

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.
NMO4242

6. If Indian, Allottee or Tribe Name

7. If Unit or CA Agreement, Name and No.
SEMGSAU (NMNM-71040X)

8. Lease Name and Well No.
SEMGSAU #122

9. API Well No.

10. Field and Pool, or Exploratory
Maljamar Grayburg San Andres

11. Sec., T. R. M. or Blk. and Survey or Area
Sec 33 - T17S - R33E

12. County or Parish
Lea

13. State
NM

1a. Type of work: ☒ DRILL ☐ REENTER

1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone

2. Name of Operator Cross Timbers Energy, LLC

3a. Address 400 West 7th Street
Fort Worth, Texas 76102

3b. Phone No. (include area code)
817-334-7842

4. Location of Well (Report location clearly and in accordance with any State requirements.)

At surface 1,945' FSL, 238' FWL, Sec 33-T17W-R33E

At proposed prod. zone

Non-Standard Location

14. Distance in miles and direction from nearest town or post office*
6 miles Southeast of Maljamar, New Mexico

15. Distance from proposed*
location to nearest
property or lease line, ft.
(Also to nearest drig. unit line, if any)

669' to Unit Line

16. No. of acres in lease
80

17. Spacing Unit dedicated to this well
40

18. Distance from proposed location*
to nearest well, drilling, completed,
applied for, on this lease, ft.

803' nearest producer

19. Proposed Depth
4,800

20. BLM/BIA Bond No. on file
NMB001066

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
4038' GL

22. Approximate date work will start*
08/01/2014

23. Estimated duration
10 Drilling Days, 30 Completion 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:

1. Well plat certified by a registered surveyor.
2. A Drilling Plan.
3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office).

4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator certification
6. Such other site specific information and/or plans as may be required by the BLM.

25. Signature

Name (Printed/Typed)
Robbie A. Grigg

Date
05/28/2014

Title

Regulatory Compliance

Approved by (Signature)

Steve Caffey

Name (Printed/Typed)

Date
FEB 18 2015

Title

FIELD MANAGER

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)

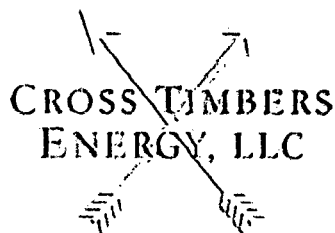
*(Instructions on page 2)

Roswell Controlled Water Basin

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

Approval Subject to General Requirements
& Special Stipulations Attached

FEB 24 2015



HOBBSOCD

FEB 23 2015

RECEIVED

Cross Timbers Energy, LLC.

**Drilling Plan - Application for Permit to Drill
Ten-Point Compliance Program**

**SE MALJAMAR (GRAYBURG/SAN ANDRES) UNIT
WELL #122**

**Surface Location
1,945' FSL & 238' FWL (SW/NW)
Section 33, T17S, R33E
Lea County, New Mexico
Lease #312471**

1. The geologic surface formation is Quaternary Alluvium.
2. Estimated tops of geologic markers with potential minerals are as follows:

| <u>Formation</u> | <u>Depth</u> | <u>Water/Oil/Gas</u> |
|-------------------|--------------|----------------------|
| Fresh Water Sands | 272' | Fresh Water |
| Rustler | 1,514' | NA |
| Top of Salt | 1,746' | NA |
| Tansill | 2,693' | NA |
| Yates | 2,885' | NA |
| Seven Rivers | 3,302' | NA |
| Queen | 3,924' | NA |
| Grayburg | 4,387' | Oil and/or Gas |
| Premier Sand | 4,744' | Oil and/or Gas |
| San Andres | 4,823' | Oil and/or Gas |

As per the New Mexico Water Rights Reporting System there are NO records of fresh water intervals present at this location.

3. Pressure Control Equipment:

The minimum BOPE requirements for this well consist of an annular and 11"- 3M WP double ram preventer with choke manifold rated at same working pressure. It will be installed and tested to 3,000 psi after the surface casing has been set and cemented and casing head installed and tested. Kill lines and choke lines will be incorporated into the drilling spool below the ram preventers. Accessories to the BOPE will include a TIW valve and IBOP tested to same 3,000 psi pressure.

Pipe rams will be operated and checked each 24 hour period, with blind rams operated and checked each time the drill pipe is out of the hole. These tests will be logged in the daily driller's log.

CTE requests a variance to use a flexible choke nipple with flanged ends if that is what the drilling contractor provides. The line will be kept as straight as possible with minimal turns. Anchor requirements, specification sheet and hydrostatic pressure test certification matching hose in service will be posted in the company man's trailer and the rig floor. See attached Certificate of Conformance from Nephi Rubber Products Corp.

4. Casing Design:

a) Surface casing design is based on 9.0 ppg MW and setting casing at 1,460'.

| Interval | Size | Weight | Grade | Thread | Optimum Torque | ID | Drift |
|------------|-------------------|--------|-------|--------|----------------|--------|--------|
| 0' - 1460' | 8 $\frac{5}{8}$ " | 24# | J-55 | STC | 2,440 | 8.097" | 7.972" |

12 1/4" hole

CASING SPECS/SAFETY FACTORS:

| Weight | Collapse | Burst | Tensile |
|--------|-------------|-------------|-------------|
| 24# | 1370 / 2.01 | 2950 / 3.46 | 244M / 7.01 |

Safety Factors calculated using following design parameters:

- a) Collapse design based on complete internal evacuation with 9.0 ppg MW in annulus.
- b) Burst design based on 100 psi FIT (10.0 ppg BWBM) after drilling out the shoe, equivalent to 11.3 ppg MW.
- c) Tension design based on casing string weight in air.

String Weight in 9.0 ppg mud is 30.0 Mlbs.

b) Production casing design is based on 10.0 ppg MW and setting casing at 4,800'.

| Interval | Size | Weight | Grade | Thread | Optimum Torque | ID | Drift |
|-------------|--------|--------|-------|--------|----------------|--------|--------|
| 0' – 4,800' | 5 1/2" | 15.5# | J-55 | STC | 2,020 | 4.950" | 4.825" |

7 7/8" hole

CASING SPECS / SAFETY FACTORS:

| Weight | Collapse | Burst | Tensile |
|--------|-------------|-------------|-------------|
| 15.5# | 4040 / 1.55 | 4810 / 1.20 | 202M / 2.60 |

Safety Factors calculated using following design parameters:

- a) Collapse design based on complete internal evacuation with 10.0 ppg MW in annulus.
- b) Burst design based on maximum frac pressure of 4000 psi.
- c) Tension design based on casing string weight in air.

String Weight in 10.0 ppg mud is 65.1 Mlbs

Inspection: VTI, drift, and clean casing threads on location.

5. Cement Program:

A) Surface Casing:

Cement volumes are based on 8 5/8" casing in a 12 1/4" gauge hole using 100% excess to circulate to surface. Cement must circulate to surface. Mix and pump the following slurry:

Pre-flush: Pump at least 20 bbls of fresh water or enough volume to ensure 10 minutes of contact time. If pump rate is 5 bpm pump 50 bbl of fresh water.

| String | Number of Sx | Weight lbs/gal | Water Volume gal/sx | Yield cf/sx | Stage: Lead/Tail | Slurry Description |
|---------|--------------|----------------|---------------------|-------------|------------------|---|
| Surface | 500 | 13.5 | 9.17 | 1.74 | Lead | Class C Cement + 4% Gel + 2% bwoc CaCl + 0.25 lbs/sx Flo-Seal |
| | 300 | 14.8 | 6.33 | 1.34 | Tail | Class "C" Cement +2% bwoc CaCl +0.25 lbs/sx Flo-Seal |

B) Production Casing:

Cement volumes are based on 5 1/2" casing in a 7 7/8" gauge hole using 40% excess to circulate cement to surface. Cement must circulate to surface. Mix and pump the following slurry:

Pre-flush: Pump at least 20 bbls of fresh water or enough volume to ensure 10 minutes of contact time. If pump rate is 5 bpm pump 50 bbl of fresh water.

| String | Number of Sx | Weight lbs/gal | Water Volume gal/sx | Yield cf/sx | Stage: Lead/Tail | Slurry Description |
|------------|--------------|----------------|---------------------|-------------|------------------|--|
| Production | 400 | 11.9 | 13.55 | 2.43 | Lead | Class "C" 50:50 Poz Cement + 1 lb/sx Kol-Seal + 0.25 lb/sx Powdered Defoamer + 0.25 lbs/sx Flo-Seal |
| | 200 | 14.4 | 5.39 | 1.22 | Tail | Class "C" 50:50 Poz Cement +2% Gel + 0.5% bwoc Fluid Loss Light Weight + 0.1% bwoc Dispersant + 0.25 lbs/sx Powered Defoamer |

6. Mud Program:

Prior to drilling surface, fill the rig pits with fresh water and be certain that all solids control equipment for closed loop system is in optimum working condition. Have mud engineer and closed loop personnel present at pre-spud meeting with rig crews to make sure that everyone understands how drilling fluids will be handled. Prior to drilling out of surface casing, clean and fill pits with 10 ppg brine water and be certain that all solids control equipment for closed loop system is in optimum working condition. Have mud engineer and closed loop personnel discuss each day adjustments that may be needed to mud or equipment.

Necessary mud products for mud seepage or lost circulation, fluid loss control, weight addition, and sweeps will be on location at all times. Visual mud monitoring equipment will be in place to detect volume changes indicating loss or gain of circulating fluid volume. If abnormal pressures are encountered, electronic/mechanical mud monitoring equipment will be installed prior to drilling ahead.

| Depth | Mud Weight | Viscosity | Fluid Loss | Type System |
|-----------------|------------|-----------|------------|-------------|
| 0 – 1,565' | 8.6 – 9.2 | 28 – 36 | NC | Fresh |
| 1,565' – 4,000' | 9.8 – 10.2 | 30 – 32 | NC | Brine |
| 4,000' – 4,800' | 9.8 – 10.2 | 36 – 38 | 8 – 10 | Brine |

7. Auxiliary Equipment:

- An upper Kelly cock valve or TIW valve will be in the drill string at all times.
- An FOSV will be on the floor at all times along with operating wrench.
- H2S compliance package will be present, rigged up, and operable prior to drilling the Grayburg formation.

8. Testing, Logging, and Coring Program:

- No drill stem tests are anticipated.
- 2 man mud logging unit will be operative when drilling out of surface casing.
 - Catch 30' samples from BSC to top of Grayburg.
 - Catch 10' samples from top of Grayburg to TD.
- Run a Quad-Combo from TD to Surface.

- No coring is anticipated.

9. Anticipated Abnormal Pressure, Temperatures, or Other Hazards:

No abnormal pressures or temperatures are anticipated. Maximum bottom hole pressure is expected to be less than 2,050 psi, with bottom hole temperature expected to be 105°. H₂S can be present after drilling the Grayburg formation however, a compliance package will be rigged up and operable prior to drilling the Grayburg. Lost circulation could be encountered but is not expected to be a serious problem and hole seepage will be compensated for with additions of LCM material added to the drilling fluid.

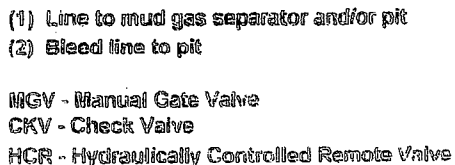
10. Anticipated Starting Date and Duration of Operations:

Road and location construction will begin after the APD has been approved, with the anticipated spud date to be as soon as the drilling rig is available. Drilling operations should be completed within 10 days of moving in rig. If production casing is run and cemented, an additional 30 days will be needed to complete well and lay flow lines in order to place well on production.

11. Special Instructions:

- Closed loop system will be utilized with all solids and liquids associated with same hauled to an approved disposal site. If there are any re-usable drilling fluids, they will be moved to the next well in the drilling order.
- A trash trailer will be provided on the location with the trash picked up and location kept as clean as possible. At conclusion of drilling operations, location will be cleaned up and contents of trash trailer hauled to a commercial sanitary landfill.
- Deviation – Maximum distance between surveys will be 500'. Maximum deviation at surface casing point will be 2° with not more than a 1° change per 100'. Maximum at TD of hole will be 5° with not more than a 1° change per 100'.
- WOC a minimum of 18 hours or cement gains compressive strength of 500 psi, whichever is greater, before drilling out shoe joint. Use minimal WOB and RPM until BHA is buried below shoe joints.
- Check BOP blinds rams on each trip, and pipe rams each day. Strap out of hole for logging and/or casing jobs.

9



3M Choke Manifold Equipment

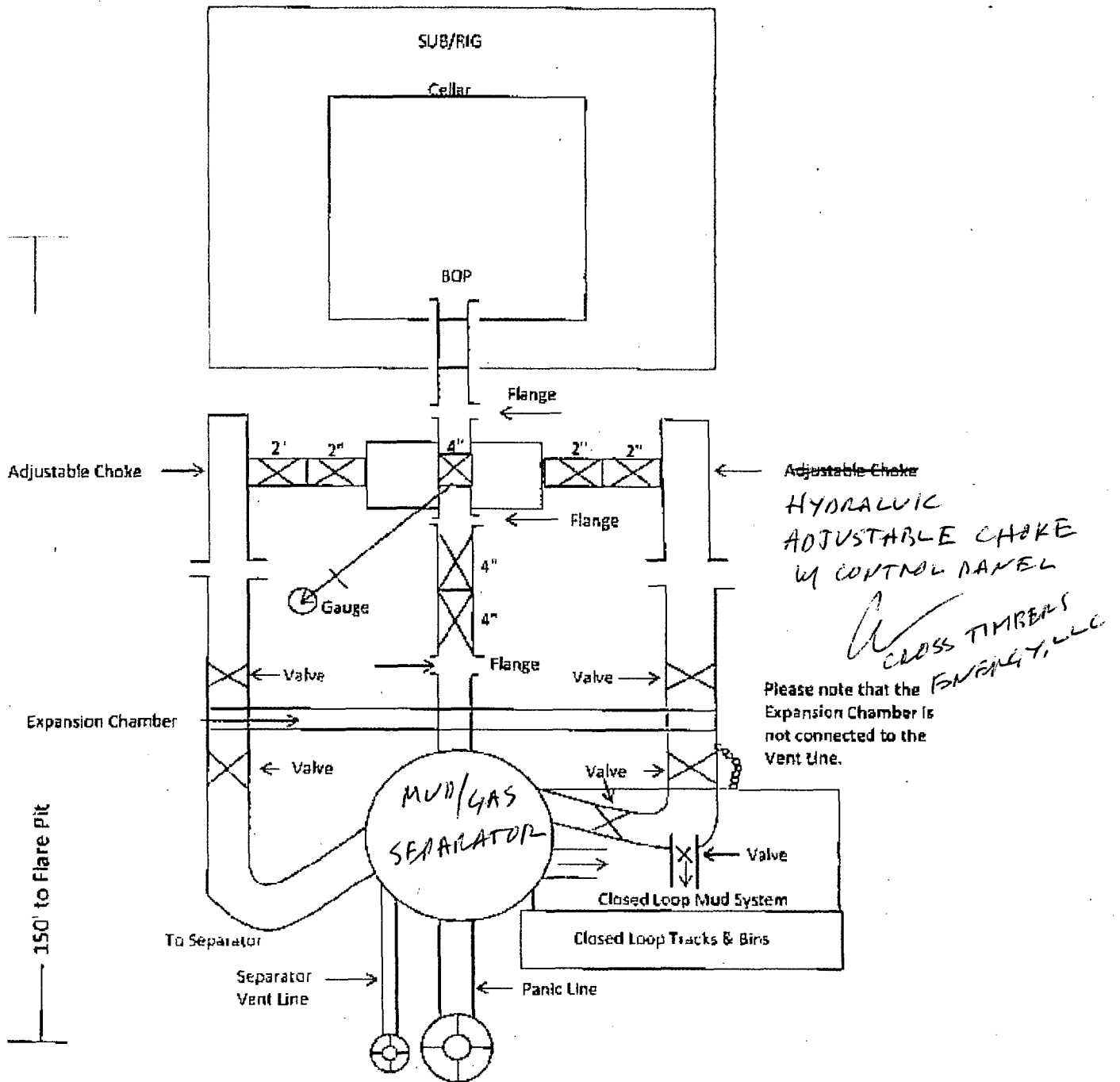
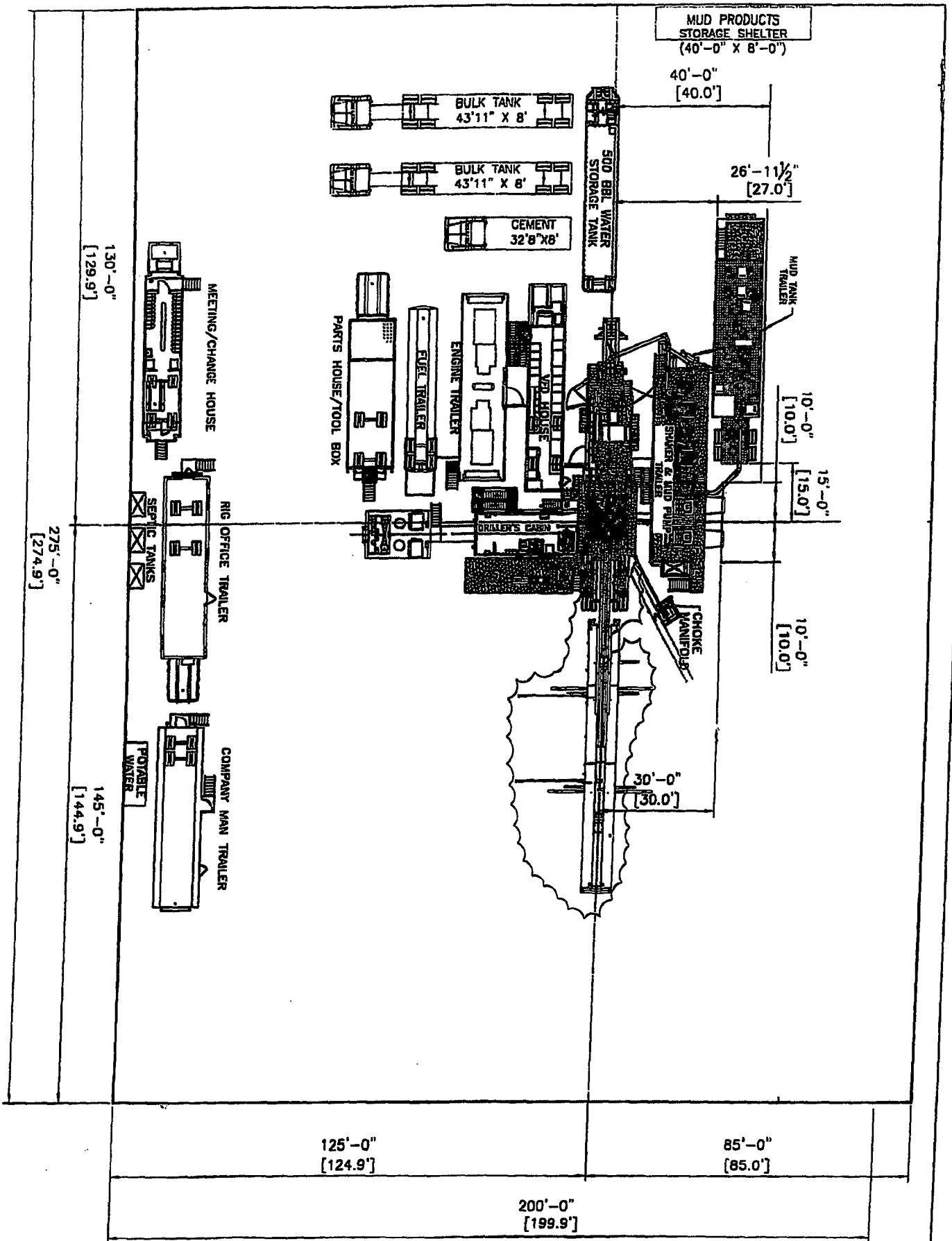


Exhibit 5 - Drilling Rig Layout





Certificate of Conformance

Hydrostatically Tested to

TESTED

☐ 8,000 PSI

TESTED

☒ 10,000 PSI

TESTED

☐ 15,000 PSI

SIZE 3 LENGTH 20 DATE 3-11-10

SERIAL NUMBER me100915

BY: _____

NEPHI RUBBER PRODUCTS CORP.

Corporate Office: P.O. Box 310 • Laporte, Indiana 46352 • (800) 348-8868 • (219) 362-9908 • Fax (219) 324-0815
Manufacturing: 255 West 1100 No. • Nephi, Utah 84648 • (800) 453-1480 • (435) 623-1740 • Fax (435) 623-2638

SEMGS AU #122
H2S Schematic Drawing

