Ernie Busch

From: Ernie Busch
To: Ben Stone
Subject: MERIDIAN OIL INC(SUNRAY J #1(DHC)
Date: Monday, March 25, 1996 7:51AM
Priority: High

07-30N-10W
RECOMMEND: APPROVAL

FORM C-115- OPERATORS MONTHLY REPORT (CONTINUATION)

OPERATOR: LOUIS DREYFUS NATURAL GAS CORP | OGRID: 025773 | MONTH/YEAR 08/95 | PAGE 5 OF 26

7 POOL NO. AND NAME / PROPERTY NO. AND NAME / WELL NO. AND U-L-S-T-R / API NUMBER	INJECTION			PRODUCTION				DISPOSITION OF OIL, GAS, AND WATER							
	8 CODE 1	9 VOLUME	10 PRESSURE	11 CODE 2	12 BBLS OF OIL/COND-ENSATE PRODUCED	13 BBLS OF WATER PRODUCED	14 GAS PRODUCED (MCF)	15 DAYS PRODUCED	16 CODE 3	17 POINT OF DISPOSITION	18 GAS BTU OR OIL API GRAV	19 OIL ON HAND AT BEGINNING OF MONTH	20 VOLUME (BBLS/MCF)	21 TRANSPORTER OGRID	22 CODE 4	23 OIL ON HAND AT END OF MONTH
58960 TEAS BONE SPRING																
016356 SHARP NOSE FEDERAL																
001 J-13-20S-33E																
30-025-31397	P				117	207	106	29								
									O	0762710		62				179
									G	0762730	1226		106	009171		
									W	0762750			207		O	
71599 BASIN DAKOTA (PRORATED GAS)																
005948 BURNS FEDERAL																
001 I-05-26N- 7W																
30-039-06756	F				34	7	3714	31								
001M I-05-26N- 7W																
30-039-22393	F				18	37	2456	31								
									O	1190910		129				163
									O	1191010		89				107
									G	1190930	1142		3683	025244		
									G	1191030	1169		2135	025244		
									G				62		U	
									G				290		V	
									W	1190950			7		O	
									W	1191050			37		O	

MERIDIAN OIL

March 4, 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 J #1
SW/4, Section 7, 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. Meridian Oil operates all the acreage surrounding the referenced well. (See attached offset operator / owner plat.) We therefore wave the offset operator notice requirement and request that the NMOCD consider this application as expeditiously as possible. The Bureau of Land Management will receive notification of this proposed downhole commingling application.

This well has produced since 1958 as a dual well from the Mesaverde and Pictured Cliffs formations. The well is presently not a good producer due to poor producing efficiency. It had an average producing capacity in 1995 of 85 mcf/d and 10 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 performed on two offset wells (Sunray D #1A and Sunray D #2A) indicate that the small amount of fluids from each zone are compatible and no precipitates will be formed to cause damage to either reservoir. (See attachment.) Shut in pressures for the two formations are within a 50% variance. (Surface pressures obtained in 1995 for the Mesaverde and Pictured Cliffs are 332 psi and 176 psi, respectively.)

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, wellbore diagram, pertinent data sheet, and 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

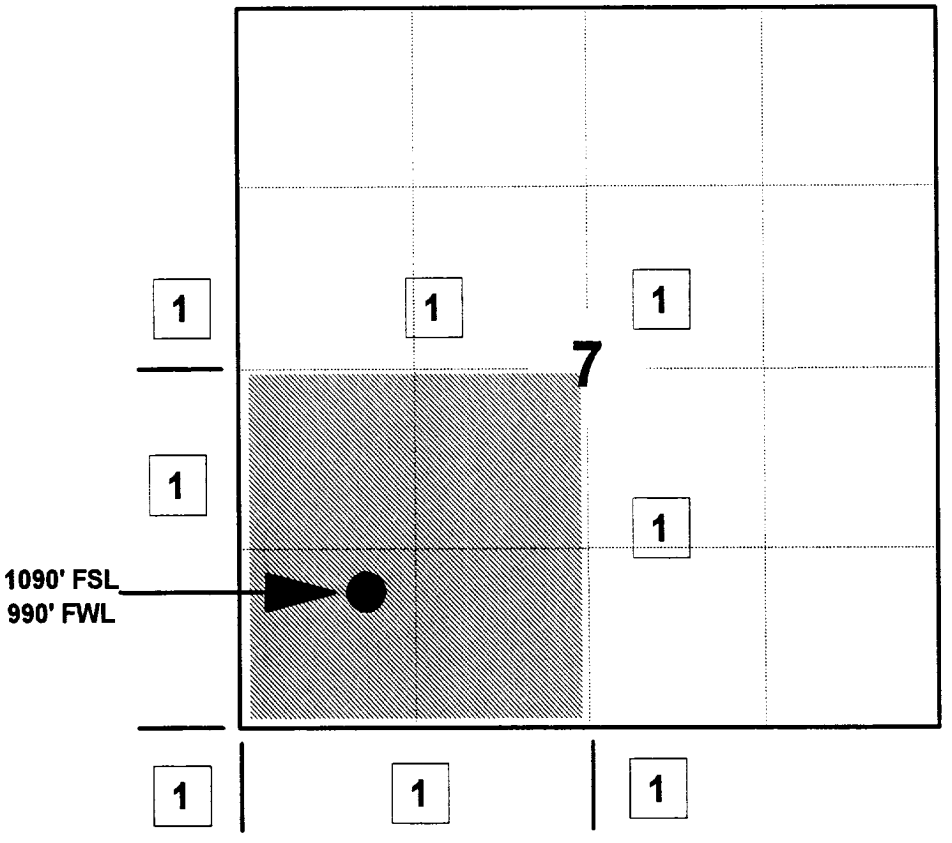
MERIDIAN OIL INC

SUNRAY J #1

OFFSET OPERATOR \ OWNER PLAT

Pictured Cliffs / Mesaverde Formations Commingle

Township 30 North, Range 10 West



1) Meridian Oil Inc

Pictured Cliffs Formation

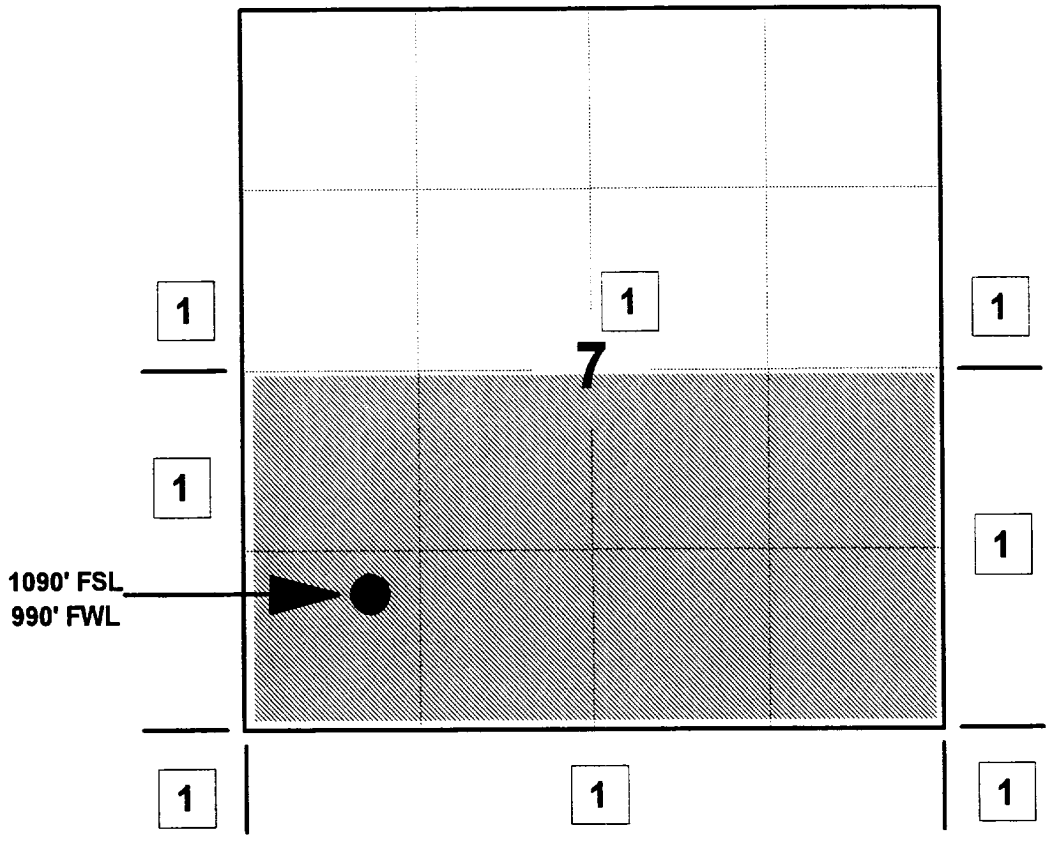
MERIDIAN OIL INC

SUNRAY J #1

OFFSET OPERATOR \ OWNER PLAT

Pictured Cliffs / Mesaverde Formations Commingle

Township 30 North, Range 10 West



1) Meridian Oil Inc

Mesaverde Formation

MERIDIAN OIL

March 4, 1996

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

RE: Sunray J #1
SW/4, Section 7, 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:_____

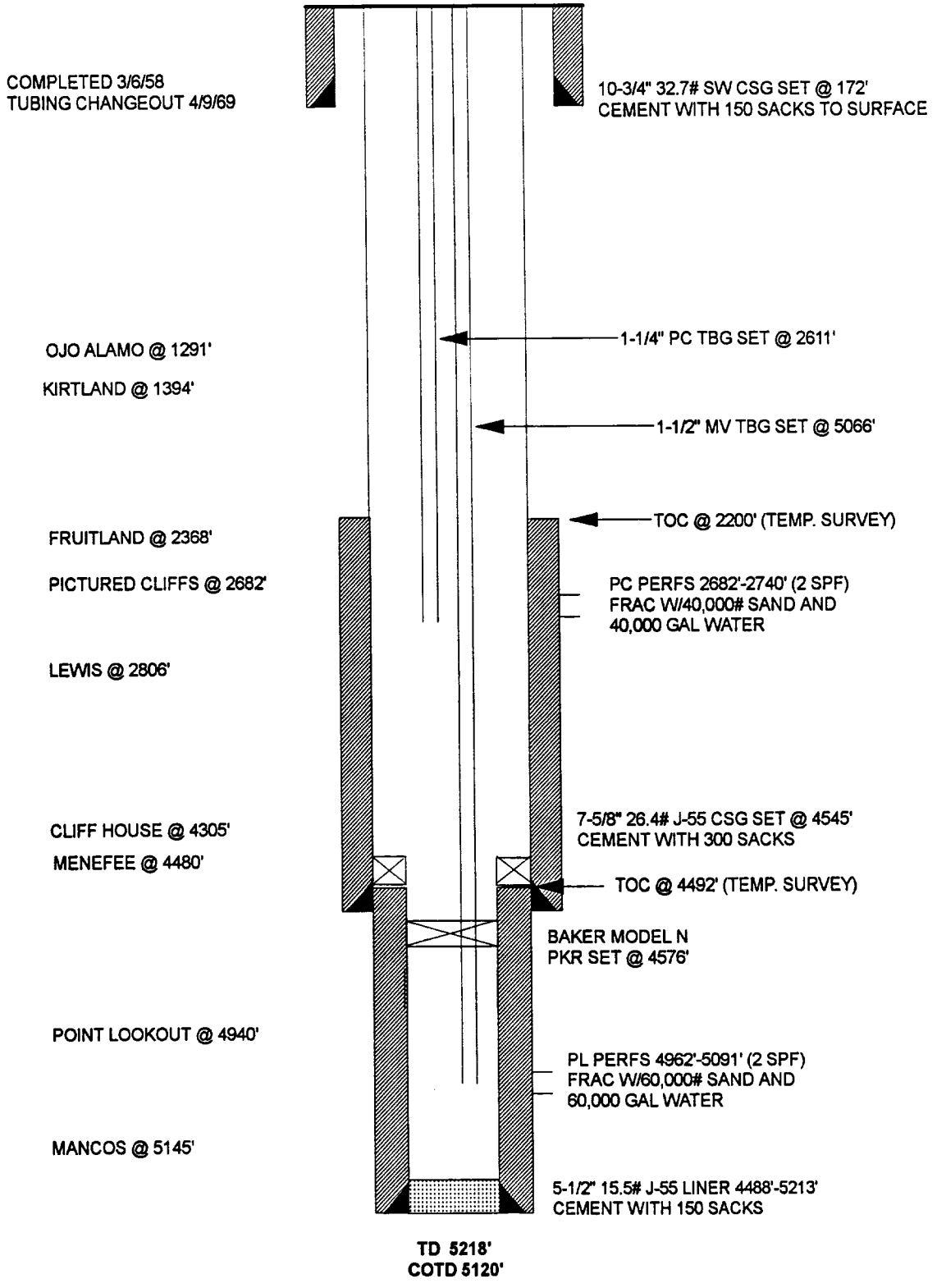
Title:_____

Date:_____

SUNRAY J #1

AS OF 7/12/95

BLANCO MESAVERDE/PICTURED CLIFFS
UNIT M, SEC 7, T30N, R10W, SAN JUAN COUNTY, NM



ENGINEERING-LMG

Pertinent Data Sheet - Sunray J #1

Location: SW/4 1090' FSL, 990' FWL, Unit M, Section 7, T30N, R10W,
Lat. 36.821777, Long. 107.929810 by TDG
San Juan County, New Mexico

Field: Blanco Mesaverde, Aztec Pictured Cliffs **Elevation:** 6148' KB **TD:** 5218'
COTD: 5120'

Completed: 03-06-58 **Spud Date:** 01-18-58

DP No: 53622A/53622B **Prop. No:** 072256900 **Fed. No:** NM 03195

Casing/Liner Record:

Csg Size	Wt. & Grade	Depth Set	Cement	Top/Cement
10 ¾"	32.7# SW	172'	150 sxs	to surface
7 5/8"	26.4# J-55	4545'	300 sxs	2200' (TS)
5 ½" Liner	15.5# J-55	4488'-5213'	150 sxs	4492' (TS)

Tubing Record: MV-156 joints of 1½" EUE set at 5066'. Baker Model "N" packer set @ 4576'. PC-79 joints of 1¼" EUE set at 2611'.

Note: There is no indication of modified tubing collars in the file of this well, but the standard practice in 1958 was to use beveled J-55 collars on the Pictured Cliffs tubing and turned down N-80 collars on the Mesa Verde tubing of (PM) wells.

Formation Tops:

Ojo Alamo:	1291'	Cliff House:	4305'
Kirtland:	1394'	Menefee:	4480'
Fruitland:	2368'	Point Lookout:	4940'
Pictured Cliffs:	2682'	Mancos:	5145'
Lewis:	2806'		

Logging Record: ES - 173' to 4545'
GR - 4300' to 5220'
Induction - 4547' to 5221'
ML - 172' to 4534'
Temp Survey - 4550' to 5224'

Stimulation: Sand water fractured Mesa Verde intervals between 4962' and 5094' with 60,000 gallons of water and 60,000# of sand. I.R. 78.8 BPM at 1550 psi.

Sand water fractured Pictured Cliffs intervals between 2682' and 2740' with 40,000 gallons of water and 40,000# of sand.

Workover History:

4/9/69 Tubing Changeout

Production Data:

	PC	MV
Initial Deliverability:	6/9/58 - 201 MCF/D	4/29/58 - 762 MCF/D
Latest Deliverability:	8/15/68 - 91 MCF/D	3/8/68 - 91 MCF/D
Cumulative Production to 1/1/68:	185,088 MCF	551,854 MCF, 192 Bbls.

Sunray J #1 - Mesaverde
Cliffhouse and Menefee Payadd
Lat-Long by TDG: 36.821777 - 107.929810
SW/4 Section 7, T30N-R10W
REVISED PROCEDURE 3/4/96

Below is the revised completion procedure for the Sunray J #1. 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 J #1 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 5#'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 @ 2743'. TOOH w/ 1-1/2" tubing set at 5066' by pulling and turning the tubing 12 turns to the right. Send tubing to yard for salvage. (MV/PC intervals will be commingled with 2-3/8" tubing.)

3. TIH w/ a CJ mill and mill packer @ 4576'. TOOH. Bow Springs.

4. PU 7-5/8" (26.4#) casing scraper, TIH and run casing scraper to 4485'. TOOH.

5. TIH with 2-3/8" tubing, 5-1/2" (15.5#) casing scraper and 4-3/4" bit. CO to PBTD of 5120'. TOOH.

6. RIH and wireline set a 5-1/2" CIBP @ ± 4945'. Attempt to load hole from surface w/ 1% KCL.

7. RU wireline and run CBL-GR-CCL from ± 4945' to 4100'. Run CNL from 4945' to 4100'. Send copy of logs to engineering/geology and perforation intervals will be provided.

8. TIH w/ 7-5/8" packer and 3-1/2" N-80 frac string. Set packer at ± 2900'. Pressure test casing and CIBP to 3300 psi. TOOH.

9. Perforate the Menefee/Cliffhouse interval (± 4300' - ± 4900') using 3-1/8" HSC guns with 12 gram charges and 0.29" diameter holes. (Intervals will be provided after reviewing logs.) Inspect guns to ensure all perforations fired. RD wireline.

10. TIH w/ 7-5/8" fullbore packer and 3-1/2" N-80 frac string. Set packer @ ± 2900'.

11. **Maximum allowable treating pressure is 3300 psi during acid job.** Pump 2500 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 and TOOH standing back frac string.

12. RIH w/ 5-1/2" junk basket, retrieve balls and report number of hits. RIH w/ 7-5/8" junk basket, retrieve balls and report number of hits.

13. TIH w/ 7-5/8" fullbore packer and 3-1/2" N-80 frac string. Set packer @ ± 2900'.

14. Hold safety meeting. **Maximum allowable surface treating pressure is 6000 psi @ 40 Bbls/min.** (If static conditions, maximum allowable surface treating pressure **3300 psi.**)

Sunray J #1
Mesaverde Payadd
March 4, 1995

15. 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 Menefee/Cliffhouse interval @ 40 BPM using 30# cross link and 140m lbs of sand. (15% resin coated.) (Final stimulation procedure will be attached after reviewing logs.) Do not over displace during flush. If well is on a vacuum during ball off, cut flush by 15%. (Stage flush as soon as sand concentration begins to drop.) Shut in well immediately after completion of the stimulation until pressure falls to zero.

16. Release packer and lay down frac string.

17. TIH w/ 4-3/4" bit and drill up CIBP set @ ± 4945'. CO to PBTD (5120'). PU above the Mesaverde perforations and flow the well naturally, making short trips for clean up when necessary. Obtain pitot gauge.

18. When sand has diminished, TOOH.

19. RU wireline company. Run After Frac GR from 5050' to top of tracer activity.

20. 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" tubing. CO to PBTD. Land tubing near bottom perforation (5091').

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

Approval: _____
Drilling Superintendent

Approval: Gerald Pfeiffer 3-6-95
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 - (327-3061)

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
(Final procedure will be supplied after reviewing CNL)

General Information

Well Name:	Sunray J #1
Location:	Sec. 7, T30N, R10W
Formation:	Menefee/Cliffhouse
Vendors	
Stimulation:	Dowell (325-5096)
Tagging:	None
Fluid:	30# Cross Link Gel
Note:	

Well Configuration

Casing:	7-5/8", 26.4#		1588 FT
	5-1/2", 15.5#		457 FT
Tubing:	3-1/2", 6.5#		2900 FT
Capacity:	0.0472	0.0238	0.01223

		Vol. to:	(gals)
PBTD	4945 ft	PBTD	5,094
Top Perf:	4300 ft	Top Per:	3,816
Bot Perf:	4900 ft	^-200' :	3,419
Midpoint:	4600 ft		

Perforations

1 spf	0.29 " holes
28 holes	16 " penetration

Formation and Stimulation Data

Max Treating Pressure*	6000 psi
Frac Gradient:	0.6 psi/ft
BH Temp:	145 deg. F
Antic. Treating Rate:	40 BPM
Antic. BH Treating Pres:	2,760 psi
Antic. Surf Treating Pres:	4,630 psi
Percent Pad:	16%
Net Pay:	140 ft
lb prop/net ft pay:	1,000 lb/ft
Job Duration:	47.6 min
Perf friction	845 psi
Total friction	3,862 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	10,000	10,000	10,000	10,000	40.0	6.0	6.0	
No	2	20/40	1.0	21,000	21,000	21,000	31,000	21,958	31,958	40.0	13.1	19.0	
No	3	20/40	2.0	30,000	51,000	15,000	46,000	16,368	48,326	40.0	9.7	28.8	
No	4	20/40	3.0	36,000	87,000	12,000	58,000	13,642	61,967	40.0	8.1	36.9	
No	5	20/40	4.0	32,000	119,000	8,000	66,000	9,459	71,426	40.0	5.6	42.5	
No	6	20/40	5.0	21,000	140,000	4,200	70,200	5,158	76,584	40.0	3.1	45.6	
	Flush	N/A	0.0	0	140,000	3,419	73,619	3,419	80,003	40.0	2.0	47.6	
				Total	lb/ft	Total		Total		Ave.	Total		
				140,000	1,000	73,619		80,003		40.0	47.6		

Volumes and Additives

Water Volume=	73,619	treat +	3,681	excess =	77,300 gallons	(MOI)
Water Volume=	1,753	treat +	88	excess =	1,840 bbls	(MOI)

Fluid Volume: 1,840 bbl designed treating volume
20/40 Arizona Sand: 119,000 lbs Resin Coated: 21,000 lbs
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/	1,840	bbls 2% KCl water (supplied by MOI).

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

Comments and Special Instructions

MAXIMUM ALLOWABLE TREATING PRESSURE IS 6000 PSI.*

Frac down 2900' of 3-1/2" frac string and a packer.
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 during ball off, cut flush by 15%)
Stage flush as soon as sand concentration drops.

*Max pressure for static conditions: 3300 psi.

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

CJSS 3/8

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.
Field:
Well: SUNRAY D-1-A
Depth:
Formation: PC
State: NM
County: SAN JUAN

W.C.N.A. Sample No.:
Legal Description:
Lease or Unit:
Water.B/D:
Sampling Point:
Sampled By: MOI
Date Sampled: 03/11/96
Type of Water(Produced,Supply, ect.): PROD.

PROPERTIES

pH: 7.50
Specific Gravity: 1.010
Resistivity (ohm-meter): .76
Tempature: 78F

Iron, Fe(total): 1
Sulfide as H2S: 0
Total Hardness:
(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
Magnesium, Mg:	2	:	0
Barium, Ba:	N/A	:	N/A
Potassium, K:	410	:	11

ANIONS	mg/l		me/l
N: .500 Chloride, Cl:	3722	:	105
Sulfate, SO4:	30	:	1
Carbonate, CO3:		:	
Bicarbonate, HCO3:	488	:	8

Total Dissolved Solids (calculated): 7015
Total Hardness: 100

Sample(ml): 10.0 ml of EDTA: 1.00
Sample(ml): 10.0 ml of EDTA: .10
Sample(ml): 10.0 ml of AgNO3: 2.10
Sample(ml): 1.0 ml of H2SO4:
Sample(ml): 25.0 ml of H2SO4: 2.00
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.
Field:
Well: SUNRAY D-2-A
Depth:
Formation: MV
State: NM
County: SAN JUAN

W.C.N.A. Sample No.:
Legal Description:
Lease or Unit:
Water.B/D:
Sampling Point:
Sampled By: MOI
Date Sampled: 03/11/96
Type of Water(Produced,Supply, ect.): PROD.

PROPERTIES

pH: 5.87
Specific Gravity: 1.005
Resistivity (ohm-meter): 10.00
Tempature: 78F

Iron, Fe(total): 3
Sulfide as H2S: 0
Total Hardness:
(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
Magnesium, Mg:	2	:	0
Barium, Ba:	N/A	:	N/A
Potassium, K:	6	:	0

ANIONS	mg/l		me/l
N: .500 Chloride, Cl:	177	:	5
Sulfate, SO4:	30	:	1
Carbonate, CO3:		:	
Bicarbonate, HCO3:	122	:	2

Total Dissolved Solids (calculated): 525
Total Hardness: 20

Sample(ml): 10.0 ml of EDTA: .10
Sample(ml): 10.0 ml of EDTA: .10
Sample(ml): 10.0 ml of AgNO3: .10
Sample(ml): 1.0 ml of H2SO4:
Sample(ml): 25.0 ml of H2SO4: .50
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 49.4 ° 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 Sun Ray 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. ° 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 Parrafin

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.

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 J Well No. 1

Location of Well: Unit M Sect. 7 Twp. 030N Rge. 010W 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	TUBING
Lower Completion	MESAVERDE	GAS	FLOW	TUBING

PRE-FLOW SHUT-IN PRESSURE DATA

	Hour, date shut-in	Length of time shut-in	SI press. psig	Stabilized? (Yes or No)
Upper Completion	9-15-95	7-Days	176	
Lower Completion	9-15-95	5-Days	332	

FLOW TEST NO. 1

Commenced at (hour,date)* Zone producing (Upper or Lower)

TIME (hour,date)	LAPSED TIME SINCE*	PRESSURE Upper Completion	PRESSURE Lower Completion	PROD. ZONE TEMP	REMARKS
9-18		162	311		
9-19		169	325		
9-20		176	332		
9-21		181	247		
9-22		183	223		

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 press. 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)