

OCD Artesia

FORM APPROVED  
OMB No. 1004-0137  
Expires October 31, 2014

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. NMNM2748
1b. Type of Well: <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		6. If Indian, Allottee or Tribe Name
2. Name of Operator Burnett Oil Co., Inc. (3080)		7. If Unit or CA Agreement, Name and No.
3a. Address 801 Cherry Street, Suite 1500 Fort Worth, Texas 76102		8. Lease Name and Well No. Gissler B 97 (2389)
3b. Phone No. (include area code) 817-332-5108 x6326		9. API Well No. 30-015-41276
4. Location of Well (Report location clearly and in accordance with any State requirements.) At surface 330' FSL & 820' FWL, Unit M At proposed prod. zone		10. Field and Pool, or Exploratory Loco Hills Glorieta Yeso (96718)
14. Distance in miles and direction from nearest town or post office* Approximately 2 Miles North of Loco Hills, NM		11. Sec., T. R. M. or Blk. and Survey or Area Section 11, T. 17S, R. 30E
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 820'	16. No. of acres in lease 1240	17. Spacing Unit dedicated to this well 40
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 800'	19. Proposed Depth 6100' TVD 6100' MD	20. BLM/BIA Bond No. on file NM-B000197 & NM-B000699
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3711' GL	22. Approximate date work will start* 04/30/2013	23. Estimated duration 30 days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No.1, must be attached to this form:

- Well plat certified by a registered surveyor.
- A Drilling Plan.
- A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office).
- Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
- Operator certification
- Such other site specific information and/or plans as may be required by the BLM.

25. Signature <i>Leslie M. Garvis</i>	Name (Printed/Typed) Leslie M. Garvis	Date 03/25/2013
--	--	--------------------

Approved by (Signature) <i>/s/ James Stovall</i>	Name (Printed/Typed) <i>/s/ James Stovall</i>	Date APR 22 2013
Title REGULATORY COORDINATOR	Office CARLSBAD FIELD OFFICE	

Application approval 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.  
Conditions of approval, if any, are attached.

**APPROVAL FOR TWO YEARS**

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.

(Continued on page 2)

\*(Instructions on page 2)

Roswell Controlled Water Basin

Approval Subject to General Requirements  
& Special Stipulations Attached



SEE ATTACHED FOR  
CONDITIONS OF APPROVAL



**BURNETT OIL Co., INC.**

**FINAL CERTIFICATION MEMO**

I hereby certify that I, or persons under my direct supervision, have inspected the proposed drill site and access road proposed herein; that I am familiar with the conditions that presently exist; that I have full knowledge of State and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct, and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that Burnett Oil Co. Inc. is responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements. Executed this 25<sup>th</sup> day of MARCH 2013.

Signed: \_\_\_\_\_

Printed Name: Mark A. Jacoby

Position: Engineering Manager

Company: Burnett Oil Co., Inc.

Address: 801 Cherry Street, Suite 1500, Unit #9, Fort Worth, Texas 76108

Telephone: 817.332.5108

Email: [mjacoboy@burnettoil.com](mailto:mjacoby@burnettoil.com)

DISTRICT I  
1625 N. French Dr., Hobbs, NM 88240  
Phone (575) 393-6161 Fax: (575) 393-0720

DISTRICT II  
811 S. First St., Artesia, NM 88210  
Phone (575) 748-1283 Fax: (575) 748-9720

DISTRICT III  
1000 Rio Brazos Rd., Aztec, NM 87410  
Phone (505) 334-6178 Fax: (505) 334-6170

DISTRICT IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505  
Phone (505) 476-3480 Fax: (505) 476-3482

State of New Mexico  
Energy, Minerals and Natural Resources Department

Form C-102  
Revised August 1, 2011

Submit one copy to appropriate  
District Office

**OIL CONSERVATION DIVISION**  
1220 South St. Francis Dr.  
Santa Fe, New Mexico 87505

WELL LOCATION AND ACREAGE DEDICATION PLAT

AMENDED REPORT

API Number <b>30-015-41276</b>		Pool Code 96718 ✓	Pool Name LOCO HILLS GLORIETA YESO ✓
Property Code 2389 ✓	Property Name GISSLER B ✓		Well Number 97
OGRID No. 03080 ✓	Operator Name BURNETT OIL COMPANY, INC.		Elevation 3711'

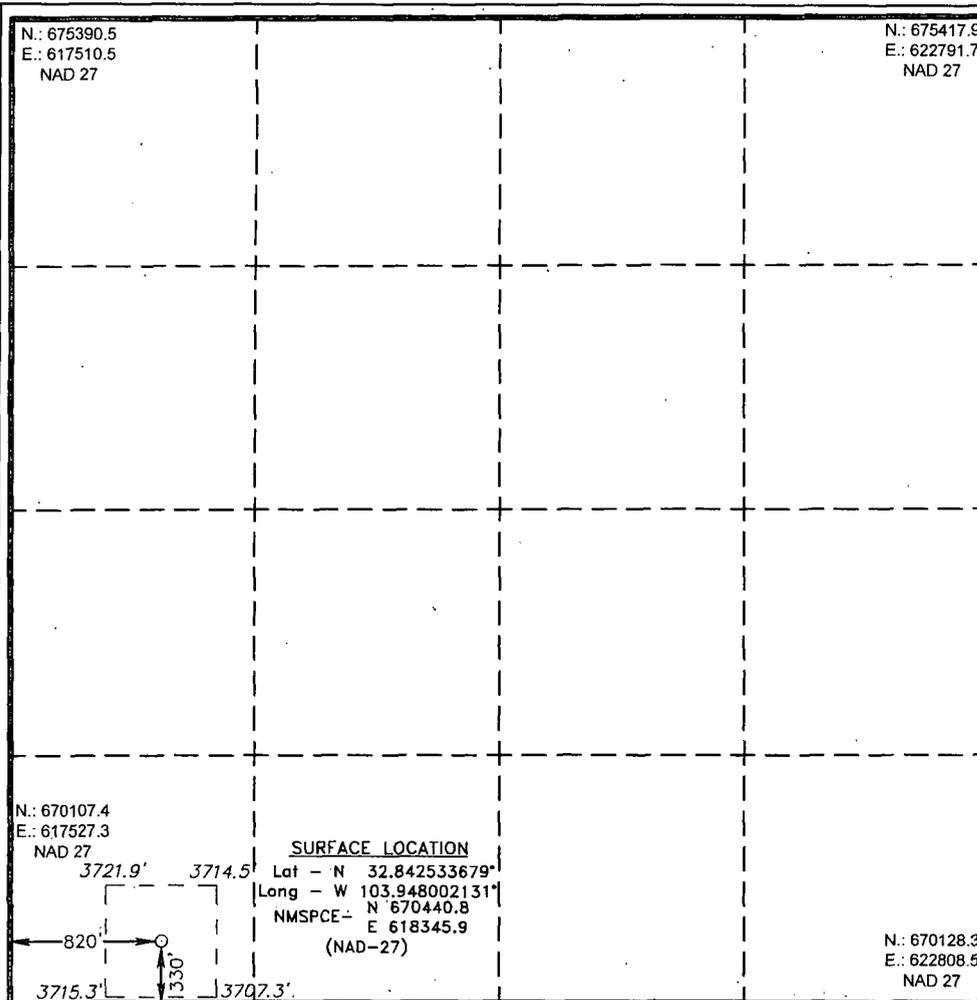
Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	11	17 S	30 E		330	SOUTH	820	WEST	EDDY

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
Dedicated Acres: 40 Joint or Infill: Consolidation Code: Order No.:									

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



**OPERATOR CERTIFICATION**  
I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Signature: *Leslie M Garvis* Date: 03/22/13  
 Printed Name: Leslie M Garvis  
 Email Address: lgarvis@burnettoil.com

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

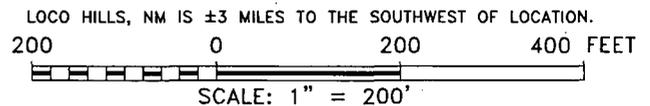
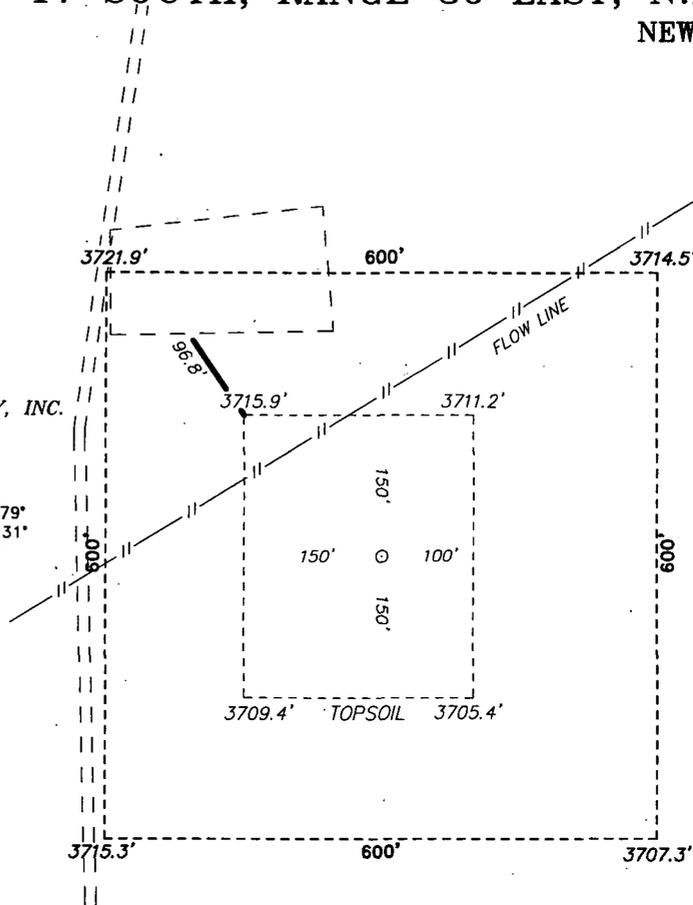
Date Surveyed:   
 Signature & Seal of Professional Surveyor: *Gary L. Jones*  
 Certificate No. Gary L. Jones 7977  
 BASIN SURVEYS 28161

# EXHIBIT A

**SECTION 11, TOWNSHIP 17 SOUTH, RANGE 30 EAST, N.M.P.M.,  
EDDY COUNTY, NEW MEXICO.**

**BURNETT OIL COMPANY, INC.**  
GISSLER B #97  
ELEV. - 3711'

Lat - N 32.842533679°  
Long - W 103.948002131°  
NMSPCE - N 670440.8  
          E 618345.9  
(NAD-27)



**Directions to Location:**

FROM THE JUNCTION OF SQUARE LAKE, AND SKELLY,  
GO NORTH ON SQUARE LAKE FOR 0.7 MILES  
TURNING WEST 1.7 MILES THENCE SOUTH 0.7 MILES  
TO PROPOSED LEASE ROAD.

**BURNETT OIL COMPANY, INC.**

REF: GISSLER B #97 / WELL PAD TOPO

THE GISSLER B #97 LOCATED 330'  
FROM THE SOUTH LINE AND 820' FROM THE WEST LINE OF  
SECTION 11, TOWNSHIP 17 SOUTH, RANGE 30 EAST,  
N.M.P.M., EDDY COUNTY, NEW MEXICO.

**BASIN SURVEYS** P.O. BOX 1786 - HOBBS, NEW MEXICO

W.O. Number: 28161      Drawn By: J. SMALL

Date: 03-18-2013      Disk: JMS 28161

Survey Date: 03-11-2013      Sheet 1 of 1 Sheets

# EXHIBIT B



## GISSLER B #97

Located 330' FSL and 820' FWL

Section 11, Township 17 South, Range 30 East,  
N.M.P.M., Eddy County, New Mexico.

**basin**  
**surveys**

focused on excellence  
in the oilfield

P.O. Box 1786  
1120 N. West County Rd.  
Hobbs, New Mexico 88241  
(575) 393-7316 - Office  
(575) 392-2206 - Fax  
basinsurveys.com

W.O. Number: JMS 28161

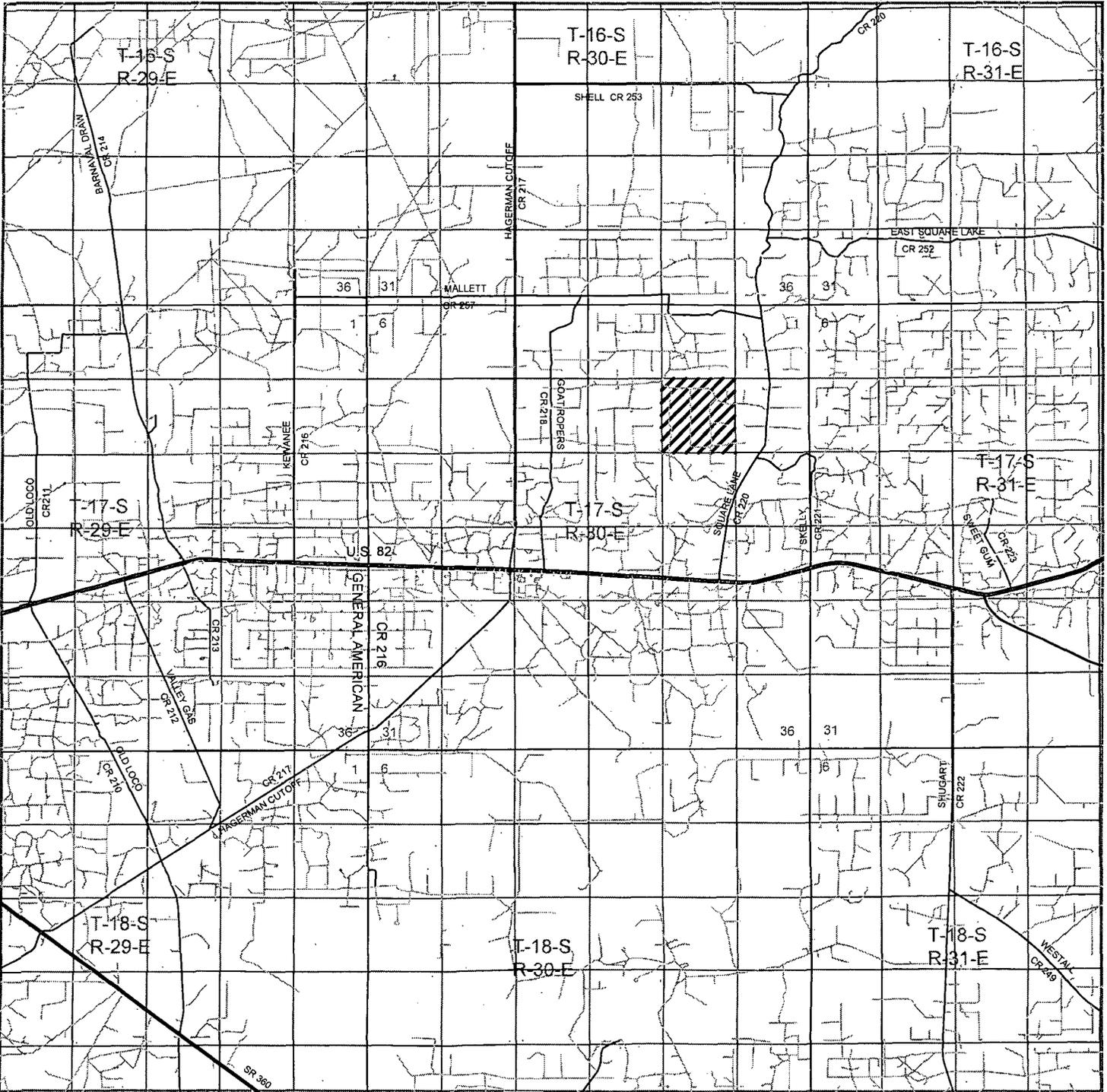
Survey Date: 03-11-2013

Scale: 1" = 2000'

Date: 03-18-2013

**BURNETT OIL**  
**COMPANY, INC.**

# EXHIBIT C



GISSLER B #97  
 Located 330' FSL and 820' FWL  
 Section 11, Township 17 South, Range 30 East,  
 N.M.P.M., Eddy County, New Mexico.



P.O. Box 1786  
 1120 N. West County Rd.  
 Hobbs, New Mexico 88241  
 (575) 393-7316 - Office  
 (575) 392-2206 - Fax  
 basinsurveys.com

W.O. Number: JMS 28161

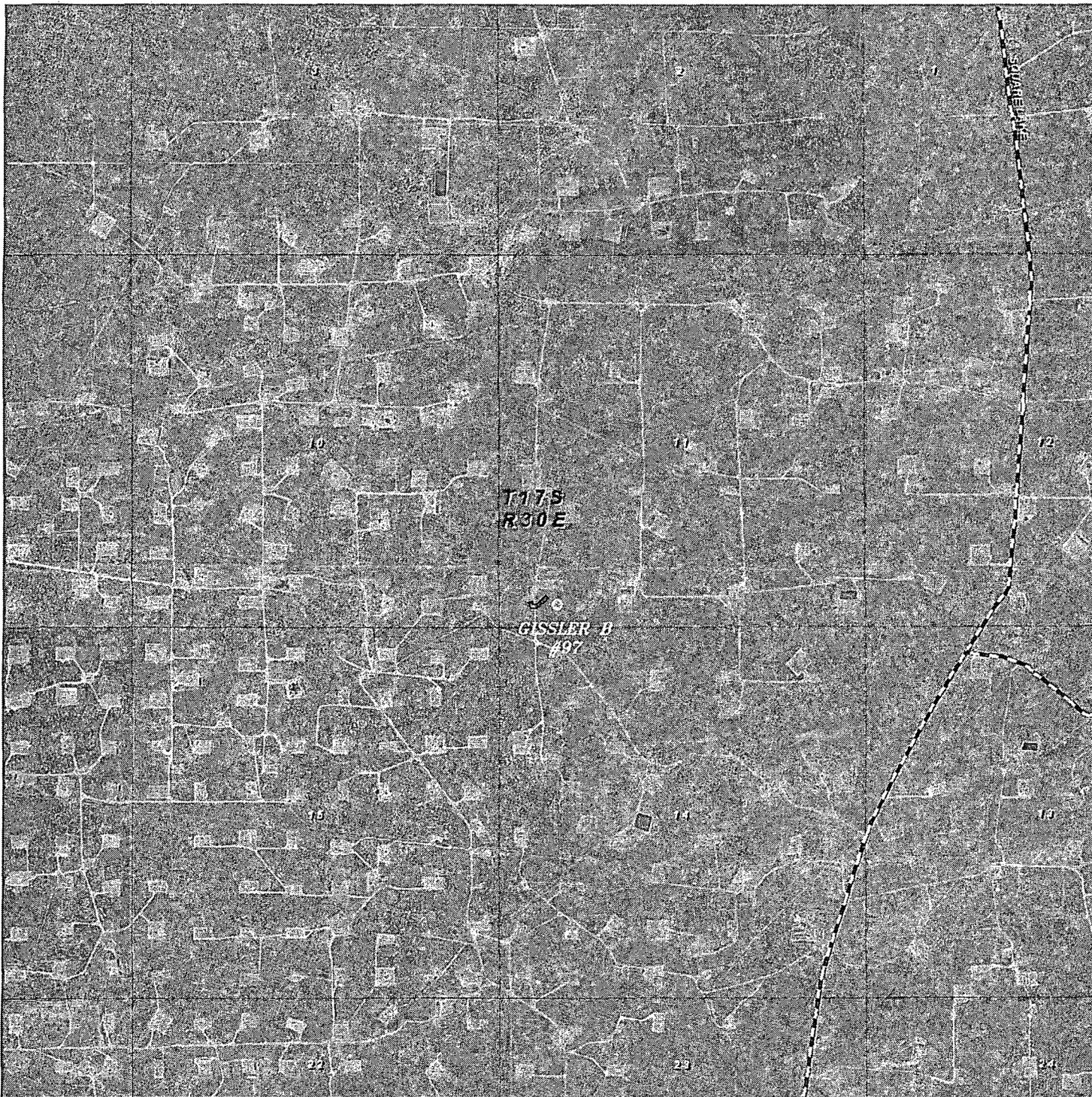
Survey Date: 03-11-2013

Scale: 1" = 2 Miles

Date: 03-18-2013

**BURNETT OIL  
 COMPANY, INC.**

EXHIBIT D



GISSLER B #97  
Located 330' FSL and 820' FWL  
Section 11, Township 17 South, Range 30 East,  
N.M.P.M., Eddy County, New Mexico.

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1120 N. West County Rd.  
Hobbs, New Mexico 88241  
(575) 393-7316 - Office  
(575) 392-2206 - Fax  
basinsurveys.com

W.O. Number: JMS 28161

Scale: 1" = 2000'

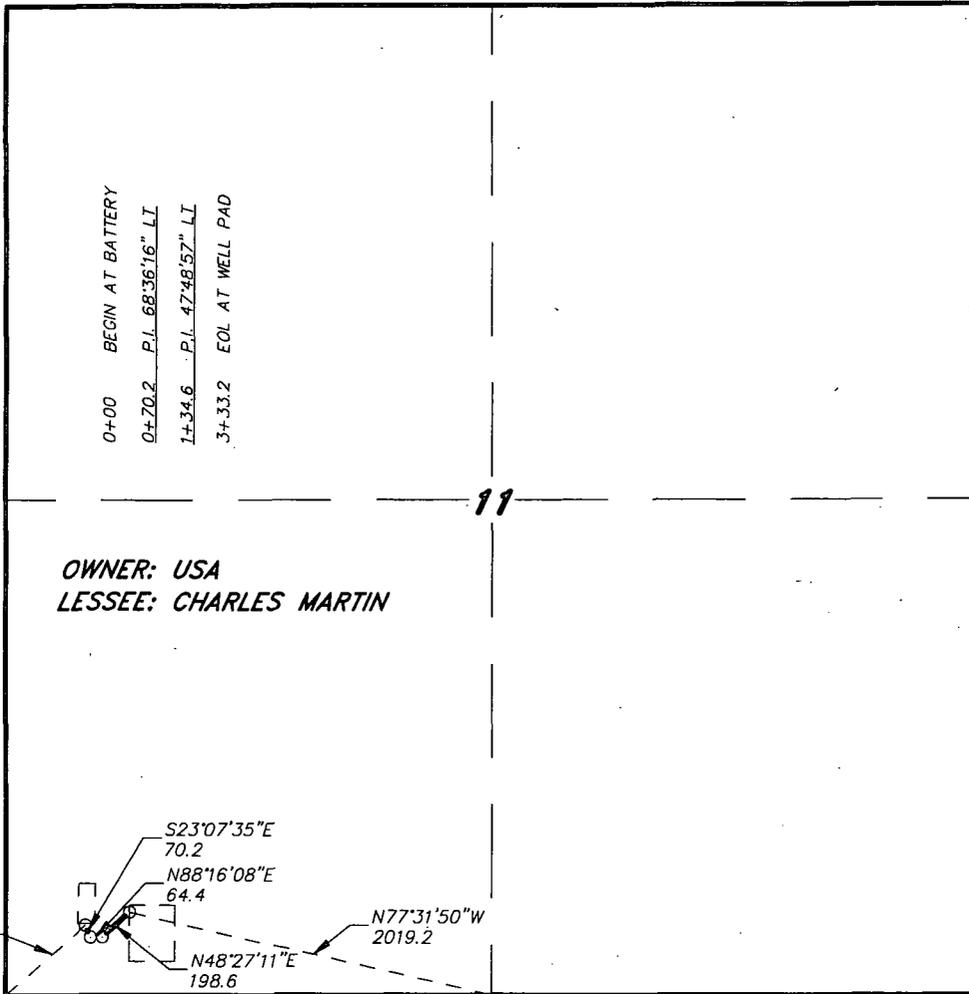
YELLOW TINT - USA LAND  
BLUE TINT - STATE LAND  
NATURAL COLOR - FEE LAND



**BURNETT OIL**  
**COMPANY, INC.**

# EXHIBIT E

SECTION 11, TOWNSHIP 17 SOUTH, RANGE 30 EAST, N.M.P.M.,  
EDDY COUNTY, NEW MEXICO.



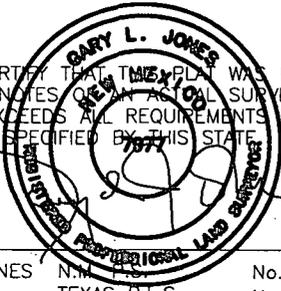
OWNER: USA  
LESSEE: CHARLES MARTIN

LEGAL DESCRIPTION

A STRIP OF LAND 30.0 FEET WIDE, LOCATED IN SECTION 11, TOWNSHIP 17 SOUTH, RANGE 30 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO AND BEING 15.0 FEET LEFT AND RIGHT OF THE ABOVE PLATTED CENTERLINE SURVEY.

SECTION 11 = 333.2 FEET = 20.19 RODS = 0.06 MILES = 0.23 ACRES

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED FROM FIELD NOTES OF AN ACTUAL SURVEY AND MEETS OR EXCEEDS ALL REQUIREMENTS FOR LAND SURVEYS AS SPECIFIED BY THIS STATE.



GARY L. JONES N.M. No. 7977  
TEXAS P.L.S. No. 5074

1000 0 1000 2000 FEET

**BURNETT OIL COMPANY, INC.**

REF: PROPOSED FLOWLINE TO THE GISSLER B #97

A FLOWLINE CROSSING USA LAND IN  
SECTION 11, TOWNSHIP 17 SOUTH, RANGE 30 EAST,  
N.M.P.M., EDDY COUNTY, NEW MEXICO.

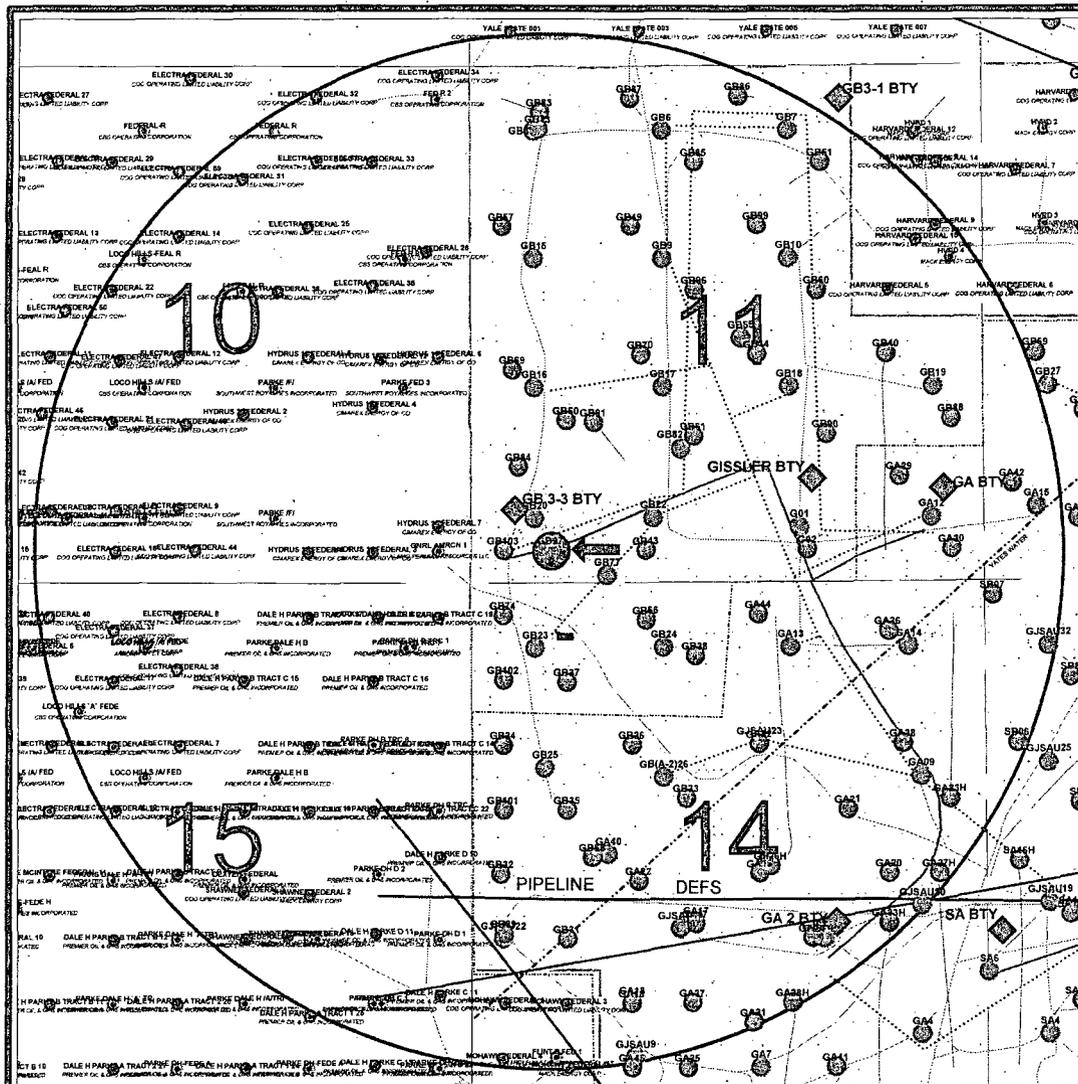
**BASIN SURVEYS** P.O. BOX 1786 - HOBBS, NEW MEXICO

W.O. Number: 28161 Drawn By: J. M. SMALL

Date: 03-18-2013 Disk: JMS 28161

Survey Date: 03-11-2013 Sheet 1 of 1 Sheets

# EXHIBIT F



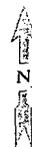
### Well Names

- GA = Gissler A
- GB = Gissler B
- JA = Jackson A
- JB = Jackson B
- SA = Stevens A
- SB = Stevens B
- GJSA = Grayburg Jackson San Andres

**Burnett Oil Co., Inc.**  
**6666**

Gissler B97 One Mile Radius  
Eddy County, New Mexico

Author: CLK, Eng Tech	Date: March 21, 2013
Scale: 1" = 1500'	



### Gissler B97

**T17S, R30E, Sect 11, Unit M, NM2748**  
**330' FSL, 820' FWL, GB 3-3 Battery**  
**Lat/Long: 32.842552, -103.947402**



**BURNETT OIL CO., INC.**

**DRILLING PLAN  
Gissler B 97  
VERTICAL LOCO HILLS GLORIETA YESO WELL**

**1. Geological Name of Surface Formation with Estimated Depth:**

<u>Geological Name</u>	<u>Estimate Top</u>	<u>Anticipated Fresh Water, Oil or Gas</u>
a. Alluvium	Surface	Fresh Water, Sand
b. Anhydrite	218'	
c. Salt	450'	
d. Base Salt	1180'	
e. Yates	1360'	
f. Seven Rivers	1636'	Oil
g. Queen	2249'	Oil
h. Grayburg	2653'	Oil
i. San Andres	2962'	Oil
j. Glorieta	4426'	Oil
k. Yeso	4521'	Oil
l. Total Depth	Refer to APD	

No other formations are expected to yield oil, gas or fresh water in measurable volumes. Deepest water is expected to be above 400'. We will set 10-3/4" casing @ approx. +/- 430' in the Anhydrite, above the salt and circulate cement to surface.

We will isolate the oil zones by running 7" casing to total depth and circulating cement to surface.

**2. Casing Program: (ALL CASING WILL BE NEW API APPROVED MATERIAL.)**

**(MW = 10 PPG IN DESIGN FACTOR CALCULATIONS.)**

a. Design Safety Factors:

<u>Type</u>	<u>Hole Size</u>	<u>Interval</u>	<u>OD Csg</u>	<u>Weight</u>	<u>Collar</u>	<u>Grade</u>	<u>Collapse Design Factor</u>	<u>Burst Design Factor</u>	<u>Tension Design Factor</u>
Conductor	24"	0'-90'	16"	Contractor Discretion			---	---	---
Surface	14-3/4"	0' - 430'	10-3/4"	32.75#	ST & C	H40	1.125	1.00	1.80
Production	8-3/4"	0' - TD	7"	23.00#	LT & C	J55	*1.125	1.00	1.80

**DRILLING PLAN**  
**ALL VERTICAL LOCO HILLS & CEDAR LAKE GLORIETA YESO WELLS**

\* 500' of fresh water gradient (.433 psi/ft) fluid will be maintained inside casing to keep SF 1.125. We will assure that the casing will be kept liquid filled in order to meet the SF collapse standard.

b. Surface Casing Info

The proposed casing setting depth is 430' based on the attached cross sections which show the estimated top of the rustler and top of salt. Drilling times will be plotted to find the hard section just above the salt. A mud logger will be on location to evaluate drill and cutting samples as long as circulation is maintained. If salt is penetrated, it will be obvious by the sudden increase in water salinity and surface casing will then be set above the top of salt. Our highly experienced drilling personnel has drilled many wells in this area and is able to easily identify the hard streak on the top of the salt.

3. Cementing Program (Note Yields and DV Tool Depth if Multiple Stage.)

BLM to be notified prior to all cementing and tag operations in order to observe the operation if desired.

a. 10-3/4" Surface Cement to surface

- Lead with 150 sx Class C thix. cement + 10#/sk Cal-Seal 60 (Accelerator), +10#/sx LCM, 1% CaCl, 0.125#/sk Poly-E-Flake (LC), 14.2 ppg, 1.67 CF/Sk Yield.
- Tail with 250 sks Class C cement + 2% CaCl. 14.2 ppg, 1.35 CF/Sx yield. TOC Surface. Excess cement 100%.

If cement does not circulate to surface, BLM will be notified of same, plus the plans to bring the cement to surface so BLM may witness tagging and cementing. If surface pressures when circulating indicate cement is low in the annulus, temperature survey results will be reviewed with BLM representative to determine the remediation needed.

b. 7" Production Casing

**Stage 1 Cement:** 550 sks VERSACEM – C (50:50 Poz (Fly Ash):Class C cement + 2% Bentonite) + 0.4% LAP-1 (FLC) + 0.3 % CFR-3 (Disp) + .025 lb/sk D-Air 5000 + 3 lb/sx Kol-Seal (LC) + 0.125 lb/sk Poly-E-Flake (LC) . 14.2 ppg, Yield 1.28 CF/Sx. DV @ approx. 2600'. 30% excess cement.

**Stage 2 Cement:** Lead with 525 sks/ ECONOCEM (35:65) Poz (Fly Ash):Class C cement + 6% Bentonite) + .125 lbs/sx Poly-E-Flake (LC) + 2% CaCl, , 12.7 ppg, Yield 1.87 CF/Sx. Tail with 100 sx Class C + 2% CaCl. 14.8 ppg, Yield 1.32 CF/sx, TOC Surface. 140% excess cement.

The above cement volumes may be revised pending the caliper measurement from the open hole logs. **Casing/cementing design is to bring cement to the surface.**

4. Pressure Control Equipment:

The blowout prevention equipment (BOPE) shown in **Exhibits G & H** will consist of a 2000 PSI Hydril Unit (annular) with hydraulic closing equipment. The equipment will comply with Onshore Order #2 and will be tested to 50% of rated working pressure (RWP), and maintained for at least ten (10) minutes. The 10-3/4" drilling head will be installed on the surface casing and in use continuously until total depth is reached. An independent testing company will be used for the testing. Other

See  
COA

See  
COA

**DRILLING PLAN**  
**ALL VERTICAL LOCO HILLS & CEDAR LAKE GLORIETA YESO WELLS**

accessory BOP equipment will include a Kelly cock, floor safety valve, choke lines and choke manifold having 2000 PSI WP rating.

**5. Auxiliary Well Control and Monitoring Equipment:**

- a. A Kelly cock will be in the drill string at all times.
- b. A full opening drill pipe stabbing valve with the appropriate connections on the rig floor at all times.
- c. Hydrogen Sulfide detection and breathing equipment will be installed and in operation at drilling depth of 1800' (which is more than 500' above top of Grayburg) until 7" casing is cemented.
- d. An H2S compliance package will be on all sites while drilling.

**6. Proposed Mud Circulation System**

<u>Depth</u>	<u>Mud Wt</u>	<u>Visc</u>	<u>Fluid Loss</u>	<u>Type System</u>	<u>Max Volume</u>
0' - 430'	8.6 - 9.5			Fresh Water	
430' - TD' MD	10.0 max			Brine Water	

**The necessary mud products for weight addition and fluid loss control will be on location at all times.**

**Pason equipment will be used to monitor the mud system.**

**7. Logging, Coring and Testing program:**

- a. Any drill stem tests will be based on geological sample shows and planned before spudding.
- b. The open hole electrical logging program will be:
  - 1. Total depth to 1000': Dual Laterolog-Micro Laterolog with Compensated Neutron, Spectral Density log with Spectral Gamma Ray and Caliper.
  - 2. Total depth to Surface: Compensated Neutron with Spectral Gamma Ray.
  - 3. Coring program will be planned and submitted on a well by well basis.
  - 4. Additional testing will be done subsequent to setting the 7" production casing. The specific intervals will be based on log evaluation, geological sample shows and drill stem tests.

**8. Potential Hazards:**

No abnormal pressures or temperatures are expected. Lost circulation is expected in the surface hole and not expected in production. Water flows can occur periodically at various depths in the production hole. All personnel will be familiar with the safe operation of the equipment being used to drill this well. The maximum anticipated bottom hole pressure is 2715#. This is based upon the following formula of .445 x BH ft. estimate. The anticipated bottom hole temperature is 105°F. This is based upon logs of drilled wells surrounding this well.

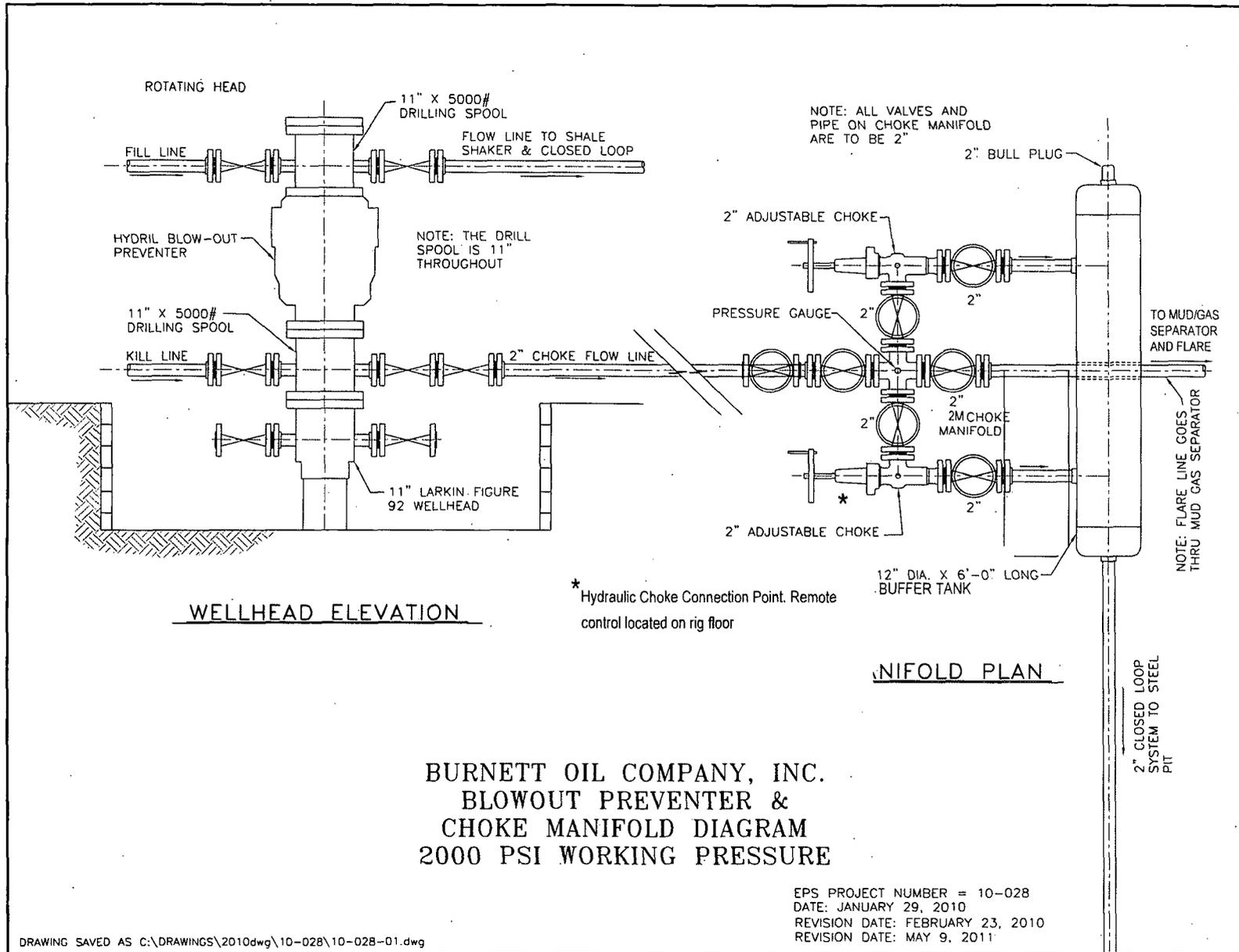
There is known H2S in this area. In the event that it is necessary to follow the H2S plan, a remote choke will be installed as required in Onshore Order 6. Refer to the attached H2S plan for details.

*See  
COA*

**DRILLING PLAN**  
**ALL VERTICAL LOCO HILLS & CEDAR LAKE GLORIETA YESO WELLS**

**9. Anticipated Start Date and Duration of Operation**

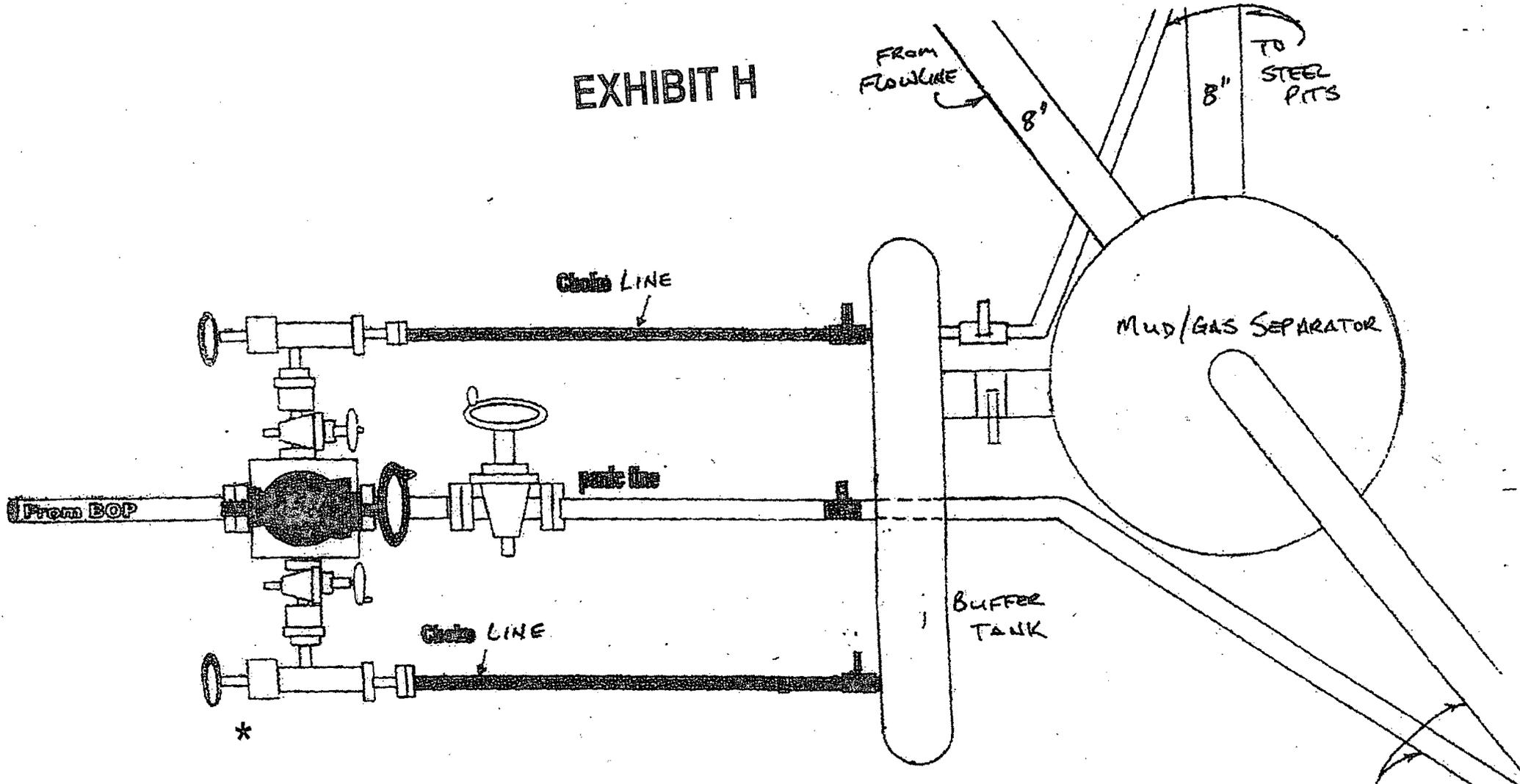
Road and location construction will begin after BLM has approved the APD and has approved the start of the location work. Anticipated spud date will be as soon as the location building work has been completed and the drilling rig is available to move to the location. Move in and drilling is expected to take approximately 14 days. If production casing is run, an additional 60 days would be required to complete the well and install the necessary surface equipment (pumping unit, electricity, flowline and storage facility) to place the well on production.



BURNETT OIL COMPANY, INC.  
 BLOWOUT PREVENTER &  
 CHOKE MANIFOLD DIAGRAM  
 2000 PSI WORKING PRESSURE

EPS PROJECT NUMBER = 10-028  
 DATE: JANUARY 29, 2010  
 REVISION DATE: FEBRUARY 23, 2010  
 REVISION DATE: MAY 9, 2011

# EXHIBIT H



\* Hydraulic Choke Connection Point. Remote control located on rig floor

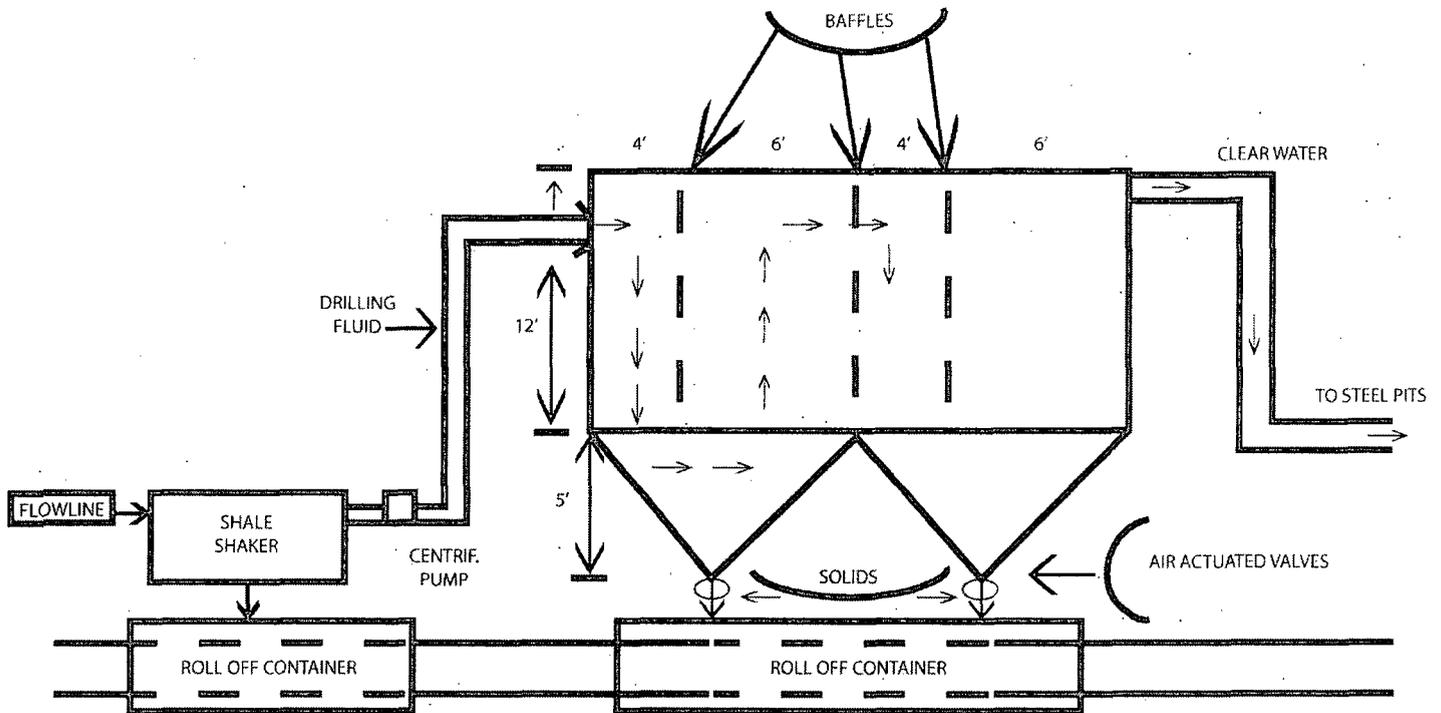
2000# / 3000# BOP manifold system  
FOR POTENTIAL H<sub>2</sub>S ENVIRONMENT

TO FLARE PIT  
(150' FROM WELL HEAD)  
WITH ELECTRIC  
OR PROPANE  
IGNITER



BURNETT OIL Co., INC.

## EXHIBIT I



### OPERATIONS & MAINTENANCE

Drilling Fluids from the wellbore will go through the flow line across the shale shaker. Solids will drop into roll off containers with baffles as drawn above. Baffles slow fluid velocity to allow solids to fall down through 6" air actuated valves into roll off containers. Clean water goes back out to the drilling fluid steel pits. Solids and any leftover liquid will be hauled to disposal.

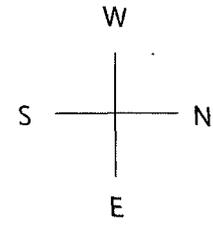
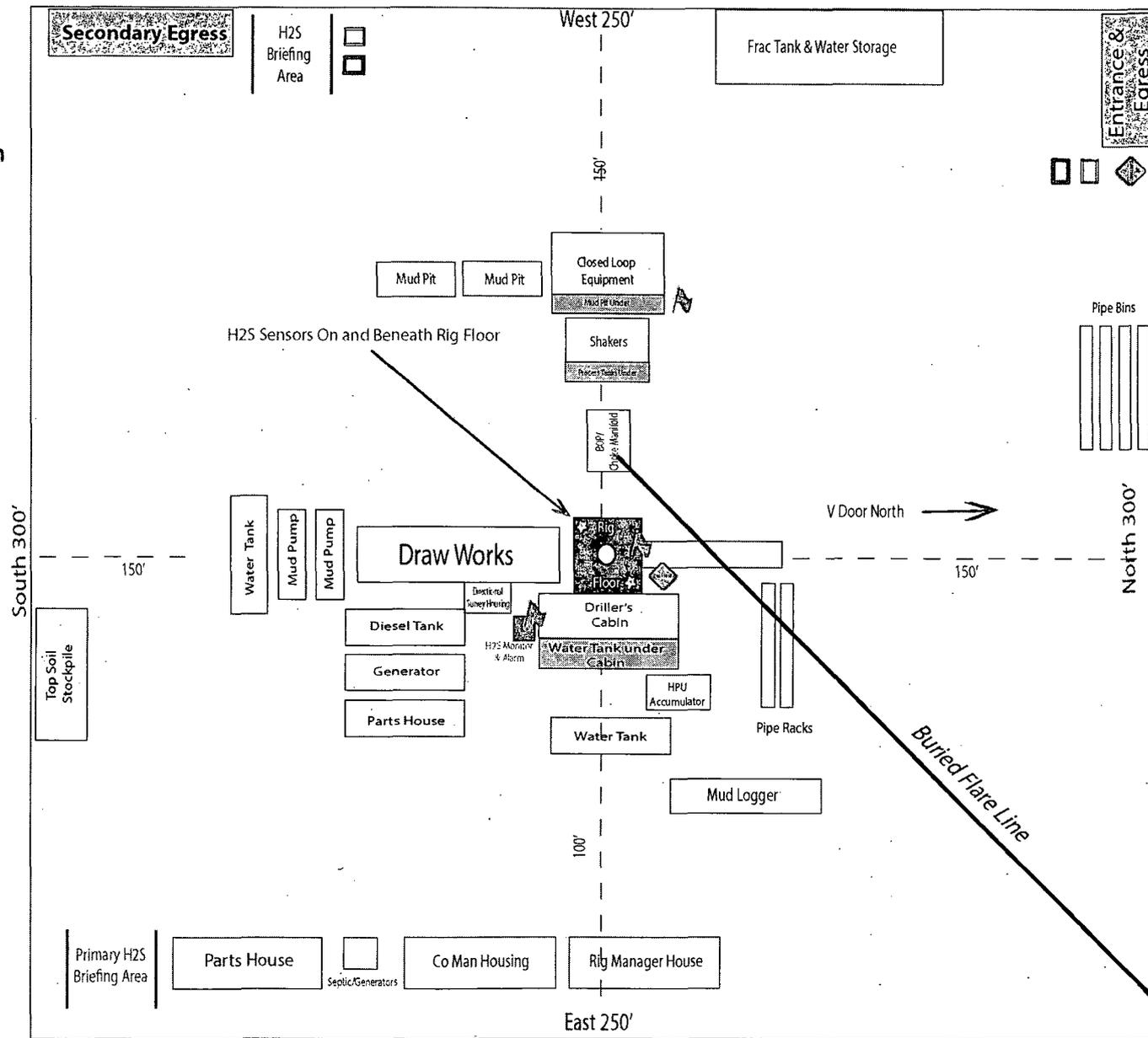
### INSPECTION

The closed loop equipment will be inspected daily by each tour and any necessary maintenance performed. Any leak in the system will be repaired and .or contained immediately. OCD will be notified within 48 hours. Remediation process started.

### CLOSURE PLAN

During drilling operations, all liquids, drilling fluids and cutting will b e hauled off via CRO (Controlled Recovery Incorporated Permit R-9166)

**EXHIBIT J**  
**Rig Layout**  
**Closed Loop Operations**  
**H2S Briefing Areas & Alarm**  
**Locations**



Burnett Oil Co. Inc.  
 Gissler B 97

- Site Conditions
1. Prevailing wind from the Southwest
  2. Top Soil Stock Pile South Side of Pad

- Wellhead Location
- Safe Zone
- SCBA
- ▲ Wind Direction Indicator
- ◆ Caution/Warning Sign
- ★ H2S Sensors

Location Dimensions  
300' x 250'

Approx. Scale: 1" = 25'



## BURNETT OIL Co., INC.

### HYDROGEN SULFIDE (H<sub>2</sub>S) PLAN & TRAINING

This plan was developed in accordance with 43 CFR 3162.3-1, section III.C, Onshore Oil and Gas Operations Order No. 6.

Based on our area testing H<sub>2</sub>S at 100 PPM has a radius of 139' and does not get off our well sites. There are no schools, residences, churches, parks, public buildings, recreation area or public within 2+ miles of our area.

#### A. Training

##### 1. Training of Personnel

**All personnel, whether regularly assigned, contracted, or employed on an unscheduled basis, will receive training from a qualified instructor in accordance with 43 CFR 3162.3-1, section III.C.3.a. Training will be given in the following areas prior to commencing drilling operations on each well:**

- a. The hazards and characteristics of Hydrogen Sulfide (H<sub>2</sub>S).
- b. The proper use and maintenance of personal protective equipment and life support systems.
- c. The proper use of H<sub>2</sub>S detectors, alarms, warning systems, briefing areas, evacuation procedures and the prevailing wind.
- d. The proper techniques for first aid and rescue procedures.
- e. **ATTACHED HYDROGEN SULFIDE (H<sub>2</sub>S) CONTINGENCY PLAN DRILLING EXHIBIT O**
- f. **ATTACHED EMERGENCY CALL LIST FOR ANY ON SITE EMERGENCY DRILLING EXHIBIT P.**

##### 2. Training of Supervisory Personnel

**In addition to the training above, supervisory personnel will also be trained in the following areas:**

- a. The effects of H<sub>2</sub>S on metal components. If high tensile tubulars are to be used, personnel will be trained in special maintenance requirements.
- b. Corrective action and shut-in procedures when drilling or reworking a well, blowout prevention and well control procedures.
- c. The contents and requirements of the H<sub>2</sub>S Drilling Operations Plan and the Public Protection Plan (if applicable.)

##### 3. Initial and Ongoing Training

There will be an initial training session just prior to encountering a known or probable H<sub>2</sub>S zone (within 3 days or 500 feet) and weekly H<sub>2</sub>S and well control drills for all personnel in each crew. The initial training session shall include a review of the site specific H<sub>2</sub>S Drilling Operations Plan and the Public Protection Plan (if applicable). This plan shall be available at the well site. All personnel will be required to carry documentation that they have received the proper training.

## **B. H2S Drilling Operations Plan**

1. Well Control Equipment
  - a. Flare line(s) and means of ignition
  - b. Remote control choke
  - c. Flare gun/flares
  - d. Mud-gas separator
  
2. **Protective equipment for essential personnel:**
  - a. Mark II Surviveair (or equivalent) 30 minute units located in the dog house and at the primary briefing area (to be determined.)
  - b. Means of communication when using protective breathing apparatus.
  
3. **H2S detection and monitoring equipment:**
  - a. Three (3) portable H2S monitors positioned on location for best coverage and response. These units have warning lights at 10 PPM and warning lights and audible sirens when H2S levels of 15 PPM is reached. A digital display inside the doghouse shows current H2S levels at all three (3) locations.
  - b. An H2S Safety compliance set up is on location during all operations.
  - c. We will monitor and start fans at 1- ppm or less, an increase over 10 ppm results in the shutdown and installation of the mud/gas separator.
  - d. Portable H2S and SO2 monitor(s).
  
4. **Visual warning systems:**
  - a. Wind direction indicators will be positioned for maximum visibility.
  - b. Caution/Danger signs will be posted on roads providing direct access to location. Signs will be painted a high visibility yellow with black lettering of sufficient size to be readable at reasonable distance from the immediate location. Bilingual signs will be used when appropriate.
  
5. **Mud program:**
  - a. The mud program has been designed to minimize the volume of H2S circulated to the surface Proper mud weight, safe drilling practices and the use of H2S scavengers will minimize hazards when penetrating H2S bearing zones.
  
6. **Metallurgy:**
  - a. All drill strings, casings, tubing, wellheads, Hydril BOPS, drilling spools, kill lines, choke manifold, valves and lines will be suitable for H2S service.
  - b. All elastomers used for packing and seals shall be H2S trim.

**7. Communication:**

- a. Cellular Telephone and/or 2-way radio will be provided at well site.
- b. Landline telephone is located in our field office.



## BURNETT OIL CO., INC.

### EXHIBIT K - HYDROGEN SULFIDE (H<sub>2</sub>S) CONTINGENCY PLAN

#### A. Emergency Procedures

In the event of a release of gas containing H<sub>2</sub>S, the first responder(s) must

1. Isolate the area and prevent entry by other persons into the 100 PPM ROE. Assumed 100PPM ROE = 3000'.
2. Evacuate any public places encompassed by 100 PPM ROE.
3. Be equipped with H<sub>2</sub>S monitors and air packs in order to control release.
4. Use the "buddy system" to ensure no injuries occur during the response.
5. Take precautions to avoid personal injury during this operation.
6. Have received training in the following:
  - a. H<sub>2</sub>S detection
  - b. Measures for protection against this gas
  - c. Equipment used for protection and emergency response.

#### B. Ignition of Gas Source

Should control of the well be considered lost and ignition considered, care will be taken to protect against exposure to Sulfur Dioxide (SO<sub>2</sub>). Intentional ignition will be coordinated with the NMOCD and local officials. Additionally, the New Mexico State Police may become involved. NM State Police shall be the incident command on scene of any major release. Care will be taken to protect downwind whenever there is an ignition of gas.

#### C. Characteristics of H<sub>2</sub>S and SO<sub>2</sub>

<u>Common Name</u>	<u>Chemical Formula</u>	<u>Specific Gravity</u>	<u>Threshold Limit</u>	<u>Hazardous Limit</u>	<u>Lethal Concentration</u>
Hydrogen Sulfide	H <sub>2</sub> S	1.189 Air = 1	10 ppm	100 ppm/hr	600 ppm
Sulfur Dioxide	SO <sub>2</sub>	2.21 Air = 1	2 ppm	NA	1000 ppm

#### **D. Contacting Authorities**

Burnett Oil Co., Inc. personnel will liaison with local and state agencies to ensure a proper response to a major release. Additionally, the OCD will be notified of the release as soon as possible but no later than four (4) hours after the incident. Agencies will ask for information such as type and volume of release, wind and direction, location of release, etc. Be sure all is written down and ready to give to contact list attached. Burnett's response must be in coordination with the State of New Mexico's Hazardous Materials Emergency Response Plan.

Directions to the site are as follows:

Burnett Office  
87 Square Lake Road (CR #220)  
Loco Hills, NM 88255

Loco Hills, New Mexico (2 miles East of Loco Hills on US Hwy 82 to C #220. Then North on CR #220 approximately one (1) mile to office.



## BURNETT OIL CO., INC.

### EXHIBIT L - EMERGENCY NOTIFICATION LIST

#### BURNETT CONTACTS

**Burnett's New Mexico Office** 575.677.2313  
87 Square Lake Road (CR #220) Loco Hills, New Mexico 88255  
**Directions: Loco Hills, NM – 2 miles east of Loco Hills on US Hwy 82 to CR#220. Then North on CR #220 approximately one (1) mile to office.**

**Belton Mathews – BOCI District Superintendent (NM)** Cell - 575.703.9601

**Burnett Oil Home Office** 817.332.5108  
Burnett Plaza – Suite 1500 | 801 Cherry Street – Unit #9| Fort Worth, Texas 76102

**Mark Jacoby – BOCI Engineering Manager (TX)** Cell – 817-312-2751

#### SHERIFF/POLICE CONTACTS

Eddy County Sheriff 911 or 575.677.2313  
New Mexico State Police 575.746.2701

#### FIRE DEPARTMENT

Loco Hills Fire Department (VOLUNTEER ONLY) 911 or 575.677.2349  
For Medical and Fire (Artesia) 575.746.2701

#### AIR AMBULANCE

Flight for Life Air Ambulance	(Lubbock)	806.743.9911
Aerocare Air Ambulance	(Lubbock)	806.747.8923
Med Flight Air Ambulance	(Albuq)	505.842.4433
S B Med Svc Air Ambulance	(Albuq)	505.842.4949

#### FEDERAL AND STATE

US Bureau of Land Management (Carlsbad)	575.361.2822	575.234.5972
New Mexico Oil Conservation Division (Artesia)		575.748.1283
New Mexico Emergency Response Commission (24 hour)		575.827.9126
Local Emergency Planning Operation Center (Artesia)		505.842.4949
National Emergency Response Center (Washington, DC)		800.424.8802

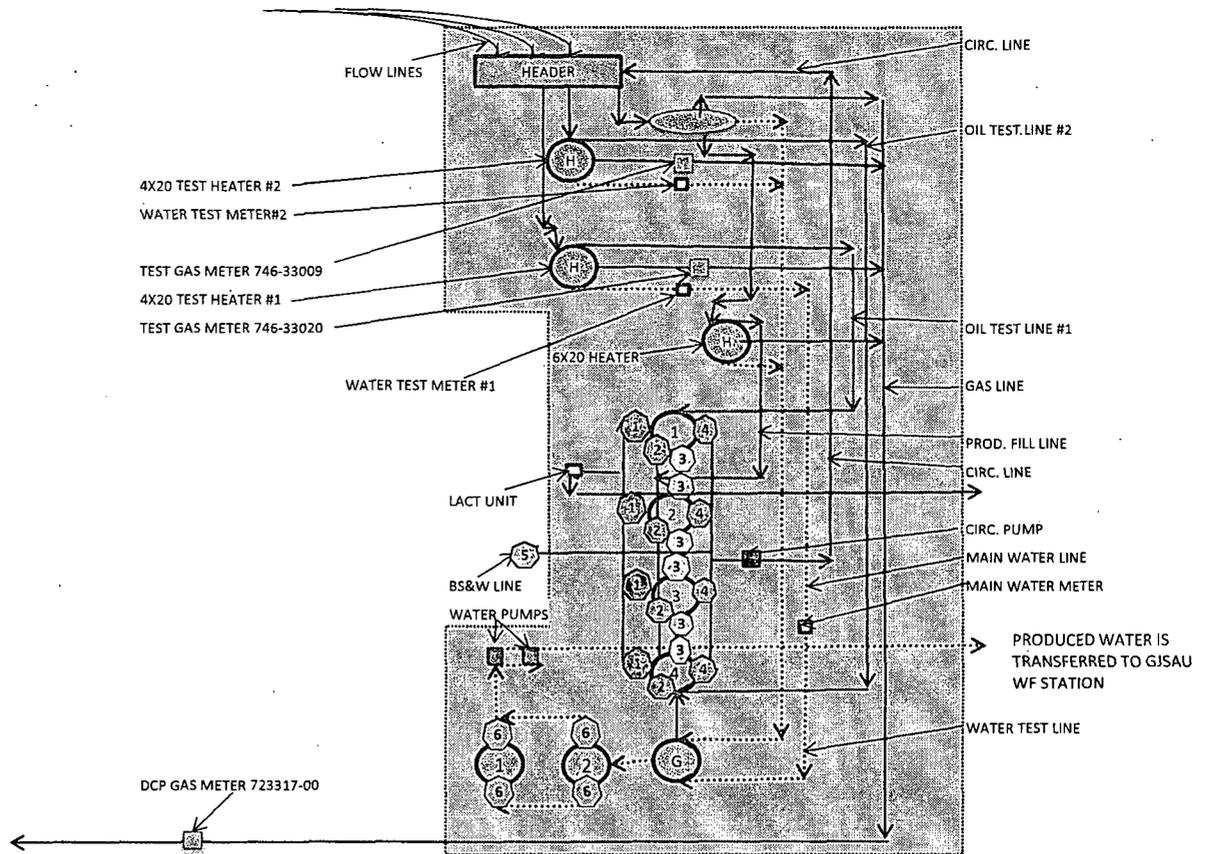
#### OTHER IMPORTANT NUMBERS

Boots & Coots IWC	800.256.9688
Cudd Pressure Control	432.570.5300
Halliburton Services	575.746.2757
BJ Service	575.746.2293

**THIS MUST BE POSTED AT THE RIG WHILE ON LOCATION**

# EXHIBIT N

BURNETT OIL CO., INC.  
 EDDY COUNTY, NM  
 GISSLER B 3-3 BATTERY  
 SEC 11, T 17S, R 30E



- 500 BBL STEEL OIL TEST TANK
- 500 BBL STEEL OIL SALES TANK # 35206
- 500 BBL STEEL OIL SALES TANK # 35207
- 500 BBL STEEL OIL SALES TANK # 35669
- 500 BBL FIBERGLASS WATER TANK
- 500 BBL FIBERGLASS WATER TANK
- 750 BBL FIBERGLASS GUN BARREL

- FWKO
- HEATER TREATER
- WATER LINE
- OIL LINE
- GAS LINE
- FENCED FIREWALL

### VALVE LEGEND

- LOAD LINE VALVE
- FILL LINE VALVE
- EQUALIZER LINE VALVE
- CIRC LINE VALVE
- BS&W LOAD LINE VALVE
- WATER LINE VALVE

BURNETT OIL CO., INC.  
 EDDY COUNTY, NM  
 GISSLER B 3-3 BATTERY  
 SEC 11, T 17S, R 30E

**ATTACHMENT TO SITE FACILITY DIAGRAM**

General sealing of valves, sales by tank gauge

**Production Phase:**

Load Line Valves sealed closed. Fill valve to tank that is in production will be open.

Equalizer valve to tank that is in production will be open. Circulation valves will be opened as necessary, then resealed.

BS&W Load Line valve will be sealed at all times, unless cleaning tanks, then resealed once tank maintenance is complete.

**Sales Phase:**

The tank from which sales are being made will be isolated by sealing closed the fill line valve, circulating valve, and the equalizer valve during sales and opening the sales valve. Upon completion of the sale, the sales valve will be resealed.

Sales by truck will be by tank gauge. Sales by LACT will be by LACT meter.

<u>VALVE</u>	<u>SALES PHASE</u>	<u>CIRCULATING</u>	<u>NOTE</u>
LOAD LINE VALVE	OPEN	CLOSED	
PRODUCTION FILL LINE VALVE	CLOSED	CLOSED OR OPEN	
 EQUALIZER LINE VALVE	CLOSED	CLOSED OR OPEN	
CIRCULATING LINE VALVE	CLOSED	OPEN	RE-SEALED ONCE CIRCULATING IS COMPLETE
BS&W LOAD LINE VALVE	CLOSED	CLOSED	OPEN FOR TANK MAINTENANCE, RESEALED ONCE MAINTENANCE IS COMPLETE
 WATER LINE VALVE	NA	NA	WATER TANKS ARE ISOLATED FROM OIL PRODUCTION TANKS

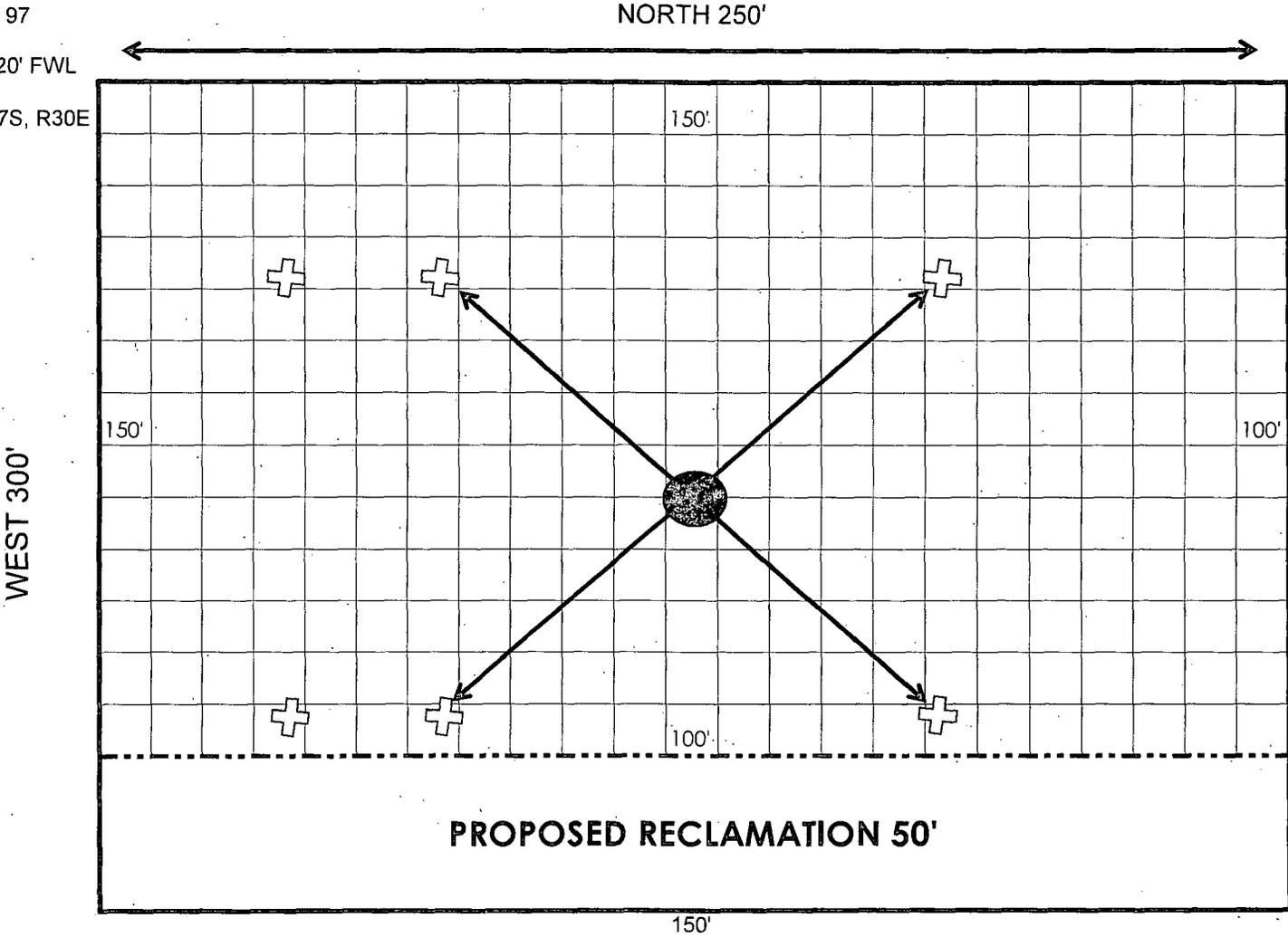
# EXHIBIT M

**BURNETT OIL CO., INC.**  
INTERIM RECLAMATION PLAT

GISSLER B 97

330' FSL, 820' FWL

SEC 11, T17S, R30E



-  ANCHOR 75' FROM WELLHEAD TO ANCHORS
-  WELLHEAD

NOT TO SCALE



## BURNETT OIL Co., INC.

### SURFACE USE PLAN

#### 1. Existing Roads:

- a. All roads into the location are shown on the Vicinity Map (**Exhibit C**).
- b. Directions to location: From the junction of Square Lake and Skelly, go North on Square Lake for 0.7 miles turning West 1.7 miles then South 0.7 Miles to proposed Lease Road. (**Exhibit A**)
- c. In preparation for the new well site, water and a road grader is used to smooth nearby roads and patch holes. This is standard procedure used for the maintenance of existing roads. Existing roads will be improved and maintained according to the standards set forth in section 2 below.

#### 2. New or Reconstructed Access Roads:

- a. The well site layout, Form C-102 and **Exhibit A** show the proposed road which will be utilized. **Exhibit C** shows the existing roads surrounding the location.
- b. The new road will be 96.8 ft. long and will enter the well site from the Northwest corner.
- c. All new roads will be constructed and all existing roads maintained according to the standards below:
  1. Approximately six (6) inches of top soil will be stripped from the proposed access road in preparation for construction. The removed top soil will be spread along the edge of the road and the ditch and will be seeded with the BLM approved seed mix.
  2. All construction material will be native caliche. The driving surface will be made of 6" rolled and compacted caliche. It may be available at the proposed location. If unavailable on location or road, caliche will be hauled from nearest BLM approved caliche pit.
  3. All access roads will not exceed fourteen (14) feet in width and will disturb as little surface as possible. The maximum width of disturbance during construction shall not exceed twenty (20) feet. Where possible, no improvements will be made on un-surfaced access roads other than to remove vegetation, road irregularities, safety issues or to fill low areas to prevent standing water.
  4. Crowning shall be done on the access road driving surface and shall have an approximate grade of 2% from the tip of the crown to the edge of the driving surface.
  5. Ditching will be done on both sides of the road the entire length of the road to control drainage. The ditch will have a minimum depth of one (1) foot below and a down sloping berm of six (6) inches above the ground level. All ditching will be completed as per BLM requirements.
  6. Vehicle turnouts will be constructed on the road with an interval spacing distance less than 1,000 feet. Turnouts will be constructed on all blind curves and shall conform to with BLM standards.
  7. The access road will be constructed and maintained in a way that will prevent soil erosion and accommodate all weather traffic in accordance with BLM guidelines.

## SURFACE USE PLAN

8. Fence Cuts: No; Cattle guards : No; Culverts: No; Cuts and Filled: Not significant.

### 3. Location of existing wells:

Please refer to **Exhibit F** for the location of all wells within a one (1) mile radius of the proposed well site.

### 4. Location of existing and/or proposed production facilities:

- a. See Exhibit E for the location of existing Gissler B3-3 Tank Battery facility on this Federal Lease NMNM2748 (SW1/4 SW1/4) of the Section 11. See **Exhibit N** for layout of existing, previously approved tank battery.
- b. Flowline from the new well pad site is on this same lease. The required flowline will be laid above ground and along existing lease road and right of way from Gissler B 97 to the Gissler B3-3 tank battery (**Refer to Exhibit N**). The flowline(s) will be 3" poly pipe, 333.2 ft. in length (**Refer to Exhibit N**) and will transport oil, gas and water. All flowlines will be 3" low pressure 3" SDR7 4710 poly pipe with a typical working pressure of 60 psi. The SDR7 4710 poly pipe has a maximum pressure rating of 335 psi.

### 5. Location and Type of Water Supply:

All water to be used in drilling this well will be brine or fresh water transported by truck over existing and above proposed lease road from Loco Hills, New Mexico or produced water furnished from our existing waterflood facilities in the area. We may install a pump and lay a **temporary 2"** poly line on the lease from the battery to the rig for this drilling water.

### 6. Construction Materials:

All construction material for the roadway and drilling pad will be native caliche from the nearest BLM approved pit or from existing available deposits found on the location. All will be in accordance with the drilling stipulations for this well. If caliche is flipped on location, the following process will be followed:

- a. A caliche permit will be obtained from BLM by the dirtworks vendor prior to pushing up any caliche.
- b. The top 6" of top soil will be pushed off and stockpiled on the East side the location. Once the well is drilled the stock piled top soil will be used for interim reclamation and spread along the areas where the caliche is picked up and the location size is reduced. Neither caliche nor top soil will be piled outside the well pad. Top soil will be stockpiled along the edge of the pad as depicted in the attached well diagram (**Exhibit J**).
- c. An area approximately 120'x120' is used within the proposed site to remove caliche.
- d. Subsoil is removed and piled alongside the 120' x120' area within the pad and then pushed back once the caliche has been removed.
- e. When caliche is found, material will be stock piled within the pad site to build the location and road.

### 7. Methods of Handling Waste Disposal:

- a. Drill cuttings will be disposed of in a closed loop system using steel haul off tanks. All drilling

## SURFACE USE PLAN

Fluids will be hauled off location to a contracted off lease disposal location.

- b. Trash, waste paper, garbage and junk will be placed in a portable, screened trash container on location. All trash and debris will be transported to an authorized off-lease disposal station within thirty (30) days following the completion activities.
- c. A properly maintained Porto-john will be provided for the crews during drilling and completion operations. All will be removed after all completion operations have ended.
- d. Oil produced during testing will be put into steel storage tank for later sales.
- e. Water produced during testing operations will be put in the steel frac tanks pit until well is turned to the lease tank battery. All produced water will be disposed of through one of our approved disposal methods.

### 8. Ancillary Facilities:

There are no planned ancillary facilities for this well.

### 9. Well Site Layout:

- a. **Exhibit J** shows the relative location and dimensions of the drilling pad and related components. The pad size will be 300 ft.x 250 ft. The East Side will be cut to 100'. Only minor differences, if any, in length and/or width of the drilling pad are anticipated, depending on which drilling contractor is selected to drill the well. Only minor leveling of the drilling site is anticipated.
- b. The V-Door will be North. Entry will be on the Northwest corner of the location. Topsoil stockpile to the South.
- c. On site was approved on 27 February 2013.
- d. All power for the well site is provided and handled by CBE.

### 10. Plans for surface Reclamation:

- a. After drilling and successful completion operations are finished, all equipment and other materials not required for normal production operation will be removed. **(Refer to Exhibit M)**
- b. **Burnett Oil respectfully requests two (2) years to downsize the drilling location in order to have room for equipment to fracture stimulate three (3) to four (4) intervals. Each one requires a large volume fracture treatment with several pumps, a large sand mover, several frac tans, a treatment can and various other vehicles and equipment. Burnett will, if all fracs are completed before the two (2) years, contact BLM to downsize the location.**

Refer to attached **Exhibit M** which shows resulting location after downsizing and showing the sides of location where the caliche would be left for use of kill trucks, hot oil trucks, foam units or whatever is needed to service unit, which is what has to happen if the location is reclaimed on all four (4) sides to the safety anchors.

- c. The pad size will be reduced to the amount required for normal operation of the producing well. This reduced portion will be restored to the BLM stipulations. **(See Exhibit M)**
- d. If a well is abandoned, the surface location and unneeded road will be restored according to BLM stipulations within ninety (90) days of final abandon and sit re-seeded with BLM (#2) seed mix.

# SURFACE USE PLAN

## 11. Surface ownership:

All lands are owned by the U.S. Government and administered by the Bureau of Land Management. The surface is multiple use with the primary use of the region for the production of oil and gas and the grazing of livestock.

## 12. Other information:

- a. The area surrounding the well site is a sandy dunal featured area. The area is relatively flat with small hills and sand dunes. The topsoil is fine, deep sand underlain by caliche. Vegetation cover is generally sparse and consists of mesquite, yucca, shinnery oak and sparse native grasses. Wildlife in the area includes deer, coyotes, rabbits, rodents, reptiles, dove and quail.
- b. No permanent or live water is found in the general proximity of this area.
- c. No dwellings are found within two (2) miles of this location.
- d. There is intermittent cattle grazing and hunting in the area; however, the principal land use is for oil and gas production.

## 13. Bond Coverage:

Current Bonds are BLM Bond # NMB000197. The Surety Bond is # B000863.

Both the BLM Bond #NMB000197 and the Surety Bond # B000863 are effective May 21, 2004 and remain in place.

The Burnett Oil Co., Inc. representatives responsible for ensuring compliance of the surface use plan are listed below:

### Regulatory

Leslie M. Garvis  
Regulatory Coordinator  
Burnett Oil Co. Inc.  
Burnett Plaza – Suite 1500  
801 Cherry Street – Unit #9  
Fort Worth, Texas 76102-5108  
817.332.5108 (office)  
713.819.4371 (cell)  
lgarvis@burnettoil.com

### Drilling & Production/Field Representative

Belton Matthews  
District Superintendent  
Burnett Oil Co. Inc.  
P.O. Box 188  
Loco Hills, New Mexico 88255  
575.677.2313 (office)  
575.703.9601 (cell)  
[bmatthews@burnettoil.com](mailto:bmatthews@burnettoil.com)

### Surface

Barry W. Hunt  
Permitting Agent  
1403 Springs Farm Place  
Carlsbad, New Mexico 88220  
575.885.1417 (home)  
575.361.4078 (cell)  
specialpermitting@gmail.com

# PECOS DISTRICT CONDITIONS OF APPROVAL

<b>OPERATOR'S NAME:</b>	<b>Burnett Oil Co</b>
<b>LEASE NO.:</b>	<b>NMNM-2748</b>
<b>WELL NAME &amp; NO.:</b>	<b>97 Gissler B</b>
<b>SURFACE HOLE:</b>	<b>0330' FSL &amp; 0820' FWL</b>
<b>LOCATION:</b>	<b>Section 11, T. 17S., R 30 E., NMPM</b>
<b>COUNTY:</b>	<b>Eddy County, New Mexico</b>

## TABLE OF CONTENTS

Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

- General Provisions**
- Permit Expiration**
- Archaeology, Paleontology, and Historical Sites**
- Noxious Weeds**
- Special Requirements**
  - Lesser Prairie-Chicken Timing Stipulations
  - Ground-level Abandoned Well Marker
- Construction**
  - Notification
  - Topsoil
  - Closed Loop System
  - Federal Mineral Material Pits
  - Well Pads
  - Roads
- Road Section Diagram**
- Drilling**
  - H2S requirements
  - Logging Requirements
  - Waste Material and Fluids
- Production (Post Drilling)**
  - Well Structures & Facilities
  - Pipelines
- Interim Reclamation**
- Final Abandonment & Reclamation**

## **I. GENERAL PROVISIONS**

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

## **II. PERMIT EXPIRATION**

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD. (Filing of a Sundry Notice is required for this 60 day extension.)

## **III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES**

Any cultural and/or paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery shall be made by the Authorized Officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer.

## **IV. NOXIOUS WEEDS**

The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

## V. SPECIAL REQUIREMENT(S)

### **Timing Limitation Stipulation / Condition of Approval for lesser prairie-chicken:**

Oil and gas activities including 3-D geophysical exploration, and drilling will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period.

Additionally, no new drilling will be allowed within up to 200 meters of leks known at the time of permitting. Normal vehicle use on existing roads will not be restricted.

Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 feet from the source of the noise.

**Ground-level Abandoned Well Marker to avoid raptor perching:** Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well. For more installation details, contact the Carlsbad Field Office at 575-234-5972.

## **VI. CONSTRUCTION**

### **A. NOTIFICATION**

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-5909 at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved APD and Conditions of Approval (COA) on the well site and they shall be made available upon request by the Authorized Officer.

### **B. TOPSOIL**

The operator shall stockpile the topsoil in a low profile manner in order to prevent wind/water erosion of the topsoil. The topsoil to be stripped is approximately 6 inches in depth. The topsoil will be used for interim and final reclamation.

### **C. CLOSED LOOP SYSTEM**

Tanks are required for drilling operations: No Pits.

The operator shall properly dispose of drilling contents at an authorized disposal site.

### **D. FEDERAL MINERAL MATERIALS PIT**

Payment shall be made to the BLM prior to removal of any federal mineral materials. Call the Carlsbad Field Office at (575) 234-5972.

### **E. WELL PAD SURFACING**

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation.

The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

### **F. EXCLOSURE FENCING (CELLARS & PITS)**

#### **Exclosure Fencing**

The operator will install and maintain exclosure fencing for all open well cellars to prevent access to public, livestock, and large forms of wildlife before and after drilling operations until the pit is free of fluids and the operator initiates backfilling. (For

examples of enclosure fencing design, refer to BLM's Oil and Gas Gold Book, Enclosure Fence Illustrations, Figure 1, Page 18.)

## G. ON LEASE ACCESS ROADS

### Road Width

The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed twenty-five (25) feet.

### Surfacing

Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

### Crowning

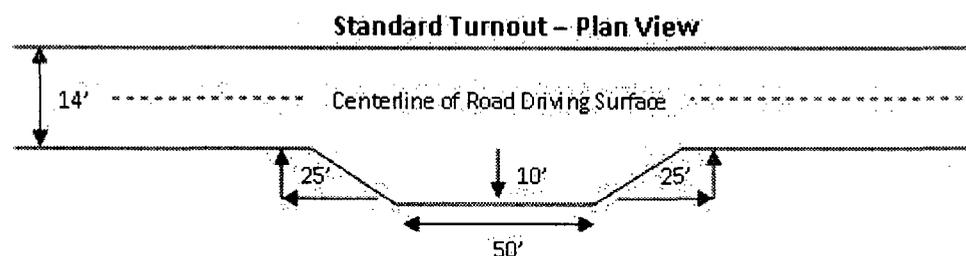
Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

### Ditching

Ditching shall be required on both sides of the road.

### Turnouts

Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall be constructed on all blind curves. Turnouts shall conform to the following diagram:

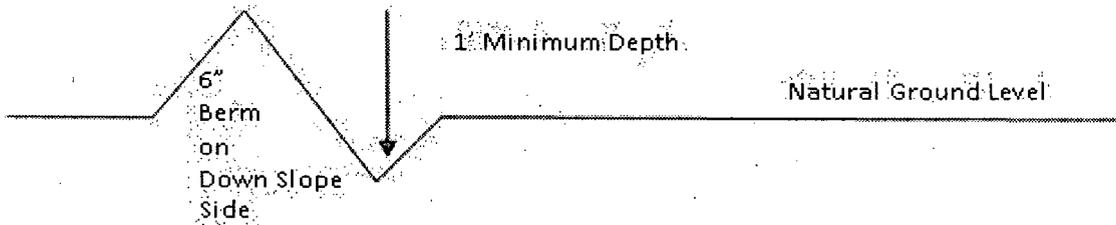


## Drainage

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outsloping and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.

### Cross Section of a Typical Lead-off Ditch



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

### Formula for Spacing Interval of Lead-off Ditches

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

$$400 \text{ foot road with } 4\% \text{ road slope: } \frac{400'}{4\%} + 100' = 200' \text{ lead-off ditch interval}$$

## Culvert Installations

Appropriately sized culvert(s) shall be installed at the deep waterway channel flow crossing.

## Cattleguards

An appropriately sized cattleguard(s) sufficient to carry out the project shall be installed and maintained at fence crossing(s).

Any existing cattleguard(s) on the access road shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattleguard(s) that are in place and are utilized during lease operations.

A gate shall be constructed and fastened securely to H-braces.

**Fence Requirement**

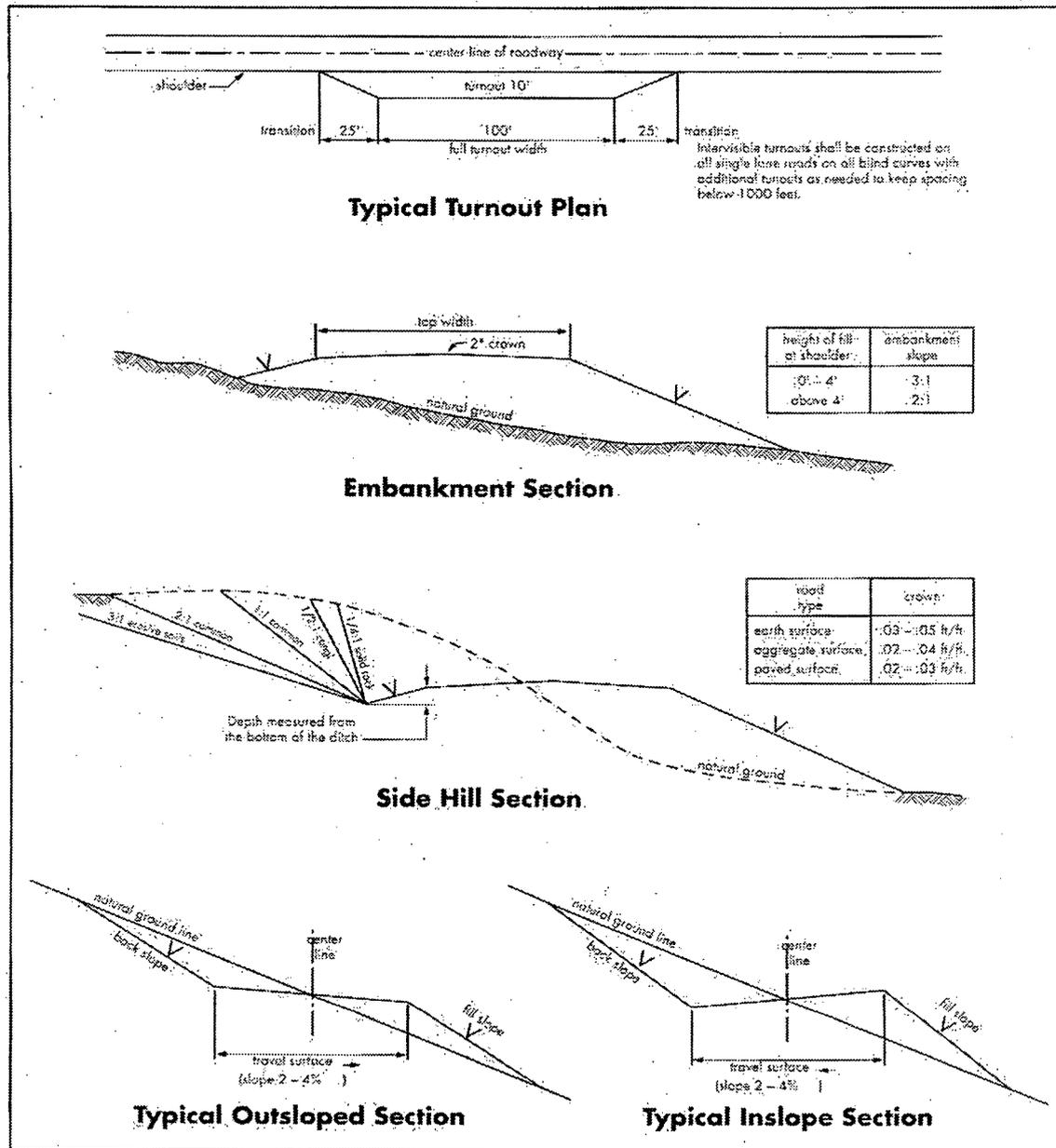
Where entry is required across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting.

The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fence(s).

**Public Access**

Public access on this road shall not be restricted by the operator without specific written approval granted by the Authorized Officer.

**Figure 1 – Cross Sections and Plans For Typical Road Sections**



## VII. DRILLING

### A. DRILLING OPERATIONS REQUIREMENTS

The BLM is to be notified a minimum of 4 hours in advance for a representative to witness:

- a. Spudding well (minimum of 24 hours)
- b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
- c. BOPE tests (minimum of 4 hours)

**Eddy County**

Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220,  
(575) 361-2822

1. **Hydrogen Sulfide (H<sub>2</sub>S) monitors shall be installed prior to drilling out the surface shoe. If H<sub>2</sub>S is encountered in quantities greater than 10 PPM the well shall be shut in, a mud/gas separator and a remote choke installed pursuant to Onshore Oil and Gas Order #6. After detection, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items.**
2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval. **If the drilling rig is removed without approval – an Incident of Non-Compliance will be written and will be a “Major” violation.**
3. **The record of the drilling rate along with the GR/N well log run from TD to surface shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.**

### B. CASING

**Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.).**

**Centralizers required on surface casing per Onshore Order 2.III.B.1.f.**

**Wait on cement (WOC) time prior to drilling out for a primary cement job will be a minimum 18 hours for a water basin, 24 hours in the potash area, or 500 pounds compressive strength, whichever is greater for all casing strings. DURING THIS WOC TIME, NO DRILL PIPE, ETC. SHALL BE RUN IN THE HOLE. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. See individual casing strings for details regarding lead cement slurry requirements.**

**No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.**

**Possible water and brine flows in the Salado and Artesia Groups.  
Possible lost circulation in the Grayburg and San Andres Formations.**

1. **The 10-3/4 inch surface casing shall be set at approximately 430 feet (in the base of the Rustler Anhydrite and above the salt) and cemented to the surface. If salt is encountered, operator shall set the casing 25 feet above the salt.**
  - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
  - b. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.**
  - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
  - d. If cement falls back, remedial cementing will be done prior to drilling out that string.

**Production casing to be kept fluid filled while running into hole to meet minimum collapse requirements.**

2. The minimum required fill of cement behind the 7 inch production casing is:

**Operator has proposed DV tool at depth of 2600'. Operator is to submit sundry if DV tool depth varies by more than 100' from approved depth.**

- a. First stage to DV tool:

Cement to circulate. If cement does not circulate, contact the appropriate BLM office before proceeding with second stage cement job. Operator should have plans as to how they will achieve circulation on the next stage.

- b. Second stage above DV tool:

Cement to surface. If cement does not circulate, contact the appropriate BLM office.

3. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

#### **C. PRESSURE CONTROL**

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.
2. **In the case where the only BOP installed is an annular preventer, it shall be tested to a minimum of 2000 psi (which may require upgrading to 3M or 5M annular).**
3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **2000 (2M) psi.**

4. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
  - a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).
  - b. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**.
  - c. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock.
  - d. The results of the test shall be reported to the appropriate BLM office.
  - e. All tests are required to be recorded on a calibrated test chart. **A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.**
  - f. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.

#### **D. DRILL STEM TEST**

If drill stem tests are performed, Onshore Order 2.III.D shall be followed.

**E. WASTE MATERIAL AND FLUIDS**

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

**JAM 041613**

## VIII. PRODUCTION (POST DRILLING)

### A. WELL STRUCTURES & FACILITIES

#### **Placement of Production Facilities**

Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

#### **Exclosure Netting (Open-top Tanks)**

Immediately following active drilling or completion operations, the operator will take actions necessary to prevent wildlife and livestock access, including avian wildlife, to all open-topped tanks that contain or have the potential to contain salinity sufficient to cause harm to wildlife or livestock, hydrocarbons, or Resource Conservation and Recovery Act of 1976-exempt hazardous substances. At a minimum, the operator will net, screen, or cover open-topped tanks to exclude wildlife and livestock and prevent mortality. If the operator uses netting, the operator will cover and secure the open portion of the tank to prevent wildlife entry. The operator will net, screen, or cover the tanks until the operator removes the tanks from the location or the tanks no longer contain substances that could be harmful to wildlife or livestock. Use a maximum netting mesh size of 1 ½ inches. The netting must not be in contact with fluids and must not have holes or gaps.

#### **Chemical and Fuel Secondary Containment and Exclosure Screening**

The operator will prevent all hazardous, poisonous, flammable, and toxic substances from coming into contact with soil and water. At a minimum, the operator will install and maintain an impervious secondary containment system for any tank or barrel containing hazardous, poisonous, flammable, or toxic substances sufficient to contain the contents of the tank or barrel and any drips, leaks, and anticipated precipitation. The operator will dispose of fluids within the containment system that do not meet applicable state or U. S. Environmental Protection Agency livestock water standards in accordance with state law; the operator must not drain the fluids to the soil or ground. The operator will design, construct, and maintain all secondary containment systems to prevent wildlife and livestock exposure to harmful substances. At a minimum, the operator will install effective wildlife and livestock exclosure systems such as fencing, netting, expanded metal mesh, lids, and grate covers. Use a maximum netting mesh size of 1 ½ inches.

#### **Open-Vent Exhaust Stack Exclosures**

The operator will construct, modify, equip, and maintain all open-vent exhaust stacks on production equipment to prevent birds and bats from entering, and to discourage perching, roosting, and nesting. (*Recommended exclosure structures on open-vent exhaust stacks are in the shape of a cone.*) Production equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, in-line units, and compressor mufflers.

#### **Containment Structures**

Proposed production facilities such as storage tanks and other vessels will have a secondary containment structure that is constructed to hold the capacity of 1.5 times the

largest tank, plus freeboard to account for precipitation, unless more stringent protective requirements are deemed necessary.

### **Painting Requirement**

All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color, **Shale Green** from the BLM Standard Environmental Color Chart (CC-001: June 2008).

## **B. PIPELINES**

. The holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.

2. The holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 *et seq.* (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.

3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, *et seq.* or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, *et seq.*) on the Right-of-Way (unless the release or threatened release is wholly unrelated to activity of the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

4. The holder shall be liable for damage or injury to the United States to the extent provided by 43 CFR Sec. 2883.1-4. The holder shall be held to a standard of strict liability for damage or injury to the United States resulting from pipe rupture, fire, or spills caused or substantially aggravated by any of the following within the right-of-way or permit area:

- a. Activities of the holder including, but not limited to construction, operation, maintenance, and termination of the facility.
- b. Activities of other parties including, but not limited to:
  - (1) Land clearing.

- (2) Earth-disturbing and earth-moving work.
- (3) Blasting.
- (4) Vandalism and sabotage.

c. Acts of God.

The maximum limitation for such strict liability damages shall not exceed one million dollars (\$1,000,000) for any one event, and any liability in excess of such amount shall be determined by the ordinary rules of negligence of the jurisdiction in which the damage or injury occurred.

This section shall not impose strict liability for damage or injury resulting primarily from an act of war or from the negligent acts or omissions of the United States.

5. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil, salt water, or other pollutant should be discharged from the pipeline system, impacting Federal lands, the control and total removal, disposal, and cleaning up of such oil, salt water, or other pollutant, wherever found, shall be the responsibility of the holder, regardless of fault. Upon failure of the holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages resulting therefrom, on the Federal lands, the Authorized Officer may take such measures as he deems necessary to control and clean up the discharge and restore the area, including, where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the holder. Such action by the Authorized Officer shall not relieve the holder of any responsibility as provided herein.

6. All construction and maintenance activity will be confined to the authorized right-of-way width of 20 feet. If the pipeline route follows an existing road or buried pipeline right-of-way, the surface pipeline must be installed no farther than 10 feet from the edge of the road or buried pipeline right-of-way. If existing surface pipelines prevent this distance, the proposed surface pipeline must be installed immediately adjacent to the outer surface pipeline. All construction and maintenance activity will be confined to existing roads or right-of-ways.

7. No blading or clearing of any vegetation will be allowed unless approved in writing by the Authorized Officer.

8. The holder shall install the pipeline on the surface in such a manner that will minimize suspension of the pipeline across low areas in the terrain. In hummocky or dune areas, the pipeline will be "snaked" around hummocks and dunes rather than suspended across these features.

9. The pipeline shall be buried with a minimum of 24 inches under all roads, "two-tracks," and trails. Burial of the pipe will continue for 20 feet on each side of each crossing. The condition of the road, upon completion of construction, shall be returned to at least its former state with no bumps or dips remaining in the road surface.

10. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

11. In those areas where erosion control structures are required to stabilize soil conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.

12. Excluding the pipe, all above-ground structures not subject to safety requirement shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be a color which simulates "Standard Environmental Colors" – **Shale Green**, Munsell Soil Color No. 5Y 4/2; designated by the Rocky Mountain Five State Interagency Committee.

13. The pipeline will be identified by signs at the point of origin and completion of the right-of-way and at all road crossings. At a minimum, signs will state the holder's name, BLM serial number, and the product being transported. Signs will be maintained in a legible condition for the life of the pipeline.

14. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway.

15. Any cultural and/or paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the authorized officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the authorized officer. An evaluation of the discovery will be made by the authorized officer to determine appropriate cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the authorized officer after consulting with the holder.

16. The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, powerline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

17. Surface pipelines must be less than or equal to 4 inches and a working pressure below 125 psi.

**B. Temporary Freshwater Pipelines (Fracturing Operations) CONDITIONS OF APPROVAL**

**Must follow existing disturbance.**

Maintain a copy of your temporary permit and your approved route diagram on location. BLM personnel may request to see a copy of your permit during construction to ensure compliance with all conditions of approval.

Holder agrees to comply with the following conditions of approval to the satisfaction of the Authorized Officer:

1. The Holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this permit.

2. Standard Conditions of Approval:

- Temporary pipelines must be removed within 30-45 days from this route unless granted in writing by the authorized officer.
- Temporary pipelines flowing from the frac pond to the target well(s) will be laid along existing roadways unless an exception has been granted by the authorized officer.
- Pipe will be hand-carried and hand-laid along any cross country portion of the approved route.
- Areas impacted (disturbed greater than vegetation compaction) by your project may require full reclamation.
- Pipelines will be empty before disassembly. Flow water back to the pond whenever possible.
- Do not restrict traffic on existing roads. Place ramps where needed.
- Pipe will be placed not more than 2 feet off the edge of existing lease roads, 2-track roads, or buried pipeline corridors.
- All pumps will be placed on existing disturbance (pads, roads, etc.).

3. Any cultural and/or paleontological resources (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf shall be immediately reported to the Authorized Officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer.

## **IX. INTERIM RECLAMATION**

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche that is free of contaminants may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

All disturbed areas after they have been satisfactorily prepared need to be reseeded with the seed mixture provided below.

Upon completion of interim reclamation, the operator shall submit a Sundry Notices and Reports on Wells, Subsequent Report of Reclamation (Form 3160-5).

## **X. FINAL ABANDONMENT & RECLAMATION**

At final abandonment, well locations, production facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored.

Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

After all disturbed areas have been satisfactorily prepared, these areas need to be revegetated with the seed mixture provided below. Seeding should be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

Ground-level Abandoned Well Marker to avoid raptor perching: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well.

## Seed Mixture 2, for Sandy Sites

The holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)\* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law (s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed\* per acre:

<u>Species</u>	<u>lb/acre</u>
Sand dropseed ( <i>Sporobolus cryptandrus</i> )	1.0
Sand love grass ( <i>Eragrostis trichodes</i> )	1.0
Plains bristlegrass ( <i>Setaria macrostachya</i> )	2.0

\*Pounds of pure live seed:

Pounds of seed x percent purity x percent germination = pounds pure live seed