DHC 4-16-96

1231

MERIDIAN OIL
A Subsidiary of BURLINGTON RESOURCES

OIL CONSERVATION DIVISION
RECEIVED
'96 MAR 8 AM 8 52

March 11, 1996

New Mexico Oil Conservation Division
Attention: Mr. William LeMay
P.O. Box 2088
310 Old Santa Fe Trail
Santa Fe, New Mexico 87501

RE: Sunray D #1A
NW/4, Section 21, T30N, R10W
San Juan County, New Mexico
Downhole Commingling Request

Dear Mr. LeMay:

Meridian Oil Inc. is applying for administrative approval to downhole commingle the above referenced well in the Blanco Mesaverde and Aztec Pictured Cliffs intervals during the proposed workover. The zones to be commingled have common ownership. All offset operators shown on the attached plat and the Bureau of Land Management have received notification of this downhole commingling application.

This well has produced since 1981 as a dual well from the Mesaverde and Pictured Cliffs. The well is presently not a good producer due to poor producing efficiency. It had a producing capacity in 1995 of 72 mcf/d and 23 mcf/d, respectively. The commingling of the subject well will result in better producing efficiency for both intervals. A possible future artificial lift system, such as a plunger will be more efficient with the intervals commingled. Granting this application will be in the best interest of conservation, the prevention of waste, and the protection of correlative rights.

The proposed project is to fracture stimulate bypassed pay in the existing Mesaverde completion. Commingling should enhance this well's producing life and provide an economical means of recovering reserves from both zones. We plan to commingle this well during the proposed workover by pulling the Pictured Cliffs tubing and the Mesaverde tubing and packer seal assembly. The permanent packer will be extracted and a single string of tubing will be landed in the lower producing interval.

The reservoir characteristics of each of the subject zones are such that underground waste would not be caused by the proposed downhole commingling. The compatibility analysis of fluids from the Pictured Cliffs and Mesaverde indicate that the fluids from each zone are compatible and no precipitates will be formed to cause damage to either reservoir. (See attachment.) The small amout of fluids from each zone are anticipated to be compatible and no precipitates should be formed to cause damage to either reservoir. Shut in pressures for the two formations are within a 50% variance. (Surface pressures for the Mesaverde and Pictured Cliffs are 369 psi and 308 psi, respectively.)

P.O. Box 4289, Farmington, New Mexico 87499-4289, Telephone 505-326-9700, Fax 505-326-9833
3535 East 30th St., 87402-8891

The allocation of the commingled production will be calculated using production history and flow tests obtained from the Pictured Cliffs and Mesaverde during workover operations. Meridian Oil Inc., will consult with the District Supervisor of the Aztec District Office of the Division for approval of the allocation.

Approval of this commingling application will prevent resources from being wasted and protect correlative rights. Attached with this letter are plats showing ownership of the offsetting leases for both the Mesaverde and Pictured Cliffs, a copy of the letter sent to the Bureau of Land Management, fluid compatibility analysis, a wellbore diagram, pertinent data sheet, and a workover procedure.

Sincerely,

Mary Ellen Lutey

Mary Ellen Lutey
Production Engineer

MEL:mel

Attachments

cc: Frank T. Chavez - NMOCD/Aztec
Peggy Bradfield - MOI Regulatory
Bureau of Land Management
Well File

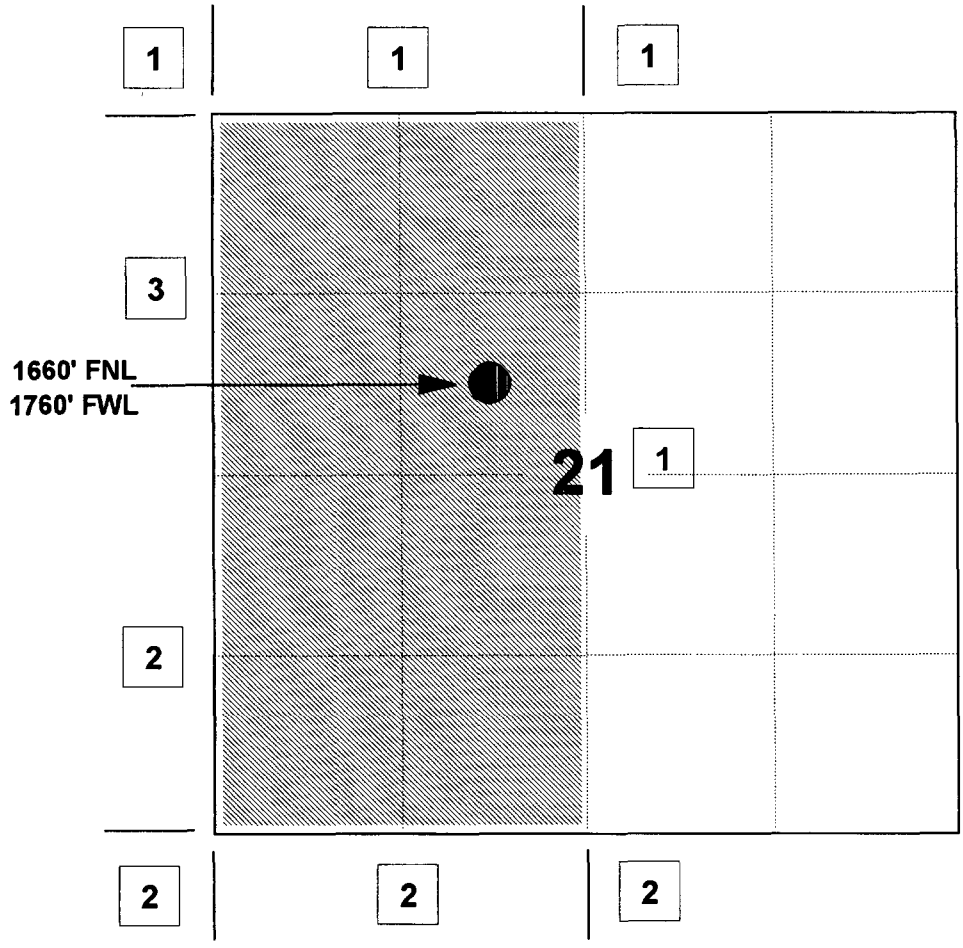
MERIDIAN OIL INC

SUNRAY D #1A

OFFSET OPERATOR \ OWNER PLAT

Mesaverde / Pictured Cliffs Dual Completion Well

Township 30 North, Range 10 West



1) Meridian Oil Inc

2) Amoco Production Company — PO Box 800, Denver, CO 80201

3) Conoco, Inc. — 10 Desta Drive, Suite 100W, Midland, TX 79705-4500

Mesaverde Formation

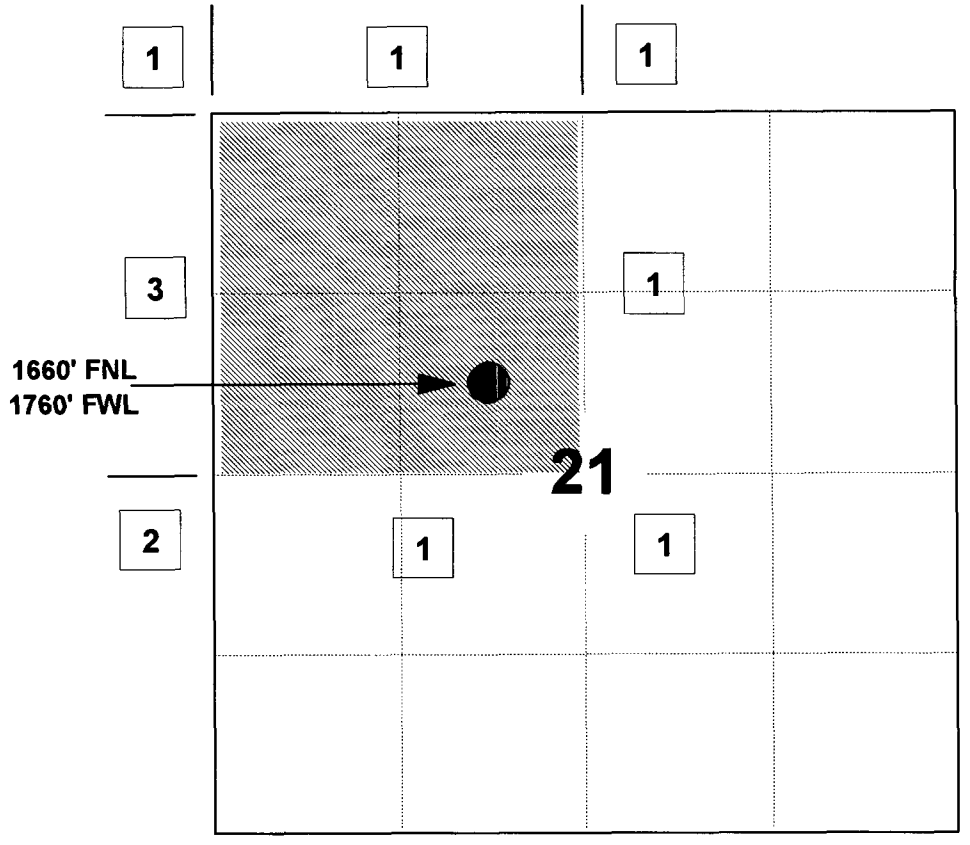
MERIDIAN OIL INC

SUNRAY D #1A

OFFSET OPERATOR \ OWNER PLAT

Mesaverde / Pictured Cliffs Dual Completion Well

Township 30 North, Range 10 West



1) Meridian Oil Inc

2) Amoco Production Company — PO Box 800, Denver, CO 80201

3) Conoco, Inc. — 10 Desta Drive, Suite 100W, Midland, TX 79705-4500

Pictured Cliffs Formation

MERIDIAN OIL

March 11, 1996

Bureau of Land Management
1235 La Plata Highway
Farmington, New Mexico 87401

RE: Sunray D #1A
NW/4, Section 21, T30N, R10W
San Juan County, New Mexico
Downhole Commingling Request

Gentlemen:

Meridian Oil Inc. is in the process of applying for a downhole commingling order from the New Mexico Oil Conservation Division (NMOCD) for the referenced well located in San Juan County, New Mexico. The approved application will commingle the Mesaverde and the Pictured Cliffs fields.

The purpose of this letter is to notify you of Meridian's application. If you have no objections to the NMOCD issuing a commingling order, we would appreciate your signing this letter and returning the original to Mr. LeMay at the following address with a copy to this office:

New Mexico Oil Conservation Division
Mr. William LeMay
P.O. Box 2088
Santa Fe, New Mexico 87501

Your prompt attention to this matter would be appreciated.

Sincerely,

Mary Ellen Lutey

Mary Ellen Lutey
Production Engineer

MEL:mel

The undersigned hereby waives objection to the referenced Downhole Commingle Request.

Company/Owner:_____

Title:_____

Date:_____

Meridian oil inc.
P.O. Box 4289
Farmington, NM 87499

Subject: Sun Ray comingled water tests

Four samples were received from the Sun Ray #D-1-A and D-2-A for comingled water tests to ensure no incompatabilities would exist between the water and oil from the producing zones from the Sun Ray lease.

The following samples were received,
Mesa Verde oil & water From the D-1-A (only enough water API tests)
Pictured Cliffs oil & water from the D-1-A
Pictured Cliffs oil from the D-2-A (no water)
Mesa Verde oil & water from the D-2-A

API water analysis were performed on the individual waters then mixed equally and another API water test was done on the comingled sample. Nothing on the comingled test appeared out of the ordinary. Please see the attached reports.

API oil gravities were performed on the individual oils, then a combined gravity and compatability tests were done.

D-1-A MV oil = 40*
D-2-A MV oil = 48.8*
D-2-A PC oil = 55.2*
A combined gravity of 47.4* was noted

The oils were combined and mixed at high speed then allowed to sit static to see if any incompatabilities could be noticed. The oils mixed well with no visable precipatations or emulsions.

The oils were also combined with formation waters and mixed at high speed to see if any emulsions could be generated. These results showed the oils breaking out clean with no interfaceing or emulsions.

CONCLUSION

Based on the tests performed on the oil & waters in question, no precipatants, emulsionsor other undesireable reactions occoured that could otherwise have damaging effects from the comingling of these fluids.

BJ SERVICES

API W A T E R A N A L Y S I S

Company:	MERIDIAN OIL INC.	W.C.N.A. Sample No.:	
Field:		Legal Description:	
Well:	SUNRAY D-2-A	Lease or Unit:	
Depth:		Water.B/D:	
Formation:	PC	Sampling Point:	
State:	NM	Sampled By:	MOI
County:	SAN JUAN	Date Sampled:	03/11/96

Type of Water(Produced,Supply, ect.): PROD.

PROPERTIES

pH:	5.56	Iron, Fe(total):	3
Specific Gravity:	1.004	Sulfide as H2S:	0
Resistivity (ohm-meter):	10.00	Total Hardness:	
Tempature:	78F	(see below)	

D I S S O L V E D SOLIDS

CATIONS	mg/l		me/l			
Sodium, Na:	184	:	8			
Calcium, Ca:	12	:	1	Sample(ml): 10.0 ml of EDTA:		.30
Magnesium, Mg:	2	:	0	Sample(ml): 10.0 ml of EDTA:		.10
Barium, Ba:	N/A	:	N/A			
Potassium, K:	16	:	0			

ANIONS	mg/l		me/l			
N: .500 Chloride, Cl:	177	:	5	Sample(ml): 10.0 ml of AgNO3:		.10
Sulfate, SO4:	80	:	2			
Carbonate, CO3:		:		Sample(ml): 1.0 ml of H2SO4:		
Bicarbonate, HCO3:	122	:	2	Sample(ml): 25.0 ml of H2SO4:		.50

Total Dissolved Solids (calculated):	593			
Total Hardness:	40	Sample(ml): 10.0 ml of EDTA:		.40

REMARKS AND RECOMMENDATIONS:

BJ SERVICES

API W A T E R A N A L Y S I S

Company:	MERIDIAN OIL INC.	W.C.N.A. Sample No.:	
Field:		Legal Description:	
Well:	SUNRAY D-1-A	Lease or Unit:	
Depth:		Water.B/D:	
Formation:	PC	Sampling Point:	
State:	NM	Sampled By:	MOI
County:	SAN JUAN	Date Sampled:	03/11/96

Type of Water(Produced,Supply, ect.): PROD.

PROPERTIES

pH:	7.50	Iron, Fe(total):	1
Specific Gravity:	1.010	Sulfide as H2S:	0
Resistivity (ohm-meter):	.76	Total Hardness:	
Tempature:	78F	(see below)	

D I S S O L V E D SOLIDS

	CATIONS	mg/l		me/l				
	Sodium, Na:	2323	:	101				
	Calcium, Ca:	40	:	2	Sample(ml):	10.0	ml of EDTA:	1.00
	Magnesium, Mg:	2	:	0	Sample(ml):	10.0	ml of EDTA:	.10
	Barium, Ba:	N/A	:	N/A				
	Potassium, K:	410	:	11				
	ANIONS	**mg/l**		**me/l**				
N: .500	Chloride, Cl:	3722	:	105	Sample(ml):	10.0	ml of AgNO3:	2.10
	Sulfate, SO4:	30	:	1				
	Carbonate, CO3:		:		Sample(ml):	1.0	ml of H2SO4:	
	Bicarbonate, HCO3:	488	:	8	Sample(ml):	25.0	ml of H2SO4:	2.00

Total Dissolved Solids (calculated):	7015				
Total Hardness:	100	Sample(ml):	10.0	ml of EDTA:	1.00

REMARKS AND RECOMMENDATIONS:

BJ SERVICES

API W A T E R A N A L Y S I S

Company:	MERIDIAN OIL INC.	W.C.N.A. Sample No.:	
Field:		Legal Description:	
Well:	SUNRAY D-2-A	Lease or Unit:	
Depth:		Water.B/D:	
Formation:	MV	Sampling Point:	
State:	NM	Sampled By:	MOI
County:	SAN JUAN	Date Sampled:	03/11/96

Type of Water(Produced,Supply, ect.): PROD.

PROPERTIES

pH:	5.87	Iron, Fe(total):	3
Specific Gravity:	1.005	Sulfide as H2S:	0
Resistivity (ohm-meter):	10.00	Total Hardness:	
Tempature:	78F	(see below)	

D I S S O L V E D SOLIDS

	CATIONS	mg/l		me/l				
	Sodium, Na:	184	:	8				
	Calcium, Ca:	4	:	0	Sample(ml):	10.0	ml of EDTA:	.10
	Magnesium, Mg:	2	:	0	Sample(ml):	10.0	ml of EDTA:	.10
	Barium, Ba:	N/A	:	N/A				
	Potassium, K:	6	:	0				
	ANIONS	**mg/l**		**me/l**				
N: .500	Chloride, Cl:	177	:	5	Sample(ml):	10.0	ml of AgNO3:	.10
	Sulfate, SO4:	30	:	1				
	Carbonate, CO3:		:		Sample(ml):	1.0	ml of H2SO4:	
	Bicarbonate, HCO3:	122	:	2	Sample(ml):	25.0	ml of H2SO4:	.50
	Total Dissolved Solids (calculated):	525						
	Total Hardness:	20			Sample(ml):	10.0	ml of EDTA:	.20

REMARKS AND RECOMMENDATIONS:

BJ SERVICES

API W A T E R A N A L Y S I S

Company:	MERIDIAN OIL INC.	W.C.N.A. Sample No.:	
Field:		Legal Description:	
Well:	SUNRAY COMINGLED WATERS	Lease or Unit:	
Depth:		Water.B/D:	
Formation:	MV/PC	Sampling Point:	
State:	NM	Sampled By:	MOI
County:	SAN JUAN	Date Sampled:	03/11/96
	Type of Water(Produced,Supply, ect.):		PROD.

PROPERTIES

pH:	7.63	Iron, Fe(total):	0
Specific Gravity:	1.005	Sulfide as H2S:	0
Resistivity (ohm-meter):	1.50	Total Hardness:	
Tempature:	78F	(see below)	

D I S S O L V E D SOLIDS

CATIONS	mg/l		me/l			
Sodium, Na:	1380	:	60			
Calcium, Ca:	24	:	1	Sample(ml): 10.0 ml of EDTA:		.60
Magnesium, Mg:	2	:	0	Sample(ml): 10.0 ml of EDTA:		.10
Barium, Ba:	N/A	:	N/A			
Potassium, K:	230	:	6			

ANIONS	mg/l		me/l			
N: .500 Chloride, Cl:	2127	:	60	Sample(ml): 10.0 ml of AgNO3:		1.20
Sulfate, SO4:	30	:	1			
Carbonate, CO3:		:		Sample(ml): 1.0 ml of H2SO4:		
Bicarbonate, HCO3:	342	:	6	Sample(ml): 25.0 ml of H2SO4:		1.40

Total Dissolved Solids (calculated):	4135			
Total Hardness:	70	Sample(ml): 10.0 ml of EDTA:		.70

REMARKS AND RECOMMENDATIONS:

Analysis No. _____
Date _____

The Western Company

Oil Analysis

Operator MERIDIAN OIL INC
Well SunRay D-2-A
Field _____
Formation Pictured Cliffs
Depth _____
County San Juan
State NM

Date Sampled _____
Date Received 3-12-96
Submitted By MOI
Worked By D. Shepherd
Sample Description _____

API Gravity 55 ° at 60°F
*Paraffin Content _____ % by weight
*Asphaltene Content _____ % by weight
Pour Point _____ °F
Cloud Point _____ °F

Comments: Oil is clear Condensate

Analyst _____

*Report calculations and data on back.

Analysis No. _____
Date _____

The Western Company

Oil Analysis

Operator MERIDIAN OIL INC
Well SUNRAY D-2-A
Field _____
Formation Mesa Verde
Depth _____
County San Juan
State NM

Date Sampled _____
Date Received 3-12-96
Submitted By MOI
Worked By D. Shepherd
Sample Description _____

API Gravity 48.4 ° at 60°F
*Paraffin Content _____ % by weight
*Asphaltene Content _____ % by weight
Pour Point _____ °F
Cloud Point _____ °F

Comments: oil is clear to light Green with a Solids and emulsion Phase.

Analyst DS

*Report calculations and data on back.

Analysis No. _____
Date _____

The Western Company

Oil Analysis

Operator MERIDIAN OIL INC. Date Sampled _____

Well SunRay D-1-A Date Received 3-12-96

Field _____ Submitted By MOI

Formation MESA VERDE Worked By D. Shepherd

Depth _____ Sample Description _____

County San Juan _____

State NM _____

API Gravity 40.0 ° at 60°F

*Paraffin Content _____ % by weight

*Asphaltene Content _____ % by weight

Pour Point _____ °F

Cloud Point _____ °F

Comments: oil is Amber Colored. Emulsified with Solids. AND Parraffin

Analyst _____

*Report calculations and data on back.

Analysis No. _____
Date _____

The Western Company

Oil Analysis

Operator MERIDIAN OIL INC. Date Sampled _____

Well SUN Ray Mixed oils Date Received 3-12-96

Field _____ Submitted By _____

Formation PC/MV. Worked By D. Shepherd

Depth _____ Sample Description _____

County _____ Combined D-1-A + D-2-A

State _____ Oil Samples

API Gravity 47.4 ° at 60°F

*Paraffin Content _____ % by weight

*Asphaltene Content _____ % by weight

Pour Point _____ °F

Cloud Point _____ °F

Comments:

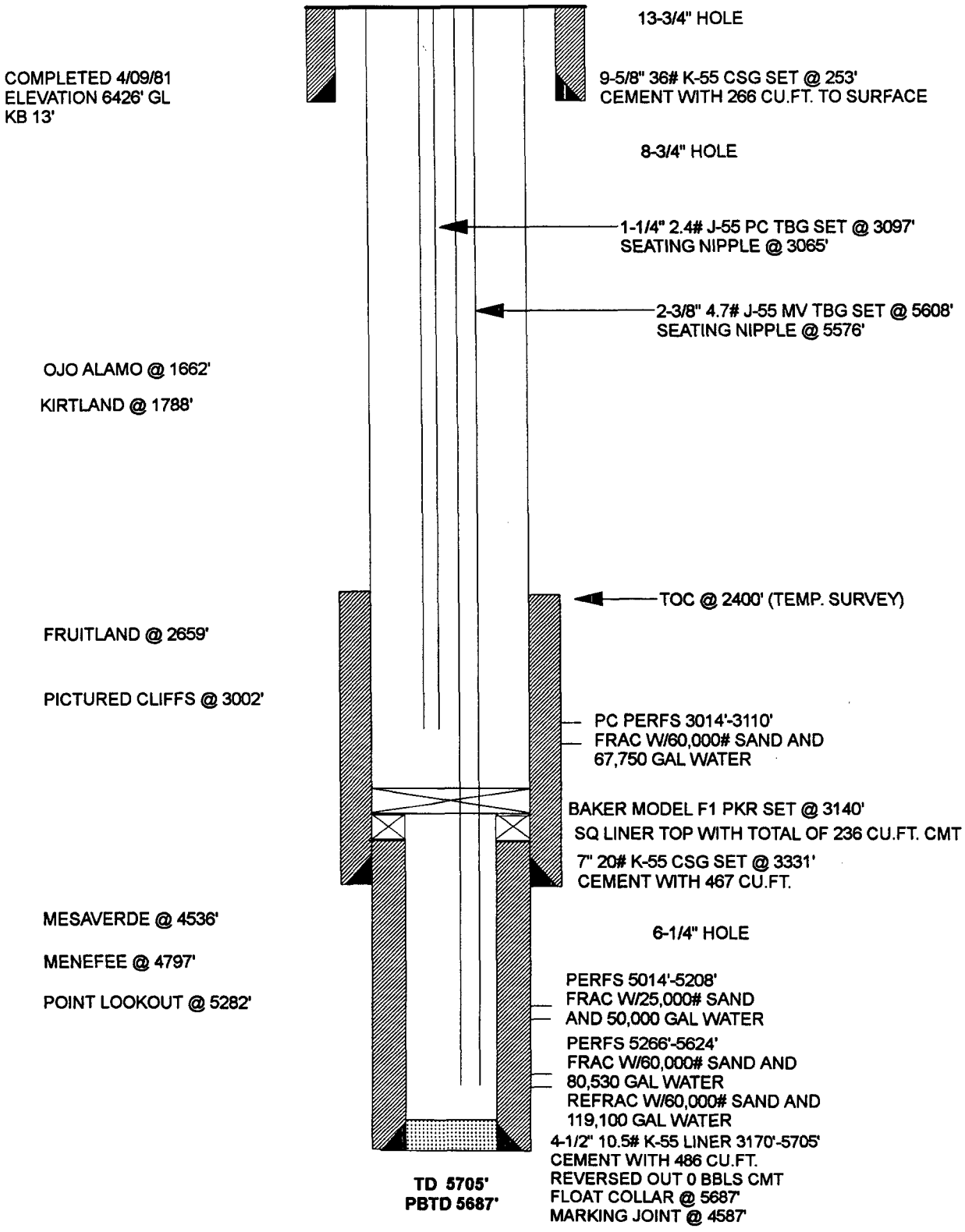
Analyst _____

*Report calculations and data on back.

SUNRAY D #1A

AS OF 7/19/95

BLANCO MESAVERDE/AZTEC PICTURED CLIFFS EXT.
UNIT P, SEC 21, T30N, R10W, SAN JUAN COUNTY, NM



ENGINEERING-LMG

Pertinent Data Sheet -Sunray D #1A

Location: NW/4 1660' FNL, 1760' FWL, Unit P, Section 21, T30N, R10W,
Lat. 36.800720, Long. 107.892334 by TDG
San Juan County, New

Field: Blanco Mesaverde/Aztec Pictured Cliffs **Elevation:** 6426' GL **TD:** 5705'
KB: 13' **PBTD:** 5687'

Completed: 04-09-81 **Spud Date:** 02-08-80

DP No: 53617A/53617B **Prop. No:** 012600400 **Fed. No:** SF 078204

Casing/Liner Record:

Hole Size	Csg Size	Wt. & Grade	Depth Set	Cement	Top/Cement
13 3/4"	9 5/8"	36# K-55	253'	266 cu. ft.	to surface
8 3/4"	7"	20# K-55	3331'	267 cu. ft.	2400' (TS)
6 1/4"	4 1/2" Liner	10.5# K-55	3170'-5705'	486 cu. ft.	Reversed out 0 bbls cmt

Squeezed line top twice with a total of 236 cu. ft. of cement.
Float Collar @ 5687'
Marking Joint @ 4587'

Tubing Record: 2 3/8" 4.7 # J-55 tubing set at 5562'. Seating Nipple @ 5528'. Baker Model G-22 seal assembly set @ 3140'. 1 1/4" 2.4# J-55 PC tubing set at 3097'. Seating Nipple @ 3065'. Production packer is a F1 model.

Formation Tops:

Ojo Alamo:	1662'	Mesaverde:	4536'
Kirtland:	1788'	Menefee:	4797'
Fruitland:	2659'	Point Lookout:	5282'
Pictured Cliffs:	3002'		

Logging Record: ISFL, FDC, IL-GR, Temp. Survey

Stimulation: Sand water fractured Lower Point Lookout 5266'-5624' with 80,530 gallons of water and 60,000# of sand. Refractured with 119,100 gallons of water and 60,000# of sand.

Sand water fractured Massive Point Lookout 5014'-5208' with 50,000 gallons of water and 25,000# of sand.

Sand water fractured Pictured Cliffs 3014'-3110' with 67,750 gallons of water and 60,000# of sand.

Workover History:

None

Sunray D #1A - Mesaverde
Menefee / Cliffhouse Payadd
Lat-Long by TDG: 36.800720 - 107.892334
NW/4 Section 21, T30N-R10W
REVISED PROCEDURE 3/15/96

Below is the revised completion procedure for the Sunray D #1A. The original completion was for a 30# linear gel and has been revised to a cross link gel with 15% resin coated sand. Due to the continual efforts to reduce costs, a completion method has been identified for savings in the overall completion cost. The amount of gelled water necessary to pump the same amount of sand is significantly less with a cross link fluid. In addition, the high viscosity cross link fluid will minimize banking of sand which will allow resin coated sand to set up near the wellbore. In 1995, Area 45 was successful in reducing costs by decreasing amount of water and clean up time. Since there is not an indication that the linear gel completion has better reserves than a cross link gel, it is recommended that the Sunray D #1A be completed with a cross link fluid and resin coated sand.

1. Hold safety meeting. MIRU. Comply with all MOI, BLM and NMOCD rules and regulations. Install 6 frac tanks and 1x400 bbl rig tank. Fill each frac tank with 3#'s of biocide and filtered (25 micron) 1% KCl water.

2. Obtain and record all wellhead pressures. ND WH, NU BOP. TOOH w/ 1-1/4" tubing set @ 3097'. Send 1-1/4" tubing to the yard for salvage. (Mesaverde and Pictured Cliffs will be commingled.) Release seal assembly with straight pull (no anchor) @ 3140' and TOOH w/ 2-3/8" tubing set at 5608'. Replace bad tubing as necessary.

3. TIH w/ an 80 40 CJ milling tool w/ an 87 shoe. Mill 7" F1 production packer @ 3140'. TOOH w/ packer.

4. PU 7" (20#) casing scraper, TIH and run casing scraper to 3165'. TOOH.

5. TIH with 2-3/8" tubing, 4-1/2" (10.5#) casing scraper and 3-7/8" bit. CO to PBTD of 5687'. TOOH.

6. TIH w/ 4-1/2" CIBP and set @ 5000'. Load hole w/ 1% KCL water if possible. Spot Cliffhouse /Menefee interval w/ ± 350 gallons of inhibited 15% HCL acid. TOOH.

7. RU wireline and run CBL-GR-CCL from ± 4990' to liner top at 3170'.

8. Perforate the following Cliffhouse/Menefee interval top down using 3-1/8" HSC guns with 12 gram charges and 0.31" diameter holes. (26 Perfs Total).

4540	**4678**	**4808**
4573	**4683**	**4833**
4610	**4723**	**4868**
4616	**4750**	**4894**
4635	**4773**	**4920**
4642	**4778**	**4940**
4650	**4784**	**4958**
4654	**4790**	**4970**
4670	**4795**	

Inspect guns to ensure all perforations fired. RD wireline.

9. TIH w/ 4-1/2" fullbore packer and 2-3/8" tubing. Set packer @ ± 4985'. Load hole w/ water and pressure test casing and CIBP to 3800 psi. Release packer, PUH to ± 150' above top perforation and reset packer.

10. **Maximum allowable treating pressure is 3800 psi during acid job.** Pump 1500 gallons of 15% HCL acid @ ± 8 Bls/min dropping 7/8" diameter RCN ball sealers spaced evenly throughout the job (2 balls per perforation hole). Release packer, TIH and knock balls off. TOOH.

11. TIH w/ 4-1/2" packer, ± 200' of 2-3/8" tubing and ± 3100' of 3-1/2" frac string. Set packer @ ± 3300'.

12. Hold safety meeting. **Maximum allowable surface treating pressure is 6000 psi.** (At static conditions, maximum allowable surface pressure is **3800** psi.)

13. Pressure test surface lines to 7000 psi. (1000 psi over maximum treating pressure but less than the working pressure of the lines.) Fracture stimulate the Cliffhouse/Menefee interval @ 45 BPM using 30# cross link gel and 140m lbs of sand (15% resin coated). Do not over displace during flush. (Stage flush as soon as sand concentration begins to fall.) Shut in well immediately after completion of the stimulation until pressure falls to zero. Leave well shut in for a minimum of 3 hours to allow gel to break.

14. Release packer and TOOH laying down frac string and standing back 2-3/8" tubing.

15. TIH w/ 3-7/8" bit and 2-3/8" tubing and CO to CIBP @ ± 5000' until sand production is minimal. Obtain pitot gauge. Drill up CIBP set @ 5000'. CO to PBTD (5687'). PU above the Mesaverde perforations and flow the well naturally, making short trips for clean up when necessary. Obtain pitot gauge.

16. When sand has diminished, TOOH.

17. RU wireline and set a 4-1/2" RBP @ 3200'. TIH w/ 2-3/8" tubing and flow the Pictured Cliffs interval. Obtain pitot gauge for the Pictured Cliffs interval.

18. TIH w/ retrieving head and release RBP set @ 3150' and TOOH.

19. TIH with one joint of 2-3/8", 4.7#, J-55 tubing w/ expendable check, an F-nipple, then the remaining 2-3/8" production tubing. Land tubing near bottom Mesaverde perforation (5624').

20. ND BOP's, NU WH. Pump off expendable checks. Obtain final pitot gauge up the tubing. If well will not flow on it's own, make swab run to FN. If swab run is not necessary, run a broach to ensure that the tubing is clear. RD and MOL. Return well to production.

Sunray D #1A
Mesaverde Payadd
August 24, 1995

Approval: PJ Bet
Drilling Superintendent

Approval: Gerald P Fisher 3-18-96
Northwest Basin Team Leader

Contacts:

Engineer - Mary Ellen Lutey
Office - (599-4052)
Home - (325-9387)
Pager - (324-2671)
OR
Jimmy Smith
Office - (326-9713)
Home - (325-3061)
Pager - (324-2420

Frac Consultant - Mark Byars
Pager - (327-8470)
Mobile - (320-0349)
Home - (327-0096)
OR
Mike Martinez
Pager - (599-7429)
Mobile - (860-7518)
Home - (326-4861)

Anticipated Stimulation Procedure

General Information

Well Name:	Sunray D #1A
Location:	Sec. 21, T30N, R10W
Formation:	Cliffhouse/Menefee
Vendors	
Stimulation:	Dowell (325-5096)
Tagging:	None
Fluid:	30# Cross Link Gel
Note:	

Well Configuration

Casing:	4-1/2", 10.5#	1700	FT
	3-1/2", 9.5#	3100	FT
Tubing:	2-3/8", 4.7#	200	FT
Capacity:	0.0159	0.01223	0.00387

		Vol. to:	(gals)
PBTD	5000 ft	PBTD	2,760
Top Perf:	4540 ft	Top Per:	2,453
Bot Perf:	4970 ft	^-200' :	2,319
Midpoint:	4755 ft		

Perforations

1 spf	0.31 " holes
26 holes	12 " penetration

Formation and Stimulation Data

Max Treating Pressure*	6000 psi
Frac Gradient:	0.6 psi/ft
BH Temp:	145 deg. F
Antic. Treating Rate:	45 BPM
Antic. BH Treating Pres:	2,853 psi
Antic. Surf Treating Pres:	5,967 psi
Percent Pad:	15%
Net Pay:	140 ft
lb prop/net ft pay:	1,000 lb/ft
Job Duration:	39.6 min
Perf friction	950 psi
Total friction	5,173 psi

Stimulation Schedule

		Sand Data				Fluid Data				Rate and Time Data			Comments
Tag	Stage	Sand Mesh	Sand Conc ppg	Stage Sand lbs	Cum Sand lbs	Stage Fluid gals	Cum Fluid gals	Stage Slurry gals	Cum Slurry gals	Slurry Rate bpm	Stage Time min	Cum Time min	
	Pad	N/A	0.0	0	0	9,000	9,000	9,000	9,000	45.0	4.8	4.8	
No	2	20/40	1.0	18,000	18,000	18,000	27,000	18,821	27,821	45.0	10.0	14.7	
No	3	20/40	2.0	24,000	42,000	12,000	39,000	13,094	40,915	45.0	6.9	21.6	
No	4	20/40	3.0	45,000	87,000	15,000	54,000	17,052	57,967	45.0	9.0	30.7	
No	5	20/40	4.0	32,000	119,000	8,000	62,000	9,459	67,426	45.0	5.0	35.7	
No	6	20/40	5.0	21,000	140,000	4,200	66,200	5,158	72,584	45.0	2.7	38.4	
	Flush	N/A	0.0	0	140,000	2,319	68,519	2,319	74,903	45.0	1.2	39.6	
				Total	lb/ft	Total		Total		Ave.	Total		
				140,000	1,000	68,519		74,903		45.0	39.6		

Volumes and Additives

Water Volume=	68,519	treat +	3,426	excess =	71,945 gallons	(MOI)
Water Volume=	1,631	treat +	82	excess =	1,713 bbls	(MOI)

Fluid Volume: 1,713 bbl designed treating volume
20/40 Arizona Sand: 119,000 lbs Resin Coated: 21,000
Fluid: 3# Bacteriacide per tank (added before filling with water).
Filtered 1% KCL water (supplied by MOI) and heated to 70 degrees.
6.8 gal/1000 Liquid Gel Concentrate
6 gal/1000 Cross Linker/Activator (.2# Borate, 2% Caustic & 98% H2O)
1 gal/1000 Surfactant
Breaker: St1-2: 1-2# encap., St3-4: 1# oxid., St5-6: 2-3# oxid., 1g Amine
If necessary: Buffer and Caustic

Radioactive Tagging

None

Equipment

Tanks:	5.0	x 400 bbl frac tanks(supplied by MOI).
Filled w/	1,713	bbls 2% KCl water (supplied by MOI).

Mix on the fly equipment. (PCM)
Sand King.
Blender.
Fluid Pumps as required.

Comments and Special Instructions

MAXIMUM ALLOWABLE TREATING PRESSURE IS 6000 PSI.*

Frac down 3-1/2" frac string w/ 100' of 2-3/8" tubing and a packer set in the 4-1/2" liner.

Hold safety meeting with everyone on location before pressure testing surface lines.

Pressure test surface lines to 7000 psi (1000 over max allowable but less than working pressure).

Adjust flush rate and volume according to potential for well to be on vacuum.

(If well is on a vacuum, cut flush by 15%.)

***At static conditions, maximum allowable treating pressure is 3000 psi.**

Production Engineer: Mary Ellen Lutey (pager #324-2671)

PDB 3/15/96

j STATE OF NEW MEXICO
ENERGY and MINERALS
DEPARTMENT
This form is not to be used for reporting packer leakage tests in Southeast New Mexico

OIL CONSERVATION DIVISION

Revised 10/01/78

NORTHWEST NEW MEXICO PACKER-LEAKAGE TEST

Operator: Meridian Oil, Inc. Lease: Sunray D Well No.: 1A

Location of Well: Unit F Sect 21 Twp. 30n Rge. 10W County: San Juan

	NAME OF RESERVOIR OR POOL	TYPE OF PROD. (Oil or Gas)	METHOD OF PROD. (Flow or Art. Lift)	PROD. MEDIUM (Tbg. or Csg.)
Upper Completion	Pictured Cliffs	GAS	FLOW	TBG
Lower Completion	Mesaverde	GAS	FLOW	TBG

PRE-FLOW SHUT-IN PRESSURE DATA

	Hour, date shut-in	Length of time shut-in	SI press. psig	Stabilized? (Yes or No)
Upper Completion	7/7/95	7 Days	308	
Lower Completion	7/7/95	5 Days	369	

FLOW TEST NO. 1

Commenced at (hour,date)* 12-Jul-95 Zone producing (Upper or Lower): LOWER

TIME (hour,date)	LAPSED TIME SINCE*	PRESSURE Upper Completion	PRESSURE Lower Completion	PROD. ZONE TEMP	REMARKS
10-Jul		302	0		
11-Jul		302	368		
12-Jul		308	369		
13-Jul		309	329		
14-Jul		309	310		

Production rate during test

Oil: _____ BOPD based on _____ Bbls. in _____ Hours. _____ Grav. _____ GOR _____

Gas: _____ MCFPD; Tested thru (Orifice or Meter): _____

MID-TEST SHUT-IN PRESSURE DATA

	Hour, date shut-in	Length of time shut-in	SI pres. psig	Stabilized? (Yes or No)
Upper Completion				
Lower Completion	Hour, date shut-in	Length of time shut-in	SI press. psig	Stabilized? (Yes or No)

(Continue on reverse side)