Submitted in lieu of Form 3160-5

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

RECEIVED
96 MAR 15 PM 2:49
070 FARMINGTON, NM

Sundry Notices and Reports on Wells

1. **Type of Well**
GAS

5. **Lease Number**
SF-079265

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

7. **Unit Agreement Name**

2. **Name of Operator**
MERIDIAN OIL

8. **Well Name & Number**
Klein #24E

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

9. **API Well No.**
30-039-23771

4. **Location of Well, Footage, Sec., T, R, M**
1800'FSL, 1190'FEL, Sec.34, 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 to the subject well and add pay to the Dakota formation according to the attached procedure and wellbore diagram. The well will then be commingled. A down-hole commingle order will be applied for.

RECEIVED
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
CONDITION OF APPROVAL, if any:

APPROVED
MAR 13 1996
/s/ DISTRICT MANAGER

Need NSL & Chg well numbers to 24A

NMOCD

need DHC + chg well number to 24M (E)

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 Copi Fee Lease - 3 Copi ☐ AMENDED REPOR

RECEIVED ... 96 MAR 13 PM 2:49 ... NM

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number	[2] Pool Code	[3] Pool Name
30-039-23771	72319/96321/ 71599	Blanco MV/Ensenada Gallup/Basin DK

[4] Property Code	[5] Property Name	[6] Well Number
7228	Klein	24E

[7] OGRID No.	[8] Operator Name	[9] Elevation
14538	MERIDIAN OIL INC.	6673'

[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
I	34	26N	6W		1800	South	1190	East	R.A.

[11] Bottom Hole Location If Different From Surface

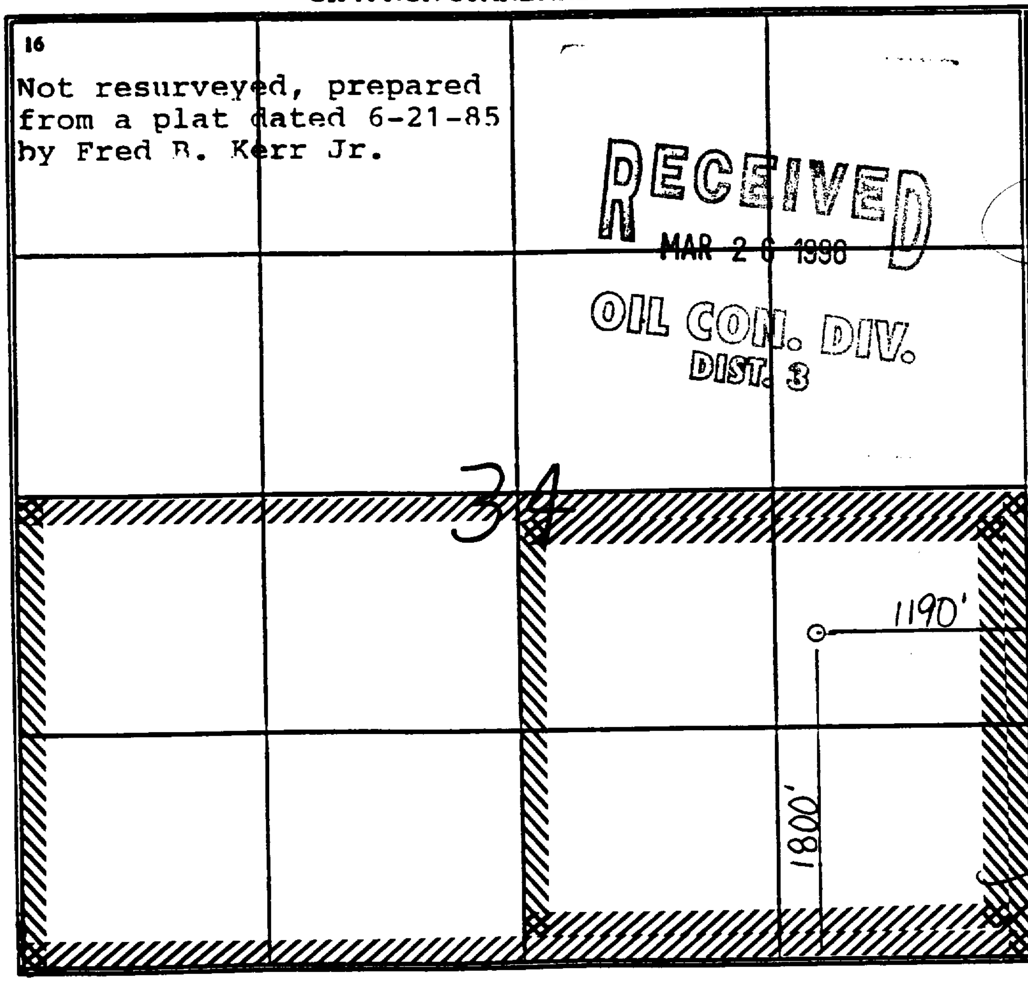
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
S/320 S/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 dated 6-21-85 by Fred B. Kerr Jr.



[17] OPERATOR CERTIFICATION

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

Signature

Peggy Bradfield

Printed Name

Regulatory Administrator

Title

3-14-96

Date

[18] SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by m 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:

NEALE C. EDWARDS NEW MEXICO 6857 REGISTERED LAND SURVEYOR

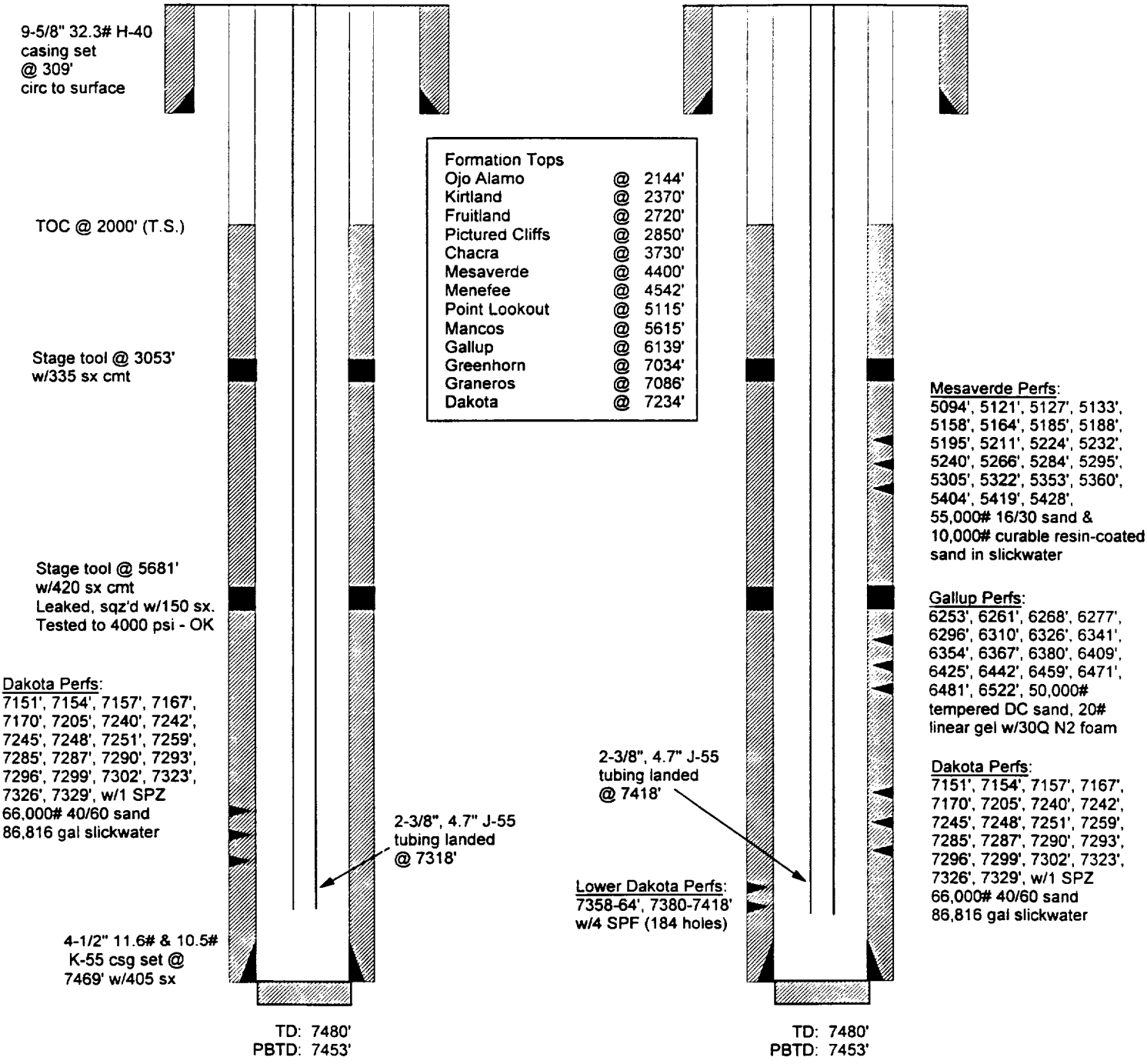
6857

Certificate Number

KLEIN #24E

Dakota/Gallup/Mesaverde

Unit I, Section 34, T26N, R6W
Rio Arriba County, NM
Elevation: 6673' GL
LAT: 36* 26' 26"
LONG: 107* 26' 58"
date spud: 09-29-85



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
JME

Meridian Oil
3/4/96:dla

PERTINENT DATA SHEET
KLEIN #24E

Location: 940' FNL, 1190' FWL
Unit I, Section 34, T26N, R6W
Rio Arriba County, NM

Field: Basin Dakota

Spud Date: 08-29-85
Completion Date: 10-10-85
Cathodic Protection: Installed March 1993

Elevation: 6673' GL
LAT: 36° 26' 26"
LONG: 107° 26' 58"
DP#: 54213A
GWI: 100%
NRI: 68.25%
TD: 7480'
PBTD: 7453'

Casing Record:

Hole Size	Casing Size	Weight & Grade	Depth Set	Sxs Cement	Cement Top
12-1/4"	9-5/8"	32.3#, H-40	309'	150 (177 ft3)	surface
7-7/8"	4-1/2"	11.6#, K-55	7469'	405 (618 ft3)	-
	4-1/2"	10.5#, K-55	6462'		
Marker Jt @ 7026'			DV @ 5681'	420 (680 ft3)	-
			DV @ 3053'	335 (543 ft3)	2000' (T.S.)

Tubing Record:

Tubing Size	Weight & Grade	Depth Set	BHA
2-3/8"	4.7#, J-55	7318'	1jt., SN, 222 jts SN @ 7287.20'

Formation Tops:

Ojo Alamo	2144'	Point Lookout	5115'
Kirtland	2370'	Mancos	5615'
Fruitland	2720'	Gallup	6139'
Pictured Cliffs	2850'	Greenhorn	7034'
Chacra	3730'	Graneros	7086'
Mesaverde	4400'	Dakota	7234'
Menefee	4542'		

Logging Record:
Comp. Densilog Comp. Neutron Gamma Ray; Ind. Electrolog GR; Temp. Survey

Stimulation:
Dakota Perfs: 7151', 7154', 7157', 7167', 7170', 7205', 7240', 7242', 7245', 7248', 7251', 7259', 7285', 7287', 7290', 7293', 7296', 7299', 7302', 7323', 7326', 7329', w/1 SPZ, 66,000# 40/60 sand & 86,816 gal slickwater

Workover History:
09-12-85: Ran 180 jts 4-1/2" csg. Float collar set @ 7457'. Cmt'd in 3 stages w/a total of 1160sx.
09-23-85 to Press. tested csg, didn't hold. Isolated leak @ 2nd stage tool (5681'). Squeezed w/150 sx cmt.
09-25-85: Cleaned out to below squeeze. Press. tested csg to 4000 psi. Okay.

Production History: Latest Deliverability 122 MCFD 2.7 BOPD
Initial Deliverability No information Line pressure: 112.6 ISICP: 2050
Cum Gas: 504,989 MCF Cum Oil: 2830 BOP

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

JMC

Klein #24E
Blanco Mesaverde/Undesignated Gallup/Basin Dakota Workover
Unitl-Sec34-T26N-R06W
Lat: 36° 26' 26"
Long: 107° 26' 58"

- 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 (7400' +/- required).
- Fifty (50) joints 2-3/8" 4.7# EUE J-55 tubing and six (6) 3-1/8" drill collars on location
- 7 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 101 MCFD/ <1 BOPD. Cumulative Dakota production is 533 MMCF/ 3.0 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 223 jts of 2-3/8" tubing (from 7318', SN @ 7287'). Visually inspect tubing, note any scale in tubing. 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 @ **7453'**. 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 @ **7000'**. 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 @ 5681' and 3053' & test below each to 1000 psi. Locate hole(s). TOOH. Engineering will provide squeeze design if necessary.

6. RU wireline. Run GR-CCL-CBL from 7000' 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 @ 7000', 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 7400' +/-. 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.

7358' - 7364'

7380' - 7418'

(46' @ 4 SPF = 184 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 @ 7345'. Set CIBP @ 6600' to T&A entire Dakota zone.

Niobrara Completion:

16. Spot 250 gallons **10% acetic acid** (w/2 gal/1000 corrosion inhibitor) across Gallup @ 6525'. TOOH.

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.

6253'	**6261'**	**6268'**	**6277'**	**6296'**	**6310'**
6326'	**6341'**	**6354'**	**6367'**	**6380'**	**6409'**
6425'	**6442'**	**6459'**	**6471'**	**6481'**	**6522'**

(18 total holes, 269' 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 36 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 5530'. Set 4-1/2" RBP @ 5500'. 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 5430' 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.

5094'	**5121'**	**5127'**	**5133'**	**5158'**	**5164'**
5185'	**5188'**	**5195'**	**5211'**	**5224'**	**5232'**
5240	**5266'**	**5284'**	**5295'**	**5305'**	**5322'**
5353'	**5360'**	**5404'**	**5419'**	**5428'**	

(23 total holes, 334' 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 46 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/ 55,000# 16/30 sand & 10,000# curable resin-coated sand in slickwater. See attached frac schedule for details. *(5 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 @ 5500'. Obtain MV pitot gauge. Latch onto RBP, release and TOOH. LD RBP and retrieving head. PU notched collar, TIH and CO to CIBP @ 6600'. Clean up to +/- 5 BPH and trace to no sand. Obtain MV/GP pitot gauge. TOOH.

33. PU CIBP on 2-3/8" tubing, TIH. Set CIBP @ 5500' +/- to T&A Gallup zone.

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 @ 5428'.

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 @ 5500' +/-. TIH & drill CIBP @ 6600'. Clean out to PBTD @ 7453' **(7345' if Lower Dakota is wet)**. TOOH & LD bit & collars.

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 Dakota perf.

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

Klein # 24E
Meridian Oil Inc.
3/15/96

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: 3/15/96
Northeast Basin Team Leader

Approved: 3/15/96
Drilling Superintendent

JME JMS

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:	Klein #24E
Location:	Sec. 34, 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	447 FT	
		0 FT	
Tubing:	2-7/8" 6.5# N-80	6153 FT	
Capacity:	0.0159	0	0.00579
PBTD	6600 ft	Vol. to:	(gals)
Top Perf:	6253 ft	PBTD	1,795
Bot Perf:	6522 ft	Top Per:	1,563
Midpoint:	6388 ft	^-100' :	1,496

Perforations

1 spf	0.31 " holes
18 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:	3,833 psi
Antic. Surf Treating Pres:	5,525 psi
Percent Pad:	15%
Net Interval:	269 ft
lb prop/net ft pay:	lb/ft
Job Duration:	29.2 min
Perf friction	612 psi
Total friction	4,458 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	1,496	28,330	1,496	30,610	25.0	1.4	29.2	reduce N2 to 10Q
						reduce rate & flush to end of tubing							
				Total		Total		Total		Ave.	Total		
				50,002		28,330		30,610		25.0	29.2		

Volumes and Additives

Water Volume=	28,330	treat +	1,417	excess =	29,747 gallons	(MOI)
Water Volume=	675	treat +	34	excess =	708 bbls	(MOI)

Fluid Volume: 708 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/	708	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 JME PJB 3/15/96

Meridian Oil Inc Procedure Sheet

3/4/96

Well Name:	Klein #24E	**Casing Size:**	4-1/2"	inches	**Frac Gradient:**	0.67	psi/ft
Location:	Sec 34-T26N-R06W	**Tubing Size:**	2-7/8"	inches	**BH Temperature:**	140	F
Formation:	Point Lookout	**Tubing set @:**	4954	ft	**Surf Treat Press:**	5,685	psi
	Mesaverde	**Capacity:**	0.00579	bbl/ft	**Btm hole Treat Press:**	3,525	psi
Fluid Used:	Slickwater	**PBTD:**	5500	ft	**Pipe Friction (Input):**	750	psi/1000ft
Tagging:	None	**Top Perforation:**	5094	ft	**Perf Friction:**	545	psi
		Btm Perforation:	5428	ft	**Pipe Friction:**	3,821	psi
		Number of Perfs:	23	#	**Percent Pad:**	0.10	%
		Diameter of holes:	0.31	inches	**"Net" Pay:**	n/a	ft
		Vol to Top Perf:	29.5	bbls			

Stage	Fluid Type	Sand Mesh	Sand ppg	Slurry BPM	Stage bbls	Stage gallons	Stage Lbs sand	Cum Job Lbs sand	Stage Slurry Gallons	Stage Slurry Bbls	Cum Job Slurry Bbls	Cumulative Job Time
PAD	Slickwater	N/A	0.00	30.0	147	6,167	0	0	6,167	147	147	5
1/2# Sand	Slickwater	16/30	0.50	30.0	476	20,000	10,000	10,000	20,452	487	634	21
1# Sand	Slickwater	16/30	1.00	30.0	357	15,000	15,000	25,000	15,678	373	1007	34
1-1/2# Sand	Slickwater	16/30	1.50	30.0	476	20,000	30,000	55,000	21,357	508	1516	51
1-1/2# resin	Slickwater	20/40 rc	1.50	30.0	159	6,667	10,001	65,001	7,119	170	1685	56
Flush	Slickwater	N/A	0.00	30.0	29	1,205	0	65,001	1,205	29	1714	57

Total Lbs Sand:	65,001 lbs	**# of Tanks:**	5 tanks
Total Clean Fluid Gallons:	69,038 gals		
Total Clean Fluid Bbls:	1,644 bbls	**Maximum Pressure:**	**6500** psi down frac string

Notes & Additional Information:

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).
Flush volume begins once sand concentration drops by 1/2 ppg.
Flush to end of tubing.
Perform immediate flowback through 1/8" positive choke. Downtime between pump shut-down and opening of flowback valve must be LESS THAN 30 SECONDS.

Acid Requirements:

550 gallons (300 to spot, 250 to pump)
15% HCl acid with
2 gal/1000 Corrosion Inhibitor

HHP = 6500 * 30/40.8 = 4779 HHP

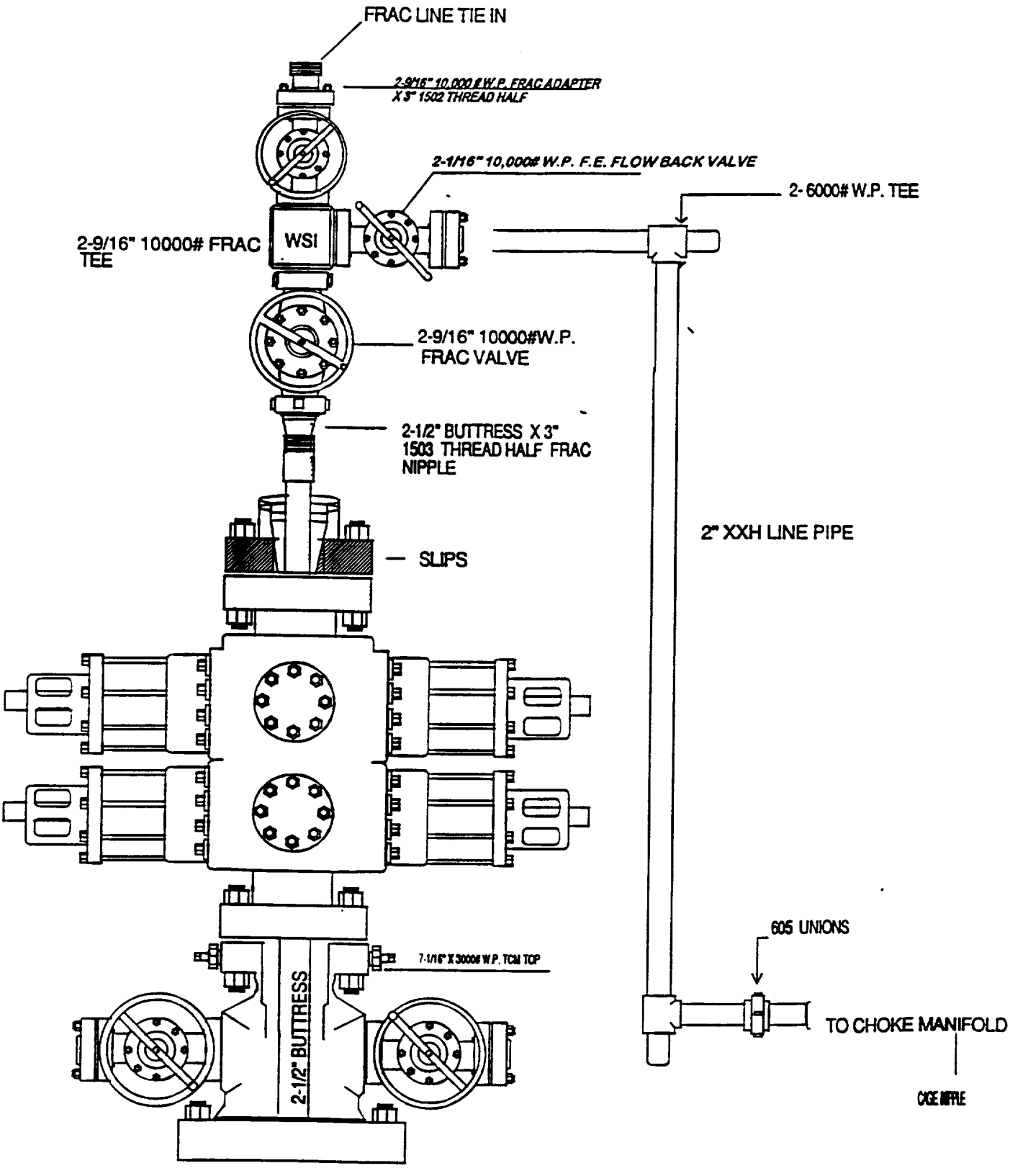
Bring 5 pumps @ 1000 HHP

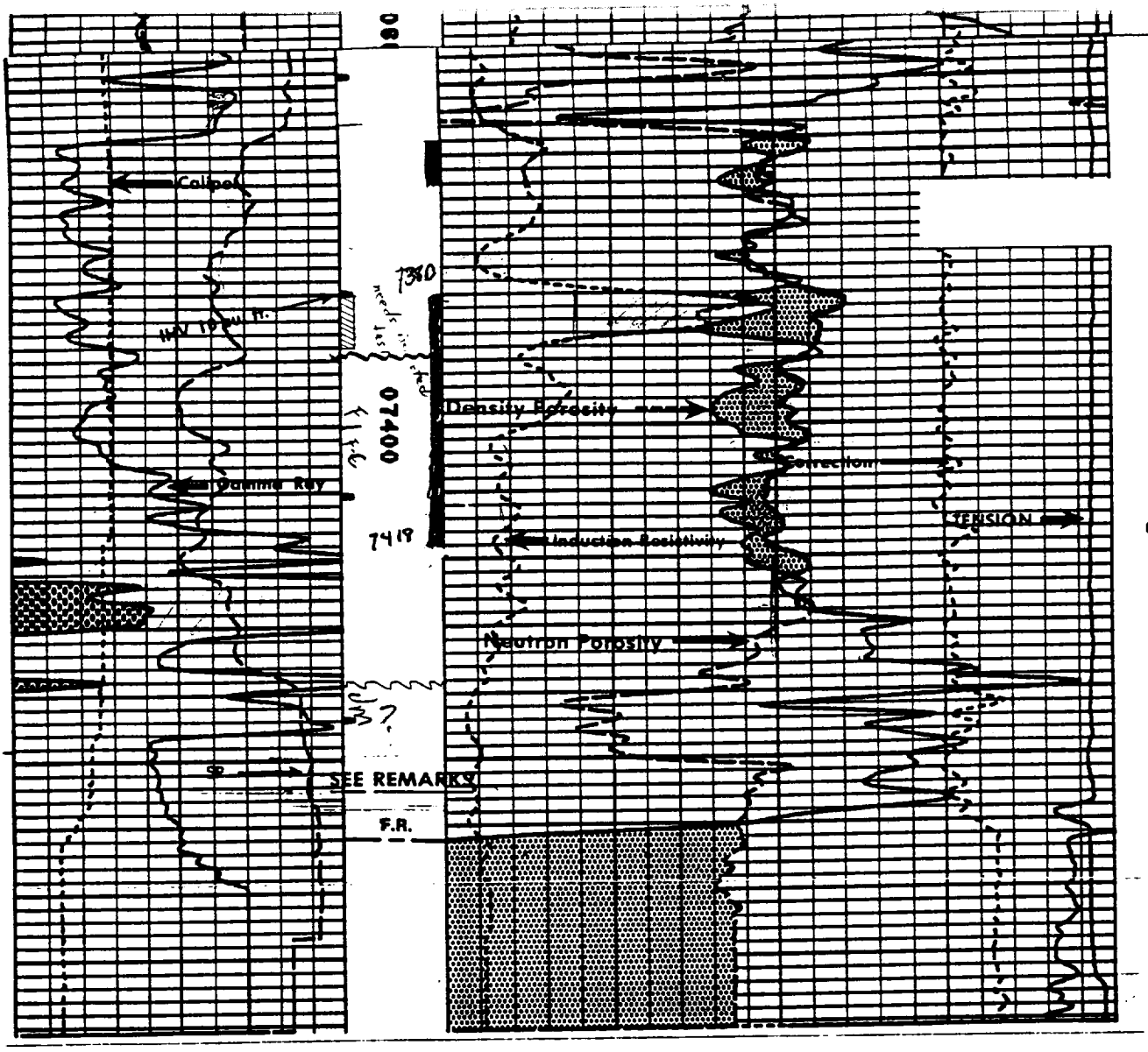
J.M. Easley

PJR 3/10/96

WSI FRAC & FLOW BACK ASSEMBLY - for tubing

MERIDIAN OIL





COMPANY: EL PASO NATURAL GAS CO.
WELL NAME: KLEIN NO.24-E
SERVICE: KR227C FILE: 2 DATE: 09/11/85
REVISION: FSYSAL REV D007 VER 4

RUN: 1
TRIP: 2
TIME: 21:24:59
MODE: RECORD

PORD(%) 30 -10

VOL(CUFT) 0 30

CNC(%) 30 -10

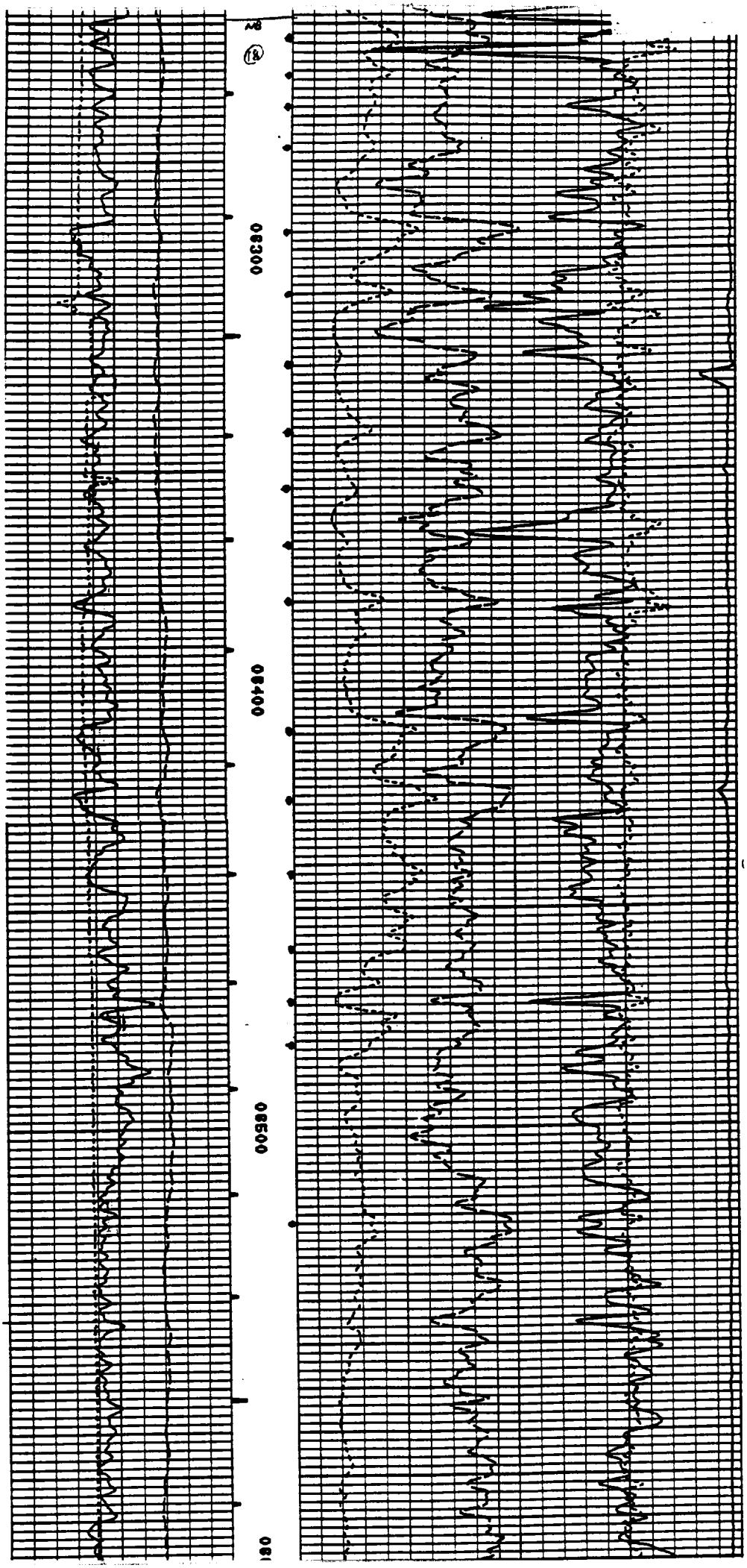
GR(API) 0 200

CORR(G/CC) -1.5 0.5

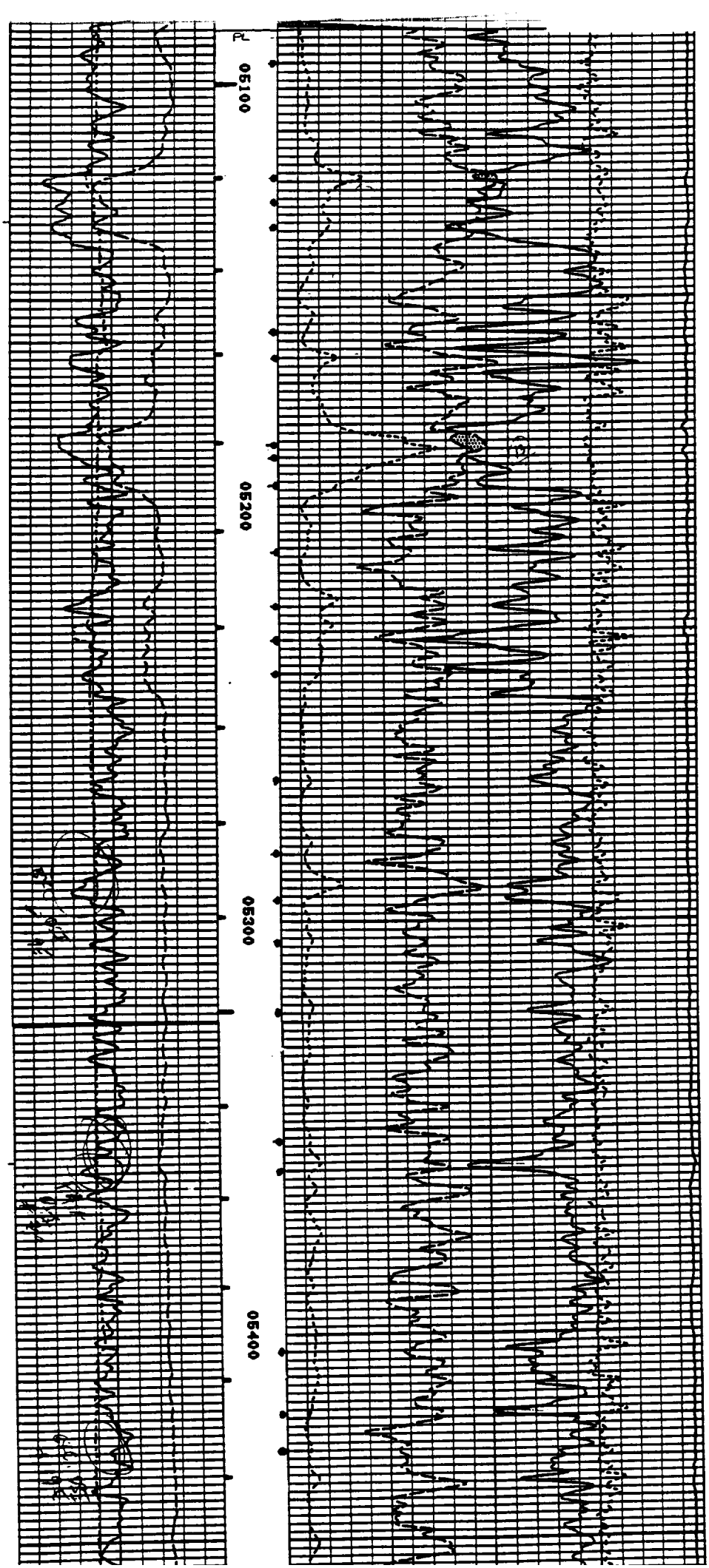
CAL(INCH) 6 16

TEN(LBS) 4750 -250

Klein #24E
Lower Dakota



Klein #24E
Niobrara



Klein #24E
Point Lookout