Form 3160-3 FORM APPROVED OMB No. 1004-0137 (June 2015) Expires: January 31, 2018 **UNITED STATES** DEPARTMENT OF THE INTERIOR 5. Lease Serial No. BUREAU OF LAND MANAGEMENT APPLICATION FOR PERMIT TO DRILL OR REENTER 6. If Indian, Allotee or Tribe Name 7. If Unit or CA Agreement, Name and No. DRILL REENTER 1a. Type of work: 1b. Type of Well: Oil Well Gas Well Other 8. Lease Name and Well No. 1c. Type of Completion: Hydraulic Fracturing Single Zone Multiple Zone 9. API Well No. 2. Name of Operator 30-015-49150 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.*) 11. Sec., T. R. M. or Blk. and Survey or Area At surface At proposed prod. zone 14. Distance in miles and direction from nearest town or post office* 12. County or Parish 13. State 15. Distance from proposed* 16. No of acres in lease 17. Spacing Unit dedicated to this well location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 18. Distance from proposed location* 19. Proposed Depth 20. BLM/BIA Bond No. in file to nearest well, drilling, completed, applied for, on this lease, ft. 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. 4. Bond to cover the operations unless covered by an existing bond on file (see 2. A Drilling Plan. Item 20 above) 3. A Surface Use Plan (if the location is on National Forest System Lands, the 5. Operator certification. 6. Such other site specific information and/or plans as may be requested by the SUPO must be filed with the appropriate Forest Service Office). 25. Signature Name (Printed/Typed) Date Title Approved by (Signature) Date Name (Printed/Typed) 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 Dean R Mollure 12/7/2021 APPROVED WITH CONDITIONS

(Continued on page 2)

*(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 Road, Aztec, NM 87410 Phone: (505) 334-6178 Fax: (505) 334-6170 <u>District IV</u>

1220 S. St. Francis Dr., Santa Fe, NM 87505 Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico

Energy, Minerals & Natural Resources Department OIL CONSERVATION DIVISION 1220 South St. Francis Dr.

Form C-102 Revised August 1, 2011 Submit one copy to appropriate District Office

AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

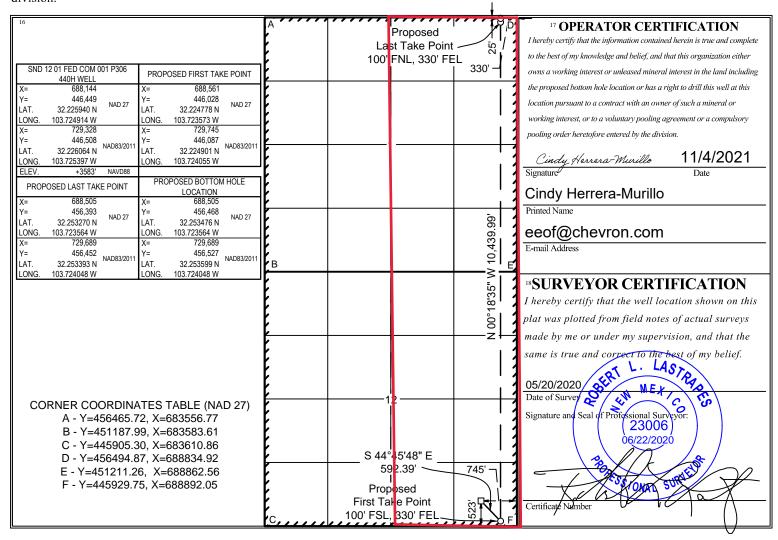
Santa Fe, NM 87505

| ¹ API Numbe 30-015-49150 | | COTTON DRAW; BONE SPRING | | | |
|-------------------------------------|-----------------|--|--|--|--|
| ⁴ Property Code 331850 | | ⁵ Property Name SND 12 01 FED COM 001 P306 | | | |
| ⁷ OGRID No. | ⁸ Op | 8 Operator Name | | | |
| 4323 | CHEVRO | CHEVRON U.S.A. INC. | | | |

10 Surface Location

| | | | | " Sui | race Local | 1011 | | | |
|--|--|----------|-------------------|---------|---------------|------------------|---------------|----------------|--------|
| UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
| P | 12 | 24 SOUTH | 31 EAST, N.M.P.M. | | 523' | SOUTH | 745' | EAST | EDDY |
| | ¹¹ 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 |
| A | 1 | 24 SOUTH | 31 EAST, N.M.P.M. | | 25' | NORTH | 330' | EAST | EDDY |
| 12 Dedicated Acres 13 Joint or Infill 14 Consolidation Code 15 Order No. | | | | | | | | | |
| 640 | | | | | | | | | |

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.



I. Operator:

Chevron USA Inc

State of New Mexico Energy, Minerals and Natural Resources Department

Submit Electronically Via E-permitting

Date: <u>11 / 2 / 2021</u>

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

OGRID: 4323

| 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 | | |
| SND 12 01 Fed Com 001 P306 437H | Pending | P-12-24S-31E | 522' FSL, 820' FEL | 2136BBL/D | 3800MCF/D | 3100BBL/D | | |
| SND 12 01 Fed Com 001 P306 438H | Pending | P-12-24S-31E | 522' FSL, 795' FEL | 2136BBL/D | 3800MCF/D | 3100BBL/D | | |
| SND 12 01 Fed Com 001 P306 439H | Pending | P-12-24S-31E | 522' FSL, 770' FEL | 2136BBL/D | 3800MCF/D | 3100BBL/D | | |
| SND 12 01 Fed Com 001 P306 440H | Pending | P-12-24S-31E | 523' FSL, 745' FEL | 2136BBL/D | 3800MCF/D | 3100BBL/D | | |
| IV. Central Delivery Point Name: Sand Dunes CTB 12 [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 | Completion | Initial Flow | First Production |
|------------------------------------|---------|-----------|------------|--------------|--------------|------------------|
| | | | Date | Commencement | Back Date | Date |
| | | | | Date | | |
| SND 12 01 Fed Com 001 P306 437H | Pending | 1/5/2023 | <u>N/A</u> | <u>N/A</u> | <u>N/A</u> | <u>N/A</u> |
| SND 12 01 Fed Com 001 P306 438H | Pending | 1/23/2023 | <u>N/A</u> | <u>N/A</u> | <u>N/A</u> | <u>N/A</u> |
| SND 12 01 Fed Com 001 P306 439H | Pending | 2/10/2023 | <u>N/A</u> | <u>N/A</u> | <u>N/A</u> | <u>N/A</u> |
| SND 12 01 Fed Com 001 P306 440H | Pending | 2/28/2023 | <u>N/A</u> | <u>N/A</u> | <u>N/A</u> | <u>N/A</u> |

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 | | | | | | | | |
|--|--|--|---|------------------|--|--|--|--|
| | 2022, an operator the complete this section | | with its statewide natural ga | as captu | are requirement for the applicable | | | |
| | es that it is not requir t for the applicable re | | ction because Operator is in o | complia | nce with its statewide natural gas | | | |
| IX. Anticipated Nε | atural Gas Productio | on: | | | | | | |
| W | /ell | API | Anticipated Average Natural Gas Rate MCF/D | | Anticipated Volume of Natural Gas for the First Year MCF | | | |
| | | | | | | | | |
| X. Natural Gas Ga | athering System (NG | (GS): | | | | | | |
| Operator | System | ULSTR of Tie-in | Anticipated Gathering Start Date | | lable Maximum Daily Capacity of System Segment Tie-in | | | |
| | | | | | | | | |
| production operation the segment or portion XII. Line Capacity | ons to the existing or p ion of the natural gas y. The natural gas gat | planned interconnect of gathering system(s) to | the natural gas gathering systewhich the well(s) will be com will not have capacity to g | em(s), annected. | d pipeline route(s) connecting the nd the maximum daily capacity of 00% of the anticipated natural gas | | | |
| XIII. Line Pressure. Operator \square does \square 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 <u>Effective May 25, 2021</u>

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: power generation on lease; (a) **(b)** power generation for grid; compression on lease; (c) (d) liquids removal on lease;

- reinjection for underground storage; (e)
- **(f)** reinjection for temporary storage;
- **(g)** reinjection for enhanced oil recovery;
- fuel cell production; and (h)
- other alternative beneficial uses approved by the division. (i)

Section 4 - Notices

- 1. If, at any time after Operator submits this Natural Gas Management Plan and before the well is spud:
- Operator becomes aware that the natural gas gathering system it planned to connect the well(s) to has become (a) 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
- 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.

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: Cindy Herrera-Murillo |
|---|
| Printed Name: Cindy Herrera-Murillo |
| Title: Sr HSE Regulatory affairs Coordinator |
| E-mail Address: eeof@chevron.com |
| Date: 11/4/2021 |
| Phone: 575-263-0431 |
| 373-203-0431 |
| OIL CONSERVATION DIVISION |
| (Only applicable when submitted as a standalone form) |
| Approved By: |
| Title: |
| Approval Date: |
| Conditions of Approval: |
| |
| |
| |
| |
| |
| |

VI. Separation Equipment:

Separation equipment installed at each Chevron facility is designed for maximum anticipated throughput and pressure to minimize waste. Separation equipment is designed and built according to ASME Sec VIII Div I to ensure gas is separated from liquid streams according to projected production.

VII./VIII. Operational & Best Management Practices:

- 1. General Requirements for Venting and Flaring of Natural Gas:
 - In all circumstances, Chevron will flare rather than vent unless flaring is technically infeasible and venting of natural gas will avoid a risk of an immediate and substantial adverse impact on safety, public health, or the environment.
 - Chevron installs and operates vapor recovery units (VRUs) in new facilities to minimize venting and flaring.
 If a VRU experiences operating issues, it is quickly assessed so that action can be taken to return the VRU to operation or, if necessary, facilities are shut-in to reduce the venting or flaring of natural gas.

2. During Drilling Operations:

- Flare stacks will be located a minimum of 110 feet from the nearest surface hole location.
- If an emergency or malfunction occurs, gas will be flared or vented to avoid a risk of an immediate and substantial adverse impact on public health, safety or the environment and be properly reported to the NMOCD pursuant to 19.15.27.8.G.
- Natural gas is captured or combusted if technically feasible using best industry practices and control technologies, such as the use of separators (e.g., Sand Commanders) during normal drilling and completions operations.

3. During Completions:

- Chevron typically does not complete traditional flowback, instead Chevron will flow produced oil, water, and gas to a centralized tank battery and continuously recover salable quality gas. If Chevron completes traditional flowback, Chevron conducts reduced emission completions as required by 40 CFR 60.5375a by routing gas to a gas flow line as soon as practicable once there is enough gas to operate a separator.
 Venting does not occur once there is enough gas to operate a separator
- Normally, during completions a flare is not on-site. A Snubbing Unit will have a flare on-site, and the flare volume will be estimated.
- If natural gas does not meet pipeline quality specification, the gas is sampled twice per week until the gas meets the specifications.

4. During Production:

- An audio, visual and olfactory (AVO) inspection will be performed daily (at minimum) for active wells and
 facilities to confirm that all production equipment is operating properly and there are no leaks or releases
 except as allowed in Subsection D of 19.15.27.8 NMAC. Inactive, temporarily abandoned, or shut-in wells
 and facilities will be inspected weekly. Inspection records will be kept for a minimum of five years and will
 be available upon request by the division.
- Monitor manual liquid unloading for wells on-site, takes all reasonable actions to achieve a stabilized rate
 and pressure at the earliest practical time and takes reasonable actions to minimize venting to the
 maximum extent practicable.
- In all circumstances, Chevron will flare rather than vent unless flaring is technically infeasible and venting of natural gas will avoid a risk of an immediate and substantial adverse impact on safety, public health, or the environment.
- Chevron's design for new facilities utilizes air-activated pneumatic controllers and pumps.
- If natural gas does not meet pipeline quality specification, the gas is sampled twice per week until the gas meets the specifications.
- Chevron does not produce oil or gas until all flowlines, tank batteries, and oil/gas takeaway are installed, tested, and determined operational.

5. Performance Standards

- Equipment installed at each facility is designed for maximum anticipated throughput and pressure to minimize waste. Tank pressure relief systems utilize a soft seated or metal seated PSVs, as appropriate, which are both designed to not leak.
- Flare stack has been designed for proper size and combustion efficiency. New flares will have a
 continuous pilot and will be located at least 100 feet from the well and storage tanks and will be securely
 anchored.
- New tanks will be equipped with an automatic gauging system.
- An audio, visual and olfactory (AVO) inspection will be performed daily (at minimum) for active wells and
 facilities to confirm that all production equipment is operating properly and there are no leaks or releases
 except as allowed in Subsection D of 19.15.27.8 NMAC. Inactive, temporarily abandoned, or shut-in wells
 and facilities will be inspected weekly. Inspection records will be kept for a minimum of five years and will
 be available upon request by the division.

6. Measurement or Estimation of Vented and Flared Natural Gas

- Chevron estimates or measures the volume of natural gas that is vented, flared, or beneficially used during drilling, operations, regardless of the reason or authorization for such venting or flaring.
- Where technically practicable, Chevron will install meters on flares installed after May 25, 2021. Meters
 will conform to industry standards. Bypassing the meter will only occur for inspecting and servicing of the
 meter.

SND 12 01 FED COM 001 P306 440H

Eddy County, NM

Pad Summary: SND P306

The table below lists all the wells for the given pad and their respective name and TVD's (ft) for their production target intervals:

| Well Name(s) | Target TVD | Formation Desc. |
|---------------------------------|------------|-----------------|
| SND 12 01 FED COM 001 P306 437H | 10,638 | Bone Spring |
| SND 12 01 FED COM 001 P306 438H | 10,221 | Bone Spring |
| SND 12 01 FED COM 001 P306 439H | 10,656 | Bone Spring |
| SND 12 01 FED COM 001 P306 440H | 10,223 | Bone Spring |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

1. FORMATION TOPS

The estimated tops of important geologic markers are as follows:

levation: 3583 ft

| FORMATION | TVDSS | TVD | MD | LITHOLOGIES | MIN. RESOURCES | PROD. FORMATION |
|------------------------------|-------|--------|--------|---------------------------|----------------|-----------------|
| Rustler (RSLR) | 2738 | 845 | 845 | Dolomite | N/A | |
| Salado (Top of Salt) | 2383 | 1,200 | 1,200 | Salt | N/A | |
| Castile (CSTL) | 506 | 3,077 | 3,117 | Anhydrite | N/A | |
| Lamar (LMAR) | -1037 | 4,620 | 4,701 | Limestone | N/A | |
| Bell Canyon (BLCN) | -1072 | 4,655 | 4,737 | Sandstone | N/A | |
| Cherry Canyon (CRCN) | -1954 | 5,537 | 5,642 | Sandstone | N/A | |
| Brushy Canyon (BCN) | -3171 | 6,754 | 6,891 | Sandstone | N/A | |
| Bone Spring (BSGL) | -4890 | 8,473 | 8,614 | Limestone | Oil | |
| Upper Avalon (AVN) | -4945 | 8,528 | 8,669 | Limestone/Shale/Sandstone | Oil | |
| Top First Bone Spring (FBS) | -5886 | 9,469 | 9,610 | Sandstone | Oil | |
| Top Second Bone Spring (SBU) | -6562 | 10,145 | 10,300 | Sandstone | Oil | |
| Second Bone Spring Target 1 | -6626 | 10,209 | 10,352 | Sandstone | Oil | |
| Second Bone Spring Carbonate | -6853 | 10,436 | 10,611 | Sandstone | Oil | |
| Top Bone Spring 2 (SBU) | -7021 | 10,604 | 20,373 | Sandstone | Oil | yes |

CONFIDENTIAL -- TIGHT HOLE

PAGE:

DRILLING PLAN

| WELLBORE LOCATIONS | SUB-SEA TVD | RKB TVD | MD |
|--------------------|-------------|---------|--------|
| SHL | 3583 | - | - |
| KOP | -6067 | 9,650 | 9,691 |
| FTP | -6882 | 10,465 | 10,209 |
| LTP | -6644 | 10,227 | 20,298 |

2. ESTIMATED DEPTH OF WATER, OIL, GAS & OTHER MINERAL BEARING FORMATIONS

The estimated depths at which the top and bottom of the anticipated water, oil, gas, or other mineral bearing formations are expected to be encountered are as follows:

| Substance | Formation | Depth |
|--------------|-----------------------------|-------|
| Deepest Expe | 500 | |
| Water | Cherry Canyon | 5,537 |
| Oil/Gas | Bone Spring (BSGL) | 8,473 |
| Oil/Gas | Avalon | 8,528 |
| Oil/Gas | Top First Bone Spring (FBS) | 9,469 |

All shows of fresh water and minerals will be reported and protected.

3. **BOP EQUIPMENT**

Chevron will have a minimum of a 5,000 psi rig stack (see proposed schematic) for drill out below surface casing. The stack will be tested as specified in the attached testing requirements. Batch drilling of the surface, production, and production liner will take place. A full BOP test will be performed per hole section, unless approval from BLM is received otherwise (see variance request below). Flex choke hose will be used for all wells on the pad (see attached specs and variance). BOP test will be conducted by a third party.

Chevron respectfully request to vary from the Onshore Order 2 where it states:

"(A full BOP Test) shall be performed: when initially installed and whenever any seal subject to test pressure is broken."

We propose to break test if able to finish the next hole section within 21 days of the previous full BOP test. No BOP components nor any break will ever surpass 21 days between testing. A break test will consist of a 250 psi low / ≥ 5,000 psi high for 10 min each test against the connection that was broken

Received by OCD: 11/29/2021 9:30:12 AM when skidding the rig. Upon the first nipple up of the pad a full BOP test will be performed. A full BOP test will be completed prior to drilling the production liner hole sections, unless the BOP connection was not broken prior to drilling that hole section (example: drilling straight from production into production liner hole section). A break test will only be performed on operations where BLM documentation states a 5M or less BOP can be utilized. Break Tests will not be performed on Production hole sections.

Chevron requests a variance to use a FMC Technologies UH-S Multibowl wellhead, which will be run through the rig floor on surface casing. BOPE will be nippled up and tested after cementing surface casing. Subsequent tests will be performed as needed, not to exceed 30 days. The field report from FMC Technologies and BOP test information will be provided in a subsequent report at the end of the well. Please see the attached wellhead schematic. An installation manual has been placed on file with the BLM office and remains unchanged from previous submittal. All tests performed by third party.

CONFIDENTIAL -- TIGHT HOLE DRILLING PLAN PAGE: 2

Chevron SND 12 01 FED COM 001 P306 440H Eddy County, NM

4. CASING PROGRAM

a. The proposed casing program will be as follows:

| Purpose | From | То | (TVD) | Hole Size | Csg Size | Weight | Grade | Thread | Condition |
|---------------------|---------|---------|---------|-----------|----------|--------|----------|--------|-----------|
| Surface | 0' | 1,110' | 1,110' | 16" | 13-3/8" | 54.5 # | J-55 | STC | New |
| Intermediate | 0' | 4,701' | 4,620' | 12-1/4" | 9-5/8" | 40# | L-80 | BTC | New |
| Prod/Intermediate 2 | 0' | 9,691' | 9,650' | 8-3/4" | 7" | 29.0 # | P/TN-110 | BLUE | New |
| Production Liner | 9,391' | 10,191' | 10.227' | 6-1/8" | 5" | 18.0 # | P-110 | W513 | New |
| 1 Toddetloff Lifter | 10,191' | 20,373' | 10,221 | 6-1/8" | 4-1/2" | 11.6# | P-110 | W521 | New |

**5" casing ran from TOL to 45 deg. Max OD at connection is 5.00 inches

Chevon will keep casing fluid filled at all times and while RIH. Chevron will check casing at a minimum of every 20 jts (~840') while running intermediate and production casing in order to maintain collapse SF. (and never to surpass 1/3 of casing)

| Casing String | Min SF Burst | Min SF Collapse | Min SF Tension | Min SF Tri-Axial |
|---------------------|--------------|-----------------|----------------|------------------|
| Surface | 1.43 | 2.13 | 4.07 | 1.53 |
| Intermediate | 1.64 | 1.24 | 2.78 | 1.99 |
| Prod/Intermediate 2 | 1.15 | 1.63 | 2.39 | 1.18 |
| Production Liner | 1.10 | 1.39 | 1.32 | 1.16 |

The following worst case load cases were considered for calculation of the above Min. Safety Factors:

| Burst Design | Surf | Int | Int 2 | Prod Lnr |
|---|------|------|-------|----------|
| Pressure Test- Surface, Prod Csg, Prod Liner | | | | |
| P external: Mud weight above TOC, PP below | X | X | X | Х |
| P internal: Test psi + next section heaviest mud in csg | | | | |
| Displace to Gas | | | | |
| P external: Mud weight above TOC, PP below | X | X | X | Х |
| P internal: Dry Gas from Next Csg Point | | | | |
| Gas over mud (60/40) - Prod Csg | | | | |
| P external: Mud weight above TOC, PP below | | X | X | Х |
| P internal: 60% gas over 40% mud from hole TD PP | | | | |
| Stimulation (Frac) Pressures- | | | | |
| P external: Mud weight above TOC, PP below | | | X | Х |
| P internal: Max inj pressure w/ heaviest injected fluid | | | | |
| Tubing leak- Prod Csg (packer at KOP) | | | | |
| P external: Mud weight above TOC, PP below | | X | X | Х |
| P internal: Leak just below surf, 8.45 ppg packer fluid | | | | |
| Collapse Design | Surf | Prod | Prod | Prod |
| Full Evacuation | | | | |
| P external: Mud weight gradient | X | X | X | Х |
| P internal: none | | | | |
| Cementing- Surf, Int, Prod Csg | | | | |
| P external: Wet cement | X | X | X | Х |
| P internal: displacement fluid - water | | | | |
| Tension Design | Surf | Prod | Prod | Prod |
| 50-100k lb overpull | | | | |
| · | X | X | Χ | Х |
| | | | | |

Schlumberger

Chevron SND 12 01 FED COM 001 P306 440H Rev0 RM 23Jul20 Proposal **Geodetic Report**



(Def Plan)

Report Date: July 28, 2020 - 11:07 AM Client: Field: NM Eddy County (NAD 27)

Structure / Slot: Chevron SND 12 01 FED COM 001 P306 / 440H SND 12 01 FED COM 001 P306 440H Well: Borehole: SND 12 01 FED COM 001 P306 440H

UWI / API#:

Unknown / Unknown Chevron SND 12 01 FED COM 001 P306 440H Rev0 RM 23Jul20 Survey Name:

Survey Date:

Tort / AHD / DDI / ERD Ratio: Coordinate Reference System: 111.263 ° / 10888.901 ft / 6.383 / 1.065 NAD27 New Mexico State Plane, Eastern Zone, US Feet

Location Lat / Long: N 32° 13' 33.38751", W 103° 43' 29.69440" Location Grid N/F Y/X N 446449.000 ftUS, E 688144.000 ftUS

CRS Grid Convergence Angle: 0.3245° 0.99994963 Grid Scale Factor: Version / Patch:

2.10.818.0

Minimum Curvature / Lubinski 359.690 ° (Grid North) 0.000 ft, 0.000 ft Survey / DLS Computation: Vertical Section Azimuth: Vertical Section Origin: TVD Reference Datum: RKB = 30 TBD TVD Reference Elevation: 3613.000 ft above MSL Seabed / Ground Elevation: 3583.000 ft above MSL 6.599 ° 998.4295mgn (9.80665 Based) Magnetic Declination:

Total Gravity Field Strength: Gravity Model:

Total Magnetic Field Strength: Magnetic Dip Angle: 47787.301 nT 59.873° Declination Date: July 27, 2020 Magnetic Declination Model: HDGM 2020 Grid North North Reference: Grid Convergence Used: Total Corr Mag North->Grid 0.3245° 6.2748° North:

| Local Coord | Referenced To: | Well Head |
|-------------|----------------|-----------|
| | | |

| Comments | MD (ft) | Incl (°) | Azim Grid (°) | TVD (ft) | VSEC (ft) | NS (ft) | EW (ft) | DLS (°/100ft) | Northing (ftUS) | Easting (ftUS) | Latitude (N/S ° ' ") | Longitude |
|-----------------------|------------|-------------|------------------|-------------|------------------|------------------|------------|------------------|--------------------|----------------|-------------------------|----------------|
| Surface | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | N/A | 446449.00 | | N 32 13 33.39 V | |
| | 100.00 | 0.00 | 128.74 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 446449.00 | | N 32 13 33.39 V | |
| | 200.00 | 0.00 | 128.74 | 200.00 | 0.00 | 0.00 | 0.00 | 0.00 | 446449.00 | | N 32 13 33.39 V | |
| | 300.00 | 0.00 | 128.74 | 300.00 | 0.00 | 0.00 | 0.00 | 0.00 | 446449.00 | | N 32 13 33.39 V | |
| | 400.00 | 0.00 | 128.74 | 400.00 | 0.00 | 0.00 | 0.00 | 0.00 | 446449.00 | | N 32 13 33.39 V | V 103 43 29 69 |
| | 500.00 | 0.00 | 128.74 | 500.00 | 0.00 | 0.00 | 0.00 | 0.00 | 446449.00 | | N 32 13 33.39 V | |
| | 600.00 | 0.00 | 128.74 | 600.00 | 0.00 | 0.00 | 0.00 | 0.00 | 446449.00 | | N 32 13 33.39 V | |
| | 700.00 | 0.00 | 128.74 | 700.00 | 0.00 | 0.00 | 0.00 | 0.00 | 446449.00 | 688144.00 | N 32 13 33.39 V | |
| | 800.00 | 0.00 | 128.74 | 800.00 | 0.00 | 0.00 | 0.00 | 0.00 | 446449.00 | | N 32 13 33.39 V | |
| D (DOL D) | | | | | | | | | | | | |
| Rustler (RSLR) | 845.00 | 0.00 | 128.74 | 845.00 | 0.00 | 0.00 | 0.00 | 0.00 | 446449.00 | | N 32 13 33.39 V | |
| 9 5/8" Casing | 850.00 | 0.00 | 128.74 | 850.00 | 0.00 | 0.00 | 0.00 | 0.00 | 446449.00 | | N 32 13 33.39 V | |
| | 900.00 | 0.00 | 128.74 | 900.00 | 0.00 | 0.00 | 0.00 | 0.00 | 446449.00 | | N 32 13 33.39 V | |
| Build 1.5°/100ft | 950.00 | 0.00 | 128.74 | 950.00 | 0.00 | 0.00 | 0.00 | 0.00 | 446449.00 | | N 32 13 33.39 V | |
| | 1000.00 | 0.75 | 128.74 | 1000.00 | -0.21 | -0.20 | 0.26 | 1.50 | 446448.80 | | N 32 13 33.39 V | |
| | 1100.00 | 2.25 | 128.74 | 1099.96 | -1.86 | -1.84 | 2.30 | 1.50 | 446447.16 | 688146.30 | N 32 13 33.37 V | V 103 43 29.67 |
| | 1200.00 | 3.75 | 128.74 | 1199.82 | -5.15 | -5.12 | 6.38 | 1.50 | 446443.88 | 688150.38 | N 32 13 33.34 V | V 103 43 29.62 |
| | 1300.00 | 5.25 | 128.74 | 1299.51 | -10.09 | -10.03 | 12.50 | 1.50 | 446438.97 | 688156.50 | N 32 13 33.29 V | V 103 43 29.5 |
| | 1400.00 | 6.75 | 128.74 | 1398.96 | -16.68 | -16.57 | 20.65 | 1.50 | 446432.43 | | N 32 13 33.22 V | |
| | 1500.00 | 8.25 | 128.74 | 1498.10 | -24.90 | -24.73 | 30.83 | 1.50 | 446424.27 | | N 32 13 33.14 V | |
| lold | 1590.91 | 9.61 | 128.74 | 1587.90 | -33.79 | -33.57 | 41.84 | 1.50 | 446415.44 | | N 32 13 33.05 V | |
| .0.0 | 1600.00 | 9.61 | 128.74 | 1596.87 | -34.75 | -34.52 | 43.03 | 0.00 | 446414.49 | | N 32 13 33.04 V | |
| | 1700.00 | 9.61 | 128.74 | 1695.46 | -45.27 | -44.97 | 56.05 | 0.00 | 446404.04 | | N 32 13 32.94 V | |
| | 1800.00 | 9.61 | 128.74 | 1794.06 | -45.27 -55.79 | -44.97 -55.42 | 69.08 | 0.00 | 446393.59 | | | |
| | | | | | | | | | | | | |
| | 1900.00 | 9.61 | 128.74 | 1892.66 | -66.31 | -65.87 | 82.11 | 0.00 | 446383.14 | | N 32 13 32.73 V | |
| | 2000.00 | 9.61 | 128.74 | 1991.25 | -76.83 | -76.32 | 95.13 | 0.00 | 446372.69 | | N 32 13 32.63 V | |
| | 2100.00 | 9.61 | 128.74 | 2089.85 | -87.35 | -86.77 | 108.16 | 0.00 | 446362.24 | | N 32 13 32.52 V | |
| | 2200.00 | 9.61 | 128.74 | 2188.44 | -97.87 | -97.22 | 121.19 | 0.00 | 446351.79 | | N 32 13 32.42 V | |
| | 2300.00 | 9.61 | 128.74 | 2287.04 | -108.39 | -107.67 | 134.21 | 0.00 | 446341.34 | | N 32 13 32.31 V | |
| | 2400.00 | 9.61 | 128.74 | 2385.63 | -118.91 | -118.12 | 147.24 | 0.00 | 446330.89 | | N 32 13 32.21 V | V 103 43 27.99 |
| | 2500.00 | 9.61 | 128.74 | 2484.23 | -129.43 | -128.57 | 160.27 | 0.00 | 446320.44 | | N 32 13 32.11 V | N 103 43 27.84 |
| | 2600.00 | 9.61 | 128.74 | 2582.83 | -139.95 | -139.02 | 173.29 | 0.00 | 446309.99 | 688317.29 | N 32 13 32.00 V | V 103 43 27.69 |
| | 2700.00 | 9.61 | 128.74 | 2681.42 | -150.47 | -149.47 | 186.32 | 0.00 | 446299.54 | | N 32 13 31.90 V | |
| | 2800.00 | 9.61 | 128.74 | 2780.02 | -160.99 | -159.92 | 199.35 | 0.00 | 446289.09 | | N 32 13 31.79 V | |
| | 2900.00 | 9.61 | 128.74 | 2878.61 | -171.51 | -170.37 | 212.38 | 0.00 | 446278.64 | | N 32 13 31.69 V | |
| | 3000.00 | 9.61 | 128.74 | 2977.21 | -182.03 | -180.82 | 225.40 | 0.00 | 446268.19 | | N 32 13 31.59 V | |
| | 3100.00 | 9.61 | 128.74 | 3075.80 | -192.55 | -191.27 | 238.43 | 0.00 | 446257.74 | 688382.42 | | |
| Cartilla (CCTL) | | 9.61 | | 3077.00 | -192.68 | -191.39 | 238.59 | 0.00 | 446257.62 | | | |
| Castile (CSTL) | 3101.21 | | 128.74 | | | -191.39 | | | | | | |
| | 3200.00 | 9.61 | 128.74 | 3174.40 | -203.07 | -201.72 | 251.46 | 0.00 | 446247.29 | | N 32 13 31.38 V | |
| | 3300.00 | 9.61 | 128.74 | 3273.00 | -213.59 | -212.17 | 264.48 | 0.00 | 446236.84 | | N 32 13 31.27 V | V 103 43 26.63 |
| | 3400.00 | 9.61 | 128.74 | 3371.59 | -224.11 | -222.62 | 277.51 | 0.00 | 446226.40 | | N 32 13 31.17 V | |
| | 3500.00 | 9.61 | 128.74 | 3470.19 | -234.64 | -233.07 | 290.54 | 0.00 | 446215.95 | | N 32 13 31.06 V | |
| | 3600.00 | 9.61 | 128.74 | 3568.78 | -245.16 | -243.52 | 303.56 | 0.00 | 446205.50 | | N 32 13 30.96 V | |
| | 3700.00 | 9.61 | 128.74 | 3667.38 | -255.68 | -253.97 | 316.59 | 0.00 | 446195.05 | 688460.57 | N 32 13 30.86 V | |
| | 3800.00 | 9.61 | 128.74 | 3765.97 | -266.20 | -264.42 | 329.62 | 0.00 | 446184.60 | 688473.60 | N 32 13 30.75 V | V 103 43 25.87 |
| | 3900.00 | 9.61 | 128.74 | 3864.57 | -276.72 | -274.87 | 342.64 | 0.00 | 446174.15 | 688486.62 | N 32 13 30.65 V | V 103 43 25.72 |
| | 4000.00 | 9.61 | 128.74 | 3963.16 | -287.24 | -285.32 | 355.67 | 0.00 | 446163.70 | 688499.65 | N 32 13 30.54 V | V 103 43 25.5 |
| | 4100.00 | 9.61 | 128.74 | 4061.76 | -297.76 | -295.77 | 368.70 | 0.00 | 446153.25 | | N 32 13 30.44 V | |
| rop 1.5°/100ft | 4150.02 | 9.61 | 128.74 | 4111.08 | -303.02 | -300.99 | 375.21 | 0.00 | 446148.02 | 688519.19 | N 32 13 30.39 V | |
| 10p 1.0 / 1001t | 4200.00 | 8.86 | 128.74 | 4160.41 | -308.07 | -306.01 | 381.47 | 1.50 | 446143.00 | | N 32 13 30.34 V | |
| | 4300.00 | 7.36 | 128.74 | 4259.41 | -316.97 | -314.85 | 392.48 | 1.50 | 446134.17 | | N 32 13 30.25 V | N 103 43 25.21 |
| | 4400.00 | 5.86 | 128.74 | 4358.74 | -324.22 | -322.05 | 401.46 | 1.50 | 446126.96 | | N 32 13 30.18 V | |
| | 4500.00 | 4.36 | 128.74 | 4458.34 | -329.84 | | 401.40 | 1.50 | | | N 32 13 30.10 V | |
| | | | | | | -327.63 | 408.42 | | 446121.39 | | | |
| | 4600.00 | 2.86 | 128.74 | 4558.13 | -333.81 | -331.57 | 413.33 | 1.50 | 446117.44 | | N 32 13 30.08 V | |
| amar (LMAR) | 4661.92 | 1.94 | 128.74 | 4620.00 | -335.44 | -333.20 | 415.36 | 1.50 | 446115.82 | 688559.33 | N 32 13 30.07 V | V 103 43 24.88 |
| Bell Canyon | 4696.94 | 1.41 | 128.74 | 4655.00 | -336.08 | -333.84 | 416.15 | 1.50 | 446115.18 | 688560 12 | N 32 13 30.06 V | V 103 43 24 9 |
| BLCN) | | | | | | | | | | | | |
| | 4700.00 | 1.36 | 128.74 | 4658.06 | -336.13 | -333.88 | 416.21 | 1.50 | 446115.13 | | N 32 13 30.06 V | |
| old Vertical | 4790.93 | 0.00 | 128.74 | 4748.98 | -336.81 | -334.56 | 417.06 | 1.50 | 446114.46 | | N 32 13 30.05 V | |
| | 4800.00 | 0.00 | 128.74 | 4758.05 | -336.81 | -334.56 | 417.06 | 0.00 | 446114.46 | | N 32 13 30.05 V | |
| | 4900.00 | 0.00 | 128.74 | 4858.05 | -336.81 | -334.56 | 417.06 | 0.00 | 446114.46 | | N 32 13 30.05 V | |
| | 5000.00 | 0.00 | 128.74 | 4958.05 | -336.81 | -334.56 | 417.06 | 0.00 | 446114.46 | 688561.03 | N 32 13 30.05 V | V 103 43 24 8 |
| | 5100.00 | 0.00 | 128.74 | 5058.05 | -336.81 | -334.56 | 417.06 | 0.00 | 446114.46 | | N 32 13 30.05 V | |
| | 5200.00 | 0.00 | 128.74 | 5158.05 | -336.81 | -334.56 | 417.06 | 0.00 | 446114.46 | | N 32 13 30.05 V | |
| | | | | | | | | | | | | |
| | 5300.00 | 0.00 | 128.74 | 5258.05 | -336.81 | -334.56 | 417.06 | 0.00 | 446114.46 | | N 32 13 30.05 V | |
| | 5400.00 | 0.00 | 128.74 | 5358.05 | -336.81 | -334.56 | 417.06 | | 446114.46 | | N 32 13 30.05 V | |
| | 5500.00 | 0.00 | 128.74 | 5458.05 | -336.81 | -334.56 | 417.06 | 0.00 | 446114.46 | 688561.03 | N 32 13 30.05 V | v 103 43 24.8 |
| herry Canyon CRCN) | 5578.95 | 0.00 | 128.74 | 5537.00 | -336.81 | -334.56 | 417.06 | 0.00 | 446114.46 | | N 32 13 30.05 V | |
| | 5600.00 | 0.00 | 128.74 | 5558.05 | -336.81 | -334.56 | 417.06 | 0.00 | 446114.46 | 688561.03 | N 32 13 30.05 V | V 103 43 24.8 |
| | 5700.00 | 0.00 | 128.74 | 5658.05 | -336.81 | -334.56 | 417.06 | 0.00 | 446114.46 | | N 32 13 30.05 V | |
| | 5800.00 | 0.00 | 128.74 | 5758.05 | -336.81 | -334.56 | 417.06 | 0.00 | 446114.46 | | N 32 13 30.05 V | |
| | 5900.00 | 0.00 | 128.74 | 5858.05 | -336.81 | -334.56 | 417.06 | 0.00 | 446114.46 | | N 32 13 30.05 V | |
| | 6000.00 | 0.00 | 128.74 | 5958.05 | -336.81 | -334.56 | 417.06 | 0.00 | 446114.46 | | N 32 13 30.05 V | |
| | 6100.00 | 0.00 | 128.74 | 6058.05 | -336.81 | -334.56 | 417.06 | 0.00 | 446114.46 | | N 32 13 30.05 V | |
| | | | | | | | | | | | | |
| | 6200.00 | 0.00 | 128.74 | 6158.05 | -336.81 | -334.56 | 417.06 | 0.00 | 446114.46 | | N 32 13 30.05 V | |
| | 6300.00 | 0.00 | 128.74 | 6258.05 | -336.81 | -334.56 | 417.06 | 0.00 | 446114.46 | | N 32 13 30.05 V | |
| | 6400.00 | 0.00 | 128.74 | 6358.05 | -336.81 | -334.56 | 417.06 | 0.00 | 446114.46 | | N 32 13 30.05 V | |
| | 6500.00 | 0.00 | 128.74 | 6458.05 | -336.81 | -334.56 | 417.06 | 0.00 | 446114.46 | 000504.00 | N 32 13 30.05 V | |

Drilling Office 2.10.818.0 ...SND 12 01 FED COM 001 P306 440H\Chevron SND 12 01 FED COM 001 P306 440H Rev0 RM 23Jul20 1/11/2021 3:59 PM Page 1 of 3

| Comments | MD (ft) | Incl (°) | Azim Grid (°) | TVD (ft) | VSEC (ft) | NS (ft) | EW (ft) | DLS (°/100ft) | Northing (ftUS) | Easting (ftUS) | Latitude (N/S ° ' ") | Longitude (E/W ° ' " |
|-----------------------------------|----------------------------------|----------------|------------------|----------------------|--------------------|--------------------|------------------|------------------|------------------------|-------------------|--------------------------------|----------------------------------|
| | 6600.00 6700.00 | 0.00 0.00 | 128.74 128.74 | 6558.05 6658.05 | -336.81 -336.81 | -334.56 -334.56 | 417.06 417.06 | 0.00 0.00 | 446114.46 446114.46 | 688561.03 | | W 103 43 24.86 W 103 43 24.86 |
| Brushy Canyon | | | | | | | | | | | | |
| BCN) | 6795.95 | 0.00 | 128.74 | 6754.00 | -336.81 | -334.56 | 417.06 | 0.00 | 446114.46 | | | W 103 43 24.86 |
| | 6800.00 6900.00 | 0.00 0.00 | 128.74 128.74 | 6758.05 6858.05 | -336.81 -336.81 | -334.56 -334.56 | 417.06 417.06 | 0.00 0.00 | 446114.46 446114.46 | | | W 103 43 24.86 W 103 43 24.86 |
| | 7000.00 | 0.00 | 128.74 | 6958.05 | -336.81 | -334.56 | 417.06 | 0.00 | 446114.46 | 688561.03 | N 32 13 30.05 | W 103 43 24.86 |
| | 7100.00 | 0.00 | 128.74 | 7058.05 | -336.81 | -334.56 | 417.06 | 0.00 | 446114.46 | | | W 103 43 24.86 |
| | 7200.00 7300.00 | 0.00 0.00 | 128.74 128.74 | 7158.05 7258.05 | -336.81 -336.81 | -334.56 -334.56 | 417.06 417.06 | 0.00 0.00 | 446114.46 446114.46 | | | W 103 43 24.86 W 103 43 24.86 |
| | 7400.00 | 0.00 | 128.74 | 7358.05 | -336.81 | -334.56 | 417.06 | 0.00 | 446114.46 | | | W 103 43 24.86 |
| | 7500.00 | 0.00 | 128.74 | 7458.05 | -336.81 | -334.56 | 417.06 | 0.00 | 446114.46 | | | W 103 43 24.86 |
| | 7600.00 7700.00 | 0.00 0.00 | 128.74 128.74 | 7558.05 7658.05 | -336.81 -336.81 | -334.56 -334.56 | 417.06 417.06 | 0.00 | 446114.46 446114.46 | | | W 103 43 24.86 W 103 43 24.86 |
| | 7800.00 | 0.00 | 128.74 | 7758.05 | -336.81 | -334.56 | 417.06 | 0.00 | 446114.46 | | | W 103 43 24.86 |
| | 7900.00 | 0.00 | 128.74 | 7858.05 | -336.81 | -334.56 | 417.06 | 0.00 | 446114.46 | | | W 103 43 24.86 |
| | 8000.00 8100.00 | 0.00 0.00 | 128.74 128.74 | 7958.05 8058.05 | -336.81 -336.81 | -334.56 -334.56 | 417.06 417.06 | 0.00 0.00 | 446114.46 446114.46 | | | W 103 43 24.86 W 103 43 24.86 |
| | 8200.00 | 0.00 | 128.74 | 8158.05 | -336.81 | -334.56 | 417.06 | 0.00 | 446114.46 | | | W 103 43 24.86 |
| | 8300.00 | 0.00 | 128.74 | 8258.05 | -336.81 | -334.56 | 417.06 | 0.00 | 446114.46 | | | W 103 43 24.86 |
| | 8400.00 8500.00 | 0.00 0.00 | 128.74 128.74 | 8358.05 8458.05 | -336.81 -336.81 | -334.56 -334.56 | 417.06 417.06 | 0.00 0.00 | 446114.46 446114.46 | | | W 103 43 24.86 W 103 43 24.86 |
| Bone Spring | | | | | | | | | | | | |
| BSGL) | 8514.95 | 0.00 | 128.74 | 8473.00 | -336.81 | -334.56 | 417.06 | 0.00 | 446114.46 | | | W 103 43 24.86 |
| 7" Casing | 8541.95 | 0.00 | 128.74 | 8500.00 | -336.81 | -334.56 | 417.06 | 0.00 | 446114.46 | 688561.03 | N 32 13 30.05 | W 103 43 24.86 |
| Jpper Avalon (AVN) | 8569.95 | 0.00 | 128.74 | 8528.00 | -336.81 | -334.56 | 417.06 | 0.00 | 446114.46 | 688561.03 | N 32 13 30.05 | W 103 43 24.86 |
| AVIV) | 8600.00 | 0.00 | 128.74 | 8558.05 | -336.81 | -334.56 | 417.06 | 0.00 | 446114.46 | 688561.03 | N 32 13 30.05 | W 103 43 24.86 |
| | 8700.00 | 0.00 | 128.74 | 8658.05 | -336.81 | -334.56 | 417.06 | 0.00 | 446114.46 | 688561.03 | N 32 13 30.05 | W 103 43 24.86 |
| | 8800.00 | 0.00 | 128.74 | 8758.05 | -336.81 | -334.56 | 417.06 | 0.00 | 446114.46 | | | W 103 43 24.86 |
| | 8900.00 9000.00 | 0.00 0.00 | 128.74 128.74 | 8858.05 8958.05 | -336.81 -336.81 | -334.56 -334.56 | 417.06 417.06 | 0.00 0.00 | 446114.46 446114.46 | | N 32 13 30.05 N 32 13 30.05 | |
| | 9100.00 | 0.00 | 128.74 | 9058.05 | -336.81 | -334.56 | 417.06 | 0.00 | 446114.46 | 688561.03 | N 32 13 30.05 | W 103 43 24.86 |
| | 9200.00 | 0.00 | 128.74 | 9158.05 | -336.81 | -334.56 | 417.06 | 0.00 | 446114.46 | 688561.03 | N 32 13 30.05 | W 103 43 24.86 |
| | 9300.00 | 0.00 | 128.74 | 9258.05 | -336.81 | -334.56 | 417.06 | 0.00 | 446114.46 | | N 32 13 30.05 | |
| | 9400.00 9500.00 | 0.00 0.00 | 128.74 128.74 | 9358.05 9458.05 | -336.81 -336.81 | -334.56 -334.56 | 417.06 417.06 | 0.00 0.00 | 446114.46 446114.46 | | N 32 13 30.05 N 32 13 30.05 | W 103 43 24.86 W 103 43 24.86 |
| op First Bone | | | | | | | | | | | | |
| Spring (FBS) | 9510.95 | 0.00 | 128.74 | 9469.00 | -336.81 | -334.56 | 417.06 | 0.00 | 446114.46 | | | W 103 43 24.86 |
| OD Build | 9600.00 | 0.00 | 128.74 | 9558.05 | -336.81 | -334.56 | 417.06 | 0.00 | 446114.46 | | | W 103 43 24.86 |
| (OP, Build 10°/100ft | 9691.99 | 0.00 | 128.74 | 9650.04 | -336.81 | -334.56 | 417.06 | 0.00 | 446114.46 | 688561.03 | N 32 13 30.05 | W 103 43 24.86 |
| 10 7 10011 | 9700.00 | 0.80 | 359.68 | 9658.05 | -336.76 | -334.50 | 417.05 | 10.00 | 446114.51 | 688561.03 | N 32 13 30.05 | W 103 43 24.86 |
| | 9800.00 | 10.80 | 359.68 | 9757.42 | -326.66 | -324.41 | 417.00 | 10.00 | 446124.61 | 688560.98 | N 32 13 30.15 | W 103 43 24.86 |
| | 9900.00 | 20.80 | 359.68 | 9853.52 | -299.46 | -297.21 | 416.85 | 10.00 | 446151.80 446195.27 | | | W 103 43 24.86 |
| | 10000.00 10100.00 | 30.80 40.80 | 359.68 359.68 | 9943.43 10024.43 | -256.00 -197.57 | -253.74 -195.32 | 416.61 416.28 | 10.00 10.00 | 446253.69 | | | W 103 43 24.86 W 103 43 24.86 |
| | 10200.00 | 50.80 | 359.68 | 10094.06 | -125.97 | -123.72 | 415.88 | 10.00 | 446325.28 | | | W 103 43 24.86 |
| Top Second Bone Spring SBU) | 10289.52 | 59.75 | 359.68 | 10145.00 | -52.47 | -50.22 | 415.47 | 10.00 | 446398.78 | 688559.45 | N 32 13 32.87 | W 103 43 24.86 |
| / | 10300.00 | 60.80 | 359.68 | 10150.20 | -43.37 | -41.12 | 415.42 | 10.00 | 446407.88 | 688559.40 | N 32 13 32.96 | W 103 43 24.86 |
| | 10400.00 | 70.80 | 359.68 | 10191.13 | 47.73 | 49.98 | 414.92 | 10.00 | 446498.97 | 688558.89 | N 32 13 33.86 | W 103 43 24.86 |
| Second Bone Spring Target 1 | 10465.07 | 77.31 | 359.68 | 10209.00 | 110.26 | 112.51 | 414.57 | 10.00 | 446561.50 | 688558.55 | N 32 13 34.48 | W 103 43 24.86 |
| Spring Target 1 | 10500.00 | 80.80 | 359.68 | 10215.63 | 144.55 | 146.80 | 414.38 | 10.00 | 446595.79 | 688558.36 | N 32 13 34.82 | W 103 43 24.86 |
| anding Point | 10592.28 | 90.03 | 359.68 | 10223.00 | 236.44 | 238.68 | 413.87 | 10.00 | 446687.67 | 688557.85 | | W 103 43 24.86 |
| | 10600.00 | 90.03 | 359.68 | 10223.00 | 244.16 | 246.40 | 413.82 | 0.00 | 446695.39 | | | W 103 43 24.86 |
| | 10700.00 10800.00 | 90.03 90.03 | 359.68 359.68 | 10222.94 10222.89 | 344.16 444.16 | 346.40 446.40 | 413.27 412.71 | 0.00 0.00 | 446795.38 446895.37 | | | W 103 43 24.86 W 103 43 24.86 |
| | 10900.00 | 90.03 | 359.68 | 10222.84 | 544.16 | 546.40 | 412.16 | 0.00 | 446995.37 | | | W 103 43 24.86 |
| | 11000.00 | 90.03 | 359.68 | 10222.79 | 644.16 | 646.40 | 411.60 | 0.00 | 447095.36 | | | W 103 43 24.86 |
| | 11100.00 11200.00 | 90.03 90.03 | 359.68 359.68 | 10222.74 10222.69 | 744.16 844.16 | 746.39 846.39 | 411.04 410.49 | 0.00 | 447195.35 447295.35 | | | W 103 43 24.86 W 103 43 24.86 |
| | 11300.00 | 90.03 | 359.68 | 10222.69 | 944.16 | 946.39 | 409.93 | 0.00 | 447395.34 | | N 32 13 41.74 N 32 13 42.73 | |
| | 11400.00 | 90.03 | 359.68 | 10222.59 | 1044.16 | 1046.39 | 409.38 | 0.00 | 447495.33 | 688553.35 | N 32 13 43.72 | W 103 43 24.86 |
| | 11500.00 | 90.03 | 359.68 | 10222.53 | 1144.16 | 1146.39 | 408.82 | 0.00 | 447595.33 | | | W 103 43 24.86 |
| | 11600.00 11700.00 | 90.03 90.03 | 359.68 359.68 | 10222.48 10222.43 | 1244.16 1344.16 | 1246.39 1346.38 | 408.26 407.71 | 0.00 0.00 | 447695.32 447795.31 | | N 32 13 45.70 N 32 13 46.69 | |
| | 11800.00 | 90.03 | 359.68 | 10222.38 | 1444.16 | 1446.38 | 407.15 | 0.00 | 447895.31 | | N 32 13 47.68 | |
| | 11900.00 | 90.03 | 359.68 | 10222.33 | 1544.16 | 1546.38 | 406.60 | 0.00 | 447995.30 | 688550.57 | N 32 13 48.67 | W 103 43 24.86 |
| | 12000.00 12100.00 | 90.03 90.03 | 359.68 359.68 | 10222.28 10222.23 | 1644.16 1744.16 | 1646.38 | 406.04 405.48 | 0.00 0.00 | 448095.29 448195.29 | | N 32 13 49.66 N 32 13 50.65 | |
| | 12100.00 | 90.03 | 359.68 | 10222.23 | 1744.16 | 1746.38 1846.38 | 405.48 404.93 | 0.00 | 448195.29 | | N 32 13 50.65 N 32 13 51.64 | |
| | 12300.00 | 90.03 | 359.68 | 10222.12 | 1944.16 | 1946.37 | 404.37 | 0.00 | 448395.27 | 688548.35 | N 32 13 52.62 | W 103 43 24.86 |
| | 12400.00 | 90.03 | 359.68 | 10222.07 | 2044.16 | 2046.37 | 403.81 | 0.00 | 448495.27 | | N 32 13 53.61 | |
| P1, Build | 12500.00 | 90.03 | 359.68 | 10222.02 | 2144.16 | 2146.37 | 403.26 | 0.00 | 448595.26 | | N 32 13 54.60 | |
| °/100ft | 12542.74 | 90.03 | 359.68 | 10222.00 | 2186.90 | 2189.11 | 403.02 | 0.00 | 448638.00 | | N 32 13 55.03 | |
| lold | 12566.16 | 90.50 | 359.66 | 10221.89 | 2210.31 | 2212.53 | 402.89 | 2.00 | 448661.41 | | N 32 13 55.26 | |
| | 12600.00 | 90.50 | 359.66 359.66 | 10221.60 | 2244.16 | 2246.37 | 402.68 | 0.00 | 448695.25 | | N 32 13 55.59 N 32 13 56.58 | |
| | 12700.00 12800.00 | 90.50 90.50 | 359.66 359.66 | 10220.73 10219.86 | 2344.15 2444.15 | 2346.36 2446.36 | 402.08 401.48 | 0.00 0.00 | 448795.24 448895.23 | | N 32 13 56.58 N 32 13 57.57 | |
| | 12900.00 | 90.50 | 359.66 | 10219.00 | 2544.15 | 2546.35 | 400.88 | 0.00 | 448995.22 | 688544.86 | N 32 13 58.56 | W 103 43 24.8 |
| | 13000.00 | 90.50 | 359.66 | 10218.13 | 2644.14 | 2646.35 | 400.27 | 0.00 | 449095.21 | | N 32 13 59.55 | |
| | 13100.00 13200.00 | 90.50 90.50 | 359.66 359.66 | 10217.26 10216.40 | 2744.14 2844.13 | 2746.34 2846.34 | 399.67 399.07 | 0.00 0.00 | 449195.20 449295.19 | | N 32 14 0.54 N 32 14 1.53 | |
| | 13300.00 | 90.50 | 359.66 | 10215.53 | 2944.13 | 2946.33 | 398.47 | 0.00 | 449395.18 | | N 32 14 1.55 N 32 14 2.52 | |
| | 13400.00 | 90.50 | 359.66 | 10214.66 | 3044.13 | 3046.32 | 397.87 | 0.00 | 449495.16 | 688541.85 | N 32 14 3.51 | W 103 43 24.8 |
| | 13500.00 | 90.50 | 359.66 | 10213.79 | 3144.12 | 3146.32 | 397.27 | 0.00 | 449595.15 | | N 32 14 4.50 | |
| | 13600.00 13700.00 | 90.50 90.50 | 359.66 359.66 | 10212.93 10212.06 | 3244.12 3344.12 | 3246.31 3346.31 | 396.66 396.06 | 0.00 0.00 | 449695.14 449795.13 | | N 32 14 5.49 N 32 14 6.48 | |
| P2, Build | 13706.87 | 90.50 | 359.66 | 10212.00 | 3350.98 | 3353.18 | 396.02 | 0.00 | 449802.00 | | N 32 14 6.55 | |
| 2/100ft | | | | | | | | | | | | |
| lold | 13722.10 13800.00 | 90.79 90.79 | 359.72 359.72 | 10211.83 10210.75 | 3366.22 3444.11 | 3368.41 3446.30 | 395.94 395.56 | 2.00 0.00 | 449817.23 449895.12 | | N 32 14 6.70 N 32 14 7.47 | |
| | 13900.00 | 90.79 | 359.72 359.72 | 10210.75 | 3544.11 3544.10 | 3446.30 3546.29 | 395.56 | 0.00 | 449895.12 449995.10 | | N 32 14 7.47 N 32 14 8.46 | |
| econd Bone | 13926.23 | 90.79 | 359.72 | 10209.00 | 3570.32 | | 394.95 | 0.00 | 450021.32 | | N 32 14 8.72 | |
| pring Target 1 | | | | | | 3572.51 | | | | | | |
| | 14000.00 | 90.79 | 359.72 359.72 | 10207.98 | 3644.09 | 3646.28 | 394.59 | 0.00 | 450095.08 | | N 32 14 9.45 | |
| | 14100.00 14200.00 | 90.79 90.79 | 359.72 359.72 | 10206.59 10205.21 | 3744.08 3844.07 | 3746.26 3846.25 | 394.11 393.63 | 0.00 0.00 | 450195.07 450295.05 | | N 32 14 10.44 N 32 14 11.43 | |
| | 14300.00 | 90.79 | 359.72 | 10203.21 | 3944.06 | 3946.24 | 393.14 | 0.00 | 450395.04 | | N 32 14 11.43 N 32 14 12.41 | |
| | 14400.00 | 90.79 | 359.72 | 10202.44 | 4044.05 | 4046.23 | 392.66 | 0.00 | 450495.02 | 688536.64 | N 32 14 13.40 | W 103 43 24.86 |
| | | 90.79 | 359.72 | 10201.05 | 4144.04 | 4146.22 | 392.18 | 0.00 | 450595.00 | 688536.16 | N 32 14 14.39 | W 103 43 24 8 |
| | 14500.00 | | | | | | | 0.00 | | | | |
| | 14500.00 14600.00 14700.00 | 90.79 90.79 | 359.72 359.72 | 10199.66 10198.28 | 4244.03 4344.02 | 4246.21 4346.20 | 391.69 391.21 | 0.00 | 450694.99 450794.97 | 688535.67 | N 32 14 15.38 | W 103 43 24.85 W 103 43 24.85 |

| Comments | MD (ft) | Incl (°) | Azim Grid | TVD (ft) | VSEC (ft) | NS (ft) | EW (ft) | DLS (°/100ft) | Northing (ftUS) | Easting (ftUS) | Latitude (N/S ° ' ") | Longitude (E/W ° ' ") |
|--|----------------------|----------------|------------------|----------------------|--------------------|--------------------|------------------|------------------|------------------------|-------------------|------------------------------------|----------------------------------|
| | 14900.00 | 90.79 | 359.72 | 10195.51 | 4544.00 | 4546.18 | 390.24 | 0.00 | 450994.94 | | | W 103 43 24.85 |
| | 15000.00 | 90.79 | 359.72 | 10194.12 | 4643.99 | 4646.17 | 389.76 | 0.00 | 451094.92 | | N 32 14 19.34 V | |
| | 15100.00 | 90.79 | 359.72 | 10192.74 | 4743.98 | 4746.16 | 389.28 | 0.00 | 451194.91 | | N 32 14 20.33 \ | |
| IFP3, Drop | 15153.10 | 90.79 | 359.72 | 10192.00 | 4797.08 | 4799.25 | 389.02 | 0.00 | 451248.00 | | N 32 14 20.86 \ | |
| 2°/100ft | | | | | | | | | | | | |
| 11.14 | 15200.00 15211.02 | 89.86 89.64 | 359.70 359.69 | 10191.73 10191.78 | 4843.98 4854.99 | 4846.15 4857.17 | 388.78 388.72 | 2.00 2.00 | 451294.90 451305.91 | | N 32 14 21.32 N N 32 14 21.43 N | N 103 43 24.85 |
| Hold | 15300.00 | 89.64 | | 10191.76 | 4943.97 | 4946.15 | 388.25 | 0.00 | 451394.89 | | | |
| | 15400.00 | 89.64 | 359.69 359.69 | 10192.35 | 5043.97 | 5046.14 | 387.71 | 0.00 | 451494.88 | | | N 103 43 24.85 N 103 43 24.85 |
| | 15500.00 | 89.64 | 359.69 | 10193.62 | 5143.97 | 5146.14 | 387.17 | 0.00 | 451594.87 | | N 32 14 24.29 V | |
| | 15600.00 | 89.64 | 359.69 | 10194.25 | 5243.97 | 5246.14 | 386.64 | 0.00 | 451694.86 | | | W 103 43 24.85 |
| | 15700.00 | 89.64 | 359.69 | 10194.89 | 5343.97 | 5346.13 | 386.10 | 0.00 | 451794.85 | | | W 103 43 24.85 |
| | 15800.00 | 89.64 | 359.69 | 10195.53 | 5443.96 | 5446.13 | 385.56 | 0.00 | 451894.84 | | | W 103 43 24.85 |
| | 15900.00 | 89.64 | 359.69 | 10196.16 | 5543.96 | 5546.13 | 385.03 | 0.00 | 451994.84 | 688529.01 | N 32 14 28.25 V | W 103 43 24.85 |
| | 16000.00 | 89.64 | 359.69 | 10196.80 | 5643.96 | 5646.12 | 384.49 | 0.00 | 452094.83 | 688528.47 | N 32 14 29.24 V | W 103 43 24.85 |
| | 16100.00 | 89.64 | 359.69 | 10197.43 | 5743.96 | 5746.12 | 383.95 | 0.00 | 452194.82 | | | W 103 43 24.85 |
| | 16200.00 | 89.64 | 359.69 | 10198.07 | 5843.96 | 5846.12 | 383.41 | 0.00 | 452294.81 | | | W 103 43 24.84 |
| | 16300.00 | 89.64 | 359.69 | 10198.70 | 5943.95 | 5946.11 | 382.88 | 0.00 | 452394.80 | | | W 103 43 24.84 |
| | 16400.00 | 89.64 | 359.69 | 10199.34 | 6043.95 | 6046.11 | 382.34 | 0.00 | 452494.79 | | | W 103 43 24.84 |
| | 16500.00 | 89.64 | 359.69 | 10199.97 | 6143.95 | 6146.10 | 381.80 | 0.00 | 452594.78 | | N 32 14 34.18 V | |
| | 16600.00 16700.00 | 89.64 89.64 | 359.69 359.69 | 10200.61 10201.24 | 6243.95 6343.95 | 6246.10 6346.10 | 381.27 380.73 | 0.00 0.00 | 452694.77 452794.77 | | | N 103 43 24.84 N 103 43 24.84 |
| | 16800.00 | 89.64 | 359.69 | 10201.24 | 6443.94 | 6446.09 | 380.19 | 0.00 | 452794.77 452894.76 | | N 32 14 30.16 N | |
| | 16900.00 | 89.64 | 359.69 | 10201.66 | 6543.94 | 6546.09 | 379.66 | 0.00 | 452994.75 | | | W 103 43 24.84 |
| | 17000.00 | 89.64 | 359.69 | 10203.15 | 6643.94 | 6646.09 | 379.12 | 0.00 | 453094.74 | | | W 103 43 24.84 |
| | 17100.00 | 89.64 | 359.69 | 10203.79 | 6743.94 | 6746.08 | 378.58 | 0.00 | 453194.73 | | | W 103 43 24.84 |
| | 17200.00 | 89.64 | 359.69 | 10204.42 | 6843.93 | 6846.08 | 378.04 | 0.00 | 453294.72 | | | W 103 43 24.84 |
| | 17300.00 | 89.64 | 359.69 | 10205.06 | 6943.93 | 6946.08 | 377.51 | 0.00 | 453394.71 | | | W 103 43 24.84 |
| | 17400.00 | 89.64 | 359.69 | 10205.69 | 7043.93 | 7046.07 | 376.97 | 0.00 | 453494.70 | 688520.95 | N 32 14 43.09 N | W 103 43 24.84 |
| | 17500.00 | 89.64 | 359.69 | 10206.33 | 7143.93 | 7146.07 | 376.43 | 0.00 | 453594.70 | 688520.41 | N 32 14 44.08 N | W 103 43 24.84 |
| | 17600.00 | 89.64 | 359.69 | 10206.96 | 7243.93 | 7246.07 | 375.90 | 0.00 | 453694.69 | | | W 103 43 24.84 |
| | 17700.00 | 89.64 | 359.69 | 10207.60 | 7343.92 | 7346.06 | 375.36 | 0.00 | 453794.68 | 688519.34 | N 32 14 46.06 V | W 103 43 24.84 |
| IFP4, Drop 2°/100ft | 17763.33 | 89.64 | 359.69 | 10208.00 | 7407.25 | 7409.39 | 375.02 | 0.00 | 453858.00 | 688519.00 | N 32 14 46.68 V | W 103 43 24.84 |
| Hold | 17767.08 | 89.56 | 359.69 | 10208.03 | 7411.00 | 7413.14 | 375.00 | 2.00 | 453861.75 | | | W 103 43 24.84 |
| | 17800.00 | 89.56 | 359.69 | 10208.28 | 7443.92 | 7446.06 | 374.82 | 0.00 | 453894.67 | 688518.80 | N 32 14 47.05 \ | W 103 43 24.84 |
| Second Bone Spring Target 1 | 17894.14 | 89.56 | 359.69 | 10209.00 | 7538.06 | 7540.20 | 374.32 | 0.00 | 453988.80 | 688518.30 | N 32 14 47.98 I | N 103 43 24.84 |
| -pgg | 17900.00 | 89.56 | 359.69 | 10209.04 | 7543.92 | 7546.06 | 374.29 | 0.00 | 453994.66 | 688518.27 | N 32 14 48.04 \ | W 103 43 24.84 |
| | 18000.00 | 89.56 | 359.69 | 10209.81 | 7643.92 | 7646.05 | 373.75 | 0.00 | 454094.65 | | | W 103 43 24.84 |
| | 18100.00 | 89.56 | 359.69 | 10210.58 | 7743.91 | 7746.05 | 373.21 | 0.00 | 454194.64 | | | W 103 43 24.84 |
| | 18200.00 | 89.56 | 359.69 | 10211.34 | 7843.91 | 7846.04 | 372.68 | 0.00 | 454294.63 | | | W 103 43 24.84 |
| | 18300.00 | 89.56 | 359.69 | 10212.11 | 7943.91 | 7946.04 | 372.14 | 0.00 | 454394.62 | | | W 103 43 24.84 |
| | 18400.00 | 89.56 | 359.69 | 10212.88 | 8043.90 | 8046.03 | 371.60 | 0.00 | 454494.61 | | | W 103 43 24.84 |
| | 18500.00 | 89.56 | 359.69 | 10213.64 | 8143.90 | 8146.03 | 371.07 | 0.00 | 454594.60 | | N 32 14 53.97 V | |
| | 18600.00 | 89.56 | 359.69 | 10214.41 | 8243.90 | 8246.02 | 370.53 | 0.00 | 454694.59 | | N 32 14 54.96 V | |
| | 18700.00 18800.00 | 89.56 89.56 | 359.69 359.69 | 10215.18 10215.94 | 8343.90 8443.89 | 8346.02 8446.02 | 370.00 369.46 | 0.00 | 454794.58 454894.57 | | N 32 14 55.95 N N 32 14 56.94 N | N 103 43 24.84 |
| | 18900.00 | 89.56 | 359.69 | 10216.71 | 8543.89 | 8546.01 | 368.92 | 0.00 | 454994.56 | | | W 103 43 24.84 |
| | 19000.00 | 89.56 | 359.69 | 10217.47 | 8643.89 | 8646.01 | 368.39 | 0.00 | 455094.55 | | | W 103 43 24.84 W 103 43 24.83 |
| | 19100.00 | 89.56 | 359.69 | 10218.24 | 8743.88 | 8746.00 | 367.85 | 0.00 | 455194.54 | | | W 103 43 24.83 |
| | 19200.00 | 89.56 | 359.69 | 10219.01 | 8843.88 | 8846.00 | 367.31 | 0.00 | 455294.54 | | | W 103 43 24.83 |
| | 19300.00 | 89.56 | 359.69 | 10219.77 | 8943.88 | 8945.99 | 366.78 | 0.00 | 455394.53 | | | W 103 43 24.83 |
| | 19400.00 | 89.56 | 359.69 | 10220.54 | 9043.88 | 9045.99 | 366.24 | 0.00 | 455494.52 | | N 32 15 2.88 V | |
| | 19500.00 | 89.56 | 359.69 | 10221.31 | 9143.87 | 9145.99 | 365.70 | 0.00 | 455594.51 | 688509.69 | N 32 15 3.87 V | W 103 43 24.83 |
| | 19600.00 | 89.56 | 359.69 | 10222.07 | 9243.87 | 9245.98 | 365.17 | 0.00 | 455694.50 | 688509.15 | N 32 15 4.86 V | W 103 43 24.83 |
| | 19700.00 | 89.56 | 359.69 | 10222.84 | 9343.87 | 9345.98 | 364.63 | 0.00 | 455794.49 | | N 32 15 5.85 V | |
| | 19800.00 | 89.56 | 359.69 | 10223.60 | 9443.86 | 9445.97 | 364.10 | 0.00 | 455894.48 | | N 32 15 6.84 V | |
| | 19900.00 | 89.56 | 359.69 | 10224.37 | 9543.86 | 9545.97 | 363.56 | 0.00 | 455994.47 | | N 32 15 7.83 V | |
| | 20000.00 | 89.56 | 359.69 | 10225.14 | 9643.86 | 9645.96 | 363.02 | 0.00 | 456094.46 | | N 32 15 8.82 V | |
| | 20100.00 | 89.56 | 359.69 | 10225.90 | 9743.86 | 9745.96 | 362.49 | 0.00 | 456194.45 | | N 32 15 9.81 V | |
| I TD Coope | 20200.00 | 89.56 | 359.69 | 10226.67 | 9843.85 | 9845.95 | 361.95 | 0.00 | 456294.44 | | | W 103 43 24.83 |
| LTP Cross | 20298.62 20300.00 | 89.56 89.56 | 359.69 | 10227.43 | 9942.47 9943.85 | 9944.58 9945.95 | 361.42 | 0.00 0.00 | 456393.05 | | N 32 15 11.77 I | |
| Chevron SND | 20300.00 | 09.00 | 359.69 | 10227.44 | 9943.00 | 9940.90 | 361.41 | 0.00 | 456394.43 | 000000.39 | N 32 15 11.79 \ | W 103 43 24.83 |
| 12 01 FED COM 001 P306 440H - PBHL | 20373.58 | 89.56 | 359.69 | 10228.00 | 10017.42 | 10019.52 | 361.02 | 0.00 | 456468.00 | 688505.00 | N 32 15 12.51 | W 103 43 24.83 |

Survey Type:

Def Plan

Survey Error Model: Survey Program: ISCWSA Rev 3 *** 3-D 97.071% Confidence 3.0000 sigma

| D | escription P | art | MD From (ft) | MD To (ft) | EOU Freq (ft) | Hole Size Casing (in) | Diameter (in) | Expected Max Inclination (deg) | Survey Tool Type | Borehole / Survey |
|---|--------------|-----|-----------------|---------------|------------------|-----------------------|------------------|--------------------------------------|-------------------------------|---|
| | | 1 | 0.000 | 30.000 | 1/100.000 | 17.500 | 13.375 | | B001Mb_MWD+HRGM-Depth Only | SND 12 01 FED COM 001 P306 440H / Chevron SND 12 01 FED COM 001 P306 440H Rev0 RM |
| | | 1 | 30.000 | 20373.578 | 1/100.000 | 17.500 | 13.375 | | B001Mb_MWD+HRGM | SND 12 01 FED COM 001 P306 440H / Chevron SND 12 01 FED |

PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME: | Chervon

LEASE NO.: | NMNM120901

WELL NAME & NO.: | SND 12 01 Fed Com 001 P306 440H

SURFACE HOLE FOOTAGE: 523'/S & 745'/E **BOTTOM HOLE FOOTAGE** 25'/N & 330'/E

LOCATION: | Section 12, T.24 S., R.31 E., NMPM

COUNTY: Eddy County, New Mexico

COA

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 1110 feet (a minimum of 70 feet (Eddy 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 **24 hours in the Potash Area** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)
- c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
- d. If cement falls back, remedial cementing will be done prior to drilling out that string.
- 2. The minimum required fill of cement behind the 9-5/8 inch intermediate casing is:
 - Cement to surface. If cement does not circulate see B.1.a, c-d above.

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

❖ In <u>Secretary Potash Areas</u> if cement does not circulate to surface on the first two casing strings, the cement on the 3rd casing string must come to surface.

Contingency

Operator has proposed to pump down 13-3/8" X 9-5/8" annulus. Operator must run a CBL from TD of the 9-5/8" casing to surface. Submit results to BLM.

- 3. The minimum required fill of cement behind the 7 inch production casing is:
 - Cement should tie-back at least **500 feet** into previous casing string. Operator shall provide method of verification.
- 4. The minimum required fill of cement behind the $5 \times 4-1/2$ inch production liner is:
 - Cement should tie-back **100 feet** into the previous casing. Operator shall provide method of verification.

C. PRESSURE CONTROL

- 1. Variance approved to use flex line from BOP to choke manifold. Manufacturer's specification to be readily available. No external damage to flex line. Flex line to be installed as straight as possible (no hard bends).
- 2. 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. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
 - a. 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.

- b. Manufacturer representative shall install the test plug for the initial BOP test.
- c. 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.
- d. 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.

BOPE Break Testing Variance (Note: For 5M BOPE or less)

- BOPE Break Testing is ONLY permitted for 5M BOPE or less.
- BOPE Break Testing is NOT permitted to drilling the production hole section.
- While in transfer between wells, the BOPE shall be secured by the hydraulic carrier or cradle.
- Any well control event while drilling require notification to the BLM Petroleum Engineer prior to the commencement of any BOPE Break Testing operations.
- A full BOPE test is required prior to drilling the first deep intermediate hole section. If any subsequent hole interval is deeper than the first, a full BOPE test will be required.
- The BLM is to be contacted (575-361-2822 Eddy County) 4 hours prior to BOPE tests.
- As a minimum, a full BOPE test shall be performed at 21-day intervals.
- In the event any repairs or replacement of the BOPE is required, the BOPE shall test as per Onshore Oil and Gas Order No. 2.

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 CountyCall 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. Operator is approve to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
 - b. When the operator proposes to set surface casing with Spudder Rig
 - Notify the BLM when moving in and removing the Spudder Rig.
 - Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
 - BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.
- 2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.
- 3. The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

A. CASING

- 1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.
- 2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log. The casing intergrity test can be done (prior to the cement setting up) immediately after bumping the plug.
- 3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. The casing intergrity test can be done (prior to the cement setting up) immediately after bumping the plug.
- 4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.
- 5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.
- 6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.
- 7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.
- 8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

B. PRESSURE CONTROL

- 1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.
- 2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: The flex line must meet the requirements of API 16C. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.
- 3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.
- 4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:
 - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
 - b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
 - c. Manufacturer representative shall install the test plug for the initial BOP test
 - d. 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

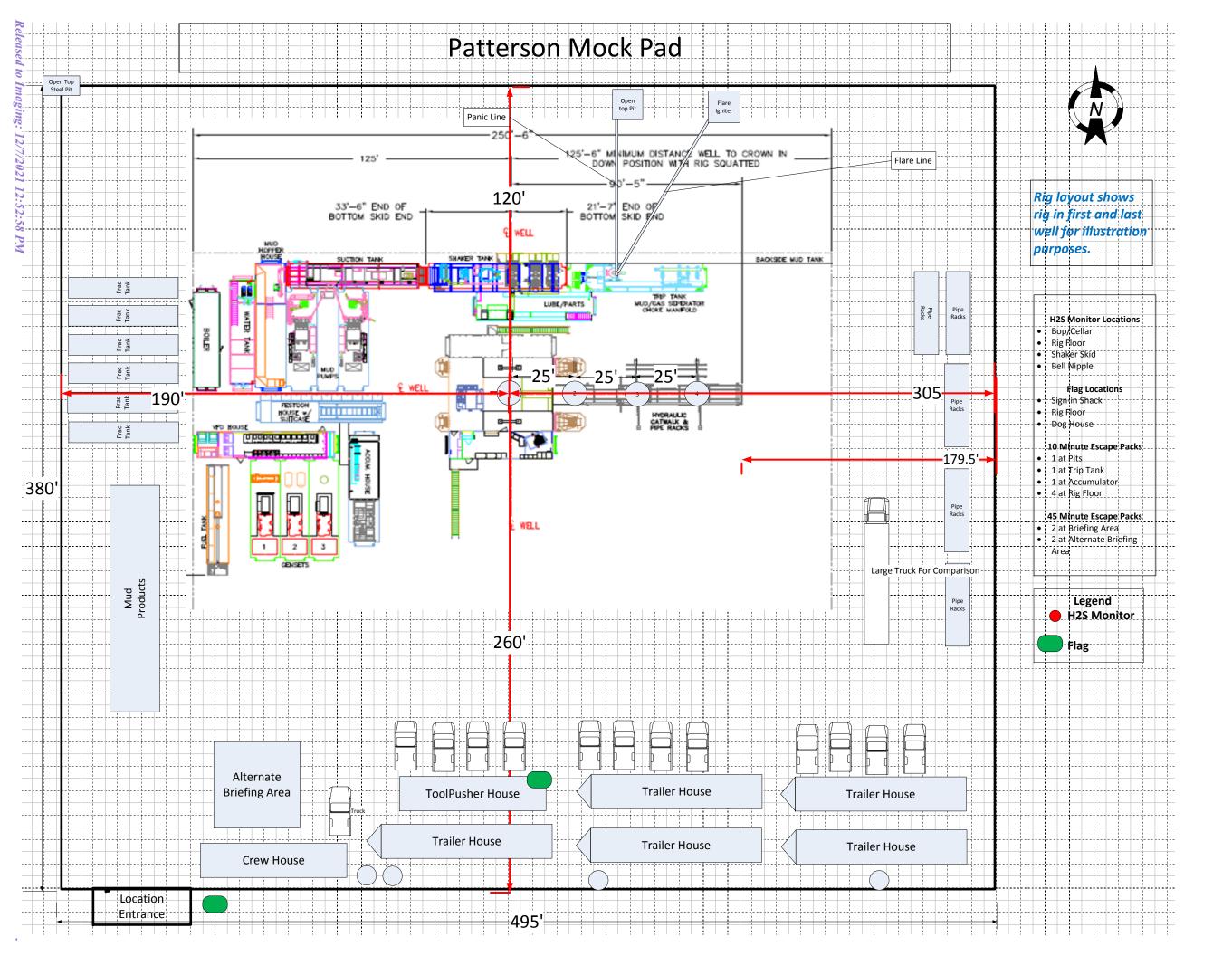
Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the Wolfcamp formation, and shall be used until production casing is run and cemented.

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.

ZS100121



Chevron

SND 12 01 FED COM 001 P306 440H

Eddy County, NM

Pad Summary: SND P306

The table below lists all the wells for the given pad and their respective name and TVD's (ft) for their production target intervals:

| Well Name(s) | Target TVD | Formation Desc. |
|---------------------------------|------------|-----------------|
| SND 12 01 FED COM 001 P306 437H | 10,638 | Bone Spring |
| SND 12 01 FED COM 001 P306 438H | 10,221 | Bone Spring |
| SND 12 01 FED COM 001 P306 439H | 10,656 | Bone Spring |
| SND 12 01 FED COM 001 P306 440H | 10,223 | Bone Spring |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

1. FORMATION TOPS

The estimated tops of important geologic markers are as follows:

Elevation: 3583 ft

| Elevation. 3363 It | | | | | | |
|------------------------------|-------|--------|--------|---------------------------|----------------|-----------------|
| FORMATION | TVDSS | TVD | MD | LITHOLOGIES | MIN. RESOURCES | PROD. FORMATION |
| Rustler (RSLR) | 2738 | 845 | 845 | Dolomite | N/A | |
| Salado (Top of Salt) | 2383 | 1,200 | 1,200 | Salt | N/A | |
| Castile (CSTL) | 506 | 3,077 | 3,117 | Anhydrite | N/A | |
| Lamar (LMAR) | -1037 | 4,620 | 4,701 | Limestone | N/A | |
| Bell Canyon (BLCN) | -1072 | 4,655 | 4,737 | Sandstone | N/A | |
| Cherry Canyon (CRCN) | -1954 | 5,537 | 5,642 | Sandstone | N/A | |
| Brushy Canyon (BCN) | -3171 | 6,754 | 6,891 | Sandstone | N/A | |
| Bone Spring (BSGL) | -4890 | 8,473 | 8,614 | Limestone | Oil | |
| Upper Avalon (AVN) | -4945 | 8,528 | 8,669 | Limestone/Shale/Sandstone | Oil | |
| Top First Bone Spring (FBS) | -5886 | 9,469 | 9,610 | Sandstone | Oil | |
| Top Second Bone Spring (SBU) | -6562 | 10,145 | 10,300 | Sandstone | Oil | |
| Second Bone Spring Target 1 | -6626 | 10,209 | 10,352 | Sandstone | Oil | |
| Second Bone Spring Carbonate | -6853 | 10,436 | 10,611 | Sandstone | Oil | |
| Top Bone Spring 2 (SBU) | -7021 | 10,604 | 20,373 | Sandstone | Oil | yes |

CONFIDENTIAL -- TIGHT HOLE

PAGE:

DRILLING PLAN

| WELLBORE LOCATIONS | SUB-SEA TVD | RKB TVD | MD |
|--------------------|-------------|---------|--------|
| SHL | 3583 | • | - |
| KOP | -6067 | 9,650 | 9,691 |
| FTP | -6882 | 10,465 | 10,209 |
| LTP | -6644 | 10,227 | 20,298 |

2. ESTIMATED DEPTH OF WATER, OIL, GAS & OTHER MINERAL BEARING FORMATIONS

The estimated depths at which the top and bottom of the anticipated water, oil, gas, or other mineral bearing formations are expected to be encountered are as follows:

| Substance | Formation | Depth | | |
|--------------|-----------------------------|-------|--|--|
| Deepest Expe | 500 | | | |
| Water | Cherry Canyon | 5,537 | | |
| Oil/Gas | Bone Spring (BSGL) | 8,473 | | |
| Oil/Gas | Avalon | 8,528 | | |
| Oil/Gas | Top First Bone Spring (FBS) | 9,469 | | |

All shows of fresh water and minerals will be reported and protected.

3. **BOP EQUIPMENT**

Chevron will have a minimum of a 5,000 psi rig stack (see proposed schematic) for drill out below surface casing. The stack will be tested as specified in the attached testing requirements. Batch drilling of the surface, production, and production liner will take place. A full BOP test will be performed per hole section, unless approval from BLM is received otherwise (see variance request below). Flex choke hose will be used for all wells on the pad (see attached specs and variance). BOP test will be conducted by a third party.

Chevron respectfully request to vary from the Onshore Order 2 where it states:

"(A full BOP Test) shall be performed: when initially installed and whenever any seal subject to test pressure is broken."

We propose to break test if able to finish the next hole section within 21 days of the previous full BOP test. No BOP components nor any break will ever surpass 21 days between testing. A break test will consist of a 250 psi low / ≥ 5,000 psi high for 10 min each test against the connection that was broken

BLOWOUT PREVENTER SCHEMATIC

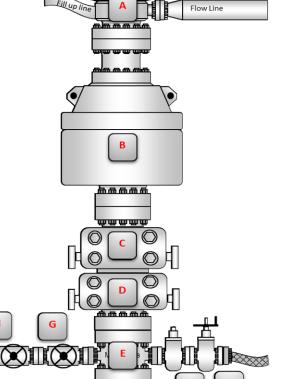
Intermediate & Production Drilling Operations Operation:

Minir

| mum | System | operation | pressure |
|-----|--------|-----------|----------|
| | | | |
| | | | |

| BOP Stack | | | | | |
|------------------|---------|--------------------|---|--|--|
| Part | Size | Pressure Rating | Description | | |
| Α | 13-5/8" | N/A | Rotating Head/Bell nipple | | |
| В | 13-5/8" | 5,000 | Annular | | |
| O | 13-5/8" | 10,000 | Blind Ram | | |
| D | 13-5/8" | 10,000 | Pipe Ram | | |
| Е | 13-5/8" | 10,000 | Mud Cross | | |
| F | 13-5/8" | 10,000 | Pipe Ram | | |
| <u>Kill Line</u> | | | | | |
| Part | Size | Pressure Rating | Description | | |
| O | 2" | 10,000 | Inside Kill Line Valve (gate valve) | | |
| Н | 2" | 10,000 | Outside Kill Line Valve (gate valve) | | |
| | 2" | 10,000 | Kill Line Check valve | | |

5,000 psi



| | <u>Choke line</u> | | | | | |
|-----------------|-------------------|----------|-------------------------|--|--|--|
| Part | Size | Pressure | Description | | | |
| Part | | Rating | | | | |
| J | 3" | 10,000 | HCR (gate valve) | | | |
| K | 3" | 10,000 | Manual HCR (gate valve) | | | |
| <u>Wellhead</u> | | | | | | |
| Part | Size | Pressure | Description | | | |
| | | Rating | | | | |
| Ь | 13-5/8" | 5,000 | FMC Multibowl wellhead | | | |

BOP Installation Checklist: The following items must be verified and checked off prior to pressure testing BOP equipment

The installed BOP equipment meets at least the minimum requirements (rating, type, size, configuration) as shown on this schematic. Components may be substituted for equivalent equipment rated to higher pressures. Additional components may be put into place as long as they meet or exceed the minimum pressure rating of the system.

All valves on the kill line and choke line will be full opening and will allow straight flow through.

Manual (hand wheels) or automatic locking devices will be installed on all ram preventers. Hand wheels will also be install on all manual valves on the choke and

A valve will be installed in the closing line as close as possible to the annular preventer to act as a locking device. This valve will remain open unless accumulator is inoperative.

Upper kelly cock valve with handle will be available on rig floor along with saved valve and subs to fit all drill string connections in use.

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

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 63849

CONDITIONS

| Operator: | OGRID: |
|---------------------|---|
| CHEVRON U S A INC | 4323 |
| 6301 Deauville Blvd | Action Number: |
| Midland, TX 79706 | 63849 |
| | Action Type: |
| | [C-101] BLM - Federal/Indian Land Lease (Form 3160-3) |

CONDITIONS

| Created | Condition | Condition |
|----------|--|-----------|
| Ву | | Date |
| dmcclure | Notify OCD 24 hours prior to casing & cement | 12/7/2021 |
| dmcclure | Notify OCD 24 hours prior to spudding | 12/7/2021 |
| dmcclure | Will require a File As Drilled C-102 and a Directional Survey with the C-104 | 12/7/2021 |
| | 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 | 12/7/2021 |
| dmcclure | Cement is required to circulate on both surface and intermediate1 strings of casing | 12/7/2021 |
| | 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 | 12/7/2021 |