Form 3160-3
(March 2012)

Carlsbad Field Office
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

5. Lease Serial No.
NMNM093771

6. If Indian, Allotee or Tribe Name

1a. Type of work: ☑ DRILL ☐ REENTER

7. If Unit or CA Agreement, Name and No.

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

8. Lease Name and Well No. 322244
VIRGO 24/23 B2IL FED COM 1H

2. Name of Operator
MEWBOURNE OIL COMPANY 14744

9. API Well No.
30-015-45170

3a. Address	3b. Phone No. *(include area code)*	10. Field and Pool, or Exploratory
PO Box 5270 Hobbs NM 88240	(575)393-5905	SHUGART NORTH BONE SPRING / BO

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

At surface SENE / 2000 FNL / 205 FEL / LAT 32.7346627 / LONG -103.9175583

At proposed prod. zone NWSW / 1980 FSL / 330 FWL / LAT 32.731106 / LONG -103.9501433

11. Sec., T. R. M. or Blk. and Survey or Area
SEC 24 / T18S / R30E / NMP

14. Distance in miles and direction from nearest town or post office*	12. County or Parish	13. State
20 miles	EDDY	NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)	16. No. of acres in lease	17. Spacing Unit dedicated to this well
185 feet	320	320

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.	19. Proposed Depth	20. BLM/BIA Bond No. on file
330 feet	8601 feet / 19062 feet	FED: NM1693

21. Elevations (Show whether DF, KDB, RT, GL, etc.)	22. Approximate date work will start*	23. Estimated duration
3671 feet	07/27/2018	60 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)*	Date
(Electronic Submission)	Bradley Bishop / Ph: (575)393-5905	04/27/2018

Title: Regulatory

Approved by *(Signature)*	Name *(Printed/Typed)*	Date
(Electronic Submission)	Cody Layton / Ph: (575)234-5959	08/04/2018

Title	Office
Assistant Field Manager Lands & Minerals	CARLSBAD

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.

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)

APPROVED WITH CONDITIONS

Approval Date: 08/04/2018

NM OIL CONSERVATION
ARTESIA DISTRICT
AUG 10 2018
RECEIVED

RJP 8-13-18.

INSTRUCTIONS

GENERAL: This form is designed for submitting proposals to perform certain well operations, as indicated on Federal and Indian lands and leases for action by appropriate Federal agencies, pursuant to applicable Federal laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from local Federal offices.

ITEM 1: If the proposal is to redrill to the same reservoir at a different subsurface location or to a new reservoir, use this form with appropriate notations. Consult applicable Federal regulations concerning subsequent work proposals or reports on the well.

ITEM 4: Locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local Federal offices for specific instructions.

ITEM 14: Needed only when location of well cannot readily be found by road from the land or lease description. A plat, or plats, separate or on the reverse side, showing the roads to, and the surveyed location of, the well, and any other required information, should be furnished when required by Federal agency offices.

ITEMS 15 AND 18: If well is to be, or has been directionally drilled, give distances for subsurface location of hole in any present or objective productive zone.

ITEM 22: Consult applicable Federal regulations, or appropriate officials, concerning approval of the proposal before operations are started.

NOTICES

The Privacy Act of 1974 and regulation in 43 CFR 2.48(d) provide that you be furnished the following information in connection with information required by this application.
AUTHORITY: 30 U.S.C. 181 et seq., 25 U.S.C. 396; 43 CFR 3160
PRINCIPAL PURPOSES: The information will be used to: (1) process and evaluate your application for a permit to drill a new oil, gas, or service well or to reenter a plugged and abandoned well; and (2) document, for administrative use, information for the management, disposal and use of National Resource Lands and resources including (a) analyzing your proposal to discover and extract the Federal or Indian resources encountered; (b) reviewing procedures and equipment and the projected impact on the land involved; and (c) evaluating the effects of the proposed operation on the surface and subsurface water and other environmental impacts.
ROUTINE USE: Information from the record and/or the record will be transferred to appropriate Federal, State, and local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecution, in connection with congressional inquiries and for regulatory responsibilities.
EFFECT OF NOT PROVIDING INFORMATION: Filing of this application and disclosure of the information is mandatory only if you elect to initiate a drilling or reentry operation on an oil and gas lease.

The Paperwork Reduction Act of 1995 requires us to inform you that:
The BLM collects this information to allow evaluation of the technical, safety, and environmental factors involved with drilling for oil and/or gas on Federal and Indian oil and gas leases. This information will be used to analyze and approve applications. Response to this request is mandatory only if the operator elects to initiate drilling or reentry operations on an oil and gas lease. The BLM would like you to know that you do not have to respond to this or any other Federal agency-sponsored information collection unless it displays a currently valid OMB control number.

BURDEN HOURS STATEMENT: Public reporting burden for this form is estimated to average 8 hours per response, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding the burden estimate or any other aspect of this form to U.S. Department of the Interior, Bureau of Land Management (1004-0137), Bureau Information Collection Clearance Officer (WO-630), 1849 C Street, N.W., Mail Stop 401 LS, Washington, D.C. 20240.

(Continued on page 3)

Additional Operator Remarks

Location of Well

1. SHL: SENE / 2000 FNL / 205 FEL / TWSP: 18S / RANGE: 30E / SECTION: 24 / LAT: 32.7346627 / LONG: -103.9175583 (TVD: 0 feet, MD: 0 feet)
   PPP: NESE / 1980 FSL / 1320 FEL / TWSP: 18S / RANGE: 30E / SECTION: 23 / LAT: 32.7311026 / LONG: -103.9383484 (TVD: 8655 feet, MD: 15434 feet)
   PPP: NWSW / 1980 FSL / 1317 FWL / TWSP: 18S / RANGE: 30E / SECTION: 24 / LAT: 32.7310994 / LONG: -103.929773 (TVD: 8694 feet, MD: 12797 feet)
   PPP: NESE / 1980 FSL / 330 FEL / TWSP: 18S / RANGE: 30E / SECTION: 24 / LAT: 32.7310941 / LONG: -103.9179814 (TVD: 8720 feet, MD: 9168 feet)
   BHL: NWSW / 1980 FSL / 330 FWL / TWSP: 18S / RANGE: 30E / SECTION: 23 / LAT: 32.731106 / LONG: -103.9501433 (TVD: 8601 feet, MD: 19062 feet)

BLM Point of Contact

Name: Priscilla Perez
Title: Legal Instruments Examiner
Phone: 5752345934
Email: pperez@blm.gov

Review and Appeal Rights

A person contesting a decision shall request a State Director review. This request must be filed within 20 working days of receipt of the Notice with the appropriate State Director (see 43 CFR 3165.3). The State Director review decision may be appealed to the Interior Board of Land Appeals, 801 North Quincy Street, Suite 300, Arlington, VA 22203 (see 43 CFR 3165.4). Contact the above listed Bureau of Land Management office for further information.

PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	**MEWBOURNE OIL COMPANY**
LEASE NO.:	**NMNM093771**
WELL NAME & NO.:	**1H-VIRGO 24/23 B2IL FED COM**
SURFACE HOLE FOOTAGE:	**2000'/N & 205'/E**
BOTTOM HOLE FOOTAGE	**1980'/S & 330'/W**
LOCATION:	**SECTION 24, T18S, R30E, NMPM**
COUNTY:	**EDDY County, New Mexico**

COA

H2S	◉ Yes	○ No	
Potash	○ None	◉ Secretary	○ R-111-P
Cave/Karst Potential	○ Low	◉ Medium	○ High
Variance	○ None	◉ Flex Hose	○ Other
Wellhead	○ Conventional	◉ Multibowl	○ Both
Other	☐ 4 String Area	☐ Capitan Reef	☐ WIPP

A. Hydrogen Sulfide

A Hydrogen Sulfide (H2S) Drilling Plan shall be activated 500 feet prior to drilling into the **Yates** formation. As a result, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.

B. CASING

1. The **13-3/8** inch surface casing shall be set at approximately **625** feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface.

   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 will be a minimum of **24 hours in the Potash Area** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)

   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.

Operator shall filled 1/3rd casing with fluid while running intermediate casing to maintain collapse safety factor.

2. The minimum required fill of cement behind the **9-5/8** inch intermediate casing is:
   - Cement to surface. If cement does not circulate see B.1.a, c-d above.**Additional cement maybe required. Excess calculates to 24%.**

Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.

- ❖ In Medium Cave/Karst Areas if cement does not circulate to surface on the first two casing strings , the cement on the 3rd casing string must come to surface.

3. The minimum required fill of cement behind the **7** inch production casing is:
   - Cement should tie-back at least 500 feet into previous casing string. Operator shall provide method of verification. **Additional cement maybe required. Excess calculates to -31%.**

4. The minimum required fill of cement behind the **4-1/2** inch production liner is:
   - Cement should tie-back 100' into the previous casing. Operator shall provide method of verification.

C. PRESSURE CONTROL

1. Variance approved to use flex line from BOP to choke manifold. Manufacturer's specification to be readily available. No external damage to flex line. Flex line to be installed as straight as possible (no hard bends).

2. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **3000 (3M)** psi.

GENERAL REQUIREMENTS

The BLM is to be notified 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)

☒ Chaves and Roosevelt Counties
Call the Roswell Field Office, 2909 West Second St., Roswell NM 88201.
During office hours call (575) 627-0272.
After office hours call (575)

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

☒ Lea County
Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240, (575) 393-3612

1. 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.
   a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
   b. When the operator proposes to set surface casing with Spudder Rig
      - Notify the BLM when moving in and removing the Spudder Rig.
      - Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
      - BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.

2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.

3. The record of the drilling rate along with the GR/N well log (one log per well pad is acceptable) run from TD to surface (horizontal well – vertical portion of hole) 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.

A. CASING

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. 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.). The initial wellhead installed on the well will remain on the well with spools used as needed.

2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log. The casing intergrity test can be done (prior to the cement setting up) immediately after bumping the plug.

3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. The casing intergrity test can be done (prior to the cement setting up) immediately after bumping the plug.

4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.

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

6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.

7. 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.

8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

B. 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. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: The flex line must meet the requirements of API 16C. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.

3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.

4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:
    a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
    b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
    c. Manufacturer representative shall install the test plug for the initial BOP test.
    d. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
    e. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.

5. 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. In potash areas, 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. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time, except the casing pressure test can be initiated immediately after bumping the plug (only applies to single stage cement jobs).

c. The tests shall be done by an independent service company utilizing a test plug. The results of the test shall be reported to the appropriate BLM office.

d. 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. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.

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. This test shall be performed prior to the test at full stack pressure.

g. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

C. DRILLING MUD

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the Wolfcamp formation, and shall be used until production casing is run and cemented.

D. 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.

Waste Minimization Plan (WMP)

In the interest of resource development, submission of additional well gas capture development plan information is deferred but may be required by the BLM Authorized Officer at a later date.

ZS 071718

PECOS DISTRICT
SURFACE USE
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	MEWBOURNE OIL COMPANY
LEASE NO.:	NMNM093771
WELL NAME & NO.:	1H-VIRGO 24/23 B2IL FED COM
SURFACE HOLE FOOTAGE:	2000'/N & 205'/E
BOTTOM HOLE FOOTAGE	1980'/S & 330'/W
LOCATION:	SECTION 24, T18S, R30E, NMPM
COUNTY:	EDDY County, New Mexico

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.

Approval Date: 08/04/2018

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.

Below 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.

Timing Limitation Exceptions:
The Carlsbad Field Office will publish an annual map of where the LPC timing and noise stipulations and conditions of approval (Limitations) will apply for the identified year (between March 1 and June 15) based on the latest survey information. The LPC Timing Area map will identify areas which are Habitat Areas (HA), Isolated Population Area (IPA), and Primary Population Area (PPA). The LPC Timing Area map will also have an area in red crosshatch. The red crosshatch area is the only area where an operator is required to submit a request for exception to the LPC Limitations. If an operator is operating outside the red crosshatch area, the LPC Limitations do not apply for that year and an exception to LPC Limitations is not required.

Hydrology
The entire well pad will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad. Topsoil shall not be used to construct the berm. No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad. The berm shall be maintained through the life of the well and after interim reclamation has been completed. Any water erosion that may occur due to the construction of the well pad during the life of the well will be quickly corrected and proper measures will be taken to prevent future erosion.

Tank battery locations will be lined and bermed. A 20 mil permanent liner will be installed with a 4 oz. felt backing to prevent tears or punctures. Tank battery berms must be large enough to contain 1 ½ times the content of the largest tank or 24 hour production, whichever is greater. Automatic shut off, check valves, or similar systems will be installed for tanks to minimize the effects of catastrophic line failures used in production or drilling.

A leak detection plan will be submitted to the BLM Carlsbad Field Office for approval prior to pipeline installation. The method could incorporate gauges to detect pressure drops, situating valves and lines so they can be visually inspected periodically or installing electronic sensors to alarm when a leak is present. The leak detection plan will incorporate an automatic shut off system that will be installed for proposed pipelines to minimize the effects of an undesirable event.

Recreation

Pipelines shall be buried 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. Power poles and associated ground structures (poles, guy wires) will not be placed within 20 feet of recreation trails. Guy wires must be equipped with a sleeve, tape or other industry approved apparatus that is highly visible during the day and reflective at night. Appropriate safety signage will be in place during all phases of the project. Upon completion of construction, the road shall be returned to pre-construction condition with no bumps or dips. All vehicle and equipment operators will observe speed limits and practice responsible defensive driving habits.

Cave Karst

Cave/Karst Surface Mitigation

The following stipulations will be applied to minimize impacts during construction, drilling and production:

Construction:

In the advent that any underground voids are opened up during construction activities, construction activities will be halted and the BLM will be notified immediately.

No Blasting:

No blasting will be utilized for pad construction. The pad will be constructed and leveled by adding the necessary fill and caliche.

Pad Berming:

- The entire perimeter of the well pad will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad.
- The compacted berm shall be constructed at a minimum of 12 inches high with impermeable mineral material (e.g., caliche).

- No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad.
- The topsoil stockpile shall be located outside the bermed well pad.
- Topsoil, either from the well pad or surrounding area, shall not be used to construct the berm.
- No storm drains, tubing or openings shall be placed in the berm.
- If fluid collects within the bermed area, the fluid must be vacuumed into a safe container and disposed of properly at a state approved facility.
- The integrity of the berm shall be maintained around the surfaced pad throughout the life of the well and around the downsized pad after interim reclamation has been completed.
- Any access road entering the well pad shall be constructed so that the integrity of the berm height surrounding the well pad is not compromised. (Any access road crossing the berm cannot be lower than the berm height.)
- Following a rain event, all fluids will vacuumed off of the pad and hauled off-site and disposed at a proper disposal facility.

Tank Battery Liners and Berms:

Tank battery locations and all facilities will be lined and bermed. A 20 mil permanent liner will be installed with a 4 oz. felt backing, or equivalent, to prevent tears or punctures. Tank battery berms must be large enough to contain 1 ½ times the content of the largest tank.

Leak Detection System:

A method of detecting leaks is required. The method could incorporate gauges to measure loss, situating values and lines so they can be visually inspected, or installing electronic sensors to alarm when a leak is present. Leak detection plan will be submitted to BLM for approval.

Automatic Shut-off Systems:

Automatic shut off, check values, or similar systems will be installed for pipelines and tanks to minimize the effects of catastrophic line failures used in production or drilling.

Cave/Karst Subsurface Mitigation

The following stipulations will be applied to protect cave/karst and ground water concerns:

Rotary Drilling with Fresh Water:

Fresh water will be used as a circulating medium in zones where caves or karst features are expected. SEE ALSO: Drilling COAs for this well.

Directional Drilling:

Kick off for directional drilling will occur at least 100 feet below the bottom of the cave occurrence zone. SEE ALSO: Drilling COAs for this well.

Lost Circulation:

ALL lost circulation zones from the surface to the base of the cave occurrence zone will be logged and reported in the drilling report.

Regardless of the type of drilling machinery used, if a void of four feet or more and circulation losses greater than 70 percent occur simultaneously while drilling in any cave-bearing zone, the BLM will be notified immediately by the operator. The BLM will assess the situation and work with the operator on corrective actions to resolve the problem.

Abandonment Cementing:

Upon well abandonment in cave karst areas additional plugging conditions of approval may be required. The BLM will assess the situation and work with the operator to ensure proper plugging of the wellbore.

Pressure Testing:

Annual pressure monitoring will be performed by the operator on all casing annuli and reported in a sundry notice. If the test results indicated a casing failure has occurred, remedial action will be undertaken to correct the problem to the BLM's approval.

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 strip the top portion of the soil (root zone) from the entire well pad area and stockpile the topsoil along the edge of the well pad as depicted in the APD. The root zone is typically six (6) inches in depth. All the stockpiled topsoil will be redistributed over the interim reclamation areas. Topsoil shall not be used for berming the pad or facilities. For final reclamation, the topsoil shall be spread over the entire pad area for seeding preparation.

Other subsoil (below six inches) stockpiles must be completely segregated from the topsoil stockpile. Large rocks or subsoil clods (not evident in the surrounding terrain) must be buried within the approved area 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 exclosure fencing design, refer to BLM's Oil and Gas Gold Book, Exclosure 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.

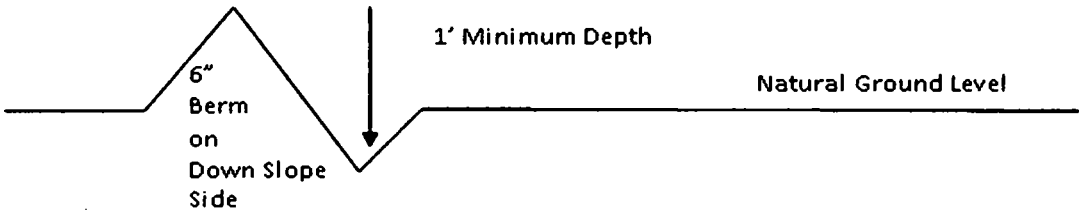
Turnouts
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

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

Cattle guards

An appropriately sized cattle guard sufficient to carry out the project shall be installed and maintained at fence/road crossings. Any existing cattle guards on the access road route 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 cattle guards that are in place and are utilized during lease operations.

Fence Requirement

Where entry is granted 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 fences.

Public Access

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

Construction Steps

1. Salvage topsoil
2. Construct road
3. Redistribute topsoil
4. Revegetate slopes

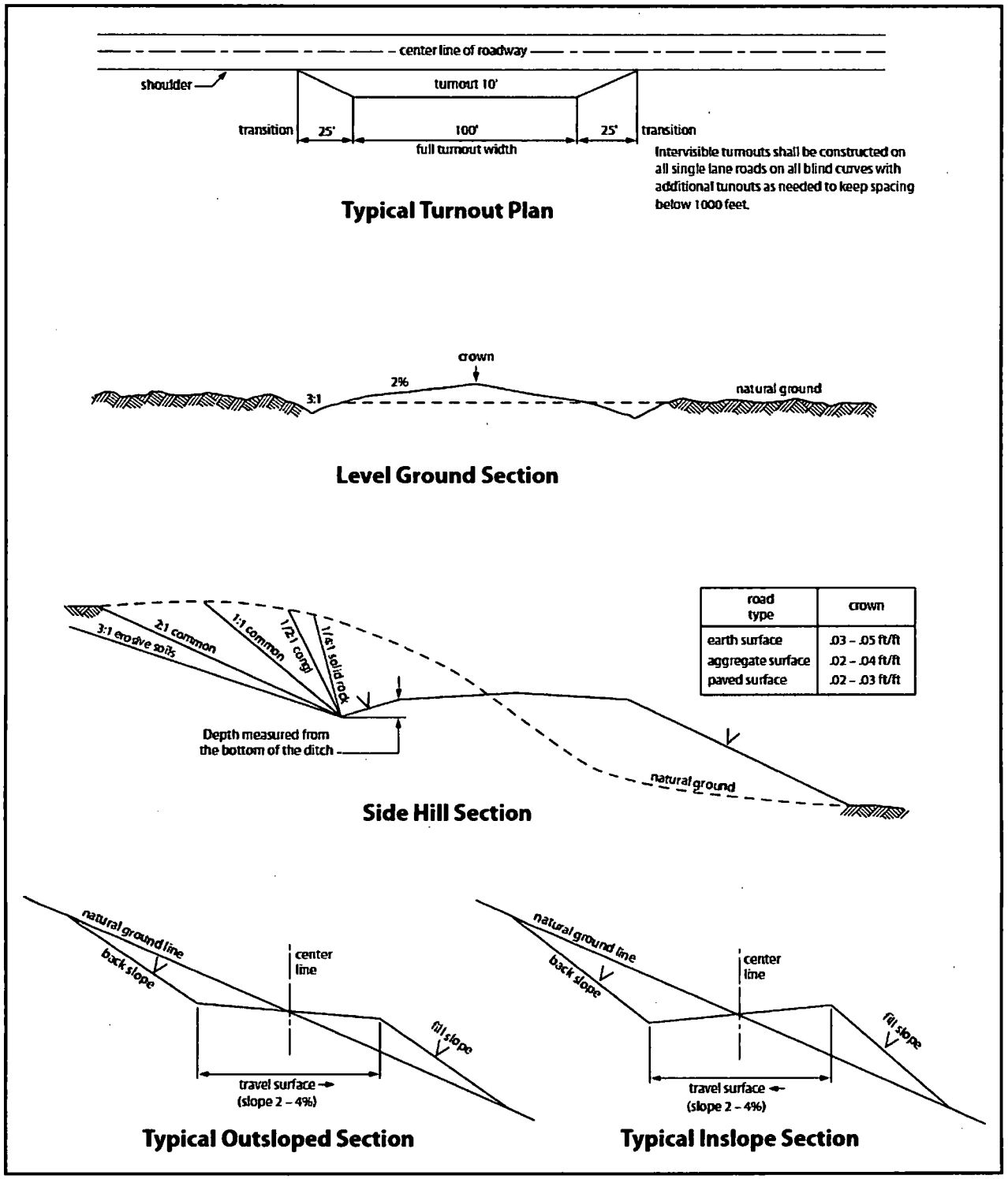


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

VII. 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.

VRM Facility Requirement
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).

VIII. 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).

IX. 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).

Below 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 for LPC Sand/Shinnery Sites

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 shall be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed shall be either certified or registered seed. The seed container shall 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). 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. Seeding shall be repeated until a satisfactory stand is established as determined by the Authorized Officer. Evaluation of growth may 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:

Species	lb/acre
Plains Bristlegrass	5lbs/A
Sand Bluestem	5lbs/A
Little Bluestem	3lbs/A
Big Bluestem	6lbs/A
Plains Coreopsis	2lbs/A
Sand Dropseed	1lbs/A

*Pounds of pure live seed:

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

AFMSS

U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

Operator Certification Data Report

08/06/2018

Operator Certification

I hereby certify that I, or someone under my direct supervision, have inspected the drill site and access route proposed herein; that I am familiar with the conditions which currently 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 I, or the company I represent, am 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.

NAME: Bradley Bishop **Signed on:** 04/27/2018

Title: Regulatory

Street Address: PO Box 5270

City: Hobbs **State:** NM **Zip:** 88240

Phone: (575)393-5905

Email address: bbishop@mewbourne.com

Field Representative

Representative Name:

Street Address:

City: **State:** **Zip:**

Phone:

Email address:

AFMSS

U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

Application Data Report

08/06/2018

APD ID: 10400029846 **Submission Date:** 04/27/2018

Operator Name: MEWBOURNE OIL COMPANY

Well Name: VIRGO 24/23 B2IL FED COM **Well Number:** 1H

Well Type: OIL WELL **Well Work Type:** Drill

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - General

APD ID: 10400029846 **Tie to previous NOS?** **Submission Date:** 04/27/2018

BLM Office: CARLSBAD **User:** Bradley Bishop **Title:** Regulatory

Federal/Indian APD: FED **Is the first lease penetrated for production Federal or Indian?** FED

Lease number: NMNM093771 **Lease Acres:** 320

Surface access agreement in place? **Allotted?** **Reservation:**

Agreement in place? NO **Federal or Indian agreement:**

Agreement number:

Agreement name:

Keep application confidential? YES

Permitting Agent? NO **APD Operator:** MEWBOURNE OIL COMPANY

Operator letter of designation: Virgo24_23B2ILFedCom1H_operatorletterofdesignation_20180427105655.pdf

Operator Info

Operator Organization Name: MEWBOURNE OIL COMPANY

Operator Address: PO Box 5270 **Zip:** 88240

Operator PO Box:

Operator City: Hobbs **State:** NM

Operator Phone: (575)393-5905

Operator Internet Address:

Section 2 - Well Information

Well in Master Development Plan? NO **Mater Development Plan name:**

Well in Master SUPO? NO **Master SUPO name:**

Well in Master Drilling Plan? NO **Master Drilling Plan name:**

Well Name: VIRGO 24/23 B2IL FED COM **Well Number:** 1H **Well API Number:**

Field/Pool or Exploratory? Field and Pool **Field Name:** SHUGART NORTH BONE SPRING **Pool Name:** BONE SPRING

Is the proposed well in an area containing other mineral resources? USEABLE WATER,POTASH

Operator Name: MEWBOURNE OIL COMPANY

Well Name: VIRGO 24/23 B2IL FED COM **Well Number:** 1H

Describe other minerals:

Is the proposed well in a Helium production area? N **Use Existing Well Pad?** NO **New surface disturbance?**

Type of Well Pad: SINGLE WELL **Multiple Well Pad Name:** **Number:**

Well Class: HORIZONTAL **Number of Legs:** 1

Well Work Type: Drill

Well Type: OIL WELL

Describe Well Type:

Well sub-Type: APPRAISAL

Describe sub-type:

Distance to town: 20 Miles **Distance to nearest well:** 330 FT **Distance to lease line:** 185 FT

Reservoir well spacing assigned acres Measurement: 320 Acres

Well plat: Virgo24_23B2ILFedCom1H_wellplat_20180427105840.pdf

Well work start Date: 07/27/2018 **Duration:** 60 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83 **Vertical Datum:** NAVD88

Survey number: 1

	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD
SHL Leg #1	2000	FNL	205	FEL	18S	30E	24	Aliquot SENE	32.7346627	-103.9175583	EDDY	NEW MEXICO	NEW MEXICO	F	NMLC0028990A	3671	0	0
KOP Leg #1	1980	FSL	10	FEL	18S	30E	24	Aliquot NESE	32.7310935	-103.9169278	EDDY	NEW MEXICO	NEW MEXICO	F	NMNM 093771	-4597	8574	8268
PPP Leg #1	1980	FSL	330	FEL	18S	30E	24	Aliquot NESE	32.7310941	-103.9179814	EDDY	NEW MEXICO	NEW MEXICO	F	NMNM 093771	-5049	9168	8720

Operator Name: MEWBOURNE OIL COMPANY

Well Name: VIRGO 24/23 B2IL FED COM **Well Number:** 1H

	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD
PPP Leg #1	1980	FSL	1317	FWL	18S	30E	24	Aliquot NWSW	32.7310994	-103.929773	EDDY	NEW MEXICO	NEW MEXICO	F	NMLC0028990A	-5023	12797	8694
PPP Leg #1	1980	FSL	1320	FEL	18S	30E	23	Aliquot NESE	32.7311026	-103.9383484	EDDY	NEW MEXICO	NEW MEXICO	F	NMNM 0016809	-4984	15434	8655
EXIT Leg #1	1980	FSL	330	FWL	18S	30E	23	Aliquot NWSW	32.731106	-103.9501433	EDDY	NEW MEXICO	NEW MEXICO	F	NMNM 0016809	-4930	19062	8601
BHL Leg #1	1980	FSL	330	FWL	18S	30E	23	Aliquot NWSW	32.731106	-103.9501433	EDDY	NEW MEXICO	NEW MEXICO	F	NMNM 0016809	-4930	19062	8601

United States Department of the Interior
Bureau of Land Management
Carlsbad Field Office
620 E Greene Street
Carlsbad, New Mexico 88201-1287

Statement Accepting Responsibility for Operations

Operator Name:	Mewbourne Oil Company
Street or Box:	P.O. Box 5270
City, State:	Hobbs, New Mexico
Zip Code:	88241

The undersigned accepts all applicable terms, conditions, stipulations, and restrictions concerning operations conducted of the leased land or portion thereof, as described below.

Lease Number:	NMNM 093771 NMLC 0028990B NMNM 0016809
Legal Description of Land:	Section 24, T18S, R30E, Eddy County, New Mexico. Location @ 2000 FNL & 205 FEL
Formation (if applicable):	Bone Spring
Bond Coverage:	$150,000
BLM Bond File:	NM1693 nationwide, NMB000919

Authorized Signature: Bradley C Bishop

Name: Bradley Bishop
Title: Regulatory Manager

Date: 4-27-18

tested. Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics.

Choke Diagram Attachment:

Virgo_24_23_B2IL_Fed_Com_1H_3M_BOPE_Choke_Diagram_20180427101108.pdf

Virgo_24_23_B2IL_Fed_Com_1H_Flex_Line_Specs_20180427101118.pdf

BOP Diagram Attachment:

Virgo_24_23_B2IL_Fed_Com_1H_3M_BOPE_Schematic_20180427101129.pdf

Virgo_24_23_B2IL_Fed_Com_1H_5M_Multi_Bowl_WH_20180427101144.pdf

Section 3 - Casing

Casing ID	String Type	Hole Size	Csg Size	Condition	Standard	Tapered String	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Calculated casing length MD	Grade	Weight	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
1	SURFACE	17.5	13.375	NEW	API	N	0	625	0	625	3671	3046	625	H-40	48	STC	2.69	6.05	DRY	10.73	DRY	18.03
2	INTERMEDIATE	12.25	9.625	NEW	API	Y	0	4550	0	4550	3671	-879	4550	J-55	36	LTC	1.13	1.96	DRY	2.69	DRY	3.35
3	PRODUCTION	8.75	7.0	NEW	API	N	0	9332	0	8746	3671	-5075	9332	P-110	26	LTC	1.84	2.35	DRY	2.64	DRY	3.42
4	LINER	6.125	4.5	NEW	API	N	8574	19062	8268	8601	-4597	-4930	10488	P-110	13.5	LTC	2.42	2.81	DRY	2.98	DRY	2.39

Casing Attachments

Operator Name: MEWBOURNE OIL COMPANY

Well Name: VIRGO 24/23 B2IL FED COM **Well Number:** 1H

Casing Attachments

Casing ID: 1 **String Type:** SURFACE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Virgo_24_23_B2IL_Fed_Com_1H_Csg_Assumptions_20180427101829.pdf

Casing ID: 2 **String Type:** INTERMEDIATE

Inspection Document:

Spec Document:

Tapered String Spec:

Virgo_24_23_B2IL_Fed_Com_1H_Inter_Tapered_String_Diagram_20180427101438.pdf

Casing Design Assumptions and Worksheet(s):

Virgo_24_23_B2IL_Fed_Com_1H_Csg_Assumptions_20180427101837.pdf

Casing ID: 3 **String Type:** PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Virgo_24_23_B2IL_Fed_Com_1H_Csg_Assumptions_20180427101848.pdf

Operator Name: MEWBOURNE OIL COMPANY

Well Name: VIRGO 24/23 B2IL FED COM **Well Number:** 1H

Casing Attachments

Casing ID: 4 **String Type:** LINER

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Virgo_24_23_B2IL_Fed_Com_1H_Csg_Assumptions_20180427101856.pdf

Section 4 - Cement

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead		0	433	285	2.12	12.5	604	100	Class C	Salt, Gel, Extender, LCM
SURFACE	Tail		433	625	200	1.34	14.8	268	100	Class C	Retarder
INTERMEDIATE	Lead		0	3886	740	2.12	12.5	1569	25	Class C	Salt, Gel, Extender, LCM
INTERMEDIATE	Tail		3886	4550	200	1.34	14.8	268	25	Class C	Retarder
PRODUCTION	Lead		4050	6844	250	2.12	12.5	530	25	Class C	Gel, Retarder, Defoamer, Extender
PRODUCTION	Tail		6844	9332	400	1.18	15.6	472	25	Class H	Retarder, Fluid Loss, Defoamer
LINER	Lead		8574	19062	420	2.97	11.2	1247	25	Class C	Salt, Gel, Fluid Loss, Retarder, Dispersant, Defoamer, Anti-Settling Agent

Operator Name: MEWBOURNE OIL COMPANY

Well Name: VIRGO 24/23 B2IL FED COM **Well Number:** 1H

Section 5 - Circulating Medium

Mud System Type: Closed

Will an air or gas system be Used? NO

Description of the equipment for the circulating system in accordance with Onshore Order #2:

Diagram of the equipment for the circulating system in accordance with Onshore Order #2:

Describe what will be on location to control well or mitigate other conditions: Lost circulation material Sweeps Mud scavengers in surface hole

Describe the mud monitoring system utilized: Visual monitoring

Circulating Medium Table

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
0	625	SPUD MUD	8.6	8.8							
625	4550	SALT SATURATED	10	10							
4550	8268	WATER-BASED MUD	8.6	9.5							
8268	8601	OIL-BASED MUD	8.6	9.7							

Section 6 - Test, Logging, Coring

List of production tests including testing procedures, equipment and safety measures:

Will run GR/CNL from KOP (8574') to surface

List of open and cased hole logs run in the well:

CNL,DS,GR,MWD,MUDLOG

Coring operation description for the well:

None

Operator Name: MEWBOURNE OIL COMPANY

Well Name: VIRGO 24/23 B2IL FED COM **Well Number:** 1H

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 4338 **Anticipated Surface Pressure:** 2417.4

Anticipated Bottom Hole Temperature(F): 140

Anticipated abnormal pressures, temperatures, or potential geologic hazards? NO

Describe:

Contingency Plans geoharzards description:

Contingency Plans geohazards attachment:

Hydrogen Sulfide drilling operations plan required? YES

Hydrogen sulfide drilling operations plan:

Virgo_24_23_B2Il_Fed_Com_1H_H2S_Plan_20180427102958.pdf

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

Virgo_24_23_B2Il_Fed_Com_1H_Dir_Plan_20180427103021.pdf

Virgo_24_23_B2IL_Fed_Com_1H_Dir_Plot_20180427103027.pdf

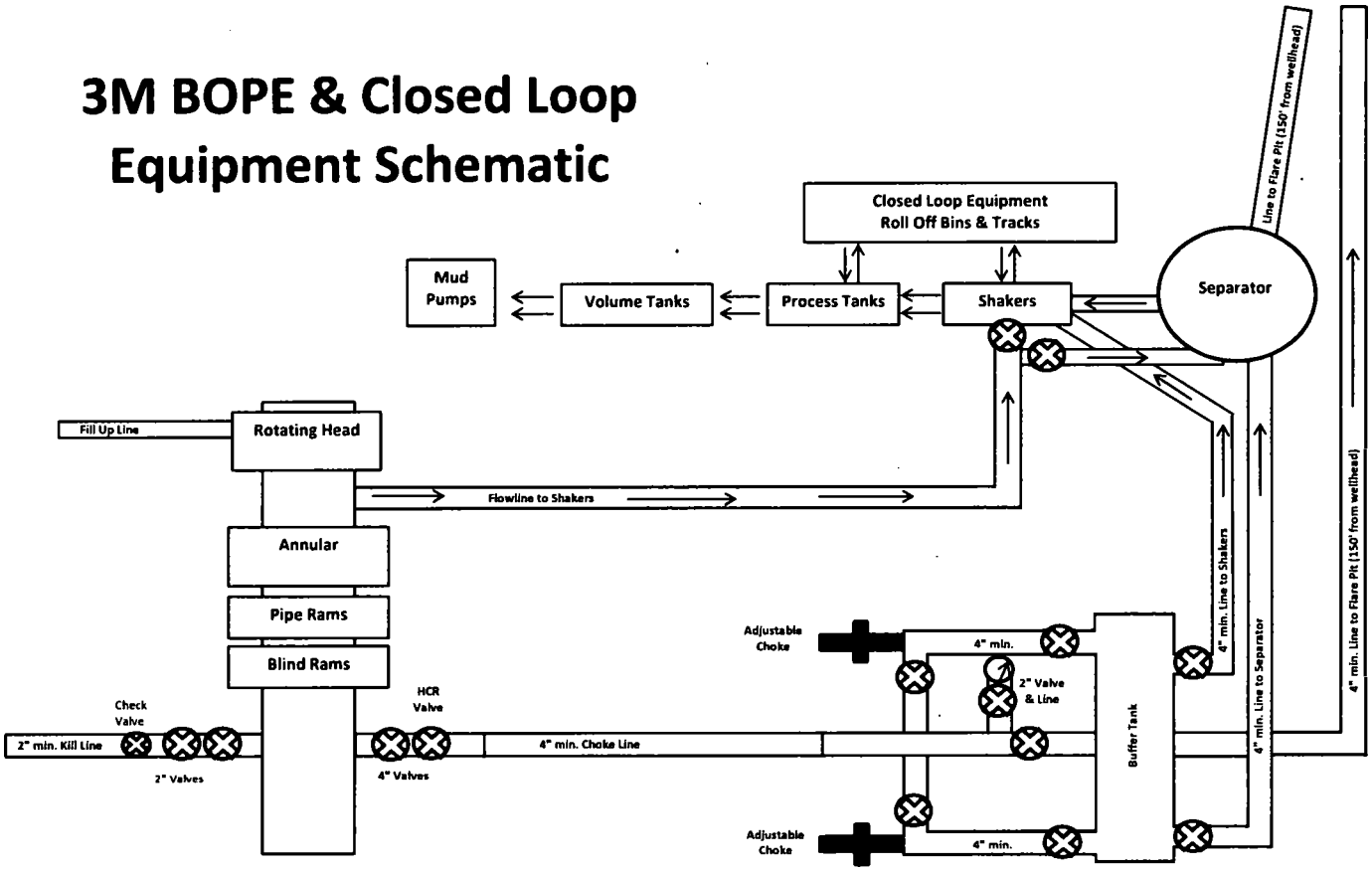
Other proposed operations facets description:

Other proposed operations facets attachment:

Virgo_24_23_B2IL_Fed_Com_1H_Drlg_Program_20180427103039.doc

Other Variance attachment:

3M BOPE & Closed Loop Equipment Schematic



Drawing not to scale

ENGINEERING & SERVICES

GATES E & S NORTH AMERICA, INC.
134 44TH STREET
CORPUS CHRISTI, TEXAS 78405

PHONE: 361-887-9807
FAX: 361-887-0812
EMAIL: *Tim.Cantu@gates.com*
WEB: www.gates.com

10K CEMENTING ASSEMBLY PRESSURE TEST CERTIFICATE

Customer :	AUSTIN DISTRIBUTING	Test Date:	4/30/2015
Customer Ref. :	4060578	Hose Serial No.:	D-043015-7
Invoice No. :	500506	Created By:	JUSTIN CROPPER

Product Description:	10K3.548.0CK4.1/1610KFLGE/E LE

End Fitting 1 :	4 1/16 10K FLG	End Fitting 2 :	4 1/16 10K FLG
Gates Part No. :	4773-6290	Assembly Code :	L36554102914D-043015-7
Working Pressure :	10,000 PSI	Test Pressure :	15,000 PSI

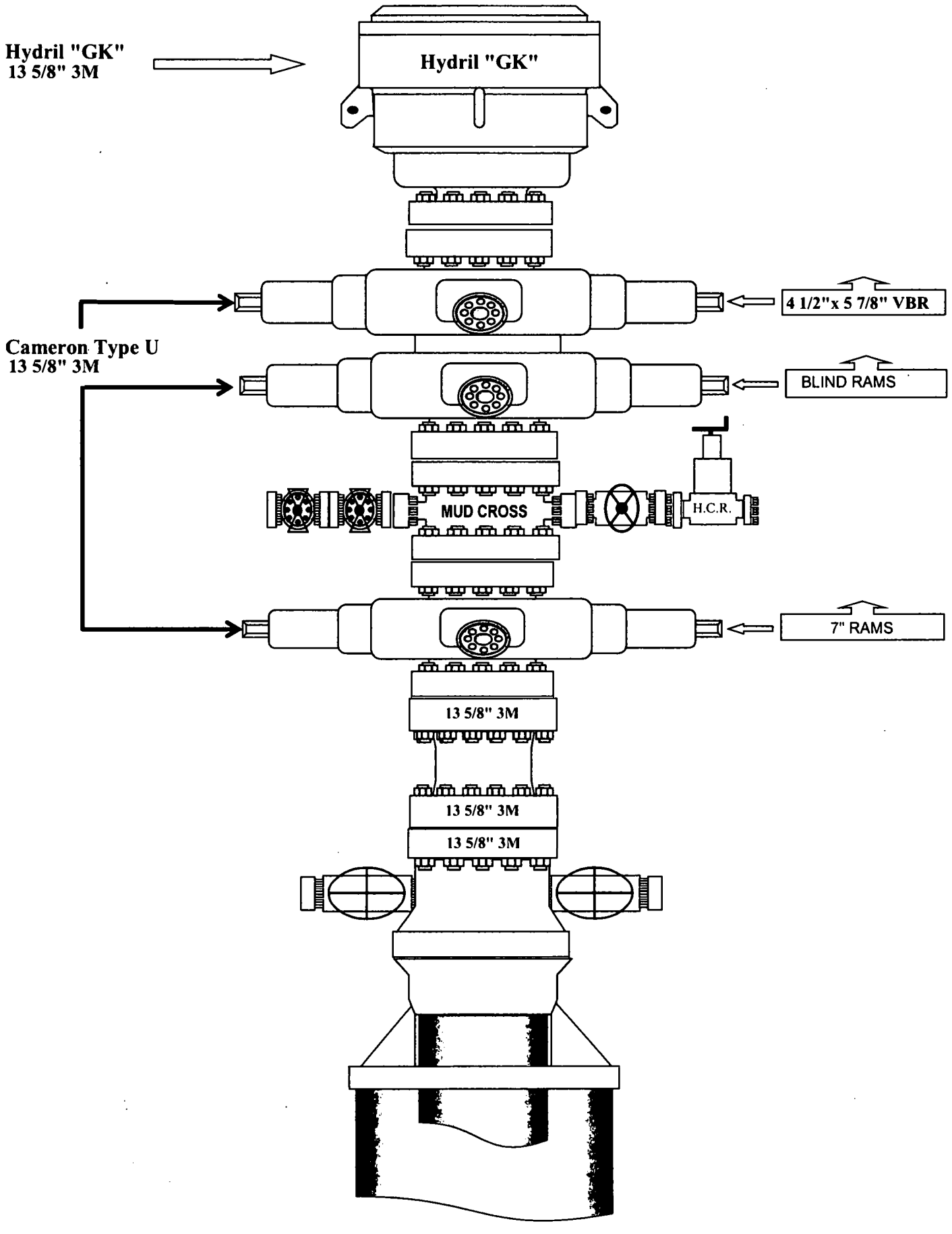
Gates E & S North America, Inc. certifies that the following hose assembly has been tested to the Gates Oilfield Roughneck Agreement/Specification requirements and passed the 15 minute hydrostatic test per API Spec 7K/Q1, Fifth Edition, June 2010, Test pressure 9.6.7 and per Table 9 to 15,000 psi in accordance with this product number. Hose burst pressure 9.6.7.2 exceeds the minimum of 2.5 times the working pressure per Table 9.

Quality Manager :	QUALITY	Produciton:	PRODUCTION
Date :	4/30/2015	Date :	4/30/2015
Signature :	Justin Cropper	Signature :	

Form PTC - 01 Rev.0 2

Gates

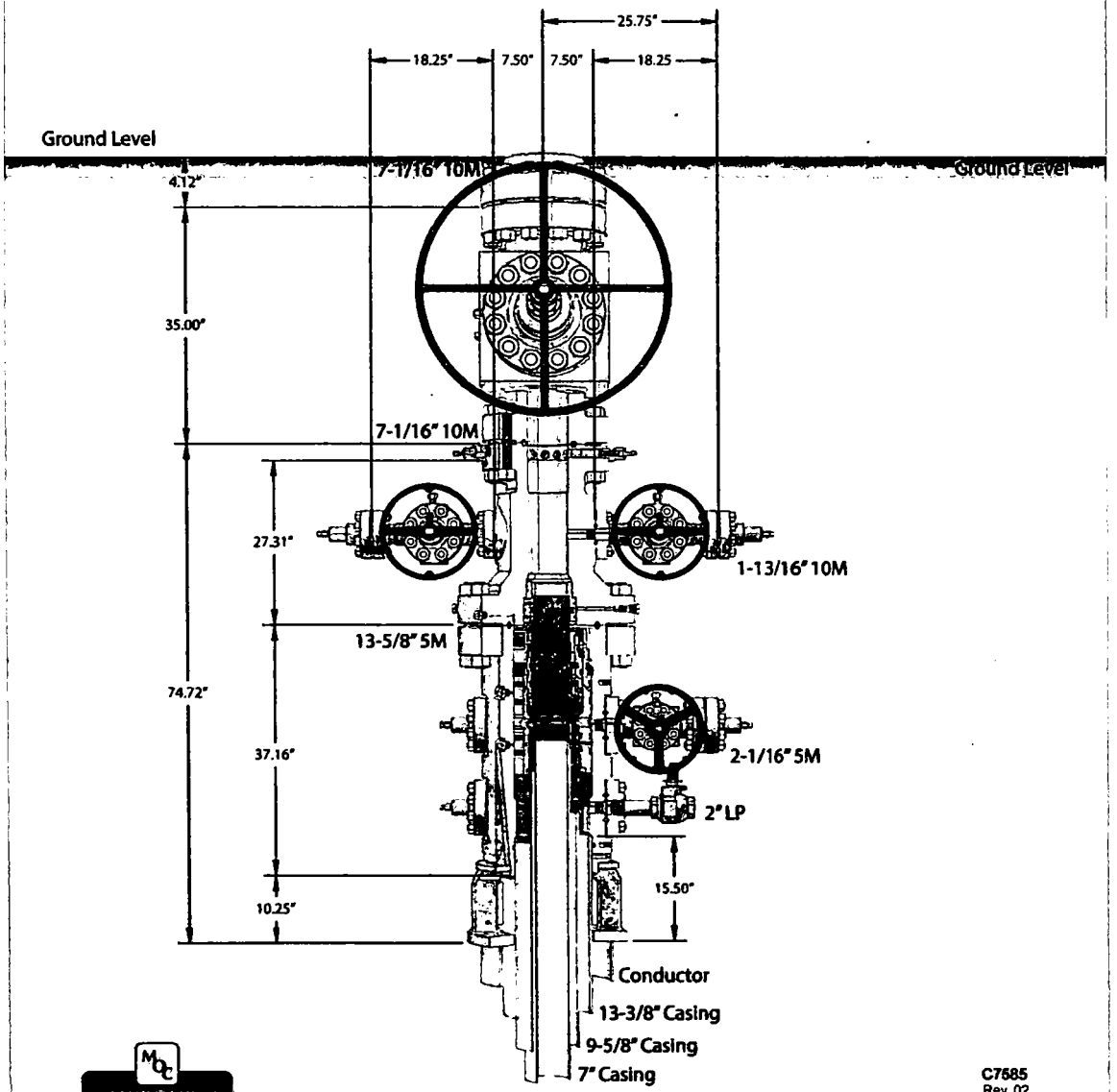
60 MIN.
5
10
15
20
25
30
35
18000
16000
14000
12000
10000
8000
6000
4000
2000
CHART POOL USA Inc.
PORTAGE, INDIANA
GATES ENGINEERING & SERVICES N.A.
QAIQC
APPROVED
000-1HR.
MW MP
APH
HOSE I.D.
GRADE
TEST PRESSURE
TEST DATE
SERIAL #
WORKING PRESSURE
ASSEMBLY DATE
LENGTH
END


Hydril "GK"
13 5/8" 3M
Hydril "GK"
4 1/2"x 5 7/8" VBR
Cameron Type U
13 5/8" 3M
BLIND RAMS
MUD CROSS
H.C.R.
7" RAMS
13 5/8" 3M
13 5/8" 3M
13 5/8" 3M

CAMERON

A Schlumberger Company

13-5/8" MN-DS Wellhead System



C7585
Rev. 02

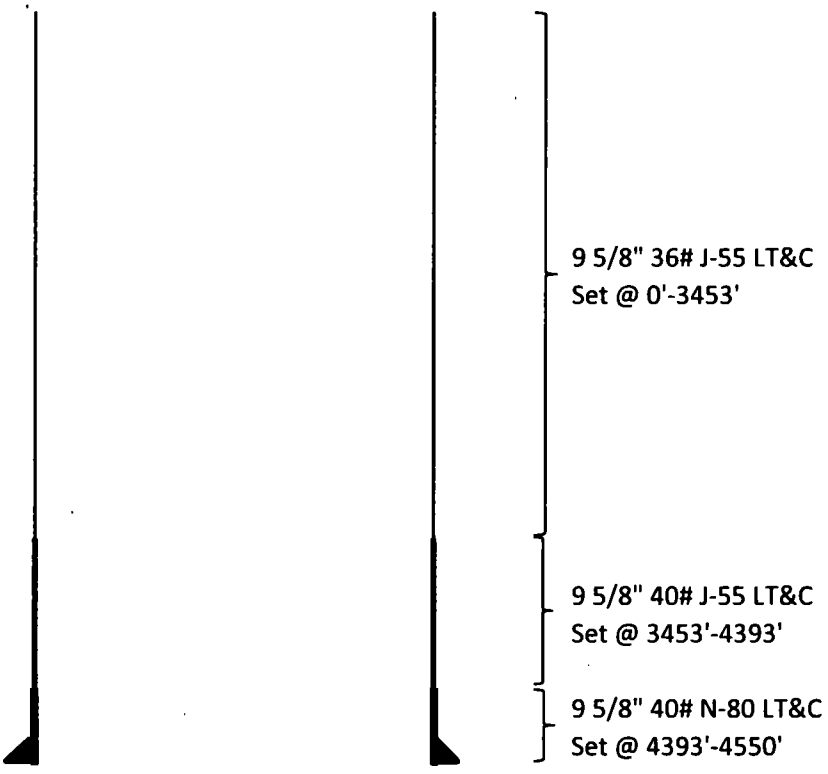
NOTE: All dimensions on this drawing are estimated measurements and should be evaluated by engineering.

MEWBOURNE OIL COMPANY

Cutting Flange 57" conductor cut-off

79

Virgo 24-23 B2IL Fed Com #1H
Intermediate Casing



Casing	SF Collapse	SF Burst	SF Jt Tension	SF Body Tension
36# J-55	1.13	1.96	2.69	3.35
40# J-55	1.13	1.73	11.85	14.36
40# N-80	1.31	2.43	117.48	146.01

Mewbourne Oil Company, Virgo 24/23 B2IL Fed Com #1H
Sec 24, T18S, R30E
SL: 2000' FNL & 205' FEL, Sec 24
BHL: 1980' FSL & 330' FWL, Sec 23

Casing Program

Hole Size	Casing Interval From	Casing Interval To	Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Jt Tension	SF Body Tension
17.5"	0'	625'	13.375"	48	H40	STC	2.69	6.05	10.73	18.03
12.25"	0'	3453'	9.625"	36	J55	LTC	1.13	1.96	2.69	3.35
12.25"	3453'	4393'	9.625"	40	J55	LTC	1.13	1.73	11.85	14.36
12.25"	4393'	4550'	9.625"	40	N80	LTC	1.31	2.43	117.48	146.01
8.75"	0'	9332'	7"	26	HCP110	LTC	1.84	2.35	2.64	3.42
6.125"	8574'	19062'	4.5"	13.5	P110	LTC	2.42	2.81	2.39	2.98
				BLM Minimum Safety Factor			1.125	1	1.6 Dry 1.8 Wet	1.6 Dry 1.8 Wet

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h
Must have table for contingency casing

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Is casing API approved? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	N
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	
Is well within the designated 4 string boundary.	
Is well located in SOPA but not in R-111-P?	Y
If yes, are the first 2 strings cemented to surface and 3rd string cement tied back 500' into previous casing?	Y
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2nd string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	Y
If yes, are there two strings cemented to surface?	Y
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

Mewbourne Oil Company, Virgo 24/23 B2IL Fed Com #1H
Sec 24, T18S, R30E
SL: 2000' FNL & 205' FEL, Sec 24
BHL: 1980' FSL & 330' FWL, Sec 23

Casing Program

Hole Size	Casing Interval From	Casing Interval To	Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Jt Tension	SF Body Tension
17.5"	0'	625'	13.375"	48	H40	STC	2.69	6.05	10.73	18.03
12.25"	0'	3453'	9.625"	36	J55	LTC	1.13	1.96	2.69	3.35
12.25"	3453'	4393'	9.625"	40	J55	LTC	1.13	1.73	11.85	14.36
12.25"	4393'	4550'	9.625"	40	N80	LTC	1.31	2.43	117.48	146.01
8.75"	0'	9332'	7"	26	HCP110	LTC	1.84	2.35	2.64	3.42
6.125"	8574'	19062'	4.5"	13.5	P110	LTC	2.42	2.81	2.39	2.98
				BLM Minimum Safety Factor			1.125	1	1.6 Dry 1.8 Wet	1.6 Dry 1.8 Wet

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h
Must have table for contingency casing

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Is casing API approved? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	N
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	
Is well within the designated 4 string boundary.	
Is well located in SOPA but not in R-111-P?	Y
If yes, are the first 2 strings cemented to surface and 3rd string cement tied back 500' into previous casing?	Y
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2nd string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	Y
If yes, are there two strings cemented to surface?	Y
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

Mewbourne Oil Company, Virgo 24/23 B2IL Fed Com #1H
Sec 24, T18S, R30E
SL: 2000' FNL & 205' FEL, Sec 24
BHL: 1980' FSL & 330' FWL, Sec 23

Casing Program

Hole Size	Casing Interval From	To	Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Jt Tension	SF Body Tension
17.5"	0'	625'	13.375"	48	H40	STC	2.69	6.05	10.73	18.03
12.25"	0'	3453'	9.625"	36	J55	LTC	1.13	1.96	2.69	3.35
12.25"	3453'	4393'	9.625"	40	J55	LTC	1.13	1.73	11.85	14.36
12.25"	4393'	4550'	9.625"	40	N80	LTC	1.31	2.43	117.48	146.01
8.75"	0'	9332'	7"	26	HCP110	LTC	1.84	2.35	2.64	3.42
6.125"	8574'	19062'	4.5"	13.5	P110	LTC	2.42	2.81	2.39	2.98
				BLM Minimum Safety Factor			1.125	1	1.6 Dry 1.8 Wet	1.6 Dry 1.8 Wet

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h
Must have table for contingency casing

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Is casing API approved? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	N
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	
Is well within the designated 4 string boundary.	
Is well located in SOPA but not in R-111-P?	Y
If yes, are the first 2 strings cemented to surface and 3rd string cement tied back 500' into previous casing?	Y
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2nd string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	Y
If yes, are there two strings cemented to surface?	Y
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

Mewbourne Oil Company, Virgo 24/23 B2IL Fed Com #1H
Sec 24, T18S, R30E
SL: 2000' FNL & 205' FEL, Sec 24
BHL: 1980' FSL & 330' FWL, Sec 23

Casing Program

Hole Size	Casing Interval From	Casing Interval To	Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Jt Tension	SF Body Tension
17.5"	0'	625'	13.375"	48	H40	STC	2.69	6.05	10.73	18.03
12.25"	0'	3453'	9.625"	36	J55	LTC	1.13	1.96	2.69	3.35
12.25"	3453'	4393'	9.625"	40	J55	LTC	1.13	1.73	11.85	14.36
12.25"	4393'	4550'	9.625"	40	N80	LTC	1.31	2.43	117.48	146.01
8.75"	0'	9332'	7"	26	HCP110	LTC	1.84	2.35	2.64	3.42
6.125"	8574'	19062'	4.5"	13.5	P110	LTC	2.42	2.81	2.39	2.98
				BLM Minimum Safety Factor			1.125	1	1.6 Dry 1.8 Wet	1.6 Dry 1.8 Wet

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h
Must have table for contingency casing

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Is casing API approved? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	N
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	
Is well within the designated 4 string boundary.	
Is well located in SOPA but not in R-111-P?	Y
If yes, are the first 2 strings cemented to surface and 3rd string cement tied back 500' into previous casing?	Y
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2nd string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	Y
If yes, are there two strings cemented to surface?	Y
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

Hydrogen Sulfide Drilling Operations Plan
Mewbourne Oil Company

1. General Requirements

Rule 118 does not apply to this well because MOC has researched this area and no high concentrations of H2S were found. MOC will have on location and working all H2S safety equipment before the Delaware formation for purposes of safety and insurance requirements.

2. Hydrogen Sulfide Training

All personnel, whether regularly assigned, contracted, or employed on an unscheduled basis, will have received training from a qualified instructor in the following areas prior to entering the drilling pad area of the well:

1. The hazards and characteristics of hydrogen sulfide gas.
2. The proper use of personal protective equipment and life support systems.
3. The proper use of hydrogen sulfide detectors, alarms, warning systems, briefing areas, evacuation procedures.
4. The proper techniques for first aid and rescue operations.

Additionally, supervisory personnel will be trained in the following areas:

1 The effects of hydrogen sulfide on metal components. If high tensile tubular systems are utilized, supervisory personnel will be trained in their special maintenance requirements.
2 Corrective action and shut in procedures, blowout prevention, and well control procedures while drilling a well.
3 The contents of the Hydrogen Sulfide Drilling Operations Plan.

There will be an initial training session prior to encountering a know hydrogen sulfide source. The initial training session shall include a review of the site specific Hydrogen Sulfide Drilling Operations Plan.

3. Hydrogen Sulfide Safety Equipment and Systems

All hydrogen sulfide safety equipment and systems will be installed, tested, and operational prior to drilling below the 9 5/8" intermediate casing.

1. Well Control Equipment
   - A. Choke manifold with minimum of one adjustable choke/remote choke.
   - B. Blowout preventers equipped with blind rams and pipe rams to accommodate all pipe sizes with properly sized closing unit
   - C. Auxiliary equipment including annular type blowout preventer.
2. Protective Equipment for Essential Personnel
   Thirty minute self contained work unit located in the dog house and at briefing areas.

Additionally: If H2S is encountered in concentrations less than 10 ppm, fans will be placed in work areas to prevent the accumulation of hazardous amounts of poisonous gas. If higher concentrations of H2S are detected the well will be shut in and a rotating head, mud/gas separator, remote choke and flare line with igniter will be installed.

3. Hydrogen Sulfide Protection and Monitoring Equipment
Two portable hydrogen sulfide monitors positioned on location for optimum coverage and detection. The units shall have audible sirens to notify personnel when hydrogen sulfide levels exceed 20 PPM.

4. Visual Warning Systems
A. Wind direction indicators as indicated on the wellsite diagram.
B. Caution signs shall be posted on roads providing access to location. Signs shall be painted a high visibility color with lettering of sufficient size to be readable at reasonable distances from potentially contaminated areas.

4. Mud Program

The mud program has been designed to minimize the amount of hydrogen sulfide entrained in the mud system. Proper mud weight, safe drilling practices, and the use of hydrogen sulfide scavengers will minimize hazards while drilling the well.

5. Metallurgy

All tubular systems, wellheads, blowout preventers, drilling spools, kill lines, choke manifolds, and valves shall be suitable for service in a hydrogen sulfide environment when chemically treated.

6. Communications

State & County Officials phone numbers are posted on rig floor and supervisors trailer. Communications in company vehicles and toolpushers are either two way radios or cellular phones.

7. Well Testing

Drill stem testing is not an anticipated requirement for evaluation of this well. If a drill stem test is required, it will be conducted with a minimum number of personnel in the immediate vicinity. The test will be conducted during daylight hours only.

8. Emergency Phone Numbers

Eddy County Sheriff's Office	**911 or 575-887-7551**
Ambulance Service	**911 or 575-885-2111**
Carlsbad Fire Dept	**911 or 575-885-2111**
Loco Hills Volunteer Fire Dept.	**911 or 575-677-3266**
Closest Medical Facility - Columbia Medical Center of Carlsbad	**575-492-5000**

Mewbourne Oil Company	**Hobbs District Office**	**575-393-5905**
	Fax	**575-397-6252**
	2nd Fax	**575-393-7259**
District Manager	**Robin Terrell**	**575-390-4816**
Drilling Superintendent	**Frosty Lathan**	**575-390-4103**
	Bradley Bishop	**575-390-6838**
Drilling Foreman	**Wesley Noseff**	**575-441-0729**

Mewbourne Oil Company

Eddy County, New Mexico NAD 83
Virgo 24/23 B2IL Fed Com #1H
Sec 24, T18S, R30E
SL: 2000' FNL & 205' FEL (24)
BHL: 1980' FSL & 330' FWL (25)

Plan: Design #1

Standard Planning Report

27 April, 2018

Database:	Hobbs	**Local Co-ordinate Reference:**	Site Virgo 24/23 B2IL Fed Com #1H
Company:	Mewbourne Oil Company	**TVD Reference:**	WELL @ 3671.0usft (Original Well Elev)
Project:	Eddy County, New Mexico NAD 83	**MD Reference:**	WELL @ 3671.0usft (Original Well Elev)
Site:	Virgo 24/23 B2IL Fed Com #1H	**North Reference:**	Grid
Well:	Sec 24, T18S, R30E	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	BHL: 1980' FSL & 330' FWL (25)		
Design:	Design #1		

Project	Eddy County, New Mexico NAD 83		
Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Virgo 24/23 B2IL Fed Com #1H				
Site Position:		**Northing:**	631,253.00 usft	**Latitude:**	32.7346634
From:	Map	**Easting:**	669,185.00 usft	**Longitude:**	-103.9175583
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.22 °

Well	Sec 24, T18S, R30E					
Well Position	**+N/-S**	0.0 usft	**Northing:**	631,253.00 usft	**Latitude:**	32.7346634
	+E/-W	0.0 usft	**Easting:**	669,185.00 usft	**Longitude:**	-103.9175583
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	3,671.0 usft	**Ground Level:**	3,644.0 usft

Wellbore	BHL: 1980' FSL & 330' FWL (25)				
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2010	4/26/2018	6.94	60.42	48,197

Design	Design #1				
Audit Notes:					
Version:		**Phase:**	PROTOTYPE	**Tie On Depth:**	0.0
Vertical Section:	**Depth From (TVD) (usft)**	**+N/-S (usft)**	**+E/-W (usft)**	**Direction (°)**	
	0.0	0.0	0.0	262.42	

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
4,625.0	0.00	0.00	4,625.0	0.0	0.0	0.00	0.00	0.00	0.00	
6,443.8	36.74	171.28	6,321.7	-556.9	85.4	2.02	2.02	0.00	171.28	
6,755.3	36.74	171.28	6,571.3	-741.1	113.6	0.00	0.00	0.00	0.00	
8,574.1	0.00	0.00	8,268.0	-1,298.0	199.0	2.02	-2.02	0.00	180.00	KOP @ 8268'
9,332.1	90.85	269.81	8,746.0	-1,299.6	-286.2	11.99	11.99	0.00	-90.19	
19,062.1	90.85	269.81	8,601.0	-1,332.0	-10,015.0	0.00	0.00	0.00	0.00	BHL: 1980' FSL & 33(

Database:	Hobbs	**Local Co-ordinate Reference:**	Site Virgo 24/23 B2IL Fed Com #1H
Company:	Mewbourne Oil Company	**TVD Reference:**	WELL @ 3671.0usft (Original Well Elev)
Project:	Eddy County, New Mexico NAD 83	**MD Reference:**	WELL @ 3671.0usft (Original Well Elev)
Site:	Virgo 24/23 B2IL Fed Com #1H	**North Reference:**	Grid
Well:	Sec 24, T18S, R30E	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	BHL: 1980' FSL & 330' FWL (25)		
Design:	Design #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
SL: 2000' FNL & 205' FEL (24)									
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	0.00
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	0.00
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	0.00
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	0.00
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	0.00
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	0.00
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	0.00
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	0.00
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	0.00
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	0.00
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	0.00
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	0.00
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	0.00
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	0.00
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	0.00
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.0	0.00	0.00	0.00
4,625.0	0.00	0.00	4,625.0	0.0	0.0	0.0	0.00	0.00	0.00
4,700.0	1.52	171.28	4,700.0	-1.0	0.2	0.0	2.02	2.02	0.00
4,800.0	3.54	171.28	4,799.9	-5.3	0.8	-0.1	2.02	2.02	0.00
4,900.0	5.56	171.28	4,899.6	-13.2	2.0	-0.3	2.02	2.02	0.00
5,000.0	7.58	171.28	4,998.9	-24.5	3.8	-0.5	2.02	2.02	0.00
5,100.0	9.60	171.28	5,097.8	-39.2	6.0	-0.8	2.02	2.02	0.00

Database:	Hobbs	**Local Co-ordinate Reference:**	Site Virgo 24/23 B2IL Fed Com #1H
Company:	Mewbourne Oil Company	**TVD Reference:**	WELL @ 3671.0usft (Original Well Elev)
Project:	Eddy County, New Mexico NAD 83	**MD Reference:**	WELL @ 3671.0usft (Original Well Elev)
Site:	Virgo 24/23 B2IL Fed Com #1H	**North Reference:**	Grid
Well:	Sec 24, T18S, R30E	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	BHL: 1980' FSL & 330' FWL (25)		
Design:	Design #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,200.0	11.62	171.28	5,196.1	-57.4	8.8	-1.2	2.02	2.02	0.00
5,300.0	13.64	171.28	5,293.6	-79.0	12.1	-1.6	2.02	2.02	0.00
5,400.0	15.66	171.28	5,390.4	-104.0	15.9	-2.1	2.02	2.02	0.00
5,500.0	17.68	171.28	5,486.2	-132.3	20.3	-2.7	2.02	2.02	0.00
5,600.0	19.70	171.28	5,580.9	-164.0	25.1	-3.3	2.02	2.02	0.00
5,700.0	21.72	171.28	5,674.4	-199.0	30.5	-4.0	2.02	2.02	0.00
5,800.0	23.74	171.28	5,766.7	-237.1	36.4	-4.8	2.02	2.02	0.00
5,900.0	25.76	171.28	5,857.5	-278.5	42.7	-5.6	2.02	2.02	0.00
6,000.0	27.78	171.28	5,946.8	-323.0	49.5	-6.5	2.02	2.02	0.00
6,100.0	29.80	171.28	6,034.4	-370.6	56.8	-7.5	2.02	2.02	0.00
6,200.0	31.82	171.28	6,120.3	-421.2	64.6	-8.5	2.02	2.02	0.00
6,300.0	33.84	171.28	6,204.3	-474.8	72.8	-9.6	2.02	2.02	0.00
6,400.0	35.86	171.28	6,286.4	-531.3	81.5	-10.7	2.02	2.02	0.00
6,443.8	36.74	171.28	6,321.7	-556.9	85.4	-11.2	2.02	2.02	0.00
6,500.0	36.74	171.28	6,366.7	-590.1	90.5	-11.9	0.00	0.00	0.00
6,600.0	36.74	171.28	6,446.9	-649.3	99.5	-13.1	0.00	0.00	0.00
6,700.0	36.74	171.28	6,527.0	-708.4	108.6	-14.3	0.00	0.00	0.00
6,755.3	36.74	171.28	6,571.3	-741.1	113.6	-14.9	0.00	0.00	0.00
6,800.0	35.84	171.28	6,607.4	-767.2	117.6	-15.4	2.02	-2.02	0.00
6,900.0	33.82	171.28	6,689.4	-823.7	126.3	-16.6	2.02	-2.02	0.00
7,000.0	31.80	171.28	6,773.5	-877.2	134.5	-17.7	2.02	-2.02	0.00
7,100.0	29.78	171.28	6,859.4	-927.8	142.2	-18.7	2.02	-2.02	0.00
7,200.0	27.76	171.28	6,947.0	-975.4	149.5	-19.6	2.02	-2.02	0.00
7,300.0	25.74	171.28	7,036.3	-1,019.9	156.4	-20.5	2.02	-2.02	0.00
7,400.0	23.72	171.28	7,127.2	-1,061.2	162.7	-21.4	2.02	-2.02	0.00
7,500.0	21.70	171.28	7,219.4	-1,099.4	168.5	-22.1	2.02	-2.02	0.00
7,600.0	19.68	171.28	7,313.0	-1,134.3	173.9	-22.8	2.02	-2.02	0.00
7,700.0	17.66	171.28	7,407.7	-1,165.9	178.8	-23.5	2.02	-2.02	0.00
7,800.0	15.64	171.28	7,503.5	-1,194.2	183.1	-24.0	2.02	-2.02	0.00
7,900.0	13.62	171.28	7,600.3	-1,219.2	186.9	-24.5	2.02	-2.02	0.00
8,000.0	11.60	171.28	7,697.8	-1,240.8	190.2	-25.0	2.02	-2.02	0.00
8,100.0	9.58	171.28	7,796.1	-1,258.9	193.0	-25.3	2.02	-2.02	0.00
8,200.0	7.56	171.28	7,895.0	-1,273.7	195.3	-25.6	2.02	-2.02	0.00
8,300.0	5.54	171.28	7,994.4	-1,284.9	197.0	-25.9	2.02	-2.02	0.00
8,400.0	3.52	171.28	8,094.0	-1,292.7	198.2	-26.0	2.02	-2.02	0.00
8,500.0	1.50	171.28	8,193.9	-1,297.0	198.9	-26.1	2.02	-2.02	0.00
8,574.1	0.00	0.00	8,268.0	-1,298.0	199.0	-26.1	2.02	-2.02	0.00
KOP @ 8268'									
8,600.0	3.11	269.81	8,293.9	-1,298.0	198.3	-25.4	11.99	11.99	0.00
8,700.0	15.09	269.81	8,392.5	-1,298.1	182.5	-9.8	11.99	11.99	0.00
8,800.0	27.08	269.81	8,485.6	-1,298.2	146.6	25.8	11.99	11.99	0.00
8,900.0	39.06	269.81	8,569.3	-1,298.4	92.1	79.8	11.99	11.99	0.00
9,000.0	51.05	269.81	8,639.8	-1,298.6	21.5	149.9	11.99	11.99	0.00
9,100.0	63.03	269.81	8,694.1	-1,298.9	-62.3	233.0	11.99	11.99	0.00
9,168.2	71.20	269.81	8,720.6	-1,299.1	-125.0	295.2	11.99	11.99	0.00
FTP: 1980' FSL & 330' FEL (24)									
9,200.0	75.02	269.81	8,729.8	-1,299.2	-155.5	325.4	11.99	11.99	0.00
9,300.0	87.00	269.81	8,745.4	-1,299.5	-254.1	423.2	11.99	11.99	0.00
9,332.1	90.85	269.81	8,746.0	-1,299.6	-286.2	455.0	11.99	11.99	0.00
LP: 1980' FSL & 491' FEL (24)									
9,400.0	90.85	269.81	8,745.0	-1,299.8	-354.0	522.3	0.00	0.00	0.00
9,500.0	90.85	269.81	8,743.5	-1,300.2	-454.0	621.5	0.00	0.00	0.00
9,600.0	90.85	269.81	8,742.0	-1,300.5	-554.0	720.6	0.00	0.00	0.00

Database:	Hobbs	**Local Co-ordinate Reference:**	Site Virgo 24/23 B2IL Fed Com #1H
Company:	Mewbourne Oil Company	**TVD Reference:**	WELL @ 3671.0usft (Original Well Elev)
Project:	Eddy County, New Mexico NAD 83	**MD Reference:**	WELL @ 3671.0usft (Original Well Elev)
Site:	Virgo 24/23 B2IL Fed Com #1H	**North Reference:**	Grid
Well:	Sec 24, T18S, R30E	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	BHL: 1980' FSL & 330' FWL (25)		
Design:	Design #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
9,700.0	90.85	269.81	8,740.5	-1,300.8	-654.0	819.8	0.00	0.00	0.00
9,800.0	90.85	269.81	8,739.0	-1,301.2	-754.0	919.0	0.00	0.00	0.00
9,900.0	90.85	269.81	8,737.5	-1,301.5	-854.0	1,018.1	0.00	0.00	0.00
10,000.0	90.85	269.81	8,736.0	-1,301.8	-954.0	1,117.3	0.00	0.00	0.00
10,100.0	90.85	269.81	8,734.6	-1,302.2	-1,054.0	1,216.4	0.00	0.00	0.00
10,200.0	90.85	269.81	8,733.1	-1,302.5	-1,153.9	1,315.6	0.00	0.00	0.00
10,300.0	90.85	269.81	8,731.6	-1,302.8	-1,253.9	1,414.8	0.00	0.00	0.00
10,400.0	90.85	269.81	8,730.1	-1,303.2	-1,353.9	1,513.9	0.00	0.00	0.00
10,500.0	90.85	269.81	8,728.6	-1,303.5	-1,453.9	1,613.1	0.00	0.00	0.00
10,600.0	90.85	269.81	8,727.1	-1,303.8	-1,553.9	1,712.2	0.00	0.00	0.00
10,700.0	90.85	269.81	8,725.6	-1,304.2	-1,653.9	1,811.4	0.00	0.00	0.00
10,800.0	90.85	269.81	8,724.1	-1,304.5	-1,753.9	1,910.6	0.00	0.00	0.00
10,900.0	90.85	269.81	8,722.6	-1,304.8	-1,853.9	2,009.7	0.00	0.00	0.00
11,000.0	90.85	269.81	8,721.1	-1,305.2	-1,953.9	2,108.9	0.00	0.00	0.00
11,100.0	90.85	269.81	8,719.7	-1,305.5	-2,053.8	2,208.0	0.00	0.00	0.00
11,200.0	90.85	269.81	8,718.2	-1,305.8	-2,153.8	2,307.2	0.00	0.00	0.00
11,300.0	90.85	269.81	8,716.7	-1,306.2	-2,253.8	2,406.4	0.00	0.00	0.00
11,400.0	90.85	269.81	8,715.2	-1,306.5	-2,353.8	2,505.5	0.00	0.00	0.00
11,500.0	90.85	269.81	8,713.7	-1,306.8	-2,453.8	2,604.7	0.00	0.00	0.00
11,600.0	90.85	269.81	8,712.2	-1,307.2	-2,553.8	2,703.8	0.00	0.00	0.00
11,700.0	90.85	269.81	8,710.7	-1,307.5	-2,653.8	2,803.0	0.00	0.00	0.00
11,800.0	90.85	269.81	8,709.2	-1,307.8	-2,753.8	2,902.1	0.00	0.00	0.00
11,900.0	90.85	269.81	8,707.7	-1,308.2	-2,853.8	3,001.3	0.00	0.00	0.00
12,000.0	90.85	269.81	8,706.2	-1,308.5	-2,953.7	3,100.5	0.00	0.00	0.00
12,100.0	90.85	269.81	8,704.8	-1,308.8	-3,053.7	3,199.6	0.00	0.00	0.00
12,200.0	90.85	269.81	8,703.3	-1,309.2	-3,153.7	3,298.8	0.00	0.00	0.00
12,300.0	90.85	269.81	8,701.8	-1,309.5	-3,253.7	3,397.9	0.00	0.00	0.00
12,400.0	90.85	269.81	8,700.3	-1,309.8	-3,353.7	3,497.1	0.00	0.00	0.00
12,500.0	90.85	269.81	8,698.8	-1,310.2	-3,453.7	3,596.3	0.00	0.00	0.00
12,600.0	90.85	269.81	8,697.3	-1,310.5	-3,553.7	3,695.4	0.00	0.00	0.00
12,700.0	90.85	269.81	8,695.8	-1,310.8	-3,653.7	3,794.6	0.00	0.00	0.00
12,797.4	90.85	269.81	8,694.4	-1,311.1	-3,751.0	3,891.1	0.00	0.00	0.00
PPP-2: 1980' FSL & 1317' FWL (24)									
12,800.0	90.85	269.81	8,694.3	-1,311.2	-3,753.6	3,893.7	0.00	0.00	0.00
12,900.0	90.85	269.81	8,692.8	-1,311.5	-3,853.6	3,992.9	0.00	0.00	0.00
13,000.0	90.85	269.81	8,691.3	-1,311.8	-3,953.6	4,092.1	0.00	0.00	0.00
13,100.0	90.85	269.81	8,689.8	-1,312.2	-4,053.6	4,191.2	0.00	0.00	0.00
13,200.0	90.85	269.81	8,688.4	-1,312.5	-4,153.6	4,290.4	0.00	0.00	0.00
13,300.0	90.85	269.81	8,686.9	-1,312.8	-4,253.6	4,389.5	0.00	0.00	0.00
13,400.0	90.85	269.81	8,685.4	-1,313.2	-4,353.6	4,488.7	0.00	0.00	0.00
13,500.0	90.85	269.81	8,683.9	-1,313.5	-4,453.6	4,587.9	0.00	0.00	0.00
13,600.0	90.85	269.81	8,682.4	-1,313.8	-4,553.6	4,687.0	0.00	0.00	0.00
13,700.0	90.85	269.81	8,680.9	-1,314.2	-4,653.5	4,786.2	0.00	0.00	0.00
13,800.0	90.85	269.81	8,679.4	-1,314.5	-4,753.5	4,885.3	0.00	0.00	0.00
13,900.0	90.85	269.81	8,677.9	-1,314.8	-4,853.5	4,984.5	0.00	0.00	0.00
14,000.0	90.85	269.81	8,676.4	-1,315.2	-4,953.5	5,083.7	0.00	0.00	0.00
14,100.0	90.85	269.81	8,674.9	-1,315.5	-5,053.5	5,182.8	0.00	0.00	0.00
14,200.0	90.85	269.81	8,673.5	-1,315.8	-5,153.5	5,282.0	0.00	0.00	0.00
14,300.0	90.85	269.81	8,672.0	-1,316.1	-5,253.5	5,381.1	0.00	0.00	0.00
14,400.0	90.85	269.81	8,670.5	-1,316.5	-5,353.5	5,480.3	0.00	0.00	0.00
14,500.0	90.85	269.81	8,669.0	-1,316.8	-5,453.4	5,579.5	0.00	0.00	0.00
14,600.0	90.85	269.81	8,667.5	-1,317.1	-5,553.4	5,678.6	0.00	0.00	0.00
14,700.0	90.85	269.81	8,666.0	-1,317.5	-5,653.4	5,777.8	0.00	0.00	0.00

Database:	Hobbs	**Local Co-ordinate Reference:**	Site Virgo 24/23 B2IL Fed Com #1H
Company:	Mewbourne Oil Company	**TVD Reference:**	WELL @ 3671.0usft (Original Well Elev)
Project:	Eddy County, New Mexico NAD 83	**MD Reference:**	WELL @ 3671.0usft (Original Well Elev)
Site:	Virgo 24/23 B2IL Fed Com #1H	**North Reference:**	Grid
Well:	Sec 24, T18S, R30E	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	BHL: 1980' FSL & 330' FWL (25)		
Design:	Design #1		

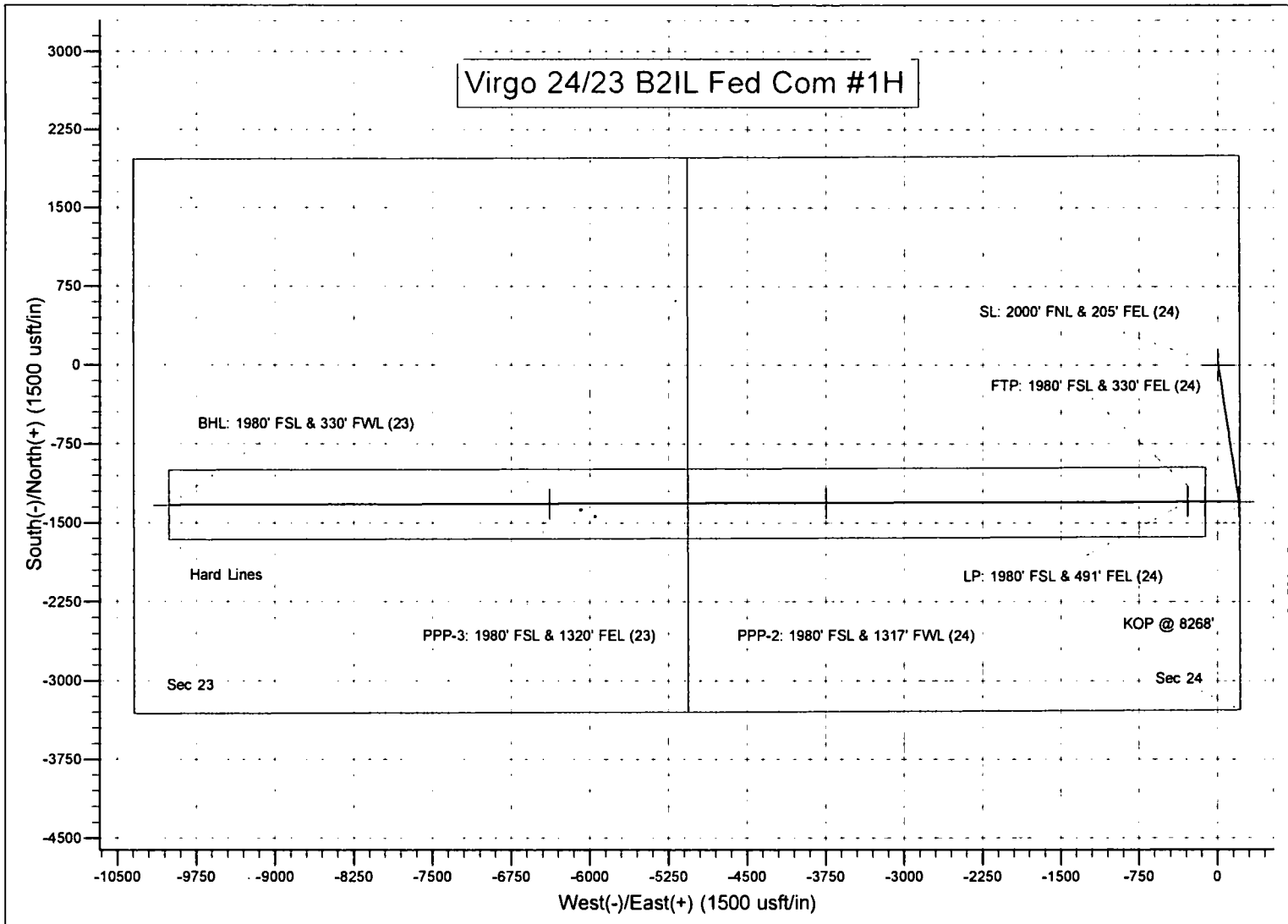
Planned Survey

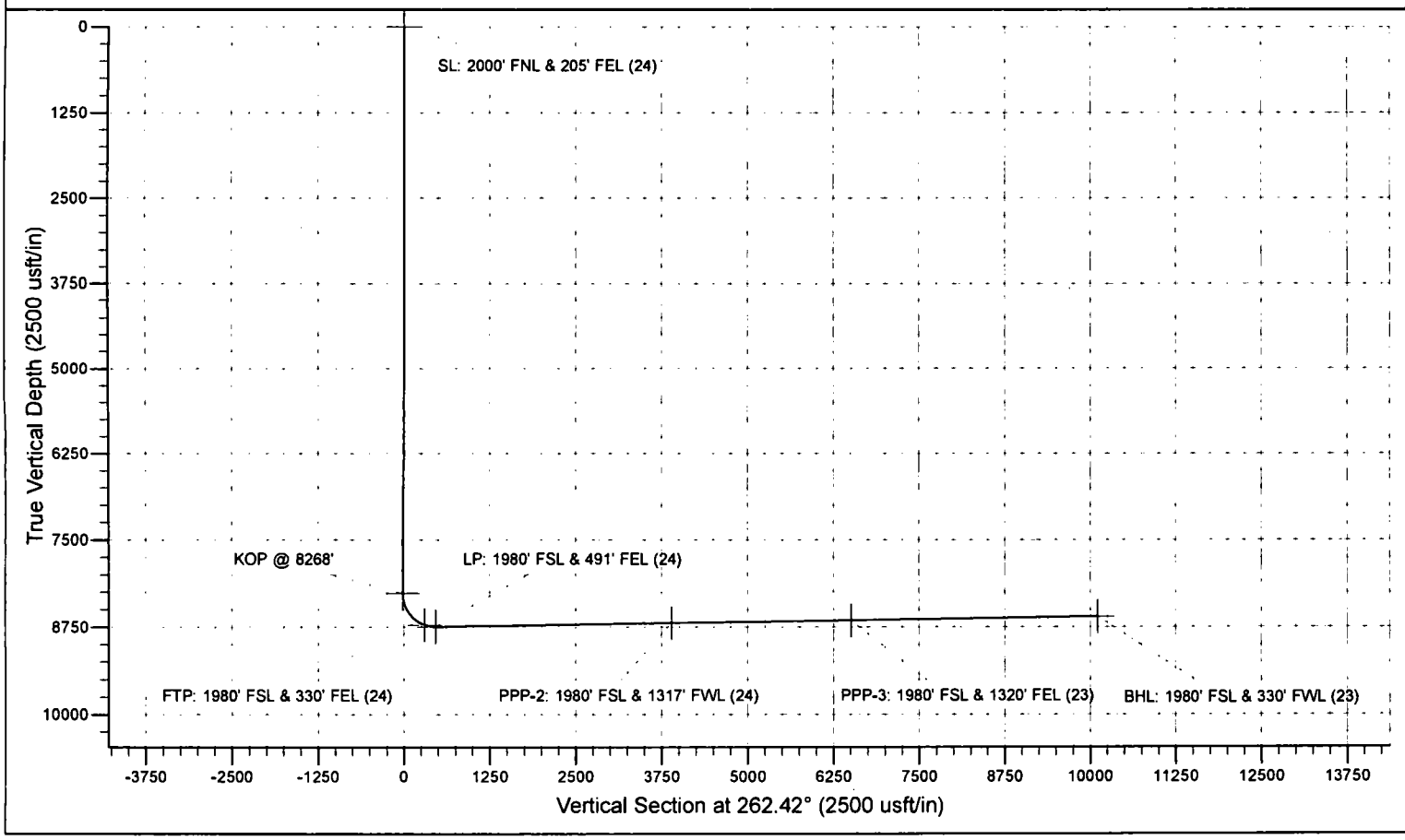
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
14,800.0	90.85	269.81	8,664.5	-1,317.8	-5,753.4	5,876.9	0.00	0.00	0.00
14,900.0	90.85	269.81	8,663.0	-1,318.1	-5,853.4	5,976.1	0.00	0.00	0.00
15,000.0	90.85	269.81	8,661.5	-1,318.5	-5,953.4	6,075.3	0.00	0.00	0.00
15,100.0	90.85	269.81	8,660.0	-1,318.8	-6,053.4	6,174.4	0.00	0.00	0.00
15,200.0	90.85	269.81	8,658.6	-1,319.1	-6,153.4	6,273.6	0.00	0.00	0.00
15,300.0	90.85	269.81	8,657.1	-1,319.5	-6,253.4	6,372.7	0.00	0.00	0.00
15,400.0	90.85	269.81	8,655.6	-1,319.8	-6,353.3	6,471.9	0.00	0.00	0.00
15,434.7	90.85	269.81	8,655.1	-1,319.9	-6,388.0	6,506.3	0.00	0.00	0.00
PPP-3: 1980' FSL & 1320' FEL (23)									
15,500.0	90.85	269.81	8,654.1	-1,320.1	-6,453.3	6,571.0	0.00	0.00	0.00
15,600.0	90.85	269.81	8,652.6	-1,320.5	-6,553.3	6,670.2	0.00	0.00	0.00
15,700.0	90.85	269.81	8,651.1	-1,320.8	-6,653.3	6,769.4	0.00	0.00	0.00
15,800.0	90.85	269.81	8,649.6	-1,321.1	-6,753.3	6,868.5	0.00	0.00	0.00
15,900.0	90.85	269.81	8,648.1	-1,321.5	-6,853.3	6,967.7	0.00	0.00	0.00
16,000.0	90.85	269.81	8,646.6	-1,321.8	-6,953.3	7,066.8	0.00	0.00	0.00
16,100.0	90.85	269.81	8,645.1	-1,322.1	-7,053.3	7,166.0	0.00	0.00	0.00
16,200.0	90.85	269.81	8,643.7	-1,322.5	-7,153.2	7,265.2	0.00	0.00	0.00
16,300.0	90.85	269.81	8,642.2	-1,322.8	-7,253.2	7,364.3	0.00	0.00	0.00
16,400.0	90.85	269.81	8,640.7	-1,323.1	-7,353.2	7,463.5	0.00	0.00	0.00
16,500.0	90.85	269.81	8,639.2	-1,323.5	-7,453.2	7,562.6	0.00	0.00	0.00
16,600.0	90.85	269.81	8,637.7	-1,323.8	-7,553.2	7,661.8	0.00	0.00	0.00
16,700.0	90.85	269.81	8,636.2	-1,324.1	-7,653.2	7,761.0	0.00	0.00	0.00
16,800.0	90.85	269.81	8,634.7	-1,324.5	-7,753.2	7,860.1	0.00	0.00	0.00
16,900.0	90.85	269.81	8,633.2	-1,324.8	-7,853.2	7,959.3	0.00	0.00	0.00
17,000.0	90.85	269.81	8,631.7	-1,325.1	-7,953.2	8,058.4	0.00	0.00	0.00
17,100.0	90.85	269.81	8,630.2	-1,325.5	-8,053.1	8,157.6	0.00	0.00	0.00
17,200.0	90.85	269.81	8,628.7	-1,325.8	-8,153.1	8,256.8	0.00	0.00	0.00
17,300.0	90.85	269.81	8,627.3	-1,326.1	-8,253.1	8,355.9	0.00	0.00	0.00
17,400.0	90.85	269.81	8,625.8	-1,326.5	-8,353.1	8,455.1	0.00	0.00	0.00
17,500.0	90.85	269.81	8,624.3	-1,326.8	-8,453.1	8,554.2	0.00	0.00	0.00
17,600.0	90.85	269.81	8,622.8	-1,327.1	-8,553.1	8,653.4	0.00	0.00	0.00
17,700.0	90.85	269.81	8,621.3	-1,327.5	-8,653.1	8,752.6	0.00	0.00	0.00
17,800.0	90.85	269.81	8,619.8	-1,327.8	-8,753.1	8,851.7	0.00	0.00	0.00
17,900.0	90.85	269.81	8,618.3	-1,328.1	-8,853.1	8,950.9	0.00	0.00	0.00
18,000.0	90.85	269.81	8,616.8	-1,328.5	-8,953.0	9,050.0	0.00	0.00	0.00
18,100.0	90.85	269.81	8,615.3	-1,328.8	-9,053.0	9,149.2	0.00	0.00	0.00
18,200.0	90.85	269.81	8,613.8	-1,329.1	-9,153.0	9,248.4	0.00	0.00	0.00
18,300.0	90.85	269.81	8,612.4	-1,329.5	-9,253.0	9,347.5	0.00	0.00	0.00
18,400.0	90.85	269.81	8,610.9	-1,329.8	-9,353.0	9,446.7	0.00	0.00	0.00
18,500.0	90.85	269.81	8,609.4	-1,330.1	-9,453.0	9,545.8	0.00	0.00	0.00
18,600.0	90.85	269.81	8,607.9	-1,330.5	-9,553.0	9,645.0	0.00	0.00	0.00
18,700.0	90.85	269.81	8,606.4	-1,330.8	-9,653.0	9,744.1	0.00	0.00	0.00
18,800.0	90.85	269.81	8,604.9	-1,331.1	-9,752.9	9,843.3	0.00	0.00	0.00
18,900.0	90.85	269.81	8,603.4	-1,331.5	-9,852.9	9,942.5	0.00	0.00	0.00
19,000.0	90.85	269.81	8,601.9	-1,331.8	-9,952.9	10,041.6	0.00	0.00	0.00
19,062.1	90.85	269.81	8,601.0	-1,332.0	-10,015.0	10,103.2	0.00	0.00	0.00
BHL: 1980' FSL & 330' FWL (23)									

Database:	Hobbs	**Local Co-ordinate Reference:**	Site Virgo 24/23 B2IL Fed Com #1H
Company:	Mewbourne Oil Company	**TVD Reference:**	WELL @ 3671.0usft (Original Well Elev)
Project:	Eddy County, New Mexico NAD 83	**MD Reference:**	WELL @ 3671.0usft (Original Well Elev)
Site:	Virgo 24/23 B2IL Fed Com #1H	**North Reference:**	Grid
Well:	Sec 24, T18S, R30E	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	BHL: 1980' FSL & 330' FWL (25)		
Design:	Design #1		

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
SL: 2000' FNL & 205' FE - plan hits target center - Point	0.00	0.00	0.0	0.0	0.0	631,253.00	669,185.00	32.7346634	-103.9175583
KOP @ 8268' - plan hits target center - Point	0.00	0.00	8,268.0	-1,298.0	199.0	629,955.00	669,384.00	32.7310935	-103.9169278
BHL: 1980' FSL & 330' F - plan hits target center - Point	0.00	0.00	8,601.0	-1,332.0	-10,015.0	629,921.00	659,170.00	32.7311060	-103.9501433
PPP-3: 1980' FSL & 132 - plan hits target center - Point	0.00	0.00	8,655.1	-1,319.9	-6,388.0	629,933.08	662,797.00	32.7311026	-103.9383484
PPP-2: 1980' FSL & 131 - plan hits target center - Point	0.00	0.00	8,694.4	-1,311.1	-3,751.0	629,941.86	665,434.00	32.7310994	-103.9297730
FTP: 1980' FSL & 330' F - plan hits target center - Point	0.00	0.00	8,720.6	-1,299.1	-125.0	629,953.93	669,060.00	32.7310941	-103.9179814
LP: 1980' FSL & 491' FE - plan hits target center - Point	0.00	0.00	8,746.0	-1,299.6	-286.2	629,953.39	668,898.83	32.7310943	-103.9185055


Virgo 24/23 B2IL Fed Com #1H
SL: 2000' FNL & 205' FEL (24)
FTP: 1980' FSL & 330' FEL (24)
BHL: 1980' FSL & 330' FWL (23)
Hard Lines
LP: 1980' FSL & 491' FEL (24)
KOP @ 8268'
PPP-3: 1980' FSL & 1320' FEL (23)
PPP-2: 1980' FSL & 1317' FWL (24)
Sec 23
Sec 24
South(-)/North(+) (1500 usft/in)
West(-)/East(+) (1500 usft/in)
3000
2250
1500
750
0
-750
-1500
-2250
-3000
-3750
-4500
-10500
-9750
-9000
-8250
-7500
-6750
-6000
-5250
-4500
-3750
-3000
-2250
-1500
-750
0


SL: 2000' FNL & 205' FEL (24)
KOP @ 8268'
LP: 1980' FSL & 491' FEL (24)
FTP: 1980' FSL & 330' FEL (24)
PPP-2: 1980' FSL & 1317' FWL (24)
PPP-3: 1980' FSL & 1320' FEL (23)
BHL: 1980' FSL & 330' FWL (23)
True Vertical Depth (2500 usft/in)
Vertical Section at 262.42° (2500 usft/in)
0
1250
2500
3750
5000
6250
7500
8750
10000
-3750
-2500
-1250
0
1250
2500
3750
5000
6250
7500
8750
10000
11250
12500
13750

Mewbourne Oil Company, Virgo 24/23 B2IL Fed Com #1H
Sec 24, T18S, R30E
SL: 2000' FNL & 205' FEL, Sec 24
BHL: 1980' FSL & 330' FWL, Sec 23

1. Geologic Formations

TVD of target	8601'	Pilot hole depth	NA
MD at TD:	19062'	Deepest expected fresh water:	250'

Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Quaternary Fill	Surface		
Rustler	550	Water	
Top of Salt	750		
Base Salt	1810		
Yates	1970	Oil/Gas	
Seven Rivers	2190	Oil/Gas	
Queen	3140	Oil/Gas	
Grayburg	3590		
Lamar	4625	Oil/Gas	
Bell Canyon		Oil/Gas	
Cherry Canyon		Oil/Gas	
Manzanita Marker			
Brushy Canyon		Oil/Gas	
Bone Spring	5830	Oil/Gas	
1st Bone Spring Sand	7650	Oil/Gas	
2nd Bone Spring Sand	8270	Target Zone	
3rd Bone Spring Sand			
Abo			
Wolfcamp		Will Not Penetrate	
Devonian			
Fusselman			
Ellenburger			
Granite Wash			

*H2S, water flows, loss of circulation, abnormal pressures, etc.

Mewbourne Oil Company, Virgo 24/23 B2IL Fed Com #1H
Sec 24, T18S, R30E
SL: 2000' FNL & 205' FEL, Sec 24
BHL: 1980' FSL & 330' FWL, Sec 23

2. Casing Program

Hole Size	Casing Interval From	Casing Interval To	Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Jt Tension	SF Body Tension
17.5"	0'	625'	13.375"	48	H40	STC	2.69	6.05	10.73	18.03
12.25"	0'	3453'	9.625"	36	J55	LTC	1.13	1.96	2.69	3.35
12.25"	3453'	4393'	9.625"	40	J55	LTC	1.13	1.73	11.85	14.36
12.25"	4393'	4550'	9.625"	40	N80	LTC	1.31	2.43	117.48	146.01
8.75"	0'	9332'	7"	26	HCP110	LTC	1.84	2.35	2.64	3.42
6.125"	8574'	19062'	4.5"	13.5	P110	LTC	2.42	2.81	2.39	2.98
BLM Minimum Safety Factor			1.125	1	1.6 Dry 1.8 Wet		1.6 Dry 1.8 Wet			

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h
Must have table for contingency casing

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Is casing API approved? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	N
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	
Is well within the designated 4 string boundary.	
Is well located in SOPA but not in R-111-P?	Y
If yes, are the first 2 strings cemented to surface and 3rd string cement tied back 500' into previous casing?	Y
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2nd string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	Y
If yes, are there two strings cemented to surface?	Y
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

Mewbourne Oil Company, Virgo 24/23 B2IL Fed Com #1H
Sec 24, T18S, R30E
SL: 2000' FNL & 205' FEL, Sec 24
BHL: 1980' FSL & 330' FWL, Sec 23

3. Cementing Program

Casing	# Sks	Wt. lb/ gal	Yld ft3/ sack	H_20 gal/ sk	500# Comp. Strength (hours)	Slurry Description
Surf.	285	12.5	2.12	11	10	Lead: Class C + Salt + Gel + Extender + LCM
	200	14.8	1.34	6.3	8	Tail: Class C + Retarder
Inter.	740	12.5	2.12	11	10	Lead: Class C + Salt + Gel + Extender + LCM
	200	14.8	1.34	6.3	8	Tail: Class C + Retarder
Prod.	250	12.5	2.12	11	9	Lead: Class C + Gel + Retarder + Defoamer + Extender
	400	15.6	1.18	5.2	10	Tail: Class H + Retarder + Fluid Loss + Defoamer
Liner	420	11.2	2.97	17	16	Class C + Salt + Gel + Fluid Loss + Retarder + Dispersant + Defoamer + Anti-Settling Agent

A copy of cement test will be available on location at time of cement job providing pump times, compressive strengths, etc.

Casing String	TOC	% Excess
Surface	0'	100%
Intermediate	0'	25%
Production	4050'	25%
Liner	8574'	25%

4. Pressure Control Equipment

	Variance: None

BOP installed and tested before drilling which hole?	Size?	System Rated WP	Type	✓	Tested to:
12 1/4"	13 5/8"	3M	Annular	X	1500#
			Blind Ram	X	3000#
			Pipe Ram	X	
			Double Ram		
			Other*		

*Specify if additional ram is utilized.

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The system may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics.

X	Formation integrity test will be performed per Onshore Order #2. On exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i.
Y	A variance is requested for the use of a flexible choke line from the BOP to choke manifold. See attached for specs and hydrostatic test chart.
	N Are anchors required by manufacturer?
Y	A multibowl wellhead is being used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested. • Provide description here: See attached schematic.

5. Mud Program

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
0'	625'	FW Gel	8.6-8.8	28-34	N/C
625'	4550'	Saturated Brine	10.0	28-34	N/C
4550'	8574'	Cut Brine	8.6-9.5	28-34	N/C
8574'	19062'	OBM	8.6-9.7	30-40	<10cc

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times.

What will be used to monitor the loss or gain of fluid?	Visual monitoring

6. Logging and Testing Procedures

Logging, Coring and Testing.	
X	Will run GR/CNL from KOP (8574') to surface (horizontal well – vertical portion of hole). Stated logs run will be in the Completion Report and submitted to the BLM.
	No Logs are planned based on well control or offset log information.
	Drill stem test? If yes, explain
	Coring? If yes, explain

Additional logs planned		Interval
X	Gamma Ray	8574' (KOP) to TD
	Density	
	CBL	
	Mud log	
	PEX	

7. Drilling Conditions

Condition	Specify what type and where?
BH pressure at deepest TVD	4338 psi
Abnormal temperature	No

Mitigation measure for abnormal conditions. Describe. Lost circulation material/sweeps/mud scavengers in surface hole.

Hydrogen Sulfide (H2S) monitors will be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM.	
	H2S is present
X	H2S Plan attached

8. Other facets of operation

Is this a walking operation? If yes, describe.
Will be pre-setting casing? If yes, describe.

Attachments
___ Directional Plan
___ Other, describe

APD ID: 10400029846 **Submission Date:** 04/27/2018

Operator Name: MEWBOURNE OIL COMPANY

Well Name: VIRGO 24/23 B2IL FED COM **Well Number:** 1H

Well Type: OIL WELL **Well Work Type:** Drill

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - Existing Roads

Will existing roads be used? YES

Existing Road Map:

Virgo24_23B2ILFedCom1H_existingroadmap_20180427110010.pdf

Existing Road Purpose: ACCESS,FLUID TRANSPORT **Row(s) Exist?** NO

ROW ID(s)

ID:

Do the existing roads need to be improved? NO

Existing Road Improvement Description:

Existing Road Improvement Attachment:

Section 2 - New or Reconstructed Access Roads

Will new roads be needed? YES

New Road Map:

Virgo24_23B2ILFedCom1H_newroadmap_20180427111059.pdf

New road type: RESOURCE

Length: 769.5 Feet **Width (ft.):** 30

Max slope (%): 3 **Max grade (%):** 3

Army Corp of Engineers (ACOE) permit required? NO

ACOE Permit Number(s):

New road travel width: 14

New road access erosion control: none

New road access plan or profile prepared? NO

New road access plan attachment:

Access road engineering design? NO

Access road engineering design attachment:

Access surfacing type: OTHER

Access topsoil source: BOTH

Access surfacing type description: Caliche

Access onsite topsoil source depth: 3

Offsite topsoil source description: stockpiled onsite & on edge of location

Onsite topsoil removal process: blade

Access other construction information:

Access miscellaneous information:

Number of access turnouts: 1 **Access turnout map:**

Drainage Control

New road drainage crossing: OTHER

Drainage Control comments: None

Road Drainage Control Structures (DCS) description: none

Road Drainage Control Structures (DCS) attachment:

Access Additional Attachments

Additional Attachment(s):

Section 3 - Location of Existing Wells

Existing Wells Map? YES

Attach Well map:

Virgo24_23B2ILFedCom1H_existingwellmap_20180427110134.pdf

Existing Wells description:

Section 4 - Location of Existing and/or Proposed Production Facilities

Submit or defer a Proposed Production Facilities plan? SUBMIT

Production Facilities description: a. All permanent, lasting more than 6 months, above ground structures including but not limited to pumpjacks, storage tanks, pipeline risers, meter housing, etc. that are not subject to safety requirements will be painted a non-reflective paint color that blends in with the surrounding landscape. The paint color will be one of the colors from the BLM Standard Environmental Colors chart selected by the BLM authorized officer. b. All proposed production facilities that are located on the well pad will be strategically placed to allow for maximum interim reclamation, recontouring, and revegetation of the well location. c. Production from the proposed well will be located on the East edge of location. d. If any plans change regarding the production facility or other infrastructure (pipeline, electric line, etc.), we will submit a sundry notice or right of way (if applicable) prior to installation of construction. e. An electric line will be applied for through a sundry notice or BLM right of way at a later date.
Production Facilities map:

Operator Name: MEWBOURNE OIL COMPANY

Well Name: VIRGO 24/23 B2IL FED COM **Well Number:** 1H

Virgo24_23B2ILFedCom1H_productionfacilitymap_20180427110202.pdf

Section 5 - Location and Types of Water Supply

Water Source Table

Water source use type: CAMP USE, DUST CONTROL, INTERMEDIATE/PRODUCTION CASING, STIMULATION, SURFACE CASING

Water source type: IRRIGATION

Describe type:

Source longitude: -103.95575

Source latitude: 32.698593

Source datum: NAD83

Water source permit type: WATER WELL

Source land ownership: FEDERAL

Water source transport method: TRUCKING

Source transportation land ownership: FEDERAL

Water source volume (barrels): 1940

Source volume (acre-feet): 0.2500526

Source volume (gal): 81480

Water source use type: DUST CONTROL, INTERMEDIATE/PRODUCTION CASING, STIMULATION, SURFACE CASING

Water source type: IRRIGATION

Describe type:

Source longitude: -103.902504

Source latitude: 32.71228

Source datum: NAD83

Water source permit type: WATER WELL

Source land ownership: PRIVATE

Water source transport method: TRUCKING

Source transportation land ownership: FEDERAL

Water source volume (barrels): 1940

Source volume (acre-feet): 0.2500526

Source volume (gal): 81480

Water source and transportation map:

Virgo24_23B2ILFedCom1H_watersourceandtransportationmap_20180427110227.pdf

Water source comments:

New water well? NO

New Water Well Info

Well latitude: **Well Longitude:** **Well datum:**

Well target aquifer:

Est. depth to top of aquifer(ft): **Est thickness of aquifer:**

Aquifer comments:

Aquifer documentation:

Well depth (ft): **Well casing type:**

Well casing outside diameter (in.): **Well casing inside diameter (in.):**

New water well casing? **Used casing source:**

Drilling method: **Drill material:**

Grout material: **Grout depth:**

Casing length (ft.): **Casing top depth (ft.):**

Well Production type: **Completion Method:**

Water well additional information:

State appropriation permit:

Additional information attachment:

Section 6 - Construction Materials

Construction Materials description: Caliche - BOTH SOURCES SHOWN ON ONE MAP

Construction Materials source location attachment:

Virgo24_23B2ILFedCom1H_calichesourceandtransportationmap_20180427110519.pdf

Section 7 - Methods for Handling Waste

Waste type: DRILLING

Waste content description: Drill cuttings

Amount of waste: 940 barrels

Waste disposal frequency : One Time Only

Safe containment description: Drill cuttings will be properly contained in steel tanks (20 yard roll off bins.)

Safe containmant attachment:

Waste disposal type: HAUL TO COMMERCIAL FACILITY **Disposal location ownership:** PRIVATE

Disposal type description:

Disposal location description: NMOCD approved waste disposal locations are CRI or Lea Land, both facilities are located on HWY 62/180, Sec. 27 T20S R32E.

Waste type: SEWAGE

Waste content description: Human waste & grey water

Amount of waste: 1500 gallons

Waste disposal frequency : Weekly

Safe containment description: 2,000 gallon plastic container

Safe containmant attachment:

Waste disposal type: HAUL TO COMMERCIAL FACILITY **Disposal location ownership:** PRIVATE
Disposal type description:

Disposal location description: City of Carlsbad Water Treatment facility

Waste type: GARBAGE

Waste content description: Garbage & trash

Amount of waste: 1500 pounds

Waste disposal frequency : One Time Only

Safe containment description: Enclosed trash trailer

Safe containmant attachment:

Waste disposal type: HAUL TO COMMERCIAL FACILITY **Disposal location ownership:** PRIVATE
Disposal type description:

Disposal location description: Waste Management facility in Carlsbad.

Reserve Pit

Reserve Pit being used? NO

Temporary disposal of produced water into reserve pit?

Reserve pit length (ft.) **Reserve pit width (ft.)**

Reserve pit depth (ft.) **Reserve pit volume (cu. yd.)**

Is at least 50% of the reserve pit in cut?

Reserve pit liner

Reserve pit liner specifications and installation description

Cuttings Area

Cuttings Area being used? NO

Are you storing cuttings on location? NO

Description of cuttings location

Cuttings area length (ft.) **Cuttings area width (ft.)**

Cuttings area depth (ft.) **Cuttings area volume (cu. yd.)**

Is at least 50% of the cuttings area in cut?

WCuttings area liner

Operator Name: MEWBOURNE OIL COMPANY

Well Name: VIRGO 24/23 B2IL FED COM **Well Number:** 1H

Cuttings area liner specifications and installation description

Section 8 - Ancillary Facilities

Are you requesting any Ancillary Facilities?: NO

Ancillary Facilities attachment:

Comments:

Section 9 - Well Site Layout

Well Site Layout Diagram:

Virgo24_23B2ILFedCom1H_wellsitelayout_20180427110550.pdf

Comments:

Section 10 - Plans for Surface Reclamation

Type of disturbance: New Surface Disturbance

Multiple Well Pad Name:

Multiple Well Pad Number:

Recontouring attachment:

Drainage/Erosion control construction: None

Drainage/Erosion control reclamation: None

Well pad proposed disturbance (acres): 4.132

Road proposed disturbance (acres): 0.53

Powerline proposed disturbance (acres): 0

Pipeline proposed disturbance (acres): 0

Other proposed disturbance (acres): 0

Total proposed disturbance: 4.662

Well pad interim reclamation (acres): 0.813

Road interim reclamation (acres): 0

Powerline interim reclamation (acres): 0

Pipeline interim reclamation (acres): 0

Other interim reclamation (acres): 0

Total interim reclamation: 0.813

Well pad long term disturbance (acres): 3.319

Road long term disturbance (acres): 0

Powerline long term disturbance (acres): 0

Pipeline long term disturbance (acres): 0

Other long term disturbance (acres): 0

Total long term disturbance: 3.319

Disturbance Comments: In areas to be heavily disturbed, the top 6 inches of soil material, will be stripped and stockpiled on the perimeter of the well location to keep topsoil viable, and to make redistribution of topsoil more efficient during interim reclamation. Stockpiled topsoil should include vegetative material. Topsoil will be clearly segregated and stored separately from subsoils. Contaminated soil will not be stockpiled, but properly treated and handled prior to topsoil salvaging.
Reconstruction method: The areas planned for interim reclamation will then be recontoured to the original contour if feasible, or if not feasible, to an interim contour that blends with the surrounding topography as much as possible. Where applicable, the fill material of the well pad will be backfilled into the cut to bring the area back to the original contour. The interim cut and fill slopes prior to re-seeding will not be steeper than a 3:1 ratio, unless the adjacent native topography is steeper. Note: Constructed slopes may be much steeper during drilling, but will be recontoured to the above ratios during interim reclamation.

Topsoil redistribution: Topsoil will be evenly respread and aggressively revegetated over the entire disturbed area not needed for all-weather operations including cuts & fills. To seed the area, the proper BLM seed mixture, free of noxious weeds, will be used.
Soil treatment: NA

Existing Vegetation at the well pad: Various brush & grasses

Existing Vegetation at the well pad attachment:

Existing Vegetation Community at the road: Various brush & grasses

Existing Vegetation Community at the road attachment:

Existing Vegetation Community at the pipeline: NA

Existing Vegetation Community at the pipeline attachment:

Existing Vegetation Community at other disturbances: NA

Existing Vegetation Community at other disturbances attachment:

Non native seed used? NO

Non native seed description:

Seedling transplant description:

Will seedlings be transplanted for this project? NO

Seedling transplant description attachment:

Will seed be harvested for use in site reclamation? NO

Seed harvest description:

Seed harvest description attachment:

Seed Management

Seed Table

Seed type:

Seed source:

Seed name:

Source name:

Source address:

Source phone:

Seed cultivar:

Seed use location:

PLS pounds per acre:

Proposed seeding season:

Operator Name: MEWBOURNE OIL COMPANY

Well Name: VIRGO 24/23 B2IL FED COM **Well Number:** 1H

Seed Summary	
Seed Type	**Pounds/Acre**

Total pounds/Acre:

Seed reclamation attachment:

Operator Contact/Responsible Official Contact Info

First Name: Bradley **Last Name:** Bishop

Phone: (575)393-5905 **Email:** bbishop@mewbourne.com

Seedbed prep: Final seedbed preparation will consist of contour cultivating to a depth of 4 to 6 inches within 24 hours prior to seeding, dozer tracking, or other imprinting in order to break the soil crust and create seed germination micro-sites.
Seed BMP: To seed the area, the proper BLM seed mixture, free of noxious weeds, will be used.

Seed method: drilling or broadcasting seed over entire reclaimed area.

Existing invasive species? NO

Existing invasive species treatment description:

Existing invasive species treatment attachment:

Weed treatment plan description: NA

Weed treatment plan attachment:

Monitoring plan description: vii. All reclaimed areas will be monitored periodically to ensure that revegetation occurs, that the area is not redisturbed, and that erosion and invasive/noxious weeds are controlled.
Monitoring plan attachment:

Success standards: regrowth within 1 full growing season of reclamation.

Pit closure description: NA

Pit closure attachment:

Section 11 - Surface Ownership

Disturbance type: NEW ACCESS ROAD

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland: **USFS Ranger District:**

Disturbance type: EXISTING ACCESS ROAD

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland: **USFS Ranger District:**

Disturbance type: WELL PAD

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

Operator Name: MEWBOURNE OIL COMPANY

Well Name: VIRGO 24/23 B2IL FED COM **Well Number:** 1H

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland: **USFS Ranger District:**

Section 12 - Other Information

Right of Way needed? NO **Use APD as ROW?**

ROW Type(s):

ROW Applications

SUPO Additional Information: Virgo 24/23 B2HE #1H (#10400013833) was previously approved on 4/27/17.

Use a previously conducted onsite? YES

Previous Onsite information: APR 02 2018 Met w/RRC Surveying & re-staked location for walking rig. Re-staked @ 2400' FNL & 205' FEL, Sec 24, T18S, R30E, Eddy Co., NM. This location was unacceptable due to heavy dune complex. Re-staked location @ 2000' FNL & 205' FEL, Sec 24, T18S, R30E, Eddy Co., NM. (Elevation @ 3644'). Topsoil stockpiled 30' wide on E side. Reclaim 70' S & E. Battery will be on W side of location. Road will be on SW corner heading W to lease road. Pad is 400' x 450'. Location is in heavy dune complex & will require BLM wildlife biologist & onsite. Location is in PA. Lat.: 32.73466273, Long.:-103.91755827. (BPS) APR 13 2018 BLM approved location @ 2000' FNL & 205' FEL, Sec 24, T18S, R30E, Eddy Co., NM.

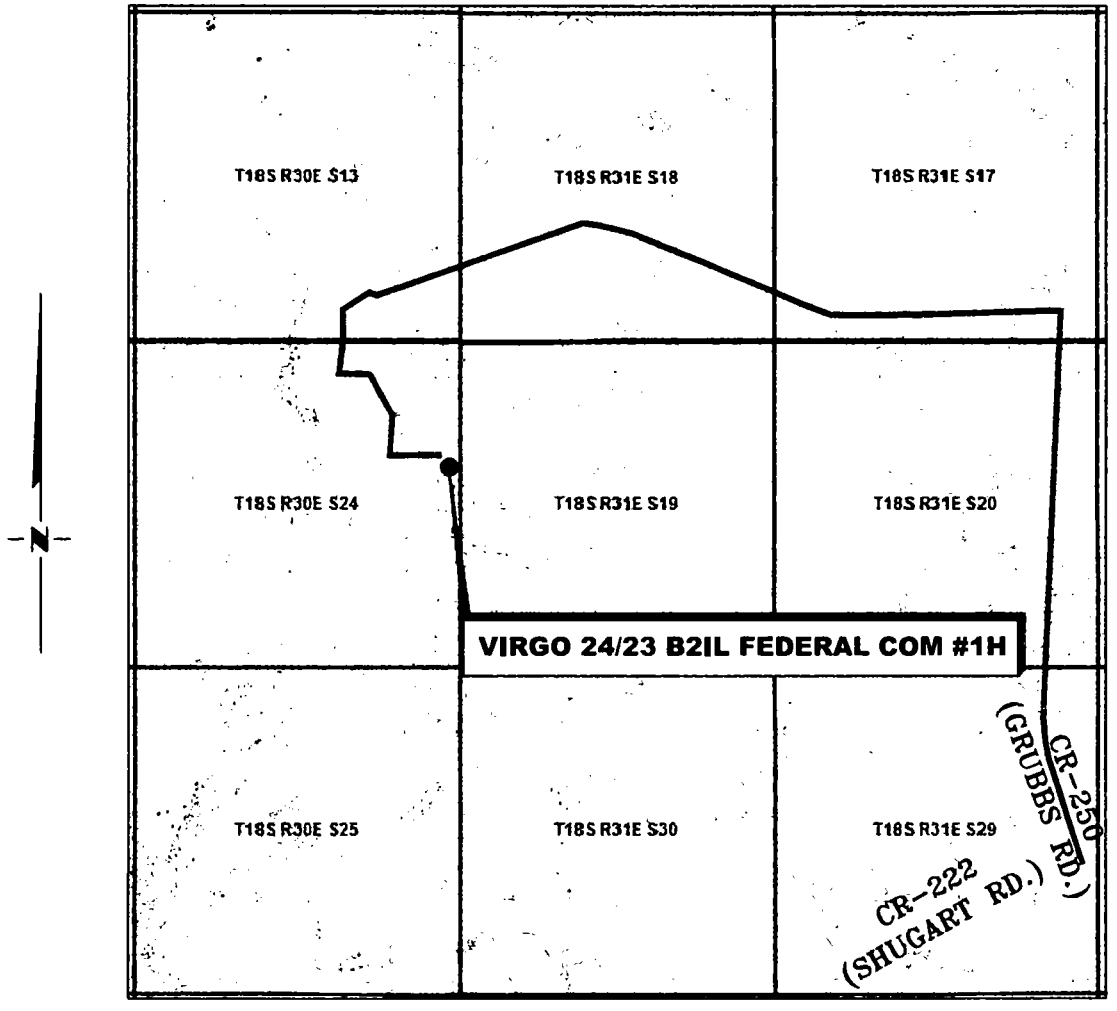
Other SUPO Attachment

Virgo24_23B2ILFedCom1H_interimreclamationdiagram_20180427104351.pdf

Virgo24_23B2ILFedCom1H_gascaptureplan_20180427104400.pdf

VICINITY MAP

NOT TO SCALE



SECTION 24, TWP. 18 SOUTH, RGE. 30 EAST, N. M. P. M., EDDY CO., NEW MEXICO

OPERATOR: Mewbourne Oil Company
LEASE: Virgo 24/23 B2IL Federal Com
WELL NO.: 1H

LOCATION: 2000' FNL & 205' FEL
ELEVATION: 3644'

NO.	REVISION	DATE

JOB NO.: LS1602072R
DWG. NO.: 1602072R-3

RRC

308 W. BROADWAY ST., HOBBS, NM 88240 (575) 964-8200

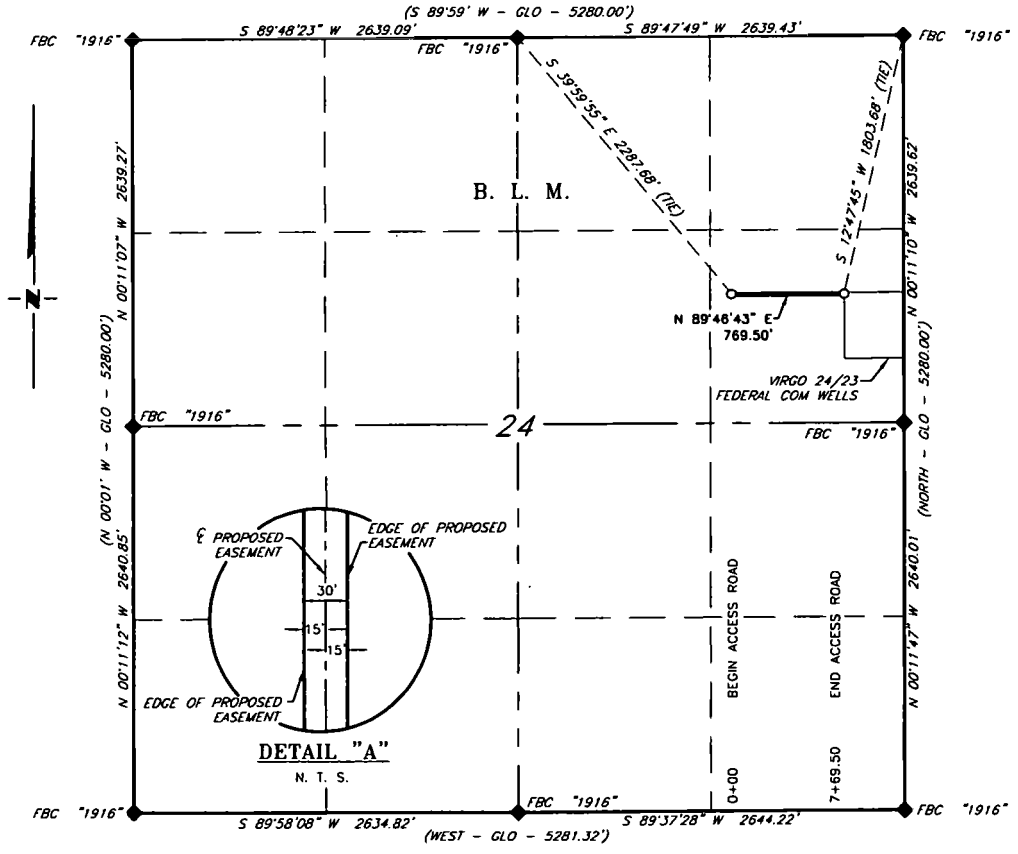
SCALE: 1" = 1000'
DATE: 03/22/2018
SURVEYED BY: ML/TF
DRAWN BY: KAKN
APPROVED BY: RMH
SHEET: 1 OF 1

MEWBOURNE OIL COMPANY

PROPOSED ROAD FOR THE VIRGO 24/23 FEDERAL COM WELLS

SECTION 24, T18S, R30E,

N. M. P. M., EDDY CO., NEW MEXICO



DESCRIPTION

A strip of land 30 feet wide, being 769.50 feet or 46.636 rods in length lying in Section 24, Township 18 South, Range 30 East, N. M. P. M., Eddy County, New Mexico, being 15 feet left and 15 feet right of the following described survey of a centerline across B. L. M. land;

BEGINNING at Engr. Sta. 0+00, a point in the Northeast quarter of Section 24, which bears S 39°59'55" E, 2,287.68 feet, from a brass cap, stamped "1916", found for the North quarter corner of Section 24;

Thence N 89°46'43" E, 769.50 feet, to Engr. Sta. 7+69.50, the End of Survey, a point in the Northeast quarter of Section 24, which bears, S 12°47'45" W, 1,803.68 feet, from a brass cap, found for the Northeast corner of Section 24.

Said strip of land contains 0.530 acres, more or less, and is allocated by forties as follows:

SE 1/4 NE 1/4	46.636 Rods	0.530 Acres

SCALE: 1" = 1000'
0 500' 1000'

BEARINGS ARE GRID NAD 83 NM EAST
DISTANCES ARE HORIZ. GROUND.

LEGEND

( ) RECORD DATA - GLO

◆ FOUND MONUMENT AS NOTED

PROPOSED ROAD

I, R. M. Howett, a N. M. Professional Surveyor, hereby certify that I prepared this plat from an actual survey made on the ground under my direct supervision, said survey and plat meet the Min. Stds. for Land Surveying in the State of N. M. and are true and correct to the best of my knowledge and belief.

Robert M. Howett
Robert M. Howett NM PS 19680

ROBERT M. HOWETT NEW MEXICO 19680 03/24/16 PROFESSIONAL SURVEYOR

NO.	REVISION	DATE

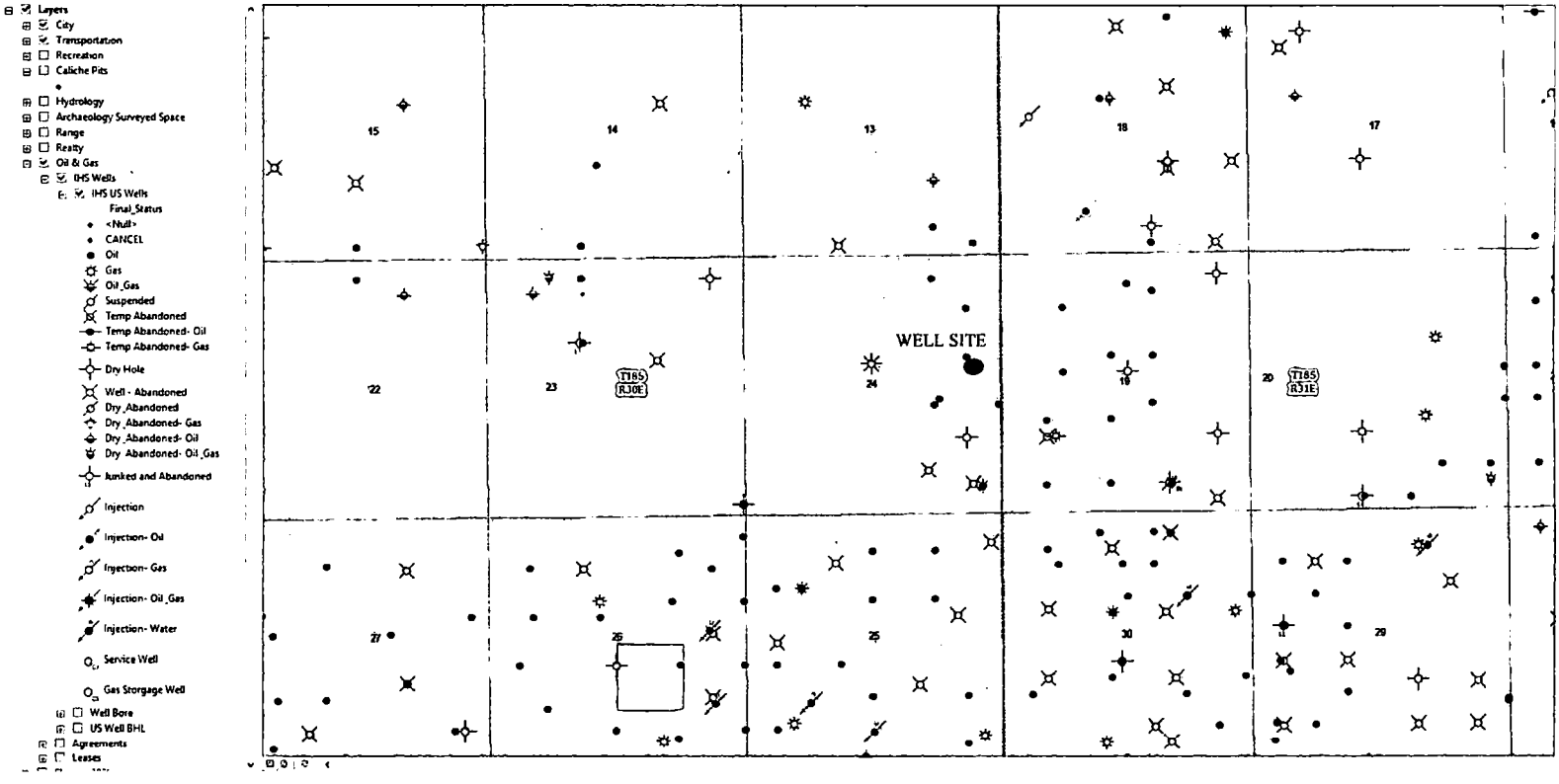
JOB NO.: LS1602071R
DWG. NO.: 1602071R-5

RRC

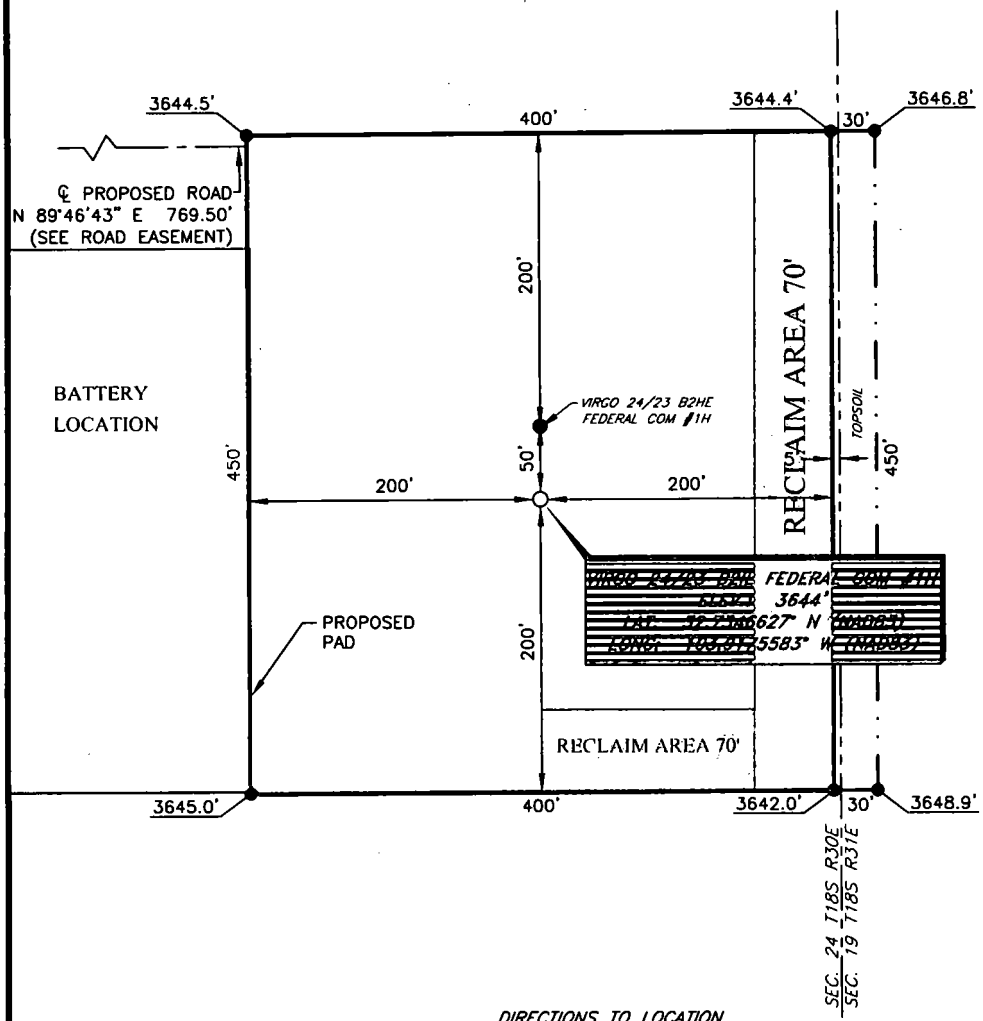
308 W. BROADWAY ST., HOBBS, NM 88240 (575) 964-8200

SCALE: 1" = 1000'
DATE: 03-22-2018
SURVEYED BY: ML/TF
DRAWN BY: KAKN
APPROVED BY: RMH
SHEET : 1 OF 1

VIRGO 24/23 B2IL FEDERAL COM #1H
EXISTING WELL MAP



MEWBOURNE OIL COMPANY
VIRGO 24/23 B2IL FEDERAL COM #1H
(2000' FNL & 205' FEL)
SECTION 24, T18S, R30E
N. M. P. M., EDDY COUNTY, NEW MEXICO



DIRECTIONS TO LOCATION

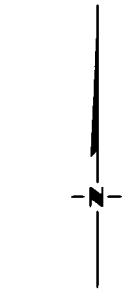
From the intersection of CR-222 (Shurgart Rd.) and CR-250 (Grubbs Rd.);

Go North on CR-222 approx. 1.7 miles to a lease road on the left;

Turn left and go West approx. 2.4 miles to a "Y";

Turn left and go South approx. 1.0 miles to proposed road to the left;

Turn left and go East approx. 0.1 miles to location on the right.



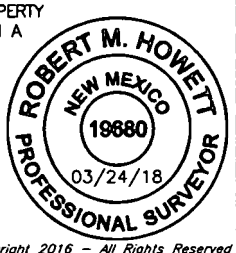
BEARINGS ARE GRID NAD 83 NM EAST
DISTANCES ARE HORIZ. GROUND.

THIS IS NOT A BOUNDARY SURVEY, APPARENT PROPERTY CORNERS AND PROPERTY LINES ARE SHOWN FOR INFORMATION ONLY, BOUNDARY DATA IS SHOWN FROM A PREVIOUS SURVEY REFERENCED HEREON.

I, R. M. Howett, a N. M. Professional Surveyor, hereby certify that I prepared this unclassified survey of a well location from an actual survey made on the ground under my direct supervision, said survey and plat meet the Min. Stds. for Land Surveying in the State of N. M. and are true and correct to the best of my knowledge and belief.

Robert M. Howett

Robert M. Howett NM PS 19680



NO.	REVISION	DATE

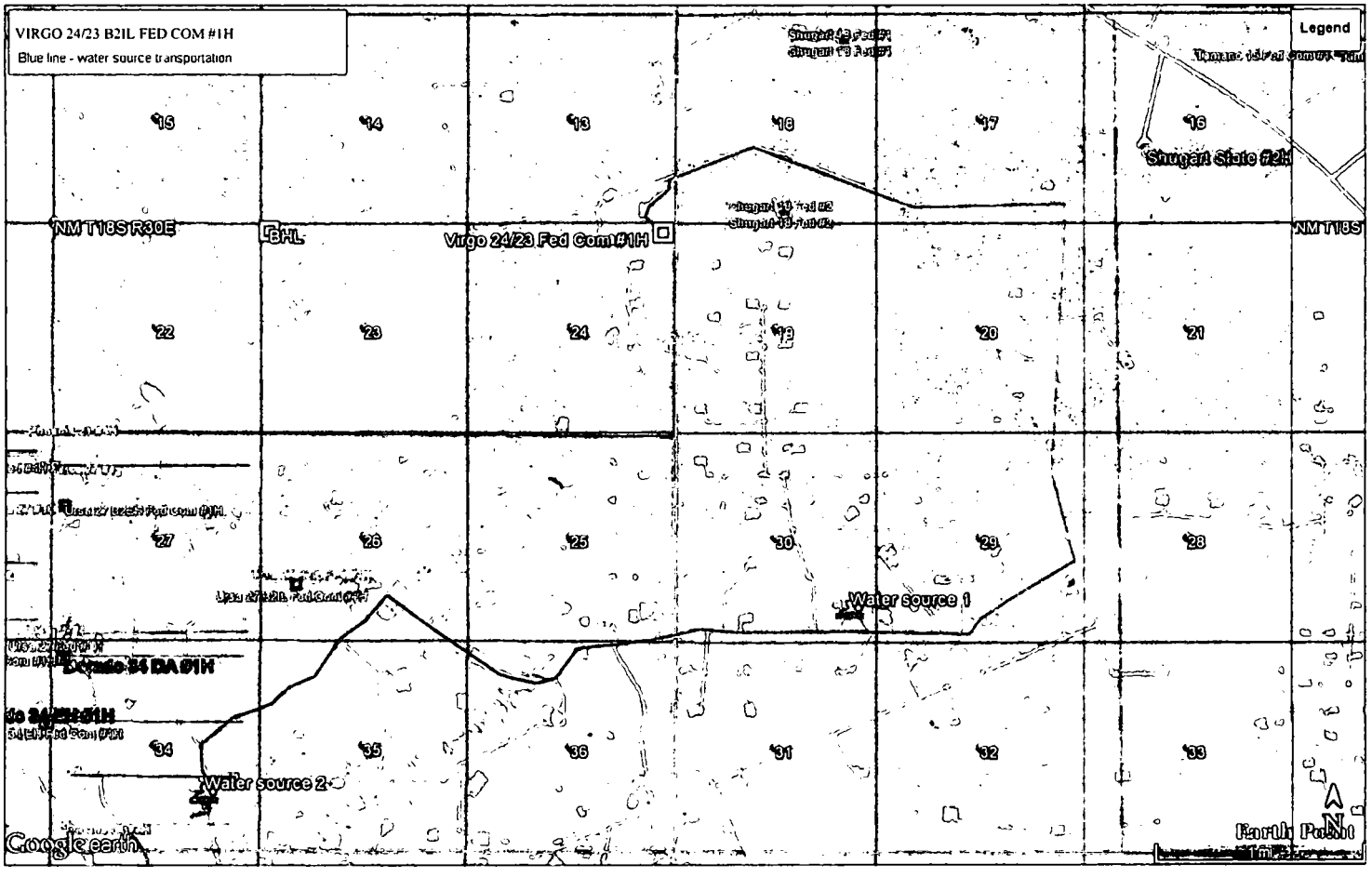
JOB NO.: LS1602072R
DWG. NO.: 1602072R-4

RRC

308 W. BROADWAY ST., HOBBS, NM 88240 (575) 964-8200

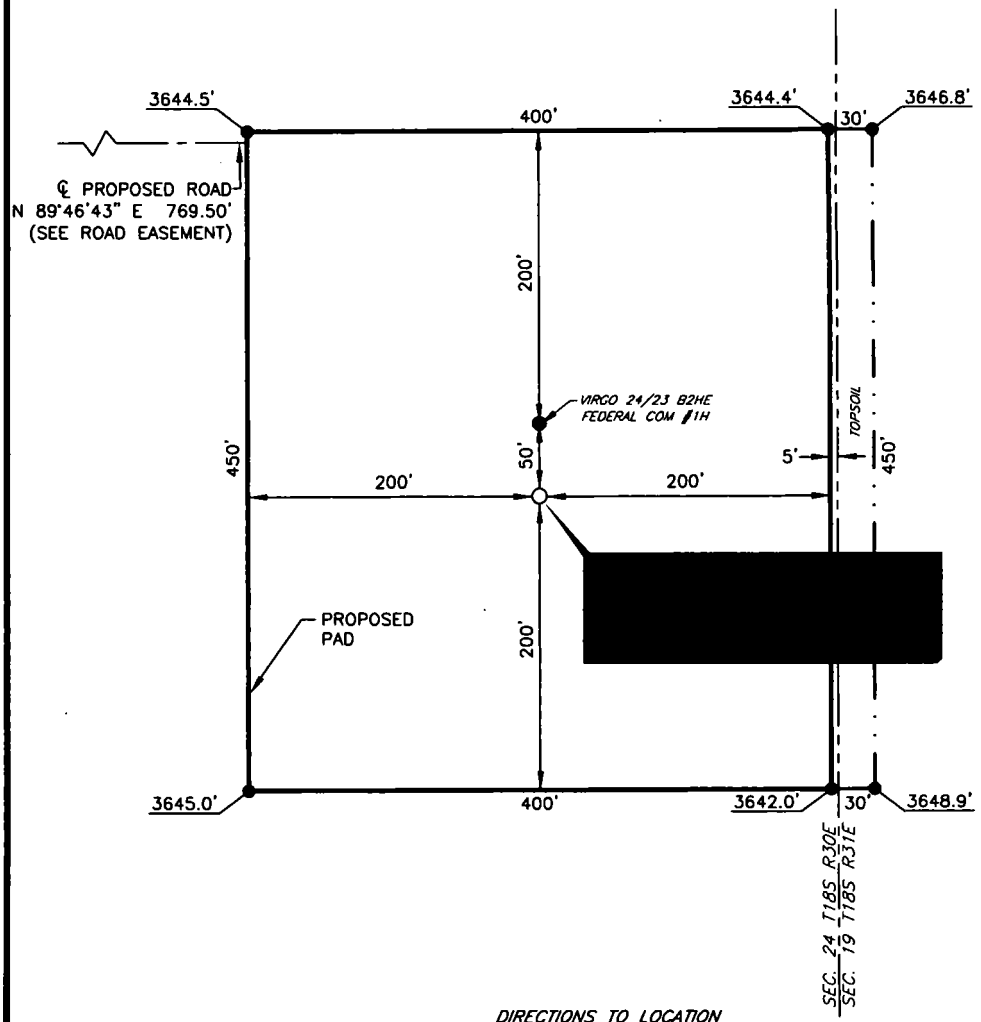
SCALE: 1" = 1000'
DATE: 03/22/2018
SURVEYED BY: ML/TF
DRAWN BY: KAKN
APPROVED BY: RMH
SHEET: 1 OF 1

Water Source.jpg (1570×990)




VIRGO 24/23 B2IL FED COM #1H
Blue line - caliche source transportation
Legend
BHL
Virgo 24/23 Fed Com #1H
Caliche pit
Water source
Caliche Pit
Google earth
Earth Point
1 mi

MEWBOURNE OIL COMPANY
VIRGO 24/23 B2IL FEDERAL COM #1H
(2000' FNL & 205' FEL)
SECTION 24, T18S, R30E
N. M. P. M., EDDY COUNTY, NEW MEXICO



DIRECTIONS TO LOCATION

From the intersection of CR-222 (Shurgart Rd.) and CR-250 (Grubbs Rd.);

Go North on CR-222 approx. 1.7 miles to a lease road on the left;

Turn left and go West approx. 2.4 miles to a "Y";

Turn left and go South approx. 1.0 miles to proposed road to the left;

Turn left and go East approx. 0.1 miles to location on the right.

SCALE: 1" = 100'
0 50' 100'

BEARINGS ARE GRID NAD 83 NM EAST
DISTANCES ARE HORIZ. GROUND.

THIS IS NOT A BOUNDARY SURVEY, APPARENT PROPERTY CORNERS AND PROPERTY LINES ARE SHOWN FOR INFORMATION ONLY, BOUNDARY DATA IS SHOWN FROM A PREVIOUS SURVEY REFERENCED HEREON.

I, R. M. Howett, a N. M. Professional Surveyor, hereby certify that I prepared this unclassified survey of a well location from an actual survey made on the ground under my direct supervision, said survey and plat meet the Min. Stds. for Land Surveying in the State of N. M. and are true and correct to the best of my knowledge and belief.

Robert M. Howett
Robert M. Howett NM PS 19680

ROBERT M. HOWETT
NEW MEXICO
19680
03/24/18
PROFESSIONAL SURVEYOR

NO.	REVISION	DATE

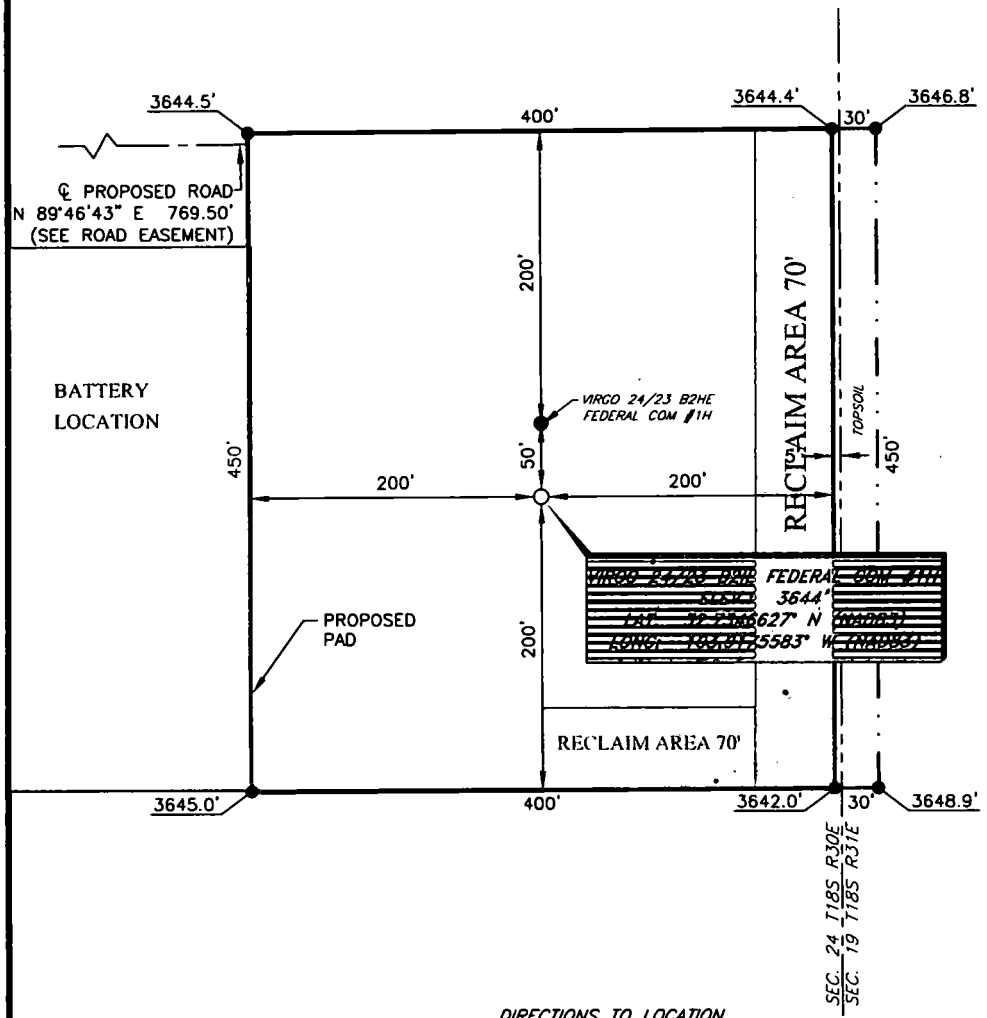
JOB NO.: LS1602072R
DWG. NO.: 1602072R-4

RRC

308 W. BROADWAY ST., HOBBS, NM 88240 (575) 964-8200

SCALE: 1" = 1000'
DATE: 03/22/2018
SURVEYED BY: ML/TF
DRAWN BY: KAKN
APPROVED BY: RMH
SHEET: 1 OF 1

MEWBOURNE OIL COMPANY
VIRGO 24/23 B2IL FEDERAL COM #1H
(2000' FNL & 205' FEL)
SECTION 24, T18S, R30E
N. M. P. M., EDDY COUNTY, NEW MEXICO



DIRECTIONS TO LOCATION

From the intersection of CR-222 (Shurgart Rd.) and CR-250 (Grubbs Rd.);

Go North on CR-222 approx. 1.7 miles to a lease road on the left;

Turn left and go West approx. 2.4 miles to a "Y";

Turn left and go South approx. 1.0 miles to proposed road to the left;

Turn left and go East approx. 0.1 miles to location on the right.

-N-

SCALE: 1" = 100'
0 50' 100'

BEARINGS ARE GRID NAD 83 NM EAST
DISTANCES ARE HORIZ. GROUND.

THIS IS NOT A BOUNDARY SURVEY, APPARENT PROPERTY CORNERS AND PROPERTY LINES ARE SHOWN FOR INFORMATION ONLY, BOUNDARY DATA IS SHOWN FROM A PREVIOUS SURVEY REFERENCED HEREON.

I, R. M. Howett, a N. M. Professional Surveyor, hereby certify that I prepared this unclassified survey of a well location from an actual survey made on the ground under my direct supervision, said survey and plat meet the Min. Stds. for Land Surveying in the State of N. M. and are true and correct to the best of my knowledge and belief.

Robert M. Howett

Robert M. Howett NM PS 19680

ROBERT M. HOWETT
NEW MEXICO
19680
03/24/18
PROFESSIONAL SURVEYOR

NO.	REVISION	DATE

JOB NO.: LS1602072R
DWG. NO.: 1602072R-4

RRC

308 W. BROADWAY ST., HOBBS, NM 88240 (575) 964-8200

SCALE: 1" = 1000'
DATE: 03/22/2018
SURVEYED BY: ML/TF
DRAWN BY: KAKN
APPROVED BY: RMH
SHEET: 1 OF 1

Section 3 - Unlined Pits

Would you like to utilize Unlined Pit PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Unlined pit PWD on or off channel:

Unlined pit PWD discharge volume (bbl/day):

Unlined pit specifications:

Precipitated solids disposal:

Decribe precipitated solids disposal:

Precipitated solids disposal permit:

Unlined pit precipitated solids disposal schedule:

Unlined pit precipitated solids disposal schedule attachment:

Unlined pit reclamation description:

Unlined pit reclamation attachment:

Unlined pit Monitor description:

Unlined pit Monitor attachment:

Do you propose to put the produced water to beneficial use?

Beneficial use user confirmation:

Estimated depth of the shallowest aquifer (feet):

Does the produced water have an annual average Total Dissolved Solids (TDS) concentration equal to or less than that of the existing water to be protected?

TDS lab results:

Geologic and hydrologic evidence:

State authorization:

Unlined Produced Water Pit Estimated percolation:

Unlined pit: do you have a reclamation bond for the pit?

Is the reclamation bond a rider under the BLM bond?

Unlined pit bond number:

Unlined pit bond amount:

Additional bond information attachment:

Section 4 - Injection

Would you like to utilize Injection PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Injection PWD discharge volume (bbl/day):

Injection well mineral owner:

Injection well type:

Injection well number: **Injection well name:**

Assigned injection well API number? **Injection well API number:**

Injection well new surface disturbance (acres):

Minerals protection information:

Mineral protection attachment:

Underground Injection Control (UIC) Permit?

UIC Permit attachment:

Section 5 - Surface Discharge

Would you like to utilize Surface Discharge PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Surface discharge PWD discharge volume (bbl/day):

Surface Discharge NPDES Permit?

Surface Discharge NPDES Permit attachment:

Surface Discharge site facilities information:

Surface discharge site facilities map:

Section 6 - Other

Would you like to utilize Other PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Other PWD discharge volume (bbl/day):

Other PWD type description:

Other PWD type attachment:

Have other regulatory requirements been met?

Other regulatory requirements attachment:

AFMSS

U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

Bond Info Data Report

08/06/2018

Bond Information

Federal/Indian APD: FED

BLM Bond number: NM1693

BIA Bond number:

Do you have a reclamation bond? NO

Is the reclamation bond a rider under the BLM bond?

Is the reclamation bond BLM or Forest Service?

BLM reclamation bond number:

Forest Service reclamation bond number:

Forest Service reclamation bond attachment:

Reclamation bond number:

Reclamation bond amount:

Reclamation bond rider amount:

Additional reclamation bond information attachment: