

Form 3160-3  
(June 2015)FORM APPROVED  
OMB No. 1004-0137  
Expires: January 31, 2018

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT  
**APPLICATION FOR PERMIT TO DRILL OR REENTER**

|                                                                                                                                                                                                                                                                                                                                                                |                                       |                                                                                                                                                                                                                                               |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1a. Type of work: <input type="checkbox"/> DRILL <input type="checkbox"/> REENTER<br>1b. Type of Well: <input type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other<br>1c. Type of Completion: <input type="checkbox"/> Hydraulic Fracturing <input type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone |                                       | 5. Lease Serial No.<br><br>6. If Indian, Allottee or Tribe Name<br><br>7. If Unit or CA Agreement, Name and No.<br><br>8. Lease Name and Well No.<br><br><div style="text-align: center; font-weight: bold; font-size: 1.2em;">[332045]</div> |
| 2. Name of Operator<br><div style="text-align: center; font-weight: bold; font-size: 1.2em;">[372137]</div>                                                                                                                                                                                                                                                    |                                       | 9. API Well No.<br><div style="text-align: center; font-weight: bold; font-size: 1.2em;">30-025-49680</div>                                                                                                                                   |
| 3a. Address                                                                                                                                                                                                                                                                                                                                                    | 3b. Phone No. (include area code)     | 10. Field and Pool, or Exploratory                                                                                                                                                                                                            |
| 4. Location of Well (Report location clearly and in accordance with any State requirements. *)<br>At surface<br>At proposed prod. zone                                                                                                                                                                                                                         |                                       | 11. Sec., T. R. M. or Blk. and Survey or Area                                                                                                                                                                                                 |
| 14. Distance in miles and direction from nearest town or post office*                                                                                                                                                                                                                                                                                          |                                       | 12. County or Parish                                                                                                                                                                                                                          |
| 13. State                                                                                                                                                                                                                                                                                                                                                      |                                       |                                                                                                                                                                                                                                               |
| 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                                                                                                                                                                                                       |
| 18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.                                                                                                                                                                                                                                                     | 19. Proposed Depth                    | 20. BLM/BIA Bond No. in file                                                                                                                                                                                                                  |
| 21. Elevations (Show whether DF, KDB, RT, GL, etc.)                                                                                                                                                                                                                                                                                                            | 22. Approximate date work will start* | 23. Estimated duration                                                                                                                                                                                                                        |
| 24. Attachments                                                                                                                                                                                                                                                                                                                                                |                                       |                                                                                                                                                                                                                                               |

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, and the Hydraulic Fracturing rule per 43 CFR 3162.3-3 (as applicable)

- |                                                                                                                                                                                                                           |                                                                                                                                                                                                                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Well plat certified by a registered surveyor.<br>2. A Drilling Plan.<br>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).<br>5. Operator certification.<br>6. Such other site specific information and/or plans as may be requested by the BLM. |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                         |                      |      |
|-------------------------|----------------------|------|
| 25. Signature           | Name (Printed/Typed) | Date |
| Title                   |                      |      |
| Approved by (Signature) | Name (Printed/Typed) | Date |
| Title                   |                      |      |
| Office                  |                      |      |

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

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.

NGMP Rec 12/21/2021

SL

(Continued on page 2)



Approval Date: 12/02/2021

 KZ  
 12/29/2021

\*(Instructions on page 2)

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

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

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

DISTRICT IV  
1226 S. St. Francis Dr., Santa Fe, NM 87505  
Phone (505) 476-3480 Fax: (505) 476-3482

State of New Mexico  
Energy, Minerals and Natural Resources Department

**OIL CONSERVATION DIVISION**  
1226 South St. Francis Dr.  
Santa Fe, New Mexico 87505

Form C-102

Revised August 1, 2011

Submit one copy to appropriate  
District Office

**WELL LOCATION AND ACREAGE DEDICATION PLAT**

☐ AMENDED REPORT

|                                   |                                                        |                                              |
|-----------------------------------|--------------------------------------------------------|----------------------------------------------|
| API Number<br><b>30-025-49680</b> | Pool Code<br><b>8146</b>                               | Pool Name<br><b>BUFFALO; BONE SPRING, SE</b> |
| Property Code<br><b>332045</b>    | Property Name<br><b>RAM 2-11 2BS FED COM</b>           | Well Number<br><b>9H</b>                     |
| OGRID No.<br><b>372137</b>        | Operator Name<br><b>CHISHOLM ENERGY OPERATING, LLC</b> | Elevation<br><b>3776'</b>                    |

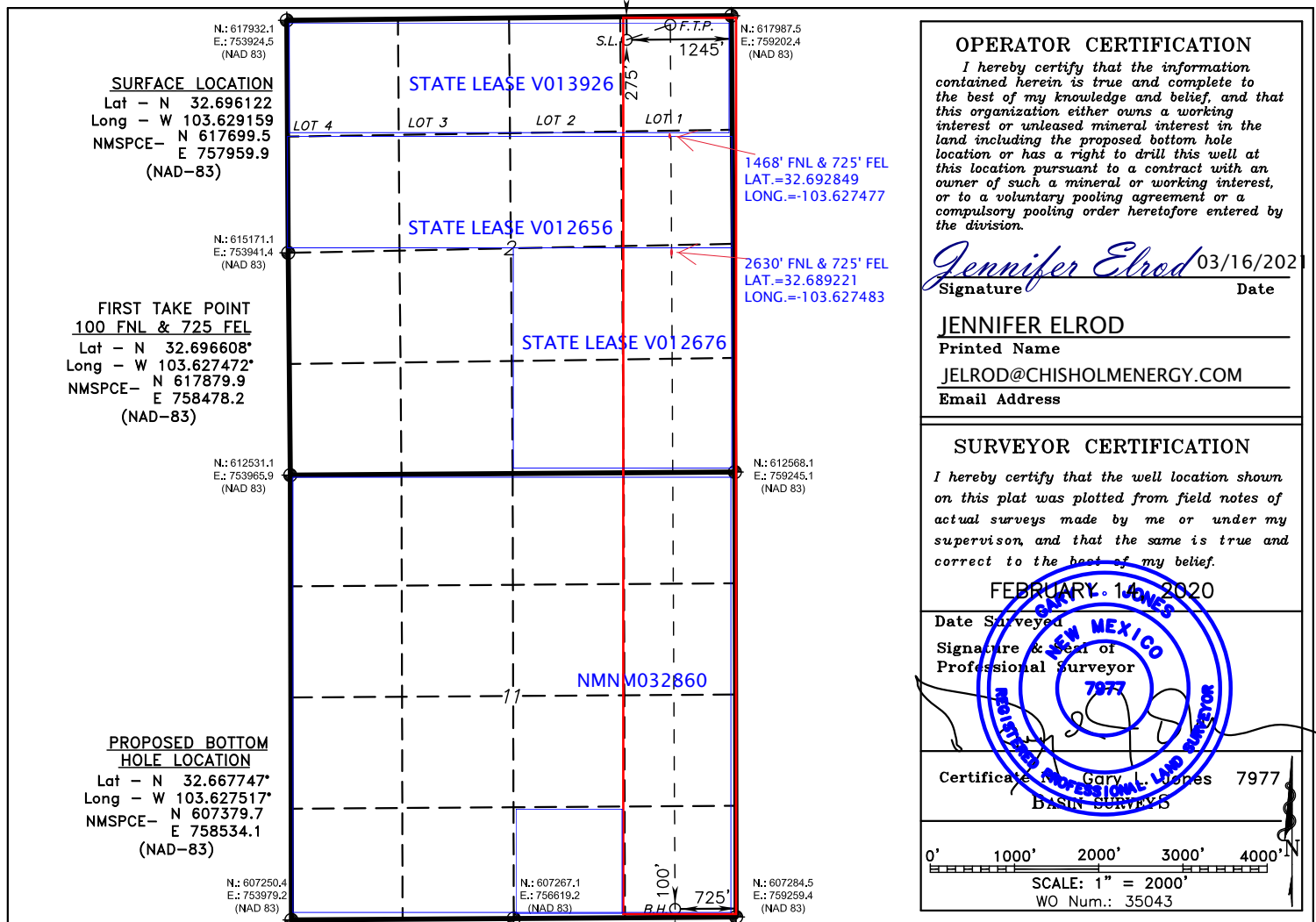
**Surface Location**

| UL or lot No. | Section | Township | Range | Lot Idn | FEET from the | North/South line | FEET from the | East/West line | County |
|---------------|---------|----------|-------|---------|---------------|------------------|---------------|----------------|--------|
| LOT 1         | 2       | 19 S     | 33 E  |         | 275           | NORTH            | 1245          | EAST           | LEA    |

**Bottom Hole Location If Different From Surface**

| UL or lot No.                     | Section         | Township           | Range     | Lot Idn | FEET from the | North/South line | FEET from the | East/West line | County |
|-----------------------------------|-----------------|--------------------|-----------|---------|---------------|------------------|---------------|----------------|--------|
| P                                 | 11              | 19 S               | 33 E      |         | 100           | SOUTH            | 725           | EAST           | LEA    |
| Dedicated Acres<br><b>324.299</b> | Joint or Infill | Consolidation Code | Order No. |         |               |                  |               |                |        |

**NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED  
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION**



Intent ☒ As Drilled ☐

|                                                         |                                               |                          |
|---------------------------------------------------------|-----------------------------------------------|--------------------------|
| API #                                                   |                                               |                          |
| Operator Name:<br><b>CHISHOLM ENERGY OPERATING, LLC</b> | Property Name:<br><b>RAM 2-11 2BS FED COM</b> | Well Number<br><b>9H</b> |

Kick Off Point (KOP)

|                              |                     |                        |                     |                 |                                 |                          |                     |                         |                      |
|------------------------------|---------------------|------------------------|---------------------|-----------------|---------------------------------|--------------------------|---------------------|-------------------------|----------------------|
| UL                           | Section<br><b>2</b> | Township<br><b>19S</b> | Range<br><b>33E</b> | Lot<br><b>1</b> | Feet<br><b>275</b>              | From N/S<br><b>NORTH</b> | Feet<br><b>1245</b> | From E/W<br><b>EAST</b> | County<br><b>LEA</b> |
| Latitude<br><b>32.696122</b> |                     |                        |                     |                 | Longitude<br><b>-103.629159</b> |                          |                     | NAD<br><b>83</b>        |                      |

First Take Point (FTP)

|                              |                     |                        |                     |                 |                                 |                          |                    |                         |                      |
|------------------------------|---------------------|------------------------|---------------------|-----------------|---------------------------------|--------------------------|--------------------|-------------------------|----------------------|
| UL                           | Section<br><b>2</b> | Township<br><b>19S</b> | Range<br><b>33E</b> | Lot<br><b>1</b> | Feet<br><b>100</b>              | From N/S<br><b>NORTH</b> | Feet<br><b>725</b> | From E/W<br><b>EAST</b> | County<br><b>LEA</b> |
| Latitude<br><b>32.696608</b> |                     |                        |                     |                 | Longitude<br><b>-103.627472</b> |                          |                    | NAD<br><b>83</b>        |                      |

Last Take Point (LTP)

|                              |                      |                        |                     |     |                                 |                          |                    |                         |                      |
|------------------------------|----------------------|------------------------|---------------------|-----|---------------------------------|--------------------------|--------------------|-------------------------|----------------------|
| UL<br><b>P</b>               | Section<br><b>11</b> | Township<br><b>19S</b> | Range<br><b>33E</b> | Lot | Feet<br><b>100</b>              | From N/S<br><b>SOUTH</b> | Feet<br><b>725</b> | From E/W<br><b>EAST</b> | County<br><b>LEA</b> |
| Latitude<br><b>32.667747</b> |                      |                        |                     |     | Longitude<br><b>-103.627517</b> |                          |                    | NAD<br><b>83</b>        |                      |

Is this well the defining well for the Horizontal Spacing Unit?

☐ NO

Is this well an infill well?

☒ YES

If infill is yes please provide API if available, Operator Name and well number for Defining well for Horizontal Spacing Unit.

|                                                         |                                                       |                          |
|---------------------------------------------------------|-------------------------------------------------------|--------------------------|
| API #<br><b>30-025 43833</b>                            |                                                       |                          |
| Operator Name:<br><b>CHISHOLM ENERGY OPERATING, LLC</b> | Property Name:<br><b>BUFFALO WEST 2 STATE 1BS COM</b> | Well Number<br><b>6H</b> |

KZ 06/29/2018

State of New Mexico  
Energy, Minerals and Natural Resources Department

Submit Electronically  
Via E-permitting

Oil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

## NATURAL GAS MANAGEMENT PLAN

This Natural Gas Management Plan must be submitted with each Application for Permit to Drill (APD) for a new or recompleted well.

### Section 1 – Plan Description

Effective May 25, 2021

**I. Operator:** CHISHOLM ENERGY OPERATING, LLC **OGRID:** 372137 **Date:** 07 / 08 / 2021

**II. Type:** ☒ Original ☐ Amendment due to ☐ 19.15.27.9.D(6)(a) NMAC ☐ 19.15.27.9.D(6)(b) NMAC ☐ Other.

If Other, please describe: \_\_\_\_\_

**III. Well(s):** Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

| Well Name                | API | ULSTR           | Footages          | Anticipated Oil BBL/D | Anticipated Gas MCF/D | Anticipated Produced Water BBL/D |
|--------------------------|-----|-----------------|-------------------|-----------------------|-----------------------|----------------------------------|
| RAM 2-11 FED 1BS COM 10H |     | LOT 1-2-19S-33E | 275 FNL, 1275 FEL | 1800                  | 1800                  | 6000                             |
| RAM 2-11 FED 2BS COM 9H  |     | LOT 1-2-19S-33E | 275 FNL, 1245 FEL | 2000                  | 2000                  | 6000                             |

**IV. Central Delivery Point Name:** RAM 2-11 FED EAST BATTERY [See 19.15.27.9(D)(1) NMAC]

**V. Anticipated Schedule:** Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

| Well Name                | API | Spud Date  | TD Reached Date | Completion Commencement Date | Initial Flow Back Date | First Production Date |
|--------------------------|-----|------------|-----------------|------------------------------|------------------------|-----------------------|
| RAM 2-11 FED 1BS COM 10H |     | 12/05/2022 | 12/30/2022      | 02/13/2023                   | 03/13/2023             | 03/14/2023            |
| RAM 2-11 FED 2BS COM 9H  |     | 01/01/2023 | 01/26/2023      | 02/21/2023                   | 03/13/2023             | 03/14/2023            |

**VI. Separation Equipment:** ☒ Attach a complete description of how Operator will size separation equipment to optimize gas capture.

**VII. Operational Practices:** ☒ Attach a complete description of the actions Operator will take to comply with the requirements of Subsection A through F of 19.15.27.8 NMAC.

**VIII. Best Management Practices:** ☒ Attach a complete description of Operator's best management practices to minimize venting during active and planned maintenance.

**Section 2 – Enhanced Plan**  
**EFFECTIVE APRIL 1, 2022**

Beginning April 1, 2022, an operator that is not in compliance with its statewide natural gas capture requirement for the applicable reporting area must complete this section.

☐ Operator certifies that it is not required to complete this section because Operator is in compliance with its statewide natural gas capture requirement for the applicable reporting area.

**IX. Anticipated Natural Gas Production:**

| Well | API | Anticipated Average Natural Gas Rate MCF/D | Anticipated Volume of Natural Gas for the First Year MCF |
|------|-----|--------------------------------------------|----------------------------------------------------------|
|      |     |                                            |                                                          |
|      |     |                                            |                                                          |

**X. Natural Gas Gathering System (NGGS):**

| Operator | System | ULSTR of Tie-in | Anticipated Gathering Start Date | Available Maximum Daily Capacity of System Segment Tie-in |
|----------|--------|-----------------|----------------------------------|-----------------------------------------------------------|
|          |        |                 |                                  |                                                           |
|          |        |                 |                                  |                                                           |

**XI. Map.** ☐ Attach an accurate and legible map depicting the location of the well(s), the anticipated pipeline route(s) connecting the production operations to the existing or planned interconnect of the natural gas gathering system(s), and the maximum daily capacity of the segment or portion of the natural gas gathering system(s) to which the well(s) will be connected.

**XII. Line Capacity.** The natural gas gathering system ☐ will ☐ will not have capacity to gather 100% of the anticipated natural gas production volume from the well prior to the date of first production.

**XIII. Line Pressure.** Operator ☐ does ☐ does not anticipate that its existing well(s) connected to the same segment, or portion, of the natural gas gathering system(s) described above will continue to meet anticipated increases in line pressure caused by the new well(s).

☐ Attach Operator's plan to manage production in response to the increased line pressure.

**XIV. Confidentiality:** ☐ Operator asserts confidentiality pursuant to Section 71-2-8 NMSA 1978 for the information provided in Section 2 as provided in Paragraph (2) of Subsection D of 19.15.27.9 NMAC, and attaches a full description of the specific information for which confidentiality is asserted and the basis for such assertion.

### **Section 3 - Certifications**

**Effective May 25, 2021**

Operator certifies that, after reasonable inquiry and based on the available information at the time of submittal:

☒ Operator will be able to connect the well(s) to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system; or

☐ Operator will not be able to connect to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system.

***If Operator checks this box, Operator will select one of the following:***

**Well Shut-In.** ☐ Operator will shut-in and not produce the well until it submits the certification required by Paragraph (4) of Subsection D of 19.15.27.9 NMAC; or

**Venting and Flaring Plan.** ☐ Operator has attached a venting and flaring plan that evaluates and selects one or more of the potential alternative beneficial uses for the natural gas until a natural gas gathering system is available, including:

- (a) power generation on lease;
- (b) power generation for grid;
- (c) compression on lease;
- (d) liquids removal on lease;
- (e) reinjection for underground storage;
- (f) reinjection for temporary storage;
- (g) reinjection for enhanced oil recovery;
- (h) fuel cell production; and
- (i) other alternative beneficial uses approved by the division.

### **Section 4 - Notices**

1. If, at any time after Operator submits this Natural Gas Management Plan and before the well is spud:

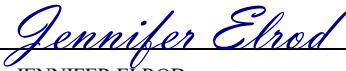
(a) Operator becomes aware that the natural gas gathering system it planned to connect the well(s) to has become unavailable or will not have capacity to transport one hundred percent of the production from the well(s), no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised venting and flaring plan containing the information specified in Paragraph (5) of Subsection D of 19.15.27.9 NMAC; or

(b) Operator becomes aware that it has, cumulatively for the year, become out of compliance with its baseline natural gas capture rate or natural gas capture requirement, no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised Natural Gas Management Plan for each well it plans to spud during the next 90 days containing the information specified in Paragraph (2) of Subsection D of 19.15.27.9 NMAC, and shall file an update for each Natural Gas Management Plan until Operator is back in compliance with its baseline natural gas capture rate or natural gas capture requirement.

2. OCD may deny or conditionally approve an APD if Operator does not make a certification, fails to submit an adequate venting and flaring plan which includes alternative beneficial uses for the anticipated volume of natural gas produced, or if OCD determines that Operator will not have adequate natural gas takeaway capacity at the time a well will be spud.

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I certify that, after reasonable inquiry, the statements in and attached to this Natural Gas Management Plan are true and correct to the best of my knowledge and acknowledge that a false statement may be subject to civil and criminal penalties under the Oil and Gas Act.

|                                                                                                  |                                                                                   |
|--------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Signature:                                                                                       |  |
| Printed Name:                                                                                    | JENNIFER ELROD                                                                    |
| Title:                                                                                           | SR. REGULATORY ANALYST                                                            |
| E-mail Address:                                                                                  | JELROD@CHISHOLMENERGY.COM                                                         |
| Date:                                                                                            | 07/08/2021                                                                        |
| Phone:                                                                                           | (817)953-3728                                                                     |
| <b>OIL CONSERVATION DIVISION</b><br><b>(Only applicable when submitted as a standalone form)</b> |                                                                                   |
| Approved By:                                                                                     |                                                                                   |
| Title:                                                                                           |                                                                                   |
| Approval Date:                                                                                   |                                                                                   |
| Conditions of Approval:                                                                          |                                                                                   |

**CEH Natural Gas Management  
Plan Items VI-VIII****VI. Separation Equipment: Attach a complete description of how Operator will size separation equipment to optimize gas capture.**

- Separation equipment will be sized to provide adequate separation for anticipated rates.
- Adequate separation relates to retention time for Liquid – Liquid separation and velocity for Gas-Liquid separation.
- Collection systems are appropriately sized to handle facility production rates on all (3) phases.
- Ancillary equipment and metering are selected to be serviced without flow interruptions or the need to release gas from the well.

**VII. Operational Practices: Attach a complete description of the actions Operator will take to comply with the requirements of Subsection A through F 19.15.27.8 NMAC.****Drilling Operations**

- All flare stacks will be properly sized. The flare stacks will be located at a minimum 100' from the nearest surface hole location on the pad.
- All-natural gas produced during drilling operations will be flared, unless there is an equipment malfunction and/or to avoid risk of an immediate and substantial adverse impact on safety and the environment, at which point the gas will be vented.

**Completions/Recompletions Operations**

- New wells will not be flowed back until they are connected to a properly sized gathering system.
- The facility will be built/sized for maximum anticipated flowrates and pressures to minimize waste.
- For flowback operations, multiple stages of separation will be used as well as excess VRU and blowers to make sure waste is minimized off the storage tanks and facility.
- During initial flowback, the well stream will be routed to separation equipment.
- At an existing facility, when necessary, post separation natural gas will be flared until it meets pipeline specifications, at which point it will be turned into a collection system.
- At a new facility, post separation natural gas will be vented until storage tanks can safely function, at which point it will be flared until it meets pipeline spec.

**Production Operations**

- Weekly AVOs will be performed on all facilities.
- All flares will be equipped with auto-ignition systems and continuous pilot operations.
- After a well is stabilized from liquid unloading, the well will be turned back into the collection system.
- All tanks will have sight glasses installed, but no electronic gauging equipment.
- Leaking thief hatches found during AVOs will be cleaned and properly re-sealed.
- There will be no gas re-injection for underground storage, temporary storage, or for enhanced oil recovery; however, gas injection will be used for gas lift applications in which the gas would be circulated through a closed loop system.
- If H<sub>2</sub>S is encountered, gas will be treated to pipeline spec to avoid shut-in's and/or flaring.

**Performance Standards**

- Production equipment will be designed to handle maximum anticipated rates and pressure.

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- All flared gas will be combusted in a flare stack that is properly sized and designed to ensure proper combustion.
- Weekly AVOs will be performed on all wells and facilities that produce more than 50MCFPD.

Measurement & Estimation

- All volume that is flared or vented that is not measured will be estimated.
- All measurement equipment for flared volumes will conform to API 14.10.
- No meter bypasses will be installed.
- When metering is not practical due to low pressure/low rate, the vented or flared volume will be estimated.

**VIII. Best Management Practices: Attach a complete description of Operator's best management practices to minimize venting during active and planned maintenance.**

- During downhole well maintenance, CEH will use best management practices to vent as minimally as possible.
- After downhole well maintenance, natural gas will be flared until it reaches pipeline specification.

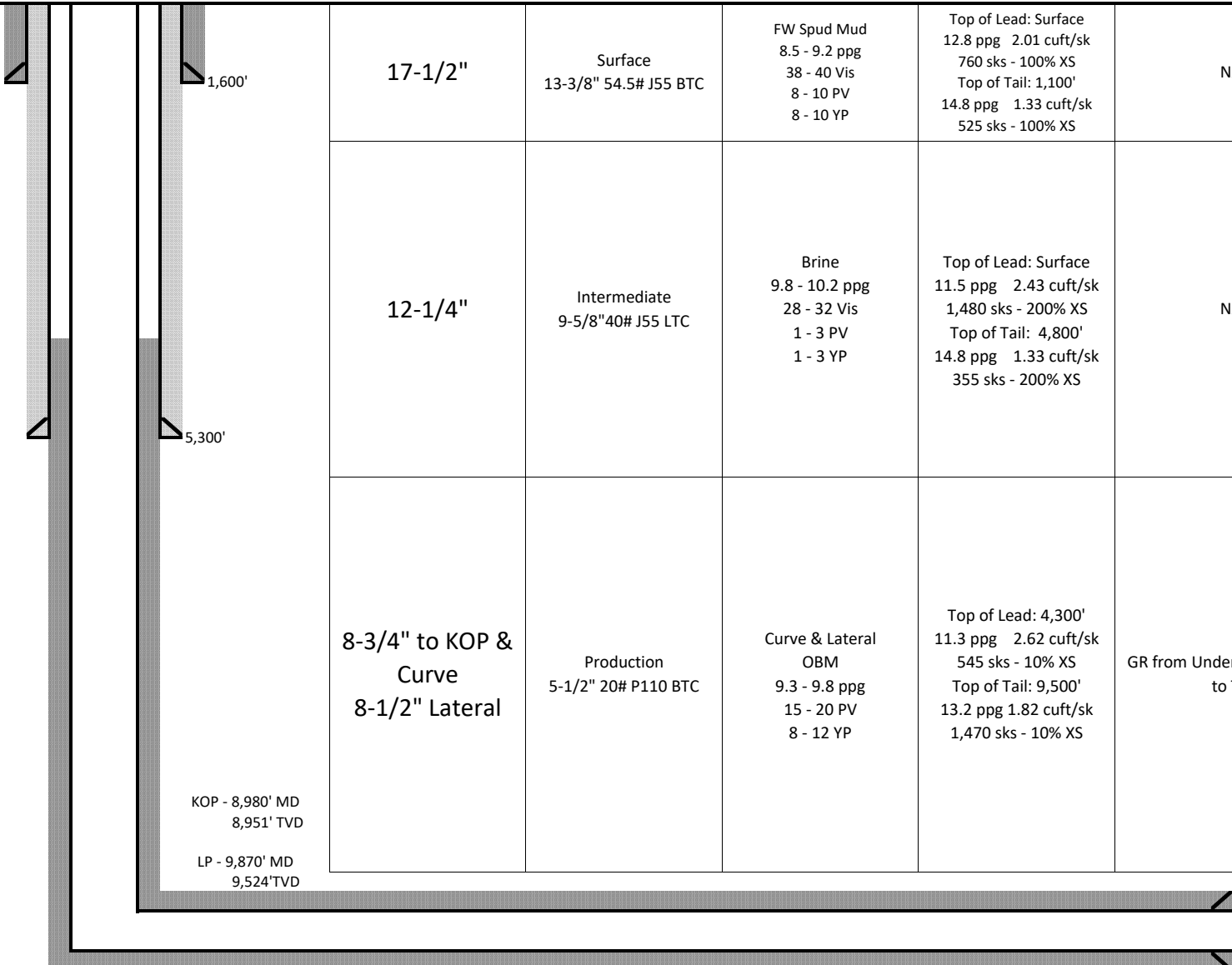
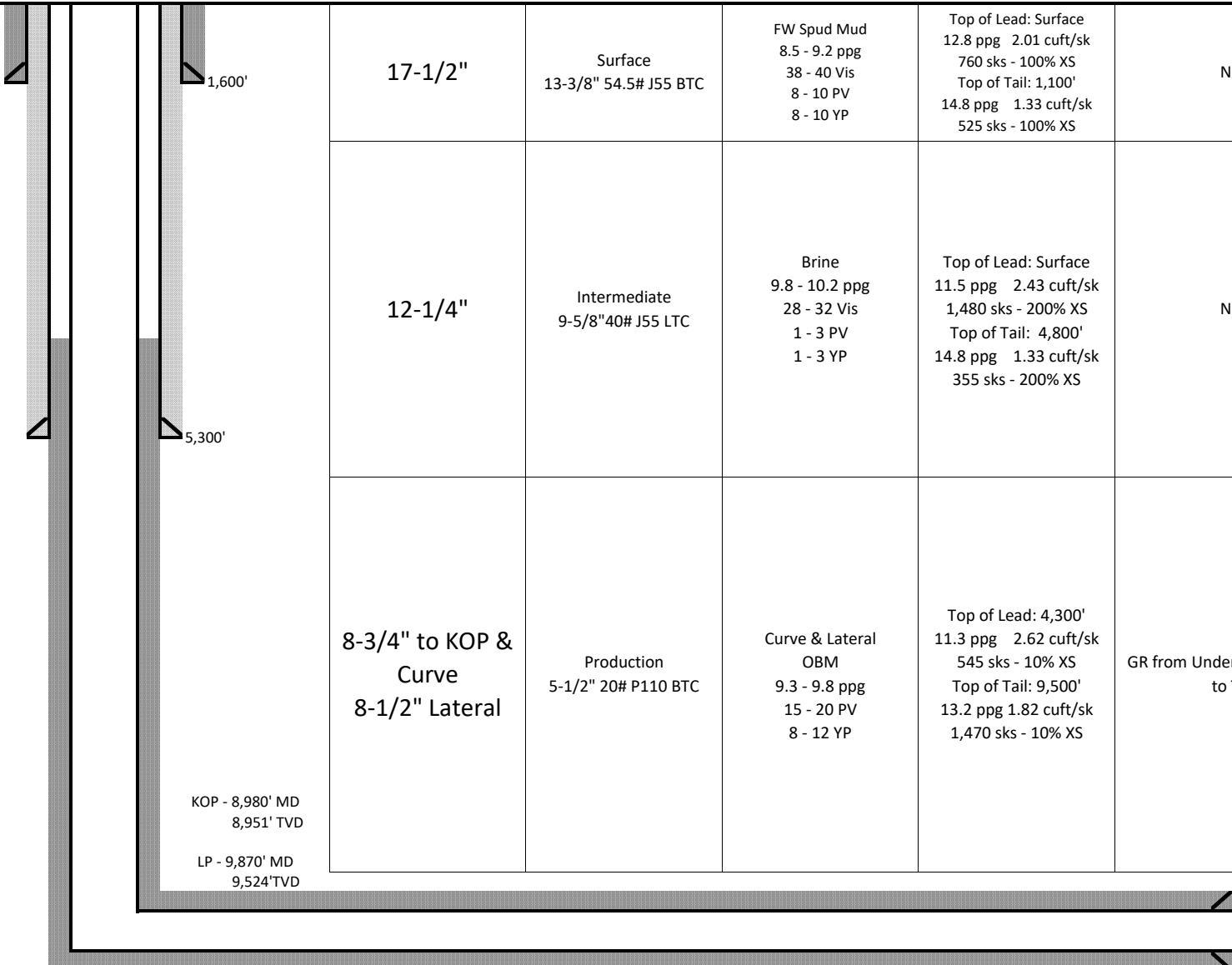
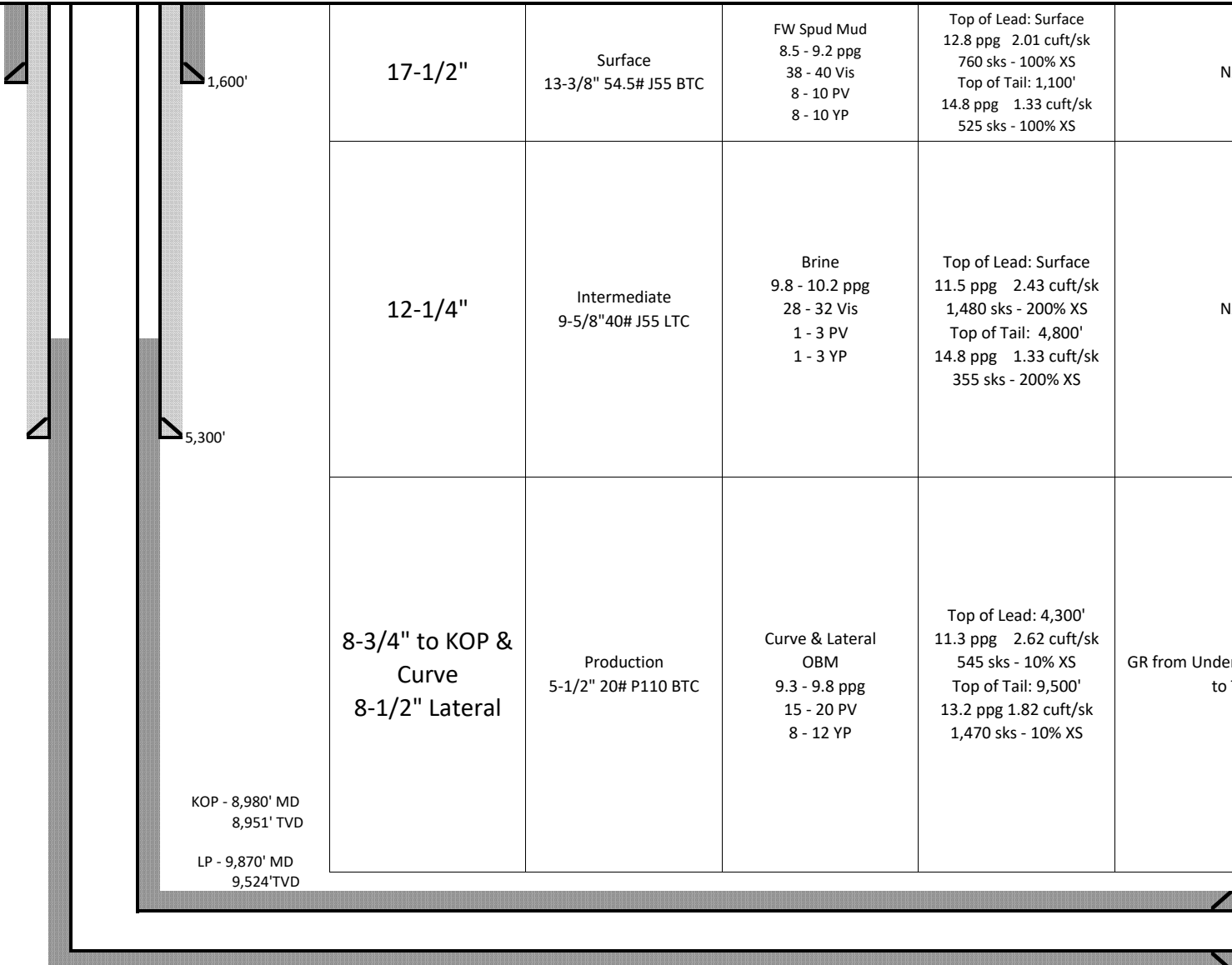
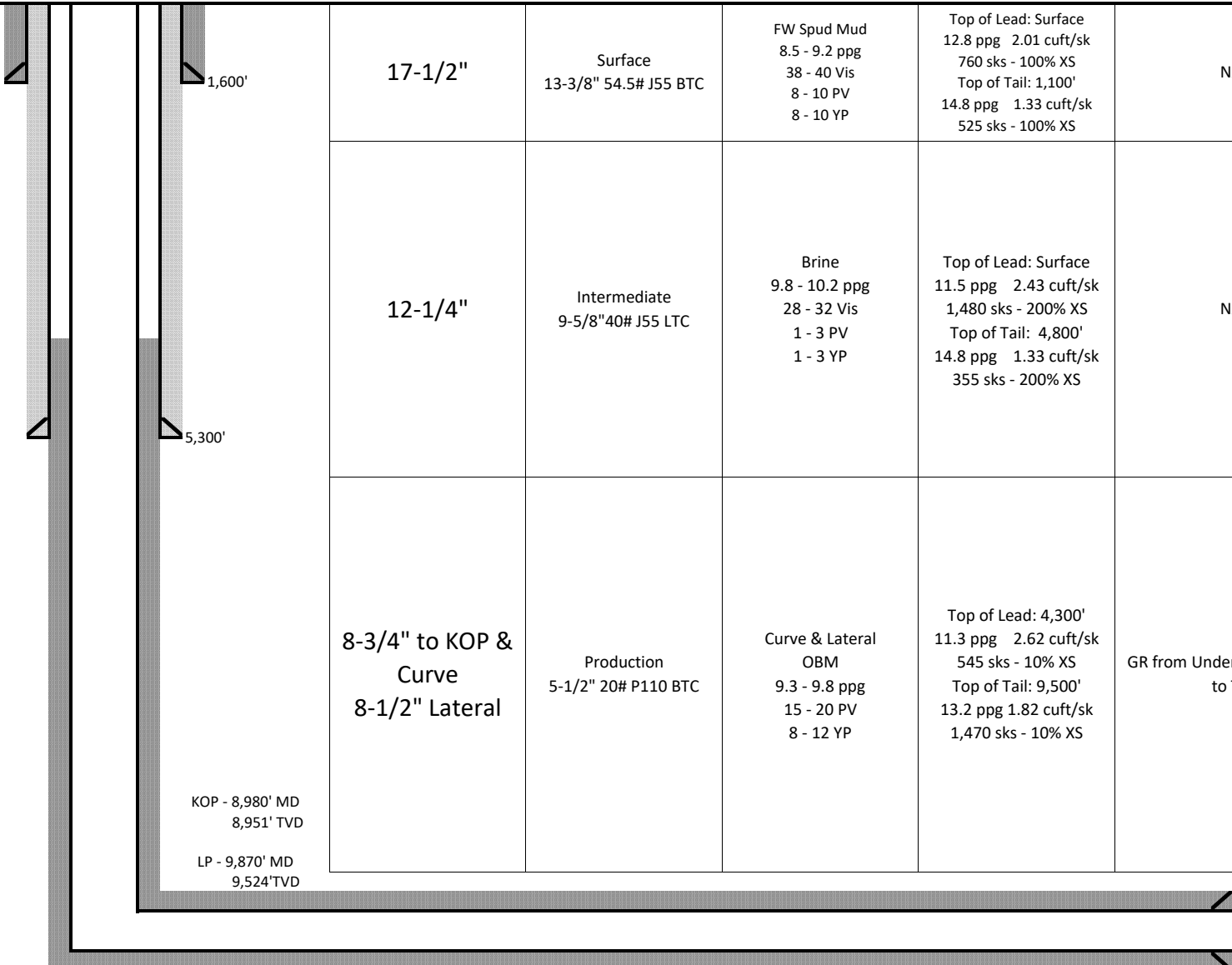
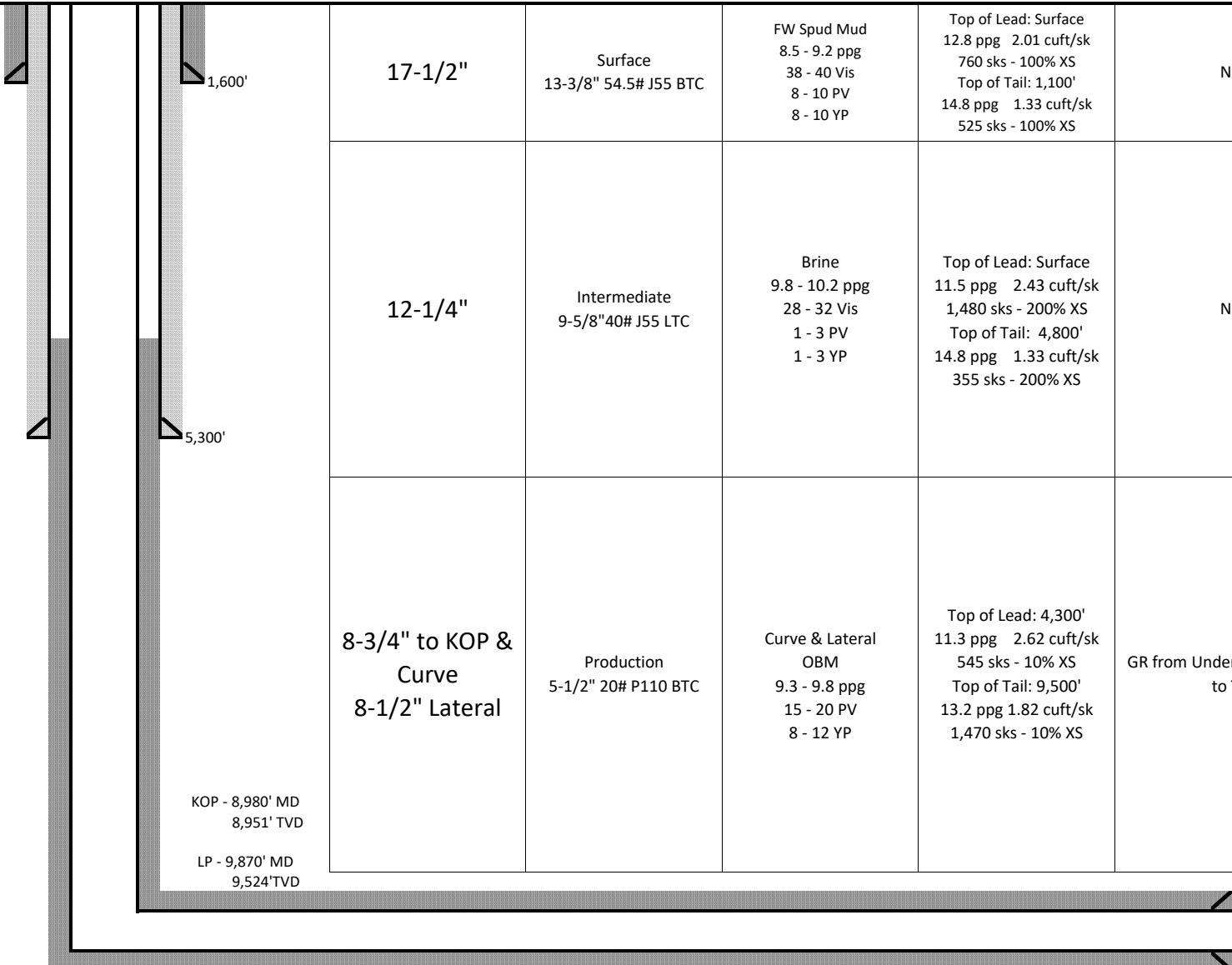
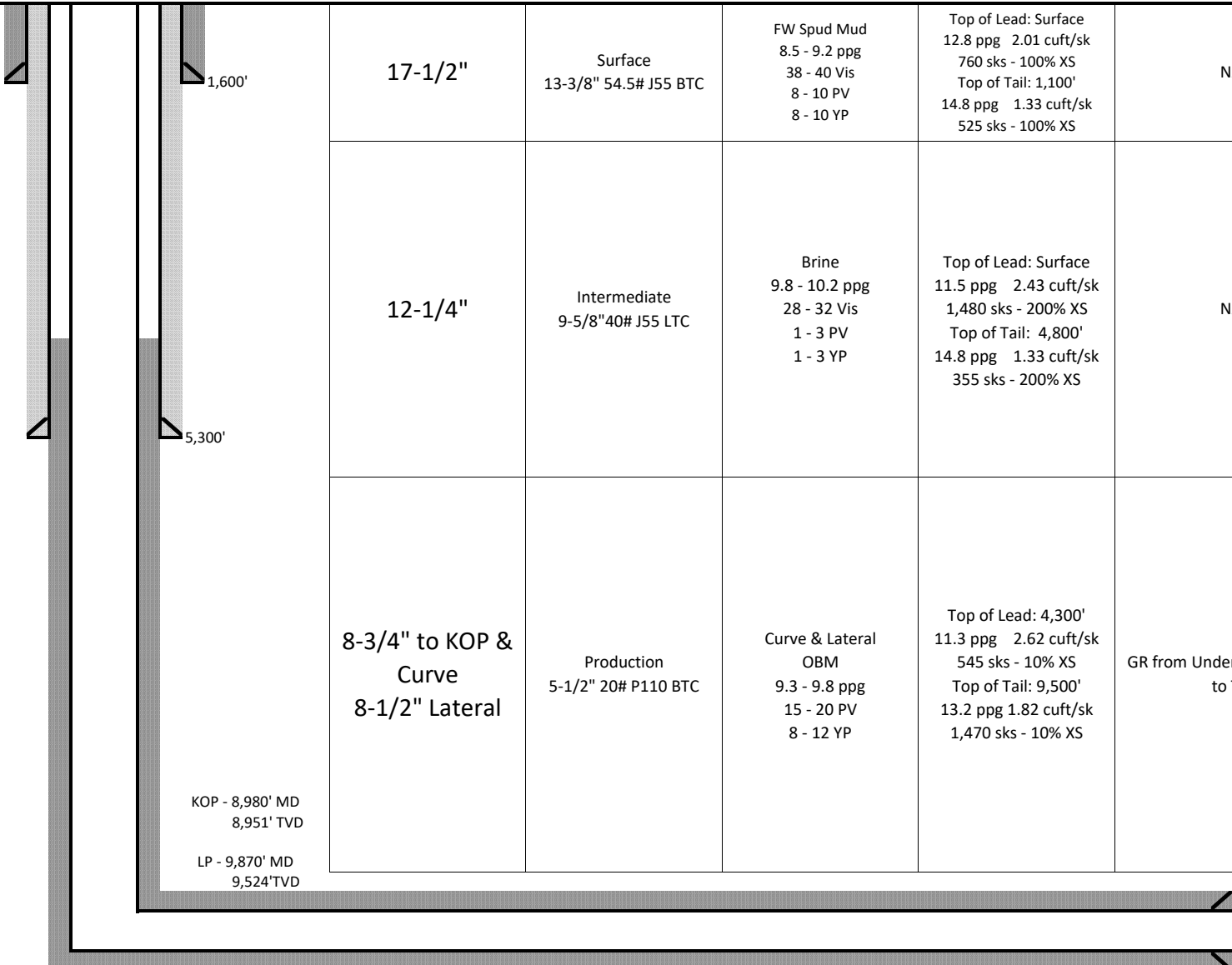
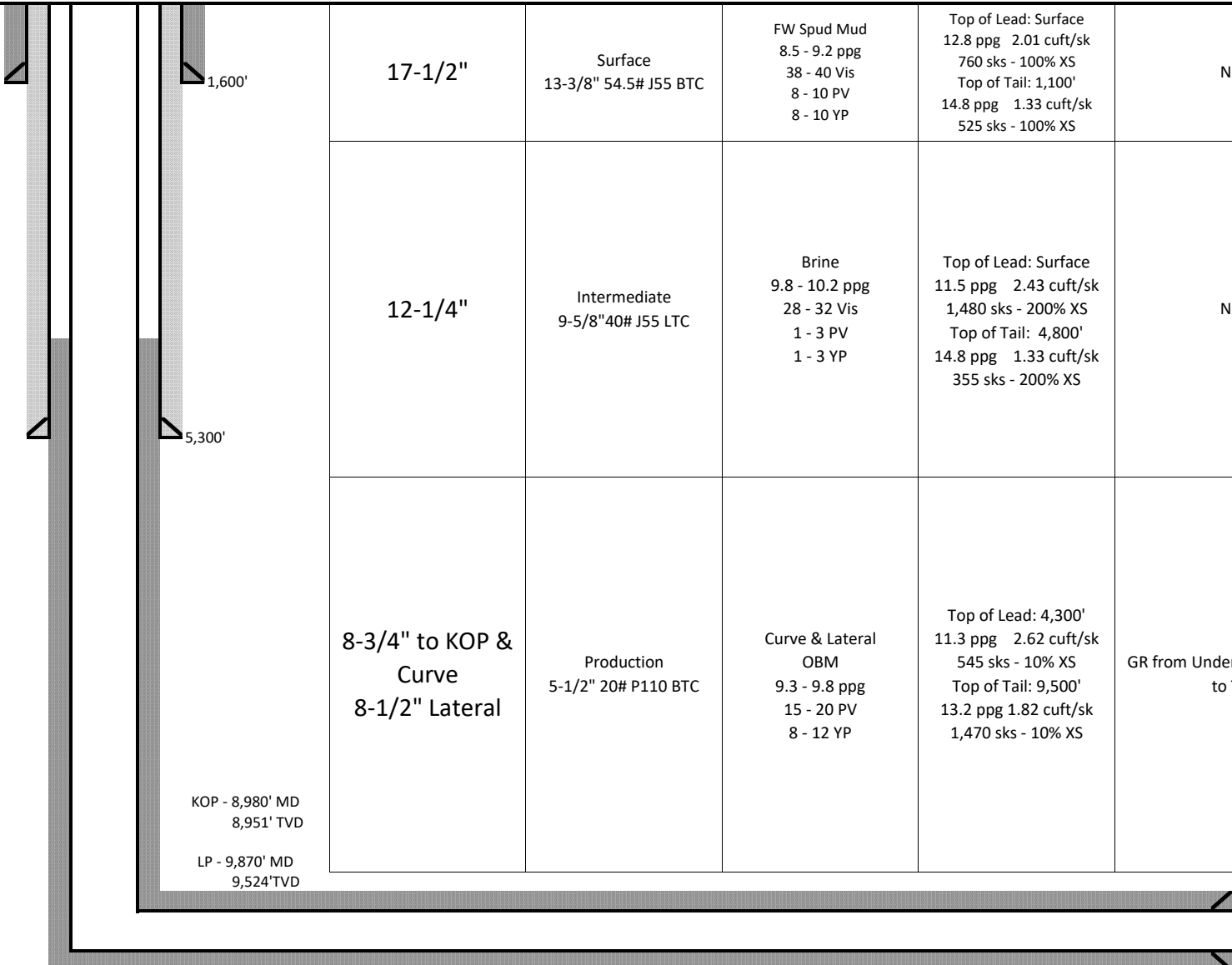
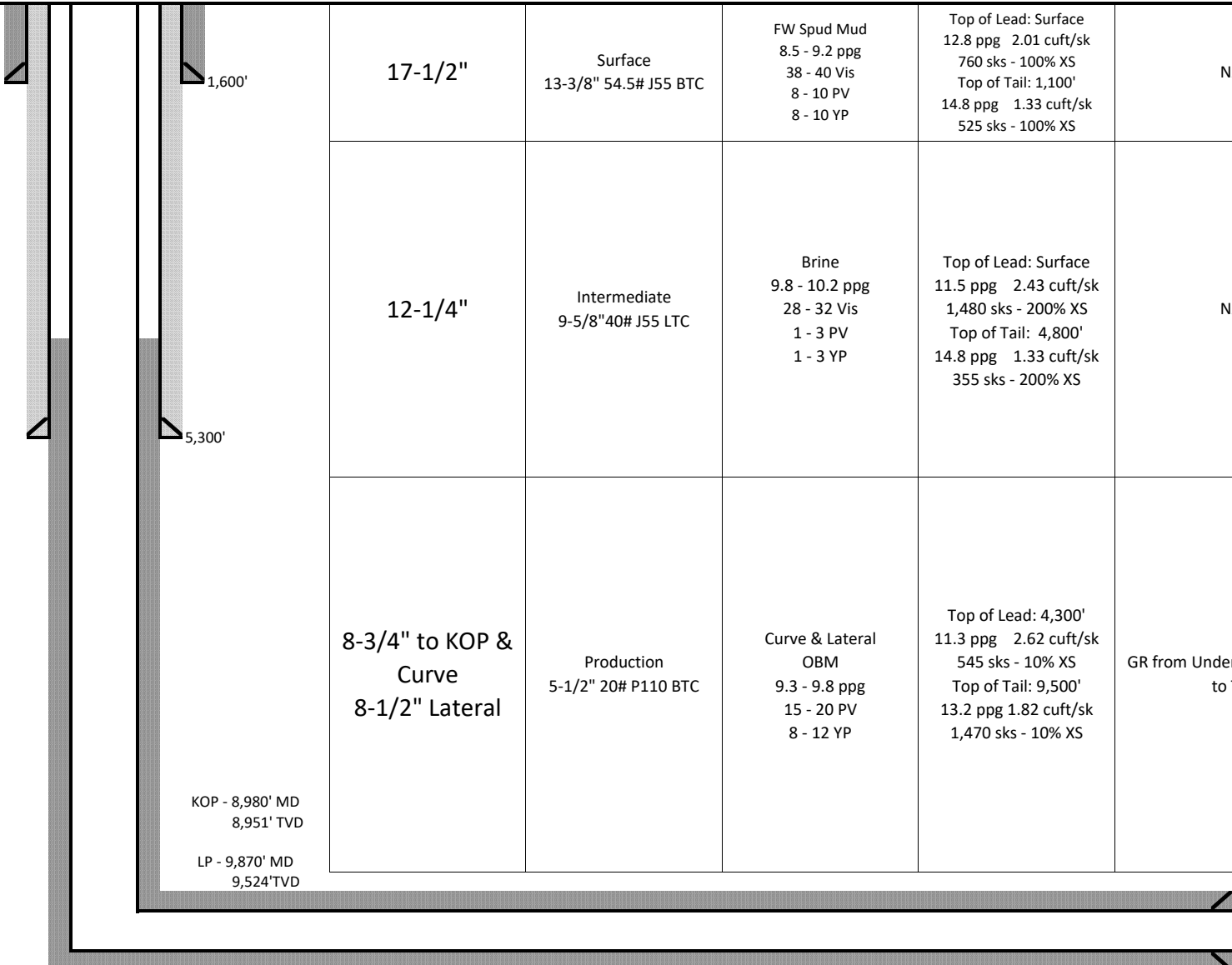
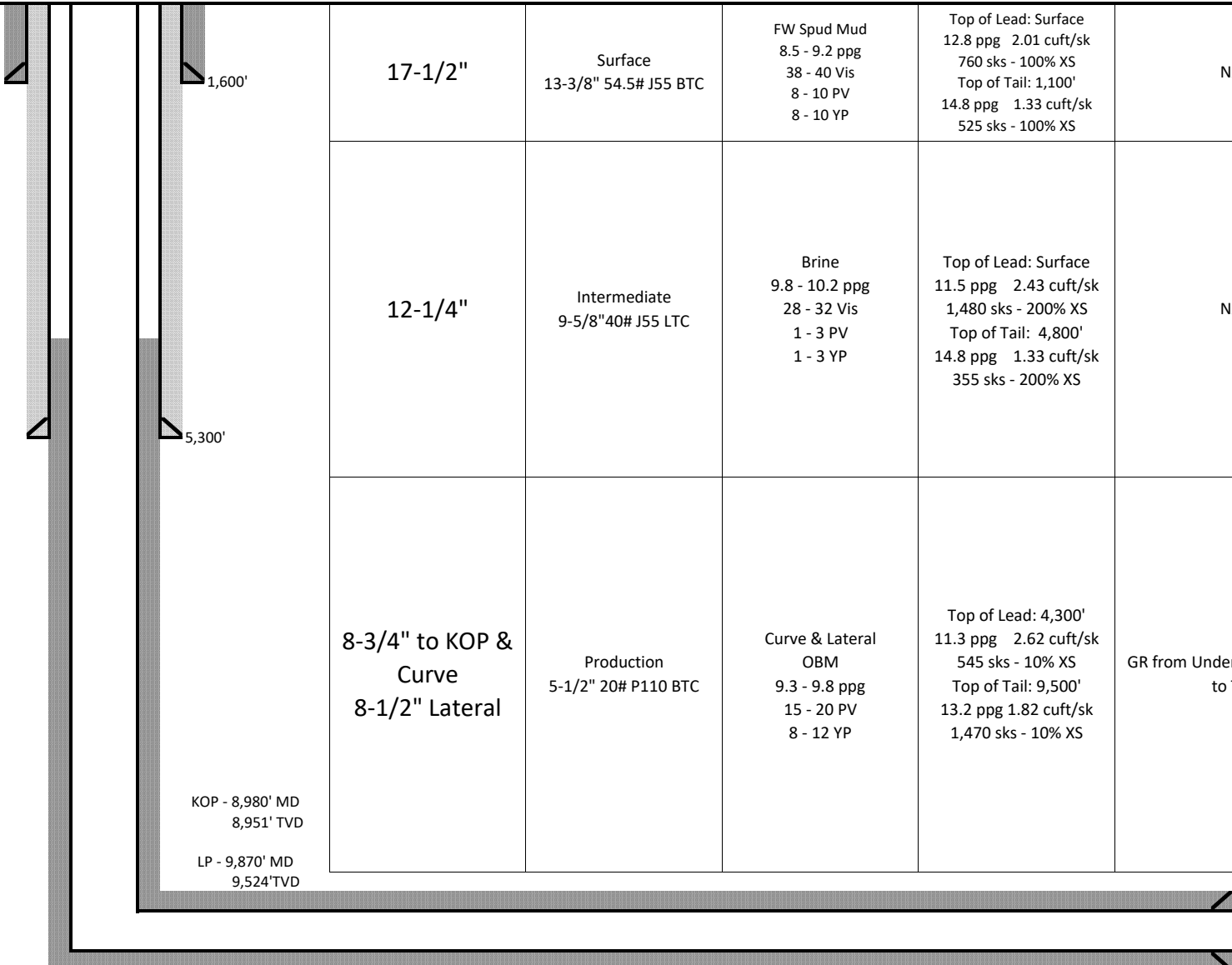
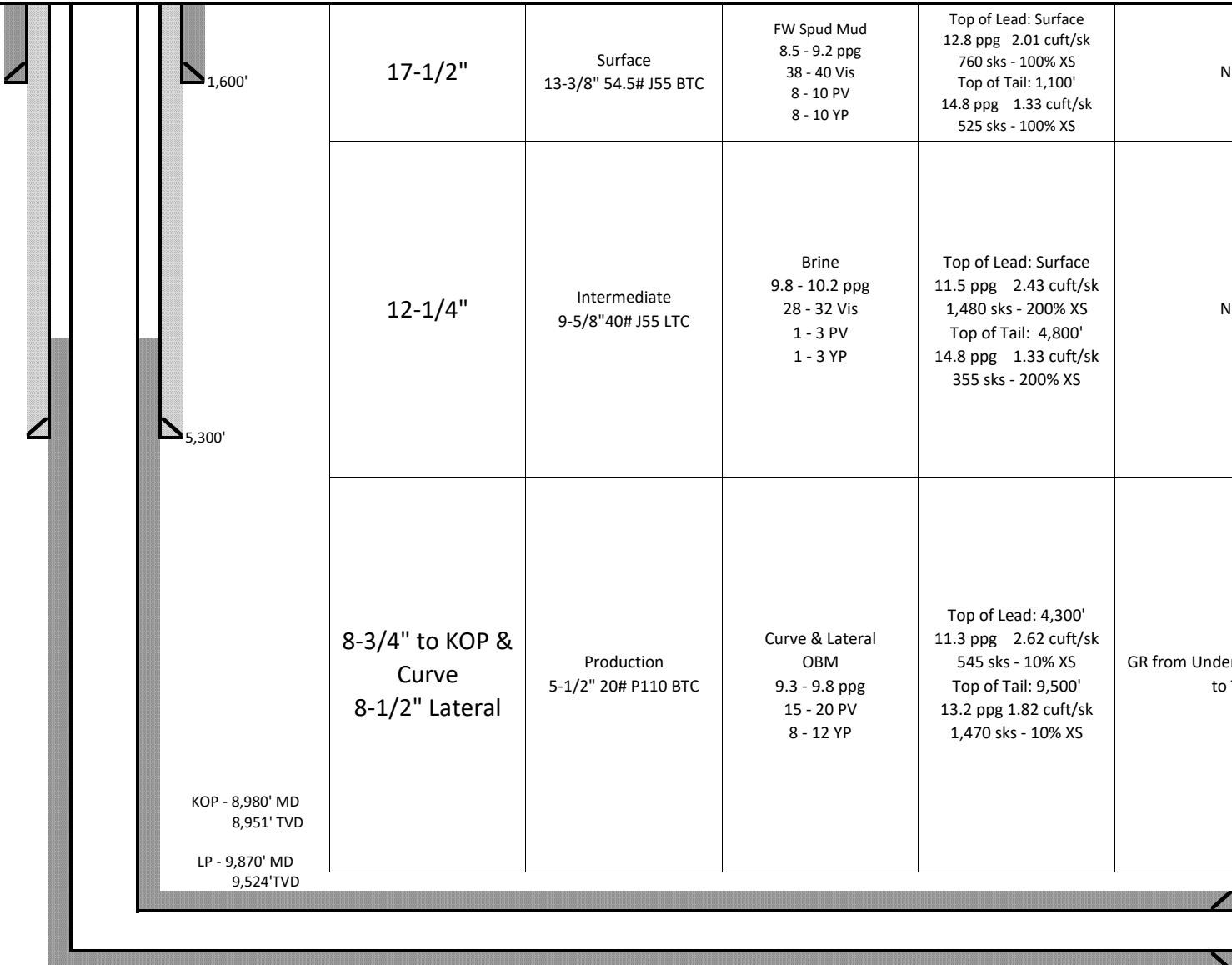
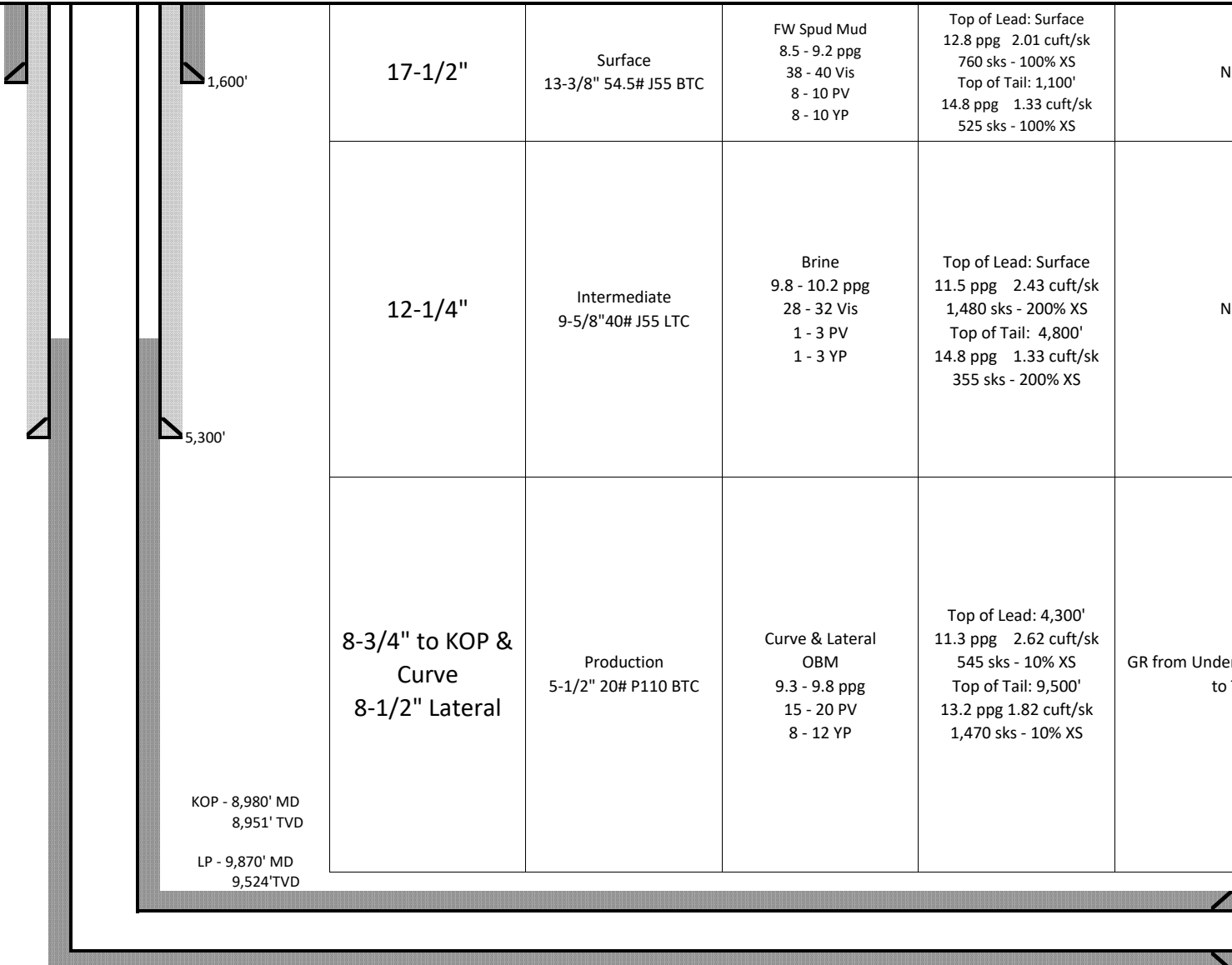
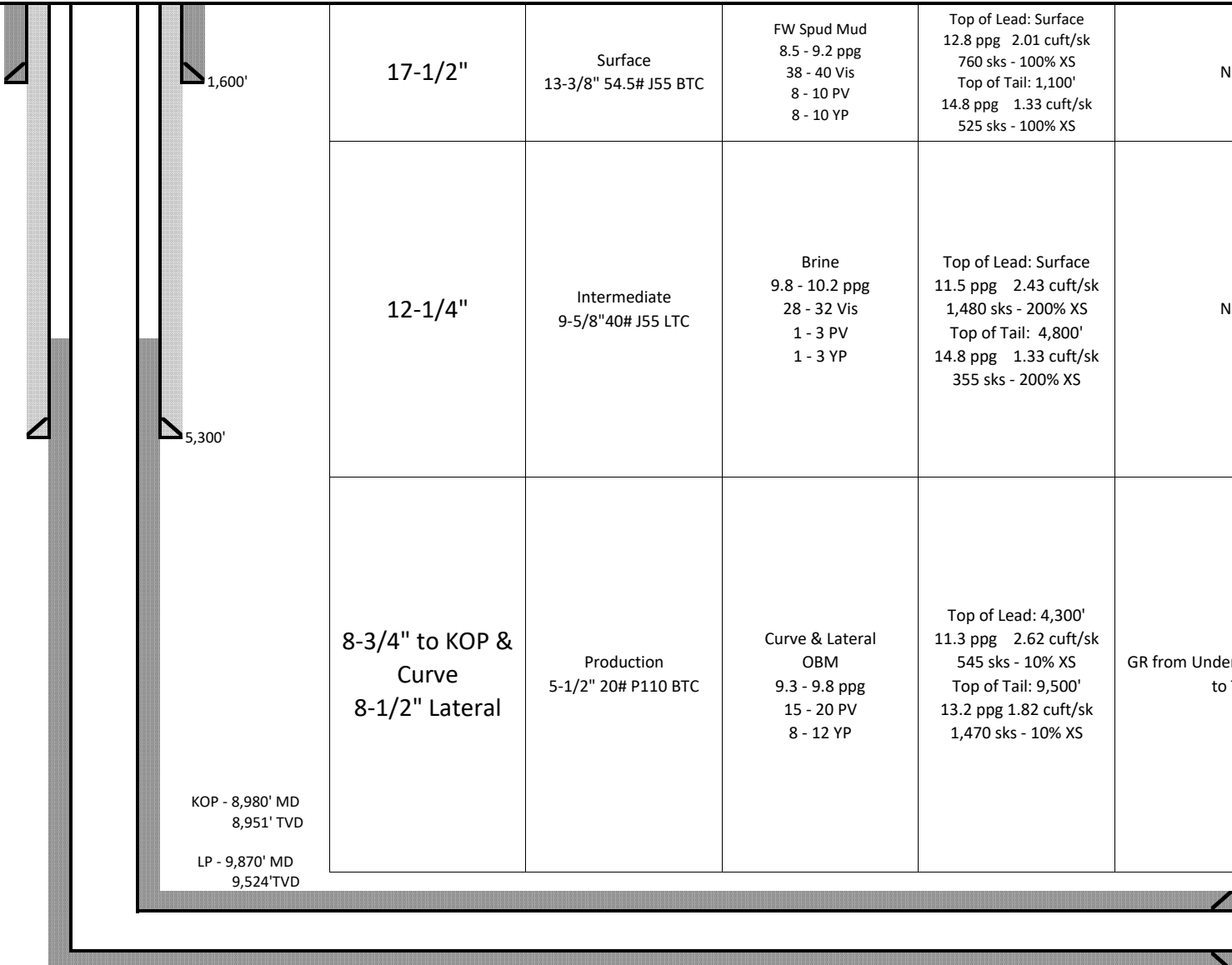
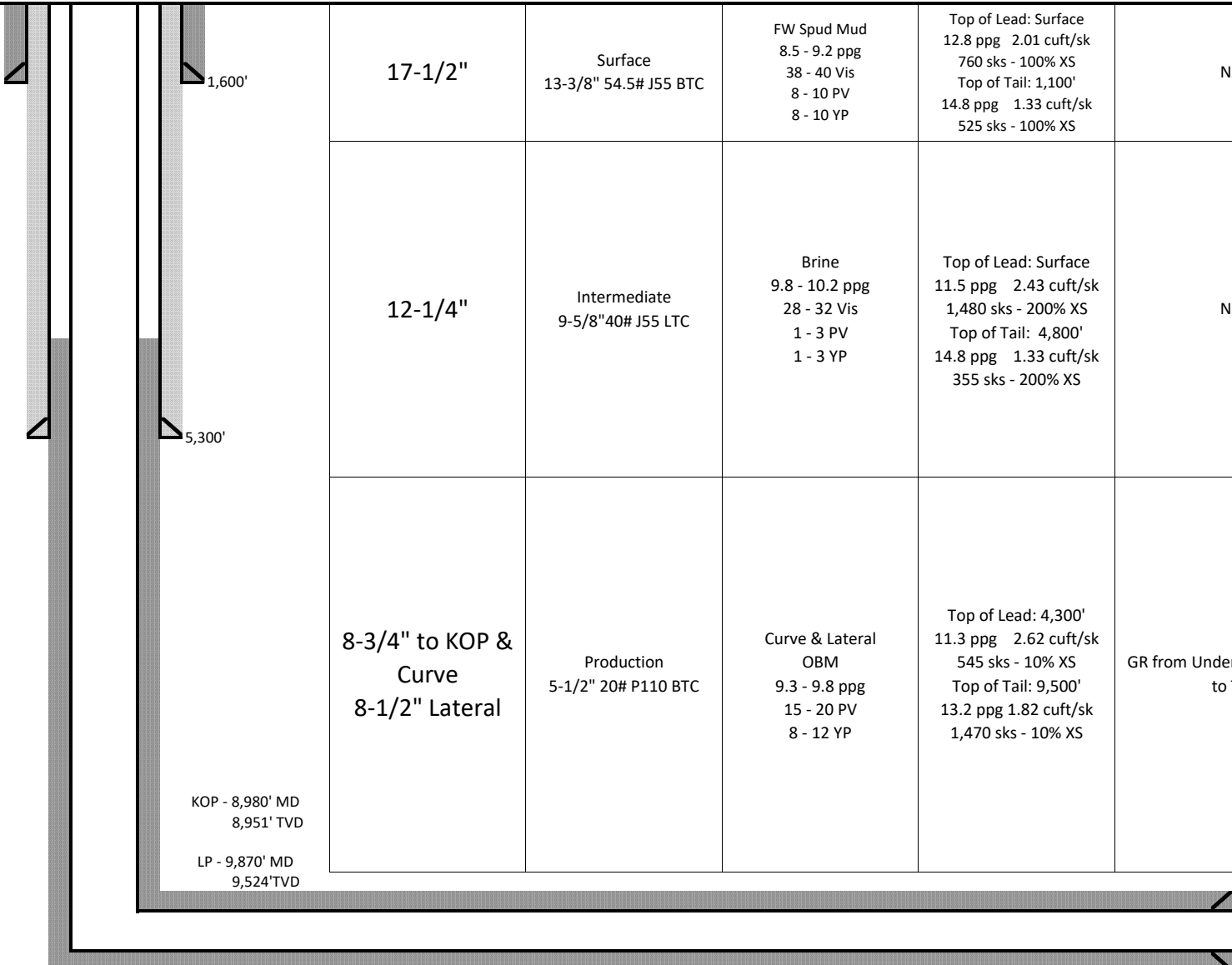
Casing Program:   RAM 2-11 Fed 2BS Com 9H

| Open Hole Size<br>(Inches) | Casing<br>Depth;<br>From (ft) | Casing<br>Setting<br>Depth (ft)<br>MD | Casing<br>Setting<br>Depth (ft)<br>TVD | Casing<br>Size<br>(inches) | Casing<br>Weight<br>(lb/ft) | Casing<br>Grade | Thread | Condition | Anticipated<br>Mud Weight<br>(ppg) | Burst (psi) | Burst SF<br>(1.125) | Collapse<br>(psi) | Collapse<br>SF (1.125) | Tension<br>Joint (klbs) | Air Weight<br>(lbs) | Tension<br>Joint SF<br>(1.8) | Tension<br>Body (klbs) | Air Weight<br>(lbs) | Tension<br>Body SF<br>(1.8) |
|----------------------------|-------------------------------|---------------------------------------|----------------------------------------|----------------------------|-----------------------------|-----------------|--------|-----------|------------------------------------|-------------|---------------------|-------------------|------------------------|-------------------------|---------------------|------------------------------|------------------------|---------------------|-----------------------------|
| Surface                    |                               |                                       |                                        |                            |                             |                 |        |           |                                    |             |                     |                   |                        |                         |                     |                              |                        |                     |                             |
| 17.5"                      | 0'                            | 1,600'                                | 1,600'                                 | 13 3/8"                    | 54.5                        | J-55            | BTC    | New       | 8.4                                | 2730        | 3.91                | 1130              | 1.62                   | 909,000                 | 87,200              | 10.42                        | 853,000                | 87,200              | 9.78                        |
| Intermediate               |                               |                                       |                                        |                            |                             |                 |        |           |                                    |             |                     |                   |                        |                         |                     |                              |                        |                     |                             |
| 12.25"                     | 0'                            | 5,300'                                | 5,300'                                 | 9 5/8"                     | 40                          | J-55            | LTC    | New       | 10.2                               | 3950        | 1.41                | 2570              | 1.83                   | 520,000                 | 212,000             | 2.45                         | 630,000                | 212,000             | 2.97                        |
| Production                 |                               |                                       |                                        |                            |                             |                 |        |           |                                    |             |                     |                   |                        |                         |                     |                              |                        |                     |                             |
| 8.75"                      | 0'                            | 19,859'                               | 9,698'                                 | 5 1/2"                     | 20                          | P-110           | BTC    | New       | 9.5                                | 12640       | 2.72                | 11080             | 2.39                   | 667,000                 | 193,960             | 3.44                         | 641,000                | 193,960             | 3.30                        |

|                                                                                                                |          |
|----------------------------------------------------------------------------------------------------------------|----------|
| <b>Casing Design Criteria and Casing Loading Assumptions:</b>                                                  |          |
| <u>Surface</u>                                                                                                 |          |
| Tension A 1.8 design factor with effects of buoyancy with a fluid equal to a mud weight of:                    | 8.4 ppg  |
| Collapse A 1.125 design factor with full internal evacuation and collapse force equal to a mud gradient of:    | 8.4 ppg  |
| Burst A 1.125 design factor with full external evacuation and burst force equal to a mud gradient of:          | 8.4 ppg  |
| <u>Intermediate</u>                                                                                            |          |
| Tension A 1.8 design factor with effects of buoyancy with a fluid equal to a mud weight of:                    | 10.2 ppg |
| Collapse A 1.125 design factor with 1/2 TVD internal evacuation and collapse force equal to a mud gradient of: | 10.2 ppg |
| Burst A 1.125 design factor with full external evacuation and burst force equal to a mud gradient of:          | 10.2 ppg |
| <u>Production</u>                                                                                              |          |
| Tension A 1.8 design factor with effects of buoyancy with a fluid equal to a mud weight of:                    | 9.2 ppg  |
| Collapse A 1.125 design factor with full internal evacuation and collapse force equal to a mud gradient of:    | 9.2 ppg  |
| Burst A 1.125 design factor with full external evacuation and burst force equal to a mud gradient of:          | 9.2 ppg  |

API # 30-025-4xxxx

Updated:07/01/2021

| TVD<br><i>ft-RKB</i> | Geological<br>Tops            | Wellbore Sketch                                                                     |  | Hole Size                                                                           | Casing                            | Drilling Fluids                                                                     | Cement                                                                                                                                    | OH Evaluation/Logs                  |  |
|----------------------|-------------------------------|-------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------|-----------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|--|
| 2,000'               | 1,482 Rustler<br>1,767 Salado |  |  | 17-1/2"                                                                             | Surface<br>13-3/8" 54.5# J55 BTC  | FW Spud Mud<br>8.5 - 9.2 ppg<br>38 - 40 Vis<br>8 - 10 PV<br>8 - 10 YP               | Top of Lead: Surface<br>12.8 ppg 2.01 cuft/sk<br>760 sks - 100% XS<br>Top of Tail: 1,100'<br>14.8 ppg 1.33 cuft/sk<br>525 sks - 100% XS   | NA                                  |  |
| 3,000'               |                               |                                                                                     |  | 12-1/4"                                                                             | Intermediate<br>9-5/8"40# J55 LTC | Brine<br>9.8 - 10.2 ppg<br>28 - 32 Vis<br>1 - 3 PV<br>1 - 3 YP                      | Top of Lead: Surface<br>11.5 ppg 2.43 cuft/sk<br>1,480 sks - 200% XS<br>Top of Tail: 4,800'<br>14.8 ppg 1.33 cuft/sk<br>355 sks - 200% XS | NA                                  |  |
| 4,000'               | 3,662 7 Rivers<br>4,317 Queen |                                                                                     |  | 8-3/4" to KOP &<br>Curve<br>8-1/2" Lateral                                          | Production<br>5-1/2" 20# P110 BTC | Curve & Lateral<br>OBM<br>9.3 - 9.8 ppg<br>15 - 20 PV<br>8 - 12 YP                  | Top of Lead: 4,300'<br>11.3 ppg 2.62 cuft/sk<br>545 sks - 10% XS<br>Top of Tail: 9,500'<br>13.2 ppg 1.82 cuft/sk<br>1,470 sks - 10% XS    | GR from Under Intermediate<br>to TD |  |
| 5,000'               |                               |  |  |  |                                   |  |                                                                                                                                           | 19,859' MD<br>9,698' TVD            |  |
| 6,000'               | 6,402 Delaware Mtn Grp        |                                                                                     |  |                                                                                     |                                   |                                                                                     |                                                                                                                                           |                                     |  |
| 7,000'               |                               |                                                                                     |  |                                                                                     |                                   |                                                                                     |                                                                                                                                           |                                     |  |
| 8,000'               | 7,657 Bone Spring             |  |  |  |                                   |  |                                                                                                                                           |                                     |  |
| 9,000'               | 8,927 1st BS SS               |                                                                                     |  |                                                                                     |                                   |                                                                                     |                                                                                                                                           |                                     |  |
|                      |                               |                                                                                     |  |                                                                                     |                                   |                                                                                     |                                                                                                                                           |                                     |  |
| 10,000'              | 9,497 2nd BS SS               |  |  |  |                                   |  |                                                                                                                                           |                                     |  |
|                      |                               |                                                                                     |  |                                                                                     |                                   |                                                                                     |                                                                                                                                           |                                     |  |
|                      |                               |                                                                                     |  |                                                                                     |                                   |                                                                                     |                                                                                                                                           |                                     |  |
| 11,000'              | 10,321 3rd BS SS              |  |  |  |                                   |  |                                                                                                                                           |                                     |  |
|                      |                               |                                                                                     |  |                                                                                     |                                   |                                                                                     |                                                                                                                                           |                                     |  |
|                      |                               |                                                                                     |  |                                                                                     |                                   |                                                                                     |                                                                                                                                           |                                     |  |

**Operator Name:** CHISHOLM ENERGY OPERATING LLC**Well Name:** RAM 2-11 FED 2BS COM**Well Number:** 9H**Casing Attachments****Casing ID:** 2      **String Type:** INTERMEDIATE**Inspection Document:****Spec Document:****Tapered String Spec:****Casing Design Assumptions and Worksheet(s):**

Casing\_Calculator\_\_\_RAM\_2\_11\_FED\_2BS\_Com\_9H\_20210709112354.pdf

**Casing ID:** 3      **String Type:** PRODUCTION**Inspection Document:****Spec Document:****Tapered String Spec:****Casing Design Assumptions and Worksheet(s):**

Casing\_Calculator\_\_\_RAM\_2\_11\_FED\_2BS\_Com\_9H\_20210709112331.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      | 1100      | 760          | 2.01  | 12.8    | 1528  | 100     | Class C     | Sodium Metasilicate, Defoamer, KCL                                             |
| SURFACE      | Tail      |                  | 1100   | 1600      | 525          | 1.33  | 14.8    | 698   | 100     | Class C     | none                                                                           |
| INTERMEDIATE | Lead      |                  | 0      | 4800      | 1480         | 2.43  | 11.5    | 3596  | 200     | Class C     | Sodium Metasilicate, Defoamer, KCL, Kol-Seal, Cellophane Flakes, ROF SealCheck |
| INTERMEDIATE | Tail      |                  | 4800   | 5300      | 355          | 1.33  | 14.8    | 472   | 200     | Class C     | Fluid Loss, Dispercent, Retarder                                               |

**Operator Name:** CHISHOLM ENERGY OPERATING LLC**Well Name:** RAM 2-11 FED 2BS COM**Well Number:** 9H

| String Type | Lead/Tail | Stage Tool Depth | Top MD | Bottom MD | Quantity(sx) | Yield | Density | Cu Ft | Excess% | Cement type | Additives                                                                                                              |
|-------------|-----------|------------------|--------|-----------|--------------|-------|---------|-------|---------|-------------|------------------------------------------------------------------------------------------------------------------------|
| PRODUCTION  | Lead      |                  | 4300   | 9500      | 545          | 2.62  | 11.3    | 1428  | 10      | Class H     | Bentonite, Compressive Strength Enhancer, Silica Fume Alternative, Fluid Loss, Defoamer, Sodium Metasilicate, Retarder |
| PRODUCTION  | Tail      |                  | 9500   | 19859     | 1470         | 1.82  | 13.2    | 2675  | 10      | Class H     | Fluid Loss, Suspension Agent, Retarder, Defoamer, Dispersant                                                           |

### 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:** Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times.**Describe the mud monitoring system utilized:** Pason PVT system will be in place throughout the well as well as visual checks

### 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         | 1600         | SPUD MUD       | 8.5                  | 9.2                  |                     |                             |    |                |                |                 | 38-40 VIS<br>8-10 PV<br>8-10 YP |
| 5300      | 19859        | OIL-BASED MUD  | 9.3                  | 9.8                  |                     |                             |    |                |                |                 | 15-20 PV<br>8-12 YP             |
| 1600      | 5300         | SALT SATURATED | 9.8                  | 10.2                 |                     |                             |    |                |                |                 | 28-32 VIS<br>1-3 PV<br>1-3 YP   |

**Operator Name:** CHISHOLM ENERGY OPERATING LLC**Well Name:** RAM 2-11 FED 2BS COM**Well Number:** 9H**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          | 1600          | 0           | 1600           | 3766        | 2166           | 1600                        | J-55  | 54.5   | BUTT       | 1.62        | 3.91     | DRY           | 10.42    | DRY          | 9.78    |
| 2         | INTERMEDIATE | 12.25     | 9.625    | NEW       | API      | N              | 0          | 5300          | 0           | 5300           | 3728        | -1534          | 5300                        | J-55  | 40     | LT&C       | 1.83        | 1.41     | DRY           | 2.45     | DRY          | 2.97    |
| 3         | PRODUCTION   | 8.75      | 5.5      | NEW       | API      | N              | 0          | 19859         | 0           | 9698           | 3728        | -5932          | 19859                       | P-110 | 20     | BUTT       | 2.39        | 2.72     | DRY           | 3.44     | DRY          | 3.3     |

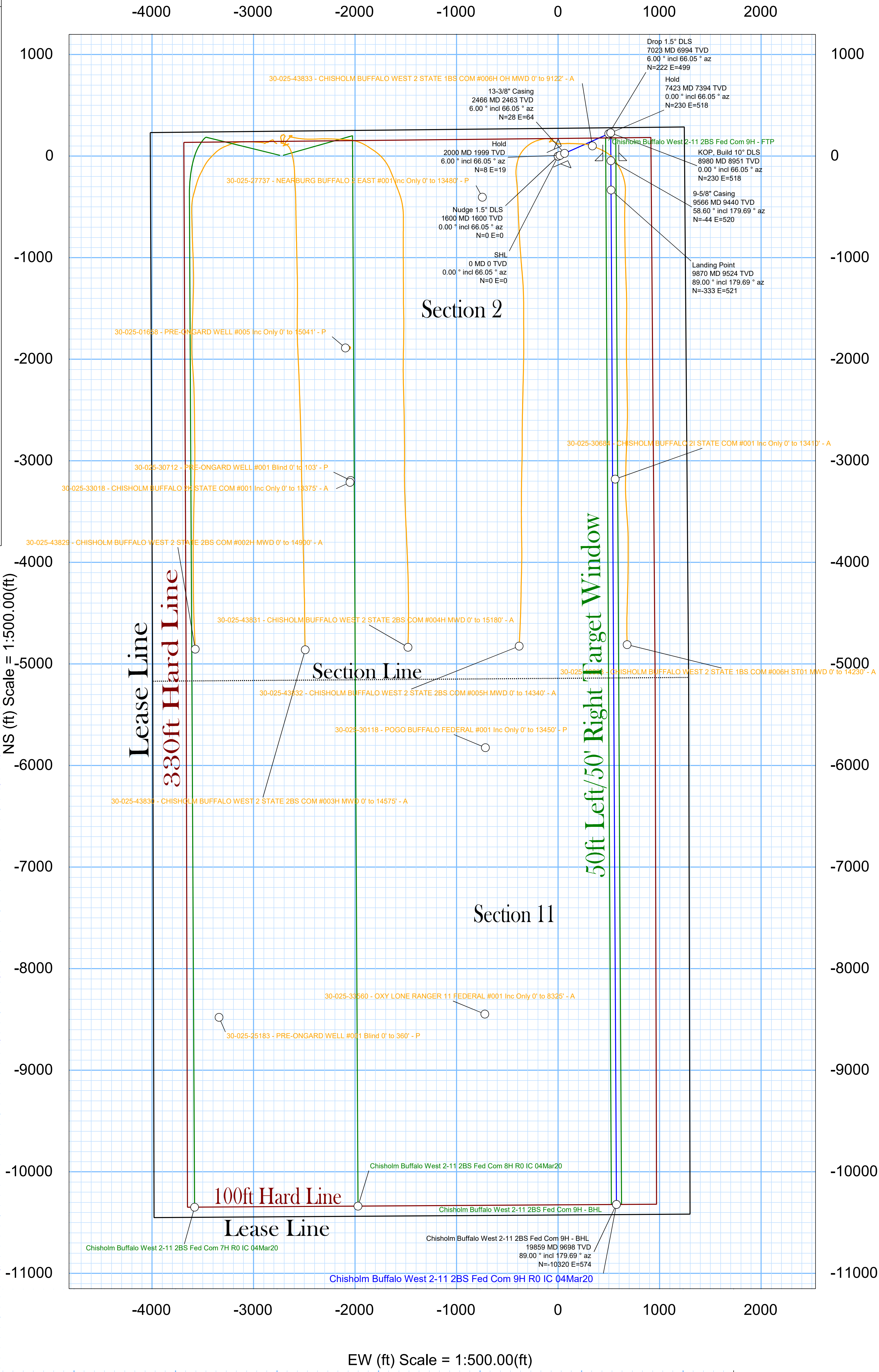
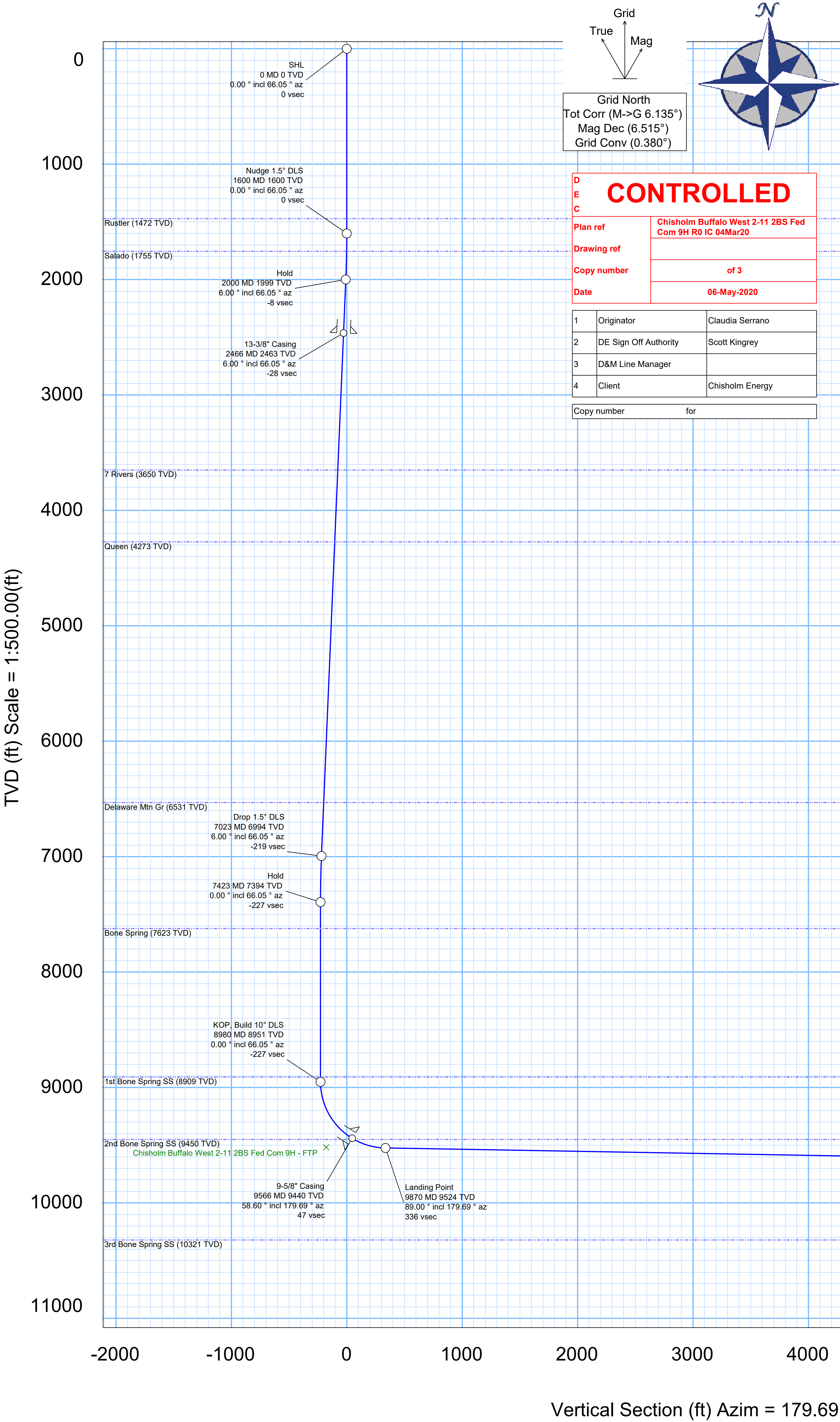
**Casing Attachments****Casing ID:** 1      **String Type:** SURFACE**Inspection Document:****Spec Document:****Tapered String Spec:****Casing Design Assumptions and Worksheet(s):**

Casing\_Calculator\_\_\_RAM\_2\_11\_FED\_2BS\_Com\_9H\_20210709112414.pdf

|                                  |                                  |                        |                                           |
|----------------------------------|----------------------------------|------------------------|-------------------------------------------|
| Borehole:                        | Well:                            | Field:                 | Structure:                                |
| Buffalo West 2-11 2BS Fed Com 9H | Buffalo West 2-11 2BS Fed Com 9H | NM Lea County (NAD 83) | Chisholm Buffalo West 2-11 2BS Fed Com 9H |

|                               |           |      |             |                  |                            |      |                |                                                     |              |             |            |               |                                                         |          |                       |
|-------------------------------|-----------|------|-------------|------------------|----------------------------|------|----------------|-----------------------------------------------------|--------------|-------------|------------|---------------|---------------------------------------------------------|----------|-----------------------|
| Gravity & Magnetic Parameters |           |      |             | Surface Location |                            |      |                | NAD83 New Mexico State Plane, Eastern Zone, US Feet |              |             |            | Miscellaneous |                                                         |          |                       |
| Model:                        | HDGM 2020 | Dip: | 60.625°     | Date:            | 06-May-2020                | Lat: | N 32 41 46.04  | Northing:                                           | 617699.5ftUS | Grid Conv:  | 0.3804°    | Slot:         | New Slot                                                | TVD Ref: | RKB(3807ft above MSL) |
| MagDec:                       | 6.515°    | FS:  | 48088.438nT | Gravity FS:      | 998.511mgn (9.80665 Based) | Lon: | W 103 37 44.98 | Easting:                                            | 757959.9ftUS | Scale Fact: | 0.99996283 | Plan:         | Chisholm Buffalo West 2-11 2BS Fed Com 9H R0 IC 04Mar20 |          |                       |

| Critical Points                                 |          |       |        |          |          |           |           |       |
|-------------------------------------------------|----------|-------|--------|----------|----------|-----------|-----------|-------|
| Critical Point                                  | MD       | INCL  | AZIM   | TVD      | VSEC     | N(+)/S(-) | E(+)/W(-) | DLS   |
| SHL                                             | 0.00     | 0.00  | 66.05  | 0.00     | 0.00     | 0.00      | 0.00      |       |
| Rustler                                         | 1463.00  | 0.00  | 66.05  | 1463.00  | 0.00     | 0.00      | 0.00      |       |
| Nudge 1.5" DLS                                  | 1600.00  | 0.00  | 66.05  | 1600.00  | 0.00     | 0.00      | 0.00      |       |
| Salado                                          | 1746.04  | 2.19  | 66.05  | 1746.00  | -1.12    | 1.13      | 2.55      | 1.50  |
| Hold                                            | 2000.00  | 6.00  | 66.05  | 1999.27  | -8.39    | 8.49      | 19.12     | 1.50  |
| 13-3/8" Casing                                  | 2466.00  | 6.00  | 66.05  | 2462.72  | -27.92   | 28.27     | 63.64     | 0.00  |
| 7 Rivers                                        | 3650.77  | 6.00  | 66.05  | 3641.00  | -77.58   | 78.54     | 176.82    | 0.00  |
| Queen                                           | 4277.21  | 6.00  | 66.05  | 4264.00  | -103.84  | 105.12    | 236.66    | 0.00  |
| Delaware Mtn Gr                                 | 6547.64  | 6.00  | 66.05  | 6522.00  | -199.00  | 201.46    | 453.55    | 0.00  |
| Drop 1.5" DLS                                   | 7022.68  | 6.00  | 66.05  | 6994.43  | -218.91  | 221.62    | 498.93    | 0.00  |
| Hold                                            | 7422.68  | 0.00  | 66.05  | 7393.70  | -227.31  | 230.11    | 518.06    | 1.50  |
| Bone Spring                                     | 7642.98  | 0.00  | 66.05  | 7614.00  | -227.31  | 230.11    | 518.06    | 0.00  |
| 1st Bone Spring SS                              | 8928.98  | 0.00  | 66.05  | 8900.00  | -227.31  | 230.11    | 518.06    | 0.00  |
| KOP, Build 10" DLS                              | 8979.96  | 0.00  | 66.05  | 8950.99  | -227.31  | 230.11    | 518.06    | 0.00  |
| 9-5/8" Casing                                   | 9566.00  | 58.60 | 179.69 | 9440.06  | 47.17    | -44.36    | 519.52    | 10.00 |
| 2nd Bone Spring SS                              | 9567.82  | 58.79 | 179.69 | 9441.00  | 48.72    | -45.91    | 519.53    | 10.00 |
| Landing Point                                   | 9869.96  | 89.00 | 179.69 | 9523.86  | 335.65   | -332.84   | 521.05    | 10.00 |
| Chisholm Buffalo West 2-11 2BS Fed Com 9H - BHL | 19858.99 | 89.00 | 179.69 | 9698.19  | 10323.16 | -10320.20 | 574.22    | 0.00  |
| 3rd Bone Spring SS                              | NaN      |       |        | 10312.00 |          |           |           |       |



Vertical Section (ft) Azim = 179.69° Scale = 1:500.00(ft) Origin = 0N/-S, 0E/-W



## Chisholm Buffalo West 2-11 2BS Fed Com 9H R0 IC 04Mar20 Proposal Geodetic Report (Non-Def Plan)



**Report Date:** May 06, 2020 - 03:08 PM  
**Client:** Chisholm  
**Field:** NM Lea County (NAD 83)  
**Structure / Slot:** Chisholm Buffalo West 2-11 2BS Fed Com 9H / New Slot  
**Well:** Buffalo West 2-11 2BS Fed Com 9H  
**Borehole:** Buffalo West 2-11 2BS Fed Com 9H  
**UWI / API#:** Unknown / Unknown  
**Survey Name:** Chisholm Buffalo West 2-11 2BS Fed Com 9H R0 IC 04Mar20  
**Survey Date:** May 06, 2020  
**Tort / AHD / DDI / ERD Ratio:** 101.000 ° / 11117.328 ft / 6.362 / 1.146  
**Coordinate Reference System:** NAD83 New Mexico State Plane, Eastern Zone, US Feet  
**Location Lat / Long:** N 32° 41' 46.03876", W 103° 37' 44.97509"  
**Location Grid N/E Y/X:** N 617699.500 ftUS, E 757959.900 ftUS  
**CRS Grid Convergence Angle:** 0.3804 °  
**Grid Scale Factor:** 0.99996283  
**Version / Patch:** 2.10.811.0

**Survey / DLS Computation:** Minimum Curvature / Lubinski  
**Vertical Section Azimuth:** 179.690 ° (Grid North)  
**Vertical Section Origin:** 0.000 ft, 0.000 ft  
**TVD Reference Datum:** RKB  
**TVD Reference Elevation:** 3807.000 ft above MSL  
**Seabed / Ground Elevation:** 3776.000 ft above MSL  
**Magnetic Declination:** 6.515 °  
**Total Gravity Field Strength:** 998.5111mgn (9.80665 Based)  
**Gravity Model:** GARM  
**Total Magnetic Field Strength:** 48088.438 nT  
**Magnetic Dip Angle:** 60.625 °  
**Declination Date:** May 06, 2020  
**Magnetic Declination Model:** HDGM 2020  
**North Reference:** Grid North  
**Grid Convergence Used:** 0.3804 °  
**Total Corr Mag North->Grid North:** 6.1345 °  
**Local Coord Referenced To:** Well Head

| Comments                               | MD<br>(ft) | Incl<br>(°) | Azim Grid<br>(°) | TVD<br>(ft) | VSEC<br>(ft) | NS<br>(ft) | EW<br>(ft) | DLS<br>(°/100ft) | Northing<br>(ftUS) | Easting<br>(ftUS) | Latitude<br>(N/S ° ' ") | Longitude<br>(E/W ° ' ") |
|----------------------------------------|------------|-------------|------------------|-------------|--------------|------------|------------|------------------|--------------------|-------------------|-------------------------|--------------------------|
| SHL                                    | 0.00       | 0.00        | 66.05            | 0.00        | 0.00         | 0.00       | 0.00       | N/A              | 617699.50          | 757959.90         | N 32 41 46.04           | W 103 37 44.98           |
| Nudge 1.5° DLS                         | 1600.00    | 0.00        | 66.05            | 1600.00     | 0.00         | 0.00       | 0.00       | 0.00             | 617699.50          | 757959.90         | N 32 41 46.04           | W 103 37 44.98           |
| Hold                                   | 2000.00    | 6.00        | 66.05            | 1999.27     | -8.39        | 8.49       | 19.12      | 1.50             | 617707.99          | 757979.02         | N 32 41 46.12           | W 103 37 44.75           |
| Drop 1.5° DLS                          | 7022.68    | 6.00        | 66.05            | 6994.43     | -218.91      | 221.62     | 498.93     | 0.00             | 617921.11          | 758458.81         | N 32 41 48.20           | W 103 37 39.12           |
| Hold                                   | 7422.68    | 0.00        | 66.05            | 7393.70     | -227.31      | 230.11     | 518.06     | 1.50             | 617929.60          | 758477.94         | N 32 41 48.28           | W 103 37 38.90           |
| KOP, Build 10° DLS                     | 8979.96    | 0.00        | 66.05            | 8950.99     | -227.31      | 230.11     | 518.06     | 0.00             | 617929.60          | 758477.94         | N 32 41 48.28           | W 103 37 38.90           |
| Landing Point Chisholm                 | 9869.96    | 89.00       | 179.69           | 9523.86     | 335.65       | -332.84    | 521.05     | 10.00            | 617366.67          | 758480.93         | N 32 41 42.71           | W 103 37 38.90           |
| Buffalo West 2-11 2BS Fed Com 9H - BHL | 19858.99   | 89.00       | 179.69           | 9698.19     | 10323.16     | -10320.20  | 574.22     | 0.00             | 607379.70          | 758534.10         | N 32 40 3.89            | W 103 37 39.06           |

**Survey Type:** Non-Def Plan

**Survey Error Model:** ISCWSA Rev 0 \*\*\* 3-D 95.000% Confidence 2.7955 sigma

**Survey Program:**

| Description | Part | MD From<br>(ft) | MD To<br>(ft) | EOU Freq<br>(ft) | Hole Size<br>(in) | Casing Diameter<br>(in) | Expected Max<br>Inclination<br>(deg) | Survey Tool Type           | Borehole / Survey                                                                          |
|-------------|------|-----------------|---------------|------------------|-------------------|-------------------------|--------------------------------------|----------------------------|--------------------------------------------------------------------------------------------|
|             | 1    | 0.000           | 31.000        | 1/100.000        | 30.000            | 30.000                  |                                      | NAL_MWD_1.0_DEG-Depth Only | Buffalo West 2-11 2BS Fed Com 9H / Chisholm Buffalo West 2-11 2BS Fed Com 9H R0 IC 04Mar20 |
|             | 1    | 31.000          | 19858.992     | 1/100.000        | 30.000            | 30.000                  |                                      | NAL_MWD_1.0_DEG            | Buffalo West 2-11 2BS Fed Com 9H / Chisholm Buffalo West 2-11                              |



## Chisholm Buffalo West 2-11 2BS Fed Com 9H R0 IC 04Mar20 Proposal Geodetic Report (Non-Def Plan)



**Report Date:** May 06, 2020 - 03:09 PM  
**Client:** Chisholm  
**Field:** NM Lea County (NAD 83)  
**Structure / Slot:** Chisholm Buffalo West 2-11 2BS Fed Com 9H / New Slot  
**Well:** Buffalo West 2-11 2BS Fed Com 9H  
**Borehole:** Buffalo West 2-11 2BS Fed Com 9H  
**UWI / API#:** Unknown / Unknown  
**Survey Name:** Chisholm Buffalo West 2-11 2BS Fed Com 9H R0 IC 04Mar20  
**Survey Date:** May 06, 2020  
**Tort / AHD / DDI / ERD Ratio:** 101.000 ° / 11117.328 ft / 6.362 / 1.146  
**Coordinate Reference System:** NAD83 New Mexico State Plane, Eastern Zone, US Feet  
**Location Lat / Long:** N 32° 41' 46.03876", W 103° 37' 44.97509"  
**Location Grid N/E Y/X:** N 617699.500 ftUS, E 757959.900 ftUS  
**CRS Grid Convergence Angle:** 0.3804 °  
**Grid Scale Factor:** 0.99996283  
**Version / Patch:** 2.10.811.0

**Survey / DLS Computation:** Minimum Curvature / Lubinski  
**Vertical Section Azimuth:** 179.690 ° (Grid North)  
**Vertical Section Origin:** 0.000 ft, 0.000 ft  
**TVD Reference Datum:** RKB  
**TVD Reference Elevation:** 3807.000 ft above MSL  
**Seabed / Ground Elevation:** 3776.000 ft above MSL  
**Magnetic Declination:** 6.515 °  
**Total Gravity Field Strength:** 998.5111mgn (9.80665 Based)  
**Gravity Model:** GARM  
**Total Magnetic Field Strength:** 48088.438 nT  
**Magnetic Dip Angle:** 60.625 °  
**Declination Date:** May 06, 2020  
**Magnetic Declination Model:** HDGM 2020  
**North Reference:** Grid North  
**Grid Convergence Used:** 0.3804 °  
**Total Corr Mag North->Grid North:** 6.1345 °  
**Local Coord Referenced To:** Well Head

| Comments           | MD<br>(ft) | Incl<br>(°) | Azim Grid<br>(°) | TVD<br>(ft) | VSEC<br>(ft) | NS<br>(ft) | EW<br>(ft) | DLS<br>(°/100ft) | Northing<br>(ftUS) | Easting<br>(ftUS) | Latitude<br>(N/S ° ' ") | Longitude<br>(E/W ° ' ") |
|--------------------|------------|-------------|------------------|-------------|--------------|------------|------------|------------------|--------------------|-------------------|-------------------------|--------------------------|
| SHL                | 0.00       | 0.00        | 66.05            | 0.00        | 0.00         | 0.00       | 0.00       | N/A              | 617699.50          | 757959.90         | N 32 41 46.04           | W 103 37 44.98           |
|                    | 100.00     | 0.00        | 66.05            | 100.00      | 0.00         | 0.00       | 0.00       | 0.00             | 617699.50          | 757959.90         | N 32 41 46.04           | W 103 37 44.98           |
|                    | 200.00     | 0.00        | 66.05            | 200.00      | 0.00         | 0.00       | 0.00       | 0.00             | 617699.50          | 757959.90         | N 32 41 46.04           | W 103 37 44.98           |
|                    | 300.00     | 0.00        | 66.05            | 300.00      | 0.00         | 0.00       | 0.00       | 0.00             | 617699.50          | 757959.90         | N 32 41 46.04           | W 103 37 44.98           |
|                    | 400.00     | 0.00        | 66.05            | 400.00      | 0.00         | 0.00       | 0.00       | 0.00             | 617699.50          | 757959.90         | N 32 41 46.04           | W 103 37 44.98           |
|                    | 500.00     | 0.00        | 66.05            | 500.00      | 0.00         | 0.00       | 0.00       | 0.00             | 617699.50          | 757959.90         | N 32 41 46.04           | W 103 37 44.98           |
|                    | 600.00     | 0.00        | 66.05            | 600.00      | 0.00         | 0.00       | 0.00       | 0.00             | 617699.50          | 757959.90         | N 32 41 46.04           | W 103 37 44.98           |
|                    | 700.00     | 0.00        | 66.05            | 700.00      | 0.00         | 0.00       | 0.00       | 0.00             | 617699.50          | 757959.90         | N 32 41 46.04           | W 103 37 44.98           |
|                    | 800.00     | 0.00        | 66.05            | 800.00      | 0.00         | 0.00       | 0.00       | 0.00             | 617699.50          | 757959.90         | N 32 41 46.04           | W 103 37 44.98           |
|                    | 900.00     | 0.00        | 66.05            | 900.00      | 0.00         | 0.00       | 0.00       | 0.00             | 617699.50          | 757959.90         | N 32 41 46.04           | W 103 37 44.98           |
|                    | 1000.00    | 0.00        | 66.05            | 1000.00     | 0.00         | 0.00       | 0.00       | 0.00             | 617699.50          | 757959.90         | N 32 41 46.04           | W 103 37 44.98           |
|                    | 1100.00    | 0.00        | 66.05            | 1100.00     | 0.00         | 0.00       | 0.00       | 0.00             | 617699.50          | 757959.90         | N 32 41 46.04           | W 103 37 44.98           |
|                    | 1200.00    | 0.00        | 66.05            | 1200.00     | 0.00         | 0.00       | 0.00       | 0.00             | 617699.50          | 757959.90         | N 32 41 46.04           | W 103 37 44.98           |
|                    | 1300.00    | 0.00        | 66.05            | 1300.00     | 0.00         | 0.00       | 0.00       | 0.00             | 617699.50          | 757959.90         | N 32 41 46.04           | W 103 37 44.98           |
|                    | 1400.00    | 0.00        | 66.05            | 1400.00     | 0.00         | 0.00       | 0.00       | 0.00             | 617699.50          | 757959.90         | N 32 41 46.04           | W 103 37 44.98           |
| Rustler            | 1463.00    | 0.00        | 66.05            | 1463.00     | 0.00         | 0.00       | 0.00       | 0.00             | 617699.50          | 757959.90         | N 32 41 46.04           | W 103 37 44.98           |
|                    | 1500.00    | 0.00        | 66.05            | 1500.00     | 0.00         | 0.00       | 0.00       | 0.00             | 617699.50          | 757959.90         | N 32 41 46.04           | W 103 37 44.98           |
| Nudge 1.5° DLS     | 1600.00    | 0.00        | 66.05            | 1600.00     | 0.00         | 0.00       | 0.00       | 0.00             | 617699.50          | 757959.90         | N 32 41 46.04           | W 103 37 44.98           |
|                    | 1700.00    | 1.50        | 66.05            | 1699.99     | -0.52        | 0.53       | 1.20       | 1.50             | 617700.03          | 757961.10         | N 32 41 46.04           | W 103 37 44.96           |
| Salado             | 1746.04    | 2.19        | 66.05            | 1746.00     | -1.12        | 1.13       | 2.55       | 1.50             | 617700.63          | 757962.45         | N 32 41 46.05           | W 103 37 44.95           |
|                    | 1800.00    | 3.00        | 66.05            | 1799.91     | -2.10        | 2.13       | 4.78       | 1.50             | 617701.62          | 757964.68         | N 32 41 46.06           | W 103 37 44.92           |
|                    | 1900.00    | 4.50        | 66.05            | 1899.69     | -4.72        | 4.78       | 10.76      | 1.50             | 617704.28          | 757970.66         | N 32 41 46.09           | W 103 37 44.85           |
| Hold               | 2000.00    | 6.00        | 66.05            | 1999.27     | -8.39        | 8.49       | 19.12      | 1.50             | 617707.99          | 757979.02         | N 32 41 46.12           | W 103 37 44.75           |
|                    | 2100.00    | 6.00        | 66.05            | 2098.72     | -12.58       | 12.74      | 28.68      | 1.50             | 617712.24          | 757988.57         | N 32 41 46.16           | W 103 37 44.64           |
|                    | 2200.00    | 6.00        | 66.05            | 2198.17     | -16.77       | 16.98      | 38.23      | 0.00             | 617716.48          | 757998.13         | N 32 41 46.20           | W 103 37 44.53           |
|                    | 2300.00    | 6.00        | 66.05            | 2297.63     | -20.97       | 21.22      | 47.78      | 0.00             | 617720.72          | 758007.68         | N 32 41 46.25           | W 103 37 44.41           |
|                    | 2400.00    | 6.00        | 66.05            | 2397.08     | -25.16       | 25.47      | 57.33      | 0.00             | 617724.97          | 758017.23         | N 32 41 46.29           | W 103 37 44.30           |
| 13-3/8" Casing     | 2466.00    | 6.00        | 66.05            | 2462.72     | -27.92       | 28.27      | 63.64      | 0.00             | 617727.77          | 758023.54         | N 32 41 46.31           | W 103 37 44.23           |
|                    | 2500.00    | 6.00        | 66.05            | 2496.53     | -29.35       | 29.71      | 66.89      | 0.00             | 617729.21          | 758026.78         | N 32 41 46.33           | W 103 37 44.19           |
|                    | 2600.00    | 6.00        | 66.05            | 2595.98     | -33.54       | 33.95      | 76.44      | 0.00             | 617733.45          | 758036.34         | N 32 41 46.37           | W 103 37 44.08           |
|                    | 2700.00    | 6.00        | 66.05            | 2695.43     | -37.73       | 38.20      | 85.99      | 0.00             | 617737.70          | 758045.89         | N 32 41 46.41           | W 103 37 43.97           |
|                    | 2800.00    | 6.00        | 66.05            | 2794.89     | -41.92       | 42.44      | 95.55      | 0.00             | 617741.94          | 758055.44         | N 32 41 46.45           | W 103 37 43.85           |
|                    | 2900.00    | 6.00        | 66.05            | 2894.34     | -46.11       | 46.68      | 105.10     | 0.00             | 617746.18          | 758064.99         | N 32 41 46.49           | W 103 37 43.74           |
|                    | 3000.00    | 6.00        | 66.05            | 2993.79     | -50.31       | 50.93      | 114.65     | 0.00             | 617750.42          | 758074.55         | N 32 41 46.54           | W 103 37 43.63           |
|                    | 3100.00    | 6.00        | 66.05            | 3093.24     | -54.50       | 55.17      | 124.20     | 0.00             | 617754.67          | 758084.10         | N 32 41 46.58           | W 103 37 43.52           |
|                    | 3200.00    | 6.00        | 66.05            | 3192.70     | -58.69       | 59.41      | 133.76     | 0.00             | 617758.91          | 758093.65         | N 32 41 46.62           | W 103 37 43.41           |
|                    | 3300.00    | 6.00        | 66.05            | 3292.15     | -62.88       | 63.66      | 143.31     | 0.00             | 617763.15          | 758103.20         | N 32 41 46.66           | W 103 37 43.29           |
|                    | 3400.00    | 6.00        | 66.05            | 3391.60     | -67.07       | 67.90      | 152.86     | 0.00             | 617767.40          | 758112.76         | N 32 41 46.70           | W 103 37 43.18           |
|                    | 3500.00    | 6.00        | 66.05            | 3491.05     | -71.26       | 72.14      | 162.42     | 0.00             | 617771.64          | 758122.31         | N 32 41 46.74           | W 103 37 43.07           |
|                    | 3600.00    | 6.00        | 66.05            | 3590.50     | -75.45       | 76.39      | 171.97     | 0.00             | 617775.88          | 758131.86         | N 32 41 46.78           | W 103 37 42.96           |
| 7 Rivers           | 3650.77    | 6.00        | 66.05            | 3641.00     | -77.58       | 78.54      | 176.82     | 0.00             | 617778.04          | 758136.71         | N 32 41 46.80           | W 103 37 42.90           |
|                    | 3700.00    | 6.00        | 66.05            | 3689.96     | -79.65       | 80.63      | 181.52     | 0.00             | 617780.13          | 758141.41         | N 32 41 46.82           | W 103 37 42.84           |
|                    | 3800.00    | 6.00        | 66.05            | 3789.41     | -83.84       | 84.87      | 191.07     | 0.00             | 617784.37          | 758150.97         | N 32 41 46.87           | W 103 37 42.73           |
|                    | 3900.00    | 6.00        | 66.05            | 3888.86     | -88.03       | 89.12      | 200.63     | 0.00             | 617788.61          | 758160.52         | N 32 41 46.91           | W 103 37 42.62           |
|                    | 4000.00    | 6.00        | 66.05            | 3988.31     | -92.22       | 93.36      | 210.18     | 0.00             | 617792.85          | 758170.07         | N 32 41 46.95           | W 103 37 42.51           |
|                    | 4100.00    | 6.00        | 66.05            | 4087.77     | -96.41       | 97.60      | 219.73     | 0.00             | 617797.10          | 758179.62         | N 32 41 46.99           | W 103 37 42.40           |
|                    | 4200.00    | 6.00        | 66.05            | 4187.22     | -100.60      | 101.85     | 229.29     | 0.00             | 617801.34          | 758189.18         | N 32 41 47.03           | W 103 37 42.28           |
| Queen              | 4277.21    | 6.00        | 66.05            | 4264.00     | -103.84      | 105.12     | 236.66     | 0.00             | 617804.62          | 758196.55         | N 32 41 47.06           | W 103 37 42.20           |
|                    | 4300.00    | 6.00        | 66.05            | 4286.67     | -104.79      | 106.09     | 238.84     | 0.00             | 617805.58          | 758198.73         | N 32 41 47.07           | W 103 37 42.17           |
|                    | 4400.00    | 6.00        | 66.05            | 4386.12     | -108.99      | 110.33     | 248.39     | 0.00             | 617809.83          | 758208.28         | N 32 41 47.11           | W 103 37 42.06           |
|                    | 4500.00    | 6.00        | 66.05            | 4485.57     | -113.18      | 114.57     | 257.94     | 0.00             | 617814.07          | 758217.83         | N 32 41 47.16           | W 103 37 41.95           |
|                    | 4600.00    | 6.00        | 66.05            | 4585.03     | -117.37      | 118.82     | 267.50     | 0.00             | 617818.31          | 758227.39         | N 32 41 47.20           | W 103 37 41.84           |
|                    | 4700.00    | 6.00        | 66.05            | 4684.48     | -121.56      | 123.06     | 277.05     | 0.00             | 617822.56          | 758236.94         | N 32 41 47.24           | W 103 37 41.72           |
|                    | 4800.00    | 6.00        | 66.05            | 4783.93     | -125.75      | 127.30     | 286.60     | 0.00             | 617826.80          | 758246.49         | N 32 41 47.28           | W 103 37 41.61           |
|                    | 4900.00    | 6.00        | 66.05            | 4883.38     | -129.94      | 131.55     | 296.16     | 0.00             | 617831.04          | 758256.04         | N 32 41 47.32           | W 103 37 41.50           |
|                    | 5000.00    | 6.00        | 66.05            | 4982.84     | -134.13      | 135.79     | 305.71     | 0.00             | 617835.29          | 758265.60         | N 32 41 47.36           | W 103 37 41.39           |
|                    | 5100.00    | 6.00        | 66.05            | 5082.29     | -138.33      | 140.03     | 315.26     | 0.00             | 617839.53          | 758275.15         | N 32 41 47.40           | W 103 37 41.28           |
|                    | 5200.00    | 6.00        | 66.05            | 5181.74     | -142.52      | 144.28     | 324.81     | 0.00             | 617843.77          | 758284.70         | N 32 41 47.44           | W 103 37 41.16           |
|                    | 5300.00    | 6.00        | 66.05            | 5281.19     | -146.71      | 148.52     | 334.37     | 0.00             | 617848.01          | 758294.25         | N 32 41 47.49           | W 103 37 41.05           |
|                    | 5400.00    | 6.00        | 66.05            | 5380.64     | -150.90      | 152.76     | 343.92     | 0.00             | 617852.26          | 758303.81         | N 32 41 47.53           | W 103 37 40.94           |
|                    | 5500.00    | 6.00        | 66.05            | 5480.10     | -155.09      | 157.01     | 353.47     | 0.00             | 617856.50          | 758313.36         | N 32 41 47.57           | W 103 37 40.83           |
|                    | 5600.00    | 6.00        | 66.05            | 5579.55     | -159.28      | 161.25     | 363.03     | 0.00             | 617860.74          | 758322.91         | N 32 41 47.61           | W 103 37 40.71           |
|                    | 5700.00    | 6.00        | 66.05            | 5679.00     | -163.48      | 165.49     | 372.58     | 0.00             | 617864.99          | 758332.46         | N 32 41 47.65           | W 103 37 40.60           |
|                    | 5800.00    | 6.00        | 66.05            | 5778.45     | -167.67      | 169.74     | 382.13     | 0.00             | 617869.23          | 758342.02         | N 32 41 47.69           | W 103 37 40.49           |
|                    | 5900.00    | 6.00        | 66.05            | 5877.90     | -171.86      | 173.98     | 391.68     | 0.00             | 617873.47          | 758351.57         | N 32 41 47.73           | W 103 37 40.38           |
|                    | 6000.00    | 6.00        | 66.05            | 5977.36     | -176.05      | 178.22     | 401.24     | 0.00             | 617877.72          | 758361.12         | N 32 41 47.78           | W 103 37 40.27           |
|                    | 6100.00    | 6.00        | 66.05            | 6076.81     | -180.24      | 182.47     | 410.79     | 0.00             | 617881.96          | 758370.67         | N 32 41 47.82           | W 103 37 40.15           |
|                    | 6200.00    | 6.00        | 66.05            | 6176.26     | -184.43      | 186.71     | 420.34     | 0.00             | 617886.20          | 758380.23         | N 32 41 47.86           | W 103 37 40.04           |
|                    | 6300.00    | 6.00        | 66.05            | 6275.71     | -188.62      | 190.95     | 429.90     | 0.00             | 617890.45          | 758389.78         | N 32 41 47.90           | W 103 37 39.93           |
|                    | 6400.00    | 6.00        | 66.05            | 6375.17     | -192.82      | 195.20     | 439.45     | 0.00             | 617894.69          | 758399.33         | N 32 41 47.94           | W 103 37 39.82           |
|                    | 6500.00    | 6.00        | 66.05            | 6474.62     | -197.01      | 199.44     | 449.00     | 0.00             | 617898.93          | 758408.88         | N 32 41 47.98           | W 103 37 39.71           |
| Delaware Mtn<br>Gr | 6547.64    | 6.00        | 66.05            | 6522.00     | -199.00      | 201.46     | 453.55     | 0.00             | 617900.95          | 758413.44         | N 32 41 48.00           | W 103 37 39.65           |
|                    | 6600.00    | 6.00        | 66.05            | 6574.07     | -201.20      | 203.68     | 458.55     | 0.00             | 617903.17          | 758418.44         | N 32 41 48.0            |                          |

| Comments      | MD<br>(ft)                             | Incl<br>(°) | Azim Grid<br>(°) | TVD<br>(ft) | VSEC<br>(ft) | NS<br>(ft) | EW<br>(ft) | DLS<br>(°/100ft) | Northing<br>(ftUS) | Easting<br>(ftUS) | Latitude<br>(N/S ° ' ") | Longitude<br>(E/W ° ' ") |                |
|---------------|----------------------------------------|-------------|------------------|-------------|--------------|------------|------------|------------------|--------------------|-------------------|-------------------------|--------------------------|----------------|
| Drop 1.5" DLS | 7000.00                                | 6.00        | 66.05            | 6971.88     | -217.96      | 220.66     | 496.77     | 0.00             | 617920.15          | 758456.65         | N 32 41 48.19           | W 103 37 39.15           |                |
|               | 7022.68                                | 6.00        | 66.05            | 6994.43     | -218.91      | 221.62     | 498.93     | 0.00             | 617921.11          | 758458.81         | N 32 41 48.20           | W 103 37 39.12           |                |
|               | 7100.00                                | 4.84        | 66.05            | 7071.41     | -221.84      | 224.58     | 505.61     | 1.50             | 617924.07          | 758465.49         | N 32 41 48.23           | W 103 37 39.04           |                |
|               | 7200.00                                | 3.34        | 66.05            | 7171.15     | -224.70      | 227.48     | 512.13     | 1.50             | 617926.97          | 758472.01         | N 32 41 48.26           | W 103 37 38.96           |                |
|               | 7300.00                                | 1.84        | 66.05            | 7271.04     | -226.52      | 229.31     | 516.26     | 1.50             | 617928.80          | 758476.14         | N 32 41 48.27           | W 103 37 38.92           |                |
| Hold          | 7400.00                                | 0.34        | 66.05            | 7371.02     | -227.28      | 230.08     | 517.99     | 1.50             | 617929.58          | 758477.87         | N 32 41 48.28           | W 103 37 38.90           |                |
|               | 7422.68                                | 0.00        | 66.05            | 7393.70     | -227.31      | 230.11     | 518.06     | 1.50             | 617929.60          | 758477.94         | N 32 41 48.28           | W 103 37 38.90           |                |
|               | 7500.00                                | 0.00        | 66.05            | 7471.02     | -227.31      | 230.11     | 518.06     | 0.00             | 617929.60          | 758477.94         | N 32 41 48.28           | W 103 37 38.90           |                |
|               | 7600.00                                | 0.00        | 66.05            | 7571.02     | -227.31      | 230.11     | 518.06     | 0.00             | 617929.60          | 758477.94         | N 32 41 48.28           | W 103 37 38.90           |                |
| Bone Spring   | 7642.98                                | 0.00        | 66.05            | 7614.00     | -227.31      | 230.11     | 518.06     | 0.00             | 617929.60          | 758477.94         | N 32 41 48.28           | W 103 37 38.90           |                |
|               | 7700.00                                | 0.00        | 66.05            | 7671.02     | -227.31      | 230.11     | 518.06     | 0.00             | 617929.60          | 758477.94         | N 32 41 48.28           | W 103 37 38.90           |                |
|               | 7800.00                                | 0.00        | 66.05            | 7771.02     | -227.31      | 230.11     | 518.06     | 0.00             | 617929.60          | 758477.94         | N 32 41 48.28           | W 103 37 38.90           |                |
|               | 7900.00                                | 0.00        | 66.05            | 7871.02     | -227.31      | 230.11     | 518.06     | 0.00             | 617929.60          | 758477.94         | N 32 41 48.28           | W 103 37 38.90           |                |
|               | 8000.00                                | 0.00        | 66.05            | 7971.02     | -227.31      | 230.11     | 518.06     | 0.00             | 617929.60          | 758477.94         | N 32 41 48.28           | W 103 37 38.90           |                |
|               | 8100.00                                | 0.00        | 66.05            | 8071.02     | -227.31      | 230.11     | 518.06     | 0.00             | 617929.60          | 758477.94         | N 32 41 48.28           | W 103 37 38.90           |                |
|               | 8200.00                                | 0.00        | 66.05            | 8171.02     | -227.31      | 230.11     | 518.06     | 0.00             | 617929.60          | 758477.94         | N 32 41 48.28           | W 103 37 38.90           |                |
|               | 8300.00                                | 0.00        | 66.05            | 8271.02     | -227.31      | 230.11     | 518.06     | 0.00             | 617929.60          | 758477.94         | N 32 41 48.28           | W 103 37 38.90           |                |
|               | 8400.00                                | 0.00        | 66.05            | 8371.02     | -227.31      | 230.11     | 518.06     | 0.00             | 617929.60          | 758477.94         | N 32 41 48.28           | W 103 37 38.90           |                |
|               | 8500.00                                | 0.00        | 66.05            | 8471.02     | -227.31      | 230.11     | 518.06     | 0.00             | 617929.60          | 758477.94         | N 32 41 48.28           | W 103 37 38.90           |                |
|               | 8600.00                                | 0.00        | 66.05            | 8571.02     | -227.31      | 230.11     | 518.06     | 0.00             | 617929.60          | 758477.94         | N 32 41 48.28           | W 103 37 38.90           |                |
|               | 8700.00                                | 0.00        | 66.05            | 8671.02     | -227.31      | 230.11     | 518.06     | 0.00             | 617929.60          | 758477.94         | N 32 41 48.28           | W 103 37 38.90           |                |
|               | 8800.00                                | 0.00        | 66.05            | 8771.02     | -227.31      | 230.11     | 518.06     | 0.00             | 617929.60          | 758477.94         | N 32 41 48.28           | W 103 37 38.90           |                |
|               | 8900.00                                | 0.00        | 66.05            | 8871.02     | -227.31      | 230.11     | 518.06     | 0.00             | 617929.60          | 758477.94         | N 32 41 48.28           | W 103 37 38.90           |                |
|               | 1st Bone Spring<br>SS                  | 8928.98     | 0.00             | 66.05       | 8900.00      | -227.31    | 230.11     | 518.06           | 0.00               | 617929.60         | 758477.94               | N 32 41 48.28            | W 103 37 38.90 |
|               | KOP, Build 10"<br>DLS                  | 8979.96     | 0.00             | 66.05       | 8950.99      | -227.31    | 230.11     | 518.06           | 0.00               | 617929.60         | 758477.94               | N 32 41 48.28            | W 103 37 38.90 |
|               | 9-5/8" Casing<br>2nd Bone Spring<br>SS | 9000.00     | 2.00             | 179.69      | 8971.02      | -226.96    | 229.76     | 518.06           | 10.00              | 617929.25         | 758477.94               | N 32 41 48.28            | W 103 37 38.90 |
|               |                                        | 9100.00     | 12.00            | 179.69      | 9070.15      | -214.78    | 217.58     | 518.12           | 10.00              | 617917.08         | 758478.00               | N 32 41 48.16            | W 103 37 38.90 |
|               |                                        | 9200.00     | 22.00            | 179.69      | 9165.65      | -185.57    | 188.38     | 518.28           | 10.00              | 617887.87         | 758478.16               | N 32 41 47.87            | W 103 37 38.90 |
| 9300.00       |                                        | 32.00       | 179.69           | 9254.64     | -140.22      | 143.03     | 518.52     | 10.00            | 617842.53          | 758478.40         | N 32 41 47.42           | W 103 37 38.90           |                |
| 9400.00       |                                        | 42.00       | 179.69           | 9334.40     | -80.11       | 82.92      | 518.84     | 10.00            | 617782.42          | 758478.72         | N 32 41 46.83           | W 103 37 38.90           |                |
| 9500.00       |                                        | 52.00       | 179.69           | 9402.51     | -7.07        | 9.88       | 519.23     | 10.00            | 617709.38          | 758479.11         | N 32 41 46.10           | W 103 37 38.90           |                |
| 9566.00       |                                        | 58.60       | 179.69           | 9440.06     | 47.17        | -44.36     | 519.52     | 10.00            | 617655.15          | 758479.40         | N 32 41 45.57           | W 103 37 38.90           |                |
| 9567.82       |                                        | 58.79       | 179.69           | 9441.00     | 48.72        | -45.91     | 519.53     | 10.00            | 617653.59          | 758479.40         | N 32 41 45.55           | W 103 37 38.90           |                |
| 9600.00       |                                        | 62.00       | 179.69           | 9456.90     | 76.70        | -73.89     | 519.67     | 10.00            | 617625.62          | 758479.55         | N 32 41 45.27           | W 103 37 38.90           |                |
| 9700.00       |                                        | 72.00       | 179.69           | 9495.91     | 168.63       | -165.82    | 520.16     | 10.00            | 617533.69          | 758480.04         | N 32 41 44.36           | W 103 37 38.90           |                |
| 9800.00       |                                        | 82.00       | 179.69           | 9518.37     | 265.95       | -263.13    | 520.68     | 10.00            | 617436.38          | 758480.56         | N 32 41 43.40           | W 103 37 38.90           |                |
| 9869.96       |                                        | 89.00       | 179.69           | 9523.86     | 335.65       | -332.84    | 521.05     | 10.00            | 617366.67          | 758480.93         | N 32 41 42.71           | W 103 37 38.90           |                |
| 9900.00       |                                        | 89.00       | 179.69           | 9524.38     | 365.68       | -362.87    | 521.21     | 0.00             | 617336.64          | 758481.09         | N 32 41 42.41           | W 103 37 38.90           |                |
| 10000.00      |                                        | 89.00       | 179.69           | 9526.13     | 465.67       | -462.85    | 521.74     | 0.00             | 617236.66          | 758481.62         | N 32 41 41.42           | W 103 37 38.91           |                |
| 10100.00      |                                        | 89.00       | 179.69           | 9527.87     | 565.65       | -562.84    | 522.28     | 0.00             | 617136.69          | 758482.16         | N 32 41 40.44           | W 103 37 38.91           |                |
| 10200.00      |                                        | 89.00       | 179.69           | 9529.62     | 665.64       | -662.82    | 522.81     | 0.00             | 617036.71          | 758482.69         | N 32 41 39.45           | W 103 37 38.91           |                |
| 10300.00      |                                        | 89.00       | 179.69           | 9531.36     | 765.62       | -762.80    | 523.34     | 0.00             | 616936.73          | 758483.22         | N 32 41 38.46           | W 103 37 38.91           |                |
| 10400.00      |                                        | 89.00       | 179.69           | 9533.11     | 865.61       | -862.79    | 523.87     | 0.00             | 616836.75          | 758483.75         | N 32 41 37.47           | W 103 37 38.91           |                |
| 10500.00      |                                        | 89.00       | 179.69           | 9534.85     | 965.59       | -962.77    | 524.41     | 0.00             | 616736.77          | 758484.29         | N 32 41 36.48           | W 103 37 38.91           |                |
| 10600.00      | 89.00                                  | 179.69      | 9536.60          | 1065.58     | -1062.75     | 524.94     | 0.00       | 616636.79        | 758484.82          | N 32 41 35.49     | W 103 37 38.92          |                          |                |
| 10700.00      | 89.00                                  | 179.69      | 9538.34          | 1165.56     | -1162.74     | 525.47     | 0.00       | 616536.81        | 758485.35          | N 32 41 34.50     | W 103 37 38.92          |                          |                |
| 10800.00      | 89.00                                  | 179.69      | 9540.09          | 1265.55     | -1262.72     | 526.00     | 0.00       | 616436.83        | 758485.88          | N 32 41 33.51     | W 103 37 38.92          |                          |                |
| 10900.00      | 89.00                                  | 179.69      | 9541.83          | 1365.53     | -1362.70     | 526.54     | 0.00       | 616336.85        | 758486.41          | N 32 41 32.52     | W 103 37 38.92          |                          |                |
| 11000.00      | 89.00                                  | 179.69      | 9543.58          | 1465.52     | -1462.69     | 527.07     | 0.00       | 616236.87        | 758486.95          | N 32 41 31.53     | W 103 37 38.92          |                          |                |
| 11100.00      | 89.00                                  | 179.69      | 9545.33          | 1565.50     | -1562.67     | 527.60     | 0.00       | 616136.89        | 758487.48          | N 32 41 30.54     | W 103 37 38.92          |                          |                |
| 11200.00      | 89.00                                  | 179.69      | 9547.07          | 1665.49     | -1662.65     | 528.13     | 0.00       | 616036.91        | 758488.01          | N 32 41 29.55     | W 103 37 38.92          |                          |                |
| 11300.00      | 89.00                                  | 179.69      | 9548.82          | 1765.47     | -1762.64     | 528.66     | 0.00       | 615936.93        | 758488.54          | N 32 41 28.56     | W 103 37 38.93          |                          |                |
| 11400.00      | 89.00                                  | 179.69      | 9550.56          | 1865.46     | -1862.62     | 529.20     | 0.00       | 615836.95        | 758489.08          | N 32 41 27.57     | W 103 37 38.93          |                          |                |
| 11500.00      | 89.00                                  | 179.69      | 9552.31          | 1965.44     | -1962.60     | 529.73     | 0.00       | 615736.97        | 758489.61          | N 32 41 26.59     | W 103 37 38.93          |                          |                |
| 11600.00      | 89.00                                  | 179.69      | 9554.05          | 2065.43     | -2062.59     | 530.26     | 0.00       | 615636.99        | 758490.14          | N 32 41 25.60     | W 103 37 38.93          |                          |                |
| 11700.00      | 89.00                                  | 179.69      | 9555.80          | 2165.41     | -2162.57     | 530.79     | 0.00       | 615537.01        | 758490.67          | N 32 41 24.61     | W 103 37 38.93          |                          |                |
| 11800.00      | 89.00                                  | 179.69      | 9557.54          | 2265.40     | -2262.55     | 531.33     | 0.00       | 615437.04        | 758491.21          | N 32 41 23.62     | W 103 37 38.93          |                          |                |
| 11900.00      | 89.00                                  | 179.69      | 9559.29          | 2365.38     | -2362.54     | 531.86     | 0.00       | 615337.06        | 758491.74          | N 32 41 22.63     | W 103 37 38.94          |                          |                |
| 12000.00      | 89.00                                  | 179.69      | 9561.03          | 2465.36     | -2462.52     | 532.39     | 0.00       | 615237.08        | 758492.27          | N 32 41 21.64     | W 103 37 38.94          |                          |                |
| 12100.00      | 89.00                                  | 179.69      | 9562.78          | 2565.35     | -2562.50     | 532.92     | 0.00       | 615137.10        | 758492.80          | N 32 41 20.65     | W 103 37 38.94          |                          |                |
| 12200.00      | 89.00                                  | 179.69      | 9564.52          | 2665.33     | -2662.49     | 533.46     | 0.00       | 615037.12        | 758493.33          | N 32 41 19.66     | W 103 37 38.94          |                          |                |
| 12300.00      | 89.00                                  | 179.69      | 9566.27          | 2765.32     | -2762.47     | 533.99     | 0.00       | 614937.14        | 758493.87          | N 32 41 18.67     | W 103 37 38.94          |                          |                |
| 12400.00      | 89.00                                  | 179.69      | 9568.01          | 2865.30     | -2862.45     | 534.52     | 0.00       | 614837.16        | 758494.40          | N 32 41 17.68     | W 103 37 38.94          |                          |                |
| 12500.00      | 89.00                                  | 179.69      | 9569.76          | 2965.29     | -2962.44     | 535.05     | 0.00       | 614737.18        | 758494.93          | N 32 41 16.69     | W 103 37 38.94          |                          |                |
| 12600.00      | 89.00                                  | 179.1       |                  |             |              |            |            |                  |                    |                   |                         |                          |                |

| Comments                                                  | MD<br>(ft) | Incl<br>(°) | Azim Grid<br>(°) | TVD<br>(ft) | VSEC<br>(ft) | NS<br>(ft) | EW<br>(ft) | DLS<br>(°/100ft) | Northing<br>(ftUS) | Easting<br>(ftUS) | Latitude<br>(N/S ° ' ") | Longitude<br>(E/W ° ' ") |
|-----------------------------------------------------------|------------|-------------|------------------|-------------|--------------|------------|------------|------------------|--------------------|-------------------|-------------------------|--------------------------|
|                                                           | 16800.00   | 89.00       | 179.69           | 9644.80     | 7264.63      | -7261.72   | 557.94     | 0.00             | 610438.06          | 758517.82         | N 32 40 34.15           | W 103 37 39.01           |
|                                                           | 16900.00   | 89.00       | 179.69           | 9646.55     | 7364.62      | -7361.70   | 558.47     | 0.00             | 610338.08          | 758518.35         | N 32 40 33.16           | W 103 37 39.01           |
|                                                           | 17000.00   | 89.00       | 179.69           | 9648.29     | 7464.60      | -7461.69   | 559.00     | 0.00             | 610238.10          | 758518.88         | N 32 40 32.17           | W 103 37 39.01           |
|                                                           | 17100.00   | 89.00       | 179.69           | 9650.04     | 7564.59      | -7561.67   | 559.54     | 0.00             | 610138.12          | 758519.41         | N 32 40 31.19           | W 103 37 39.02           |
|                                                           | 17200.00   | 89.00       | 179.69           | 9651.78     | 7664.57      | -7661.65   | 560.07     | 0.00             | 610038.15          | 758519.95         | N 32 40 30.20           | W 103 37 39.02           |
|                                                           | 17300.00   | 89.00       | 179.69           | 9653.53     | 7764.56      | -7761.64   | 560.60     | 0.00             | 609938.17          | 758520.48         | N 32 40 29.21           | W 103 37 39.02           |
|                                                           | 17400.00   | 89.00       | 179.69           | 9655.28     | 7864.54      | -7861.62   | 561.13     | 0.00             | 609838.19          | 758521.01         | N 32 40 28.22           | W 103 37 39.02           |
|                                                           | 17500.00   | 89.00       | 179.69           | 9657.02     | 7964.53      | -7961.60   | 561.67     | 0.00             | 609738.21          | 758521.54         | N 32 40 27.23           | W 103 37 39.02           |
|                                                           | 17600.00   | 89.00       | 179.69           | 9658.77     | 8064.51      | -8061.59   | 562.20     | 0.00             | 609638.23          | 758522.08         | N 32 40 26.24           | W 103 37 39.02           |
|                                                           | 17700.00   | 89.00       | 179.69           | 9660.51     | 8164.50      | -8161.57   | 562.73     | 0.00             | 609538.25          | 758522.61         | N 32 40 25.25           | W 103 37 39.03           |
|                                                           | 17800.00   | 89.00       | 179.69           | 9662.26     | 8264.48      | -8261.55   | 563.26     | 0.00             | 609438.27          | 758523.14         | N 32 40 24.26           | W 103 37 39.03           |
|                                                           | 17900.00   | 89.00       | 179.69           | 9664.00     | 8364.47      | -8361.54   | 563.80     | 0.00             | 609338.29          | 758523.67         | N 32 40 23.27           | W 103 37 39.03           |
|                                                           | 18000.00   | 89.00       | 179.69           | 9665.75     | 8464.45      | -8461.52   | 564.33     | 0.00             | 609238.31          | 758524.21         | N 32 40 22.28           | W 103 37 39.03           |
|                                                           | 18100.00   | 89.00       | 179.69           | 9667.49     | 8564.44      | -8561.50   | 564.86     | 0.00             | 609138.33          | 758524.74         | N 32 40 21.29           | W 103 37 39.03           |
|                                                           | 18200.00   | 89.00       | 179.69           | 9669.24     | 8664.42      | -8661.49   | 565.39     | 0.00             | 609038.35          | 758525.27         | N 32 40 20.30           | W 103 37 39.03           |
|                                                           | 18300.00   | 89.00       | 179.69           | 9670.98     | 8764.41      | -8761.47   | 565.92     | 0.00             | 608938.37          | 758525.80         | N 32 40 19.31           | W 103 37 39.04           |
|                                                           | 18400.00   | 89.00       | 179.69           | 9672.73     | 8864.39      | -8861.45   | 566.46     | 0.00             | 608838.39          | 758526.33         | N 32 40 18.32           | W 103 37 39.04           |
|                                                           | 18500.00   | 89.00       | 179.69           | 9674.47     | 8964.37      | -8961.44   | 566.99     | 0.00             | 608738.41          | 758526.87         | N 32 40 17.34           | W 103 37 39.04           |
|                                                           | 18600.00   | 89.00       | 179.69           | 9676.22     | 9064.36      | -9061.42   | 567.52     | 0.00             | 608638.43          | 758527.40         | N 32 40 16.35           | W 103 37 39.04           |
|                                                           | 18700.00   | 89.00       | 179.69           | 9677.96     | 9164.34      | -9161.40   | 568.05     | 0.00             | 608538.45          | 758527.93         | N 32 40 15.36           | W 103 37 39.04           |
|                                                           | 18800.00   | 89.00       | 179.69           | 9679.71     | 9264.33      | -9261.39   | 568.59     | 0.00             | 608438.47          | 758528.46         | N 32 40 14.37           | W 103 37 39.04           |
|                                                           | 18900.00   | 89.00       | 179.69           | 9681.45     | 9364.31      | -9361.37   | 569.12     | 0.00             | 608338.50          | 758529.00         | N 32 40 13.38           | W 103 37 39.04           |
|                                                           | 19000.00   | 89.00       | 179.69           | 9683.20     | 9464.30      | -9461.36   | 569.65     | 0.00             | 608238.52          | 758529.53         | N 32 40 12.39           | W 103 37 39.05           |
|                                                           | 19100.00   | 89.00       | 179.69           | 9684.94     | 9564.28      | -9561.34   | 570.18     | 0.00             | 608138.54          | 758530.06         | N 32 40 11.40           | W 103 37 39.05           |
|                                                           | 19200.00   | 89.00       | 179.69           | 9686.69     | 9664.27      | -9661.32   | 570.71     | 0.00             | 608038.56          | 758530.59         | N 32 40 10.41           | W 103 37 39.05           |
|                                                           | 19300.00   | 89.00       | 179.69           | 9688.43     | 9764.25      | -9761.31   | 571.25     | 0.00             | 607938.58          | 758531.12         | N 32 40 9.42            | W 103 37 39.05           |
|                                                           | 19400.00   | 89.00       | 179.69           | 9690.18     | 9864.24      | -9861.29   | 571.78     | 0.00             | 607838.60          | 758531.66         | N 32 40 8.43            | W 103 37 39.05           |
|                                                           | 19500.00   | 89.00       | 179.69           | 9691.93     | 9964.22      | -9961.27   | 572.31     | 0.00             | 607738.62          | 758532.19         | N 32 40 7.44            | W 103 37 39.05           |
|                                                           | 19600.00   | 89.00       | 179.69           | 9693.67     | 10064.21     | -10061.26  | 572.84     | 0.00             | 607638.64          | 758532.72         | N 32 40 6.45            | W 103 37 39.06           |
|                                                           | 19700.00   | 89.00       | 179.69           | 9695.42     | 10164.19     | -10161.24  | 573.38     | 0.00             | 607538.66          | 758533.25         | N 32 40 5.46            | W 103 37 39.06           |
|                                                           | 19800.00   | 89.00       | 179.69           | 9697.16     | 10264.18     | -10261.22  | 573.91     | 0.00             | 607438.68          | 758533.79         | N 32 40 4.47            | W 103 37 39.06           |
| Chisholm<br>Buffalo West 2-<br>11 2BS Fed<br>Com 9H - BHL | 19858.99   | 89.00       | 179.69           | 9698.19     | 10323.16     | -10320.20  | 574.22     | 0.00             | 607379.70          | 758534.10         | N 32 40 3.89            | W 103 37 39.06           |

Survey Type: Non-Def Plan

Survey Error Model: ISCWSA Rev 0 \*\*\* 3-D 95.000% Confidence 2.7955 sigma  
Survey Program:

| Description | Part | MD From<br>(ft) | MD To<br>(ft) | EOU Freq<br>(ft) | Hole Size<br>(in) | Casing Diameter<br>(in) | Expected Max<br>Inclination<br>(deg) | Survey Tool Type           | Borehole / Survey                                                                                |
|-------------|------|-----------------|---------------|------------------|-------------------|-------------------------|--------------------------------------|----------------------------|--------------------------------------------------------------------------------------------------|
|             | 1    | 0.000           | 31.000        | 1/100.000        | 30.000            | 30.000                  |                                      | NAL_MWD_1.0_DEG-Depth Only | Buffalo West 2-11 2BS Fed Com<br>9H / Chisholm Buffalo West 2-11<br>2BS Fed Com 9H R0 IC 04Mar20 |
|             | 1    | 31.000          | 19858.992     | 1/100.000        | 30.000            | 30.000                  |                                      | NAL_MWD_1.0_DEG            | Buffalo West 2-11 2BS Fed Com<br>9H / Chisholm Buffalo West 2-11                                 |



## Chisholm Buffalo West 2-11 2BS Fed Com 9H R0 IC 04Mar20 Anti-Collision Summary Report

**Analysis Date-24hr Time:** May 06, 2020 - 15:07

**Client:** Chisholm

**Field:** NM Lea County (NAD 83)

**Structure:** Chisholm Buffalo West 2-11 2BS Fed Com 9H

**Slot:** New Slot

**Well:** Buffalo West 2-11 2BS Fed Com 9H

**Borehole:** Buffalo West 2-11 2BS Fed Com 9H

**Scan MD Range:** 0.00ft ~ 19858.99ft

**Analysis Method:** 3D Least Distance

**Reference Trajectory:** Chisholm Buffalo West 2-11 2BS Fed Com 9H R0 IC 04Mar20 (Non-Def Plan)

**Depth Interval:** Every 10.00 Measured Depth (ft)

**Rule Set:** NAL Procedure: D&M AntiCollision Standard S002

**Min Pts:** All local minima indicated.

**Version / Patch:** 2.10.811.0

**Database \ Project:** localhost\drilling-project1

**Trajectory Error Model:** ISCWSA0 3-D 95.000% Confidence 2.7955 sigma

### Offset Trajectories Summary

#### Offset Selection Criteria

Wellhead distance scan:

Selection filters:

- Restricted within 60869.49 ft

- Definitive Surveys - Definitive Plans - Definitive surveys exclude definitive plans

- All Non-Def Surveys when no Def-Survey is set in a borehole - All Non-Def Plans when no Def-Plan is set in a borehole

| Offset Trajectory | Separation |          |          | Allow Dev. (ft) | Sep. Fact. | Controlling Rule | Reference Trajectory |          | Risk Level |       |       | Alert | Status |
|-------------------|------------|----------|----------|-----------------|------------|------------------|----------------------|----------|------------|-------|-------|-------|--------|
|                   | Ct-Ct (ft) | MAS (ft) | EOU (ft) |                 |            |                  | MD (ft)              | TVD (ft) | Alert      | Minor | Major |       |        |

Results highlighted: Sep-Factor separation <= 1.50 ft

30-025-30684 - CHISHOLM  
BUFFALO 21 STATE COM  
#001 Inc Only 0' to 13410' - A  
(Def Survey)

Fail Major

|         |        |         |         |           |                 |          |         |          |          |          |          |             |
|---------|--------|---------|---------|-----------|-----------------|----------|---------|----------|----------|----------|----------|-------------|
| 3229.51 | 32.81  | 3227.01 | 3196.70 | N/A       | MAS = 10.00 (m) | 0.00     | 0.00    |          |          |          |          | Surface     |
| 3229.16 | 32.81  | 3226.63 | 3196.35 | 103114.77 | MAS = 10.00 (m) | 30.00    | 30.00   |          |          |          |          | MinPt-O-SF  |
| 3229.15 | 32.81  | 3226.62 | 3196.34 | 104323.88 | MAS = 10.00 (m) | 31.00    | 31.00   |          |          |          |          | WRP         |
| 3227.57 | 35.81  | 3202.87 | 3191.76 | 145.25    | OSF1.50         | 600.00   | 600.00  |          |          |          |          | MinPt-CtCt  |
| 3226.92 | 93.87  | 3165.51 | 3135.06 | 52.97     | OSF1.50         | 1790.00  | 1789.92 |          |          |          |          | MinPt-CtCt  |
| 3247.14 | 146.24 | 3148.81 | 3100.89 | 33.86     | OSF1.50         | 2780.00  | 2775.00 |          |          |          |          | MINPT-O-EOU |
| 3253.66 | 154.29 | 3149.97 | 3099.37 | 32.13     | OSF1.50         | 2960.00  | 2954.01 |          |          |          |          | MinPt-O-ADP |
| 3287.44 | 215.56 | 3142.91 | 3071.89 | 23.13     | OSF1.50         | 4140.00  | 4127.55 |          |          |          |          | MINPT-O-EOU |
| 3293.60 | 222.83 | 3144.21 | 3070.77 | 22.41     | OSF1.50         | 4310.00  | 4296.61 |          |          |          |          | MinPt-O-ADP |
| 3338.79 | 296.26 | 3141.12 | 3043.54 | 17.09     | OSF1.50         | 5670.00  | 5649.16 |          |          |          |          | MINPT-O-EOU |
| 3359.25 | 320.11 | 3145.01 | 3038.14 | 15.85     | OSF1.50         | 6180.00  | 6156.37 |          |          |          |          | MinPt-O-ADP |
| 3399.51 | 393.58 | 3136.30 | 3005.94 | 13.03     | OSF1.50         | 7570.00  | 7541.02 |          |          |          |          | MinPt-CtCt  |
| 1645.54 | 498.57 | 1311.54 | 1146.97 | 4.98      | OSF1.50         | 11060.00 | 9544.63 | OSF<5.00 |          |          |          | Enter Alert |
| 496.47  | 500.72 | 160.52  | -4.25   | 1.49      | OSF1.50         | 12210.00 | 9564.70 |          | OSF<1.50 |          |          | Enter Minor |
| 327.04  | 500.86 | -9.08   | -173.82 | 0.97      | OSF1.50         | 12380.00 | 9567.66 |          |          | OSF<1.00 |          | Enter Major |
| 32.61   | 537.43 | -326.98 | -504.82 | 0.08      | OSF1.50         | 12700.00 | 9573.25 |          |          |          |          | MinPt-O-SF  |
| 32.45   | 540.70 | -328.85 | -508.25 | 0.08      | OSF1.50         | 12710.00 | 9573.42 |          |          |          |          | MinPts      |
| 326.01  | 500.41 | -8.43   | -174.40 | 0.97      | OSF1.50         | 13030.00 | 9579.01 |          |          |          | OSF>1.00 | Exit Major  |
| 495.43  | 499.86 | 161.36  | -4.43   | 1.49      | OSF1.50         | 13200.00 | 9581.98 |          | OSF>1.50 |          |          | Exit Minor  |
| 1654.46 | 500.38 | 1320.04 | 1154.08 | 4.98      | OSF1.50         | 14360.00 | 9602.22 | OSF>5.00 |          |          |          | Exit Alert  |
| 7151.69 | 509.02 | 6811.50 | 6642.66 | 21.17     | OSF1.50         | 19858.99 | 9698.19 |          |          |          |          | TD          |

30-025-43832 - CHISHOLM  
BUFFALO WEST 2 STATE  
2BS COM #005H MWD 0' to  
14340' - A (Def Survey)

Warning Alert

|         |        |         |         |          |                 |          |         |          |  |  |  |             |
|---------|--------|---------|---------|----------|-----------------|----------|---------|----------|--|--|--|-------------|
| 172.46  | 32.81  | 169.96  | 139.65  | N/A      | MAS = 10.00 (m) | 0.00     | 0.00    |          |  |  |  | Surface     |
| 170.13  | 32.81  | 167.45  | 137.32  | 973.66   | MAS = 10.00 (m) | 20.00    | 20.00   |          |  |  |  | MinPt-O-SF  |
| 169.83  | 32.81  | 167.33  | 137.02  | 75013.99 | MAS = 10.00 (m) | 31.00    | 31.00   |          |  |  |  | WRP         |
| 169.04  | 32.81  | 164.75  | 136.24  | 92.62    | MAS = 10.00 (m) | 430.00   | 430.00  |          |  |  |  | MinPts      |
| 161.36  | 32.81  | 152.56  | 128.55  | 25.22    | MAS = 10.00 (m) | 1450.00  | 1450.00 |          |  |  |  | MinPts      |
| 161.46  | 32.81  | 152.43  | 128.65  | 24.35    | MAS = 10.00 (m) | 1500.00  | 1500.00 |          |  |  |  | MINPT-O-EOU |
| 258.84  | 32.81  | 241.50  | 226.03  | 17.28    | MAS = 10.00 (m) | 3660.00  | 3650.18 |          |  |  |  | MinPt-O-SF  |
| 267.60  | 32.81  | 249.76  | 234.79  | 17.28    | MAS = 10.00 (m) | 3780.00  | 3769.52 |          |  |  |  | MinPt-O-SF  |
| 322.74  | 32.81  | 302.04  | 289.93  | 17.59    | MAS = 10.00 (m) | 4440.00  | 4425.90 |          |  |  |  | MinPt-O-SF  |
| 367.47  | 47.66  | 534.87  | 519.81  | 18.77    | OSF1.50         | 8250.00  | 8221.02 |          |  |  |  | MinPt-CtCt  |
| 567.51  | 47.74  | 534.85  | 519.77  | 18.73    | OSF1.50         | 8270.00  | 8241.02 |          |  |  |  | MINPT-O-EOU |
| 567.55  | 47.78  | 534.86  | 519.77  | 18.72    | OSF1.50         | 8280.00  | 8251.02 |          |  |  |  | MinPt-O-ADP |
| 576.50  | 50.11  | 542.26  | 526.39  | 18.08    | OSF1.50         | 8840.00  | 8811.02 |          |  |  |  | MinPt-O-SF  |
| 867.62  | 137.40 | 775.18  | 730.21  | 9.62     | OSF1.50         | 11000.00 | 9543.58 |          |  |  |  | MinPt-CtCt  |
| 868.00  | 159.22 | 761.02  | 708.78  | 8.28     | OSF1.50         | 11270.00 | 9548.29 |          |  |  |  | MinPt-CtCt  |
| 894.12  | 270.59 | 712.89  | 623.53  | 4.99     | OSF1.50         | 12650.00 | 9572.38 | OSF<5.00 |  |  |  | Enter Alert |
| 898.49  | 336.06 | 673.62  | 562.43  | 4.03     | OSF1.50         | 13420.00 | 9585.81 |          |  |  |  | MinPt-CtCt  |
| 923.62  | 404.82 | 652.91  | 518.80  | 3.43     | OSF1.50         | 14280.00 | 9600.82 |          |  |  |  | MINPT-O-EOU |
| 930.10  | 414.48 | 652.94  | 515.62  | 3.38     | OSF1.50         | 14400.00 | 9602.92 |          |  |  |  | MINPT-O-EOU |
| 930.65  | 415.13 | 653.06  | 515.52  | 3.37     | OSF1.50         | 14410.00 | 9603.09 |          |  |  |  | MinPts      |
| 1159.32 | 352.35 | 923.59  | 806.97  | 4.96     | OSF1.50         | 15050.00 | 9614.26 | OSF>5.00 |  |  |  | Exit Alert  |
| 5580.26 | 113.93 | 5503.47 | 5466.32 | 75.08    | OSF1.50         | 19858.99 | 9698.19 |          |  |  |  | TD          |

30-025-43833 - CHISHOLM  
BUFFALO WEST 2 STATE  
1BS COM #006H ST01 MWD  
0' to 14230' - A (Def Survey)

Warning Alert

|        |       |        |        |         |                 |         |         |          |  |  |  |             |
|--------|-------|--------|--------|---------|-----------------|---------|---------|----------|--|--|--|-------------|
| 172.64 | 32.81 | 170.14 | 139.83 | N/A     | MAS = 10.00 (m) | 0.00    | 0.00    |          |  |  |  | Surface     |
| 170.19 | 32.81 | 167.50 | 137.38 | 885.79  | MAS = 10.00 (m) | 20.00   | 20.00   |          |  |  |  | MinPt-O-SF  |
| 169.83 | 32.81 | 167.31 | 137.03 | 6468.71 | MAS = 10.00 (m) | 30.00   | 30.00   |          |  |  |  | MINPT-O-EOU |
| 169.83 | 32.81 | 167.33 | 137.02 | N/A     | MAS = 10.00 (m) | 31.00   | 31.00   |          |  |  |  | MinPts      |
| 169.93 | 32.81 | 167.24 | 137.12 | 903.96  | MAS = 10.00 (m) | 90.00   | 90.00   |          |  |  |  | MINPT-O-EOU |
| 170.05 | 32.81 | 167.24 | 137.24 | 536.29  | MAS = 10.00 (m) | 120.00  | 120.00  |          |  |  |  | MINPT-O-EOU |
| 165.97 | 32.81 | 156.33 | 133.16 | 22.91   | MAS = 10.00 (m) | 1690.00 | 1689.99 |          |  |  |  | MinPts      |
| 166.11 | 32.81 | 156.20 | 133.30 | 22.07   | MAS = 10.00 (m) | 1820.00 | 1819.88 |          |  |  |  | MINPT-O-EOU |
| 202.64 | 32.81 | 187.96 | 169.83 | 16.43   | MAS = 10.00 (m) | 3060.00 | 3053.46 |          |  |  |  | MinPt-O-SF  |
| 222.47 | 32.81 | 206.49 | 189.66 | 16.32   | MAS = 10.00 (m) | 3360.00 | 3351.82 |          |  |  |  | MinPt-O-SF  |
| 257.91 | 32.81 | 239.50 | 225.10 | 16.06   | MAS = 10.00 (m) | 3920.00 | 3908.75 |          |  |  |  | MinPt-O-SF  |
| 333.31 | 47.19 | 501.01 | 486.12 | 17.82   | OSF1.50         | 8210.00 | 8181.02 |          |  |  |  | MinPts      |
| 533.33 | 47.22 | 501.01 | 486.11 | 17.80   | OSF1.50         | 8220.00 | 8191.02 |          |  |  |  | MinPt-O-ADP |
| 538.20 | 48.38 | 505.11 | 489.82 | 17.51   | OSF1.50         | 8520.00 | 8491.02 |          |  |  |  | MinPt-O-SF  |
| 195.02 | 61.53 | 153.16 | 133.49 | 4.89    | OSF1.50         | 9040.00 | 9010.91 | OSF<5.00 |  |  |  | Enter Alert |
| 171.88 | 65.11 | 127.64 | 106.77 | 4.06    | OSF1.50         | 9150.00 | 9118.54 |          |  |  |  | MinPt-O-SF  |
| 170.64 | 64.34 | 126.91 | 106.29 | 4.08    | OSF1.50         | 9170.00 | 9137.56 |          |  |  |  | MinPts      |
| 170.41 | 63.76 | 127.07 | 106.65 | 4.11    | OSF1.50         | 9180.00 | 9146.98 |          |  |  |  | MinPt-CtCt  |

| Offset Trajectory | Separation |               |               | Allow Dev. (ft) | Sep. Fact. | Controlling Rule | Reference Trajectory |          | Risk Level |       |       | Alert       | Status |
|-------------------|------------|---------------|---------------|-----------------|------------|------------------|----------------------|----------|------------|-------|-------|-------------|--------|
|                   | Ct-Ct (ft) | MAS (ft)      | EOU (ft)      |                 |            |                  | MD (ft)              | TVD (ft) | Alert      | Minor | Major |             |        |
| 177.94            | 55.30      | 140.25        | 122.65        | 4.98            |            | OSF1.50          | 9260.00              | 9220.01  | OSF>5.00   |       |       | Exit Alert  |        |
| <b>336.67</b>     | 44.97      | 305.85        | 291.70        | 11.80           |            | OSF1.50          | 9960.00              | 9525.43  |            |       |       | MinPt-CtCt  |        |
| 337.33            | 46.95      | <b>305.20</b> | 290.38        | 11.30           |            | OSF1.50          | 10010.00             | 9526.30  |            |       |       | MINPT-O-EQU |        |
| 338.36            | 48.18      | 305.41        | <b>290.18</b> | 11.03           |            | OSF1.50          | 10040.00             | 9526.83  |            |       |       | MinPt-O-ADP |        |
| <b>334.17</b>     | 78.68      | 280.88        | 255.48        | 6.53            |            | OSF1.50          | 10820.00             | 9540.44  |            |       |       | MinPt-CtCt  |        |
| <b>329.59</b>     | 93.83      | 266.21        | 235.77        | 5.37            |            | OSF1.50          | 11150.00             | 9546.20  |            |       |       | MinPt-CtCt  |        |
| 330.97            | 98.21      | <b>264.66</b> | 232.75        | 5.15            |            | OSF1.50          | 11240.00             | 9547.77  |            |       |       | MINPT-O-EQU |        |
| 331.27            | 98.58      | <b>264.72</b> | <b>232.69</b> | 5.13            |            | OSF1.50          | 11250.00             | 9547.94  |            |       |       | MinPt-O-ADP |        |
| 332.98            | 100.83     | <b>264.93</b> | 232.15        | 5.04            |            | OSF1.50          | 11330.00             | 9549.34  |            |       |       | MINPT-O-EQU |        |
| 332.50            | 101.73     | 263.84        | 230.77        | 4.99            |            | OSF1.50          | 11390.00             | 9550.39  | OSF<5.00   |       |       | Enter Alert |        |
| <b>326.02</b>     | 114.87     | 248.65        | 211.20        | 4.32            |            | OSF1.50          | 11630.00             | 9554.57  |            |       |       | MinPt-CtCt  |        |
| 328.40            | 122.38     | <b>246.01</b> | 206.07        | 4.08            |            | OSF1.50          | 11760.00             | 9556.84  |            |       |       | MINPT-O-EQU |        |
| 330.41            | 124.82     | 246.36        | <b>205.59</b> | 4.02            |            | OSF1.50          | 11810.00             | 9557.72  |            |       |       | MinPt-O-ADP |        |
| <b>311.85</b>     | 157.18     | 206.23        | 154.67        | 3.00            |            | OSF1.50          | 12710.00             | 9573.42  |            |       |       | MinPt-CtCt  |        |
| 321.76            | 189.84     | <b>194.37</b> | 131.93        | 2.96            |            | OSF1.50          | 13200.00             | 9581.98  |            |       |       | MINPT-O-EQU |        |
| <b>317.83</b>     | 203.30     | 181.47        | 114.53        | 2.36            |            | OSF1.50          | 13460.00             | 9586.51  |            |       |       | MinPt-CtCt  |        |
| <b>297.24</b>     | 225.22     | 146.25        | 72.01         | 1.98            |            | OSF1.50          | 13960.00             | 9595.24  |            |       |       | MinPt-CtCt  |        |
| 297.68            | 226.76     | <b>145.66</b> | 70.89         | 1.97            |            | OSF1.50          | 14010.00             | 9596.11  |            |       |       | MINPT-O-EQU |        |
| 297.89            | 227.03     | 145.70        | <b>70.85</b>  | 1.97            |            | OSF1.50          | 14020.00             | 9596.29  |            |       |       | MinPt-O-ADP |        |
| 298.13            | 227.26     | 145.79        | 70.87         | <b>1.97</b>     |            | OSF1.50          | 14030.00             | 9596.46  |            |       |       | MinPt-O-SF  |        |
| 305.79            | 233.62     | <b>149.21</b> | 72.17         | 1.97            |            | OSF1.50          | 14280.00             | 9600.82  |            |       |       | MINPT-O-EQU |        |
| 309.18            | 239.20     | <b>148.89</b> | <b>69.98</b>  | 1.94            |            | OSF1.50          | 14370.00             | 9602.39  |            |       |       | MinPts      |        |
| 310.23            | 240.09     | 149.33        | 70.14         | <b>1.94</b>     |            | OSF1.50          | 14380.00             | 9602.57  |            |       |       | MinPt-O-SF  |        |
| 576.75            | 178.09     | 457.19        | 398.66        | 4.91            |            | OSF1.50          | 14830.00             | 9610.42  | OSF>5.00   |       |       | Exit Alert  |        |
| 5525.24           | 92.55      | 5462.71       | 5432.69       | 91.99           |            | OSF1.50          | 19858.99             | 9698.19  |            |       |       | TD          |        |

30-025-27737 - NEARBURG  
BUFFALO 2 EAST #001 Inc  
Only 0' to 13480' - P (Def Survey)

Warning Alert

|                |        |               |                |                 |                 |          |         |  |          |  |  |             |  |
|----------------|--------|---------------|----------------|-----------------|-----------------|----------|---------|--|----------|--|--|-------------|--|
| 856.18         | 32.81  | 853.68        | 823.37         | N/A             | MAS = 10.00 (m) | 0.00     | 0.00    |  |          |  |  | Surface     |  |
| 855.46         | 32.81  | 852.89        | 822.65         | <b>11863.30</b> | MAS = 10.00 (m) | 20.00    | 20.00   |  |          |  |  | MinPt-O-SF  |  |
| 855.26         | 32.81  | 852.71        | 822.45         | 16065.35        | MAS = 10.00 (m) | 31.00    | 31.00   |  |          |  |  | WRP         |  |
| <b>855.20</b>  | 32.81  | 852.68        | <b>822.39</b>  | 41215.23        | MAS = 10.00 (m) | 40.00    | 40.00   |  |          |  |  | MinPts      |  |
| <b>855.75</b>  | 32.81  | 835.80        | <b>822.94</b>  | 48.91           | MAS = 10.00 (m) | 590.00   | 590.00  |  |          |  |  | MinPts      |  |
| <b>858.05</b>  | 83.44  | 801.60        | 774.62         | 15.86           | OSF1.50         | 1630.00  | 1630.00 |  |          |  |  | MinPt-CtCt  |  |
| 860.10         | 89.41  | <b>799.66</b> | 770.68         | 14.80           | OSF1.50         | 1750.00  | 1749.96 |  |          |  |  | MINPT-O-EQU |  |
| 862.17         | 91.85  | 800.11        | <b>770.32</b>  | 14.43           | OSF1.50         | 1800.00  | 1799.91 |  |          |  |  | MinPt-O-ADP |  |
| <b>1422.19</b> | 399.61 | 1154.95       | 1022.58        | 5.36            | OSF1.50         | 7750.00  | 7721.02 |  |          |  |  | MinPt-CtCt  |  |
| 1432.31        | 431.79 | 1143.61       | 1000.52        | 5.00            | OSF1.50         | 8350.00  | 8321.02 |  | OSF<5.00 |  |  | Enter Alert |  |
| <b>1431.06</b> | 439.51 | 1137.23       | 991.56         | 4.90            | OSF1.50         | 8510.00  | 8481.02 |  |          |  |  | MinPt-CtCt  |  |
| <b>1276.35</b> | 492.86 | <b>946.95</b> | <b>783.49</b>  | 3.90            | OSF1.50         | 9950.00  | 9525.25 |  |          |  |  | MinPts      |  |
| 1276.42        | 492.89 | 946.99        | 783.53         | <b>3.90</b>     | OSF1.50         | 9960.00  | 9525.43 |  | OSF<5.00 |  |  | MinPt-O-SF  |  |
| 1641.90        | 495.63 | 1310.65       | 1146.27        | 4.99            | OSF1.50         | 10980.00 | 9543.23 |  |          |  |  | Exit Alert  |  |
| 5726.42        | 510.69 | 5385.13       | <b>5215.73</b> | <b>16.89</b>    | OSF1.50         | 15530.00 | 9622.64 |  |          |  |  | MinPts      |  |
| 9988.39        | 517.75 | 9642.39       | 9470.64        | 29.07           | OSF1.50         | 19858.99 | 9698.19 |  |          |  |  | TD          |  |

30-025-30118 - POGO  
BUFFALO FEDERAL #001 Inc  
Only 0' to 13450' - P (Def Survey)

Warning Alert

|                |        |                |                |                  |                 |          |         |  |          |  |  |             |  |
|----------------|--------|----------------|----------------|------------------|-----------------|----------|---------|--|----------|--|--|-------------|--|
| 5867.54        | 32.81  | 5865.04        | 5834.74        | N/A              | MAS = 10.00 (m) | 0.00     | 0.00    |  |          |  |  | Surface     |  |
| 5867.22        | 32.81  | 5864.68        | 5834.41        | <b>163001.63</b> | MAS = 10.00 (m) | 31.00    | 31.00   |  |          |  |  | MinPt-O-SF  |  |
| <b>5867.03</b> | 32.81  | 5864.41        | <b>5834.22</b> | 49065.22         | MAS = 10.00 (m) | 80.00    | 80.00   |  |          |  |  | MinPts      |  |
| <b>5868.02</b> | 81.38  | 5812.93        | 5786.64        | 111.54           | OSF1.50         | 1640.00  | 1640.00 |  |          |  |  | MinPt-CtCt  |  |
| 5871.17        | 90.65  | <b>5809.88</b> | 5780.48        | 99.82            | OSF1.50         | 1840.00  | 1839.84 |  |          |  |  | MINPT-O-EQU |  |
| 5875.61        | 96.01  | 5810.77        | <b>5779.59</b> | 94.21            | OSF1.50         | 1950.00  | 1949.51 |  |          |  |  | MinPt-O-ADP |  |
| 5912.45        | 137.48 | <b>5819.96</b> | <b>5774.97</b> | 65.67            | OSF1.50         | 2660.00  | 2655.65 |  |          |  |  | MinPts      |  |
| 5944.97        | 161.97 | <b>5836.15</b> | 5783.00        | 55.90            | OSF1.50         | 3220.00  | 3212.59 |  |          |  |  | MINPT-O-EQU |  |
| 5953.29        | 175.90 | <b>5835.19</b> | <b>5777.39</b> | 51.48            | OSF1.50         | 3400.00  | 3391.60 |  |          |  |  | MinPts      |  |
| 6004.33        | 216.88 | <b>5858.91</b> | 5787.44        | 41.99            | OSF1.50         | 4260.00  | 4246.89 |  |          |  |  | MINPT-O-EQU |  |
| 6016.98        | 234.85 | <b>5859.58</b> | <b>5782.13</b> | 38.83            | OSF1.50         | 4530.00  | 4515.41 |  |          |  |  | MinPts      |  |
| 6098.14        | 306.94 | 5892.63        | <b>5791.20</b> | 30.03            | OSF1.50         | 5930.00  | 5907.74 |  |          |  |  | MinPt-O-ADP |  |
| <b>5168.44</b> | 429.86 | 5879.03        | 5736.57        | 21.63            | OSF1.50         | 8370.00  | 8341.02 |  |          |  |  | MinPt-CtCt  |  |
| 6170.65        | 444.16 | <b>5873.71</b> | 5726.50        | 20.95            | OSF1.50         | 8780.00  | 8751.02 |  |          |  |  | MINPT-O-EQU |  |
| 6175.19        | 449.57 | 5874.65        | <b>5725.63</b> | 20.71            | OSF1.50         | 8950.00  | 8921.02 |  | OSF<5.00 |  |  | MinPt-O-ADP |  |
| 1811.49        | 549.58 | 1442.93        | 1261.91        | 4.99             | OSF1.50         | 14060.00 | 9596.98 |  |          |  |  | Enter Alert |  |
| <b>1274.03</b> | 627.98 | 854.54         | 646.05         | 3.05             | OSF1.50         | 15350.00 | 9619.50 |  |          |  |  | MinPt-CtCt  |  |
| 1274.21        | 628.47 | <b>854.40</b>  | 645.74         | 3.05             | OSF1.50         | 15370.00 | 9619.85 |  |          |  |  | MINPT-O-EQU |  |
| 1274.42        | 628.70 | 854.46         | <b>645.73</b>  | 3.05             | OSF1.50         | 15380.00 | 9620.02 |  |          |  |  | MinPt-O-ADP |  |
| 1275.08        | 629.10 | 854.85         | 645.98         | <b>3.05</b>      | OSF1.50         | 15400.00 | 9620.37 |  |          |  |  | MinPt-O-SF  |  |
| 1916.05        | 578.04 | 1529.86        | 1338.01        | 4.99             | OSF1.50         | 16780.00 | 9644.45 |  | OSF>5.00 |  |  | Exit Alert  |  |
| 4685.20        | 524.38 | 4334.78        | 4160.82        | 13.46            | OSF1.50         | 19858.99 | 9698.19 |  |          |  |  | TD          |  |

Chisholm Buffalo West 2-11  
2BS Fed Com 8H R0 IC  
04Mar20 (Non-Def Plan)

Warning Alert

|                |        |                |                |              |                 |          |         |  |          |  |  |             |  |
|----------------|--------|----------------|----------------|--------------|-----------------|----------|---------|--|----------|--|--|-------------|--|
| 2709.33        | 32.81  | 2706.83        | 2676.53        | N/A          | MAS = 10.00 (m) | 0.00     | 0.00    |  |          |  |  | Surface     |  |
| 2709.32        | 32.81  | 2706.82        | 2676.51        | N/A          | MAS = 10.00 (m) | 31.00    | 31.00   |  |          |  |  | WRP         |  |
| <b>2709.32</b> | 32.81  | 2697.20        | <b>2676.51</b> | 281.52       | MAS = 10.00 (m) | 1600.00  | 1600.00 |  |          |  |  | MinPts      |  |
| <b>2543.94</b> | 72.95  | 2494.36        | 2470.99        | 54.35        | OSF1.50         | 8950.00  | 8921.02 |  |          |  |  | MinPt-CtCt  |  |
| 2543.94        | 73.06  | <b>2494.29</b> | <b>2470.88</b> | <b>54.27</b> | OSF1.50         | 8979.96  | 8950.99 |  |          |  |  | MinPts      |  |
| <b>2544.06</b> | 74.82  | 2493.27        | 2469.27        | 52.95        | OSF1.50         | 9870.00  | 9523.86 |  |          |  |  | MinPt-CtCt  |  |
| 2545.44        | 766.29 | 2033.64        | 1779.15        | 5.00         | OSF1.50         | 17580.00 | 9658.42 |  | OSF<5.00 |  |  | Enter Alert |  |
| 2545.85        | 981.47 | <b>1890.60</b> | <b>1564.38</b> | <b>3.90</b>  | OSF1.50         | 19858.99 | 9698.19 |  |          |  |  | MinPts      |  |

30-025-43833 - CHISHOLM  
BUFFALO WEST 2 STATE  
1BS COM #006H OH MWD 0'  
to 9122' - A (Def Survey)

Pass

|               |       |               |               |               |                 |         |         |  |  |  |  |             |  |
|---------------|-------|---------------|---------------|---------------|-----------------|---------|---------|--|--|--|--|-------------|--|
| 172.64        | 32.81 | 170.14        | 139.83        | N/A           | MAS = 10.00 (m) | 0.00    | 0.00    |  |  |  |  | Surface     |  |
| 170.19        | 32.81 | 167.50        | 137.38        | <b>885.79</b> | MAS = 10.00 (m) | 20.00   | 20.00   |  |  |  |  | MinPt-O-SF  |  |
| 169.83        | 32.81 | <b>167.31</b> | 137.03        | 6468.71       | MAS = 10.00 (m) | 30.00   | 30.00   |  |  |  |  | MINPT-O-EQU |  |
| <b>169.83</b> | 32.81 | 167.33        | <b>137.02</b> | N/A           | MAS = 10.00 (m) | 31.00   | 31.00   |  |  |  |  | MinPts      |  |
| 169.93        | 32.81 | <b>167.24</b> | 137.12        | 903.96        | MAS = 10.00 (m) | 90.00   | 90.00   |  |  |  |  | MINPT-O-EQU |  |
| 170.05        | 32.81 | <b>167.24</b> | 137.24        | 536.29        | MAS = 10.00 (m) | 120.00  | 120.00  |  |  |  |  | MINPT-O-EQU |  |
| <b>165.97</b> | 32.81 | 156.33        | <b>133.16</b> | 22.91         | MAS = 10.00 (m) | 1690.00 | 1689.99 |  |  |  |  | MinPts      |  |
| 166.11        | 32.81 | <b>156.20</b> | 133.30        | 22.07         | MAS = 10.00 (m) | 1820.00 | 1819.88 |  |  |  |  | MINPT-O-EQU |  |
| 202.64        | 32.81 | 187.96        | 169.83        | <b>16.43</b>  | MAS = 10.00 (m) | 3060.00 | 3053.46 |  |  |  |  | MinPt-O-SF  |  |
| 222.47        | 32.81 | 206.49        | 189.66        | <b>16.32</b>  | MAS = 10.00 (m) | 3360.00 | 3351.82 |  |  |  |  | MinPt-O-SF  |  |
| 257.91        | 32.81 | 239.50        | 225.10        | <b>16.06</b>  | MAS = 10.00 (m) | 3920.00 | 3908.75 |  |  |  |  | MinPt-O-SF  |  |
| <b>533.31</b> | 47.19 | <b>501.01</b> | 486.12        | 17.82         | OSF1.50         | 8210.00 | 8181.02 |  |  |  |  | MinPts      |  |
| 533.33        | 47.22 | 501.01        | <b>486.11</b> | 17.80         | OSF1.50         | 8220.00 | 8191.02 |  |  |  |  | MinPt-O-ADP |  |
| 538.20        | 48.38 | 505.11        | 499.82        | <b>17.51</b>  | OSF1.50         | 8520.00 | 8491.02 |  |  |  |  | MinPt-O-SF  |  |

| Offset Trajectory | Separation |          |          | Allow Dev. (ft) | Sep. Fact. | Controlling Rule | Reference Trajectory |          | Risk Level |       |       | Alert      | Status |
|-------------------|------------|----------|----------|-----------------|------------|------------------|----------------------|----------|------------|-------|-------|------------|--------|
|                   | Ct-Ct (ft) | MAS (ft) | EOU (ft) |                 |            |                  | MD (ft)              | TVD (ft) | Alert      | Minor | Major |            |        |
| 220.64            | 54.32      | 183.59   | 166.31   | 6.37            |            | OSF1.50          | 9030.00              | 9000.96  |            |       |       | MinPt-O-SF |        |
| 220.17            | 54.06      | 183.29   | 166.17   | 6.33            |            | OSF1.50          | 9040.00              | 9010.91  |            |       |       | MinPts     |        |
| 220.06            | 53.71      | 183.42   | 166.35   | 6.37            |            | OSF1.50          | 9050.00              | 9020.85  |            |       |       | MinPt-CtCt |        |
| 629.76            | 40.59      | 601.87   | 589.17   | 24.70           |            | OSF1.50          | 9760.00              | 9511.43  |            |       |       | MinPt-O-SF |        |
| 676.10            | 43.39      | 646.34   | 632.71   | 24.71           |            | OSF1.50          | 9830.00              | 9521.77  |            |       |       | MinPt-O-SF |        |
| 10447.45          | 63.80      | 10404.08 | 10383.65 | 255.59          |            | OSF1.50          | 19858.99             | 9698.19  |            |       |       | TD         |        |

30-025-33560 - OXY LONE  
RANGER 11 FEDERAL #001  
Inc Only 0' to 8325' - A (Def Survey)

Pass

|         |        |         |         |           |  |                 |          |         |  |  |  |             |  |
|---------|--------|---------|---------|-----------|--|-----------------|----------|---------|--|--|--|-------------|--|
| 8489.03 | 32.81  | 8486.53 | 8456.22 | N/A       |  | MAS = 10.00 (m) | 0.00     | 0.00    |  |  |  | Surface     |  |
| 8488.74 | 32.81  | 8486.21 | 8455.94 | 255937.04 |  | MAS = 10.00 (m) | 31.00    | 31.00   |  |  |  | WRP         |  |
| 8486.52 | 32.81  | 8485.82 | 8455.77 | 42088.38  |  | MAS = 10.00 (m) | 100.00   | 100.00  |  |  |  | MinPts      |  |
| 8486.32 | 84.94  | 8428.86 | 8401.38 | 154.37    |  | OSF1.50         | 1690.00  | 1689.99 |  |  |  | MinPt-CtCt  |  |
| 8488.65 | 91.88  | 8426.56 | 8396.77 | 142.42    |  | OSF1.50         | 1860.00  | 1859.80 |  |  |  | MINPT-O-EOU |  |
| 8492.10 | 96.02  | 8427.25 | 8396.08 | 136.17    |  | OSF1.50         | 1960.00  | 1959.47 |  |  |  | MinPt-O-ADP |  |
| 8521.63 | 136.91 | 8429.52 | 8394.72 | 95.07     |  | OSF1.50         | 2490.00  | 2486.59 |  |  |  | MINPT-O-EOU |  |
| 8522.02 | 137.31 | 8429.64 | 8384.71 | 94.79     |  | OSF1.50         | 2510.00  | 2506.48 |  |  |  | MinPt-O-ADP |  |
| 8563.39 | 177.96 | 8442.90 | 8385.40 | 73.17     |  | OSF1.50         | 3330.00  | 3321.98 |  |  |  | MinPts      |  |
| 8591.49 | 204.05 | 8454.63 | 8387.44 | 63.92     |  | OSF1.50         | 3910.00  | 3898.81 |  |  |  | MinPts      |  |
| 8616.04 | 230.05 | 8461.84 | 8385.99 | 56.78     |  | OSF1.50         | 4390.00  | 4376.18 |  |  |  | MinPts      |  |
| 8665.18 | 271.04 | 8483.65 | 8394.14 | 48.39     |  | OSF1.50         | 5320.00  | 5301.08 |  |  |  | MINPT-O-EOU |  |
| 8675.93 | 285.62 | 8484.68 | 8390.37 | 45.95     |  | OSF1.50         | 5540.00  | 5519.88 |  |  |  | MinPt-O-ADP |  |
| 8741.76 | 352.83 | 8505.77 | 8388.93 | 37.42     |  | OSF1.50         | 6750.00  | 6723.25 |  |  |  | MINPT-O-EOU |  |
| 8742.14 | 353.22 | 8505.82 | 8388.92 | 37.38     |  | OSF1.50         | 6760.00  | 6733.19 |  |  |  | MinPt-O-ADP |  |
| 8764.17 | 432.89 | 8474.74 | 8331.28 | 30.54     |  | OSF1.50         | 8450.00  | 8421.02 |  |  |  | MinPts      |  |
| 8764.24 | 432.90 | 8474.80 | 8331.34 | 30.54     |  | OSF1.50         | 8480.00  | 8451.02 |  |  |  | MinPt-O-SF  |  |
| 1792.57 | 524.19 | 1442.27 | 1268.37 | 5.15      |  | OSF1.50         | 17960.00 | 9665.05 |  |  |  | MinPts      |  |
| 1792.73 | 524.68 | 1442.11 | 1268.05 | 5.14      |  | OSF1.50         | 17980.00 | 9665.40 |  |  |  | MINPT-O-EOU |  |
| 1793.11 | 525.15 | 1442.19 | 1267.96 | 5.14      |  | OSF1.50         | 18000.00 | 9665.75 |  |  |  | MinPt-O-ADP |  |
| 1796.20 | 526.61 | 1444.29 | 1269.59 | 5.13      |  | OSF1.50         | 18070.00 | 9666.97 |  |  |  | MinPt-O-SF  |  |
| 2614.54 | 503.62 | 2277.96 | 2110.92 | 7.82      |  | OSF1.50         | 19858.99 | 9698.19 |  |  |  | TD          |  |

30-025-43831 - CHISHOLM  
BUFFALO WEST 2 STATE  
2BS COM #004H MWD 0' to  
15180' - A (Def Survey)

Pass

|         |        |         |         |           |  |                 |          |         |  |  |  |             |  |
|---------|--------|---------|---------|-----------|--|-----------------|----------|---------|--|--|--|-------------|--|
| 2653.24 | 32.81  | 2650.74 | 2620.43 | N/A       |  | MAS = 10.00 (m) | 0.00     | 0.00    |  |  |  | Surface     |  |
| 2653.00 | 32.81  | 2650.48 | 2620.19 | 114325.82 |  | MAS = 10.00 (m) | 20.00    | 20.00   |  |  |  | MinPt-O-SF  |  |
| 2652.94 | 32.81  | 2650.42 | 2620.13 | 154885.54 |  | MAS = 10.00 (m) | 31.00    | 31.00   |  |  |  | WRP         |  |
| 2652.93 | 32.81  | 2650.40 | 2620.11 | 132062.45 |  | MAS = 10.00 (m) | 40.00    | 40.00   |  |  |  | MinPts      |  |
| 2652.95 | 32.81  | 2650.38 | 2620.14 | 37495.95  |  | MAS = 10.00 (m) | 60.00    | 60.00   |  |  |  | MINPT-O-EOU |  |
| 3131.57 | 47.67  | 3098.96 | 3083.90 | 103.97    |  | OSF1.50         | 7022.68  | 6994.43 |  |  |  | MinPt-O-SF  |  |
| 2107.37 | 88.11  | 2047.37 | 2019.26 | 37.47     |  | OSF1.50         | 9760.00  | 9511.43 |  |  |  | MinPt-O-SF  |  |
| 2096.89 | 87.72  | 2037.14 | 2009.17 | 37.42     |  | OSF1.50         | 9840.00  | 9522.55 |  |  |  | MinPt-O-SF  |  |
| 2083.14 | 90.81  | 2021.32 | 1992.33 | 35.87     |  | OSF1.50         | 10140.00 | 9528.57 |  |  |  | MinPt-CtCt  |  |
| 2083.37 | 98.81  | 2016.21 | 1984.56 | 32.85     |  | OSF1.50         | 10250.00 | 9530.49 |  |  |  | MinPt-CtCt  |  |
| 2083.54 | 103.96 | 2012.95 | 1979.58 | 31.17     |  | OSF1.50         | 10320.00 | 9531.71 |  |  |  | MinPt-CtCt  |  |
| 2083.54 | 125.49 | 1998.59 | 1958.04 | 25.65     |  | OSF1.50         | 10600.00 | 9536.60 |  |  |  | MinPt-CtCt  |  |
| 2083.61 | 171.86 | 1967.75 | 1911.75 | 18.57     |  | OSF1.50         | 11160.00 | 9546.37 |  |  |  | MinPt-CtCt  |  |
| 2079.77 | 285.61 | 1888.07 | 1794.16 | 11.05     |  | OSF1.50         | 12450.00 | 9568.89 |  |  |  | MinPt-CtCt  |  |
| 2054.48 | 413.45 | 1777.55 | 1641.03 | 7.51      |  | OSF1.50         | 13870.00 | 9593.67 |  |  |  | MinPt-CtCt  |  |
| 2067.71 | 457.16 | 1761.65 | 1610.56 | 6.83      |  | OSF1.50         | 14450.00 | 9603.79 |  |  |  | MinPts      |  |
| 2068.13 | 457.46 | 1761.87 | 1610.67 | 6.83      |  | OSF1.50         | 14460.00 | 9603.97 |  |  |  | MinPt-O-SF  |  |
| 5866.00 | 224.28 | 5715.65 | 5641.72 | 39.66     |  | OSF1.50         | 19858.99 | 9698.19 |  |  |  | TD          |  |

30-025-01658 - PRE-ONGARD  
WELL #005 Inc Only 0' to  
15041' - P (Def Survey)

Pass

|         |        |         |         |           |  |                 |          |         |  |  |  |             |  |
|---------|--------|---------|---------|-----------|--|-----------------|----------|---------|--|--|--|-------------|--|
| 2783.12 | 32.81  | 2780.62 | 2750.31 | N/A       |  | MAS = 10.00 (m) | 0.00     | 0.00    |  |  |  | Surface     |  |
| 2782.93 | 32.81  | 2780.41 | 2750.12 | 155404.74 |  | MAS = 10.00 (m) | 20.00    | 20.00   |  |  |  | MinPt-O-SF  |  |
| 2782.88 | 32.81  | 2780.37 | 2750.07 | 284062.75 |  | MAS = 10.00 (m) | 31.00    | 31.00   |  |  |  | WRP         |  |
| 2782.88 | 32.81  | 2780.32 | 2750.07 | 51101.46  |  | MAS = 10.00 (m) | 40.00    | 40.00   |  |  |  | MinPts      |  |
| 2780.66 | 79.09  | 2727.09 | 2701.56 | 54.41     |  | OSF1.50         | 1610.00  | 1610.00 |  |  |  | MinPt-CtCt  |  |
| 2783.02 | 86.38  | 2724.60 | 2696.64 | 49.72     |  | OSF1.50         | 1750.00  | 1749.96 |  |  |  | MINPT-O-EOU |  |
| 2786.03 | 90.02  | 2725.18 | 2696.01 | 47.71     |  | OSF1.50         | 1820.00  | 1819.88 |  |  |  | MinPt-O-ADP |  |
| 2920.15 | 158.53 | 2813.63 | 2761.62 | 28.05     |  | OSF1.50         | 3050.00  | 3043.52 |  |  |  | MinPt-O-ADP |  |
| 2925.57 | 164.29 | 2815.21 | 2761.28 | 27.10     |  | OSF1.50         | 3120.00  | 3113.13 |  |  |  | MinPt-O-ADP |  |
| 3323.49 | 414.87 | 3046.07 | 2908.62 | 12.08     |  | OSF1.50         | 8100.00  | 8071.02 |  |  |  | MinPt-CtCt  |  |
| 2584.40 | 508.67 | 2244.46 | 2075.74 | 7.65      |  | OSF1.50         | 11420.00 | 9550.91 |  |  |  | MinPt-CtCt  |  |
| 2584.51 | 508.96 | 2244.37 | 2075.55 | 7.65      |  | OSF1.50         | 11440.00 | 9551.26 |  |  |  | MINPT-O-EOU |  |
| 2584.62 | 509.10 | 2244.38 | 2075.52 | 7.65      |  | OSF1.50         | 11450.00 | 9551.43 |  |  |  | MinPt-O-ADP |  |
| 2591.63 | 511.41 | 2249.86 | 2080.22 | 7.63      |  | OSF1.50         | 11610.00 | 9554.23 |  |  |  | MinPt-O-SF  |  |
| 8827.47 | 529.25 | 8473.80 | 8298.22 | 25.13     |  | OSF1.50         | 19858.99 | 9698.19 |  |  |  | TD          |  |

30-025-33018 - CHISHOLM  
BUFFALO 2K STATE COM  
#001 Inc Only 0' to 13375' - A  
(Def Survey)

Pass

|         |        |         |         |          |  |                 |          |         |  |  |  |             |  |
|---------|--------|---------|---------|----------|--|-----------------|----------|---------|--|--|--|-------------|--|
| 3802.70 | 32.81  | 3800.20 | 3769.89 | N/A      |  | MAS = 10.00 (m) | 0.00     | 0.00    |  |  |  | Surface     |  |
| 3802.28 | 32.81  | 3799.74 | 3769.47 | 88402.90 |  | MAS = 10.00 (m) | 31.00    | 31.00   |  |  |  | MinPt-O-SF  |  |
| 3802.11 | 32.81  | 3799.51 | 3769.30 | 37878.07 |  | MAS = 10.00 (m) | 70.00    | 70.00   |  |  |  | MinPts      |  |
| 3805.36 | 83.12  | 3749.11 | 3722.24 | 70.76    |  | OSF1.50         | 1630.00  | 1630.00 |  |  |  | MinPt-CtCt  |  |
| 3808.65 | 92.84  | 3745.92 | 3715.80 | 63.19    |  | OSF1.50         | 1810.00  | 1809.89 |  |  |  | MINPT-O-EOU |  |
| 3811.68 | 96.63  | 3746.43 | 3715.05 | 60.70    |  | OSF1.50         | 1880.00  | 1879.75 |  |  |  | MinPt-O-ADP |  |
| 3900.87 | 153.31 | 3797.83 | 3747.56 | 38.77    |  | OSF1.50         | 2830.00  | 2824.72 |  |  |  | MinPts      |  |
| 3923.06 | 162.74 | 3813.74 | 3760.32 | 36.70    |  | OSF1.50         | 3130.00  | 3123.08 |  |  |  | MinPts      |  |
| 3942.75 | 176.21 | 3824.44 | 3766.54 | 34.02    |  | OSF1.50         | 3340.00  | 3331.93 |  |  |  | MinPts      |  |
| 4030.36 | 221.31 | 3881.98 | 3809.04 | 27.61    |  | OSF1.50         | 4260.00  | 4246.89 |  |  |  | MinPts      |  |
| 4290.73 | 443.66 | 3994.15 | 3847.10 | 14.58    |  | OSF1.50         | 8610.00  | 8581.02 |  |  |  | MinPt-CtCt  |  |
| 2585.33 | 546.46 | 2220.19 | 2038.87 | 7.12     |  | OSF1.50         | 12740.00 | 9573.95 |  |  |  | MinPt-CtCt  |  |
| 2585.64 | 547.31 | 2219.93 | 2038.32 | 7.11     |  | OSF1.50         | 12780.00 | 9574.65 |  |  |  | MINPT-O-EOU |  |
| 2585.81 | 547.52 | 2219.96 | 2038.29 | 7.11     |  | OSF1.50         | 12790.00 | 9574.82 |  |  |  | MinPt-O-ADP |  |
| 2596.41 | 551.34 | 2228.02 | 2045.07 | 7.09     |  | OSF1.50         | 12980.00 | 9578.14 |  |  |  | MinPt-O-SF  |  |
| 7573.40 | 544.98 | 7209.25 | 7028.42 | 20.93    |  | OSF1.50         | 19858.99 | 9698.19 |  |  |  | TD          |  |

30-025-43830 - CHISHOLM  
BUFFALO WEST 2 STATE  
2BS COM #003H MWD 0' to  
14575' - A (Def Survey)

Pass

|         |       |         |         |           |  |                 |       |       |  |  |  |            |  |
|---------|-------|---------|---------|-----------|--|-----------------|-------|-------|--|--|--|------------|--|
| 2713.14 | 32.81 | 2710.64 | 2680.33 | N/A       |  | MAS = 10.00 (m) | 0.00  | 0.00  |  |  |  | Surface    |  |
| 2712.91 | 32.81 | 2710.39 | 2680.11 | 119550.72 |  | MAS = 10.00 (m) | 20.00 | 20.00 |  |  |  | MinPt-O-SF |  |

| Offset Trajectory | Separation |          |          | Allow Dev. (ft) | Sep. Fact.      | Controlling Rule | Reference Trajectory |          | Risk Level |       |       | Alert       | Status |
|-------------------|------------|----------|----------|-----------------|-----------------|------------------|----------------------|----------|------------|-------|-------|-------------|--------|
|                   | Ct-Ct (ft) | MAS (ft) | EOU (ft) |                 |                 |                  | MD (ft)              | TVD (ft) | Alert      | Minor | Major |             |        |
| 2712.85           | 32.81      | 2710.33  | 2680.04  | 161963.63       | MAS = 10.00 (m) | 31.00            | 31.00                |          |            |       |       | WRP         |        |
| 2712.83           | 32.81      | 2710.31  | 2680.02  | 135069.19       | MAS = 10.00 (m) | 40.00            | 40.00                |          |            |       |       | MinPts      |        |
| 2712.04           | 32.81      | 2706.43  | 2679.23  | 871.60          | MAS = 10.00 (m) | 730.00           | 730.00               |          |            |       |       | MinPts      |        |
| 2709.32           | 32.81      | 2699.96  | 2676.57  | 394.40          | MAS = 10.00 (m) | 1480.00          | 1480.00              |          |            |       |       | MinPts      |        |
| 2709.32           | 32.81      | 2699.33  | 2676.57  | 361.57          | MAS = 10.00 (m) | 1610.00          | 1610.00              |          |            |       |       | MinPts      |        |
| 2709.35           | 32.81      | 2699.30  | 2676.54  | 358.60          | MAS = 10.00 (m) | 1630.00          | 1630.00              |          |            |       |       | MINPT-O-EOU |        |
| 3230.03           | 47.10      | 3197.79  | 3182.93  | 108.56          | OSF1.50         | 7022.68          | 6994.43              |          |            |       |       | MinPt-O-SF  |        |
| 3236.14           | 47.17      | 3203.86  | 3188.97  | 108.59          | OSF1.50         | 7100.00          | 7071.41              |          |            |       |       | MinPt-O-SF  |        |
| 3236.82           | 48.41      | 3203.72  | 3188.41  | 105.66          | OSF1.50         | 8270.00          | 8241.02              |          |            |       |       | MinPt-CtCt  |        |
| 3236.84           | 48.45      | 3203.70  | 3188.39  | 105.58          | OSF1.50         | 8280.00          | 8251.02              |          |            |       |       | MINPT-O-EOU |        |
| 3236.86           | 48.49      | 3203.71  | 3188.37  | 105.49          | OSF1.50         | 8290.00          | 8261.02              |          |            |       |       | MinPt-O-ADP |        |
| 3245.17           | 50.73      | 3210.52  | 3194.44  | 100.85          | OSF1.50         | 8790.00          | 8761.02              |          |            |       |       | MinPt-O-SF  |        |
| 3204.44           | 51.35      | 3169.37  | 3153.09  | 98.32           | OSF1.50         | 9000.00          | 8971.02              |          |            |       |       | MinPt-O-SF  |        |
| 3127.83           | 51.92      | 3092.38  | 3075.90  | 94.85           | OSF1.50         | 9750.00          | 9509.27              |          |            |       |       | MinPt-CtCt  |        |
| 3126.93           | 59.89      | 3086.17  | 3067.04  | 81.66           | OSF1.50         | 9900.00          | 9524.38              |          |            |       |       | MinPt-CtCt  |        |
| 3116.67           | 123.03     | 3033.81  | 2993.64  | 38.76           | OSF1.50         | 10820.00         | 9540.44              |          |            |       |       | MinPt-CtCt  |        |
| 3056.90           | 416.47     | 2778.42  | 2640.43  | 11.07           | OSF1.50         | 14390.00         | 9602.74              |          |            |       |       | MinPt-CtCt  |        |
| 3057.77           | 419.24     | 2777.45  | 2638.54  | 11.00           | OSF1.50         | 14460.00         | 9603.97              |          |            |       |       | MINPT-O-EOU |        |
| 3058.99           | 420.72     | 2777.67  | 2638.26  | 10.96           | OSF1.50         | 14500.00         | 9604.66              |          |            |       |       | MinPt-O-ADP |        |
| 3093.29           | 431.08     | 2805.07  | 2662.21  | 10.82           | OSF1.50         | 14860.00         | 9610.95              |          |            |       |       | MinPt-O-SF  |        |
| 6268.06           | 332.12     | 6045.81  | 5935.94  | 28.51           | OSF1.50         | 19858.99         | 9698.19              |          |            |       |       | TD          |        |

Chisholm Buffalo West 2-11  
2BS Fed Com 7H R0 IC  
04Mar20 (Non-Def Plan)

Pass

|         |        |         |         |        |                 |          |         |  |  |  |  |             |  |
|---------|--------|---------|---------|--------|-----------------|----------|---------|--|--|--|--|-------------|--|
| 2739.43 | 32.81  | 2736.93 | 2706.63 | N/A    | MAS = 10.00 (m) | 0.00     | 0.00    |  |  |  |  | Surface     |  |
| 2739.42 | 32.81  | 2736.92 | 2706.61 | N/A    | MAS = 10.00 (m) | 31.00    | 31.00   |  |  |  |  | WRP         |  |
| 2739.42 | 32.81  | 2727.30 | 2706.61 | 284.65 | MAS = 10.00 (m) | 1600.00  | 1600.00 |  |  |  |  | MinPts      |  |
| 2739.43 | 32.81  | 2727.27 | 2706.62 | 283.13 | MAS = 10.00 (m) | 1610.00  | 1610.00 |  |  |  |  | MINPT-O-EOU |  |
| 3763.75 | 61.85  | 3721.69 | 3701.90 | 85.06  | OSF1.50         | 7100.00  | 7071.41 |  |  |  |  | MinPt-O-SF  |  |
| 3968.20 | 74.41  | 3917.76 | 3893.79 | 82.72  | OSF1.50         | 9000.00  | 8971.02 |  |  |  |  | MinPt-O-SF  |  |
| 4155.55 | 980.52 | 3501.63 | 3175.03 | 6.37   | OSF1.50         | 19858.99 | 9698.19 |  |  |  |  | MinPts      |  |

30-025-43829 - CHISHOLM  
BUFFALO WEST 2 STATE  
2BS COM #002H MWD 0' to  
14900' - A (Def Survey)

Pass

|         |        |         |         |           |                 |          |         |  |  |  |  |             |  |
|---------|--------|---------|---------|-----------|-----------------|----------|---------|--|--|--|--|-------------|--|
| 2773.18 | 32.81  | 2770.68 | 2740.37 | N/A       | MAS = 10.00 (m) | 0.00     | 0.00    |  |  |  |  | Surface     |  |
| 2772.94 | 32.81  | 2770.42 | 2740.19 | 114040.54 | MAS = 10.00 (m) | 20.00    | 20.00   |  |  |  |  | MinPt-O-SF  |  |
| 2772.87 | 32.81  | 2770.35 | 2740.05 | 141010.81 | MAS = 10.00 (m) | 31.00    | 31.00   |  |  |  |  | WRP         |  |
| 2772.85 | 32.81  | 2770.30 | 2740.04 | 62472.33  | MAS = 10.00 (m) | 50.00    | 50.00   |  |  |  |  | MinPts      |  |
| 2773.07 | 32.81  | 2770.19 | 2740.27 | 7278.06   | MAS = 10.00 (m) | 140.00   | 140.00  |  |  |  |  | MINPT-O-EOU |  |
| 2807.58 | 32.81  | 2797.66 | 2774.77 | 377.99    | MAS = 10.00 (m) | 1700.00  | 1699.99 |  |  |  |  | MinPt-O-SF  |  |
| 3360.68 | 47.07  | 3328.47 | 3313.61 | 113.03    | OSF1.50         | 7022.68  | 6994.43 |  |  |  |  | MinPt-O-SF  |  |
| 3369.13 | 47.17  | 3336.85 | 3321.96 | 113.05    | OSF1.50         | 7100.00  | 7071.41 |  |  |  |  | MinPt-O-SF  |  |
| 3410.42 | 51.66  | 3375.15 | 3358.77 | 103.99    | OSF1.50         | 8979.96  | 8950.99 |  |  |  |  | MinPt-O-SF  |  |
| 3410.34 | 51.65  | 3375.07 | 3358.69 | 103.99    | OSF1.50         | 9000.00  | 8971.02 |  |  |  |  | MinPt-O-ADP |  |
| 3409.53 | 50.65  | 3374.93 | 3358.88 | 106.15    | OSF1.50         | 9140.00  | 9108.95 |  |  |  |  | MINPT-O-EOU |  |
| 3409.41 | 50.37  | 3375.00 | 3359.04 | 106.75    | OSF1.50         | 9170.00  | 9137.56 |  |  |  |  | MinPt-CtCt  |  |
| 3438.43 | 47.03  | 3406.24 | 3391.40 | 115.74    | OSF1.50         | 9680.00  | 9489.40 |  |  |  |  | MinPt-O-SF  |  |
| 4130.99 | 225.27 | 3979.98 | 3905.72 | 27.80     | OSF1.50         | 12110.00 | 9562.95 |  |  |  |  | MinPt-CtCt  |  |
| 4129.53 | 252.33 | 3960.47 | 3877.20 | 24.78     | OSF1.50         | 12440.00 | 9568.71 |  |  |  |  | MinPt-CtCt  |  |
| 4132.80 | 412.95 | 3856.67 | 3719.85 | 15.09     | OSF1.50         | 14370.00 | 9602.39 |  |  |  |  | MinPt-CtCt  |  |
| 4135.01 | 420.00 | 3854.18 | 3715.02 | 14.85     | OSF1.50         | 14510.00 | 9604.84 |  |  |  |  | MINPT-O-EOU |  |
| 4137.41 | 422.88 | 3854.66 | 3714.53 | 14.75     | OSF1.50         | 14570.00 | 9605.88 |  |  |  |  | MinPt-O-ADP |  |
| 4265.40 | 454.51 | 3961.56 | 3810.89 | 14.15     | OSF1.50         | 15430.00 | 9620.89 |  |  |  |  | MinPt-O-SF  |  |
| 6867.12 | 433.64 | 6577.19 | 6433.48 | 23.88     | OSF1.50         | 19858.99 | 9698.19 |  |  |  |  | TD          |  |

30-025-30712 - PRE-ONGARD  
WELL #001 Blind 0' to 103' - P  
(Def Survey)

Pass

|          |        |          |          |          |                 |          |         |  |  |  |  |             |  |
|----------|--------|----------|----------|----------|-----------------|----------|---------|--|--|--|--|-------------|--|
| 3791.14  | 32.81  | 3788.64  | 3758.33  | N/A      | MAS = 10.00 (m) | 0.00     | 0.00    |  |  |  |  | Surface     |  |
| 3790.72  | 32.81  | 3788.18  | 3757.91  | 88853.17 | MAS = 10.00 (m) | 31.00    | 31.00   |  |  |  |  | MinPt-O-SF  |  |
| 3790.55  | 32.81  | 3778.26  | 3757.75  | 386.77   | MAS = 10.00 (m) | 160.00   | 160.00  |  |  |  |  | MinPts      |  |
| 3790.55  | 32.81  | 3777.25  | 3757.75  | 350.72   | MAS = 10.00 (m) | 170.00   | 170.00  |  |  |  |  | MINPT-O-EOU |  |
| 4051.46  | 32.81  | 4036.79  | 4018.65  | 332.76   | MAS = 10.00 (m) | 1600.00  | 1600.00 |  |  |  |  | MinPt-O-SF  |  |
| 9750.12  | 86.73  | 9691.47  | 9663.39  | 173.59   | OSF1.50         | 12550.00 | 9570.63 |  |  |  |  | MinPt-CtCt  |  |
| 9751.57  | 91.04  | 9690.05  | 9660.53  | 165.17   | OSF1.50         | 12720.00 | 9573.60 |  |  |  |  | MINPT-O-EOU |  |
| 9753.28  | 93.06  | 9690.40  | 9660.22  | 161.51   | OSF1.50         | 12800.00 | 9574.99 |  |  |  |  | MinPt-O-ADP |  |
| 12071.94 | 220.90 | 11923.84 | 11851.04 | 82.90    | OSF1.50         | 19670.00 | 9694.89 |  |  |  |  | MinPt-O-SF  |  |
| 12184.33 | 222.88 | 12034.91 | 11961.45 | 82.91    | OSF1.50         | 19858.99 | 9698.19 |  |  |  |  | TD          |  |

30-025-25183 - PRE-ONGARD  
WELL #001 Blind 0' to 360' - P  
(Def Survey)

Pass

|          |        |          |          |           |                 |          |         |  |  |  |  |             |  |
|----------|--------|----------|----------|-----------|-----------------|----------|---------|--|--|--|--|-------------|--|
| 9112.46  | 32.81  | 9109.96  | 9079.65  | N/A       | MAS = 10.00 (m) | 0.00     | 0.00    |  |  |  |  | Surface     |  |
| 9112.27  | 32.81  | 9109.75  | 9079.46  | 457130.27 | MAS = 10.00 (m) | 31.00    | 31.00   |  |  |  |  | WRP         |  |
| 9112.19  | 99.90  | 9044.75  | 9012.29  | 140.30    | OSF1.50         | 430.00   | 430.00  |  |  |  |  | MinPt-CtCt  |  |
| 9112.19  | 100.21 | 9044.55  | 9011.98  | 139.85    | OSF1.50         | 440.00   | 440.00  |  |  |  |  | MinPts      |  |
| 9112.62  | 100.22 | 9044.97  | 9012.40  | 139.84    | OSF1.50         | 520.00   | 520.00  |  |  |  |  | MinPt-O-SF  |  |
| 12922.59 | 82.09  | 12867.04 | 12840.51 | 243.57    | OSF1.50         | 9600.00  | 9456.90 |  |  |  |  | MinPt-O-SF  |  |
| 10025.04 | 276.51 | 9839.87  | 9748.54  | 54.87     | OSF1.50         | 17830.00 | 9662.78 |  |  |  |  | MinPt-CtCt  |  |
| 10026.95 | 282.52 | 9837.78  | 9744.44  | 53.70     | OSF1.50         | 18030.00 | 9666.27 |  |  |  |  | MINPT-O-EOU |  |
| 10029.40 | 285.49 | 9838.25  | 9743.92  | 53.15     | OSF1.50         | 18130.00 | 9668.02 |  |  |  |  | MinPt-O-ADP |  |
| 10227.46 | 332.16 | 10005.19 | 9895.30  | 46.53     | OSF1.50         | 19858.99 | 9698.19 |  |  |  |  | MinPt-O-SF  |  |

## PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

|                              |                                      |
|------------------------------|--------------------------------------|
| <b>OPERATOR'S NAME:</b>      | <b>CHISHOLM ENERGY OPERATING LLC</b> |
| <b>LEASE NO.:</b>            | <b>NMNM032860</b>                    |
| <b>WELL NAME &amp; NO.:</b>  | <b>RAM 2-11 FED 2BS COM 9H</b>       |
| <b>SURFACE HOLE FOOTAGE:</b> | 275'/N & 1245'/E                     |
| <b>BOTTOM HOLE FOOTAGE:</b>  | 100'/S & 725'/E                      |
| <b>LOCATION:</b>             | Section 02, T.19 S., R.33 E., NMPPM  |
| <b>COUNTY:</b>               | LEA County, New Mexico               |

COA

|                      |                                                  |                                            |                                     |
|----------------------|--------------------------------------------------|--------------------------------------------|-------------------------------------|
| H2S                  | <input type="radio"/> Yes                        | <input checked="" type="radio"/> No        |                                     |
| Potash               | <input checked="" type="radio"/> None            | <input type="radio"/> Secretary            | <input type="radio"/> R-111-P       |
| Cave/Karst Potential | <input checked="" type="radio"/> Low             | <input type="radio"/> Medium               | <input type="radio"/> High          |
| Cave/Karst Potential | <input type="radio"/> Critical                   |                                            |                                     |
| Variance             | <input type="radio"/> None                       | <input checked="" type="radio"/> Flex Hose | <input type="radio"/> Other         |
| Wellhead             | <input type="radio"/> Conventional               | <input checked="" type="radio"/> Multibowl | <input type="radio"/> Both          |
| Other                | <input type="checkbox"/> 4 String Area           | <input type="checkbox"/> Capitan Reef      | <input type="checkbox"/> WIPP       |
| Other                | <input checked="" type="checkbox"/> Fluid Filled | <input type="checkbox"/> Cement Squeeze    | <input type="checkbox"/> Pilot Hole |
| Special Requirements | <input type="checkbox"/> Water Disposal          | <input checked="" type="checkbox"/> COM    | <input type="checkbox"/> Unit       |

### A. HYDROGEN SULFIDE

Hydrogen Sulfide (H2S) monitors shall be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the Hydrogen Sulfide area shall meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, provide measured values and formations to the BLM.

### B. CASING

1. The 13-3/8 inch surface casing shall be set at approximately **1600 feet** (a minimum of 25 feet (Lea County) 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 **8**

- hours** 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.
2. The 9-5/8 inch Intermediate casing shall be set at **5300 feet**. The minimum required fill of cement behind the 9-5/8 inch intermediate casing is:

**Option 1 (Single Stage):**

- Cement to surface. If cement does not circulate see B.1.a, c-d above. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.**
  - ❖ **Intermediate casing must be kept fluid filled to meet BLM minimum collapse requirement.**
3. The minimum required fill of cement behind the 5-1/2 inch production casing is:

**Option 1 (Single Stage):**

- Cement should tie-back at least **200 feet** into previous casing string. 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. **BOP REQUIREMENTS.**

**Option 1**

- a. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **2000 (2M) psi**.

- b. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the intermediate casing shoe shall be **5000 (5M)** psi.

### **Option 2**

Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **5000 (5M)** psi.

- 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.

## **D. SPECIAL REQUIREMENT (S)**

### **Communitization Agreement**

- The operator will submit a Communitization Agreement to the Santa Fe Office, 301 Dinosaur Trail Santa Fe, New Mexico 87508, at least 90 days before the anticipated date of first production from a well subject to a spacing order issued by the New Mexico Oil Conservation Division. The Communitization Agreement will include the signatures of all working interest owners in all Federal and Indian leases subject to the Communitization Agreement (i.e., operating rights owners and lessees of record), or certification that the operator has obtained the written signatures of all such owners and will make those signatures available to the BLM immediately upon request.
- If the operator does not comply with this condition of approval, the BLM may take enforcement actions that include, but are not limited to, those specified in 43 CFR 3163.1.
- In addition, the well sign shall include the surface and bottom hole lease numbers. When the Communitization Agreement number is known, it shall also be on the sign.

## **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)

☒ 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 2<sup>nd</sup> 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 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 integrity 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 integrity 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. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.
  - e. 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.
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 not a cup or J-packer. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (8 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).
- 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. The results of the test shall be reported to the appropriate BLM office.
- f. 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.
- g. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.
- h. 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.

**RI10232021**

**Chisholm Energy Operating, LLC**

801 Cherry St., Suite 1200-Unit 20

Fort Worth, TX 76102

**H2S Contingency Plan**

**Lea County, NM**

## Escape

Crews shall escape upwind of escaping gas in the event of an emergency release of gas. Escape can be facilitated from the location entrance road. Crew should then block entrance to the location from the lease road so as not to allow anyone traversing into a hazardous area. The blockade should be at a safe distance outside of the ROE. There are NO homes or buildings in or near the ROE.

Assumed 100 ppm ROE = 3000'  
100 ppm H<sub>2</sub>S concentration shall trigger activation of this plan

## Emergency Procedures

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

- « Isolate the area and prevent entry by other persons into the 100 ppm ROE.
- « Evacuate any public places encompassed by the 100 ppm ROE.
- « Be equipped with H<sub>2</sub>S monitors and air packs in order to control the release.
- « Use the "buddy system" to ensure no injuries occur during the response.
- « Take precautions to avoid personal injury during this operation.
- « Contact operator and/or local officials to aid in operation. See list of phone numbers attached.
- « Have received training
  - in the: Detection of
  - H<sub>2</sub>S, and
  - Measures for protection against the gas,
  - Equipment used for protection and emergency response.

## Ignition of Gas Source

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

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

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

## Contacting Authorities

Chisholm Energy Operating personnel must liaise with local and state agencies to ensure a proper response to a major release. Additionally, the OCD must be notified of the release as soon as possible but no later than 4 hours. Agencies will ask for information such as type and volume of release, wind direction, location of release, etc. Be prepared with all information available including directions to site. The following call list of essential and potential responders has been prepared for use during a release. Chisholm Energy Operating, LLC response must be in coordination with the State of New Mexico's "Hazardous Materials Emergency Response Plan" (HMERP).

## Hydrogen Sulfide Drilling Operations Plan

1. All Company and Contract personnel admitted on location must be trained by a qualified H2S safety instructor to the following:
  - A. Characteristics of H2S
  - B. Physical effects and hazards
  - C. Principal and operation of H2S detectors, warning system and briefing areas.
  - D. Evacuation procedure, routes and first aid.
  - E. Proper use of safety equipment & life support systems
  - F. Essential personnel meeting Medical Evaluation criteria will receive additional training on the proper use of 30-minute pressure demand air packs.
2. H2S Detection and Alarm Systems:
  - a. H2S sensors/detectors to be located on the drilling rig floor, in the base of the sub structure/cellar area, on the mud pits in the shale shaker area. Additional H2S detectors may be placed as deemed necessary.
  - b. An audio alarm system will be installed on the derrick floor and in the top doghouse.
3. Windsock and/or wind streamers:
  - a. Windsock at mudpit area should be high enough to be visible.
  - b. Windsock on the rig floor and/ or top doghouse should be high enough to be visible.
4. Condition Flags and Signs
  - a. Warning sign on access road to location.
  - b. Flags to be displayed on sign at entrance to location. Green flag indicates normal safe condition. Yellow flag indicates potential pressure and danger. Red flag indicates danger (H2S present in dangerous concentration). Only H2S trained and certified personnel

admitted to location.

5. Well control equipment:

- a. See exhibit BOP and Choke Diagrams

6. Communication:

- a. While working under masks chalkboards will be used for communication.
- b. Hand signals will be used where chalk board is inappropriate.
- c. Two-way radio will be used to communicate off location in case of emergency help is required. In most cases, cellular telephones will be available at most drilling foreman's trailer or living quarters.

7. Drill stem Testing:

No DSTs are planned at this time.

- 8. Drilling contractor supervisor will be required to be familiar with the effects H2S has on tubular goods and other mechanical equipment.
- 9. If H2S is encountered, mud system will be altered if necessary to maintain control of formation. A mud gas separator will be brought into service along with H2S scavengers if necessary.

### **Emergency Assistance Telephone List**

#### **Chisholm Energy Holdings, LLC**

Chisholm Energy Operating, LLC

Vice President of Operations-Brad Grandstaff

Office: (817)953-6063

Office: (817)953-3150

Cell: (972)977-9221

Drilling Superintendent-Russell Simons

Cell: (830)285-7501

Production Superintendent-Paul Martinez

Cell: (325)206-1722

| <b>Public Safety:</b>                             |           | <b>911 or</b> |               |
|---------------------------------------------------|-----------|---------------|---------------|
| Lea County Sheriff's Department                   | Number:   | (575)396-3611 |               |
| Lea County Emergency Management-Lorenzo Velasquez | Number:   | (575)391-2983 |               |
| Lea County Fire Marshal                           |           |               |               |
| Lorenzo Velasquez, Director                       | Number:   | (575)391-2983 |               |
| Jeff Broom, Deputy Fire Marshal                   | Number:   | (575)391-2988 |               |
| Fire Department:                                  |           |               |               |
| Knowles Fire Department                           | Number:   | (505)392-2810 |               |
| City of Hobbs Fire Department                     | Number:   | (505)397-9308 |               |
| Jal Volunteer Fire Department                     | Number:   | (505)395-2221 |               |
| Lovington Fire Department                         | Number:   | (575)396-2359 |               |
| Maljamar Fire Department                          | Number:   | (505)676-4100 |               |
| Tatum Volunteer Fire Department                   | Number:   | (505)398-3473 |               |
| Eunice Fire Department                            | Number:   | (575)394-3258 |               |
| Hospital: Lea Regional Medical Center             | Number:   | (575)492-5000 |               |
| AirMed: Medevac                                   | Number:   | (888)303-9112 |               |
| Dept. of Public Safety                            | Number:   | (505)827-9000 |               |
| <b>New Mexico OCD-Dist. 1-Hobbs-</b>              | Office    | Number:       | (575)393-6161 |
|                                                   | Emergency | Number:       | (575)370-3186 |
| Lea County Road Department                        | Number:   | (575)391-2940 |               |
| NMDOT                                             | Number:   | (505)827-5100 |               |

Chisholm Energy Operating, LLC plans to operate a Closed Loop System.

## Additional Operator Remarks

### Location of Well

0. SHL: NENE / 275 FNL / 1245 FEL / TWSP: 19S / RANGE: 33E / SECTION: 2 / LAT: 32.696122 / LONG: -103.629159 ( TVD: 0 feet, MD: 0 feet )

PPP: NENE / 100 FNL / 725 FEL / TWSP: 19S / RANGE: 33E / SECTION: 2 / LAT: 32.696608 / LONG: -103.627472 ( TVD: 9524 feet, MD: 9870 feet )

BHL: SESE / 100 FSL / 725 FEL / TWSP: 19S / RANGE: 33E / SECTION: 11 / LAT: 32.67747 / LONG: -103.627517 ( TVD: 9698 feet, MD: 19859 feet )

### BLM Point of Contact

Name: Gavin Mickwee

Title: Land Law Examiner

Phone: (575) 234-5972

Email: gmickwee@blm.gov



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

# Drilling Plan Data Report

12/02/2021

APD ID: 10400077223

Submission Date: 07/09/2021

Highlighted data  
reflects the most  
recent changes

Operator Name: CHISHOLM ENERGY OPERATING LLC

Well Name: RAM 2-11 FED 2BS COM

Well Number: 9H

[Show Final Text](#)

Well Type: OIL WELL

Well Work Type: Drill

## Section 1 - Geologic Formations

| Formation ID | Formation Name  | Elevation | True Vertical Depth | Measured Depth | Lithologies                    | Mineral Resources | Producing Formation |
|--------------|-----------------|-----------|---------------------|----------------|--------------------------------|-------------------|---------------------|
| 6608163      | RUSTLER         | 3766      | 1482                | 1482           | ANHYDRITE                      | USEABLE WATER     | N                   |
| 6608164      | SALADO          | 1999      | 1767                | 1767           | SALT                           | NONE              | N                   |
| 6608166      | SEVEN RIVERS    | 104       | 3662                | 3662           | ANHYDRITE, DOLOMITE            | NATURAL GAS, OIL  | N                   |
| 6608165      | QUEEN           | -551      | 4317                | 4317           | DOLOMITE, LIMESTONE, SANDSTONE | NATURAL GAS, OIL  | N                   |
| 6608167      | DELAWARE        | -2636     | 6402                | 6402           | SANDSTONE, SHALE, SILTSTONE    | NATURAL GAS, OIL  | N                   |
| 6608168      | BONE SPRING     | -3891     | 7657                | 7657           | LIMESTONE, SHALE               | NATURAL GAS, OIL  | N                   |
| 6608169      | BONE SPRING 1ST | -5161     | 8927                | 8927           | SANDSTONE, SHALE, SILTSTONE    | NATURAL GAS, OIL  | N                   |
| 6608224      | BONE SPRING 2ND | -5731     | 9497                | 9497           | SANDSTONE, SHALE, SILTSTONE    | NATURAL GAS, OIL  | Y                   |

## Section 2 - Blowout Prevention

Pressure Rating (PSI): 5M

Rating Depth: 12000

Equipment: Rotating Head, remote kill line, mud-gas separator

Requesting Variance? YES

**Variance request:** We propose utilizing a cactus speed head for this well. Please see attached diagram and pressure testing statement. Also we request to use a co flex hose. Please find attached information regarding co flex hose.

**Testing Procedure:** BOP will be tested by an independent service company to 250 psi low and 5000 psi high, per onshore order 2. Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked each trip out of the hole.

**Choke Diagram Attachment:**

5M\_Choke\_Manifold\_Diagram\_20210709112121.pdf

**BOP Diagram Attachment:**

5m\_BOP\_Diagram\_2\_20210709112135.pdf

# Patriot Drilling, LLC

## RIG NO. 5

### **Annular Preventer**

13-3/8 5,000 PSI WP

### **Ram Preventers**

13-3/8" 5,000 PSI WP Double Ram

13-3/8" 5,000 PSI WP Single Ram

Test the pipe rams, blind rams, floor valves (IBOP and/or upper Kelly valve), choke lines and manifold to 250 psi/5,000 psi with a test plug and a test pump.

Test the annular to 250 psi/2,500 psi with same as above.

**District I**

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

**District II**

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

**District III**

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

**District IV**

1220 S. St Francis Dr., Santa Fe, NM 87505  
 Phone:(505) 476-3470 Fax:(505) 476-3462

**State of New Mexico**  
**Energy, Minerals and Natural Resources**  
**Oil Conservation Division**  
**1220 S. St Francis Dr.**  
**Santa Fe, NM 87505**

CONDITIONS

Action 68271

**CONDITIONS**

|                                                                                          |                                                                       |
|------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|
| Operator:<br>CHISHOLM ENERGY OPERATING, LLC<br>801 Cherry Street<br>Fort Worth, TX 76102 | OGRID:<br>372137                                                      |
|                                                                                          | Action Number:<br>68271                                               |
|                                                                                          | Action Type:<br>[C-101] BLM - Federal/Indian Land Lease (Form 3160-3) |

**CONDITIONS**

| Created By | Condition                                                                                                                                                                                                                                                            | Condition Date |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| pkautz     | Will require a File As Drilled C-102 and a Directional Survey with the C-104                                                                                                                                                                                         | 12/29/2021     |
| pkautz     | Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string | 12/29/2021     |
| pkautz     | Oil base muds are not to be used until fresh water zones are cased and cemented providing isolation from the oil or diesel. This includes synthetic oils. Oil based mud, drilling fluids and solids must be contained in a steel closed loop system                  | 12/29/2021     |
| pkautz     | Cement is required to circulate on both surface and intermediate1 strings of casing                                                                                                                                                                                  | 12/29/2021     |