

submitted in lieu of Form 3160-5

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Sundry Notices and Reports on Wells

1. Type of Well
GAS

2. Name of Operator
MERIDIAN OIL

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

4. Location of Well, Footage, Sec., T, R, M
1015'FNL, 1650'FWL Sec.31, T-28-N, R-10-W, NMMPM

5. Lease Number
NM-0764

6. If Indian, All. or
Tribe Name

7. Unit Agreement Name

8. Well Name & Number
Knauff #1

9. API Well No.

10. Field and Pool
Basin Ft Coal

11. County and State
San Juan Co, NM

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

Type of Submission

Type of Action

☒ Notice of Intent

☐ Abandonment

☐ Change of Plans

☐ Subsequent Report

☐ Recompletion

☐ New Construction

☐ Final Abandonment

☐ Plugging Back

☐ Non-Routine Fracturing

☐ Casing Repair

☐ Water Shut off

☐ Altering Casing

☐ Conversion to Injectio

☒ Other - refrac

13. Describe Proposed or Completed Operations

It is intended to restimulate this well per the attached procedure and wellbore diagram.

RECEIVED
ELM
94 FEB -8 PM 3:14
OTO FARMINGTON, NM

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

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

Signed [Signature] (SBD) Title Regulatory Affairs Date 2/7/94

(This space for Federal or State Office use)

APPROVED BY _____ Title _____

CONDITION OF APPROVAL, if any:

APPROVED

DATE
FEB 10 1994

DISTRICT MANAGER

NMOOD

Pertinent Data Sheet - Knauff #1

Location: 1015' FNL, 1650' FWL, Unit C, Section 31, T28N, R10W, San Juan County, New Mexico

Field: Basin Fruitland Coal

Elevation: 5753' DF
5749' GR

TD: 1700'
PBTD: 1560'

Completed: 03-09-76

Spud Date:

DP #: 15707A

Casing Record:

<u>Hole Size</u>	<u>Csg Size</u>	<u>Wt. & Grade</u>	<u>Depth Set</u>	<u>Cement</u>	<u>Top/Cement Surface/Circ</u>
	10 3/4"		47'		
	7"	26.0#	1691'	100 sxs	

Tubing Record:

<u>Tbg Size</u>	<u>Wt. & Grade</u>	<u>Depth Set</u>	
1 1/4"	2.4# V-55	1544'	Packer @ 1476'

Formation Tops:

Kirtland: 793'
Fruitland: 1287'
Pictured Cliffs: 1688'

Logging Record: CBL

Stimulation:

Workover History:

2/76: Pulled 1 1/4" tubing. Set Baker squeeze retainer @ 1560'. Squeezed w/20 sxs cement. Perf'd 2 jets/ft 1515' - 1521'. Ran 2 7/8", 6.5#, K-55 8R EUE tubing w/Baker Model AD-1 packer @ 1473'.

3/76: Frac'd w/15,000# 10/20 sand & 16,170 gal. water.

4/76: Pulled 2 7/8" tubing and Baker Model AD-1 packer. Ran 1 1/4", 2.4#, V-55 10R EUE tubing w/Baker Model AD-1 packer @ 1476'.

Production History:

Transporter: Sunterra

KNAUFF #1

CURRENT

BASIN FRUITLAND COAL

UNIT C, SEC 31, T28N, R10W, SAN JUAN COUNTY, NM

DRILLED IN 1950
RECOMPLETED TO
FTC 03/09/76

10-3/4" CSG SET @ 47'
CIRC. CMT TO SURFACE

KIRTLAND @ 739'

1-1/4", 2.4# TBG SET @ 1544'

FRUITLAND @ 1287'

TOC @ 1345' BY CALC (70%)

PACKER SET @ 1476'

PERF'D 2 JETS/FT 1515' - 1521'
W/15,000# 10-20 SAND, 439 BBL. WTR AND
1000 GAL. 2-1/2# FR-4 FRICTION REDUCER

PBTD 1560'

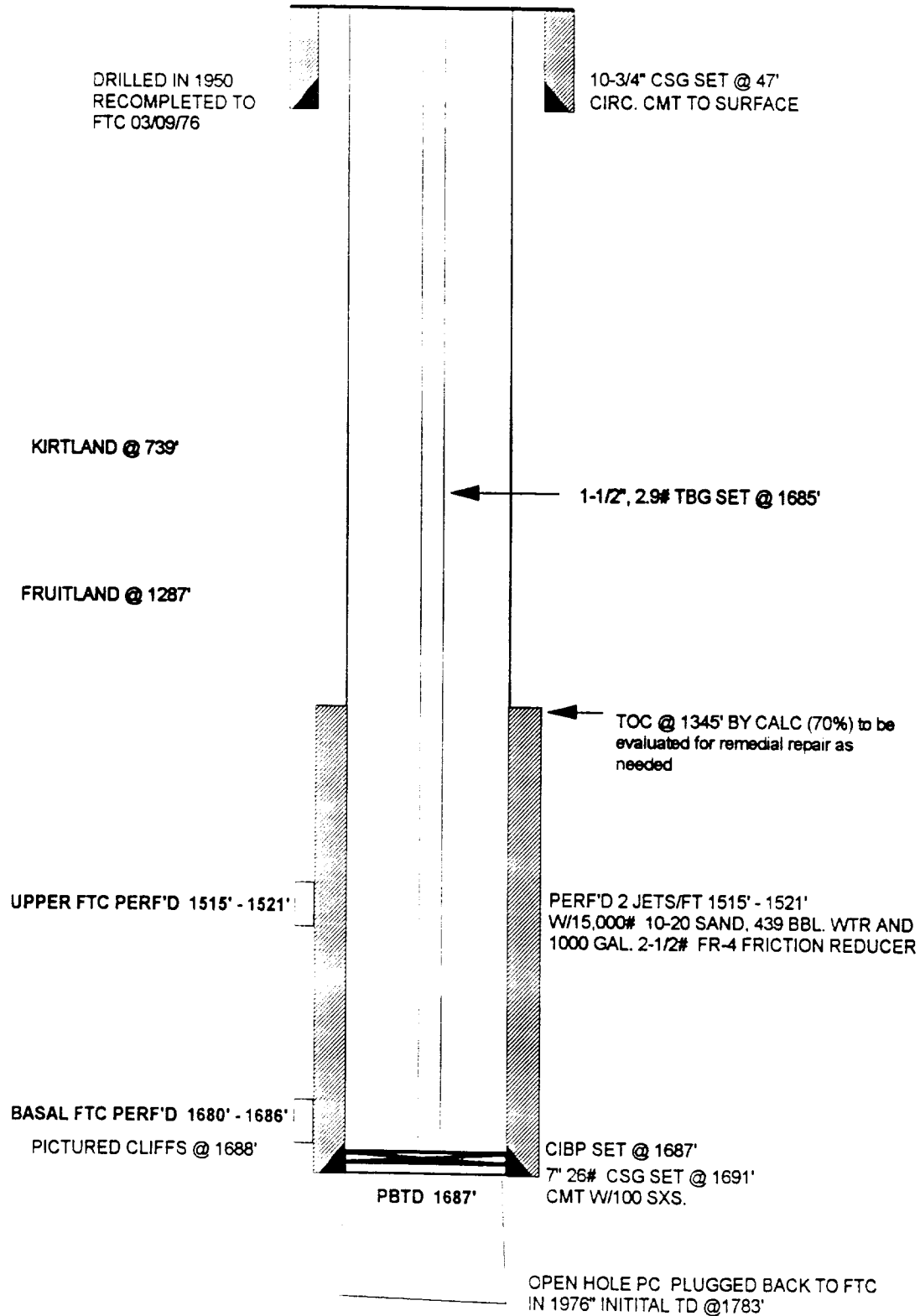
RETAINER SET @ 1560'
CEMENTED BELOW W/20 SX CMT

PICTURED CLIFFS @ 1688'

7" 26# CSG SET @ 1691'
CMT W/100 SXS.

OPEN HOLE PC PLUGGED BACK TO FTC
IN 1976" INITIAL TD @1783'

KNAUFF #1
PROPOSED
BASIN FRUITLAND COAL
UNIT C, SEC 31, T28N, R10W, SAN JUAN COUNTY, NM



KNAUFF #1
Recommend Completion Procedure
Unit C Section 31, T28N R10W

1. Test rig anchors and repair if necessary. Install 2-400 bbl frac tanks on location and fill with 2% KCl water. Filter all water to 25 microns.
2. MOL and RU. Comply to all NMOCD, BLM and MOI rules & regulations. Hold safety meeting. ND wellhead. NU BOP. Test operation of rams. NU two relief lines.
3. PU and unseat packer set @ 1476', TOOH w/ 1,544' of 1-1/4", 2.4# tbg, tally & inspect.
4. TIH w/ 6-1/8" bit and six 4-3/4" drill collars on 2-7/8" tbg and mill out from PBTD (cement retainer set @ 1560') to 10' below bottom of 7" casing (@ 1691"). TOOH.
5. TIH w/ casing scraper on 2-7/8" tbg and clean out to bottom of 7" casing (@ 1691"). Load hole w/ 20 bbls 2% KCl water TOOH..
6. RU wireline and run CCL-GR-CNL and CBL from COTD (1701') to 150' above Fruitland coal (1350').
7. **RIH w/ wireline set CIBP and set @ 1687', or as near to bottom of casing as possible to ensure maximum exposure of basal FTC. Correlate w/ GR to ensure proper setting depth. TOOH**
8. TIH w/ fullbore packer and 2-7/8" tbg and set pkr @ 1650'. Pressure test CIBP and casing to 3000 psi for 10 minutes. Test tubing/casing annulus to 500 psi. If either pressure test fails, **contact production engineering**. TOOH
9. Run in hole w/ 2-7/8" tbg and set RBP @ 1480'. Load hole with water. TOOH Run CBL-CCL. If CBL appears inadequate, re-run log with 750 psi surface pressure. If bond still appears unacceptable, contact production engineering. Send copy of CBL to production engineering. TIH and retrieve RBP.

*****LOWER COAL*****

10. RU wireline and perf the following coal interval w/ 4" HSC w/ 19.8 gram charges @ 4 SPF (correlate depths to compensated neutron density log).

1680 - 1686'

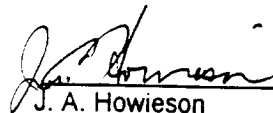
Total: 6 feet: 24 holes

11. TIH w/ 2-7/8" 6.4# N-80 FJ frac string and set fullbore pkr @ 1650'. Load backside w/ 2% KCl water.
12. RU treatment company for frac. Hold safety meeting with all personnel. Pressure test surface lines to 5000 psi. Fracture treat lower coal according to attached schedule w/ 70Q foam at 20 BPM with 65,000 lbs of 20/40 mesh Arizona sand. Flush with 13 bbls 2% KCl water. Estimated treating pressure is 2300 psi. **MAXIMUM PRESSURE IS LIMITED TO 4000 PSI!** Monitor backside and braden head pressures during frac. Monitor bottomhole and surface treating pressure, rate, foam quality and sand concentration with computer van. Frac during daylight only.

Recommend Completion Procedure
Unit C Section 31. T28N R10W
Page 2

13. SI well for 3 hours for gel break.
14. After gel break, open well through choke manifold & monitor flow. Flow @ 20 bbls/hr, or less if sand is observed.
15. Re-fill 400 bbl frac tank with 2% KCl water and filter to 25 microns.
16. When well ceases to flow, TOOH w/ pkr and frac string. TIH w/ 2-7/8" tbg and csg scraper to 1650'. TOOH. TIH w/ tbg and set 7" RBP @ 1560'.
17. *****UPPER COAL*****
TIH w/ frac string and set pkr @ 1540'. Load hole. Pressure test BP to 3000 psi surface pressure.
18. Release pkr, PU to 1450', load backside and set pkr @ approx 1450'. **Note: perforations already exist from 1515' - 1521' w/2spf**
19. RU treatment company for frac. Hold safety meeting with all personnel. Pressure test surface lines to 5000 psi. Fracture treat upper coal according to attached schedule w/ 70Q foam at 30 BPM with 70,000 lbs of 20/40 mesh Arizona sand. Flush with 6 bbls 2% KCl water. Estimated treating pressure is 2700 psi. **MAXIMUM PRESSURE IS LIMITED TO 4000 PSI!** Monitor backside and braden head pressures during frac. Monitor bottomhole and surface treating pressure, rate, foam quality and sand concentration with computer van. Frac during daylight only.
20. SI well for 3 hours for gel break.
21. After gel break, open well through choke manifold & monitor flow. Flow @ 20 bbls/hr, or less if sand is observed.
22. When well ceases to flow, TOOH w/ pkr and frac string. TIH w/ 2-3/8" tbg and 6-1/8" bit and clean out upper zone until sand flow stops. **Take Pitot gauge** TIH and retrieve RBP set @ 1560'. TOOH.
23. TIH w/ 2-3/8" tbg and 6-1/8" bit and clean out Fruitland coal until sand and water flow stops.
24. TIH w/ 1-1/2" tbg w/ standard seating nipple one jt off bottom and expendable check on bottom and CO to PBD (1687'). Land tbg string @ 1685'.
25. ND BOP and NU independent wellhead. Pump off expendable check. **Take final Pitot gauge.** Rig down & release rig.

Approve:


J. A. Howieson

VENDORS:

Wireline:	Schlumberger	325-5006
Fracturing:	B. J. Services	327-6288

SBD:

Nitrogen Foam Stimulation Procedure

Meridian Oil Inc.

General Information		(Stage Down 2-7/8" Frac String)	Well Configuration		Formation and Stimulation Data	Friction: 848.23	psi/100 84
Well Name:	Knauff #1	Casing:	2-7/8, 6.4#, N-80,	Frac Gradient::	0.99 psi/ft		
Location:	NW/4 Section 31 T28N R10W	Capacity:	0.0058 bbl/ft	BH Temp:	90 F		
Formation:	LOWER FRUITLAND COAL	TD:	1781 ft	Antic. BH Treating:	1666 psi		
Vendors		COTD:	1687 ft	Vol. to: (bbl)	Foam Quality:	70%	
Stimulation:	B.J. Services	Top Perf:	1680 ft	COTD:	9.8	Nitrogen GLR:	1392 scf/bbl
Tagging:		Bot Perf:	1686 ft	Top Per:	9.7	Antic. Surf. Treating Pres:	2250 psi
Fluid:	70Q N2 Foamed 20# Linear Gel	Midpoint:	1683 ft	^200':	8.6	Percent Pad:	15%
Note:		Perforations				Net Pay:	6 ft
		4 spf	0.44 " holes			lb prop/net ft pay:	10.833 lb/ft
		24 holes	12 " penetration			Job Duration:	32.0 min

Stimulation Schedule

Stage	BH Sand Conc. ppg	Sand Mesh	Stage Sand lbs	BH Rate bpm	BH Foam Qual.	Stage Clean Foam bbls	Stage Clean Fluid bbls	Stage N2 mscf	Blender Sand Conc. ppg	Stage Slurry bbl	Fluid Rate bpm	Slurry Rate bpm	Nitrogen Rate scf/min	Stage Time min
Pad	0	N/A	0	20	70%	84	25	35	0.0	25	6.0	6.0	8,350	4.2
2	1	20/40	2,500	20	70%	60	18	25	3.3	21	5.7	6.6	7,988	3.1
3	2	20/40	5,000	20	70%	60	18	25	6.7	23	5.5	7.2	7,657	3.2
4	3	20/40	7,500	20	70%	60	18	25	10.0	26	5.3	7.7	7,352	3.4
5	4	20/40	50,000	20	70%	298	89	124	13.3	143	5.1	8.1	7,071	17.6
Flush	0	N/A	0	16	0%	8	8	0	0.0	8	16.0	16.0	0	0.5
								Tot. mscf	Ave.	Tot	Ave.	Ave.	Ave.	Tot.
		lb/ft	Tot.	Ave.	Ave.	Tot.	Tot.	234	5.6	246	7.3	8.6	6,403	32.0

Schedule maintains constant bottom hole rate.

Volumes and Additives

Water Vol= 176 treat + 15 xcs = 191 bbl (MOI)

Fluid Volume: 191 bbl potential treating volume

40/70 Brady Sand: 0 lbs

20/40 Arizona Sand: 65,000 lbs

Nitrogen Volume: 234 mscf (w/o cooldown)

Containing per 1000 Gallons:

20#S J-4, GELLING AGENT

0.38 pounds FRAC CIDE-20, BACTERIACIDE

5.00 Gallons FRAC FOAM - 2, FOAMING AGENT

1.00 Pound B-11, GEL BREAKER

Radioactive Tagging

Equipment

Tanks: 1 x400 bbl (supplied by MOI)

Filled w/ 191 bbls filtered (25 micron) 2% KCl wtr (MOI)

Computer Van

QC equipment

Comments and Special Instructions

MAXIMUM ALLOWABLE TREATING PRESSURE: 4000 psi

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

Pressure test surface lines to 5000 psi.

SI well 3 hours for gel break.

Nitrogen Foam Stimulation Procedure

Meridian Oil Inc.

General Information		(Stage Down 2-7/8" Frac String)	Formation and Stimulation Data		Friction: psi/100
		Well Configuration			1462.1 160
Well Name:	Knauff #1	Casing: 2-7/8, 6.4#, N-80,	Frac Gradient::	0.99 psi/ft	
Location:	NW/4 Section 31 T28N R10W	Capacity: 0.0058 bbl/ft	BH Temp:	90 F	
Formation:	UPPER FRUITLAND COAL	TD: 1700 ft	Antic. BH Treating:	1508 psi	
Vendors		COTD: 1550 ft	Foam Quality:	70%	
Stimulation:	B.J. Services	Top Perf: 1518 ft	Nitrogen GLR:	ERRO scf/bbl	
Tagging:	Protechnics International Inc.	Bot Perf: 1528 ft	Antic. Surf. Treating Pres:	21.1 psi	
Fluid:	70Q N2 Foamed 20# Linear Gel	Midpoint: 1523 ft	Percent Pad:	15%	
Note:		Perforations	Net Pay:	10 ft	
		4 spf 0.44 " holes	lb prop/net ft pay:	7,000 lb/ft	
		40 holes 12 " penetration	Job Duration:	22.8 min	

Stimulation Schedule

	BH Sand Conc.		Stage Sand	BH Rate	BH Foam	Stage Clean Foam	Stage Clean Fluid	Stage N2	Blender Sand Conc.	Stage Slurry	Fluid Rate	Slurry Rate	Nitrogen Rate	Stage Time
Stage	ppg	Sand Mesh	lbs	bpm	Qual.	bbls	bbls	mscf	ppg	bbl	bpm	bpm	scf/min	min
Pad	0	N/A	0	30	70%	89	27	#VALUE!	0.0	27	9.0	9.0	#VALUE!	3.0
2	1	20/40	2,500	30	70%	60	18	#VALUE!	3.3	21	8.6	9.9	#VALUE!	2.1
3	2	20/40	5,000	30	70%	60	18	#VALUE!	6.7	23	8.3	10.7	#VALUE!	2.2
4	3	20/40	7,500	30	70%	60	18	#VALUE!	10.0	26	7.9	11.5	#VALUE!	2.3
5	4	20/40	55,000	30	70%	327	98	#VALUE!	13.3	157	7.6	12.2	#VALUE!	12.9
Flush	0	N/A	0	16	0%	7	7	0	0.0	7	16.0	16.0	0	0.4
								Tot.						
		lb/ft	Tot.	Ave.	Ave.	Tot.	Tot.	mscf	Ave.	Tot	Ave.	Ave.	Ave.	Tot.
		7,000	70,000	27.7	58%	602	186	#VALUE!	5.6	261	9.6	11.6	#VALUE!	22.8
Schedule maintains constant bottom hole pressure														

Schedule maintains constant bottom hole rate.

Volumes and Additives

Water Vol=	186	treat +	13	xcs =	199	bbl (MOI)
Fluid Volume:	199 bbl potential treating volume					
40/70 Brady Sand:	0 lbs					
20/40 Arizona Sand:	70,000 lbs					
Nitrogen Volume:	#VALUE! mscf (w/o cooldown)					
Containing per 1000 Gallons:						
20#S J-4, GELLING AGENT						
0.38 pounds FRAC CIDE-20, BACTERIACIDE						
5.00 Gallons FRAC FOAM - 2, FOAMING AGENT						
1.00 Pound B-11, GEL BREAKER						
Radioactive Tagging						
0.4 mCi/1000# Ir-192 tracer						

Equipment

Tanks:	1	x400 bbl (supplied by MOI)
Filled w/	199	bbls filtered (25 micron) 2% KCl wtr (MOI)
Computer Van		
QC equipment		

Comments and Special Instructions

MAXIMUM ALLOWABLE TREATING PRESSURE: 4000 psi

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

Pressure test surface lines to 5000 psi.

SI well 3 hours for gel break.