OCD-HOBBS HOBBS OCD

Form 3160-5
(April 2004)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

JUL 26 2011

RECEIVED

FORM APPROVED
OM B No 1004-0137
Expires March 31, 2007

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160 - 3 (APD) for such proposals.

SUBMIT IN TRIPLICATE *- Other instructions on reverse side.*

5 Lease Serial No
NM-82799

6 If Indian, Allottee or Tribe Name

7 If Unit or CA/Agreement, Name and/or No
14-08-0001-14277 (NMNM 70953X)

1 Type of Well
☐ Oil Well ☐ ☑ Gas Well ☐ ☐ Other

8 Well Name and No.
Grama Ridge Fed., 8817 JV-P #1

2 Name of Operator **Enstor Grama Ridge Storage and Transportation, LLC**

9 API Well No
30-025-30686

3a Address
20329 State Highway 249, Suite 400, Houston, TX 77070

3b Phone No *(include area code)*
281-374-3050

10 Field and Pool, or Exploratory Area
Grama Ridge, Morrow (Gas)

4 Location of Well *(Footage, Sec , T , R , M , or Survey Description)*
NE/4 of Sec. 9 T22S, R34E Unit B
660' FNL & 1980' FEL

11 County or Parish, State
Lea, NM

12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☑ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☑ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☐ Other
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

13 Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones Attach the Bond under which the work will be performed or provide the Bond No on file with BLM/BIA Required subsequent reports shall be filed within 30 days following completion of the involved operations If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 shall be filed once testing has been completed Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection)

Please see attached program.

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

ENTERED IN AFMSS

14 I hereby certify that the foregoing is true and correct
Name *(Printed/Typed)*
Matt Morrow

Title **Authorized Signatory, Enstor Operating Company, LLC its mgr**

Signature Matt Morrow

Date 07/12/2011

APPROVED

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by Ted M Morgan

Title Petroleum Engineer

Date JUL 26 2011

Conditions of approval, if any, are attached Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon

Office BUREAU OF LAND MANAGEMENT
CARLSBAD FIELD OFFICE

Title 18 U S C Section 1001 and Title 43 U S C Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction

(Instructions on page 2)

JUL 27 2011

Grama Ridge Federal, 8817 JV-P #1
Enstor Grama Ridge Storage and Transportation, LLC
30-025-30686
July 18, 2011
Conditions of Approval

Summary of Current Status:

- Well drilled by Oryx Energy in October 1989. Morrow Gas Producer.
- Casing Program 13-3/8" 54.5 ppf K-55 x 9-5/8" 36 ppf K-55 x 7" 26 ppf N-80 x 4-1/2" 13.5 ppf N-80 Liner. Vertical well. TD 13,348'
- TOC Data:
  13-3/8" to surface
  9-5/8" to surface,
  7" to 6550' confirmed by temp survey
- FWHP 4660 psi in Jan 1990.
- Sold to BTA Oil Producers May 1995. Sold to Enstor Oct 2009.
- Jan 2010 – Completed workover for conversion to Natural Gas Injection. PBTD 13099'.
- Logs Run During Conversion: Caliper, CIT in 7" csg, CIT in 4-1/2" Liner, GR/CCL
- Existing Perfs:
  12677' – 12699' in Morrow Limestone
  12828' – 12862' in Morrow A
  12975' – 13057' in Morrow C
- Plan of Operations submitted 21 April 2011

Operator Request:

1. Operator requesting approval for Propane Fracture Stimulation up to 6,504 psi Surface Pressure. This will include a permanent upgrade of the Tubing Head, Tubing Hanger, and Bottom Master Valve to 10M psi.

Conditions of Approval:

a) Closed Loop System to be used.
b) Test casing as per Onshore Order 2.III.B.1.h.
c) BLM to witness tag of PBTD. Phone number to call is 575 393-3612, at least 24 hours ahead.
d) Surface disturbance not to exceed originally approved pad dimensions unless prior approval is obtained.
e) Wellhead upgrade work is expected to begin within 30 days after this permit is issued.
f) Frac jobs are expected to be initiated within 60 days after this permit is issued.
g) Sundry for completion work to be submitted to BLM after work is completed, and will describe the work done and the resulting well status. If any annular pressure surveys were conducted on the well, the results should also be included in the sundry report.
h) If any procedural changes are necessary while the work is in progress BLM must be contacted for approval. Contact number for Lea County locations is 575 393-3612.

TMM 07/18/2011

Operator intends to work within current permitted wellpad. Operator will not exceed current permitted wellpad without prior BLM authorization.

Propane Fracture Stimulation Steps:

1. Remove well piping and move out of way.
2. MIRU workover rig and install permanent 10M tubing hanger, 10M tubing head, and 10M bottom master valve. Field test flanged connections to 10,000 psi with N2. All equipment during the fracture treatment above the bottom master valve will be rated and tested in the field to 10M prior to commencement of fracture treatment. Fracture tree diagram is attached. Any coil tubing (CT) used for wellbore cleanout will be connected above at least 2 master valves with the CT 15M BOP field tested to 5,000 psig. RDMO workover rig.
3. Survey site and decide how to spot fracture treatment equipment.
4. MIRU fracturing, flow back (including self igniting flare) and safety equipment. Flare will be a minimum of 100' away from the wellhead. System will be closed loop (please see attached NM OCD CLEZ-144 and piping diagram).
5. Spot frac tank and fill with 300 bbl of fresh water for firefighting supply.
6. Install frac valving on well (please see attachment for diagram).
7. Connect flowback lines to well and test.
8. Connect high pressure frac lines to well and perform low pressure and high pressure tests. Tubing burst pressure of 4-1/2" tubing is 10,480 psig, and with 1.25 safety factor equals 8,384 psig. Casing burst pressure of 7-0" casing is 7,239 psig, and with a 1.375 safety factor equals 5,265 psig. Current wellhead surface pressure is 1,809 psig. Current calculated bottom hole pressure is 2,418 psig. Planned surface fracture pressure is 6,504 psig. Pressure monitoring will be in place to ensure the tubing and casing annulus pressures do not exceed the safety factor rating of the respective intervals.
9. MIRU kill truck with 6% KCL water. Pressure up the 7-0" casing annulus to 2,500 psi with KCl water.
10. Planned operating envelope of the 7-0" annulus during the fracture treatment will be from 3,000 psig to 3,500 psig. Operator will install a 10M psig working pressure relief valve, set to relieve at 3,900 psi, and a 10M psig working pressure gauge on the line extending from the tubinghead to monitor and control the tubing/casing pressure. A 10M psig working pressure valve will be used for bleeding off pressure build-up. Limit pressure build-up on the 7-0" casing annulus to 3,500 psi before bleeding off pressure to maintain the annulus pressure at approx. 3,000 psi. Do not bleed annulus pressure below 2,500 psi during the job. Should the annulus pressure rise to the 3,900 psig, the relief valve will direct pressure to the heater/separator. Liquid will route to the tank and gas will route to the flare.
11. Perform frac job. Frac design details: 1 stage fracture treatment with 8 steps; ~1300 bbls of LPG frac fluid (gelled butane/propane mixture); ~50k lbs of propant (VersaProp ceramic) pumped.

Step	Stage Type	Cum Elapsed Time (min:sec)	Fluid Type	Clean Volume (gal)	Prop Conc (ppg)	Step Prop. (klbs)	Slurry Rate (bpm)	Proppant Type
Wellbore Fluid			LPG	0				
1	Main frac pad	25 26	LPG - GELLED	25000	0 00	0 0	24 00	
2	Main frac slurry	29.33	LPG - GELLED	4000	1 00	4 0	24 00	VersaProp
3	Main frac slurry	33 48	LPG - GELLED	4000	2.00	8.0	24.00	VersaProp
4	Main frac slurry	37.40	LPG - GELLED	3500	3.00	10 5	24 00	VersaProp
5	Main frac slurry	41.05	LPG - GELLED	3000	4.00	12 0	24 00	VersaProp
6	Main frac slurry	44:37	LPG - GELLED	3000	5 00	15 0	24 00	VersaProp
7	Main frac flush	52:04	LPG	7500	0.00	0.0	24.00	
8	Shut-in	82:04	SHUT-IN	0	0 00	0 0	0 00	

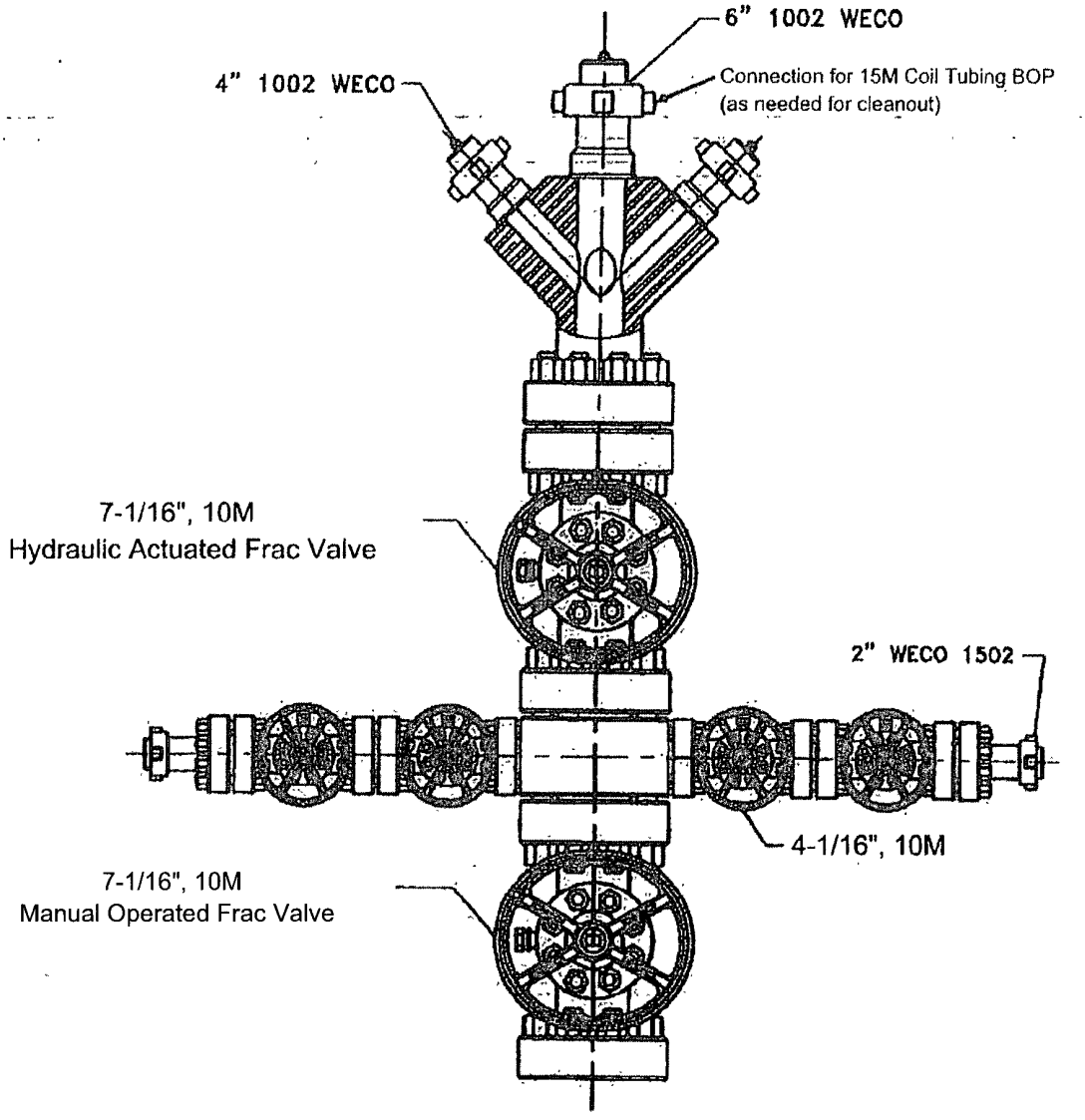
12. Flow back ~10 bbls of LPG and shut in well, bleed off annulus and purge high pressure frac lines to flare with N2.

13. RDMO frac, flowback, and safety equipment.
14. RU electric wireline unit, wireline BOP and lubricator. Test lubricator to greater of 2000 psi with N2 or to well pressure. Notify BLM of tag run. GIH and tag bottom and run temperature log. RDMO.
15. Remove frac tree and install permanent tree and reconnect well piping for storage operations.

API 30-025-30686
(Grama Ridge Federal, 8817 JV-P #1)
Static Gradient Pressure Survey
March 27, 2011

Depth ft	Pressure psi	Temperature degF	Gradient psi/ft
0.00	1339.20	78.68	0.0000
2000.00	1405.35	84.36	0.0331
4000.00	1471.65	94.01	0.0331
6000.00	1538.40	107.26	0.0334
8000.00	1606.29	125.62	0.0339
10000.00	1673.25	145.42	0.0335
11500.00	1723.27	161.90	0.0333
11750.00	1730.98	166.24	0.0308
12000.00	1739.06	168.67	0.0323
12750.00	1763.79	177.66	0.0330
13120.00	1802.96	183.52	0.1059

Typical 10M Fracture Treatment Wellhead



NOTE: DIMENSIONS ARE APROX.

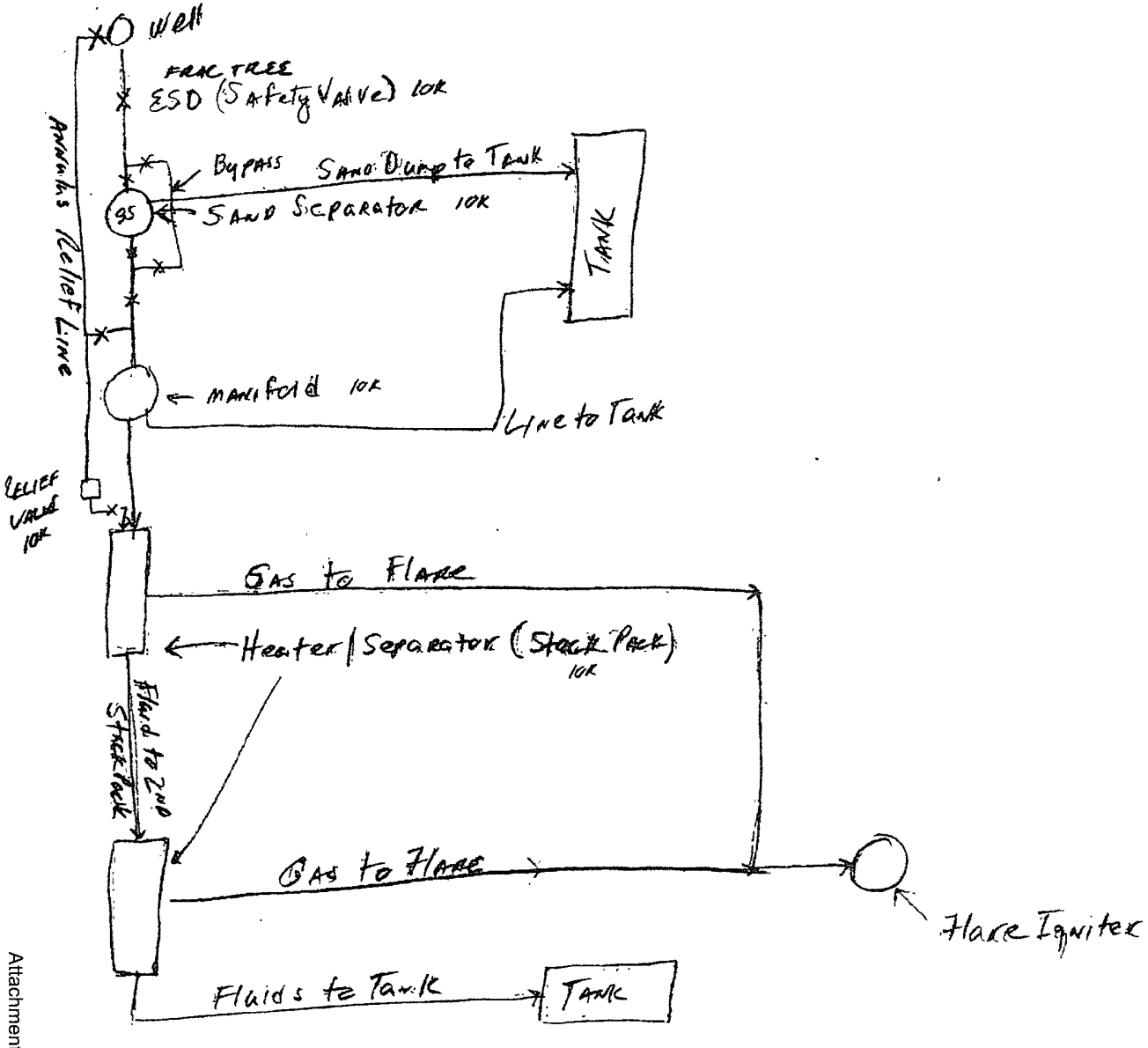
API 30-025-30686
(Grama Ridge Federal, 8817 JV-P #1)

Coil Tubing BOP
(use only as needed for cleanout)

x valves

API 30-025-30686
Grama Ridge Federal, 8817 JV-P #1

FLOW BACK EQUIPMENT



10K Equipment