNST/DOL cmt-sl dol ip,tr PCKST AA,sl anhy AA,FLOR-STN-CUT AA"

7630.00 7640.00 "LS AA,pred ooc-sl ool-oom GRNST/scat -occ intbd PCKST,scat-intbd DOL AA,sl anhy/tr POR fl & rr xln frag,POR-FLOR-STN-CUT AA"

7640.00 7650.00 "DOL brn-occ mbrn,micsuc-vfxl,sl crpxl ip,cln,calc-occ grdg to dol LS,occ intbd/ooc-ool GRNST AA,g intxl-sl ooc POR,g bri yel FLOR,g brn STN,g blooming-fast strm CUT"

7650.00 7660.00 "LS AA,pred GRNST AA/tr scat PCKST AA,intbd/DOL AA,POR-FLOR-STN CUT AA"

7660.00 7680.00 "LS tan-crm-ltbrn,occ brn,wh,vfxl-gran,micsuc,crpxl,pred ooc-ool-sl oom GRNST/DOL cmt-dol ip,tr dns-chky plty PCKST,sl anhy/rr xl ANHY,g ooc-oom-intxl-tr ool POR/tr anhy fl,FLOR AA,fr ltbrn/tr brn STN/rr blk pp dd o STN,g slow strm mlky CUT/scat DOL AA"

7680.00 7700.00 "LS AA,pred ooc-sl oom-ool GRNST/DOL cmt-occ grdg to lmy DOL,tr scat DOL frag-incl AA,sl incr scat-occ intbd dns-chky plty PCKST,anhy/tr POR fl-xln ANHY frag,scat DOL frag-incl AA,g ooc-intxl/tr oom-sl ool POR,g even bri yel FLOR,STN-CUT AA"

7700.00 7720.00 "LS tan-crm-ltbrn,occ brn,wh,vfxl-gran,micsuc,crpxl,pred ooc-ool-sl oom GRNST/DOL cmt-dol ip,tr PCKST AA-occ agal mat,sl anhy/rr xl ANHY,g ooc-oom-intxl-tr ool POR/rr anhy fl,FLOR AA,fr ltbrn/tr brn STN/rr blk pp dd o STN,g slow strm mlky CUT/scat DOL AA"

7720.00 7730.00 "LS AA,w/thn intbd gran-ool DOL GRNST & PKST,v rr scat trnsl CHT frag,fr-g intxl-tr ool POR,fr-g dull-bri yel FLOR,tr-g ltbrn-rr brn STN,rr blk dd o STN,fr-g mod fast stmg CUT"

DEPTH	LITHOLOGY
7730.00 7740.00	"LS AA,w/decr DOL incl,POR-FLOR-STN-CUT AA"
7740.00 7760.00	"LS tan-ltbrn,crpxl-vfxl,gran-misuc,occ ooc-oom GRNST w/thn tt-sl ool PKST,occ grdg to DOL ltbrn-brn,crpxl-vfxl,gran,occ ooc,rr scat ANHY xl,v rr trnsl CHT frag,LS & DOL-fr-g intxl-fr ool POR,fr-g bri yel FLOR,fr ltbrn-v rr blk STN,fr-g mod fast stmg CUT"
7760.00 7780.00	"LS & thn intbd DOL AA w/ POR-FLOR-STN-CUT AA"
7780.00 7800.00	"LS tan-ltbrn,crpxl-vfxl,gran-misuc,occ ooc-oom GRNST w/thn tt-sl ool PKST,occ grdg to DOL ltbrn-brn,crpxl-vfxl,gran,occ ooc,rr scat ANHY xl,v rr trnsl CHT frag,LS & DOL-fr-g intxl-fr ool POR,fr-g bri yel FLOR,fr ltbrn-v rr blk STN,fr-g mod fast stmg CUT"
7800.00 7820.00	"LS & thn intbd DOL AA w/ POR-FLOR-STN-CUT AA"
7820.00 7840.00	"LS crm-tan-ltbrn,crpxl-vfxl,gran-micsuc ip,intbd ooc-oom GRNST & thn tt sl anhy PKST,w/sl incr DOL ltbrn-brn micxl-vfxl,gran-micus sl ool GRNST,rr scat ANHY xl-trnsl CHT frag,fr-g intxl-tr ool POR,fr-g dull-bri yel FLOR,fr-g ltbrn-v rr blk STN,g fast CUT"
7840.00 7860.00	"LS & incr thn intbd DOL AA w/ POR-FLOR-STN-CUT AA"
7860.00 7882.00	"LS tan-ltbrn,rr crm,crpxl-vfxl,crpxl ip,gran-micsuc,intbd ooc-oom GRNST & thn tt PKST,w/intbd DOL brn micxl-vfxl,gran-micus sl ool GRNST,rr scat ANHY xl-trnsl CHT frag,fr-g intxl-tr ool POR,fr-g dull-bri yel FLOR,fr-g ltbrn-v rr blk STN,g mod fast CUT"
7882.00 7900.00	"TR BLK SH CVGS AFTER TRIP" "LS tan-ltbrn,crpxl-vfxl,sl gran,ooc-oom GRNST w/scat tt sl anhy PKST & intbd ltbrn-brn ool DOL GRNST,rr scat trnsl-clr CHT frag,fr-g intxl-fr ool POR,fr-g dull-bri yel FLOR,fr-g ltbrn-brn STN,rr blk STN,g mod fast stmg CUT"
7900.00 7920.00	"LS tan-crm-sl trnsl,ltbrn,occ brn,vfxl-gran-micsuc,crpxl,ooc-ool-sl oom GRNST/intbd DOL GRNST,tr DOL cmt,sl anhy/tr xln ANY & occ POR fl,tr scat dns-chky plty PCKST frag-incl,g ooc-intxl/tr ool-oom POR,g bri yel FLOR,fr ltbrn-tr brn/rr pp blk STN,CUT AA"
7920.00 7940.00	"DOL brn-occ mbrn,micsuc-vfxl-occ micxl,pred sl ooc-ool DOL GRNST-occ grdg to dns DOL PCKST ip,pred cln-arg ip,sl calc-occ grdg to dol LS,intbd/LS AA,g intxl-sl ooc POR,g bri yel FLOR,g brn/rr blk pp dd o STN,g fast strm CUT"
7940.00 7960.00	"LS tan-ltbrn,occ brn,crm-wh,vfxl-gran-micsuc,crpxl,ooc-ool-sl oom GRNST/intbd DOL GRNST AA,tr DOL cmt-occ grdg to lmy DOL,sl anhy/ANHY & POR fl AA,tr scat LS PCKST AA,tr ool,g ooc-intxl/tr ool-oom POR,g even bri yel FLOR,g-fr ltbrn-brn STN,g CUT AA"
7960.00 7980.00	"DOL brn-occ mbrn,micsuc-vfxl-occ micxl,pred sl ooc-ool DOL GRNST-occ grdg to dns DOL PCKST ip,pred cln-arg ip,sl calc-occ grdg to dol LS,intbd/LS AA,g intxl-sl ooc POR,g bri yel FLOR,g brn/rr blk pp dd o STN,g fast strm CUT"
7980.00 8000.00	"DOL AA,micsuc-vfxl-occ micxl,pred sl ooc-ool DOL GRNST-occ v sl dns DOL PCKST ip,pred cln-arg ip,sl calc,tr LS incl,g intxl-ooc POR,g bri yel FLOR,g brn/rr blk pp dd o STN,g blooming-fast strm CUT"
8000.00 8010.00	"DOL AA,pred occ-ool-sl oom GRNST,cln-sl arg,tr scat-occ intbd LS GRNST AA,rr scat dns-chky plty LS PCKST,tr ool,POR-FLOR-STN-CUT AA"

DEPTH	LITHOLOGY

8010.00 8030.00 "DOL brn,occ dkbrn,ltbrn,micsuc-vfxl-micxl,cln,sl arg ip,v sl anhy/rr POR fl,vrr xln ANHY frag,tr scat-occ intbd tan micsuc LS GRNST & dns-sl chky LS PCKST,g ooc-ool-intxl POR,g bri yel FLOR,g brn-occ dkbrn STN,tr pp blk dd o STN,g blooming-fast strm CUT"

8030.00 8040.00 "DOL AA/decr LS GRNST & PCKST AA,g ooc-ool-sl oom/tr intxl POR,g even bri yel FLOR,g brn-dkbrn/tr blk pp dd o STN,g blooming-fast str mlky CUT"

8040.00 8050.00 "DOL AA,ooc-ool-incr oom GRNST,rr LS GRNST & PCKST AA,POR AA,g mod bri-dull yel FLOR,STN-CUT AA"

8050.00 8070.00 "DOL brn-dkbrn,occ ltbrn,micsuc-vfxl-micxl,occ sl crpxl,ool-ooc-sl oom DOL GRNST,cln-sl arg,v sl anhy,occ grdg to dol LS/tr scat-intbd LS GRNST AA,rr ool,g ooc-ool-intxl POR,FLOR-STN AA,rr blk dd o STN,g blooming-mod slow strm CUT"

8070.00 8080.00 "DOL AA,ooc-ool-sl oom GRNST,vrr LS GRNST & PCKST AA,tr ool,POR AA,g mod bri-dull yel FLOR-STN-CUT AA"

8080.00 8100.00 "DOL AA,micsuc-vfxl-micxl,vrr crpxl,cln-sl arg,v sl anhy/vrr xln ANHY frag,occ grdg to dol LS/rr scat-intbd LS GRNST AA,tr ool,g ooc-ool-tr intxl POR,g mod bri-dull yel FLOR,STN AA,fr-g blooming-mod fast strm CUT"

8100.00 8120.00 "DOL brn-dkbrn,occ ltbrn,micsuc-vfxl-micxl,vsl crpxl,ool-ooc GRNST,cln-sl arg,v sl anhy/vrr xln ANHY,occ grdg to dol LS,vrr scat-intbd LS GRNST,incr ool,g ool-ooc-intxl POR,FLOR-STN AA,rr blk dd o STN,g blooming-mod slow strm CUT"

8120.00 8140.00 "DOL AA,ooc-ool-sl oom GRNST,vrr LS GRNST & PCKST AA,tr scat ool,g ool-ooc-sl intxl POR,g mod bri/scat bri yel FLOR,g brn-dkbrn/rr pp blk dd o STN,g blooming-fast strm mlky CUT"

8140.00 8160.00 "DOL AA,micsuc,vfxl-micxl,vrr crpxl,ool-ooc-sl oom DOL GRNST,cln-sl arg,v sl anhy/rr xln ANHY frag,sl calc-occ grdg to dol LS/vrr intbd LS GRNST,incr-tr ool,g ool-ooc-tr intxl POR,g mod bri/scat bri yel FLOR,STN AA,fr-g blooming-mod fast strm CUT"

8160.00 8180.00 "DOL brn-dkbrn,occ ltbrn,micsuc-vfxl,micxl-vsl crpxl,ool-ooc GRNST,cln,sl arg,v sl calc-occ grdg to dol LS,vrr LS GRNST-PCKST incl,tr ool,vrr xln ANHY frag,g ool-ooc-intxl POR,FLOR-STN AA,g mod slow strm-sl blooming mlky CUT"

8180.00 8190.00 "DOL AA,ooc-ool-incr oom GRNST,vrr intbd LS GRNST-PCKST,vrr xln ANHY frag,POR AA,g mod bri-dull/tr scat bri yel FLOR,STN-CUT AA"

8190.00 8200.00 "DOL AA,pred ool-sl ooc-tr oom GRNST,vrr LS incl,scat ool,POR AA,g mod bri-dull/scat bri yel FLOR,g brn-dkbrn/tr blk pp dd o STN,CUT AA"

8200.00 8220.00 "DOL AA,micsuc,vfxl-micxl,vrr crpxl,pred ool-sl ooc-tr oom GRNST,cln,scat ool,v sl arg ip,rr xln ANHY frag-incl,rr LS GRNST frag prob cvgs,g ool-ooc-tr intxl POR,g mod bri/scat bri yel FLOR,g brn-dkbrn/rr blk STN,fr-g mod fast strm-sl blooming mlky CUT"

8220.00 8240.00 "DOL brn-dkbrn,occ ltbrn,micsuc-vfxl,micxl-occ crpxl,pred ool-sl ooc-tr oom GRNST,scat ool,vrr xln ANHY frag & LS incl,v sl arg,g ool-ooc-tr intxl POR,g scat mod bri/tr bri yel FLOR,g brn-dkbrn STN/rr blk STN,g mod slow strm-sl blooming mlky CUT"

DEPTH	LITHOLOGY

8240.00 8250.00 "DOL AA,ooc-ool-incr oom GRNST,vrr intbd LS GRNST-PCKST,vrr xln ANHY frag,POR AA,g mod bri-dull/tr scat bri yel FLOR,STN AA,g mod fast strm-sl blooming CUT"

8250.00 8260.00 "DOL AA,pred ool-ooc-sl oom GRNST,scat ool,POR AA,g mod bri-dull/tr scat bri yel FLOR,STN-CUT AA"

8260.00 8280.00 "DOL brn-dkbrn,occ ltbrn,micsuc-vfxl-micxl,sl crpxl,pred ool-ooc-tr oom GRNST,scat ool,vrr xln ANHY frag-incl,v sl arg,g ool-ooc-tr intxl POR & vrr pp agal POR,g mod bri-dull/tr bri yel FLOR,g brn-dkbrn STN/rr blk STN,g slow blooming-fast strm mlky CUT"

8280.00 8300.00 "DOL AA,micsuc-vfxl-micxl,sl crpxl,pred ool-ooc-tr oom GRNST,scat ool,v sl arg ip,rr xln ANHY frag-incl,g ool-ooc-tr intxl POR/vrr pp agal POR,g mod bri-dull/scat bri yel FLOR,g brn-dkbrn/rr pp blk dd o STN,fr-g blooming-fast strm mlky CUT"

8300.00 8320.00 "DOL AA,micsuc-vfxl-micxl,v sl crpxl,pred ool-sl ooc-tr oom GRNST,scat ool,v sl arg ip,vrr xln ANHY frag-incl,g ool-ooc-tr intxl POR,g mod bri/scat bri yel FLOR,g brn-dkbrn/vrr blk pp dd o STN,g fast strm-tr blooming mlky CUT"

8320.00 8340.00 "DOL brn-dkbrn,occ ltbrn,micsuc-vfxl-micxl,sl crpxl,pred ool GRNST,sl occ-oom ip,scat ool,vrr xln ANHY frag-incl,v sl arg cmt,g ool-ooc POR,g mod bri-dull/tr scat bri yel FLOR,g brn-dkbrn STN/rr blk STN,g blooming-fast strm mlky CUT"

8340.00 8360.00 "DOL AA,micsuc-vfxl-micxl,sl crpxl,pred ool-ooc-tr oom GRNST,scat ool,v sl arg cmt ip,rr xln ANHY frag-incl,g ool-ooc-tr oom POR,g mod bri-dull/scat bri yel FLOR,g brn-dkbrn/rr blk dd o STN,g blooming-fast strm mlky CUT"

8360.00 8380.00 "DOL AA,vfxl-micsuc-micxl,tr v sl crpxl,pred ool-ooc-tr oom GRNST,scat ool,v sl arg cmt,vrr xln ANHY frag-incl,g ool-ooc-tr intxl POR,g-fr dull-mod bri/rr scat bri yel FLOR,g brn-dkbrn/rr scat blk pp dd o STN,g slow blooming-fast strm mlky CUT"

8380.00 8390.00 "DOL AA,pred ool-ooc-sl oom GRNST,scat ool,POR AA,g-fr mod bri-dull/tr scat bri yel FLOR,STN AA,g fast strm mlky CUT"

8390.00 8400.00 "DOL AA,ool-ooc DOL GRNST,scat ool,POR-FLOR-STN-CUT AA"

8400.00 8420.00 "DOL AA,vfxl-micsuc-micxl,tr v sl crpxl,pred ool-ooc-tr oom GRNST,scat ool,v sl arg cmt,vrr xln ANHY frag-incl,g ool-ooc-tr intxl POR,g-fr dull-mod bri/rr scat bri yel FLOR,g brn-dkbrn/rr scat blk pp dd o STN,g slow blooming-fast strm mlky CUT"

8420.00 8440.00 "DOL brn-dkbrn,occ ltbrn,vfxl-micsuc-micxl,sl crpxl,pred ool-ooc GRNST,sl oom ip,scat ool,vrr xln ANHY frag,v sl arg cmt,g ool-ooc POR,g mod bri-dull/tr scat bri yel FLOR,g brn-dkbrn STN/vrr blk STN,g mod fast strm-slow blooming mlky CUT"

8440.00 8460.00 "DOL AA,pred ool-ooc GRNST,scat ool,POR AA,g-fr even mod bri-dull/scat bri yel FLOR,STN AA,g fast strm mlky CUT"

8460.00 8480.00 "DOL AA,vfxl-micsuc-gran,micxl-sl crpxl,pred ool-ooc GRNST,scat ool,v sl arg cmt,vrr xln ANHY frag-incl,g ool-ooc-tr intxl POR,g even mod bri-dull/scat bri yel FLOR,g brn-dkbrn/vrr blk pp dd o STN,g blooming-fast strm mlky CUT"

DEPTH	LITHOLOGY

8240.00 8250.00 "DOL AA,ooc-ool-incr oom GRNST,vrr intbd LS GRNST-PCKST,vrr xln ANHY frag,POR AA,g mod bri-dull/tr scat bri yel FLOR,STN AA,g mod fast strm-sl blooming CUT"

8250.00 8260.00 "DOL AA,pred ool-ooc-sl oom GRNST,scat ool,POR AA,g mod bri-dull/tr scat bri yel FLOR,STN-CUT AA"

8260.00 8280.00 "DOL brn-dkbrn,occ ltbrn,micsuc-vfxl-micxl,sl crpxl,pred ool-ooc-tr oom GRNST,scat ool,vrr xln ANHY frag-incl,v sl arg,g ool-ooc-tr intxl POR & vrr pp agal POR,g mod bri-dull/tr bri yel FLOR,g brn-dkbrn STN/rr blk STN,g slow blooming-fast strm mlky CUT"

8280.00 8300.00 "DOL AA,micsuc-vfxl-micxl,sl crpxl,pred ool-ooc-tr oom GRNST,scat ool,v sl arg ip,rr xln ANHY frag-incl,g ool-ooc-tr intxl POR/vrr pp agal POR,g mod bri-dull/scat bri yel FLOR,g brn-dkbrn/rr pp blk dd o STN,fr-g blooming-fast strm mlky CUT"

8300.00 8320.00 "DOL AA,micsuc-vfxl-micxl,v sl crpxl,pred ool-sl ooc-tr oom GRNST,scat ool,v sl arg ip,vrr xln ANHY frag-incl,g ool-ooc-tr intxl POR,g mod bri/scat bri yel FLOR,g brn-dkbrn/vrr blk pp dd o STN,g fast strm-tr blooming mlky CUT"

8320.00 8340.00 "DOL brn-dkbrn,occ ltbrn,micsuc-vfxl-micxl,sl crpxl,pred ool GRNST,sl occ-oom ip,scat ool,vrr xln ANHY frag-incl,v sl arg cmt,g ool-ooc POR,g mod bri-dull/tr scat bri yel FLOR,g brn-dkbrn STN/rr blk STN,g blooming-fast strm mlky CUT"

8340.00 8360.00 "DOL AA,micsuc-vfxl-micxl,sl crpxl,pred ool-ooc-tr oom GRNST,scat ool,v sl arg cmt ip,rr xln ANHY frag-incl,g ool-ooc-tr oom POR,g mod bri-dull/scat bri yel FLOR,g brn-dkbrn/rr blk dd o STN,g blooming-fast strm mlky CUT"

8360.00 8380.00 "DOL AA,vfxl-micsuc-micxl,tr v sl crpxl,pred ool-ooc-tr oom GRNST,scat ool,v sl arg cmt,vrr xln ANHY frag-incl,g ool-ooc-tr intxl POR,g-fr dull-mod bri/rr scat bri yel FLOR,g brn-dkbrn/rr scat blk pp dd o STN,g slow blooming-fast strm mlky CUT"

8380.00 8390.00 "DOL AA,pred ool-ooc-sl oom GRNST,scat ool,POR AA,g-fr mod bri-dull/tr scat bri yel FLOR,STN AA,g fast strm mlky CUT"

8390.00 8400.00 "DOL AA,ool-ooc DOL GRNST,scat ool,POR-FLOR-STN-CUT AA"

8400.00 8420.00 "DOL AA,vfxl-micsuc-micxl,tr v sl crpxl,pred ool-ooc-tr oom GRNST,scat ool,v sl arg cmt,vrr xln ANHY frag-incl,g ool-ooc-tr intxl POR,g-fr dull-mod bri/rr scat bri yel FLOR,g brn-dkbrn/rr scat blk pp dd o STN,g slow blooming-fast strm mlky CUT"

8420.00 8440.00 "DOL brn-dkbrn,occ ltbrn,vfxl-micsuc-micxl,sl crpxl,pred ool-ooc GRNST,sl oom ip,scat ool,vrr xln ANHY frag,v sl arg cmt,g ool-ooc POR,g mod bri-dull/tr scat bri yel FLOR,g brn-dkbrn STN/vrr blk STN,g mod fast strm-slow blooming mlky CUT"

8440.00 8460.00 "DOL AA,pred ool-ooc GRNST,scat ool,POR AA,g-fr even mod bri-dull/scat bri yel FLOR,STN AA,g fast strm mlky CUT"

8460.00 8480.00 "DOL AA,vfxl-micsuc-gran,micxl-sl crpxl,pred ool-ooc GRNST,scat ool,v sl arg cmt,vrr xln ANHY frag-incl,g ool-ooc-tr intxl POR,g even mod bri-dull/scat bri yel FLOR,g brn-dkbrn/vrr blk pp dd o STN,g blooming-fast strm mlky CUT"

DEPTH	LITHOLOGY

8480.00 8500.00 "DOL lt-mbrn,crpxl-vfxl,gran-micsuc ip,pred ooc-oom,v sl anhy,v rr trnsl CHT frag,fr-g ool-tr intxl POR,fr dull-tr bri yel FLOR,g lt-mbrn STN,fr mod fast-tr fast stmg CUT"

8500.00 8520.00 "DOL AA,v sl incr PKST,n-v sl calc,POR-FLOR-CUT AA,fr-g ltbrn-brn STN w/v rr spty blk dd o STN"

8520.00 8540.00 "DOL lt-mbrn,brn,crpxl-vfxl,gran-micsuc ip,pred ooc-oom GRNST w/thn ool PKST,v rr ANHY xl,v rr LS PKST frag,n-v sl calc,v rr trnsl CHT frag,fr-g ool-fr intxl POR,tr-fr dull-bri yel FLOR,fr-g brn-v rr spty blk STN,fr mod fast-fast stmg CUT"

8540.00 8560.00 "DOL AA,n-v sl calc,v sl anhy,POR-FLOR-STN-CUT AA"

8560.00 8580.00 "DOL lt-mbrn,brn,crpxl-vfxl,gran-micsuc ip,pred ooc-oom GRNST w/thn ool PKST,v rr ANHY xl,v rr LS PKST frag,v sl calc,v rr trnsl-clr CHT frag,fr-g ool-fr intxl POR,tr-fr dull-bri yel FLOR,fr-g brn-v rr spty blk STN,fr g mod fast-fast stmg CUT"

8580.00 8600.00 "DOL AA,v sl calc-v rr tan-crm crpxl LS PKST frag,v sl anhy,POR-FLOR-STN-CUT AA"

8600.00 8620.00 "DOL lt-mbrn,brn,crpxl-vfxl,incr gran-micsuc,rr suc,pred ooc-oom GRNST,w/scat sl oo PKST frag-incl,sl calc-v rr crm-tan LS PKST frag,v sl anhy,rr scat trnsl-clr CHT frag,fr-g ool-fr intxl POR,fr dull-bri yel FLOR,fr-g brn-tr blk dd o STN,fr-g mod fast CUT"

8620.00 8640.00 "DOL lt-mbrn,rr brn-dkbrn,crpxl-vfxl,occ gran-micsuc,rr suc,pred ooc-oom GRNST w/scat thn ool PKST,n-v sl calc,v rr trnsl-clr CHT frag,fr dull-tr bri yel FLOR,fr-g ltbrn-brn STN,rr-tr blk dd o STN,fr-g mod fast-fast stmg CUT"

8640.00 8650.00 "DOL AA,incr GRNST,g ool-fr-g intxl POR,fr-g dull-fr bri yel FLOR,STN-CUT AA"

8650.00 8670.00 "DOL AA,v sl calc,pred ool POR,tr-fr intxl POR,fr dull-tr bri yel FLOR,STN-CUT AA"

8670.00 8690.00 "DOL ltbrn-brn,occ mbrn,crpxl-micxl,occ vfxl-gran,micsuc ip,pred oom-ooc DOL,w/intbd DOL GRNST & v thn ool DOL PKST,n-v sl calc,occ ANHY fl ool POR,fr-g ool-tr-fr intxl POR,fr dull-tr bri yel FLOR,fr-g ltbrn-brn STN,tr blk dd o STN,fr-g slow-fast stmg CUT"

8690.00 8700.00 "DOL AA,incr vfxl-gran,tr micsuc-suc,incr GRNST,w/v rr scat v ltgybrn-tan-crm crpxl LS frag,fr-g ool-intxl POR,fr-g dull-bri yel FLOR,fr-g brn-tr blk STN,fr-g mod fast-fast stmg CUT"

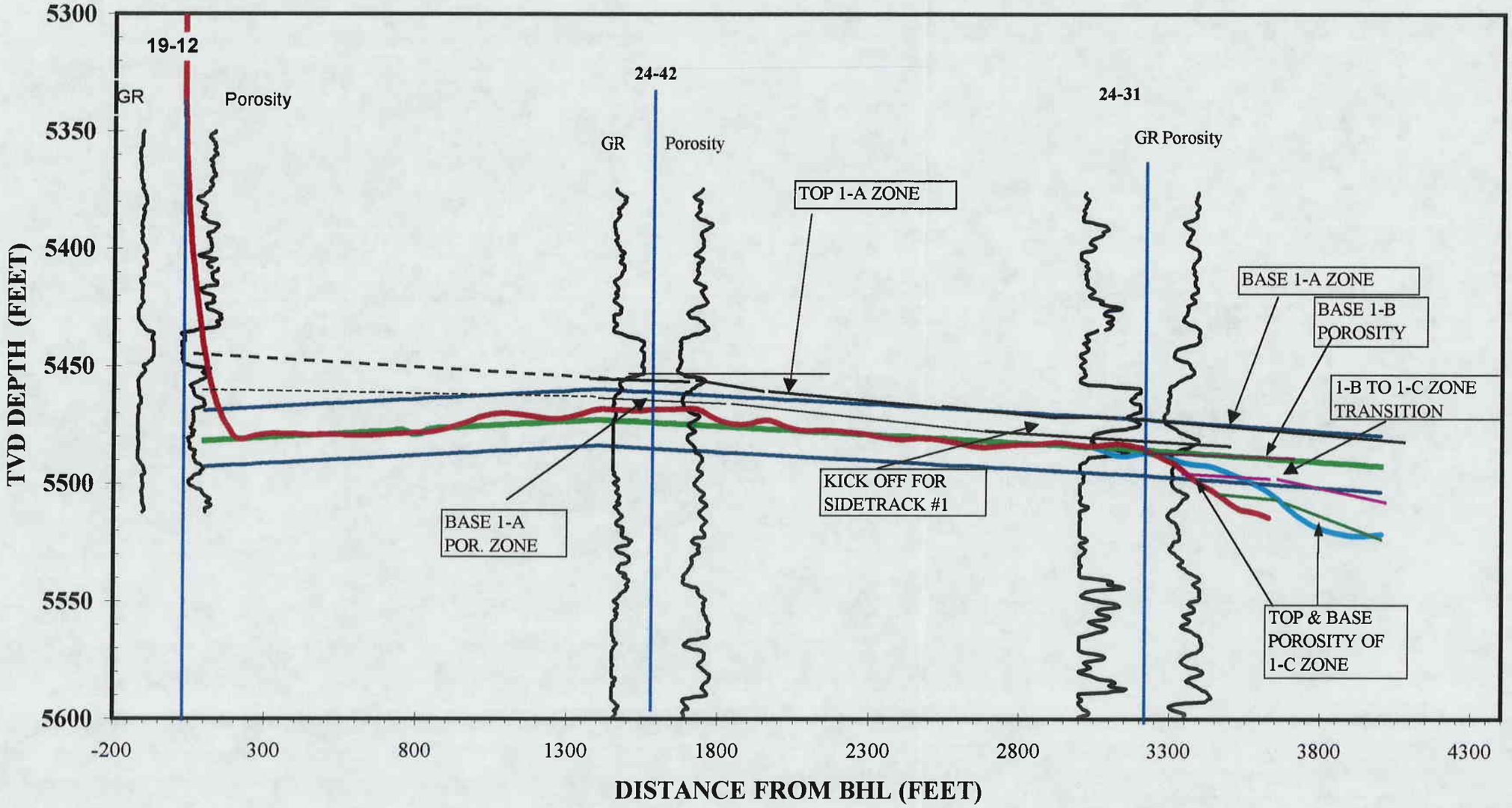
8700.00 8710.00 "DOL AA,w/v rr crpxl LS frag AA,fr-g ool-fr intxl POR,fr dull-tr bri yel FLOR,fr-g ltbrn-brn STN,rr spty blk dd o STN,fr-g slow-fast stmg CUT"

8710.00 8720.00 "DOL AA,v rr tan-ltgybrn LS frag,fr-g dull-bri yel FLOR,POR-STN-CUT AA"

8720.00 8740.00 "DOL ltbrn-brn,occ mbrn,crpxl-vfxl,gran-micsuc ip,pred oom-ooc DOL,w/intbd GRNST & v thn ool DOL PKST,n-sl calc-v rr crm-tan LS PKST frag,v rr ANHY fl POR,fr-g ool-tr-fr intxl POR,fr dull-tr bri yel FLOR,fr-g ltbrn-brn STN,tr blk dd o STN,g fast stmg CUT"

8740.00 8750.00 "DOL AA,v rr scat wh-trnsl sl ool CHT frag,n-v rr crpxl LS frag,POR-FLOR-STN-CUT AA"

MOBIL, Ratherforn Unit #19-12, Northwest Lateral



RECEIVED
OCT 01 1997
DIV. OF OIL, GAS & MINING

MOBIL

RATHERFORD UNIT #19-12

SE HORIZONTAL LATERAL LEG #1
1-A & 1-B POROSITY BENCHES
DESERT CREEK MEMBER
PARADOX FORMATION
SECTION 19, T41S, R24E
SAN JUAN, UTAH

GEOLOGY REPORT
by

JASON BLAKE / MARVIN ROANHORSE
ROCKY MOUNTAIN GEO-ENGINEERING CORP.
GRAND JUNCTION, COLORADO
(970) 243-3044

MICROFICHE

WELL SUMMARY

OPERATOR:	MOBIL EXPLORATION & PRODUCTION U.S. INC.
NAME:	RATHERFORD UNIT #19-12 SE HORIZONTAL LATERAL LEG #1 IN 1-A & 1-B POROSITY BENCHES, DESERT CREEK
LOCATION:	SECTION 19, T41S, R24E
COUNTY/STATE:	SAN JUAN, UTAH
ELEVATION:	KB: 4748' GL: 4736'
SPUD DATE:	08/29/97
COMPLETION DATE:	09/02/97
DRILLING ENGINEER:	BENNY BRIGGS
WELLSITE GEOLOGY:	JASON BLAKE / MARVIN ROANHORSE
MUDLOGGING ENGINEERS:	JASON BLAKE /MARVIN ROANHORSE
CONTRACTOR:	BIG "A" RIG 25
TOOLPUSHER:	J. DEES
HOLE SIZE:	4 3/4"
CASING RECORD:	SIDETRACK IN WINDOW AT 5360' MEASURED DEPTH
DRILLING MUD:	M-I
ENGINEER:	RON WESTENBERG/ DANNE BEASON
MUD TYPE:	FRESH WATER & BRINE WATER W/ POLYMER SWEEPS
DIRECTIONAL DRILLING CO:	SPERRY-SUN
ELECTICAL LOGGING:	NA
TOTAL DEPTH:	6950' MEASURED DEPTH; 5499.22' TRUE VERTICAL DEPTH
STATUS:	TOH & LAY DOWN TOOLS - PREPARE FOR LEG #2

DRILLING CHRONOLOGY
RATHERFORD UNIT #19-12
1-A/1-B SE HORIZONTAL LATERAL LEG#1

DATE	DEPTH	DAILY	ACTIVITY
8/28/97	5369'	0'	NIPPLE UP-PRESSURE TEST BLIND RAMS-PICK UP AOH PIPE-TEST PIPE RAMS-P.U. PIPE-TAG BRIDGE PLUG @ 5400'-SHEAR OFF W/10K-LAY DOWN 16 JNTS-TOH-RIG UP WIRELINE,SET MULE SHOE PACKER @ 5269'-RIG UP WIRELINE-MAKE UP LATCH UP ASSEMBLY-P.U. 14 DRLG COLLARS & TIH-CIRCULATE 15 MINS-LATCH INTO MULE SHOE & R.U. GYRO DATA-RUN GYRO INTO HOLE
8/29/97	5354'	7'	RUN GYRO IN HOLE & TAKE SURVEY-PULL GYRO & RIG DOWN GYRO DATA-TOOH W/MULE SHOE(SHEAR OFF WT 94K-20K OVER)-LAY DOWN MULE SHOE ASSEMBLY- PICK UP WHIPSTOCK & STARTER MILL ASSEMBLY & ORIENTATE -TIH W/WHIPSTOCK & STARTER MILL-SHEAR OFF @ 5353.78' W/14K-P.U. SWIVEL,BREAK CIRCULATION- MILL CASING FROM 5354'-5356'-CIR OUT BOTTOMS UP-TOH W/STARTER MILL-MAKE UP WATERMELON MILL,TIH-BREAK CIR,H_2S ALARM SOUNDED @ 20ppm-MILL WINDOW FROM 5356'-5361'-PUMP 8 BBL SWEEP & CIR BTMS UP-L.D. 13 JNTS D.P.-TOOH W/WINDOW MILL
8/30/97	5361'	87'	POOH W/MILL ASSEMBLY-L.D. MILL ASSEMBLY-P.U. CURVE MOTOR,BIT #1(RR),MWD,UBNO & ORIENT & TEST-P.U. NEW PH-6 TUBING & TIH-P.U. SWIVEL & CIR OUT,H_2S ALARM SOUNDED @ 50ppm -R.U. GYRO DATA & RUN IN W/GYRO-TIME DRLG @ 2 MIN./IN. 5361' TO 5364'-DRLG & WIRELINE SURVEY 5364'TO 5394'-PULL GYRO & RIG DOWN GYRO DATA-DIR DRLG & SURVEYS
8/31/97	5448'	287'	DIR DRLG & SURVEYS-CIR SPLS & 10 BBL SWEEP @ 5523'-PUMP 350 STKS BRINE-TOH & L.D. 51 JTS PIPE-L.D. CURVE ASSEMBLY & BIT-P.U. & TEST LATERAL ASSEMBLY & BIT #2-TIH W/LATERAL ASSEMBLY-P.U. SWIVEL BREAK CIR-DIR DRLG & SURVEYS
9/01/97	5735'	830'	DIR DRLG & SURVEYS
9/02/97	6565'	385'	DIR DRLG & SURVEYS TO TD OF 6950'-REACHED AT 12:15 PM-PUMP 10 BBL SWEEP & CIR OUT SPLS, PUMP BRINE WATER & TOH. LD LATERAL ASSEMBLY. PU RETRIEVING HOOK , TIH, LATCH INTO WHIPSTOCK & TOH
9/03/97	6950'	0'	PREPARING TO MILL WINDOW FOR LEG #2

SPERRY-SUN DRILLING SERVICES
SURVEY DATA

Customer ... : Mobil (Utah)
Platform ... : RATHERFORD UNIT
Slot/Well .. : BA25/19-12, 1A1

MEASURED DEPTH	ANGLE DEG	DIRECTION DEG	TVD	NORTHINGS FEET	EASTINGS FEET	VERTICAL SECTION	DOG LEG
5300.00	0.97	285.86	5299.80	12.59 N	31.73 W	-31.57	0.00
5354.00	0.90	274.72	5353.79	12.75 N	32.59 W	-32.30	0.36
5361.00	3.40	138.30	5360.79	12.60 N	32.51 W	-32.14	58.56
5371.00	8.70	132.40	5370.73	11.87 N	31.75 W	-31.09	53.29
5381.00	14.20	140.10	5380.53	10.42 N	30.41 W	-29.11	56.97
5391.00	20.40	131.70	5390.07	8.31 N	28.32 W	-26.14	66.69
5401.00	26.50	132.90	5399.24	5.63 N	25.38 W	-22.17	61.18
5411.00	32.20	135.90	5407.96	2.20 N	21.89 W	-17.27	58.85
5421.00	37.90	136.60	5416.14	1.95 S	17.92 W	-11.54	57.14
5431.00	43.40	138.60	5423.72	6.76 S	13.53 W	-5.04	56.52
5441.00	48.70	138.10	5430.66	12.14 S	8.75 W	2.14	53.12
5451.00	52.00	132.80	5437.04	17.62 S	3.35 W	9.83	52.46
*5461.00	55.60	129.70	5442.95	22.93 S	2.72 E	17.89	43.83
5471.00	59.90	130.40	5448.28	28.37 S	9.19 E	26.32	43.41
5481.00	66.40	130.40	5452.80	34.15 S	15.98 E	35.22	65.00
5491.00	72.00	130.40	5456.35	40.21 S	23.10 E	44.55	56.00
5501.00	77.70	129.20	5458.96	46.38 S	30.51 E	54.17	58.16
5523.00	85.30	129.80	5462.21	60.21 S	47.29 E	75.85	34.65
5553.82	86.70	130.70	5464.36	80.08 S	70.75 E	106.52	5.40
5584.88	88.40	131.60	5465.69	100.50 S	94.12 E	137.52	6.19
5615.98	89.10	131.90	5466.37	121.20 S	117.32 E	168.58	2.45
5647.85	89.10	133.90	5466.87	142.89 S	140.66 E	200.44	6.27
5678.91	90.40	136.00	5467.00	164.83 S	162.64 E	231.50	7.95
5710.76	91.30	137.20	5466.53	187.97 S	184.52 E	263.31	4.71
5742.58	85.20	136.70	5467.50	211.20 S	206.22 E	295.06	19.23
5774.34	85.50	136.90	5470.08	234.28 S	227.89 E	326.67	1.13
5805.26	88.90	137.90	5471.59	257.01 S	248.79 E	357.50	11.46
5836.23	91.50	139.00	5471.48	280.18 S	269.33 E	388.37	9.12
5868.00	92.30	138.60	5470.42	304.07 S	290.24 E	420.01	2.82
5899.78	88.20	136.70	5470.29	327.55 S	311.65 E	451.72	14.22
5930.75	84.60	133.90	5472.23	349.52 S	333.38 E	482.61	14.71
5962.50	86.10	134.00	5474.80	371.48 S	356.16 E	514.26	4.73
5994.32	90.70	135.60	5475.69	393.89 S	378.73 E	546.05	15.30
6026.07	90.50	135.50	5475.36	416.55 S	400.96 E	577.79	0.70
6057.80	91.50	135.10	5474.81	439.10 S	423.27 E	609.50	3.39
6089.63	90.00	133.20	5474.39	461.27 S	446.11 E	641.33	7.60
6121.36	89.40	132.10	5474.56	482.77 S	469.45 E	673.05	3.95
6153.11	86.90	130.70	5475.58	503.75 S	493.25 E	704.75	9.02

SPERRY-SUN DRILLING SERVICES
SURVEY DATA

Customer ... : Mobil (Utah)
Platform ... : RATHERFORD UNIT
Slot/Well .. : BA25/19-12, 1A1

MEASURED DEPTH	ANGLE DEG	DIRECTION DEG	TVD	NORTHINGS FEET	EASTINGS FEET	VERTICAL SECTION	DOG LEG
6184.27	86.70	130.40	5477.32	523.98 S	516.89 E	735.80	1.16
6216.14	89.60	133.00	5478.35	545.16 S	540.67 E	767.62	12.22
6247.89	90.90	133.90	5478.21	567.00 S	563.71 E	799.37	4.98
6279.64	88.90	133.00	5478.27	588.83 S	586.76 E	831.12	6.91
6310.59	88.50	132.80	5478.97	609.89 S	609.43 E	862.05	1.44
6342.33	88.50	132.80	5479.80	631.45 S	632.71 E	893.78	0.00
6374.18	89.00	133.00	5480.49	653.13 S	656.04 E	925.61	1.69
6406.00	90.00	133.90	5480.77	675.01 S	679.13 E	957.43	4.23
6437.00	89.50	134.20	5480.91	696.56 S	701.41 E	988.43	1.88
6468.65	87.70	134.60	5481.68	718.70 S	724.02 E	1020.07	5.83
6500.40	85.30	134.20	5483.62	740.87 S	746.66 E	1051.75	7.66
6532.12	84.90	134.60	5486.33	762.98 S	769.24 E	1083.36	1.78
6564.00	85.60	134.60	5488.97	785.29 S	791.86 E	1115.13	2.20
6595.83	86.90	134.40	5491.05	807.55 S	814.52 E	1146.89	4.13
6627.58	88.20	135.30	5492.41	829.92 S	837.00 E	1178.60	4.98
6659.37	87.60	134.70	5493.57	852.39 S	859.47 E	1210.37	2.67
6690.33	88.70	134.40	5494.57	874.09 S	881.52 E	1241.31	3.68
6722.10	88.50	134.60	5495.35	896.36 S	904.17 E	1273.07	0.89
6753.95	89.00	134.73	5496.04	918.74 S	926.82 E	1304.91	1.62
6785.75	87.90	132.60	5496.90	940.69 S	949.81 E	1336.69	7.54
6816.84	87.00	130.90	5498.29	961.37 S	972.98 E	1367.73	6.18
6848.60	88.10	129.60	5499.64	981.87 S	997.20 E	1399.39	5.36
6880.46	89.80	130.20	5500.23	1002.30 S	1021.64 E	1431.16	5.66
6917.00	91.20	131.40	5499.91	1026.17 S	1049.30 E	1467.64	5.05
6950.00	91.20	131.40	5499.22	1047.99 S	1074.04 E	1500.60	0.00

THE DOGLEG SEVERITY IS IN DEGREES PER 100.00 FEET.
N/E COORDINATE VALUES GIVEN RELATIVE TO WELL SYSTEM REFERENCE POINT.
TVD COORDINATE VALUES GIVEN RELATIVE TO WELL HEAD.
THE VERTICAL SECTION ORIGIN IS WELL HEAD.
THE VERTICAL SECTION WAS COMPUTED ALONG 134.00 (TRUE).
CALCULATION METHOD: MINIMUM CURVATURE.

6950 EXTRAPOLATED TO THE BIT

DAILY ACTIVITY

Operator: MOBIL
Well Name: RATHERFORD UNIT #19-12 SE 1-A/1-B HORIZONTAL LATERAL LEG#1

DATE	DEPTH	DAILY	DATE	DEPTH	DAILY
8/27/97	MOVED RIG				
8/28/97	5369'	0'			
8/29/97	5354'	7'			
8/30/97	5361'	87'			
8/31/97	5448'	287'			
9/01/97	5735'	835'			
9/02/97	6565'	385'			
9/03/97	6950'	0'			
TD					

BIT RECORD

OPERATOR: MOBIL
WELL NAME: RATHERFORD UNIT #19-12 SE 1-A/1-B HORIZONTAL LATERAL LEG#1

RUN	SIZE	MAKE	TYPE	IN/OUT	FTG	HRS	FT/HR
#1 (RR)	4 3/4"	HTC	STR-30	5361'/ 5523'	162'	23	7.04
#2	4 3/4"	HTC	STR-30	5523'/ 6950'	1427'	42.5	33.58

MUD REPORT

OPERATOR: MOBIL
WELL NAME: RATHERFORD UNIT #19-12 SE 1-A/1-B HORIZONTAL LATERAL LEG#1

DATE	DEPTH	WT	VIS	PLS	YLD	GEL	pH	WL	CK	CHL	CA	SD	OIL	WTR
8/29/97	5357'	8.4	26-	--	--	0/0	10.5	NC	NC	15000	4500	--	0%	100%
8/30/97	5382'	8.3	28	2	1	0/0	11.7	12.2	NC	14000	480	--	10%	90%
8/31/97	5523'	8.3	28	2	1	0/0	11.7	13.6	TR	16000	520	--	8%	92%
9/1/97	5830'	8.4	28	2	1	0/0	11.6	27.6	NC	19000	520	--	5%	95%
9/2/97	6832'	8.5	28	2	1	0/0	9.6	16.0	NC	40000	5200	--	11%	89%

SAMPLE DESCRIPTIONS

OPERATOR: MOBIL
WELL NAME: RATHERFORD UNIT #19-12 SE 1-A/1-B HORIZONTAL LATERAL LEG #1

DEPTH	LITHOLOGY

5360.00 5370.00 "LS,ltbrn-tn-crm ip,micxln,dens-sl chky/rthy tex,com dk brn CHT,sl foss rem; no vis POR,rr blk trry STN on frac plns,spotty dull yel FLUOR,vsl strm CUT"

5370.00 5380.00 "LS,brn-tn,dens,micxln-lt gr-crm,sft,chky,micxln,scat CHT aa,NSFOC"

5380.00 5390.00 "LS,lt gr-brn,sl mott-dk gr-blk,micxln,dens-frm to sft-chky,sil ip,argil,com blk CHT,rr foss rem; no vis POR,STN or CUT,vsl scat dull yel FLOR"

5390.00 5400.00 "DOL m-dkbrn,micxl-crpxl,occ sl micsuc-gran,rthy,v arg/tr slty strk,sl shy ip,sl calc/tr intbd LS incl,tt-sl tr intxl POR,NFSOC"

5400.00 5410.00 "LS m-ltbrngy,brn-ltbrn,occ dkbrn,tan,ltgy,crpxl-micxl,rthy,dns,occ sl slty-sl chky,tr scat-occ intbd dkbrn CHT,rr xln ANHY incl-frag,occ sl dol & arg,tt-rr intxl POR,NFSOC"

5410.00 5420.00 "LS AA bcmg incr slty-occ tr sdy strk,sl dol ip,occ grdg to calc-lmy vf SS ip,tr scat-intbd xln ANHY,dns,tt-tr intxl POR,tr v dull orng-yel mnrl FLOR,tr brn STN,tr v p dif CUT"

5420.00 5430.00 "LS AA,incr dns/scat CHT frag AA,decr slty,tr scat xln ANHY incl-frag,tt-tr intxl POR,tr-rr dull orng-yel FLOR,tr brn STN,v p dif CUT"

5430.00 5440.00 "LS ltgybrn-ltgy-crm-off wh,tan,occ ltbrn,crpxl,occ micxl-vfxl,chky,bcmg plty-occ dns,incr anhy/wh-trnsl xln ANHY incl-frag,rr scat dkbrn-brn CHT frag,tt-rr intxl POR,tr spty dull yel FLOR,rr ltbrn STN,v p dif CUT"

5440.00 5450.00 "LS ltgy-ltgybrn-tan,crm-off wh,occ ltbrn,crpxl,occ micxl-vfxl,v chky,anhy/tr wh-trnsl xln ANHY incl-frag,tr scat dkbrn-brn CHT frag,plty-dns,tt-vrr intxl POR,tr spty dull yel FLOR,rr ltbrn STN,v p dif CUT"

5460.00 5470.00 "SH dkbrn-brnblk,occ blk,sbplty-sbblky,sft-fri,occ frm,carb,sl slty,calc-sl lmy/tr scat ltbrn LS,sooty"

5470.00 5480.00 "pred SHL,gr-dk gr,sft,dolo,sub-blky"

5480.00 5490.00 "LS,ltgr-brn,sl mott,vfn-mic xln,slty tex,rr foss rem,com blk SHL aa; no vis POR,STN,FLOR or CUT"

5490.00 5500.00 "LS,lt gr-brn,vfn-mic xln,slty tex to dens,sl anhy,scat DOL LS,brn,vfn-mic xln,dens,sl ool,rr foss rem,scat SHL aa; no-vl sl frac POR,no vis STN,FLOR or CUT"

5500.00 5510.00 "LS,lt gr-brn,vfn-mic xln,slty tex to dens,sl anhy,scat DOL LS,brn,vfn-mic xln,dens,sl ool,rr lt gr transl CHT,sl pyr,com SHL aa; no-vl sl frac POR,no vis STN,FLOR or CUT"

5510.00 5520.00 "LS,tn-lt brn,vfn xln,sl suc tex,no vis foss or oolites,scat anhy,scat LS & tr CHT aa,scat SHL aa,fr intrxln POR,lt brn-blk STN,dull-mod yel FLOR,sl strm-diff CUT"

DEPTH	LITHOLOGY

5520.00 5530.00 "LS AA,pred cvgs,dns,tt-rr intxl POR,rr scat dull-mod bri FLOR,tr brn STN,no CUT"

5530.00 5550.00 "LS ltbrn-tan,occ mbrn,crm-ltgy,micxl-vfxl-gran,occ crpxl,micsuc,LS GRNST/DOL rich cmt,occ sl oom-ool ip,tr scat-occ intbd dns PCKST,rr chky plty frag,cln-v sl anhy/tr POR fl,g intxl-rr pp agal POR,geven bri-mod bri yel FLOR,g brn STN,g fast strm mlky CUT"

5550.00 5560.00 "LS AA,sl incr chk prtgs/tr chky-anhy POR fl,rr trnsl xln ANHY incl,occ DOL cmt,POR-FLOR-STN-CUT AA"

5560.00 5570.00 "LS AA,pred ool-sl oom GRNST/DOL cmt,scat-intbd dns PCKST,rr chky incl/tr scat plty prtgs,rr ANHY AA,g intxl-ooc/rr oom POR,FLOR-STN AA,g slow strmg mlky CUT"

5570.00 5580.00 "LS AA,incr chky incl & plty prtgs,tr intbd xln ANHY,POR-FLOR AA,STN AA/rr blk dd o STN,CUT AA"

5580.00 5600.00 "LS ltbrn-tan,occ mbrn,crm-wh,micxl-gran,vfxl,occ crpxl,micsuc,LS GRNST/DOL rich cmt,occ ooc-ool-sl oom,tr scat-intbd dns PCKST,tr chky plty frag,cln-sl anhy/tr POR fl,g intxl-ooc/rr pp agal POR,g even bri yel FLOR,g brn STN,g mod fast strm mlky CUT"

5600.00 5620.00 "LS tan-crm,ltbrn,occ brn,wh,micxl-crpxl,vfxl,gran,occ micsuc,GRNST AA,incr dns-chky plty PCKST,sl anhy/tr xln ANHY incl-POR fl,tr tan-ltbrn-occ trnsl CHT frag/rr ool incl,fr-g intxl/tr ooc-oom POR,gg even bri-mod bri yel FLOR,g ltbrn-fr brn STN,CUT AA"

5620.00 5630.00 "LS AA,incr chky-anhy incl-prtgs,tr xln ANHY incl-POR fl ip,decr CHT frag,POR-FLOR-STN-CUT AA"

5630.00 5650.00 "LS brn,ltbrn-tan,occ dkbrn,crm,wh,vfxl-micxl-gran,crpxl,occ micsuc ip,pred ool-ooc GRNST/tr DOL cmt,scat dns PCKST AA,tr chky plty prtgs,anhy/tr xln ANHY AA,rr ool incl/mic fos,g intxl-ooc/tr oom POR,FLOR-STN AA/tr blk dd o STN,g fast mlky/tr strm CUT"

5650.00 5670.00 LS tan-crm-ltgy,ltbrn,occ brn,micxl-vfxl-gran,micsuc,crpxl,pred ooc-oom GRNST/DOL cmt,chky-sl anhy/tr xln ANHY incl-POR fl,tr scat chky plty-rr dns PCKST frag-incl,g ool-intxl POR,g even bri yel FLOR,g brn-ltbrn STN/vrr pp blk STN,g fast mlky CUT"

5670.00 5680.00 "LS AA,decr chky plty prtgs,sl anhy/rr xln ANHY incl-POR fl,POR-FLOR-STN-CUT AA"

5680.00 5700.00 "LS brn,ltbrn-tan,occ dkbrn,crm,wh,vfxl-micxl-gran,micsuc,occ crpxl,pred ool-ooc GRNST/tr DOL cmt,tr dns PCKST AA/rr ool incl,tr chky plty prtgs,anhy/rr xln ANHY AA,rr ool incl/mic fos,g intxl-ooc-oom POR,FLOR-STN AA,g fast strm mlky CUT"

5700.00 5720.00 "LS brn-ltbrn,occ tan-crm,rr wh,vfxl-gran,micxl-micsuc,crpxl,pred ool-ooc-sl oom GRNST/tr DOL cmt,scat dns PCKST frag-incl/incr chky plty prtgs,sl anhy/vrr xln ANHY incl-POR fl,rr ool incl,g intxl-ooc-oom POR,FLOR AA-incr brn STN,g fast strm mlky CUT"

5720.00 5740.00 "LS AA,pred ool-sl oom GRNST/DOL cmt,scat-intbd dns PCKST,tr chky incl/sl incr scat plty prtgs,rr ANHY AA,g intxl-ooc/rr oom POR,FLOR-STN AA,g mod fast-slow strmg mlky CUT"

DEPTH	LITHOLOGY

5740.00 5760.00 "LS ltbrn-tan,brn,incr crm-wh,micxl-gran,vfxl,occ crpxl,micsuc,GRNST AA/DOl rich cmt,incr scat chky plty PCKST/tr dns frag,sl anhy/tr xln ANHY frag-fl,tr trnsl-crm CHT frag,g ool-intxl POR,g even mod bri-bri yel FLOR,g brn STN,g mod fast strm mlky CUT"

5760.00 5780.00 "LS brn-ltbrn,occ tan-crm,wh,vfxl-gran,micxl-micsuc,crpxl,pred ool-ooc-sl oom GRNST/tr DOL cmt,tr dns PCKST frag-rr incl/decr chky plty prtgs,sl anhy/tr xln ANHY incl-frag,tr ool & mic fos incl,g intxl-ooc-oom POR,FLOR AA,incr brn STN,g fast strm mlky CUT"

5780.00 5800.00 "LS ltbrn,tan,brn,incr crm-wh,micxl-gran-vfxl,crpxl,micsuc,pred ool-ooc-sl oom GRNST/DOL rich cmt,incr scat-intbd dns-chky plty PCKST,sl anhy/rr xln ANHY frag,g ooc-intxl POR/tr ANHY POR fl,g even bri yel FLOR,g brn STN,g mod fast strm mlky CUT"

5800.00 5820.00 "LS AA,pred ool-ooc-occ oom GRNST/tr DOL cmt,decr chky plty frag/incr scat dns PCKST,incr chky-anhy fl/tr xln ANHY frag,tr trnsl-wh CHT incl-frag,g ool-intxl-tr oom POR,g even bri yel FLOR,g ltbrn-brn STN/tr pp blk dd o STN,g fast strm mlky CUT"

5820.00 5840.00 "LS brn-ltbrn,occ tan-crm,wh,vfxl-gran,micxl-micsuc,crpxl,pred ool-ooc-sl oom GRNST/tr DOL cmt,tr dns PCKST frag-rr incl/decr chky plty prtgs,sl anhy/rr xln ANHY incl-frag,g intxl-ooc-oom POR,FLOR AA,incr brn STN/tr pp blk dd o STN,g fast strm mlky CUT"

5840.00 5860.00 "LS brn-ltbrn-crm,sl mott,vfxl-gran,micxl-micsuc,bcm pred oomold/oolicast GRNST,scat introol,tr DOL cmt,tr dns PCKST frag-sl anhy/rr xln ANHY incl-frag,g intxl-ooc-oom POR,bri yel FLOR,gd even brn STN,g fast strm mlky diff CUT"

5860.00 5880.00 "LS brn-ltbrn-crm,sl mott,vfxl-gran,micxl-micsuc,bcm pred oomold/oolicast GRNST,scat introol,tr DOL cmt,tr dns PCKST frag-sl anhy/rr xln ANHY incl-frag,g intxl-ooc-oom POR,bri yel FLOR,gd even brn STN,g fast strm mlky diff CUT"

5880.00 5900.00 "LS brn-ltbrn-crm,sl mott,vfxl-gran,micxl-micsuc,pred oomold/oolicast GRNST,scat introol,tr DOL cmt,tr dns PCKST frag-sl anhy/rr xln ANHY incl-frag,g intxl-ooc-oom POR & bri yel FLOR aa,gd even brn STN,g fast strm mlky diff CUT"

5900.00 5920.00 "LS brn-ltbrn-crm,sl mott,vfxl-gran,micxl-micsuc,intr ool-oomold/oolicast GRNST,tr DOL cmt,rr sec rim cem, scat dns PCKST,sl anhy/scat xln ANHY incl-frag,g intxl-ooc-oom POR,bri yel FLOR,gd even brn STN,g fast strm mlky diff CUT"

5920.00 5940.00 "LS brn-ltbrn-crm,sl mott,vfxl-gran,micxl-micsuc,intr ool-oomold/oolicast GRNST,tr DOL cmt,rr sec rim cem, rr dns PCKST,sl anhy/scat xln ANHY incl-frag,g intxl-ooc-oom POR,bri yel FLOR,gd even brn STN,g fast strm mlky diff CUT"

5940.00 5960.00 "LS grd to CALC DOL GRNSTN ip,tn-lt brn-brn,vfn-mic xln,oolitic,scat DOL cem & calc rim cem,scat ANHY/xln anhy,sl red fr-gd intrxln-oomold/oolicas POR,even lt brn-brn stn,even mod yel-gld FLOR,fr strm-diff CUT"

5960.00 5980.00 "LS brn-ltbrn-crm ip,fn-micxl-micsuc,intr ool-oomold/oolicast GRNST,rr foss rem,scat DOL cmt,rr sec rim cem, rr dns PCKST,sl anhy/scat xln ANHY incl-frag,g intxl-ooc-oom POR,bri yel FLOR,gd even brn STN,g fast strm mlky diff CUT

DEPTH	LITHOLOGY

5980.00 6000.00 "LS brn-ltbrn-crm ip,fn-micxl-micsuc,intr ool-oomold/oolicast GRNST,scat DOL cmt,rr sec rim cem, scat dns PCKST,sl anhy/scat xln ANHY incl-frag,g intxl-ooc-oom POR,bri yel FLOR,gd even brn STN,g fast strm mlky diff CUT"

6000.00 6020.00 "LS ltbrn-brn-crm ip,fn-micxl-micsuc,intr xln-sl oomold/oolicast GRNST,scat DOL cmt,rr sec rim cem, scat dns PCKST,sl anhy/scat xln ANHY incl-frag,g intxl-red oom POR,bri yel FLOR,gd even brn STN,g fast strm flsh diff CUT"

6020.00 6040.00 "LS ltbrn-brn-crm ip,fn-micxl-micsuc,intr xln-sl oomold/oolicast GRNST,scat DOL cmt,rr sec rim cem, scat dns PCKST,sl anhy/scat xln ANHY incl-frag,g intxl-red oom POR,bri yel FLOR,gd even brn STN,g fast strm flsh diff CUT"

6040.00 6060.00 "LS grd to sl DOL LS ip,brn-lt brn-crm ip,vfn-micxln,grny/sub suc tex,sl DOL cem,oolitic to oomold GRNSTN,scat-com anhy incl & xln anhy,fr-gd intrxln-introol grd to oomold POR,even brn STN,even bri yel FLOR,gd strm-immed flash diff CUT"

6060.00 6080.00 "LS grd to sl DOL LS GRNSTN aa,brn-lt brn-crm ip,vfn-micxln,grny/sub suc tex,sl DOL cem,oolitic to oomold fabric,scat-com anhy incl & xln anhy,fr-gd intrxln-introol grd to oomold POR,even brn STN,even bri yel FLOR,gd strm-immed flash diff CUT"

6080.00 6100.00 "LS grd to sl DOL LS ip,brn-lt brn-crm ip,vfn-micxln,grny/sub suc tex,sl DOL cem,oolitic to oomold GRNSTN,scat-com anhy incl & xln anhy,fr-gd intrxln-introol grd to oomold POR,even brn STN,even bri yel FLOR,gd strm-immed flash diff CUT"

6100.00 6120.00 "LS grd to sl DOL LS ip,brn-lt brn-crm ,vfn-micxln,grny/sub suc-dens ip,sl DOL cem,oolitic to oomold GRNSTN,com anhy incl & xln anhy,fr intrxln-introol grd to oomold POR,sl anhy plugged ip,even brn STN,even bri yel FLOR,gd strm-immed flash diff CUT"

6120.00 6140.00 "LS GRNSTN,brn-lt brn-crm,vfn-micxln,grny/sub suc-dens ip,sl DOL cem,decr oolitic to oomold fabric-incr intrxln,com anhy incl & xln anhy,fr intrxln-dcr oomold/introol POR,sl anhy plugged ip,even brn STN,even bri yel FLOR,gd strm-immed flash diff CUT"

6140.00 6160.00 "LS,brn-lt brn-crm,vfn-micxln,grny/sub suc-dens ip,sl DOL cem,decr oolitic to oomold fabric-incr intrxln,com anhy incl & xln anhy,fr intrxln-to ppt vug,tr introol POR,sl anhy & calc plugged ip,even brn STN,even dull-mod yel FLOR,fr strm-immed diff CUT"

6160.00 6180.00 "LS GRNSTN,brn-lt brn-crm,vfn-micxln,sub suc-dens ip,sl DOL cem,pred intrxln-decr oolitic fabric,com anhy incl & xln anhy,fr intrxln-to ppt vug,tr introol POR,sl anhy & calc plugged ip,even brn STN,even dull-mod yel FLOR,fr strm-immed diff CUT"

6180.00 6200.00 "LS,brn-lt brn-crm,vfn-micxln,grny/sub suc-dens ip,sl DOL cem,decr oolitic to oomold fabric-incr intrxln,com anhy incl & xln anhy,fr intrxln-to ppt vug,tr introol POR,sl anhy & calc plugged ip,even brn STN,even dull-mod yel FLOR,fr strm-immed diff CUT"

6200.00 6220.00 "LS grd to DOL LS,lt brn-tn-crm,micxln,sub suc-dens ip,com ANHY incl,rr anhy xtl,sl oolitc,scat DOL CEM,fr intrxln-sl ppt vug-rr oomold POR,even-spotty lt brn STN,even dull yel-grn FLOR,sl-mod strm-diff CUT"

DEPTH	LITHOLOGY

6220.00 6240.00 "LS GRNSTN,brn-tn-lt brn-crm ip,vfn-micxln,grny-suc,oolitic,tt DOL cem,gd oomold-oocast fabric,scat ANHY incl,fr-gd oomold-oolicast grd to introol POR,even med-dk brn STN,even mod yel-gld FLOR,fr strm-diff CUT"

6240.00 6260.00 "LS GRNSTN,brn-tn-lt brn-crm ip,vfn-micxln,grny-suc,oolitic,tt DOL cem,gd oomold-oocast fabric,scat ANHY incl,fr-gd oomold-oolicast grd to introol POR,even med-dk brn STN,even mod yel-gld FLOR,fr strm-diff CUT"

6260.00 6280.00 "LS GRNSTN,brn-tn-lt brn-crm ip,vfn-micxln,grny-suc,incr LS PCKSTN,crm-lt tn,dens,oolitic,tr DOL cem,fr oomold-oocast fabric,scat ANHY incl,fr oomold-oolicast grd to intrxln POR,even-spotty med brn STN,spotty dull yel-gld FLOR,sl-fr strm-diff CUT"

6280.00 6300.00 "LS GRNSTN,brn-tn-lt brn-crm ip,vfn-micxln,grny-suc,sl decr LS PCKSTN,crm-lt tn,dens,oolitic,tr DOL cem,fr oomold-oocast fabric,scat ANHY incl,fr oomold-oolicast grd to intrxln POR,even-spotty med brn STN,fr-gd mod yel-gld FLOR,fr-gd strm-diff CUT"

6300.00 6320.00 "LS tan-ltbrn-crm,occ off wh,brn,vfxl-gran-micsuc,crpxl-micxl,ool-sl ooc GRNST/DOL cmt,tr scat dns-rr chky plty PCKST,sl anhy/rr xln ANHY frag,vrr trnsl-wh CHT frag,g ooc-intxl POR,geven bri yel FLOR,g ltbrn-fr brn STN,g dif-slow strm mlky CUT"

6320.00 6340.00 "LS AA,ool-ooc GRNST/DOL cmt,tr scat dns-vrr chky plty PCKST,sl anhy/tr xln ANHY frag,tr scat ool,tr-rr trnsl-wh CHT frag,g ool-intxl POR/rr anhy POR fl,g even bri yel FLOR,g-fr ltbrn/tr brn STN,g mod fast strm mlky CUT"

6340.00 6360.00 "LS tan-ltbrn-crm,occ off wh,brn,vfxl-gran-micsuc,crpxl-micxl,ool-ooc-sl oom GRNST/DOL cmt,tr scat dns-chky plty PCKST,bcmg incr anhy-tr xln ANHY frag,tr CHT AA,g ooc-intxl POR/occ chky fl,g even mod bri-dull yel FLOR,STN AA/tr scat blk dd o STN,g CUT AA"

6360.00 6380.00 "LS AA,incr gran-micsuc-vfxl,micxl,occ crpxl,pred ool-ooc-occ oom GRNST/tr DOL cmt,tr scat dns-rr chky plty PCKST,sl anhy-chky,rr xln ANHY & CHT AA,rr ool & mic fos incl,g ooc-intxl/rr oom POR,g even bri yel FLOR,g ltbrn-brn/tr pp blk dd o STN,g CUT AA"

6380.00 6400.00 "LS AA,pred ool-ooc-sl oom GRNST/tr DOL cmt,decr dns-chky plty PCKST,sl chky-anhy POR fl,rr-tr xln ANHY frag,POR-FLOR-STN-CUT AA"

6400.00 6420.00 LS AA,micsuc-micxl-vfxl,occ crpxl,pred ool-sl ooc-oom GRNST/DOL rich cmt,tr scat dns chky PCKST/rr chky plty prtgs,sl anhy/tr scat xln ANHY,tr trnsl-tan CHT frag,g ool-intxl /tr oom POR,g even bri yel FLOR,STN AA,g fast dif/tr slow strm mlky CUT "

6420.00 6440.00 "LS tan-ltbrn-crm,occ off wh,brn,micsuc-micxl-gran,vfxl,crpxl,ool-ooc-sl oom GRNST/DOL cmt,tr scat dns-occ chky plty PCKST,sl anhy,tr xln ANHY frag,rr ool,g ooc-intxl POR,g even bri yel FLOR,g-fr ltbrn-tr brn STN,rr blk pp dd o STN,g slow strm mlky CUT"

6440.00 6460.00 "LS tan-ltbrn,occ crm,brn,crpxl,gran-micxl-vfxl,occ micsuc ip,pred ool-ooc-sl oom GRNST intbd/dns sl chky PCKST,tr DOL cmt,rr ool,sl anhy/tr scat xln ANHY,g-fr ool-intxl/tr pp vug POR,FLOR-STN AA,g slow strm mlky CUT"

6460.00 6480.00 "LS tan-ltbrn-crm,occ wh,brn,crpxl-micxl,gran-vfxl,occ micsuc,pred GRNST AA/intbd dns sl chky PCKST,tr DOL cmt,sl anhy/tr xln ANHY frag,rr ool & trnsl-tan CHT,g ooc-intxl POR/tr anhy fl,g even bri yel FLOR,STN AA/rr blk pp dd o STN,g slow strm mlky CUT"

DEPTH	LITHOLOGY

6480.00 6490.00 "LS AA,bcmg pred dns crpxl PCKST/scat chky plty frag,tr scat sl ool-ooc GRNST/tr DOl cmt,anhy/xln ANHY incl,fr-g intxl-tr ooc POR,fr-g scat mod bri yel FLOR,STN-CUT AA"

6490.00 6500.00 "LS AA,pred PCKST AA occ intbd/sl incr scat GRNST,occ ool-ooc-sl oom,DOL cmt,anhy/xln ANHY AA,g-fr intxl-ool-ooc POR,g-fr even bri yel FLOR,STN AA,g-fr slow strm mlky CUT "

6500.00 6510.00 "LS AA,micxl-gran-crpxl,GRNST grdg to intbd PCKST,tr DOL cmt,anhy-chky,tr scat xln ANHY frag,incr chky-anhy POR fl,tt-fr intxl-rr ooc POR,FLOR-STN-g CUT AA"

6510.00 6530.00 "LS tan-crm-ltbrn,ltgybrn,occ brn,crpxl-micxl,gran,occ micxl-micsuc,GRNST grdg to PCKST,occ ooc-ool,DOL cmt,anhy/tr xln ANHY,incr chky plty frag,tt-fr intxl POR/tr fl,FLOR-STN AA,fr slow dif/tr slow strm mlky CUT"

6530.00 6540.00 "LS AA,micxl-vfxl,gran,crpxl,incr GRNST occ grdg to PCKST,decr chky plty frag,fr intxl-ooc POR/tr fl,FLOR-STN AA,g slow slow strm mlky CUT"

6540.00 6560.00 "LS tan-ltbrn,occ brn,crm,vfxl-gran-micxl,micsuc,crpxl,ool-ooc-sl oom GRNST/tr DOL cmt,scat-intbd sl chky-anhy dns PCKST,vrr plty prtgs,tr xln ANHY frag-incl,vrr wh-trnsl CHT frag,g ooc-ool-intxl POR/tr oom-rr pp agal POR,g even bri yel FLOR,STN-CUT AA"

6560.00 6580.00 "LS AA,incr ool-ooc-sl oom GRNST/tr DOL cmt,decr dns-chky plty PCKST,sl anhy/tr xln ANHY frag,POR-FLOR-STN-CUT AA"

6580.00 6600.00 "LS ltbrn-tan-brn,occ crm-off wh,gran,micsuc-vfxl-micxl,occ crpxl,ooc-ool GRNST/DOL rich cmt,tr intbd-scat dns PCKST/vrr chky plty prtgs,sl anhy/rr xln ANHY,g ooc-ool-intxl POR,g even bri yel FLOR,g brn/pp blk dd o STN,g blooming-fast strm mlky CUT"

6600.00 6620.00 "LS AA,pred ooc-ool-sl oom GRNST/tr DOL cmt,scat dns-incr chky plty PCKST,anhy/rr xln ANHY frag,g ooc-ool-oom POR,tr intxl POR/chky-anhy fl,g even bri yel FLOR,g brn-occ ltbrn/tr pp blk dd o STN,g blooming-fast strm CUT"

6620.00 6640.00 "LS brn-ltbrn,tan-crm,occ wh,gran,micxl-crpxl,occ vfxl-micsuc,ooc-ool-oom GRNST/DOL cmt,sl incr chky plty-tr dns PCKST,sl anhy/tr xln ANHY frag-occ incl,g ooc-ool-intxl POR/tr anhy-chky fl,FLOR-STN AA,g fast strm-blooming mlky CUT"

6640.00 6660.00 "LS ltbrn-brn-tan,occ crm-off wh,gran,micsuc-vfxl-micxl,occ crpxl,ooc-ool GRNST/DOL rich cmt,tr intbd-scat dns PCKST/vrr chky plty prtgs,sl anhy/rr xln ANHY,g ooc-ool-intxl POR,g even bri yel FLOR,g brn/pp blk dd o STN,g blooming-fast strm mlky CUT"

6660.00 6680.00 "LS ltbrn-tan,crm-off wh,occ brn,gran,vfxl-micxl-micsuc,crpxl,ooc-ool GRNST/DOL rich cmt,tr intbd-scat dns PCKST/vrr chky plty prtgs,sl anhy/rr xln ANHY,g ooc-ool-intxl POR,g even bri yel FLOR,g brn/pp blk dd o STN,g blooming-fast strm mlky CUT"

6680.00 6700.00 "LS brn-ltbrn-tn-occ crm-off wht,gran,vfxln-micxl-micsuc,ooc-ool GRNST/DOL rich cmt,tr intbd-scat dns PCKST/vrr chky plty prtgs,sl anhy/rr xln ANHY,g ooc-oom-intxl POR,g even bri yel FLOR,g brn/pp blk dd o STN,g blooming-fast strm mlky CUT"

DEPTH	LITHOLOGY

6700.00 6720.00 "LS,lt brn-brn-tn,vfn-micxln,grny-suc tex,sl dolo cem,ooc ANHY incl,scat intrbd LS,tn-crm-off wht,micxln,dens,chky plty prtgs,gd introol/intrxln,red oomold POR,gd even brn STN,even mod yel FLUOR,gd fast strm-mlky diff CUT"

6720.00 6740.00 "LS,lt brn-brn-tn,vfn-micxln,grny-suc tex,sl dolo cem,ooc ANHY incl,scat intrbd LS,tn-crm-off wht,micxln,dens,chky plty prtgs,com blk shl cvgs,gd introol/intrxln,red oomold POR,gd even brn STN,even mod yel FLUOR,gd fast strm-mlky diff CUT"

6740.00 6760.00 "LS,lt brn-brn-tn,vfn-micxln,grny-suc tex,sl dolo cem,ooc ANHY incl,scat intrbd LS,tn-crm-off wht,micxln,dens,chky plty prtgs,decr blk shl cvgs,gd introol/intrxln,red oomold POR,gd even brn STN,even bre yel FLUOR,gd fast strm-mlky diff CUT"

6760.00 6780.00 "LS,lt brn-brn-tn,vfn-micxln,grny-suc tex,sl dolo cem,ooc ANHY incl,scat intrbd LS,tn-crm-off wht,micxln,dens,chky plty prtgs,incr to 10% blk SHL cvgs,gd introol/intrxln,red oomold POR,gd even brn STN,even mod yel FLUOR,gd fast strm-mlky diff CUT"

6780.00 6800.00 "LS,lt brn-brn-tn,vfn-micxln,grny-suc tex,sl dolo cem,ooc ANHY incl,scat intrbd LS,tn-crm-off wht,micxln,dens,chky plty prtgs,decr blk shl cvgs,gd introol/intrxln,red oomold POR,gd even brn STN,even mod-bre yel FLUOR,gd fast strm-mlky diff CUT"

6800.00 6820.00 "LS,lt brn-brn-tn,vfn-micxln,grny-suc tex,sl dolo cem,ooc ANHY incl,scat intrbd LS,tn-crm-off wht,micxln,dens,chky plty prtgs,decr blk shl cvgs,pred intrxln-introol-rr oomold POR,gd even brn STN,even mod-bri yel FLUOR,fr-gd mod-fast strm-mlky diff CUT"

6820.00 6840.00 "LS,lt brn-brn-tn,vfn-micxln,grny-suc tex,sl dolo cem,ooc ANHY incl,scat intrbd LS,tn-crm-off wht,micxln,dens,chky plty prtgs,decr blk shl cvgs,pred intrxln-introol-rr oomold POR,gd even brn STN,even mod-bri yel FLUOR,gd mod-fast strm-mlky diff CUT"

6840.00 6860.00 "LS,tn-lt brn-crm-off wht,micxln,sl suc/grny tex to dens/chky/tite,incr plty ptgs,sl ool,incr ANHY incl,decr intrxln/introol POR,fr brn STN on por,vsl-no STN on chky LS,fr-gd mod-bri yel FLUOR,mod fast strm-diff CUT"

6860.00 6880.00 "LS grd to DOLO LS,crm-lt gr-tn,mott,micr-crypxln,dens-chky,plty ptgs(bit gouge),decr LS,brn-tn w por aa,incr ANHY,spotty brn STN,decr intrxln POR,spotty dull-mod FLOUR,sl-mod strm-diff CUT"

6880.00 6900.00 "LS,tn-lt brn-crm-off wht,micxln,sl suc/grny tex to dens/chky/tite,incr plty ptgs,sl ool,incr ANHY incl,decr intrxln/introol POR,fr brn STN on por,vsl-no STN on chky LS,fr-gd mod-bri yel FLUOR,mod fast strm-diff CUT"

6900.00 6920.00 "LS,tn-lt brn-crm-off wht,micxln,sl suc/grny tex to dens/chky/tite,incr plty ptgs,sl ool,com ANHY incl,poor-fair intrxln/introol POR,no evid oomold/oocast por,fr brn STN on por,vsl-no STN on chky LS,fr-gd mod-bri yel FLUOR,mod fast strm-diff CUT"

6920.00 6940.00 "LS,tn-lt brn,micxln,grny-sl suc tex,sl ool,com ANHY, LS,off wht-crm-lt gr,mic-crypxln, dens/chky/tite,incr plty ptgs,com ANHY incl,fr intrxln/introol POR ip,fr brn STN on por,vsl-no STN on chky LS,fr-gd mod-bri yel FLUOR,mod fast strm-diff CUT"

6940.00 6950.00 "LS grd to DOLO LS,crm-lt gr-tn,mott,micr-crypxln,dens-chky,plty ptgs(bit gouge),decr LS,brn-tn w por aa,incr ANHY,spotty brn STN,decr intrxln POR,spotty dull-mod FLOUR,sl-mod strm-diff CUT"

FORMATION TOPS

OPERATOR: MOBIL
WELL NAME: RATHERFORD UNIT #19-12 SE 1-A/1-B HORIZONTAL LATERAL LEG #1

FORMATION NAME		SAMPLES MEASURED DEPTH	SAMPLES TRUE VERTICAL DEPTH	DATUM KB:4748'
LOWER ISMAY		5382'	5381'	-633'
GOTHIC SHALE		5446'	5434'	-686'
DESERT CREEK		5477'	5451'	-703'
DC 1-A ZONE		5510'	5461'	-713'
DC 1-B ZONE		6534'	5486.5	-738.5'
BASE 1-B ZONE		6858'	5499.8'	-751.8'

GEOLOGICAL SUMMARY

AND

ZONES OF INTEREST

The Mobil Exploration and Production U.S. Inc., Ratherford Unit #19-12 Horizontal Lateral Leg 1 was a re-entry of the Mobil Ratherford Unit #19-12 located in Section 19, T41S, R24E, and was sidetracked in a southeasterly direction from 5361' measured depth, 5360.79' true vertical depth, on August 30, 1997. The lateral reached a measured depth of 6950', true vertical depth of 5499.22' at total depth, with a horizontal displacement of 1500.60' and true vertical plane of 131.40 degrees, on September 3, 1997, in the upper Desert Creek 1-B zone. The lateral was drilled with no problems. The curve section was completed on August 30, 1997 at a measured depth of 5523', 5466.5' true vertical depth, and the lateral section was begun in the 1-A porosity zone. This lateral used fresh water and then an oil and water emulsion with polymer sweeps as the drilling fluid. The lateral made a considerable amount of oil and gas while drilling both the 1-A and 1-B porosity zones. The background gases noted on the accompanying mud log showed substantial increases while drilling the 1-A porosity in the lateral section and continued through the1-B. A gradual tapering off of gas was seen near the end of the lateral. The samples had good oil shows throughout the drilling of the lateral.

The primary objectives of the Ratherford Unit #19-12 Leg 1 horizontal lateral were the effective porosity, staining and reservoir properties in 1-A and 1-B zones of the Desert Creek Member of the Upper Paradox Formation. The lower 1/3 of the Upper Ismay, the entire Lower Ismay, Gothic Shale, and transition zone at the top of the Desert Creek were drilled during the curve section of the lateral. Kick off point for this lateral was 5361', measured depth and 5360.79' true vertical depth, in the lower portion of the Upper Ismay member of the Paradox Formation.

The lower portion of the Upper Ismay was predominately light to dark brown, occasionally cream to tan, cryptocrystalline to microcrystalline, chalky to clean and slightly argillaceous limestone with common dark gray to black chert and occasional fossil remnants. Also present were occasional very thin, marly, gray brown to dark brown, cryptocrystalline, slightly calcareous dolomites and very thin dark gray brown to black, carbonaceous, slightly calcareous to dolomitic shales. Where the Upper Ismay was first drilled, there was very slight fracture porosity noted with dark brown to black tarry stain, spotty dull yellow fluorescence and a very slow streaming cut. No gas increases were noted. The very dolomitic limestones at the base of the Upper Ismay were marked by the very thin, carbonaceous, dolomitic shale of the Hovenweep.

The top of the Lower Ismay was picked at 5382' measured depth, 5381' true vertical depth, at the base of the Hovenweep Shale. The upper 1/3 of the Lower Ismay was predominately limestone, light gray to brown, slightly mottled to dark gray to black, microcrystalline, dense-firm to soft chalky/silty texture, siliceous in part and argillaceous with common black chert and rare fossil remnants. No visible porosity, stain, fluorescence or cut was noted. The middle approximate 1/3 of the Lower Ismay was characterized by interbedded limestones, medium to light brown, occasionally dark brown to tan, cryptocrystalline to occasionally micro-sucrosic with common dark brown chert. Interbedded with the limestones were occasional silty dolmitic limestones grading to very fine-grained calcareous sandstones in part. Siltstones have been noted in other wells in this area in the basal Upper Ismay to Lower Ismay zones. The siltstone is the remnant of a slump feature from a higher platform to the east, present during middle Lower Ismay to early Upper Ismay deposition. The lowermost portion of the Lower Ismay, just above the Gothic Shale, was a light gray brown to light gray-cream to off

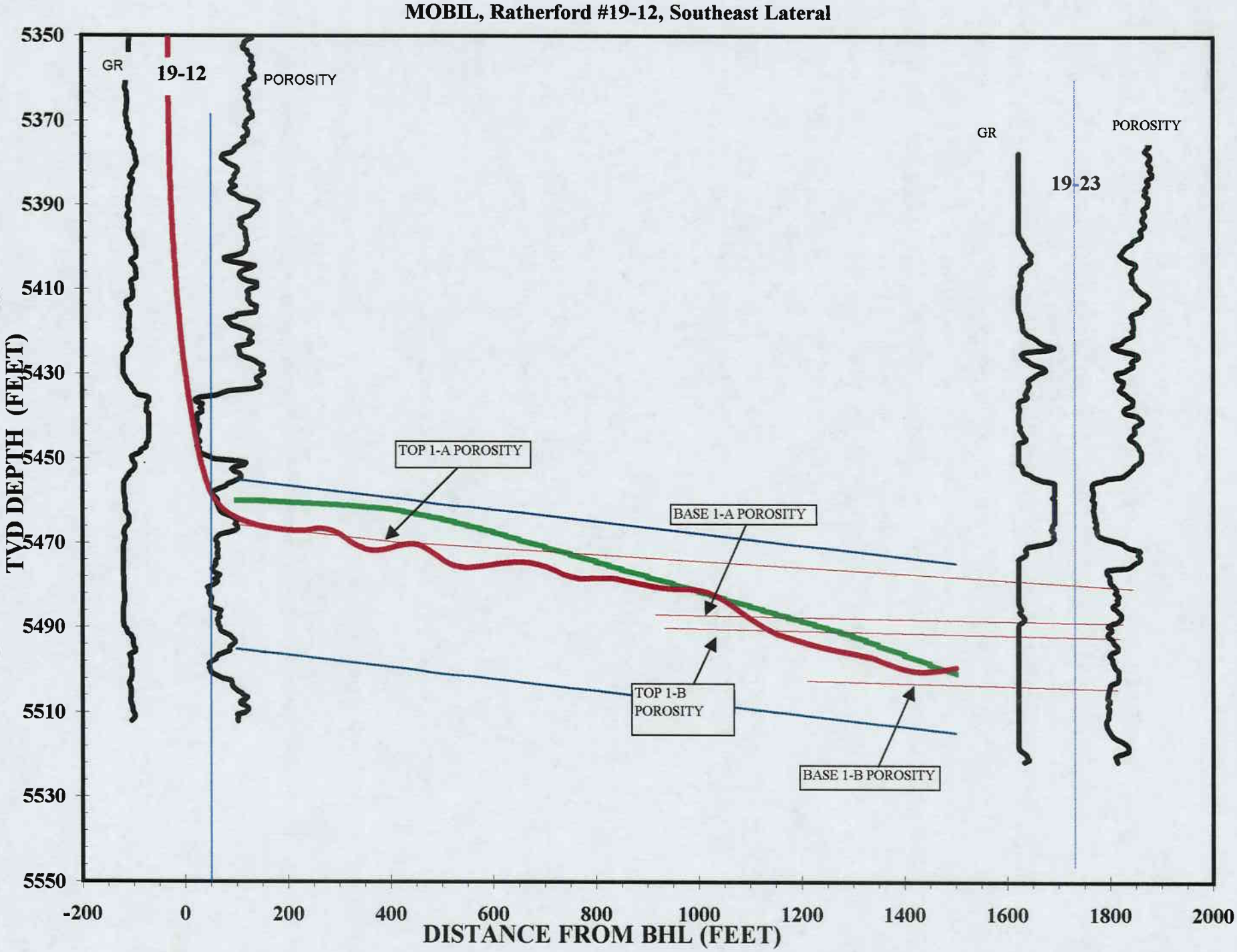
white limestone, cryptocrystalline to microcrystalline, chalky, anhydritic with a trace of crystalline anhydrite inclusions and scattered dark brown to brown chert fragments. Shows in the Lower Ismay were limited with very slight intercrystalline porosity, rare spotty brown stain, spotty dull yellow fluorescence and a very slight cut

The top of the Gothic Shale was picked at 5446' measured depth, 5434' true vertical depth and was predominantly gray to dark gray to black, silty, carbonaceous, soft to slightly firm, subblocky to blocky, calcareous to slightly dolomitic and slightly micaceous. Scattered within the Gothic were very thin, cryptocrystalline to microcrystalline, earthy, limestone and dolomite partings and inclusions, with very rare scattered anhydrite crystals. The top of the Gothic appeared to be gradational. Drilling time was somewhat erratic throughout the Lower Ismay with the top of the Gothic being picked predominantly from the calculated true vertical depth and a slight increase in penetration rate. The increase in shale at the top of the Gothic was quite subtle and showed only a gradual increase in shale content in the samples.

The top of the Desert Creek is commonly picked at the Gothic Shale to transition zone facies change, which in this leg occurred at a measured depth of 5477' and a true vertical depth of 5451'. In this well the zone was silty, argillaceous limestone, light gray to brown in color, very fine to microcrystalline, moderately soft and slightly chalky with rare fossil remnants and anhydrite inclusions. Interbedded within the light gray limestones were brown dolomitic limestones, very fine to microcrystalline, dense with scattered oolites and fossils. A slight increase in gray to dark gray soft, dolomitic shale was noted within the section as can be seen on the porosity log for the old vertical well. The limestones had no visible to very rare intercrystalline porosity, with no stain, fluorescence or cut.

The top of the Desert Creek 1-A porosity zone was picked at 5510' measured depth, 5461' true vertical depth and was based on sample identification as well as a significant increase in the penetration rate. This was 6 feet low to the top of the porosity as seen on the porosity log for the 19-12 well. Both the 1-A and 1-B porosity zones were consistently 5-7 feet below the expected target line. It is questionable as to the reason the top was low to the log and may simply be a matter of differences between KB elevations from the old well to this lateral. The top in this lateral was in a slightly oolitic, clean, slightly anhydritic limestone grainstone, which had traces of dolomite cement and very rare scattered chert fragments. Noted in the limestone were thinly interbedded tight, cryptocrystalline, occasionally platy, anhydritic to very slightly dolomitic, slightly oolitic, tight limestone packstones near the top and scattered in varying amounts as inclusions and fragments through the lateral. The limestone was cream to tan, light brown to occasionally brown, with predominately fair to good intercrystalline to inter-oolitic porosity grading laterally into oolicastic to oomoldic fabric porosity. The lithology of the 1-A porosity remained fairly consistent throughout the lateral with mainly minor variations of porosity type being noted. The top of 1-A porosity bench was again encountered at a measured depth of 5724', 5467' TVD. This established a relative dip that appeared somewhat steeper than the regional expected based on the target well. The base of the 1-A porosity was encountered at a measured depth of 6465', 5481.5' TVD when the lateral was oriented downward to intersect the 1-B.

The 1-B porosity was penetrated at a measured depth of 6534' and a true vertical depth of 5486.5'. The lithology of the transition between the 1-A and 1-B porosity zones was predominately limestone packstone, tan to cream to light brown in color, microcrystalline to cryptocrystalline, dense, and slightly chalky with slight dolomite cement. Portions of the interval were slightly oolitic in part with interbeds of oolitic grainstones similar to those seen in the 1-A. The 1-B porosity zone was a more oolitic, better developed limestone grainstone, brown to light brown to cream in part, very fine to microcrystalline, with traces of dolomite cement and scattered to common anhydrite inclusions and occasional crystalline anhydrite throughout. As in the 1-A zone above, thin interbeds of cream to tan, tight, cryptocrystalline, platy limestones were noted. The 1-B zone was characterized by better developed inter-oolitic grading to well developed oomoldic to oolicastic porosity with associated good even brown stain, even bright yellow to yellow-gold fluorescence and good to excellent streaming cuts.


MOBIL, Ratherford #19-12, Southeast Lateral
GR
19-12
POROSITY
GR
POROSITY
19-23
TOP 1-A POROSITY
BASE 1-A POROSITY
TOP 1-B POROSITY
BASE 1-B POROSITY
TVD DEPTH (FEET)
5350
5370
5390
5410
5430
5450
5470
5490
5510
5530
5550
-200
0
200
400
600
800
1000
1200
1400
1600
1800
2000
DISTANCE FROM BHL (FEET)

ROCKY MOUNTAIN GEO-ENGINEERING
Well Logging • Consulting Geology • Coal Bed Methane Services • Computerized Logging Equipment & Software
ROCKY MOUNTAIN GEO-ENGINEERING CORP.
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(970) 243-3044 • (FAX) 241-1085

Friday, September 26, 1997

RECEIVED
OCT 01 1997
DIV. OF OIL, GAS & MINING

Division of Oil & Gas Mining
State of Utah
1636 W. North Temple
Salt Lake City, UT 84116

Re: Ratherford Unit #19-12 Leg 1
Leg 2 w/Sidetrack
Sec. 19, T41S, R24E
San Juan County, Utah
43 037 15739

Dear Sirs:

Enclosed are the final computer colored logs and geology reports for the above referenced well.
FILED WITH 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

Bill Nagel
Senior Geologist

BN/dn

Enc. 1 Final Computer Colored Log & 1 Geology Report

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

Form 3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

SUNDRY NOTICES AND REPORTS ON WELLS

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

SUBMIT IN TRIPLICATE

5. Lease Designation and Serial No.: 14-20-603-353
6. If Indian, Allottee or Tribe Name: NAVAJO TRIBAL
7. If Unit or CA, Agreement Designation: RATHERFORD UNIT
8. Well Name and No.: RATHERFORD 19-W-12
9. API Well No.: 43-037-15739
10. Field and Pool, or exploratory Area: GREATER ANETH
11. County or Parish, State: SAN JUAN UT

1. Type of Well: [ ] Oil Well [ ] Gas Well [X] Other
2. Name of Operator: MOBIL PRODUCING TX & NM INC.*
*MOBIL EXPLORATION & PRODUCING US INC. AS AGENT FOR MPTM
3. Address and Telephone No.: P.O. Box 633, Midland TX 79702 (915) 688-2585
4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
600' FWL & 1980' FNL
SEC. 19, T41S, R24E

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

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

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

BHL:

LATERAL #1A1(1) 1048' SOUTH & 1074' EAST F/ SURFACE SPOT.
LATERAL #2A1(2) 2537' NORTH & 2546' WEST F/ SURFACE SPOT.
LATERAL #2ST1 2770' NORTH & 2890' WEST F/ SURFACE SPOT.

14. I hereby certify that the foregoing is true and correct
Signed Joe Moseley for Title SHIRLEY HOUCHINS/ENV & REG TECH Date 11-13-97

(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**

12/19/97
JRB

DRILLED FOOTAGE CALCULATION FOR DIRECTIONAL AND HORIZONTAL WELLS

Well Name: **Ratherford 19-W-12**
Surface Location: **600 ' FWL, 1980' FNL, Sec. 19,**

First leg description:	Leg #1
KOP MD:	5354.00
KOP TVD:	5353.79
EOL MD:	6950.00
EOL TVD:	5499.22
Footage drilled:	1596.00
Second leg description:	Leg #2
KOP MD:	5326.00
KOP TVD:	5325.80
EOL MD:	8974.41
EOL TVD:	5512.33
Footage drilled:	3648.41
Third leg description:	Leg #2 ST1
KOP MD:	8405.33
KOP TVD:	5483.52
EOL MD:	9385.01
EOL TVD:	5521.03
Footage drilled:	979.68
Fourth leg description:	
KOP MD:	
KOP TVD:	
EOL MD:	
EOL TVD:	
Footage drilled:	
Fifth leg description:	
KOP MD:	
KOP TVD:	
EOL MD:	
EOL TVD:	
Footage drilled:	

Total Footage Drilled (MD):	***6224.09***
Deepest point (TVD):	***5521.85***

ATTACHMENT - FORM 3160-5
RATHERFORD UNIT #19-W-12
14-20-603-353
NAVAJO TRIBAL
SAN JUAN, UTAH

08-19-97	ROAD NAVAJO WEST RIG #15 TO LOCATION. SPOT RIG, PIT, PUMP & LINES. SITP 2500 PSI. FLOW WELL BACK TO PIT, FLOWING PRESSURE TO 0 PSI IN 2 HRS. SHUT WELL IN, READY TO POOH W/PKR & TBG IN AM. SDFN.
08-20-97	FLOW WELL UP TBG @ 0 PSI. ND WELLHEAD, NU BOPS, TEST RAMS & CSG TO 1000 PSI AGAINST PKR @ 5405'. TEST GOOD. UNSET GUIBERSON G6 PKR, FLOW OUT BACKSIDE. TOOH W/CMT LINED TBG, LAY DOWN SAME. RU WEATHERFORD WIRELINE, RIH W/GAGE RING IN 5 1/2" CSG TO 5403'. POOH, PU MTN STATES RBP, RIH & SET @ 5400'. RD WL, SWI, SDFN.
08-21-97	RIH W/TBG TO CIRC OIL OFF TOP OF WELLBORE. TOOH & LD TBG. ND BOP, ND WH, DIG OUT AROUNG WH. CUT OFF OLD CSG HEAD & CSG. WELD ON NEW CSG HEAD. TEST TO 1000#. RDMO RIG #15. LAST REPORT THIS JOB.
08-28-97	MIRU NAVAJO WEST #25. NU BOP, TEST TO 750#. HELD OK., RIH W/RET TOOL, REL RBP, POOH TO 4500'.
08-29-97	FIN POOH W/RBP. SET TIW BIG BORE WHIPSTOCK PKR @ 5369', RIH W/TIW KEYWAY LATCH ASSY, LATCH INTO PKR @ 5369'. RU GYRO, DATA, RIH W/GYRO, THREE GOOD SEATS, PKR KEYWAY @ 302 DEG GTF. POOH W/LATCH ASSY. FINAL REPORT FOR REENTRY.
08-29-97	RIH W/TIW KEYWAY LATCH ASSY, WEATHERFORD WHIPSTOCK, STARTER MILL W/SHEAR BOLT, APHDP LATCHED INTO TIW PKR @ 5369' W/KEYWAY @ 302 DEG & FACE OF WHIPSTOCK @ 134 DEG, SHEARED BOLT. CUT WINDOW W/STARTER MILL F/5354-5356'. POOH W/STARTER MILL.
08-30-97	FIN POH W/STARTER MILL, RIH W/WINDOW & WATERMELLON MILLS ON SAME BHA, MILLED WINDOW F/5354-5360', CUT 1' FORMATION TO 5361', PUMPED SWEEP & CIRC HOLE CLEAN, POOH W/MILLS. LATERAL #1.
08-30-97	RIH W/MUD MOTOR & MWD., DRILL CURVE F/5361-5388'.
08-31-97	SLIDE DRILL CURVE LATERAL 1A1, F/5388-5523'. CIRC HOLE CLEAN. POOH & LD MWD & MUD MOTOR.
09-01-97	RIH W/LATERAL ASSY, DRILL LATERAL 1A1 F/5523-6270'.
09-02-97	SLIDE & ROTATE DRILL LATERAL 1A1 F/6270-6950' TD. LATERAL #1A1 F/5462-5500 TVD, 5523-6950' TMD. 1500' VS. POOH W/DP TO 6500'.
09-03-97	POOH & LD MWD & MUD MOTOR, FIN RIH W/SUPERHOOK, CAUGHT WHIPSTOCK @ 5355, POOH W/SUPER HOOK & WHIPSTOCK, FINAL REPORT LATERAL #1A1.
09-03-97	RIH W/TIW WHIPSTOCK, SET IN TIW BIG BORE PKR @ 5369' PKR KEYWAY @ 302 DEG GTF, TOP OF WHIPSTOCK @ 5327' W/FACE SET @ 315 DEG, CUT WINDOW W/STARTER MILL F/5327-5328', POH W/MILL, TIH W/WINDOW & WATERMELLON MILLS ON SAME BHA, MILLED WINDOW F/5327-5328'.
09-04-97	MILLED WINDOW F/5328-5333 & CUT FORMATION TO 5334', PUMPED SWEEP & CIRC CLEAN, POOH & LD MILLS. LATERAL 2A1
09-04-97	RIH W/CURVE ASSY, RUN GYRO, TIME & CONTROL DRILL F/5334-5354 W/GYRO, POOH W/GYRO, SLIDE DRILL CURVE 2A1 F/5354-5376'.
09-05-97	SLIDE DRILL CURVE LATERAL 2A1, F/5376-5600', LANDED CURVE @ 91 DEG, ON TARGET LINE @ 5481' @ 305 AZ, PUMPED SWEEP & CIRC HOLE CLEAN, POOH & LD AOHDP.
09-06-97	FIN POOH & LD CURVE ASSY. RIH W/LATERAL ASSY, DRILLED LATERAL #2A1 F/5600-6188'.
09-07-97	SLIDE & ROTATE DRILL LATERAL #2A1 F/6188-7225'.
09-08-97	SLIDE & ROTATE DRILL LATERAL #2A1 F/7225-7882'

ATTACHMENT - FORM 3160-5
RATHERFORD UNIT #19-W-12
14-20-603-353
NAVAJO TRIBAL
SAN JUAN, UTAH
PAGE 2

09-09-97	SLIDE & ROTATE DRILL LATERAL #2A1 F/7882-8760'.
09-10-97	SLIDE & ROTATE DRILL LATERAL #2A1 F/8760-9013'
09-11-97	POH LATERAL #2A1 TO 5300', FINAL REPORT LATERAL #2A1, WILL SIDETRACT.
09-11-97	WASH & TROUGH F/8380-8405' TO SIDETRACK F/LATERAL 2A1, TIME DRILL F/8405-8420', SLIDE DRILL F/8420-8445'.
09-12-97	WASH & TROUGH F/8380-8405' TO SIDETRACK LATERAL #2A1., TIME DRILL F/8405-9005'.
09-13-97	SLIDE/ROTATE DRLG F/9005-9385' TD (PROJECTED SURVEY @ TD 9385 MD; TVD @ 5521'. CIRC. SWEEP , WELL FLOWING, PULL OUT OF HOLE TO VERTICAL SECTION IN CSG.
09-14-97	DISPLACE HOLE W/11.6# MUD. POOH W/BH. TIH W/RBP, SET @ 5215'. POOH LAYING DOWN DRILL STRING. ND BOP STACK. CAP WELL.

COMPLETION

09-16-97	MIRU SPOT TANKS NU/BOP, TAG RBP @ 5247', TEST RAMS 250# LOW, 750# HIGH OK., UNSET RBP PSI 80#, WELL DEAD, SWI, SDFN.
09-17-97	TOH W/TBG & RBP, TIH W/11 JTS. 2 7/8" PH-6, 5.5" HD PKR TEST TO 500# OK, SI WELL, RIG UP DOWELL COIL TBG UT.
09-18-97	TIH W/COILED TUBING TO 5610', STOPPED TOH WITH C/T, UNSET PKR , RESET TEST TO 500# OK, TIH W C/T INTO LATERAL #2A1, MISS S/T @ 8405', MADE 1 MORE ATTEMPT STOP @ 9032', TOH W C/T BENT C/T RERIG, SWI, SDFN.
09-19-97	TIH W/ C/T WENT TO 8602', STOPPED PULL BACK TO 8403', ACIDIZE W/1893 BBLS 15% HCL ACID,
09-20-97	SI PSI @ 500# , KILL WELL, TOH W/PKR., TIH W/12 JTS PH-6, 5.5 HD PKR & TBG, PKR @ 5271.27', BOT OF T/P @ 5647.30. SWIFN & SUNDAY.
09-22-97	TIH W C/T TO 6961', ACIDIZE W/700 BBLS 15% HCL ACID, TOH W C/T RIG DOWN DOWELL RIG UP FOR FLOWBACK SITP 675#. FLOW WELL TO TANKS TO CLEAN UP.
09-23-97	SITP @ 470#, UNSET PKR TOH L/D PKR. TIH W 10 JTS 2 7/8" EUE 8RND. SDFN.
09-24-97	SITP 50#, FINISH LAYING DOWN W/S, WAIT ON CMT LINED TBG. PICK UP GUIBERSON G-6 PKR & 95 JTS 2 7/8" CMT LINED TBG DRIFING & MAKE UP TO 300# USING TORQUE RING. SWI, SDFN.
09-25-97	FINISH TIH W/TBG & PKR, SET PKR @ 5253.03'. TEST TO 1000# FOR 30 MIN HELD GOOD. WELL FINISHED, READY FOR INJECTION.

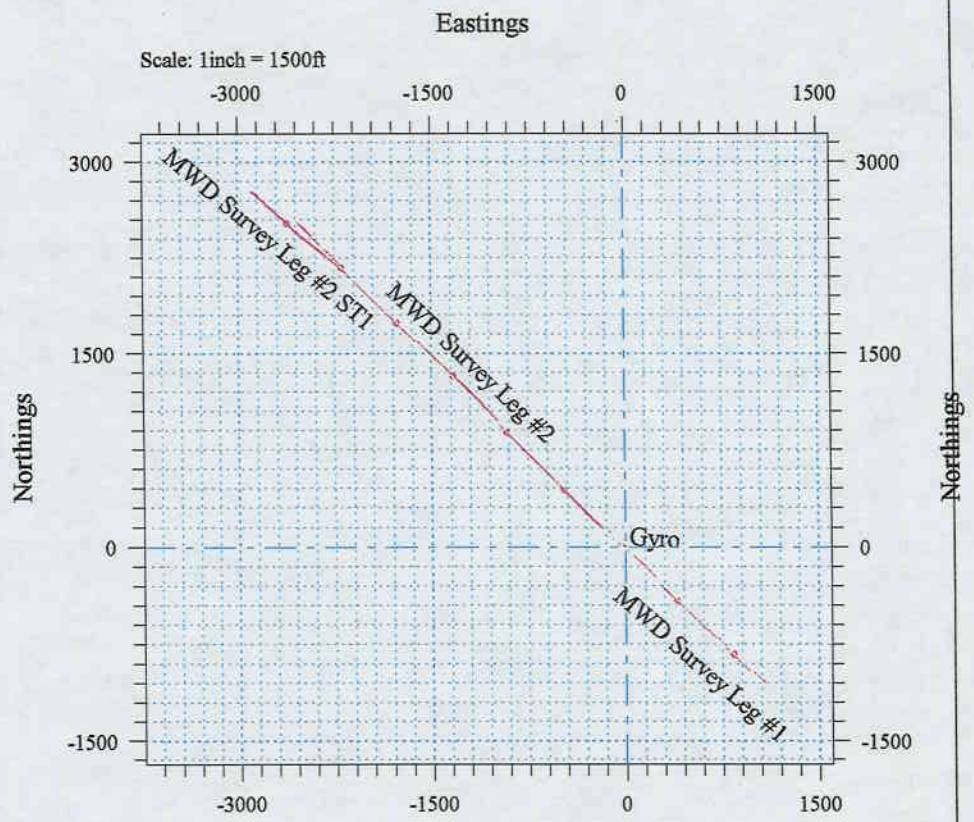
sperry-sun DRILLING SERVICES

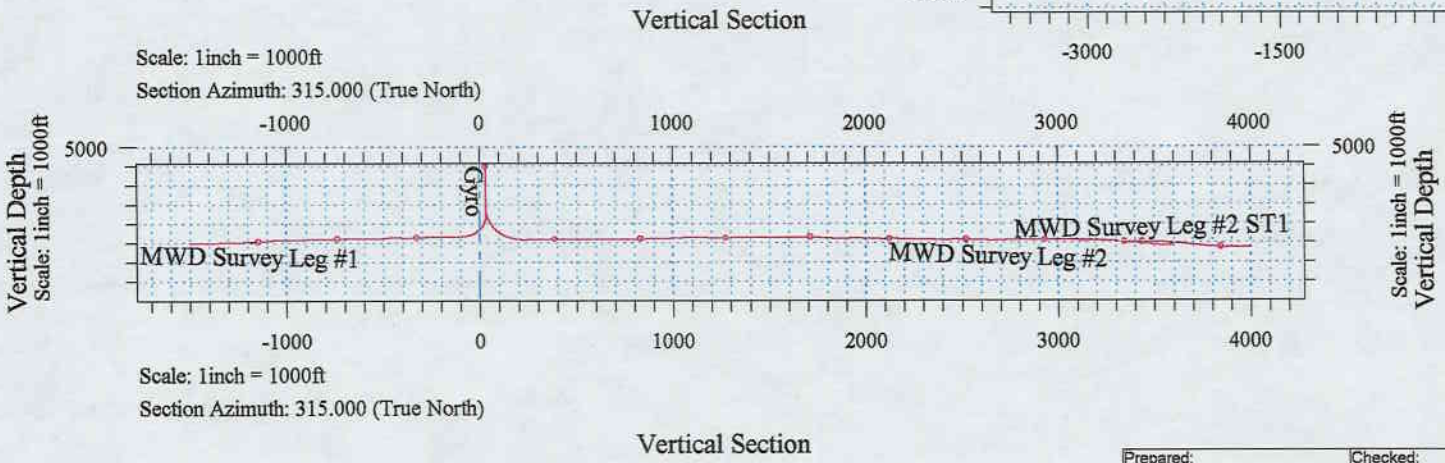
Well: RU 19-12

DrillQuest

Customer: Mobil
Folder: Mobil
Field: San Juan County
Project: Utah
Structure: Ratherford Unit
Well: RU 19-12

Mobil





Prepared:	Checked:	Approved:

sperry-sun

DRILLING SERVICES

A DRESSER INDUSTRIES, INC. COMPANY

Mobil
San Juan County
Utah
Ratherford Unit
RU 19-12 - MWD Survey Leg #1

SURVEY REPORT

25 September, 1997

Survey Ref: svy1979

Sperry-Sun Drilling Services

Survey Report for RU 19-12

Mobil
San Juan County

Utah
Ratherford Unit

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
0.00	0.000	0.000	0.00	0.00 N	0.00 E	0.00	
100.00	0.250	5.690	100.00	0.22 N	0.02 E	-0.14	0.250
300.00	0.210	30.950	300.00	0.97 N	0.25 E	-0.49	0.054
500.00	0.220	345.430	500.00	1.65 N	0.35 E	-0.90	0.083
700.00	0.310	4.730	699.99	2.56 N	0.29 E	-1.57	0.063
900.00	0.300	326.280	899.99	3.54 N	0.05 E	-2.42	0.101
1100.00	0.440	328.460	1099.99	4.63 N	0.65 W	-3.68	0.070
1300.00	0.730	300.460	1299.98	5.93 N	2.15 W	-5.66	0.200
1500.00	1.010	296.140	1499.95	7.35 N	4.83 W	-8.58	0.144
1700.00	0.820	288.410	1699.93	8.58 N	7.77 W	-11.55	0.113
1900.00	0.540	257.710	1899.92	8.83 N	10.04 W	-13.36	0.225
2100.00	0.480	266.950	2099.91	8.58 N	11.80 W	-14.45	0.051
2300.00	0.610	246.620	2299.90	8.12 N	13.62 W	-15.43	0.116
2500.00	0.550	222.960	2499.89	6.99 N	15.25 W	-15.83	0.122
2700.00	0.220	315.240	2699.88	6.56 N	16.17 W	-16.19	0.300
2900.00	0.240	329.460	2899.88	7.20 N	16.66 W	-16.98	0.030
3100.00	0.380	350.720	3099.88	8.21 N	16.97 W	-17.91	0.089
3300.00	0.320	346.840	3299.88	9.41 N	17.21 W	-18.92	0.032
3500.00	0.450	314.780	3499.87	10.51 N	17.89 W	-20.17	0.123
3700.00	0.460	314.190	3699.87	11.62 N	19.03 W	-21.76	0.006
3900.00	0.470	305.380	3899.86	12.65 N	20.27 W	-23.37	0.036
4100.00	0.470	304.530	4099.85	13.59 N	21.62 W	-24.99	0.003
4300.00	0.350	256.560	4299.85	13.92 N	22.89 W	-26.13	0.175
4500.00	0.380	254.250	4499.84	13.60 N	24.12 W	-26.79	0.017
4700.00	0.420	242.220	4699.84	13.07 N	25.41 W	-27.36	0.046
4900.00	0.450	249.290	4899.83	12.45 N	26.79 W	-27.92	0.031
5100.00	0.740	269.010	5099.82	12.15 N	28.81 W	-29.17	0.175
5300.00	0.970	285.860	5299.80	12.59 N	31.73 W	-31.58	0.169
5354.00	0.900	274.720	5353.79	12.75 N	32.60 W	-32.31	0.360
5361.00	3.400	138.300	5360.79	12.60 N	32.51 W	-32.14	58.559
5371.00	8.700	132.400	5370.73	11.87 N	31.76 W	-31.09	53.294
5381.00	14.200	140.100	5380.53	10.42 N	30.41 W	-29.11	56.965
5391.00	20.400	131.700	5390.07	8.32 N	28.32 W	-26.15	66.690
5401.00	26.500	132.900	5399.24	5.64 N	25.38 W	-22.17	61.184
5411.00	32.200	135.900	5407.96	2.20 N	21.89 W	-17.28	58.850
5421.00	37.900	136.600	5416.14	1.95 S	17.92 W	-11.54	57.141
5431.00	43.400	138.600	5423.72	6.76 S	13.54 W	-5.04	56.516
5441.00	48.700	138.100	5430.66	12.14 S	8.75 W	2.13	53.122
5451.00	52.000	132.800	5437.04	17.61 S	3.35 W	9.83	52.463
5461.00	55.600	129.700	5442.95	22.93 S	2.72 E	17.88	43.831
5471.00	59.900	130.400	5448.29	28.37 S	9.19 E	26.32	43.405
5481.00	66.400	130.400	5452.80	34.15 S	15.98 E	35.22	65.000
5491.00	72.000	130.400	5456.35	40.21 S	23.10 E	44.54	56.000
5501.00	77.700	129.200	5458.96	46.38 S	30.51 E	54.17	58.164
5523.00	85.300	129.800	5462.21	60.21 S	47.29 E	75.84	34.650

Continued...

Sperry-Sun Drilling Services

Survey Report for RU 19-12

Mobil
San Juan County

Utah
Ratherford Unit

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
5553.82	86.700	130.700	5464.36	80.08 S	70.75 E	106.52	5.396
5584.88	88.400	131.600	5465.69	100.49 S	94.12 E	137.51	6.192
5615.98	89.100	131.900	5466.37	121.20 S	117.31 E	168.58	2.449
5647.85	89.100	133.900	5466.87	142.89 S	140.66 E	200.44	6.275
5678.91	90.400	136.000	5467.00	164.83 S	162.64 E	231.49	7.952
5710.76	91.300	137.200	5466.53	187.97 S	184.52 E	263.30	4.709
5742.58	85.200	136.700	5467.50	211.20 S	206.22 E	295.05	19.234
5774.34	85.500	136.900	5470.08	234.28 S	227.89 E	326.67	1.134
5805.26	88.900	137.900	5471.59	257.00 S	248.79 E	357.49	11.461
5836.23	91.500	139.000	5471.48	280.18 S	269.33 E	388.37	9.115
5868.00	92.300	138.600	5470.43	304.07 S	290.24 E	420.01	2.815
5899.78	88.200	136.700	5470.29	327.55 S	311.64 E	451.71	14.219
5930.75	84.600	133.900	5472.23	349.52 S	333.38 E	482.61	14.714
5962.50	86.100	134.000	5474.81	371.48 S	356.16 E	514.25	4.735
5994.32	90.700	135.600	5475.69	393.88 S	378.72 E	546.05	15.305
6026.07	90.500	135.500	5475.36	416.55 S	400.96 E	577.78	0.704
6057.80	91.500	135.100	5474.81	439.10 S	423.27 E	609.50	3.394
6089.63	90.000	133.200	5474.39	461.27 S	446.11 E	641.32	7.605
6121.36	89.400	132.100	5474.56	482.76 S	469.44 E	673.04	3.949
6153.11	86.900	130.700	5475.58	503.75 S	493.24 E	704.74	9.023
6184.27	86.700	130.400	5477.32	523.97 S	516.88 E	735.80	1.156
6216.14	89.600	133.000	5478.35	545.16 S	540.66 E	767.62	12.218
6247.89	90.900	133.900	5478.21	566.99 S	563.71 E	799.37	4.980
6279.64	88.900	133.000	5478.27	588.83 S	586.76 E	831.11	6.908
6310.59	88.500	132.800	5478.97	609.89 S	609.43 E	862.05	1.445
6342.33	88.500	132.800	5479.80	631.45 S	632.71 E	893.77	0.000
6374.18	89.000	133.000	5480.49	653.12 S	656.03 E	925.61	1.691
6406.00	90.000	133.900	5480.77	675.01 S	679.13 E	957.42	4.228
6437.00	89.500	134.200	5480.91	696.56 S	701.41 E	988.42	1.881
6468.65	87.700	134.600	5481.68	718.70 S	724.02 E	1020.06	5.826
6500.40	85.300	134.200	5483.62	740.87 S	746.66 E	1051.75	7.663
6532.12	84.900	134.600	5486.33	762.98 S	769.24 E	1083.35	1.780
6564.00	85.600	134.600	5488.97	785.29 S	791.86 E	1115.12	2.196
6595.83	86.900	134.400	5491.05	807.55 S	814.51 E	1146.88	4.132
6627.58	88.200	135.300	5492.41	829.92 S	837.00 E	1178.60	4.978
6659.37	87.600	134.700	5493.57	852.38 S	859.46 E	1210.36	2.668
6690.33	88.700	134.400	5494.57	874.09 S	881.52 E	1241.30	3.683
6722.10	88.500	134.600	5495.35	896.35 S	904.17 E	1273.06	0.890
6753.95	89.000	134.730	5496.04	918.74 S	926.82 E	1304.90	1.622
6785.75	87.900	132.600	5496.90	940.68 S	949.81 E	1336.69	7.536
6816.84	87.000	130.900	5498.29	961.36 S	972.98 E	1367.72	6.182
6848.60	88.100	129.600	5499.64	981.86 S	997.20 E	1399.38	5.359
6880.46	89.800	130.200	5500.23	1002.30 S	1021.63 E	1431.16	5.658
6917.00	91.200	131.400	5499.91	1026.17 S	1049.29 E	1467.64	5.046
6950.00	91.200	131.400	5499.22	1047.99 S	1074.04 E	1500.59	0.000

Continued...

Sperry-Sun Drilling Services

Survey Report for RU 19-12

Mobil
San Juan County

Utah
Ratherford Unit

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

The Dogleg Severity is in Degrees per 100ft.
Vertical Section is from Well and calculated along an Azimuth of 134.000° (True).

Based upon Minimum Curvature type calculations, at a Measured Depth of 6950.00ft.,
The Bottom Hole Displacement is 1500.61ft., in the Direction of 134.297° (True).

sperry-sun
DRILLING SERVICES
A DRESSER INDUSTRIES, INC. COMPANY

Mobil
San Juan County
Utah
Ratherford Unit
RU 19-12 - MWD Survey Leg #2

SURVEY REPORT

25 September, 1997

Survey Ref: svy1981

Sperry-Sun Drilling Services

Survey Report for RU 19-12

Mobil
San Juan County

Utah
Ratherford Unit

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
Gyro							
0.00	0.000	0.000	0.00	0.00 N	0.00 E	0.00	
100.00	0.250	5.690	100.00	0.22 N	0.02 E	0.14	0.250
300.00	0.210	30.950	300.00	0.97 N	0.25 E	0.50	0.054
500.00	0.220	345.430	500.00	1.65 N	0.35 E	0.92	0.083
700.00	0.310	4.730	699.99	2.56 N	0.29 E	1.60	0.063
900.00	0.300	326.280	899.99	3.54 N	0.05 E	2.47	0.101
1100.00	0.440	328.460	1099.99	4.63 N	0.65 W	3.73	0.070
1300.00	0.730	300.460	1299.98	5.93 N	2.15 W	5.71	0.200
1500.00	1.010	296.140	1499.95	7.35 N	4.83 W	8.61	0.144
1700.00	0.820	288.410	1699.93	8.58 N	7.77 W	11.56	0.113
1900.00	0.540	257.710	1899.92	8.83 N	10.04 W	13.35	0.225
2100.00	0.480	266.950	2099.91	8.58 N	11.80 W	14.42	0.051
2300.00	0.610	246.620	2299.90	8.12 N	13.62 W	15.37	0.116
2500.00	0.550	222.960	2499.89	6.99 N	15.25 W	15.73	0.122
2700.00	0.220	315.240	2699.88	6.56 N	16.17 W	16.08	0.300
2900.00	0.240	329.460	2899.88	7.20 N	16.66 W	16.87	0.030
3100.00	0.380	350.720	3099.88	8.21 N	16.97 W	17.81	0.089
3300.00	0.320	346.840	3299.88	9.41 N	17.21 W	18.82	0.032
3500.00	0.450	314.780	3499.87	10.51 N	17.89 W	20.08	0.123
3700.00	0.460	314.190	3699.87	11.62 N	19.03 W	21.67	0.006
3900.00	0.470	305.380	3899.86	12.65 N	20.27 W	23.28	0.036
4100.00	0.470	304.530	4099.85	13.59 N	21.62 W	24.90	0.003
4300.00	0.350	256.560	4299.85	13.92 N	22.89 W	26.02	0.175
4500.00	0.380	254.250	4499.84	13.60 N	24.12 W	26.67	0.017
4700.00	0.420	242.220	4699.84	13.07 N	25.41 W	27.21	0.046
4900.00	0.450	249.290	4899.83	12.45 N	26.79 W	27.75	0.031
5100.00	0.740	269.010	5099.82	12.15 N	28.81 W	28.97	0.175
5300.00	0.970	285.860	5299.80	12.59 N	31.73 W	31.34	0.169
MWD Survey Leg #2							
5326.00	0.930	280.690	5325.80	12.69 N	32.15 W	31.71	0.364
5334.00	4.700	298.600	5333.79	12.86 N	32.50 W	32.08	47.822
5344.00	9.000	310.000	5343.71	13.56 N	33.46 W	33.25	44.891
5354.00	13.600	310.200	5353.52	14.82 N	34.96 W	35.20	46.002
5364.00	18.700	312.300	5363.12	16.66 N	37.05 W	37.98	51.325
5374.00	23.200	314.600	5372.46	19.13 N	39.64 W	41.55	45.737
5384.00	26.900	317.300	5381.51	22.17 N	42.57 W	45.78	38.717
5394.00	30.500	321.900	5390.28	25.83 N	45.68 W	50.57	42.214
5404.00	35.100	321.300	5398.69	30.08 N	49.04 W	55.95	46.114
5414.00	38.900	318.200	5406.67	34.66 N	52.93 W	61.94	42.323

Continued...

Sperry-Sun Drilling Services

Survey Report for RU 19-12

Mobil
San Juan County

Utah
Ratherford Unit

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
5424.00	41.700	314.400	5414.30	39.33 N	57.40 W	68.40	37.247
5434.00	43.400	311.800	5421.67	43.95 N	62.34 W	75.16	24.454
5444.00	46.500	314.500	5428.74	48.78 N	67.49 W	82.22	36.393
5454.00	49.200	312.500	5435.46	53.89 N	72.87 W	89.63	30.801
5464.00	52.300	310.500	5441.78	59.01 N	78.67 W	97.36	34.651
5474.00	55.900	310.900	5447.64	64.29 N	84.81 W	105.43	36.145
5484.00	59.400	312.600	5453.00	69.92 N	91.11 W	113.87	37.830
5494.00	62.300	314.900	5457.87	75.96 N	97.42 W	122.60	35.275
5504.00	66.800	317.300	5462.16	82.47 N	103.67 W	131.62	49.942
5514.00	69.800	320.100	5465.86	89.45 N	109.80 W	140.89	39.706
5524.00	71.900	322.300	5469.14	96.81 N	115.72 W	150.28	29.544
5534.00	75.400	320.100	5471.96	104.28 N	121.73 W	159.82	40.871
5544.00	77.600	316.100	5474.29	111.52 N	128.23 W	169.52	44.683
5554.00	78.500	312.800	5476.36	118.37 N	135.21 W	179.31	33.515
5564.00	78.300	308.500	5478.37	124.75 N	142.64 W	189.07	42.169
5578.00	84.800	305.700	5480.43	133.09 N	153.68 W	202.78	50.463
5600.00	92.700	303.500	5480.91	145.57 N	171.77 W	224.39	37.273
5637.37	91.300	307.500	5479.61	167.26 N	202.17 W	261.22	11.334
5669.18	91.300	311.400	5478.88	187.46 N	226.72 W	292.87	12.257
5700.91	89.700	314.700	5478.61	209.11 N	249.90 W	324.57	11.558
5732.11	90.000	314.400	5478.69	231.00 N	272.13 W	355.77	1.360
5763.98	89.900	314.200	5478.72	253.26 N	294.94 W	387.64	0.702
5794.96	89.400	316.200	5478.91	275.24 N	316.77 W	418.62	6.654
5826.76	90.200	315.600	5479.02	298.08 N	338.90 W	450.41	3.145
5858.51	90.000	314.700	5478.96	320.59 N	361.29 W	482.16	2.904
5890.24	90.300	315.300	5478.88	343.02 N	383.73 W	513.89	2.114
5921.07	89.400	317.700	5478.96	365.38 N	404.95 W	544.71	8.314
5952.93	89.600	317.400	5479.24	388.89 N	426.45 W	576.53	1.132
6016.44	90.200	316.700	5479.35	435.38 N	469.72 W	640.00	1.452
6080.06	91.000	316.700	5478.68	481.68 N	513.35 W	703.59	1.257
6143.62	89.600	316.300	5478.35	527.78 N	557.10 W	767.13	2.291
6207.23	91.000	313.900	5478.02	572.83 N	602.00 W	830.73	4.368
6269.94	91.800	313.300	5476.48	616.06 N	647.40 W	893.40	1.594
6333.51	92.700	313.500	5473.99	659.71 N	693.55 W	956.90	1.450
6396.25	92.600	316.000	5471.09	703.83 N	738.05 W	1019.56	3.984
6458.83	89.700	315.800	5469.83	748.75 N	781.59 W	1082.12	4.645
6522.54	89.400	316.000	5470.33	794.50 N	825.93 W	1145.82	0.566
6585.47	88.200	315.800	5471.65	839.68 N	869.71 W	1208.72	1.933
6649.07	90.700	317.900	5472.26	886.08 N	913.20 W	1272.28	5.133
6712.69	92.700	319.700	5470.37	933.92 N	955.08 W	1335.73	4.228
6774.85	91.500	319.700	5468.09	981.29 N	995.26 W	1397.63	1.930
6837.59	87.900	317.700	5468.42	1028.42 N	1036.66 W	1460.23	6.564
6900.29	91.600	319.700	5468.70	1075.51 N	1078.03 W	1522.78	6.708
6962.92	89.400	316.900	5468.15	1122.26 N	1119.69 W	1585.30	5.685
7026.47	90.700	315.500	5468.09	1168.13 N	1163.67 W	1648.83	3.006

Continued...

Sperry-Sun Drilling Services

Survey Report for RU 19-12

Mobil
San Juan County

Utah
Ratherford Unit

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
7090.03	89.700	313.900	5467.87	1212.83 N	1208.85 W	1712.39	2.968
7121.77	86.400	312.800	5468.95	1234.61 N	1231.91 W	1744.09	10.959
7153.52	85.300	311.900	5471.25	1255.94 N	1255.31 W	1775.72	4.472
7184.69	87.400	312.500	5473.23	1276.83 N	1278.35 W	1806.79	7.006
7216.58	88.700	313.300	5474.32	1298.53 N	1301.70 W	1838.64	4.786
7248.34	90.200	313.500	5474.62	1320.35 N	1324.77 W	1870.38	4.765
7279.31	91.100	313.900	5474.27	1341.74 N	1347.16 W	1901.34	3.180
7311.06	92.800	313.000	5473.19	1363.56 N	1370.20 W	1933.06	6.058
7342.81	88.900	312.600	5472.72	1385.13 N	1393.49 W	1964.78	12.348
7374.62	86.400	311.600	5474.03	1406.44 N	1417.07 W	1996.52	8.464
7406.47	87.400	313.300	5475.75	1427.90 N	1440.53 W	2028.29	6.186
7437.48	88.700	314.000	5476.80	1449.29 N	1462.96 W	2059.27	4.761
7469.22	89.800	314.600	5477.22	1471.46 N	1485.67 W	2091.01	3.948
7500.88	90.700	315.100	5477.08	1493.79 N	1508.12 W	2122.67	3.252
7532.65	89.600	313.900	5477.00	1516.05 N	1530.77 W	2154.43	5.124
7564.39	89.600	313.900	5477.22	1538.06 N	1553.64 W	2186.17	0.000
7596.13	88.700	313.300	5477.69	1559.95 N	1576.63 W	2217.89	3.408
7627.10	89.800	312.800	5478.10	1581.09 N	1599.26 W	2248.84	3.901
7658.79	89.000	312.800	5478.43	1602.62 N	1622.51 W	2280.51	2.524
7690.64	88.200	311.800	5479.21	1624.04 N	1646.06 W	2312.31	4.020
7722.32	89.000	312.300	5479.98	1645.26 N	1669.57 W	2343.94	2.978
7754.05	88.600	314.000	5480.64	1666.95 N	1692.72 W	2375.64	5.503
7785.82	90.400	313.900	5480.92	1689.00 N	1715.59 W	2407.41	5.674
7817.66	90.900	314.400	5480.56	1711.18 N	1738.43 W	2439.24	2.221
7849.54	89.700	315.800	5480.39	1733.76 N	1760.93 W	2471.12	5.784
7869.32	89.700	315.600	5480.50	1747.91 N	1774.75 W	2490.90	1.011
7900.40	89.100	315.300	5480.82	1770.06 N	1796.55 W	2521.97	2.158
7932.24	88.700	315.500	5481.43	1792.73 N	1818.90 W	2553.81	1.405
7964.01	88.400	315.500	5482.24	1815.38 N	1841.16 W	2585.57	0.944
7995.84	88.200	315.600	5483.18	1838.09 N	1863.44 W	2617.38	0.702
8027.58	88.900	314.700	5483.98	1860.59 N	1885.82 W	2649.11	3.592
8058.52	90.000	314.700	5484.28	1882.35 N	1907.81 W	2680.05	3.555
8090.15	91.200	315.300	5483.95	1904.71 N	1930.18 W	2711.67	4.242
8121.95	90.400	314.700	5483.51	1927.20 N	1952.66 W	2743.47	3.145
8153.77	90.600	314.200	5483.23	1949.48 N	1975.37 W	2775.29	1.692
8184.74	90.300	314.000	5482.99	1971.03 N	1997.61 W	2806.25	1.164
8216.53	89.900	314.700	5482.93	1993.25 N	2020.35 W	2838.04	2.536
8248.45	90.400	315.100	5482.85	2015.78 N	2042.96 W	2869.96	2.006
8280.29	91.100	316.900	5482.43	2038.68 N	2065.07 W	2901.79	6.065
8311.36	89.400	316.300	5482.29	2061.26 N	2086.42 W	2932.85	5.802
8343.18	88.800	316.500	5482.79	2084.30 N	2108.36 W	2964.65	1.988
8374.23	89.100	316.200	5483.36	2106.76 N	2129.79 W	2995.69	1.366
8405.33	89.800	316.200	5483.66	2129.21 N	2151.31 W	3026.78	2.251
8437.10	90.700	316.900	5483.52	2152.27 N	2173.16 W	3058.54	3.589
8468.07	90.600	318.100	5483.17	2175.10 N	2194.08 W	3089.48	3.888

Continued...

Sperry-Sun Drilling Services

Survey Report for RU 19-12

Mobil
San Juan County

Utah
Ratherford Unit

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
8499.85	90.500	318.100	5482.87	2198.75 N	2215.30 W	3121.21	0.315
8531.62	88.200	317.200	5483.23	2222.23 N	2236.70 W	3152.94	7.774
8563.50	89.000	317.000	5484.01	2245.58 N	2258.40 W	3184.79	2.587
8595.39	87.100	314.400	5485.09	2268.38 N	2280.65 W	3216.66	10.094
8626.56	85.200	311.600	5487.18	2289.59 N	2303.39 W	3247.73	10.839
8658.30	87.300	310.700	5489.26	2310.43 N	2327.24 W	3279.33	7.196
8690.03	85.800	314.200	5491.17	2331.80 N	2350.61 W	3310.97	11.982
8721.78	83.100	317.400	5494.24	2354.45 N	2372.64 W	3342.56	13.150
8752.75	84.400	318.600	5497.61	2377.33 N	2393.23 W	3373.30	5.697
8784.59	85.900	319.000	5500.30	2401.20 N	2414.13 W	3404.95	4.875
8816.36	86.000	319.500	5502.55	2425.21 N	2434.82 W	3436.56	1.601
8848.17	84.600	317.900	5505.15	2449.02 N	2455.74 W	3468.19	6.671
8879.92	83.700	315.600	5508.39	2472.03 N	2477.38 W	3499.76	7.744
8911.67	87.700	313.200	5510.77	2494.17 N	2499.99 W	3531.41	14.680
8943.43	89.600	311.900	5511.52	2515.64 N	2523.38 W	3563.13	7.248
8974.41	87.400	313.700	5512.33	2536.68 N	2546.11 W	3594.07	9.174

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

The Dogleg Severity is in Degrees per 100ft.
Vertical Section is from Well and calculated along an Azimuth of 315.000° (True).

Based upon Minimum Curvature type calculations, at a Measured Depth of 8974.41ft.,
The Bottom Hole Displacement is 3594.08ft., in the Direction of 314.894° (True).

sperry-sun
DRILLING SERVICES
A DRESSER INDUSTRIES, INC. COMPANY

Mobil
San Juan County
Utah
Ratherford Unit
RU 19-12 - MWD Survey Leg #2 ST1

SURVEY REPORT

25 September, 1997

Survey Ref: svy2006

Sperry-Sun Drilling Services

Survey Report for RU 19-12

Mobil
San Juan County

Utah
Ratherford Unit

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
Gyro							
0.00	0.000	0.000	0.00	0.00 N	0.00 E	0.00	
100.00	0.250	5.690	100.00	0.22 N	0.02 E	0.14	0.250
300.00	0.210	30.950	300.00	0.97 N	0.25 E	0.50	0.054
500.00	0.220	345.430	500.00	1.65 N	0.35 E	0.92	0.083
700.00	0.310	4.730	699.99	2.56 N	0.29 E	1.60	0.063
900.00	0.300	326.280	899.99	3.54 N	0.05 E	2.47	0.101
1100.00	0.440	328.460	1099.99	4.63 N	0.65 W	3.73	0.070
1300.00	0.730	300.460	1299.98	5.93 N	2.15 W	5.71	0.200
1500.00	1.010	296.140	1499.95	7.35 N	4.83 W	8.61	0.144
1700.00	0.820	288.410	1699.93	8.58 N	7.77 W	11.56	0.113
1900.00	0.540	257.710	1899.92	8.83 N	10.04 W	13.35	0.225
2100.00	0.480	266.950	2099.91	8.58 N	11.80 W	14.42	0.051
2300.00	0.610	246.620	2299.90	8.12 N	13.62 W	15.37	0.116
2500.00	0.550	222.960	2499.89	6.99 N	15.25 W	15.73	0.122
2700.00	0.220	315.240	2699.88	6.56 N	16.17 W	16.08	0.300
2900.00	0.240	329.460	2899.88	7.20 N	16.66 W	16.87	0.030
3100.00	0.380	350.720	3099.88	8.21 N	16.97 W	17.81	0.089
3300.00	0.320	346.840	3299.88	9.41 N	17.21 W	18.82	0.032
3500.00	0.450	314.780	3499.87	10.51 N	17.89 W	20.08	0.123
3700.00	0.460	314.190	3699.87	11.62 N	19.03 W	21.67	0.006
3900.00	0.470	305.380	3899.86	12.65 N	20.27 W	23.28	0.036
4100.00	0.470	304.530	4099.85	13.59 N	21.62 W	24.90	0.003
4300.00	0.350	256.560	4299.85	13.92 N	22.89 W	26.02	0.175
4500.00	0.380	254.250	4499.84	13.60 N	24.12 W	26.67	0.017
4700.00	0.420	242.220	4699.84	13.07 N	25.41 W	27.21	0.046
4900.00	0.450	249.290	4899.83	12.45 N	26.79 W	27.75	0.031
5100.00	0.740	269.010	5099.82	12.15 N	28.81 W	28.97	0.175
5300.00	0.970	285.860	5299.80	12.59 N	31.73 W	31.34	0.169
MWD Survey Leg #2							
5326.00	0.930	280.690	5325.80	12.69 N	32.15 W	31.71	0.364
5334.00	4.700	298.600	5333.79	12.86 N	32.50 W	32.08	47.822
5344.00	9.000	310.000	5343.71	13.56 N	33.46 W	33.25	44.891
5354.00	13.600	310.200	5353.52	14.82 N	34.96 W	35.20	46.002
5364.00	18.700	312.300	5363.12	16.66 N	37.05 W	37.98	51.325
5374.00	23.200	314.600	5372.46	19.13 N	39.64 W	41.55	45.737
5384.00	26.900	317.300	5381.51	22.17 N	42.57 W	45.78	38.717
5394.00	30.500	321.900	5390.28	25.83 N	45.68 W	50.57	42.214
5404.00	35.100	321.300	5398.69	30.08 N	49.04 W	55.95	46.114
5414.00	38.900	318.200	5406.67	34.66 N	52.93 W	61.94	42.323

Continued...

Sperry-Sun Drilling Services

Survey Report for RU 19-12

Mobil
San Juan County

Utah
Ratherford Unit

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
5424.00	41.700	314.400	5414.30	39.33 N	57.40 W	68.40	37.247
5434.00	43.400	311.800	5421.67	43.95 N	62.34 W	75.16	24.454
5444.00	46.500	314.500	5428.74	48.78 N	67.49 W	82.22	36.393
5454.00	49.200	312.500	5435.46	53.89 N	72.87 W	89.63	30.801
5464.00	52.300	310.500	5441.78	59.01 N	78.67 W	97.36	34.651
5474.00	55.900	310.900	5447.64	64.29 N	84.81 W	105.43	36.145
5484.00	59.400	312.600	5453.00	69.92 N	91.11 W	113.87	37.830
5494.00	62.300	314.900	5457.87	75.96 N	97.42 W	122.60	35.275
5504.00	66.800	317.300	5462.16	82.47 N	103.67 W	131.62	49.942
5514.00	69.800	320.100	5465.86	89.45 N	109.80 W	140.89	39.706
5524.00	71.900	322.300	5469.14	96.81 N	115.72 W	150.28	29.544
5534.00	75.400	320.100	5471.96	104.28 N	121.73 W	159.82	40.871
5544.00	77.600	316.100	5474.29	111.52 N	128.23 W	169.52	44.683
5554.00	78.500	312.800	5476.36	118.37 N	135.21 W	179.31	33.515
5564.00	78.300	308.500	5478.37	124.75 N	142.64 W	189.07	42.169
5578.00	84.800	305.700	5480.43	133.09 N	153.68 W	202.78	50.463
5600.00	92.700	303.500	5480.91	145.57 N	171.77 W	224.39	37.273
5637.37	91.300	307.500	5479.61	167.26 N	202.17 W	261.22	11.334
5669.18	91.300	311.400	5478.88	187.46 N	226.72 W	292.87	12.257
5700.91	89.700	314.700	5478.61	209.11 N	249.90 W	324.57	11.558
5732.11	90.000	314.400	5478.69	231.00 N	272.13 W	355.77	1.360
5763.98	89.900	314.200	5478.72	253.26 N	294.94 W	387.64	0.702
5794.96	89.400	316.200	5478.91	275.24 N	316.77 W	418.62	6.654
5826.76	90.200	315.600	5479.02	298.08 N	338.90 W	450.41	3.145
5858.51	90.000	314.700	5478.96	320.59 N	361.29 W	482.16	2.904
5890.24	90.300	315.300	5478.88	343.02 N	383.73 W	513.89	2.114
5921.07	89.400	317.700	5478.96	365.38 N	404.95 W	544.71	8.314
5952.93	89.600	317.400	5479.24	388.89 N	426.45 W	576.53	1.132
6016.44	90.200	316.700	5479.35	435.38 N	469.72 W	640.00	1.452
6080.06	91.000	316.700	5478.68	481.68 N	513.35 W	703.59	1.257
6143.62	89.600	316.300	5478.35	527.78 N	557.10 W	767.13	2.291
6207.23	91.000	313.900	5478.02	572.83 N	602.00 W	830.73	4.368
6269.94	91.800	313.300	5476.48	616.06 N	647.40 W	893.40	1.594
6333.51	92.700	313.500	5473.99	659.71 N	693.55 W	956.90	1.450
6396.25	92.600	316.000	5471.09	703.83 N	738.05 W	1019.56	3.984
6458.83	89.700	315.800	5469.83	748.75 N	781.59 W	1082.12	4.645
6522.54	89.400	316.000	5470.33	794.50 N	825.93 W	1145.82	0.566
6585.47	88.200	315.800	5471.65	839.68 N	869.71 W	1208.72	1.933
6649.07	90.700	317.900	5472.26	886.08 N	913.20 W	1272.28	5.133
6712.69	92.700	319.700	5470.37	933.92 N	955.08 W	1335.73	4.228
6774.85	91.500	319.700	5468.09	981.29 N	995.26 W	1397.63	1.930
6837.59	87.900	317.700	5468.42	1028.42 N	1036.66 W	1460.23	6.564
6900.29	91.600	319.700	5468.70	1075.51 N	1078.03 W	1522.78	6.708
6962.92	89.400	316.900	5468.15	1122.26 N	1119.69 W	1585.30	5.685
7026.47	90.700	315.500	5468.09	1168.13 N	1163.67 W	1648.83	3.006

Continued...

Sperry-Sun Drilling Services

Survey Report for RU 19-12

Mobil
San Juan County

Utah
Ratherford Unit

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
7090.03	89.700	313.900	5467.87	1212.83 N	1208.85 W	1712.39	2.968
7121.77	86.400	312.800	5468.95	1234.61 N	1231.91 W	1744.09	10.959
7153.52	85.300	311.900	5471.25	1255.94 N	1255.31 W	1775.72	4.472
7184.69	87.400	312.500	5473.23	1276.83 N	1278.35 W	1806.79	7.006
7216.58	88.700	313.300	5474.32	1298.53 N	1301.70 W	1838.64	4.786
7248.34	90.200	313.500	5474.62	1320.35 N	1324.77 W	1870.38	4.765
7279.31	91.100	313.900	5474.27	1341.74 N	1347.16 W	1901.34	3.180
7311.06	92.800	313.000	5473.19	1363.56 N	1370.20 W	1933.06	6.058
7342.81	88.900	312.600	5472.72	1385.13 N	1393.49 W	1964.78	12.348
7374.62	86.400	311.600	5474.03	1406.44 N	1417.07 W	1996.52	8.464
7406.47	87.400	313.300	5475.75	1427.90 N	1440.53 W	2028.29	6.186
7437.48	88.700	314.000	5476.80	1449.29 N	1462.96 W	2059.27	4.761
7469.22	89.800	314.600	5477.22	1471.46 N	1485.67 W	2091.01	3.948
7500.88	90.700	315.100	5477.08	1493.79 N	1508.12 W	2122.67	3.252
7532.65	89.600	313.900	5477.00	1516.05 N	1530.77 W	2154.43	5.124
7564.39	89.600	313.900	5477.22	1538.06 N	1553.64 W	2186.17	0.000
7596.13	88.700	313.300	5477.69	1559.95 N	1576.63 W	2217.89	3.408
7627.10	89.800	312.800	5478.10	1581.09 N	1599.26 W	2248.84	3.901
7658.79	89.000	312.800	5478.43	1602.62 N	1622.51 W	2280.51	2.524
7690.64	88.200	311.800	5479.21	1624.04 N	1646.06 W	2312.31	4.020
7722.32	89.000	312.300	5479.98	1645.26 N	1669.57 W	2343.94	2.978
7754.05	88.600	314.000	5480.64	1666.95 N	1692.72 W	2375.64	5.503
7785.82	90.400	313.900	5480.92	1689.00 N	1715.59 W	2407.41	5.674
7817.66	90.900	314.400	5480.56	1711.18 N	1738.43 W	2439.24	2.221
7849.54	89.700	315.800	5480.39	1733.76 N	1760.93 W	2471.12	5.784
7869.32	89.700	315.600	5480.50	1747.91 N	1774.75 W	2490.90	1.011
7900.40	89.100	315.300	5480.82	1770.06 N	1796.55 W	2521.97	2.158
7932.24	88.700	315.500	5481.43	1792.73 N	1818.90 W	2553.81	1.405
7964.01	88.400	315.500	5482.24	1815.38 N	1841.16 W	2585.57	0.944
7995.84	88.200	315.600	5483.18	1838.09 N	1863.44 W	2617.38	0.702
8027.58	88.900	314.700	5483.98	1860.59 N	1885.82 W	2649.11	3.592
8058.52	90.000	314.700	5484.28	1882.35 N	1907.81 W	2680.05	3.555
8090.15	91.200	315.300	5483.95	1904.71 N	1930.18 W	2711.67	4.242
8121.95	90.400	314.700	5483.51	1927.20 N	1952.66 W	2743.47	3.145
8153.77	90.600	314.200	5483.23	1949.48 N	1975.37 W	2775.29	1.692
8184.74	90.300	314.000	5482.99	1971.03 N	1997.61 W	2806.25	1.164
8216.53	89.900	314.700	5482.93	1993.25 N	2020.35 W	2838.04	2.536
8248.45	90.400	315.100	5482.85	2015.78 N	2042.96 W	2869.96	2.006
8280.29	91.100	316.900	5482.43	2038.68 N	2065.07 W	2901.79	6.065
8311.36	89.400	316.300	5482.29	2061.26 N	2086.42 W	2932.85	5.802
8343.18	88.800	316.500	5482.79	2084.30 N	2108.36 W	2964.65	1.988
8374.23	89.100	316.200	5483.36	2106.76 N	2129.79 W	2995.69	1.366
8405.33	89.800	316.200	5483.66	2129.21 N	2151.31 W	3026.78	2.251

Continued...

Sperry-Sun Drilling Services

Survey Report for RU 19-12

Mobil
San Juan County

Utah
Ratherford Unit

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
MWD Survey Leg #2 ST1							
8439.03	86.500	311.800	5484.75	2152.60 N	2175.53 W	3060.45	16.314
8469.99	86.900	309.800	5486.53	2172.79 N	2198.93 W	3091.27	6.577
8501.75	88.600	309.300	5487.78	2193.00 N	2223.40 W	3122.86	5.579
8533.50	90.900	308.200	5487.92	2212.87 N	2248.15 W	3154.42	8.030
8565.34	91.500	307.900	5487.25	2232.49 N	2273.22 W	3186.02	2.107
8597.21	90.300	308.100	5486.75	2252.11 N	2298.33 W	3217.65	3.817
8628.36	88.000	308.200	5487.21	2271.35 N	2322.82 W	3248.57	7.391
8660.10	88.100	307.900	5488.29	2290.90 N	2347.80 W	3280.06	0.996
8691.82	87.600	307.700	5489.48	2310.33 N	2372.85 W	3311.51	1.698
8723.58	87.800	310.200	5490.76	2330.27 N	2397.53 W	3343.06	7.890
8754.53	89.400	310.000	5491.51	2350.20 N	2421.19 W	3373.89	5.210
8786.36	89.500	310.000	5491.82	2370.66 N	2445.58 W	3405.59	0.314
8818.14	88.200	310.500	5492.46	2391.19 N	2469.83 W	3437.26	4.383
8849.12	86.700	309.600	5493.83	2411.10 N	2493.52 W	3468.09	5.645
8880.86	87.400	308.900	5495.47	2431.16 N	2518.06 W	3499.63	3.117
8912.60	86.800	310.000	5497.07	2451.30 N	2542.54 W	3531.18	3.944
8944.42	86.500	311.900	5498.93	2472.12 N	2566.53 W	3562.86	6.035
8976.18	86.400	313.700	5500.90	2493.66 N	2589.79 W	3594.54	5.665
9007.93	85.000	316.200	5503.28	2516.02 N	2612.19 W	3626.20	9.005
9039.66	83.800	316.000	5506.38	2538.77 N	2634.09 W	3657.77	3.834
9071.46	83.300	313.500	5509.95	2561.02 N	2656.53 W	3689.36	7.969
9103.18	84.300	313.200	5513.38	2582.67 N	2679.46 W	3720.88	3.290
9135.03	86.200	312.600	5516.01	2604.27 N	2702.71 W	3752.60	6.254
9166.03	86.900	311.800	5517.88	2625.06 N	2725.63 W	3783.51	3.426
9197.70	87.600	311.800	5519.40	2646.14 N	2749.22 W	3815.09	2.210
9229.46	88.200	311.600	5520.56	2667.25 N	2772.91 W	3846.78	1.991
9261.19	88.900	311.600	5521.36	2688.31 N	2796.63 W	3878.44	2.206
9292.10	89.600	311.900	5521.77	2708.89 N	2819.69 W	3909.30	2.464
9323.84	90.100	310.900	5521.85	2729.88 N	2843.50 W	3940.98	3.522
9354.77	91.000	310.400	5521.56	2750.03 N	2866.96 W	3971.82	3.329
9385.01	91.000	310.400	5521.03	2769.63 N	2889.99 W	4001.95	0.000

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

The Dogleg Severity is in Degrees per 100ft.
Vertical Section is from Well and calculated along an Azimuth of 315.000° (True).

Based upon Minimum Curvature type calculations, at a Measured Depth of 9385.01ft.,
The Bottom Hole Displacement is 4002.86ft., in the Direction of 313.782° (True).

Form 3160-4 (July 1992) Amended

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUBMIT IN DUPLICATE (See other instructions on reverse side)

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

WELL COMPLETION OR RECOMPLETION REPORT AND LOG*

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

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

7. UNIT AGREEMENT NAME: RATHERFORD UNIT

8. FARM OR LEASE NAME, WELL NO.: RATHERFORD 19-W-12

9. API WELL NO.: 43-037-15739

10. FIELD AND POOL, OR WILDCAT: GREATER ANETH

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: SEC. 19, T41S, R24E

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

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

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

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

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

At top prod. interval reported below
600' FWL & 1980' FNL

At total depth
* #37

14. PERMIT NO. | DATE ISSUED

12. COUNTY OR PARISH: SAN JUAN | 13. STATE: UT

15. DATE SPUDDED	16. DATE T.D. REACHED	17. DATE COMPL. (Ready to prod.)	18. ELEVATIONS (DF, RKB, RT, GR, ETC.)*	19. ELEV. CASINGHEAD
8-19-97	9-12-97	9-25-97	4736' GR, 4748' KB	

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

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

25. WAS DIRECTIONAL SURVEY MADE: YES

26. TYPE ELECTRIC AND OTHER LOGS RUN: NO

27. WAS WELL CORED: NO

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

CASING SIZE/GRADE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	TOP OF CEMENT, CEMENTING RECORD	AMOUNT PULLED
13 3/8"	27.1#	172'	11"	SURFACE	CONDUCTOR
8 5/8"	24#	1447'	11"	SURFACE	
5 1/2"	15.5#	5657'	7 7/8"	840'	

29. LINER RECORD

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

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)
2 7/8"		5253'

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DEC 12 1997
DIV. OF OIL, GAS & MINING

31. PERFORATION RECORD (Interval, size and number)

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

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
5610-8602'	ACIDIZE W/1893 BBLS 15% HCL
5523-6961	ACIDIZE W/700 BBLS 15% HCL ACID

33.* PRODUCTION

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

DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FOR TEST PERIOD	OIL - BBL.	GAS - MCF.	WATER - BBL.	GAS - OIL RATIO
10-21-97			→			1536	

FLOW. TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE	OIL - BBL.	GAS - MCF.	WATER - BBL.	OIL GRAVITY - API (CORR.)
NA	0	→				

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

TEST WITNESSED BY

35. LIST OF ATTACHMENTS

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

SIGNED Sue Moseley for TITLE SHIRLEY HOUCHINS/ENV & REG TECH DATE 12-09-97

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

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

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

FORMATION	TOP	BOTTOM	DESCRIPTION, CONTENTS, ETC.
RATHERFORD	19-W-12		
*#4			LAT #1A1 1048' S & 1074' E FROM SURF SPOT
			LAT #2A1 2537' N & 2546' W FROM SURF SPOT
			LAT #2ST1 2770' N & 2890' W FROM SURF SPOT
** #20, 21, & 24			LAT #1A1(1) (5469-5499'TVD)(5523-6950'TMD)
			LAT #2A1(2)(5481-5512' TVD)(5600-8974'TMD)
			LAT #2ST1(5300-5521'TVD)(5300-9385'TMD)

38. GEOLOGIC MARKERS

NAME	TOP	
	MEAS. DEPTH	TRUE VERT. DEPTH

Form 3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

SUNDRY NOTICES AND REPORTS ON WELLS

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

SUBMIT IN TRIPLICATE

5. Lease Designation and Serial No.: 14-20-603-353
6. If Indian, Allottee or Tribe Name: NAVAJO TRIBAL
7. If Unit or CA, Agreement Designation: RATHERFORD UNIT
8. Well Name and No.: RATHERFORD 19-W-12
9. API Well No.: 43-037-15739
10. Field and Pool, or exploratory Area: GREATER ANETH
11. County or Parish, State: SAN JUAN UT

1. Type of Well: [ ] Oil Well [ ] Gas Well [X] Other
2. Name of Operator: MOBIL PRODUCING TX & NM INC.*
*MOBIL EXPLORATION & PRODUCING US INC. AS AGENT FOR MPTM
3. Address and Telephone No.: P.O. Box 633, Midland TX 79702 (915) 688-2585
4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
SEC. 19, T41S, R24E
600' FWL & 1980' FNL

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

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

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

SEE ATTACHED MIT AND CHART.

RECEIVED
MAY 11 1998
DIV. OF OIL, GAS & MINING

14. I hereby certify that the foregoing is true and correct
Signed Joe Moseley for Title SHIRLEY HOUCHINS/ENV & REG TECH Date 5-13-98

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

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

* See Instruction on Reverse Side

ANNULAR PRESSURE TEST
(Mechanical Integrity Test)

Operator Mobil E. & P., Inc. **Date of Test** 5-2-97

Well Name ~~[illegible]~~ RU # 19W-12 **EPA Permit No.**

Location Sec. 19, T41S-R24E **Tribal Lease No.** 14-20-603-353

State and County San Juan County, Utah

Continuous Recorder? YES ☒ **NO** ☐ **Pressure Gauge? YES** ☒ **NO** ☐

Bradenhead Opened? YES ☐ **NO** ☒ **Fluid Flow? YES** ☐ **NO** ☐

TIME	ANNULUS PRESSURE, psi	TUBING PRESSURE, psi
11:50	1115	3000
11:55	1110	3000
12:00	1110	3000
12:10	1110	3000
12:20	1115	3000

MAX. INJECTION PRESSURE: _____ **PSI**

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

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

PASSED M.I.T.

Fritz Johnson [signature] 5-2-97

COMPANY REPRESENTATIVE: (Print and Sign) **DATE**

Melvin Capitan Jr. [signature] 5-2-97

INSPECTOR: (Print and Sign) **DATE**

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF INSPECTION

Address (EPA Regional Office)	Inspection Contractor	Firm To Be Inspected
Region 9 Environmental Inspection Agency 215 Fremont Street (W-6-2) San Francisco, CA 94105	Navajo EPA ~~THE CADMUS GROUP, INC.~~ ~~CORPORATE OFFICE~~ ~~135 Beaver Street~~ ~~Waltham, MA 02154~~	Mobil E.&P., Inc. P.o Box Dawer G Cortez,Co 81321

Date 5-2-97	Notice of inspection is hereby given according to Section 1445(b) of the Safe Drinking Water Act (42 U.S.C. §300 f et seg.).
Hour 9:00 AM	

Reason For Inspection

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

RU# 18W-32, WATER INJECTION WELL, M.I.T. - PASSED

RU# 13W-11, WATER INJECTION WELL, M.I.T. - PASSED

RU# 19W-12, WATER INJECTION WELL, M.I.T. - PASSED

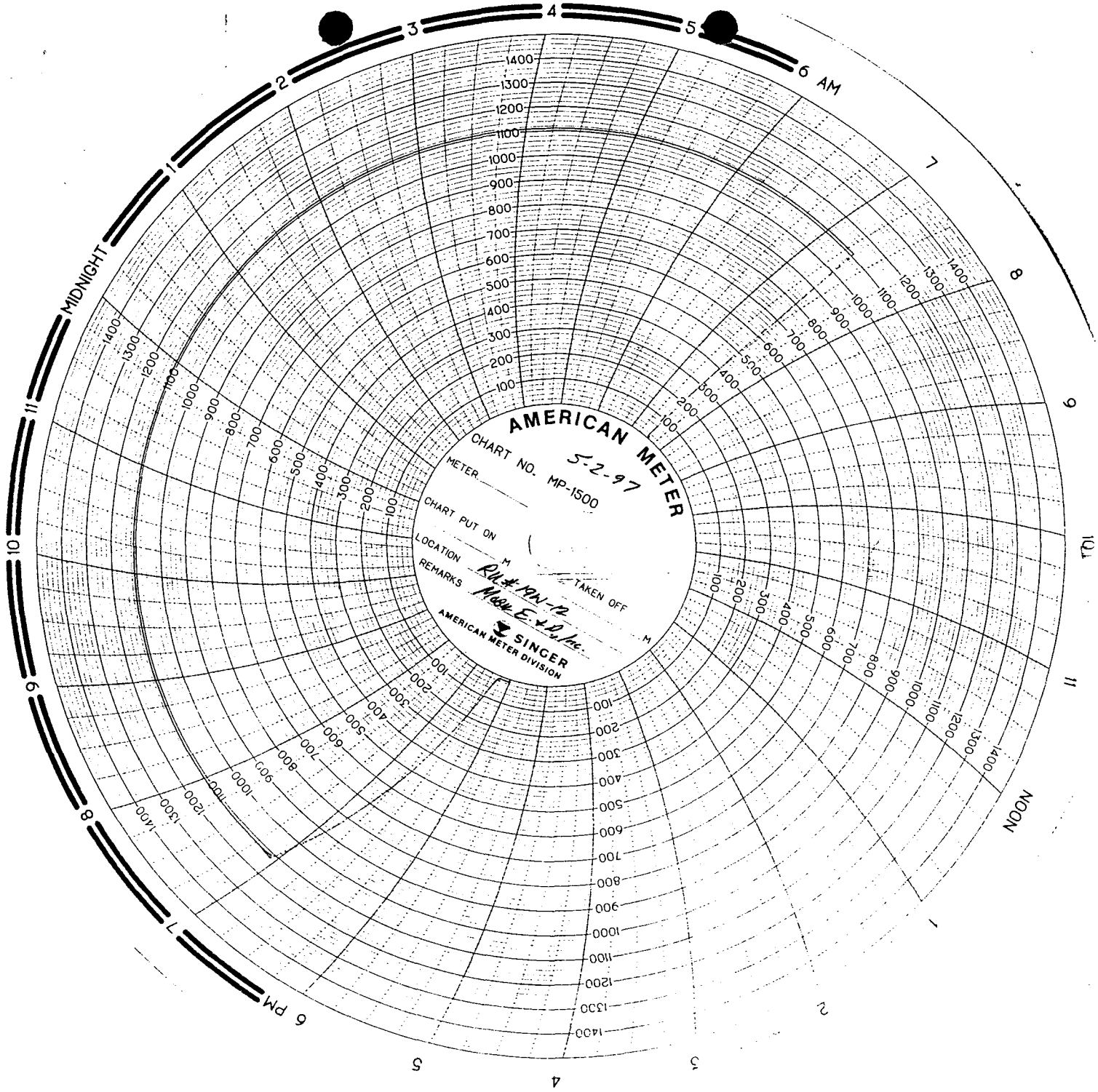
RU# 19W-23, WATER INJECTION WELL, M.I.T. - PASSED

RU# 19W-41, WATER INJECTION WELL, M.I.T. - PASSED

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

Receipt of this Notice of Inspection is hereby acknowledged.

Firm Representative	Date	Inspector
	5-2-97	


AMERICAN METER
CHART NO. MP-1500
5-2-97
METER
CHART PUT ON
M
TAKEN OFF
M
LOCATION
REMARKS
SINGER
AMERICAN METER DIVISION
MIDNIGHT
NOON
6 AM
6 PM

Form 3160-5
(November 1994)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB No. 1004-0135
Expires: July 31,1996

SUNDRY NOTICES AND REPORTS ON WELLS

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

SUBMIT IN TRIPLICATE - Other Instructions on reverse side

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

6. If Indian, Allottee or Tribe Name
NAVAJO TRIBAL

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

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

8. Well Name and No.
RATHERFORD UNIT 19W12

2. Name of Operator
Exxon Mobil Corporation

9. API Well No.
43-037-15739

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

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

10. Field and Pool, or Exploratory Area
GREATER ANETH

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
Sec. 19, T41S, R24E, 600' FWL & 1980' FNL

11. County or Parish, State
SAN JUAN UT

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

TYPE OF SUBMISSION	TYPE OF ACTION			
☐ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☒ Subsequent Report	☐ Alter Casing	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other **MIT**
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
	☐ Convert to Injection	☐ Plug Back	☐ 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 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 multitple 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 recalmation, have been completed, and the operator has determined that the site is ready for final inspection.)

MIT results and chart attached.

RECEIVED
MAY 09 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 **Sr. Staff Office Assistant**

Signature Ellen M Carroll

Date **05/05/2000**

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by | Title | Date

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

Office

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

(Instructions on Reverse)

ANNULAR PRESSURE TEST
(Mechanical Integrity Test)

Operator EXXON-MOBIL US West Date of Test 1-25-2000

Well Name RATHERFORD UNIT WELL#19-12 EPA Permit No.

Location SW/NW Sec 19, T41S, R24E Tribal Lease No. 14206033353

State and County SAN JUAN COUNTY, UTAH

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

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

TIME	ANNULUS PRESSURE, psi (0-2000psi gauge)	ANNULUS PRESSURE, psi (0-1500psi recorder)	TUBING PRESSURE, psi (0-5000psi gauge)
8:29 Am	1060	1060	2825
8:34 Am	~~1058~~ 1060 mkc	~~1060~~ 1058 mkc	2825
8:39 Am	1060	1055	2825
8:44 Am	1060	1055	2825
8:49 Am	1059	1055	2825
8:54 Am	1058	1050	2825
8:59	1057	1050	2825

MAX. INJECTION PRESSURE: 3000 PSI

MAX. ALLOWABLE PRESSURE CHANGE: 53.0 PSI (TEST PRESSURE X 0.05)

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

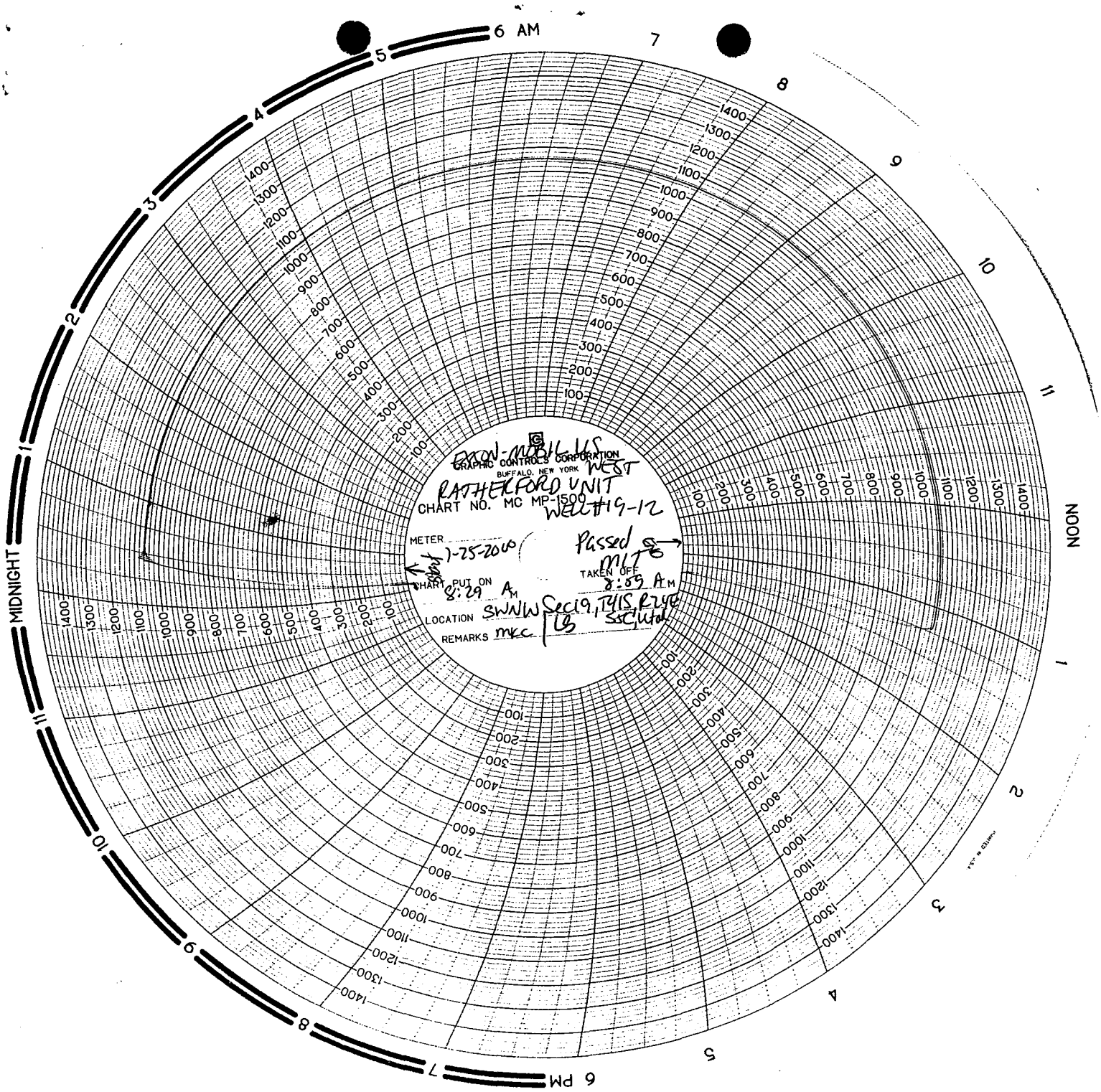
Bradenhead buried
Active Injecting.
Passed MIT

RECEIVED
MAY 09 2000
DIVISION OF
OIL, GAS AND MINING

Larrison Blackgiat
COMPANY REPRESENTATIVE: (Print and Sign) DATE 1/25/00

MELVINA K. CLAH Melvina K. Clah
INSPECTOR: (Print and Sign) DATE 1-25-2000

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



RECEIVED
MAY 09 2000
DIVISION OF
OIL, GAS AND MINING

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

June 27, 2001

ExxonMobil
Production

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

Change of Name – Mobil Oil Corporation to
ExxonMobil Oil Corporation

Dear Mr. Thompson

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

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

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

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

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

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

Very truly yours,

Charlotte H Harper

Charlotte H. Harper
Permitting Supervisor

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

RECEIVED
[illegible] 2001
DIVISION OF
OIL, GAS AND MINING

United States Department of the Interior

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

IN REPLY REFER TO:

RRES/543

AUG 30 2001

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

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

Dear Ms. Harper:

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

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

Sincerely,

DENNIS DENETSONE

Regional Realty Officer

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

MINERAL RESOURCES
ADM
NATV AM MIN COORD
SOLID MIN TEAM
PETRO MGMT TEAM
O & G INSPECT TEAM
ALL TEAM LEADERS
LAND RESOURCES
ENVIRONMENT
FILES

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

BB 7/12/2001

543

File

June 27, 2001

ExxonMobil
Production

Certified Mail
Return Receipt Requested

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

Ms. Genni Denetsone
United States Department of the Interior
Bureau of Indian Affairs, Navajo Region
Real Estate Services
P. O. Box 1060
Gallup, New Mexico 87305-1060
Mail Code 543

Change of Name –
Mobil Oil Corporation to
ExxonMobil Oil Corporation

Dear Ms. Denetsone:

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

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

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

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

Attached is the Name Change Certification, Current listing of Officers and Directors, Filing Fee of $75/-, Listing of Leases, Financial Statement and a copy of the Rider for Bond number 8027 31 97. The original Bond Rider has been sent to Ms. Barbar Davis at your Washington Office.

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

Very truly yours,

Charlotte H. Harper

Charlotte H. Harper
Permitting Supervisor

Attachments

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

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

NOTE: Check forwarded to Ella Jossie

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

Gentlemen:

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

OFFICERS

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

DIRECTORS

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

Sincerely,

Alex Correa

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

(CORPORATE SEAL)

Signature

AGENT AND ATTORNEY IN FACT
Title

SAL

CERTIFICATION

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

CHANGE OF COMPANY NAME

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

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

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

ExxonMobil Oil Corporation",

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

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

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

S. A. Millican
Assistant Secretary

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

Janice M. Phillips
Notary Public

LISTING OF LEASES OF MOBIL OIL CORPORATION

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

6/1/01

CHUBB GROUP OF INSURANCE COMPANIES

[illegible] South, Suite [illegible], Houston, Texas 77027-[illegible]
[illegible] 937-4600 • Facsimile (713) 297-4759

NW Bond

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

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

FEDERAL INSURANCE COMPANY AS SURETY,

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

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

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

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

TO : **ExxonMobil Oil Corporation**

All other terms and conditions of this Bond are unchanged.

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

ExxonMobil Oil Corporation

By : _____

FEDERAL INSURANCE COMPANY

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

Chubb Surety

POWER OF ATTORNEY

Federal Insurance Company
Vigilant Insurance Company
Pacific Indemnity Company

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

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

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

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

Kenneth C. Wendel, Assistant Secretary

Frank E. Robertson, Vice President

STATE OF NEW JERSEY
County of Somerset } ss.

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

Notarial Seal

KAREN A. PRICE NOTARY PUBLIC NEW JERSEY

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

Notary Public

CERTIFICATION

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

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

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

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

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

FEDERAL INSURANCE COMPANY · INDIANA · PACIFIC INDEMNITY COMPANY INCORPORATED JAN. 14, 1925 WISCONSIN VIGILANT INSURANCE COMPANY NEW YORK

Kenneth C. Wendel, Assistant Secretary

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

15-10-0225 (Ed. 4-99) CONSENT

F010601000187

CSC 45

CERTIFICATE OF AMENDMENT

OF

CERTIFICATE OF INCORPORATION

OF

MOBIL OIL CORPORATION

(Under Section 805 of the Business Corporation Law)

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

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

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

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

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

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

ExxonMobil Oil Corporation",

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

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

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

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

F. A. Risch, President

STATE OF TEXAS)
COUNTY OF DALLAS)

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

F. L. REID, Secretary

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

[SEAL]

NOTARY PUBLIC, STATE OF TEXAS

JANICE M. PHILLIPS
MY COMMISSION EXPIRES
May 18, 2002

CSC 5184334741 06/01 '01 09:01 NO.411 02/02
CSC 06/01 '01 09:06 NO.159 04/04

F010601000187

CSC 45

CERTIFICATE OF AMENDMENT

OF

MOBIL OIL CORPORATION

Under Section 805 of the Business Corporation Law

Sac

100 cc

STATE OF NEW YORK
DEPARTMENT OF STATE
FILED JUN 01 2001
TAX $
BY: Sac
NY | Albany

Filed by: EXXONMOBIL CORPORATION
(Name)

5959 Las Colinas Blvd.
(Mailing address)

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

Cust Ref # 165578MPJ

RECEIVED
JUL 05 2001
CORPORATION SERVICE
DIVISION OF REAL ESTATE SERVICES

010601000195

State of New York }
Department of State } *ss:*

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

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

STATE OF NEW YORK
EXCELSIOR
DEPARTMENT OF STATE

Special Deputy Secretary of State

DOS-1266 (7/00)

Division of Oil, Gas and Mining

OPERATOR CHANGE WORKSHEET

ROUTING
1. GLH
2. CDW
3. FILE

Change of Operator (Well Sold) — Designation of Agent

X Operator Name Change — Merger

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

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

CA No. **Unit:** **RATHERFORD**

WELL(S)

NAME	SEC TWN RNG	API NO	ENTITY NO	LEASE TYPE	WELL TYPE	WELL STATUS
NAVAJO A-9 (RATHERFORD 16W23)	16-41S-24E	43-037-15722	99990	INDIAN	WI	A
NAVAJO A-12 (RATHERFORD 16W21)	16-41S-24E	43-037-16414	99990	INDIAN	WI	A
RATHERFORD 16W43	16-41S-24E	43-037-16415	99990	INDIAN	WI	A
RATHERFORD 17-W-12	17-41S-24E	43-037-15726	6280	INDIAN	WI	A
17-14	17-41S-24E	43-037-15727	6280	INDIAN	WI	A
RATHERFORD 17-W-23	17-41S-24E	43-037-15728	6280	INDIAN	WI	A
17-32	17-41S-24E	43-037-15729	6280	INDIAN	WI	A
17-34	17-41S-24E	43-037-15730	6280	INDIAN	WI	A
17-41	17-41S-24E	43-037-15731	6280	INDIAN	WI	I
RATHERFORD 17-W-21	17-41S-24E	43-037-16416	99990	INDIAN	WI	A
RATHERFORD 17W43	17-41S-24E	43-037-16417	99990	INDIAN	WI	A
RATHERFORD 18-W-14	18-41S-24E	43-037-15735	6280	INDIAN	WI	A
18-W-32	18-41S-24E	43-037-15736	6280	INDIAN	WI	A
RATHERFORD 18-W-34	18-41S-24E	43-037-15737	6280	INDIAN	WI	A
DESERT A-4 (RATHERFORD 18W41)	18-41S-24E	43-037-15738	99990	INDIAN	WI	A
DESERT A-3 (RATHERFORD 18-W-21)	18-41S-24E	43-037-16418	99990	INDIAN	WI	A
18-23	18-41S-24E	43-037-30244	6280	INDIAN	WI	A
RATHERFORD U 18-W-12 (SDTRK)	18-41S-24E	43-037-31153	6280	INDIAN	WI	A
RATHERFORD UNIT 18-W-43B	18-41S-24E	43-037-31718	6280	INDIAN	WI	A
RATHERFORD U 19-W-12	19-41S-24E	43-037-15739	6280	INDIAN	WI	A

OPERATOR CHANGES DOCUMENTATION

Enter date after each listed item is completed

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

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

7. **Federal and Indian Units:**
The BLM or BIA has approved the successor of unit operator for wells listed on: 06/01/2001

8. **Federal and Indian Communization Agreements ("CA"):**
The BLM or BIA has approved the operator for all wells listed within a CA on: N/A

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

DATA ENTRY:

1. Changes entered in the **Oil and Gas Database on:** 04/11/2002
2. Changes have been entered on the **Monthly Operator Change Spread Sheet on:** 04/11/2002
3. Bond information entered in RBDMS on: N/A
4. Fee wells attached to bond in RBDMS on: N/A

STATE WELL(S) BOND VERIFICATION:

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

FEDERAL WELL(S) BOND VERIFICATION:

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

INDIAN WELL(S) BOND VERIFICATION:

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

FEE WELL(S) BOND VERIFICATION:

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

LEASE INTEREST OWNER NOTIFICATION:

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

COMMENTS:

Division of Oil, Gas and Mining

OPERATOR CHANGE WORKSHEET

ROUTING
1. DJJ
2. CDW

X Change of Operator (Well Sold) Operator Name Change/Merger

The operator of the well(s) listed below has changed, effective: **6/1/2006**

FROM: (Old Operator):	**TO:** (New Operator):
N1855-ExxonMobil Oil Corporation	N2700-Resolute Natural Resources Company
PO Box 4358	1675 Broadway, Suite 1950
Houston, TX 77210-4358	Denver, CO 80202
Phone: 1 (281) 654-1936	Phone: 1 (303) 534-4600

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

OPERATOR CHANGES DOCUMENTATION

Enter date after each listed item is completed

1. (R649-8-10) Sundry or legal documentation was received from the **FORMER** operator on: 4/21/2006
2. (R649-8-10) Sundry or legal documentation was received from the **NEW** operator on: 4/24/2006
3. The new company was checked on the **Department of Commerce, Division of Corporations Database on:** 6/7/2006
4. Is the new operator registered in the State of Utah: YES Business Number: 5733505-0143
5. If **NO**, the operator was contacted contacted on:

6a. (R649-9-2)Waste Management Plan has been received on: requested

6b. Inspections of LA PA state/fee well sites complete on: n/a

6c. Reports current for Production/Disposition & Sundries on: ok

7. **Federal and Indian Lease Wells:** The BLM and or the BIA has approved the merger, name change, or operator change for all wells listed on Federal or Indian leases on: BLM n/a BIA not yet
8. **Federal and Indian Units:**
   The BLM or BIA has approved the successor of unit operator for wells listed on: not yet
9. **Federal and Indian Communization Agreements ("CA"):**
   The BLM or BIA has approved the operator for all wells listed within a CA on: n/a
10. **Underground Injection Control ("UIC")** The Division has approved UIC Form 5, **Transfer of Authority to Inject,** for the enhanced/secondary recovery unit/project for the water disposal well(s) listed on: 6/12/2006

DATA ENTRY:

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

BOND VERIFICATION:

1. Federal well(s) covered by Bond Number: n/a
2. Indian well(s) covered by Bond Number: PA002769
3. (R649-3-1) The **NEW** operator of any fee well(s) listed covered by Bond Number n/a

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

LEASE INTEREST OWNER NOTIFICATION:

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

COMMENTS:

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

UIC FORM 5

TRANSFER OF AUTHORITY TO INJECT

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

EFFECTIVE DATE OF TRANSFER: 6/1/2006

CURRENT OPERATOR

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

Name:
Signature:
Title:
Date:

NEW OPERATOR

Company: Resolute Natural Resources Company
Address: 1675 Broadway, Suite 1950
city Denver state CO zip 80202
Phone: (303) 534-4600
Comments: A list of affected UIC wells is attached.
New bond numbers for these wells are:
BIA Bond # PA002769 and US EPA Bond # B001252

Name: Dwight E Mallory
Signature:
Title: Regulatory Coordinator
Date: 4/20/2006

(This space for State use only)

Transfer approved by:
Title: Field Operations Manager
Approval Date: 6/12/06

Comments:

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

(5/2000)

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

FORM 9

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.

5. LEASE DESIGNATION AND SERIAL NUMBER: See attached list
6. IF INDIAN, ALLOTTEE OR TRIBE NAME: Navajo Tribe
7. UNIT or CA AGREEMENT NAME: Ratherford Unit
8. WELL NAME and NUMBER: See attached list
9. API NUMBER: Attached
10. FIELD AND POOL, OR WILDCAT: Greater Aneth

1. TYPE OF WELL: OIL WELL ☐ GAS WELL ☐ OTHER Unit Agreement

2. NAME OF OPERATOR: Resolute Natural Resources Company N2700

3. ADDRESS OF OPERATOR: 1675 Broadway, Suite 1950 CITY Denver STATE CO ZIP 80202 PHONE NUMBER: (303) 534-4600

4. LOCATION OF WELL
FOOTAGES AT SURFACE: See attached list COUNTY: San Juan
QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: STATE: UTAH

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

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

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

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

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

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

NAME (PLEASE PRINT) Dwight E Mallory TITLE Regulatory Coordinator
SIGNATURE DATE 4/20/2006

(This space for State use only)

APPROVED 6/27/06
Earlene Russell
Division of Oil, Gas and Mining
Earlene Russell, Engineering Technician

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

(5/2000) (See Instructions on Reverse Side)

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

FORM 9

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.

5. LEASE DESIGNATION AND SERIAL NUMBER:

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: Ship Rock

7. UNIT or CA AGREEMENT NAME: UTU68931A

8. WELL NAME and NUMBER: Ratherford

9. API NUMBER: attached

10. FIELD AND POOL, OR WILDCAT: Aneth

1. TYPE OF WELL: OIL WELL ☐ GAS WELL ☐ OTHER Injection

2. NAME OF OPERATOR: ExxonMobil Oil Corporation N1855

3. ADDRESS OF OPERATOR: P.O. Box 4358 CITY Houston STATE TX ZIP 77210-4358 PHONE NUMBER: (281) 654-1936

4. LOCATION OF WELL

FOOTAGES AT SURFACE:

COUNTY: San Juan

QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:

STATE: UTAH

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

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

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

ExxonMobil Oil Corporation is transferring operatorship of Greater Aneth field, Ratherford lease to Resolute Natural Resources Company. All change of operator notices should be made effective as of 7:00 AM MST on June 1, 2006.

Attached please find a listing of injection wells included in the transfer.

NAME (PLEASE PRINT) Laurie Kilbride TITLE Permitting Supervisor

SIGNATURE Laurie O. Kilbride DATE 4/19/2006

(This space for State use only) APPROVED 6/27/06
Earlene Russell
Division of Oil, Gas and Mining
Earlene Russell, Engineering Technician

(See Instructions on Reverse Side)

RECEIVED
APR 21 2006
DIV. OF OIL, GAS & MINING

(5/2000)

GREATER ANETH FIELD UIC WELL LIST
Ratherford lease, San Juan County, Utah

Reg Lease Name	Well ID	API Num	Status	Reg Lease #	Surface Location						
					Qtr 1	Qtr 2	Sec	TN	RNG	NS Foot	EW Foot
RATHERFORD UNIT	1W24	430371583900S1	Shut-in	14-20-603-246A	NE	SE	1	41S	23E	0651FSL	3300FEL
RATHERFORD UNIT	2W44	430371638600S1	Active	14-20-603-246A	SE	SE	2	41S	23E	0810FSL	**0510FEL**
RATHERFORD UNIT	11W42	430371584100S1	Active	14-20-603-246A	SE	NE	11	41S	23E	3290FSL	4617FWL
RATHERFORD UNIT	11W44	430371584200S1	Shut-in	14-20-603-246A	SE	SE	11	41S	23E	0660FSL	0558FEL
RATHERFORD UNIT	12W11	430371584300S1	Active	14-20-603-246A	NW	NW	12	41S	23E	0678FNL	4620FEL
RATHERFORD UNIT	12W13	430371640400S1	Active	14-20-603-246A	NW	SW	12	41S	23E	1980FSL	4620FEL
RATHERFORD UNIT	12W22	430371584501S1	Active	14-20-603-246A	SE	NW	12	41S	23E	1920FNL	2080FWL
RATHERFORD UNIT	12W24	430373115101S1	Active	14-20-603-246A	SE	SW	12	41S	23E	0775FSL	1980FWL
RATHERFORD UNIT	12W31	430371584700S1	Active	14-20-603-246A	NW	NE	12	41S	23E	0661FNL	1981FEL
RATHERFORD UNIT	12W33	430371584800S1	Active	14-20-603-246A	NW	SE	12	41S	23E	1958FSL	3300FEL
RATHERFORD UNIT	12W42	430371585000S1	Active	14-20-603-246A	SE	NE	12	41S	23E	3275FSL	0662FEL
RATHERFORD UNIT	12W44A	430373154300S1	Shut-in	14-20-603-246A	SE	SE	12	41S	23E	0772FSL	0807FEL
RATHERFORD UNIT	13W11	430373115201S1	Active	14-20-603-247A	NW	NW	13	41S	23E	0500FNL	0660FWL
RATHERFORD UNIT	13W13	430371585100S1	Active	14-20-603-247A	NW	SW	13	41S	23E	1980FSL	4620FEL
RATHERFORD UNIT	13W22	430371585200S1	Active	14-20-603-247A	SE	NW	13	41S	23E	1988FNL	3300FEL
RATHERFORD UNIT	13W24	430371585300S1	Active	14-20-603-247A	SE	SW	13	41S	23E	0660FSL	3300FEL
RATHERFORD UNIT	13W33	430371585501S1	Active	14-20-603-247A	NW	SE	13	41S	23E	1970FSL	1979FEL
RATHERFORD UNIT	13W42	430371585700S1	Shut-in	14-20-603-247A	SE	NE	13	41S	23E	2139FNL	0585FEL
RATHERFORD UNIT	13W44	430371640700S1	Active	14-20-603-247A	SE	SE	13	41S	23E	0653FSL	0659FEL
RATHERFORD UNIT	14-31	430373171700S1	Active	14-20-603-247A	NW	NE	14	41S	23E	0754FNL	1604FEL
RATHERFORD UNIT	14W42	430371586001S1	Active	14-20-603-247A	SE	NE	14	41S	23E	1976FNL	653FEL
RATHERFORD UNIT	24W31	430371586200S1	Shut-in	14-20-603-247A	NW	NE	24	41S	24E	0560FNL	1830FEL
RATHERFORD UNIT	24W42	430371586300S1	Shut-in	14-20-603-247A	SE	NE	24	41S	24E	1980FNL	0660FEL
RATHERFORD UNIT	17W12	430371572601S1	Active	14-20-603-353	SW	NW	17	41S	24E	1980FNL	510FWL
RATHERFORD UNIT	17W14	430371572700S1	Active	14-20-603-353	SW	SW	17	41S	24E	0610FSL	0510FWL
RATHERFORD UNIT	17W21	430371641601S1	Active	14-20-603-353	NE	**NW**	17	41S	24E	0510FNL	1830FWL
RATHERFORD UNIT	17W23	430371572801S1	Active	14-20-603-353	NE	SW	17	41S	24E	1880FSL	1980FWL
RATHERFORD UNIT	17W32	430371572900S1	TA'd	14-20-603-353	SW	NE	17	41S	24E	1830FNL	2030FEL
RATHERFORD UNIT	17W34	430371573000S1	Active	14-20-603-353	SW	SE	17	41S	24E	0560FSL	1880FEL
RATHERFORD UNIT	17W41	430371573100S1	Shut-in	14-20-603-353	NE	NE	17	41S	24E	0610FNL	0510FEL
RATHERFORD UNIT	17W43	430371641701S1	Active	14-20-603-353	NE	SE	17	41S	24E	1980FSL	0660FEL
RATHERFORD UNIT	18-43B	430373171801S1	Active	14-20-603-353	NE	SE	18	41S	24E	2023FSL	0651FEL
RATHERFORD UNIT	18W12	430373115301S1	Active	14-20-603-353	SW	NW	18	41S	24E	1980FNL	560FWL
RATHERFORD UNIT	18W14	430371573501S1	Active	14-20-603-353	SW	SW	18	41S	24E	0810FSL	0600FWL
RATHERFORD UNIT	18W21	430371641801S1	Active	14-20-603-353	NE	NW	18	41S	24E	660FNL	1882FWL
RATHERFORD UNIT	18W23	430373024400S1	Shut-in	14-20-603-353	NE	SW	18	41S	24E	2385FSL	2040FWL
RATHERFORD UNIT	18W32	430371573601S1	Active	14-20-603-353	SW	NE	18	41S	24E	2140FNL	1830FEL
RATHERFORD UNIT	18W34	430371573701S1	Active	14-20-603-353	SW	SE	18	41S	24E	780FSL	1860FEL
RATHERFORD UNIT	18W41	430371573800S1	TA'd	14-20-603-353	NE	NE	18	41S	24E	0660FNL	0660FEL
RATHERFORD UNIT	19-12	430371573901S1	Active	14-20-603-353	SW	NW	19	41S	24E	1980FNL	0600FWL
RATHERFORD UNIT	19-32	430371574301S1	Active	14-20-603-353	SW	NE	19	41S	24E	2717FNL	2802FEL
RATHERFORD UNIT	19-34	430371574401S1	Active	14-20-603-353	SW	SE	19	41S	24E	0660FSL	1980FEL
RATHERFORD UNIT	19W21	430371574100S1	Shut-in	14-20-603-353	NE	NW	19	41S	24E	0660FNL	1860FWL
RATHERFORD UNIT	19W23	430371574200S1	Shut-in	14-20-603-353	NE	SW	19	41S	24E	2080FSL	1860FWL
RATHERFORD UNIT	19W43	430371642000S1	Shut-in	14-20-603-353	NE	SE	19	41S	24E	1980FSL	0760FEL
RATHERFORD UNIT	20-12	430371574601S1	Active	14-20-603-353	SW	NW	20	41S	24E	0709FNL	0748FEL
RATHERFORD UNIT	20-14	430371574701S1	Active	14-20-603-353	SW	SW	20	41S	24E	0660FSL	0660FWL
RATHERFORD UNIT	20-32	430371574901S1	Active	14-20-603-353	SW	NE	20	41S	24E	0037FNL	0035FWL
RATHERFORD UNIT	20-34	430371575001S1	Active	14-20-603-353	SW	SE	20	41S	24E	0774FNL	0617FWL
RATHERFORD UNIT	20-67	430373159000S1	Active	14-20-603-353	NE	SW	20	41S	24E	2629FSL	1412FWL
RATHERFORD UNIT	20W21	430371642300S1	Active	14-20-603-353	NE	NW	20	41S	24E	0660FNL	1880FWL
RATHERFORD UNIT	20W23	430371574800S1	Active	14-20-603-353	NW	SW	20	41S	24E	2080FSL	2120FWL
RATHERFORD UNIT	20W41	430371575100S1	Active	14-20-603-353	NE	NE	20	41S	24E	0660FNL	0660FEL
RATHERFORD UNIT	20W43	430371642400S1	TA'd	14-20-603-353	NE	SE	20	41S	24E	2070FSL	0810FEL
RATHERFORD UNIT	16W12	430371572000S1	Active	14-20-603-355	SW	NW	16	41S	24E	1880FNL	0660FWL

GREATER ANETH FIELD UIC WELL LIST
Ratherford lease, San Juan County, Utah

Reg Lease Name	Well ID	API Num	Status	Reg Lease #	Surface Location						
					Qtr 1	Qtr 2	Sec	TN	RNG	NS Foot	EW Foot
RATHERFORD UNIT	16W14	430371572100S1	Shut-in	14-20-603-355	SW	SW	16	41S	24E	0660FSL	0660FWL
RATHERFORD UNIT	16W21	430371641400S1	Active	14-20-603-355	NE	NW	16	41S	24E	0660FNL	1880FWL
RATHERFORD UNIT	16W23	430371572201S1	Active	14-20-603-355	NE	SW	16	41S	24E	1980FSL	1980FWL
RATHERFORD UNIT	16W43	430371641501S1	Active	14-20-603-355	NE	SE	16	41S	24E	2140FSL	0820FEL
RATHERFORD UNIT	21-14	430371575301S1	Active	14-20-603-355	SW	SW	21	41S	24E	0660FSL	0460FWL
RATHERFORD UNIT	21-67	430373175301S1	Active	14-20-603-355	NE	SW	21	41S	24E	2560FSL	1325FWL
RATHERFORD UNIT	21W21	430371642501S1	Active	14-20-603-355	NE	NW	21	41S	24E	0660FNL	2030FWL
RATHERFORD UNIT	**6W14**	430371598400S1	Active	14-20-603-368	NE	SE	6	41S	24E	0660FSL	0660FWL
RATHERFORD UNIT	7W12	430371598500S1	Active	14-20-603-368	NE	SE	7	41S	24E	2140FNL	0585FWL
RATHERFORD UNIT	7W14	430371598600S1	Active	14-20-603-368	NE	SE	7	41S	24E	1065FSL	0660FWL
RATHERFORD UNIT	7W21	430371639400S1	Active	14-20-603-368	**NE**	NW	7	41S	24E	0710FNL	1820FWL
RATHERFORD UNIT	7W34	430371598900S1	Active	14-20-603-368	SW	SE	7	41S	24E	0710FSL	2003FEL
RATHERFORD UNIT	7W43	430371639500S1	Active	14-20-603-368	NE	SE	7	41S	24E	2110FSL	0660FEL
RATHERFORD UNIT	**8W14**	430371599200S1	Active	14-20-603-368	SW	NE	8	41S	24E	0745FSL	0575FWL
RATHERFORD UNIT	10W43	430371640300S1	TA'd	14-20-603-4037	NE	SE	10	41S	24E	1980FSL	0550FEL
RATHERFORD UNIT	29-12	430371533701S1	Active	14-20-603-407	SW	**NW**	29	41S	24E	2870FNL	1422FWL
RATHERFORD UNIT	29-32	430371533901S1	Active	14-20-603-407	SW	NE	29	41S	24E	0694FNL	0685FWL
RATHERFORD UNIT	29W21	430371643200S1	Active	14-20-603-407	NE	NW	29	41S	24E	0667FNL	2122FWL
RATHERFORD UNIT	29W41	430371643300S1	Active	14-20-603-407	NE	NE	29	41S	24E	0557FNL	0591FEL
RATHERFORD UNIT	29W43	430371643400S1	Shut-in	14-20-603-407	NE	SE	29	41S	24E	1980FSL	0660FEL
RATHERFORD UNIT	30W41	430371534300S1	Shut-in	14-20-603-407	NE	NE	30	41S	24E	0660FNL	0660FEL
RATHERFORD UNIT	28-12	430371533601S1	Active	14-20-603-409	SW	SE	28	41S	24E	2121FNL	0623FWL
RATHERFORD UNIT	28W21	430371643100S1	Shut-in	14-20-603-409	NE	NW	28	41S	24E	0660FNL	2022FWL
RATHERFORD UNIT	9W23	430371639800S1	Active	14-20-603-5046	NW	SE	9	41S	24E	1980FSL	1980FWL

FORM 9

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

5.LEASE DESIGNATION AND SERIAL NUMBER: 14-20-603-353

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: NAVAJO

7.UNIT or CA AGREEMENT NAME: RATHERFORD

1. TYPE OF WELL Water Injection Well

8. WELL NAME and NUMBER: RATHERFORD U 19-W-12

2. NAME OF OPERATOR: RESOLUTE NATURAL RESOURCES

9. API NUMBER: 43037157390000

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: 1980 FNL 0600 FWL
QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: Qtr/Qtr: SWNW Section: 19 Township: 41.0S Range: 24.0E 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		
✓ NOTICE OF INTENT Approximate date work will start: 10/10/2014	✓ ACIDIZE	☐ ALTER CASING	☐ CASING REPAIR
	☐ CHANGE TO PREVIOUS PLANS	☐ CHANGE TUBING	☐ CHANGE WELL NAME
	☐ CHANGE WELL STATUS	☐ COMMINGLE PRODUCING FORMATIONS	☐ CONVERT WELL TYPE
☐ SUBSEQUENT REPORT Date of Work Completion:	☐ DEEPEN	☐ FRACTURE TREAT	☐ NEW CONSTRUCTION
	☐ OPERATOR CHANGE	☐ PLUG AND ABANDON	☐ PLUG BACK
	☐ PRODUCTION START OR RESUME	☐ RECLAMATION OF WELL SITE	☐ RECOMPLETE DIFFERENT FORMATION
☐ SPUD REPORT Date of Spud:	☐ REPERFORATE CURRENT FORMATION	☐ SIDETRACK TO REPAIR WELL	☐ TEMPORARY ABANDON
	☐ TUBING REPAIR	☐ VENT OR FLARE	☐ WATER DISPOSAL
☐ DRILLING REPORT Report Date:	☐ WATER SHUTOFF	☐ SI TA STATUS EXTENSION	☐ APD EXTENSION
	☐ WILDCAT WELL DETERMINATION	☐ OTHER	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 of acidizing the above well. Attached are the procedures and schematic

Accepted by the Utah Division of Oil, Gas and Mining
FOR RECORD ONLY
October 15, 2014

NAME (PLEASE PRINT)	PHONE NUMBER	TITLE
Erin Joseph	303 573-4886	Sr. Regulatory Analyst

SIGNATURE	DATE
N/A	10/7/2014

RECEIVED: Oct. 07, 2014

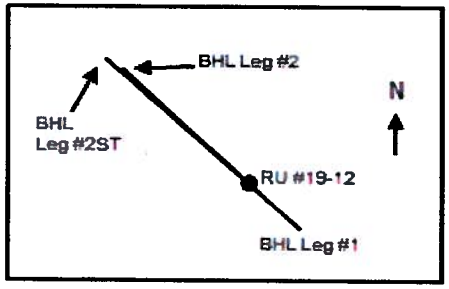
RATHERFORD UNIT# 19W-12
GREATER ANETH FIELD
Surface Loc: 1980' FNL & 600' FWL
SEC 19-T41S-R24E
SAN JUAN COUNTY, UTAH
API 43-037-15739
PRISM 0043077

B.H. Location Lateral #1:
1048' S & 1074' E of Surface Location

B.H. Location Lateral #2:
2537' N & 2546' W of Surface Location

B.H. Location Lateral #2ST:
2770' N & 2890' W of Surface Location

INJECTOR



KB 4748'
GL 4736'

Hole Size: 17.5"
Conductor Pipe: 13-3/8" 27.1# set at 172' w/ 175 sx. Circ to surface. 9-5-58

Hole Size: 11"
8-5/8" 24# K-55 set at 1447' w/ 455 sx. cmt. Circ to surface. 9-8-58

Hole Size: 7-7/8"

2-7/8" Cmt lined Tbg 9-25-97

Guiberson G-6 Pkr at 5253' w/on-off tool 9-25-97

Lateral #2:
TMD 8974', TVD 5512'
Inc. 87.4, Azimuth 313.7,
North 2537', West 2546',
VS 3594' 9-10-97

Openhole Lateral #2 5334-9013' TD MD
(window in csg at 5327-33')

Openhole Lateral #1 5361-6950' TD MD
(window in csg at 5354-60')

Openhole Lateral #2ST 8405-9385' TD MD

Lateral #1:
TMD 6950', TVD 5499',
Inc. 91.2, Azimuth 131.4,
South 1048', East 1074',
VS 1501', 9-2-97

Lateral #2ST:
TMD 9385', TVD 5521'
Inc. 91.0, Azimuth 310.4,
North 2770', West 2890',
VS 4002', 9-13-97

5.5" TIW Big Bore Pkr at 5369' 9-14-97

Perf'd 10-3-58 5466-84
Perf'd 10-3-58 5468-92
Perf'd 12-9-90 5496-5502
Perf'd 6-30-94 5520-40
11-21-77 CICR at 5546'

11-21-77 Sqz'd off
5574-90'
5594-5604'
5609-12'

9-11-58 PBTD 5647'

5-1/2" 15.5# set at 5657' w/ 700 sx.
Calc. TOC at 840'. 9-11-58

TD 5660' 9-11-58

K.B. Dunn 11-26-02 R.U. # 19-12 HZ

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 cmtd 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.

FORM 9

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

5.LEASE DESIGNATION AND SERIAL NUMBER: 14-20-603-353

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: NAVAJO

7.UNIT or CA AGREEMENT NAME: RATHERFORD

1. TYPE OF WELL Water Injection Well

8. WELL NAME and NUMBER: RATHERFORD U 19-W-12

2. NAME OF OPERATOR: RESOLUTE NATURAL RESOURCES

9. API NUMBER: 43037157390000

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: 1980 FNL 0600 FWL
QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: Qtr/Qtr: SWNW Section: 19 Township: 41.0S Range: 24.0E 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		
☐ NOTICE OF INTENT Approximate date work will start:	✓ ACIDIZE	☐ ALTER CASING	☐ CASING REPAIR
	☐ CHANGE TO PREVIOUS PLANS	☐ CHANGE TUBING	☐ CHANGE WELL NAME
	☐ CHANGE WELL STATUS	☐ COMMINGLE PRODUCING FORMATIONS	☐ CONVERT WELL TYPE
✓ SUBSEQUENT REPORT Date of Work Completion: 11/18/2014	☐ DEEPEN	☐ FRACTURE TREAT	☐ NEW CONSTRUCTION
	☐ OPERATOR CHANGE	☐ PLUG AND ABANDON	☐ PLUG BACK
☐ SPUD REPORT Date of Spud:	☐ PRODUCTION START OR RESUME	☐ RECLAMATION OF WELL SITE	☐ RECOMPLETE DIFFERENT FORMATION
	☐ REPERFORATE CURRENT FORMATION	☐ SIDETRACK TO REPAIR WELL	☐ TEMPORARY ABANDON
	☐ TUBING REPAIR	☐ VENT OR FLARE	☐ WATER DISPOSAL
☐ DRILLING REPORT Report Date:	☐ WATER SHUTOFF	☐ SI TA STATUS EXTENSION	☐ APD EXTENSION
	☐ WILDCAT WELL DETERMINATION	☐ OTHER	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 acid job on the above well was completed on 11/18/2014 according to previously approved procedures

Accepted by the Utah Division of Oil, Gas and Mining
FOR RECORD ONLY
November 24, 2014

NAME (PLEASE PRINT)	PHONE NUMBER	TITLE
Erin Joseph	303 573-4886	Sr. Regulatory Analyst

SIGNATURE	DATE
N/A	11/24/2014

RECEIVED: Nov. 24, 2014