Submitted in lieu of Form 3160-5

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

RECEIVED
BLM MAR 15 PM 2:48
070 FARMINGTON, NM

Sundry Notices and Reports on Wells

1. **Type of Well**
GAS

5. **Lease Number**
SF-079266

6. **If Indian, All. or Tribe Name**

7. **Unit Agreement Name**

2. **Name of Operator**
MERIDIAN OIL

8. **Well Name & Number**
Vaughn #31

3. **Address & Phone No. of Operator**
PO Box 4289, Farmington, NM 87499 (505) 326-9700

9. **API Well No.**
30-039-22264

4. **Location of Well, Footage, Sec., T, R, M**
1120'FNL, 1610'FEL, Sec.29, T-26-N, R-6-W, NMPM

10. **Field and Pool**
Blanco MV/Basin DK/
Ensenada Gallup Ext.

11. **County and State**
Rio Arriba Co, NM

12. **CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OTHER DATA**

Type of Submission	Type of Action		
_X_ Notice of Intent	___ Abandonment	___ Change of Plans	
	_X_ Recompletion	___ New Construction	
___ Subsequent Report	___ Plugging Back	___ Non-Routine Fracturing	
	___ Casing Repair	___ Water Shut off	
___ Final Abandonment	___ Altering Casing	___ Conversion to Injection	
	_X_ Other - Dakota pay add		

13. **Describe Proposed or Completed Operations**

It is intended to add the Mesaverde and Gallup formations and add pay to the Dakota formation of the subject well according to the attached procedure and wellbore diagram. The well will then be commingled. A down-hole commingle order will be applied for.

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MAR 26 1996
OIL CON. DIV.
DIST. 3

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

Signed Peggy Bradfield (JE3) Title Regulatory Administrator Date 3/7/96

(This space for Federal or State Office use)
APPROVED BY _____ Title _____ Date APPROVED
CONDITION OF APPROVAL, if any:

MAR 18 1996
DISTRICT MANAGER

Need DHC # number chg to 31M

NMOCD

Mesa Verde

District I
PO Box 1980, Hobbs, NM 88241-1980
District II
PO Drawer DD, Artesia, NM 88211-0719
District III
1000 Rio Brazos Rd., Aztec, NM 87410
District IV
PO Box 2088, Santa Fe, NM 87504-2088

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

Form C-1
Revised February 21, 19
Instructions on ba
Submit to Appropriate District Offi
State Lease - 4 Cop
Fee Lease - 3 Cop

☐ AMENDED REPOI

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number	² Pool Code	³ Pool Name
30-039-22264	71599 72319/96321/	Blanco MV/Ensenada Gallup/Basin DK

⁴ Property Code	⁵ Property Name	⁶ Well Number
7623	Vaughn	31

⁷ OGRID No.	⁸ Operator Name	⁹ Elevation
14538	MERIDIAN OIL INC.	6732'

¹⁰ Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
B	29	26N	6W		1120	North	1610	East	R.A.

¹¹ Bottom Hole Location If Different From Surface

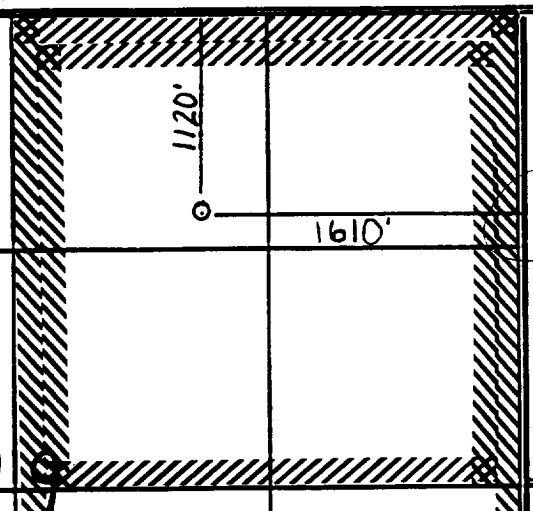
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County

¹² Dedicated Acres	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
E/320 E/320-160			

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

16

Not resurveyed, prepared from a plat by Fred B. Kerr Jr. dated 10-10-79.



29

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DIST. 3

¹⁷ OPERATOR CERTIFICATIO

I hereby certify that the information contained herein is true and complete to the best of my knowledge and beli

Peggy Bradfield

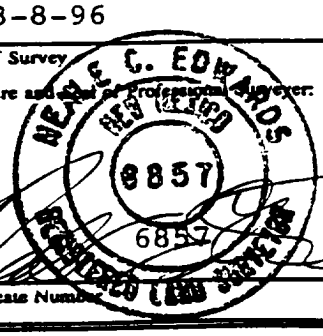
Signature
Peggy Bradfield
Printed Name
Regulatory Administrator
Title
3-14-96
Date

¹⁸ SURVEYOR CERTIFICATIO

I hereby certify that the well location shown on this pla was plotted from field notes of actual surveys made by or under my supervision, and that the same is true and correct to the best of my belief.

3-8-96
Date of Survey

Signature and Seal of Professional Surveyor:



Certificate Number

VAUGHN #31

Dakota/Gallup/Mesaverde

Unit B, Section 29, T26N, R6W

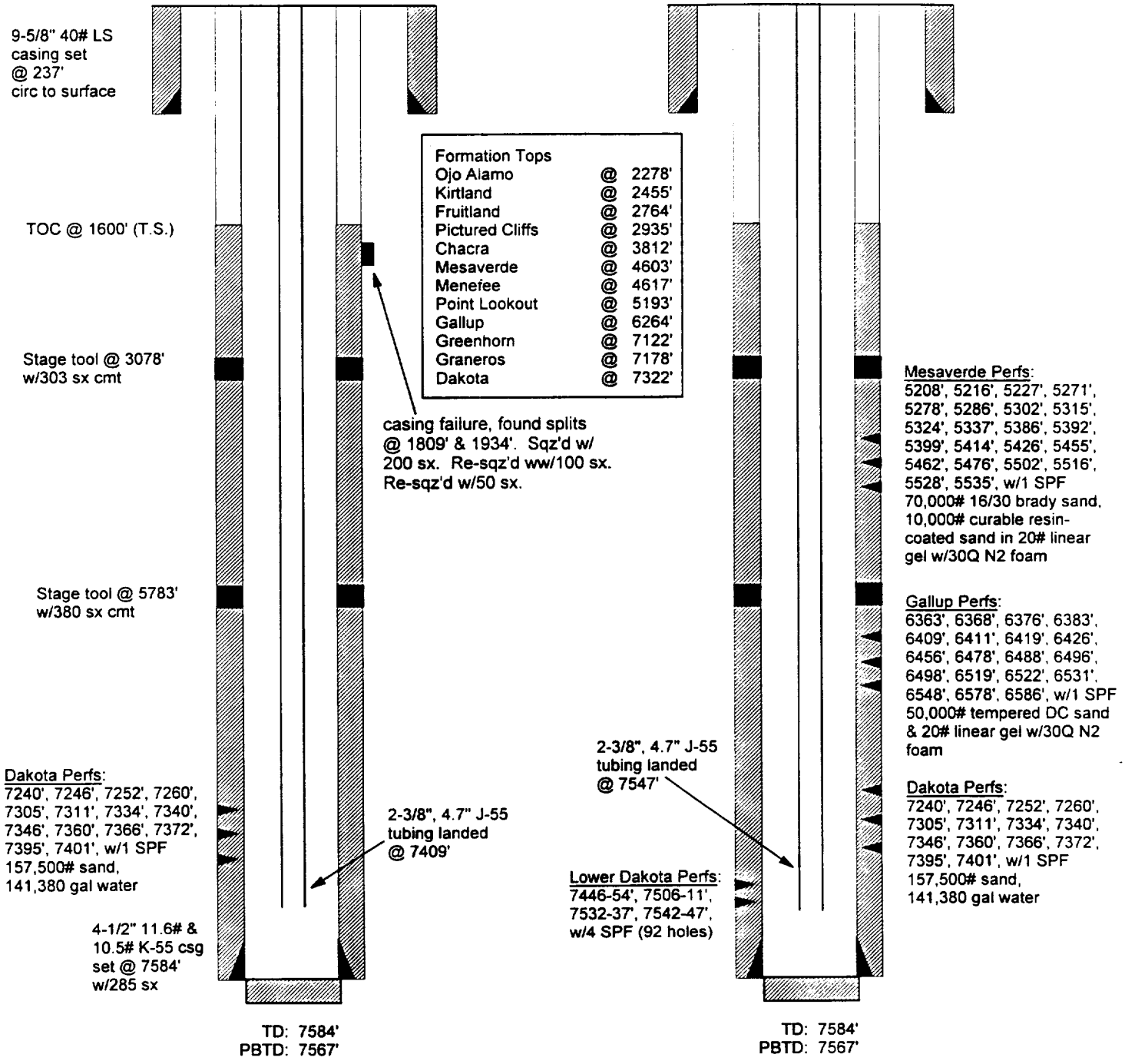
Rio Arriba County, NM

Elevation: 6732' GL

LAT: 36* 27' 42"

LONG: 107* 29' 14"

date spud: 06-12-80



This well will be commingled in the Mesaverde, Gallup, & Dakota. Prior to commingle, the Gallup & Dakota will be T&A'd under a CIBP while the Mesaverde will be produced separately to help determine commingled production. An Allocation Formula will be finalized after a 3 month online sales testing period.

Meridian Oil Inc.
03/14/96: dla

JMC

Meridian Oil
3/14/96:dla

PERTINENT DATA SHEET
VAUGHN #31

Location: 1120' FNL, 1610' FEL
Unit B, Section 29, T26N, R06W
Rio Arriba County, NM

Field: Basin Dakota

Spud Date: 06-12-80
Completion Date: 12-17-80
Cathodic Protection: None

Elevation: 6732' GL
LAT: 36° 27' 42"
LONG: 107° 29' 14"
DP#: 43939A
GWI: 100%
NRI: 68.25%
TD: 7584'
PBTD: 7567'

Casing Record:

Hole Size	Casing Size	Weight & Grade	Depth Set	Sxs Cement	Cement Top
13-3/4"	9-5/8"	40#, LS	237'	190 (200 ft3)	surface
8-3/4-7-3/4"	4-1/2"	11.6#, K-55	7584'	285 (426 ft3)	1600' (T.S.)
	4-1/2"	10.5#, K-55	6318'		
Marker Jt @ 7157'			DV @ 5783'	380 (616 ft3)	
			DV @ 3078'	303 (491 ft3)	

Tubing Record:

Tubing Size	Weight & Grade	Depth Set	BHA
2-3/8"	4.7#, J-55	7409'	1jt., SN, 236 jts
Possible tight spot in tbg @ 1269'			SN @ 7376.1'

Formation Tops:

Ojo Alamo	2278'	Menefee	4617'
Kirtland	2455'	Point Lookout	5193'
Fruitland	2764'	Gallup	6264'
Pictured Cliffs	2935'	Greenhorn	7122'
Chacra	3812'	Graneros	7178'
Mesaverde	4603'	Dakota	7322'

Logging Record:
CDL-GR, IEL, Temp. Survey

Stimulation:
Selectively perf the Dakota formation: 7240', 7246', 7252', 7260', 7305', 7311', 7334', 7340', 7346', 7360', 7366', 7372', 7395', 7401', w/1 SPF & 157,500# sand, 141,380 gal water

Workover History:
11-11-80 to 11-25-80 Press. tested csg to 4000#. Held. Fraced. Casing failure, found splits @ 1809' &1934'. Squeezed w/ 200 sx. Re-squeezed w/100 sx. Started frac. 45,500# 20/40 sand @ 3100 psi & 20 BPM. Re-squeezed w/50 sx. Fraced under full bore set @ 2152' w/2-7/8", 6.5# J-55 tbg landed @ 7409'. SN @ 7376'.

Production History: ISICP: 2039 Line pressure: 98.8
Initial Deliverability No information
Latest Deliverability 47 MCFD 0.3 BOPD

Transporter: Oil/Condensate: Giant Transporation Gas: El Paso Natural Gas

JME

Vaughn #31
Blanco Mesaverde/Undesignated Gallup/Basin Dakota Workover
UnitB-Sec29-T26N-R06W
Lat: 36° 27' 42"
Long: 107° 29' 14"

- Comply with all BLM, NMOCD, & MOI rules & regulations.
- **Always Hold Safety Meetings.** Place fire and safety equipment in strategic locations.
- **Lower Dakota stimulation will entail high surface pressures = 8500 psi.**
- 2-7/8" N-80 Buttress Frac String (7500' +/- required).
- Fifty (50) joints 2-3/8" 4.7# EUE J-55 tubing and six (6) 3-1/8" drill collars on location
- **6** frac tanks to be spotted and filled with 2% KCl water.
- **Acetic acid** will be used for Gallup stimulation.
- **Immediate flowback will be implemented on the fracs. Note special frac rig-up for this: flow tee, swab valve, etc. Setup is to be rated to 10,000 psi.**
- Use drill gas or Nitrogen **ONLY** for all operations - **NO AIR**.
- Ensure CIBPs used are T-Lok for easier drilling of stacked plugs.

This well is part of the 1996 Klein/Vaughn Mesaverde/Gallup/Dakota commingle program. The well is currently completed in the Dakota with a production rate of 46 MCFD/ <1 BOPD. Cumulative Dakota production is 243 MMCF/ 5.1 MBO.

Lower Dakota pay will be added. The Dakota will then be temporarily abandoned so that the Gallup (Niobrara) and Mesaverde (Point Lookout) intervals can be added. All three zones will be commingled after production has been established in the upper two zones.

1. MIRU. Record and report SI pressures on tubing, casing, & bradenhead. Lay blowdown line. Blow down casing & tubing. Kill well w/ 2% KCl down tubing. ND WH, NU BOP.

2. TOOH, rabbit, & strap 237 jts of 2-3/8" tubing (from 7409', SN @ 7376'). Visually inspect tubing, note any scale in tubing. **Note: Possible tight spot in tubing @ 1269'.** Lay down bottom 500' of this pipe (scale problems anticipated - this tubing may be used if there is no scale or other problems).

3. PU 3-7/8" bit, float, six (6) 3-1/8" drill collars & 2-3/8" 4.7# J-55 EUE workstring. Clean out w/ gas to PBTD @ **7567'**. Note drilling mud in returns if any. TOOH with bit & collars.

4. PU 4-1/2" CIBP & 4-1/2" packer combination on 2-3/8". TIH & set CIBP @ **7150'**. Load hole from bottom w/ 2% KCl water.

5. Pressure test entire casing string to 1000 psi for 10 minutes. **NOTE: Prior squeeze work done, see pertinent data sheet and wellbore diagram.** If PT does not hold, pull above DV tools @ 5783' and 3078' & test below each to 1000 psi. Locate hole(s). TOOH. Engineering will provide a sqeeze procedure if required.

6. RU wireline. Run GR-CCL-CBL from 7150' to surface under 1000 psi w/ no gaps. Note and report all cement tops and quality of bond over both Gallup & Mesaverde intervals. If cement is not covering the Gallup interval, a block squeeze may be performed across the Gallup. Engineering will provide a sqeeze procedure if required.

7. Complete all squeeze cementing operations which will be determined based upon pressure test information and bond quality. WOC recommended time. Drill out cement. Pressure test to 1000 psi. If casing integrity is not sound, identify leaks, & engineering will recommend squeeze procedure & modify stimulation work.

8. Drill out cement and/or CIBP @ 7150', clean out to PBTD. TOOH, standing 2-3/8" back. Change rams to 2-7/8".

Lower Dakota Completion:

9. PU 2-7/8" 6.5# N-80 tubing with: 3-3/8" Schlumberger TCP guns set up for the following perforations (w/ production valve to enable pressuring up on tubing before firing) and 4-1/2" FB PKR. TIH to 7500' +/-. Run GR-CCL through tubing to get on depth. Set PKR. Load backside. Hold 500 psi on annulus during stimulation.

10. Load tubing with 4 bbls 2% KCl water (4 bbls in 2-7/8" tubing = 690' +/- = 300 psi +/-). RU immediate flowback equipment (frac nipple, valve, tee, etc.) rated to 10,000 psi. See attached diagram.

11. Pressure test surface lines and flowback equipment to 9500 psi. **Maximum surface pressure = 8500 psi.** Pressure up tubing f/ surface with nitrogen to 8500 psi.

12. Perforate the following intervals w/ TCP guns, DP 34B Hyperjet II 34g charges (0.44" hole, 18" penetration), 4 SPF @ 60° phasing.

7446' - 7454'

7506' - 7511'

7532' - 7537'

7542' - 7547'

(23' @ 4 SPF = 92 holes)

13. Open tubing up to pit on 1/4" positive choke for immediate flowback (**does not** have to be turned around in <30 seconds as in a frac job).

14. Swab test to determine if zone is wet. Consult engineering for this decision. Release PKR, TOOH.

15. PU CIBP, TIH. If zone is wet, set CIBP @ 7430'. Set CIBP @ 6650' to T&A entire Dakota zone.

Niobrara Completion:

16. Spot 250 gallons **10% acetic acid** (w/ 2 gal/1000 corrosion inhibitor) across Gallup @ 6590'.

17. RU wireline under packoff. Perforate Gallup top-down in acid @ the following depths with 3-1/8" HSC gun w/ Owen 306 12 g charges (0.31" hole, 11" penetration), 1 SPF @ 180 degree phasing. Engineering may modifiy perforations based upon bond character.

6363'	**6368'**	**6376'**	**6383'**	**6409'**	**6411'**
6419'	**6426'**	**6456'**	**6478'**	**6488'**	**6496'**
6498'	**6519'**	**6522'**	**6531'**	**6548'**	**6578'**
6586'					

(19 total holes, 223' of interval)

18. PU 4-1/2" FB PKR, 1.81" profile nipple, 4 joints 2-3/8" 4.7# N-80 tubing, 2-3/8" x 2-7/8" buttress changeover, 2.25" profile nipple, and 2-7/8" 8.7# N-80 Buttress frac string. TIH above CIBP and below bottom perforation. Test CIBP to 3800 psi. Release PKR, pull uphole & set PKR 100' above top Gallup perforation. Hold 500 psi on annulus during acid job.

19. RU stimulation company. Pressure test surface lines to 7500 psi. **Max pressure = 6500 psi.** Prepare to break down Niobrara w/250 gallons **10% acetic acid** (w/ 2 gal/1000 corrosion inhibitor) and 38 7/8" 1.3 s.g ball sealers. Attempt to achieve 20 BPM on breakdown, go higher if possible. Release pressure, RD stimulation company. Release PKR & TIH knocking balls below bottom perforation. Pull up and reset PKR.

20. RU immediate flowback equipment (frac nipple, valve, tee, etc.). See attached diagram.

21. RU stimulation company. Pressure test surface lines to 7500 psi. **Maximum STP = 6500 psi.** Hold 500 psi on annulus. Fracture stimulate the Niobrara w/ 20# linear gel w/30Q N2 foam and 50,000# Tempered DC sand. See attached frac schedule for details. *(2 frac tanks needed)*

22. Flow back well immediately after shutdown -- **NOTE: Time from frac shut-down until flow tee is opened for flow back should be around 30 seconds. Time is critical to achieve reverse gravel packing. Flowback rate not to exceed 4 BPM - choke flowback line as necessary.** Frac company is to monitor flowback pressures for 30 minutes after shutdown. Flowback should continue for as long as possible while still allowing for completion of both stages within 24 hours. Blow down to release pressure when necessary.

23. Release PKR, TOOH w/ 2-7/8" tubing and PKR. RU wireline under packoff. Make 4-1/2" gauge ring run to 5630'. Set 4-1/2" RBP @ 5600'. Dump 1 sack sand (approx. 8') on RBP w/ dump bailer. RD wireline.

Point Lookout Completion:

24. TIH w/ PKR on 2-7/8" and test RBP to 3800 psi. Spot 300 gallons 15% HCl acid (w/ 2 gal/1000 corrosion inhibitor) at 5540' across Mesaverde. TOOH.

25. Perforate Mesaverde top-down in acid @ the following depths 3-1/8" HSC gun w/ Owen 306 12 g charges (0.31" hole, 11" penetration), 1 SPF @ 180 degree phasing. Engineering may modifiy perforations based upon bond character.

5208'	**5216'**	**5227'**	**5271'**	**5278'**	**5286'**
5302'	**5315'**	**5324'**	**5337'**	**5386'**	**5392'**
5399'	**5414'**	**5426'**	**5455'**	**5462'**	**5476'**
5502'	**5516'**	**5528'**	**5535'**		

(22 total holes, 327' of interval)

26. PU 4-1/2" FB PKR, 1.81" profile nipple, 4 joints 2-3/8" 4.7# N-80 tubing, 2-3/8" x 2-7/8" buttress changeover, 2.25" profile nipple, and 2-7/8" 8.7# N-80 Buttress frac string. Set PKR 100' above top Mesaverde perforation. Hold 500 psi on annulus during acid job.

27. RU stimulation company. Pressure test surface lines to 7500 psi. **Max pressure = 6500 psi.** Prepare to break down Mesaverde w/250 gallons **15% HCl acid** (w/ 2 gal/1000 corrosion inhibitor) and 44 7/8" 1.3 s.g ball sealers. Attempt to achieve 20 BPM on breakdown, go higher if possible. Release pressure, RD stimulation company. Release PKR & TIH knocking balls below bottom perforation. Pull up and reset PKR.

28. RU immediate flowback equipment (frac nipple, valve, tee, etc.). See attached diagram

29. RU stimulation company. Pressure test surface lines to 7500 psi. **Maximum STP = 6500 psi.** Hold 500 psi on annulus. Fracture stimulate the Mesaverde w/ 70,000# 16/30 sand and 10,000# curable resin-coated sand in a 20# linear gel w/30Q N2 foam. See attached frac schedule for details. *(4 frac tanks needed)*

30. Flow back well immediately after shutdown -- **NOTE: Time from frac shut-down until flow tee is opened for flow back should be around 30 seconds. Time is critical to achieve reverse gravel packing. Flowback rate not to exceed 4 BPM - choke flowback line as necessary.** Frac company is to monitor flowback pressures for 30 minutes after shutdown. Flowback should continue for as long as necessary to release PKR.

31. Release PKR & TOOH laying down 2-7/8" N-80 tubing. Change out rams to 2-3/8".

32. TIH w/ retrieving head on 2-3/8" tubing and clean out to RBP @ 5600'. Obtain MV pitot gauge. Latch onto RBP, release and TOOH. LD RBP and retrieving head. PU notched collar, TIH and CO to CIBP @ 6650'. Clean up to +/- 5 BPH and trace to no sand. Obtain MV/GP pitot gauge. TOOH.

33. PU 4-1/2" CIBP on 2-3/8 tubing. TIH, set CIBP @ 5600' +/- to T&A Gallup zone. TOOH.

34. Prepare to run production tubing string as follows for Mesaverde: expendable check, one joint 2-3/8" tubing, 1.81" 'F' nipple, and remaining tubing. Land tubing @ 5535'.

35. ND BOP, NU WH. Pump off expendable check and flow well up tubing obtain Mesaverde production gauge. RD & release rig to next location.

36. Operations will remanifold wellhead, and produce well for 180 days into EPNG pipeline. Notify governmental agencies that Mesaverde ONLY production will occur until further notice, GP & DK T&A'd.

Commingle Operations (6 months after MV 1st delivery)

37. At end of 6 month production test, run pressure bomb well. Leave well SI 7 days. Pull bomb. Return Mesaverde to production until workover rig returns.

38. MIRU workover rig. Record flowing casing & tubing pressures. Blow casing and tubing down. Kill tubing with 2% KCl water. ND WH, NU BOP.

39. TOOH with 2-3/8" tubing. PU 3-7/8" bit, 4-3-1/8" drill collars & TIH on 2-3/8". Drill CIBP @ 5600' +/-. TIH & drill CIBP @ 6650'. Clean out to PBTD @ 7567' **(7430' if Lower DK is wet).** TOOH & LD bit & collars.

Vaughn #31
Meridian Oil Inc.
3/15/96

40. TIH with final production tubing string for commingled production as follows: expendable check, one joint 2-3/8", 1.81" F nipple, and remaining 2-3/8" tubing. Land tubing @ bottom DK perf.

41. ND BOP, NU WH. Pump off check. Flow well up tubing verifying check pumped. RD & release rig to next location.

42. Notify Marketing & government agencies that commingled production from all horizons MV, GP, & DK will occur in order to finalize allocation formula. At end of 90 days, the allocation formula will be submitted to NMOCD for approval, **production will commence prior to actual allocation approval.**

Concur: _____ 3/8/96
Northeast Basin Team Leader

Approved: _____ 3/15/96
Drilling Superintendent

JME JME

Recommended Vendors:

Immediate Flowback WH Equipment	WSI	327-3402
Overbalanced Perforating (ONLY!)	Schlumberger	325-5006
Stimulation, N2 for OB perf'ing	BJ Services	327-6222
Cased Hole Services	Basin Perforating	327-5244
Engineering	Joan Easley	599-4026-work
		324-2717-pager

Stimulation Procedure
Meridian Oil, Inc.

General Information

Well Name:	Vaughn #31
Location:	Sec. 29, T26N, R06W
Formation:	Niobrara
Vendors	
Stimulation:	
Tagging:	None
Fluid:	20# Linear gel w/30Q N2 foam
Note:	N2 to aid in flowback

Well Configuration

Casing:	4-1/2" 10.5# J-55	387	FT	
		0	FT	
Tubing:	2-7/8" 6.5# N-80	6263	FT	
Capacity:	0.0159	0	0.00579	
PBTD	6650 ft	Vol. to:	(gals)	
Top Perf:	6363 ft	PBTD	1,781	
Bot Perf:	6586 ft	Top Per:	1,590	
Midpoint:	6475 ft	^-100' :	1,523	
Perforations				
1 spf	0.31 " holes			
19 holes	11 " penetration			

Formation and Stimulation Data

Max Treating Pressure	6500 psi
Frac Gradient:	0.6 psi/ft
BH Temp:	160 deg. F
Antic. Treating Rate:	25 BPM
Antic. BH Treating Pres:	3,885 psi
Antic. Surf Treating Pres:	5,541 psi
Percent Pad:	15%
Net Interval:	223 ft
lb prop/net ft pay:	lb/ft
Job Duration:	29.2 min
Perf friction	549 psi
Total friction	4,459 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	3,500	3,500	3,500	3,500	25.0	3.3	3.3	w/30Q N2 foam
No	1	20/40	1.0	10,000	10,000	10,000	13,500	10,456	13,956	25.0	10.0	13.3	w/30Q N2 foam
No	2	20/40	2.0	10,000	20,000	5,000	18,500	5,456	19,412	25.0	5.2	18.5	w/30Q N2 foam
No	3	20/40	3.0	10,002	30,002	3,334	21,834	3,790	23,202	25.0	3.6	22.1	w/30Q N2 foam
No	4	20/40	4.0	20,000	50,002	5,000	26,834	5,912	29,114	25.0	5.6	27.7	w/30Q N2 foam
	Flush	N/A	0.0	0	50,002	1,523	28,357	1,523	30,637	25.0	1.5	29.2	reduce N2 to 10Q
						reduce rate & flush to end of tubing							
				Total		Total		Total		Ave.	Total		
				50,002		28,357		30,637		25.0	29.2		

Volumes and Additives

Water Volume=	28,357	treat +	1,418	excess =	29,775 gallons	(MOI)
Water Volume=	675	treat +	34	excess =	709 bbls	(MOI)

Fluid Volume: 709 bbl designed treating volume

Sand Type: 20/40 Tempered DC

Total Sand: 50,002 lbs

Fluid: 20# Linear gel

Bacteriacide (added to tanks before filling with water).

Radioactive Tagging

none

Equipment

Tanks:	2.0	x 400 bbl frac tanks(supplied by MOI).
Filled w/	709	bbls 2% KCl water (supplied by MOI).

Acid Requirements:

500 gallons (250 spot, 250 pump)
10% acetic acid w/
2 gal/1000 corrosion inhibitor

Comments and Special Instructions

MAXIMUM ALLOWABLE TREATING PRESSURE IS 6500 PSI.

Frac down 2-7/8" N-80 frac string and a packer.

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

Pressure test surface lines to 7500 psi (1000 over max allowable but less than working pressure).

Call flush when sand concentration drops 1/2 ppg (@ 3.5 ppg).

Perform immediate flowback through 1/8" positive choke. Downtime between pump shut-down and opening of flowback valve must be LESS THAN 30 SECONDS.

Production Engineer: Joan Easley JWE

PJB 3/15/96

Stimulation Procedure
Meridian Oil, Inc.

General Information

Well Name:	Vaughn #31
Location:	Sec. 29, T26N, R06W
Formation:	Point Lookout
Vendors	
Stimulation:	
Tagging:	None
Fluid:	20# Linear gel w/30Q N2 foam
Note:	N2 to aid in flowback

Well Configuration

Casing:	4-1/2" 10.5# J-55	492	FT
		0	FT
Tubing:	2-7/8" 6.5# N-80	5108	FT
Capacity:	0.0159	0 0.00579	
PBTD	5600 ft	Vol. to:	(gals)
Top Perf:	5208 ft	PBTD	1,571
Bot Perf:	5535 ft	Top Per:	1,309
Midpoint:	5372 ft	^-100' :	1,242

Perforations

1 spf	0.31 " holes
22 holes	11 " penetration

Formation and Stimulation Data

Max Treating Pressure	6500	psi
Frac Gradient:	0.67	psi/ft
BH Temp:	140	deg. F
Antic. Treating Rate:	30	BPM
Antic. BH Treating Pres:	3,599	psi
Antic. Surf Treating Pres:	5,892	psi
Percent Pad:	10%	
Net Interval:	327	ft
lb prop/net ft pay:		lb/ft
Job Duration:	41.8	min
Perf friction	590	psi
Total friction	4,618	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	4,500	4,500	4,500	4,500	30.0	3.6	3.6	w/ 30Q N2 foam
No	1	16/30	1.0	20,000	20,000	20,000	24,500	20,912	25,412	30.0	16.6	20.2	w/ 30Q N2 foam
No	2	16/30	2.0	20,000	40,000	10,000	34,500	10,912	36,324	30.0	8.7	28.8	w/ 30Q N2 foam
No	3	16/30	3.0	30,000	70,000	10,000	44,500	11,368	47,692	30.0	9.0	37.9	w/ 30Q N2 foam
No	4	20/40 res	3.0	10,002	80,002	3,334	47,834	3,790	51,482	30.0	3.0	40.9	w/ 30Q N2 foam
	Flush	N/A	0.0	0	80,002	1,242	49,076	1,242	52,724	30.0	1.0	41.8	reduce N2 to 10Q
						reduce rate & flush to end of tubing							
				Total		Total		Total		Ave.	Total		
				80,002		49,076		52,724		30.0	41.8		

Volumes and Additives

Water Volume=	49,076	treat +	2,454	excess =	51,530 gallons	(MOI)
Water Volume=	1,168	treat +	58	excess =	1,227 bbls	(MOI)

Fluid Volume: 1,227 bbl designed treating volume

Sand Type: 16/30 Arizona
20/40 Resin: 10,002 lbs Total Sand: 80,002 lbs
Fluid: 20# Linear gel
Bacteriacide (added to tanks before filling with water).

Radioactive Tagging
none

Equipment

Tanks: 4.0 x 400 bbl frac tanks(supplied by MOI).
Filled w/ 1,227 bbls 2% KCl water (supplied by MOI).

Acid Requirements:
550 gallons (300 spot, 250 pump)
15% HCl acid w/
2 gal/1000 corrosion inhibitor

Comments and Special Instructions

MAXIMUM ALLOWABLE TREATING PRESSURE IS 6500 PSI.

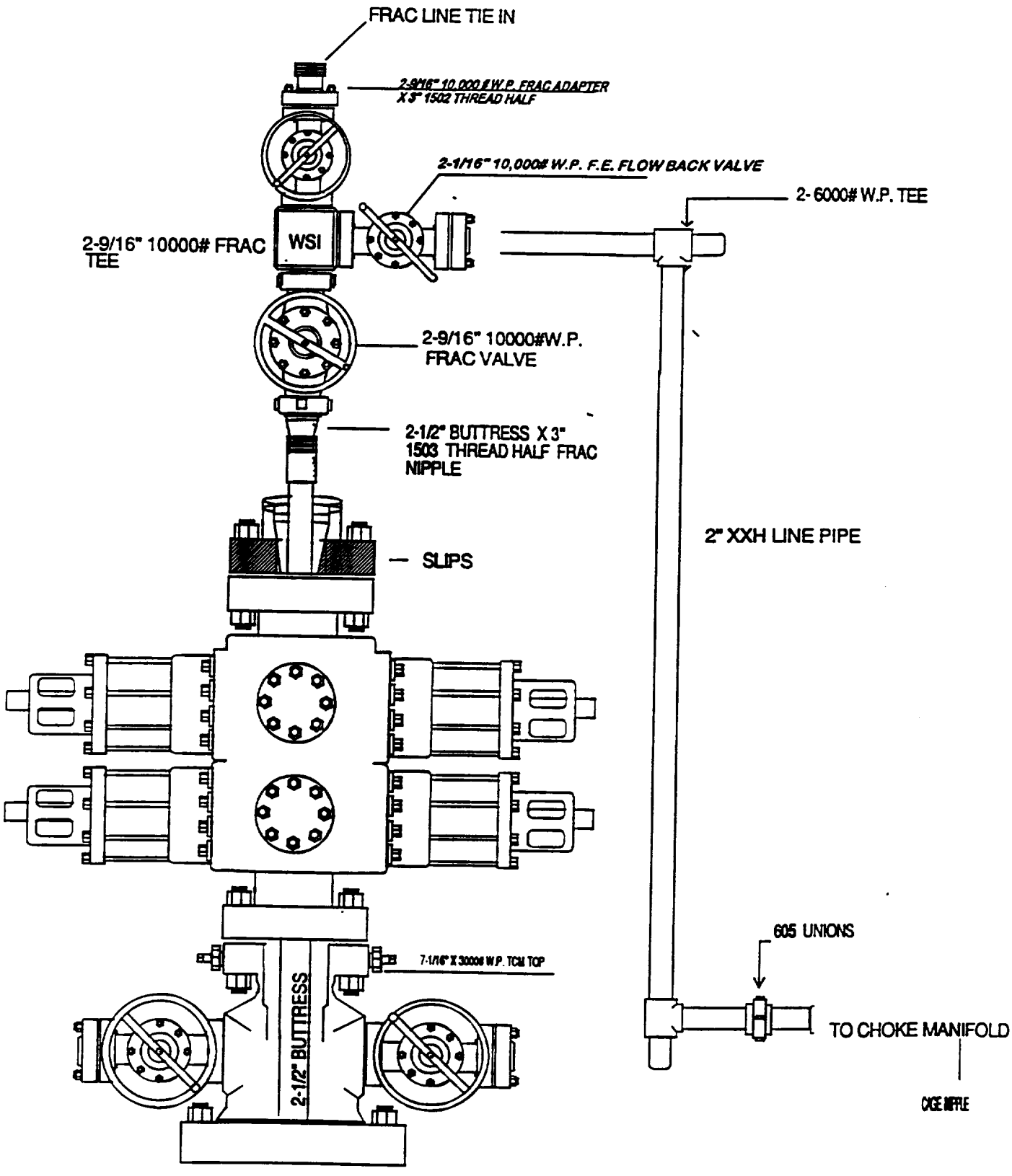
Frac down 2-7/8" N-80 frac string and a packer.

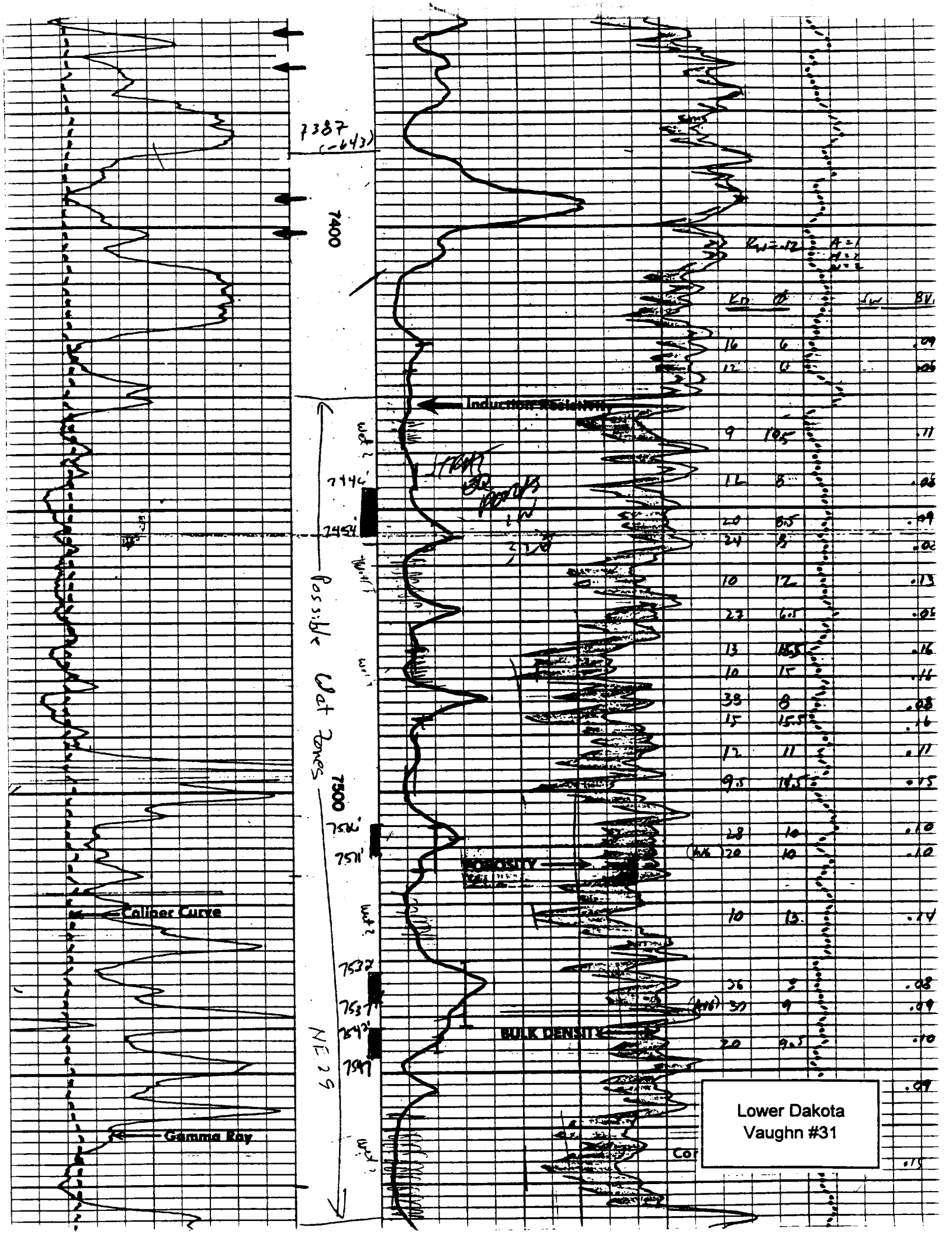
Hold safety meeting with everyone on location before pressure testing surface lines.
Pressure test surface lines to 7500 psi (1000 over max allowable but less than working pressure).
Call flush when sand concentration drops 1/2 ppg.
Perform immediate flowback through 1/8" positive choke. Downtime between pump shut-down and opening of flowback valve must be LESS THAN 30 SECONDS.

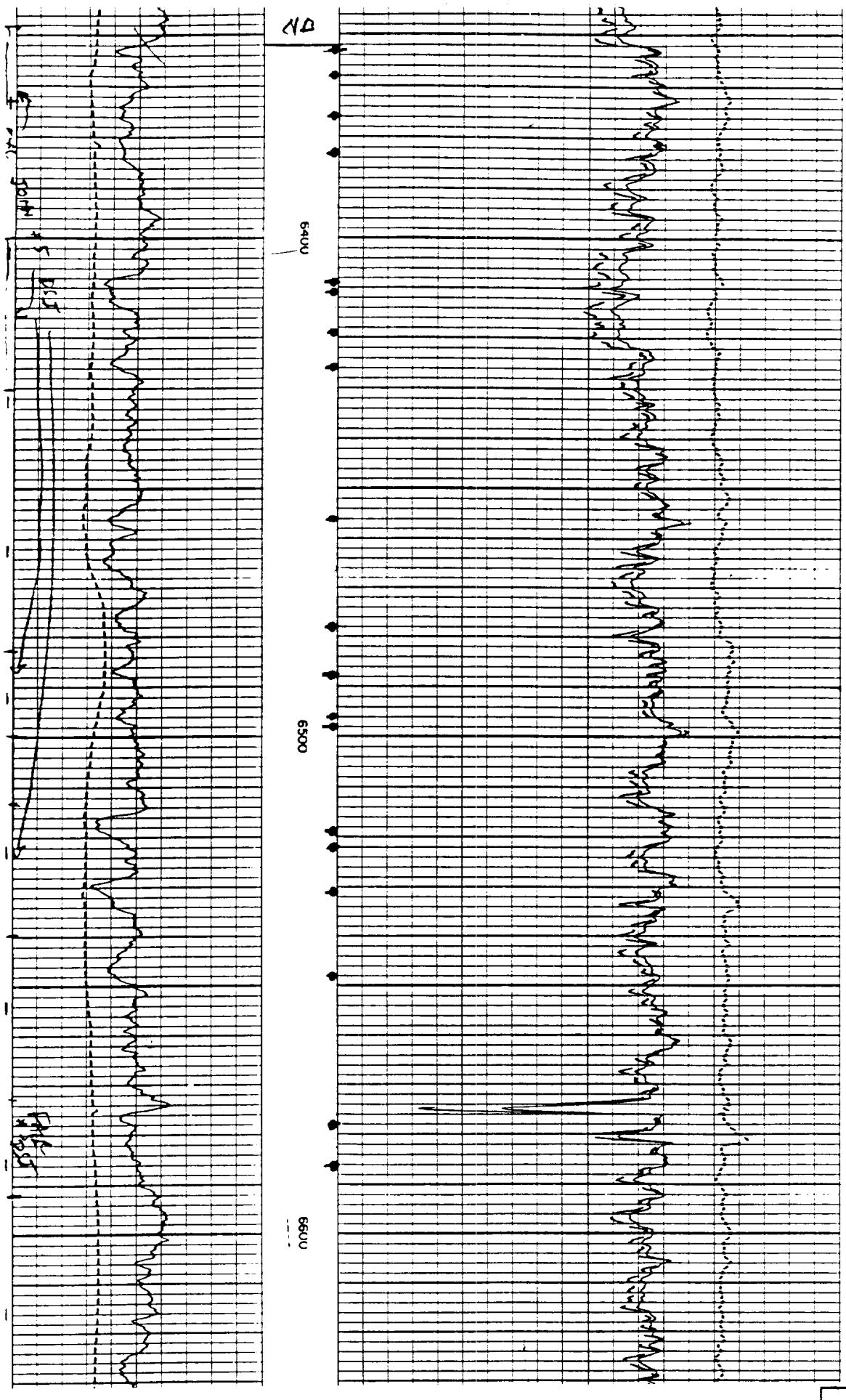
Production Engineer: Joan Easley JMC 3/15/96

WSI FRAC & FLOW BACK ASSEMBLY - for tubing

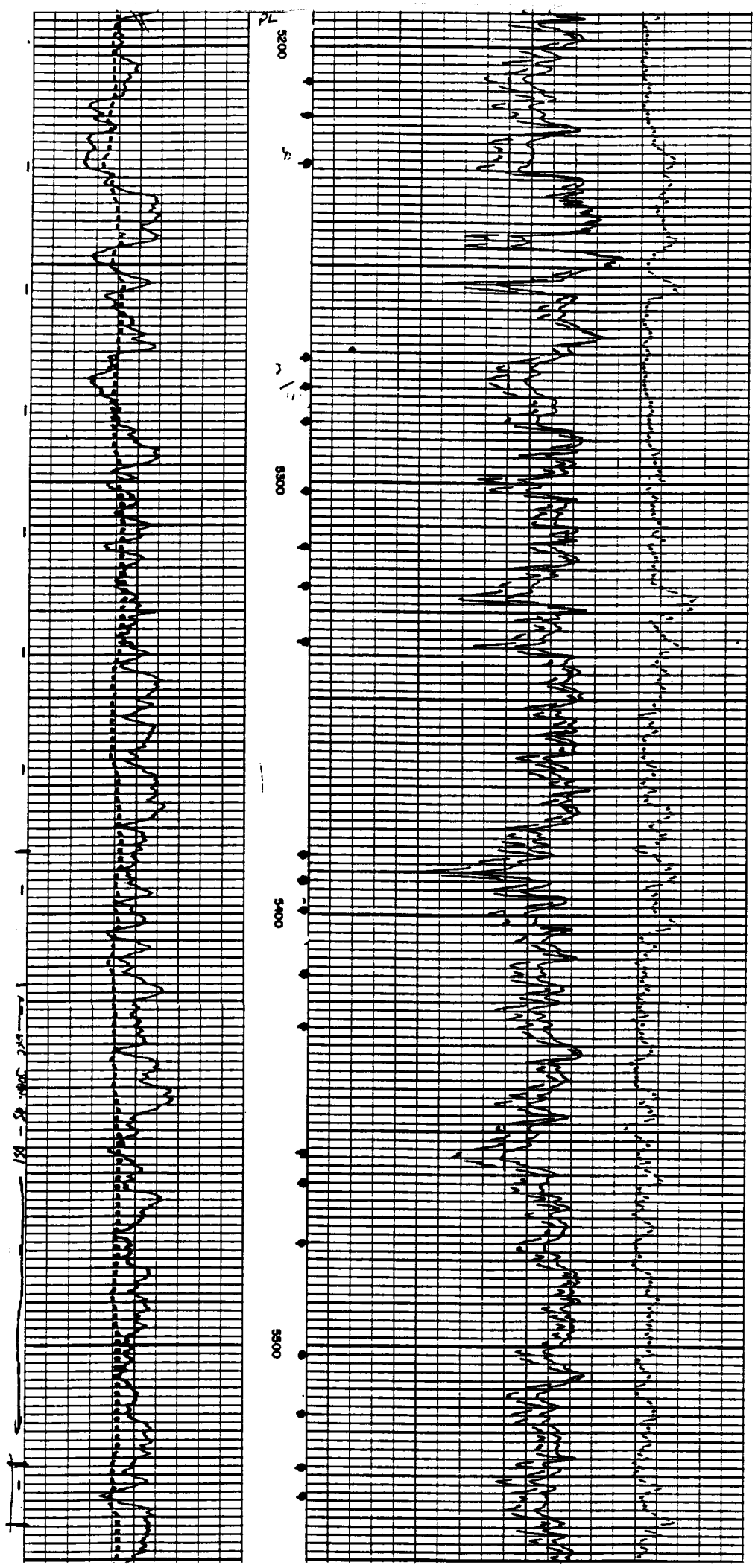
MERIDIAN OIL




7387
(-643)
7400
Induction Resistivity
7446'
7454'
Possible Wet Zones
7500
7506'
7511'
Porosity
Caliper Curve
7537'
7537'
7542'
7597'
Bulk Density
Gamma Ray
NE 29
Lower Dakota
Vaughn #31



Vaughn #31
Niobrara



Vaughn #31
Point Lookout