

NM OIL CONSERVATION

ARTESIA DISTRICT

MAY 14 2019

FORM APPROVED  
OMB No. 1004-0137  
Expires: January 31, 2018

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

1a. Type of work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. NMNM118108
1b. Type of Well: <input type="checkbox"/> Oil Well <input checked="" type="checkbox"/> Gas Well <input type="checkbox"/> Other		6. If Indian, Allottee or Tribe Name
1c. Type of Completion: <input type="checkbox"/> Hydraulic Fracturing <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		7. If Unit or CA Agreement, Name and No.
2. Name of Operator CHEVRON USA INCORPORATED		8. Lease Name and Well No. HH SO 8 5 FED 004 2H 325673
3a. Address 6301 Deauville Blvd. Midland TX 79706	3b. Phone No. (include area code) (432)687-7866	9. API Well No. 30-015-45988
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface NWNE / 783 FNL / 1559 FEL / LAT 32.047598 / LONG -104.208753 At proposed prod. zone NENE / 280 FNL / 1254 FEL / LAT 32.078245 / LONG -104.207904		10. Field and Pool, or Exploratory PURPLE-SAGE WOLFCAMP GAS / WOL
11. Sec., T. R. M. or Blk. and Survey or Area SEC 17 / T26S / R27E / NMP		
14. Distance in miles and direction from nearest town or post office* 11.5 miles		12. County or Parish EDDY
13. State NM		
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 783 feet	16. No of acres in lease 1120	17. Spacing Unit dedicated to this well 640
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 575 feet	19. Proposed Depth 9036 feet / 19460 feet	20. BLM/BIA Bond No. in file FED: CA0329
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3268 feet	22. Approximate date work will start* 04/02/2019	23. Estimated duration 147 days
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 Item 20 above). |
| 2. A Drilling Plan.  | 5. Operator certification.  |
| 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). | 6. Such other site specific information and/or plans as may be requested by the BLM.            |

25. Signature (Electronic Submission)	Name (Printed/Typed) Laura Becerra / Ph: (432)687-7665	Date 11/01/2018
Title Permitting Specialist		
Approved by (Signature) (Electronic Submission)	Name (Printed/Typed) Cody Layton / Ph: (575)234-5959	Date 05/09/2019
Title Assistant Field Manager Lands & Minerals CARLSBAD		

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Conditions of approval, if any, are attached.

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.



(Continued on page 2)

\*(Instructions on page 2)

RWP5-16-19.

## INSTRUCTIONS

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

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

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

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

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

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

**ITEM 24:** If the proposal will involve hydraulic fracturing operations, you must comply with 43 CFR 3162.3-3, including providing information about the protection of usable water. Operators should provide the best available information about all formations containing water and their depths. This information could include data and interpretation of resistivity logs run on nearby wells. Information may also be obtained from state or tribal regulatory agencies and from local BLM offices.

## NOTICES

The Privacy Act of 1974 and regulation in 43 CFR 2.48(d) provide that you be furnished the following information in connection with information required by this application.

**AUTHORITY:** 30 U.S.C. 181 et seq., 25 U.S.C. 396; 43 CFR 3160

**PRINCIPAL PURPOSES:** The information will be used to: (1) process and evaluate your application for a permit to drill a new oil, gas, or service well or to reenter a plugged and abandoned well; and (2) document, for administrative use, information for the management, disposal and use of National Resource Lands and resources including (a) analyzing your proposal to discover and extract the Federal or Indian resources encountered; (b) reviewing procedures and equipment and the projected impact on the land involved; and (c) evaluating the effects of the proposed operation on the surface and subsurface water and other environmental impacts.

**ROUTINE USE:** Information from the record and/or the record will be transferred to appropriate Federal, State, and local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecution, in connection with congressional inquiries and for regulatory responsibilities.

**EFFECT OF NOT PROVIDING INFORMATION:** Filing of this application and disclosure of the information is mandatory only if you elect to initiate a drilling or reentry operation on an oil and gas lease.

The Paperwork Reduction Act of 1995 requires us to inform you that:

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

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

## **Additional Operator Remarks**

### **Location of Well**

1. SHL: NWNE / 783 FNL / 1559 FEL / TWSP: 26S / RANGE: 27E / SECTION: 17 / LAT: 32.047598 / LONG: -104.208753 ( TVD: 0 feet, MD: 0 feet )  
PPP: SESE / 330 FSL / 1254 FEL / TWSP: 26S / RANGE: 27E / SECTION: 8 / LAT: 32.050655 / LONG: -104.207807 ( TVD: 9036 feet, MD: 9036 feet )  
BHL: NENE / 280 FNL / 1254 FEL / TWSP: 26S / RANGE: 27E / SECTION: 5 / LAT: 32.078245 / LONG: -104.207904 ( TVD: 9036 feet, MD: 19460 feet )

## **BLM Point of Contact**

Name: Tenille Ortiz

Title: Legal Instruments Examiner

Phone: 5752342224

Email: tortiz@blm.gov

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**Approval Date: 05/09/2019**

(Form 3160-3, page 3)

## **Review and Appeal Rights**

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

# PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	CHEVRON USA INCORPORATED
LEASE NO.:	NMNM118108
WELL NAME & NO.:	2H – HH SO 8 5 FED 004
SURFACE HOLE FOOTAGE:	783'/N & 1559'/E
BOTTOM HOLE FOOTAGE:	280'/N & 1254'/E
LOCATION:	SECTION 17, T26S, R27E, NMPM
COUNTY:	EDDY

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 type="radio"/> Low	<input type="radio"/> Medium	<input checked="" type="radio"/> High
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 type="checkbox"/> Fluid Filled	<input type="checkbox"/> Cement Squeeze	<input type="checkbox"/> Pilot Hole
Special Requirements	<input type="checkbox"/> Water Disposal	<input 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 **450** feet (a minimum of 70 feet into the Rustler Anhydrite and above the salt) and cemented to the surface.
  - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
  - b. Wait on cement (WOC) time for a primary cement job will be a minimum of **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.

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

2. The minimum required fill of cement behind the 9-5/8 inch intermediate casing is: Operator has proposed a DV tool, the depth may be adjusted as long as the cement is changed proportionally. The DV tool may be cancelled if cement circulates to surface on the first stage.

- a. First stage to DV tool: Cement to circulate. If cement does not circulate off the DV tool, contact the appropriate BLM office before proceeding with second stage cement job. **Additional cement maybe required. Excess calculates to 11%.**
- b. Second stage above DV tool: Cement to surface. If cement does not circulate, contact the appropriate BLM office.  
**Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst.**

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

- 3. The minimum required fill of cement behind the 5-1/2 inch production casing is:
  - c. Cement should tie-back at least **200 feet** into previous casing string. Operator shall provide method of verification. **Additional cement maybe required. Excess calculates to 14%.**

### **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.

## GENERAL REQUIREMENTS

The BLM is to be notified in advance for a representative to witness:

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

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

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

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

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
  - a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
  - b. **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.
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.
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: 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.
- 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.

**ZS 032219**

**PECOS DISTRICT  
SURFACE USE  
CONDITIONS OF APPROVAL**

OPERATOR'S NAME: CHEVRON USA INCORPORATED  
LEASE NO: NMNM100549  
LOCATION: EDDY

**HH SO 8 5 FED 004 1H**

Surface Hole Location: 783' FNL & 1584' FEL, NWNE, Section 17, T. 26 S., R. 27 E.  
Bottom Hole Location: 280' FNL & 750' FEL, Section 5, T. 23 S., R. 29 E.

**HH SO 8 5 FED 004 2H**

Surface Hole Location: 783' FNL & 1559' FEL, NWNE, Section 17, T. 26 S., R. 27 E.  
Bottom Hole Location: 280' FNL & 1590' FEL, Section 5, T. 23 S., R. 29 E.

**HH SO 8 5 FED 004 3H**

Surface Hole Location: 783' FNL & 1534' FEL, NWNE, Section 17, T. 26 S., R. 27 E.  
Bottom Hole Location: 280' FNL & 1170' FEL, Section 5, T. 23 S., R. 29 E.

**HH SO 8 5 FED 004 4H**

Surface Hole Location: 783' FNL & 1509' FEL, NWNE, Section 17, T. 26 S., R. 27 E.  
Bottom Hole Location: 280' FNL & 330' FEL, Section 5, T. 23 S., R. 29 E.

**HH SO 8 5 FED 004 5H**

Surface Hole Location: 783' FNL & 1484' FEL, NWNE, Section 17, T. 26 S., R. 27 E.  
Bottom Hole Location: 280' FNL & 330' FEL, Section 5, T. 23 S., R. 29 E.

**HH SO 8 5 FED 004 6H**

Surface Hole Location: 783' FNL & 1459' FEL, NWNE, Section 17, T. 26 S., R. 27 E.  
Bottom Hole Location: 280' FNL & 1254' FEL, Section 5, T. 23 S., R. 29 E.

## TABLE OF CONTENTS

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

- ☐ **General Provisions**
- ☐ **Permit Expiration**
- ☐ **Archaeology, Paleontology, and Historical Sites**
- ☐ **Noxious Weeds**
- ☒ **Special Requirements**
  - Cave/Karst
  - Hydrology
  - Special Status Plant Species Habitat
- ☐ **Construction**
  - Notification
  - Topsoil
  - Closed Loop System
  - Federal Mineral Material Pits
  - Well Pads
  - Roads
- ☐ **Road Section Diagram**
- ☒ **Production (Post Drilling)**
  - Well Structures & Facilities
  - Pipelines
- ☐ **Interim Reclamation**
- ☐ **Final Abandonment & Reclamation**

## **I. GENERAL PROVISIONS**

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

## **II. PERMIT EXPIRATION**

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

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

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

## **IV. NOXIOUS WEEDS**

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

acceptable weed control methods, which include following EPA and BLM requirements and policies.

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

### **Cave/Karst Surface Mitigation**

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

#### **Construction:**

##### **General Construction:**

- No blasting
- The BLM, Carlsbad Field Office, will be informed immediately if any subsurface drainage channels, cave passages, or voids are penetrated during construction, and no additional construction shall occur until clearance has been issued by the Authorized Officer.
- All linear surface disturbance activities will avoid sinkholes and other karst features to lessen the possibility of encountering near surface voids during construction, minimize changes to runoff, and prevent untimely leaks and spills from entering the karst drainage system.
- All spills or leaks will be reported to the BLM immediately for their immediate and proper treatment.

##### **Pad Construction:**

- The pad will be constructed and leveled by adding the necessary fill and caliche – no blasting.
- The entire perimeter of the well pad will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad.
- The compacted berm shall be constructed at a minimum of 12 inches high with impermeable mineral material (e.g., caliche).
- No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad.
- The topsoil stockpile shall be located outside the bermed well pad.
- Topsoil, either from the well pad or surrounding area, shall not be used to construct the berm.
- No storm drains, tubing or openings shall be placed in the berm.
- If fluid collects within the bermed area, the fluid must be vacuumed into a safe container and disposed of properly at a state approved facility.
- The integrity of the berm shall be maintained around the surfaced pad throughout the life of the well and around the downsized pad after interim reclamation has been completed.
- Any access road entering the well pad shall be constructed so that the integrity of the berm height surrounding the well pad is not compromised

(i.e. an access road crossing the berm cannot be lower than the berm height).

- Following a rain event, all fluids will be vacuumed off of the pad and hauled off-site and disposed at a proper disposal facility.

**Tank Battery Construction:**

- The pad will be constructed and leveled by adding the necessary fill and caliche – no blasting.
- All tank battery locations and facilities will be lined and bermed.
- The liner should be at least 20 mil in thickness and installed with a 4 oz. felt backing, or equivalent, to prevent tears or punctures.
- Tank battery berms must be large enough to contain 1 ½ times the content of the largest tank.

**Road Construction:**

- Turnout ditches and drainage leadoffs will not be constructed in such a manner as to alter the natural flow of water into or out of cave or karst features.
- Special restoration stipulations or realignment may be required if subsurface features are discovered during construction.

**Buried Pipeline/Cable Construction:**

- Rerouting of the buried line(s) may be required if a subsurface void is encountered during construction to minimize the potential subsidence/collapse of the feature(s) as well as the possibility of leaks/spills entering the karst drainage system.

**Powerline Construction:**

- Smaller powerlines will be routed around sinkholes and other karst features to avoid or lessen the possibility of encountering near surface voids and to minimize changes to runoff or possible leaks and spills from entering karst systems.
- Larger powerlines will adjust their pole spacing to avoid cave and karst features.
- Special restoration stipulations or realignment may be required if subsurface voids are encountered.

**Surface Flowlines Installation:**

- Flowlines will be routed around sinkholes and other karst features to minimize the possibility of leaks/spills from entering the karst drainage system.

**Leak Detection System:**

- A method of detecting leaks is required. The method could incorporate gauges to measure loss, siting valves and lines so they can be visually inspected, or installing electronic sensors to alarm when a leak is present.



- A leak detection plan will be submitted to BLM that incorporates an automatic shut off system (see below) to minimize the effects of an undesirable event that could negatively sensitive cave/karst resources.
- Well heads, pipelines (surface and buried), storage tanks, and all supporting equipment should be monitored regularly after installation to promptly identify and fix leaks.

#### **Automatic Shut-off Systems:**

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

### **Cave/Karst Subsurface Mitigation**

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

#### **Closed Loop System:**

- A closed loop system using steel tanks will be utilized during drilling – no pits
- All fluids and cuttings will be hauled off-site and disposed of properly at an authorized site

#### **Rotary Drilling with Fresh Water:**

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

#### **Directional Drilling:**

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

#### **Lost Circulation:**

- ALL lost circulation zones between surface and the base of the cave occurrence zone will be logged and reported in the drilling report.
- If a void of four feet or more and circulation losses greater than 70 percent occur simultaneously while drilling in any cave-bearing zone, regardless of the type of drilling machinery used, the BLM will be notified immediately by the operator. The BLM will assess the situation and work with the operator on corrective actions to resolve the problem.

#### **Abandonment Cementing:**

- Additional plugging conditions of approval may be required upon well abandonment in high and medium karst potential occurrence zones.
- The BLM will assess the situation and work with the operator to ensure proper plugging of the wellbore.

**Pressure Testing:**

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

**Hydrology**

The entire well pad(s) will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad. The compacted berm shall be constructed at a minimum of 12 inches with impermeable mineral material (e.g. caliche). Topsoil shall not be used to construct the berm. No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad. The integrity of the berm shall be maintained around the surfaced pad throughout the life of the well and around the downsized pad after interim reclamation has been completed. Any water erosion that may occur due to the construction of the well pad during the life of the well will be quickly corrected and proper measures will be taken to prevent future erosion. Stockpiling of topsoil is required. The top soil shall be stockpiled in an appropriate location to prevent loss of soil due to water or wind erosion and not used for berming or erosion control. If fluid collects within the bermed area, the fluid must be vacuumed into a safe container and disposed of properly at a state approved facility.

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

When crossing ephemeral drainages the pipeline(s) will be buried to a minimum depth of 48 inches from the top of pipe to ground level. Erosion control methods such as gabions and/or rock aprons should be placed on both up and downstream sides of the pipeline crossing. In addition, curled (weed free) wood/straw fiber wattles/logs and/or silt fences should be placed on the downstream side for sediment control during construction and maintained until soils and vegetation have stabilized. Water bars should be placed within the ROW to divert and dissipate surface runoff. A pipeline access road is not permitted to cross these ephemeral drainages. Traffic should be diverted to a preexisting route. Additional seeding may be required in floodplains and drainages to restore energy dissipating vegetation.

A leak detection plan will be submitted to the BLM Carlsbad Field Office for approval prior to pipeline installation. The method could incorporate gauges to detect pressure drops, situating valves and lines so they can be visually

inspected periodically or installing electronic sensors to alarm when a leak is present. The leak detection plan will incorporate an automatic shut off system that will be installed for proposed pipelines to minimize the effects of an undesirable event.

Any water erosion that may occur due to the construction of overhead electric line and during the life of the power line will be quickly corrected and proper measures will be taken to prevent future erosion. A power pole should not be placed drainages or floodplains and must span across the features at a distance away that would not promote further erosion.

#### **SPECIAL STATUS PLANT SPECIES (SSPS)**

Vehicles and equipment will be kept on existing roads and approved surfaces only, and will avoid travel across undisturbed surfaces; workers will be instructed not to park off the roads or ROW in undisturbed areas.

Alterations to project design and additions of project components will require SSPS surveys and re-analysis of impacts if those project elements intersect SSPS suitable habitat.

## **VI. CONSTRUCTION**

### **A. NOTIFICATION**

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

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

### **B. TOPSOIL**

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

Other subsoil (below six inches) stockpiles must be completely segregated from the topsoil stockpile. Large rocks or subsoil clods (not evident in the surrounding terrain) must be buried within the approved area for interim and final reclamation.

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

Tanks are required for drilling operations: No Pits.

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

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

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

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

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation. The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

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

#### **Exclosure Fencing**

The operator will install and maintain exclosure fencing for all open well cellars to prevent access to public, livestock, and large forms of wildlife before and after drilling operations until the pit is free of fluids and the operator initiates backfilling. (For examples of exclosure fencing design, refer to BLM's Oil and Gas Gold Book, Exclosure Fence Illustrations, Figure 1, Page 18.)

### **G. ON LEASE ACCESS ROADS**

#### **Road Width**

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

#### **Surfacing**

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

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

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

### **Crowning**

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

### **Ditching**

Ditching shall be required on both sides of the road.

### **Turnouts**

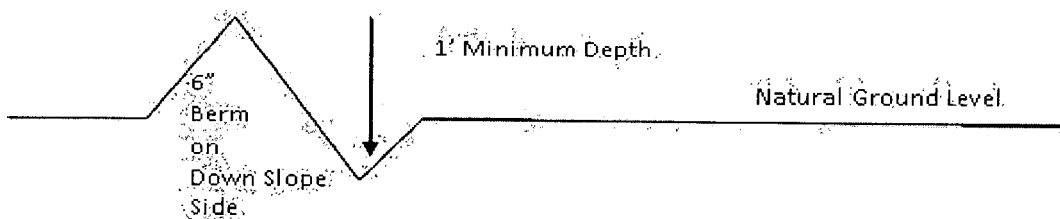
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

### **Drainage**

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

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

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



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

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

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

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

### **Cattle guards**

An appropriately sized cattle guard sufficient to carry out the project shall be installed and maintained at fence/road crossings. Any existing cattle guards on the access road route shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattle guards that are in place and are utilized during lease operations.

### **Fence Requirement**

Where entry is granted across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fences.

### **Public Access**

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

### Construction Steps

1. Salvage topsoil
2. Construct road

3. Redistribute topsoil
4. Revegetate slopes

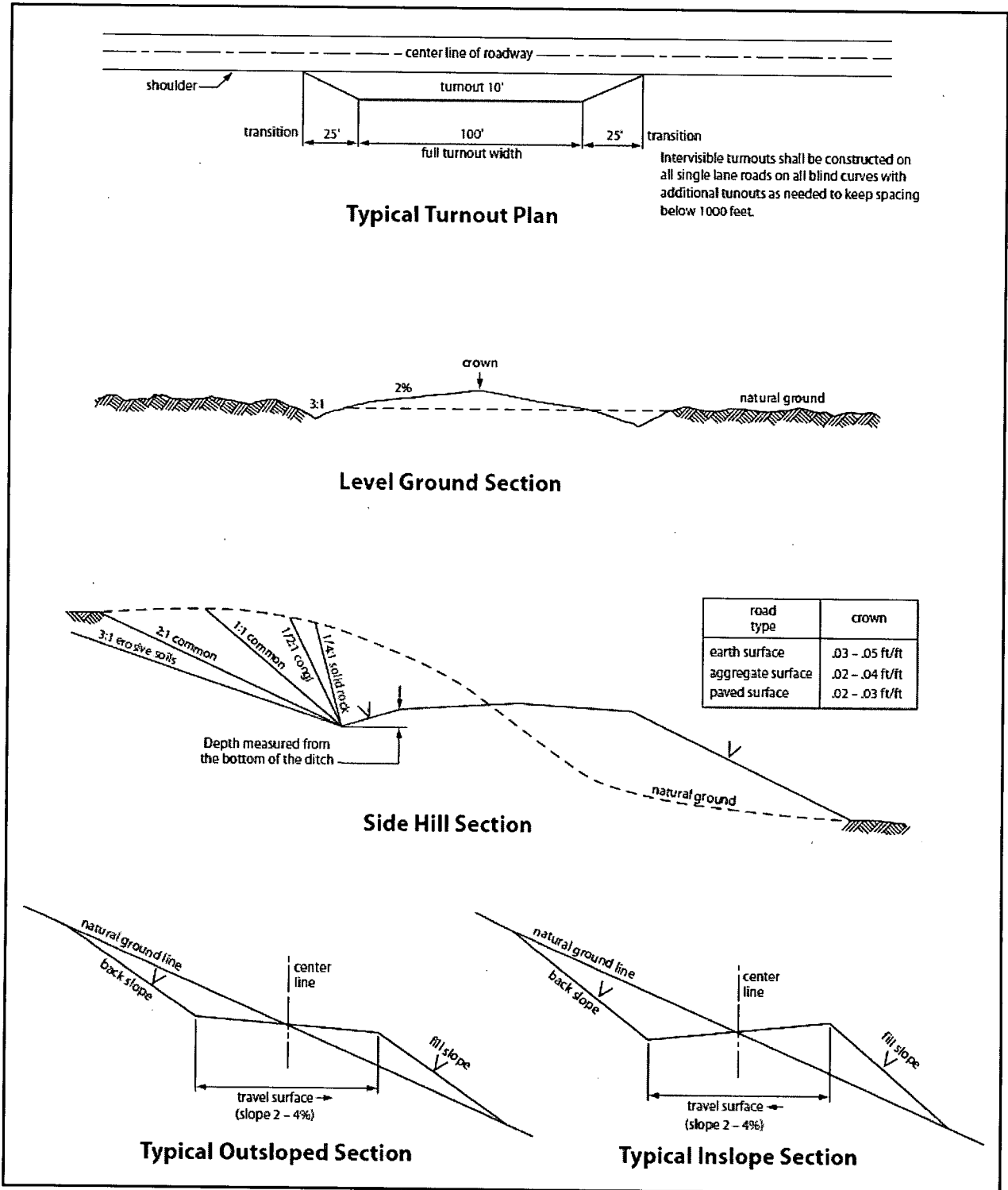


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

## **VII. PRODUCTION (POST DRILLING)**

### **A. WELL STRUCTURES & FACILITIES**

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

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

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

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

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

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

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

The operator will construct, modify, equip, and maintain all open-vent exhaust stacks on production equipment to prevent birds and bats from entering, and to discourage perching, roosting, and nesting. *(Recommended exclosure structures on open-vent exhaust stacks are in the shape of a cone.)* Production



equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, in-line units, and compressor mufflers.

#### **Containment Structures**

Proposed production facilities such as storage tanks and other vessels will have a secondary containment structure that is constructed to hold the capacity of 1.5 times the largest tank, plus freeboard to account for precipitation, unless more stringent protective requirements are deemed necessary.

#### **Painting Requirement**

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

### **B. PIPELINES**

#### **STANDARD STIPULATIONS FOR SURFACE INSTALLED PIPELINES**

A copy of the Grant and attachments, including stipulations, survey plat(s) and/or map(s), shall be on location during construction. BLM personnel may request to review a copy of your permit during construction to ensure compliance with all stipulations.

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

1. Holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.
2. Holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, Holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC § 2601 *et seq.* (1982) with regard to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant (*see* 40 CFR, Part 702-799 and in particular, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193). Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the Authorized Officer concurrent with the filing of the reports to the involved Federal agency or State government.
3. Holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms

are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. § 9601, *et seq.* or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, *et seq.*) on the Right-of-Way (unless the release or threatened release is wholly unrelated to activity of the Right-of-Way Holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way Holder on the Right-of-Way. This provision applies without regard to whether a release is caused by Holder, its agent, or unrelated third parties.

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

- a. Activities of Holder including, but not limited to: construction, operation, maintenance, and termination of the facility;
- b. Activities of other parties including, but not limited to:
  - (1) Land clearing
  - (2) Earth-disturbing and earth-moving work
  - (3) Blasting
  - (4) Vandalism and sabotage;

c. Acts of God.

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

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

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

6. All construction and maintenance activity shall be confined to the authorized

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

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

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

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

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

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

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

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

14. The holder shall not use the pipeline route as a road for purposes other than

routine maintenance as determined necessary by the Authorized Officer in consultation with the holder. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway.

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

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

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

#### **STANDARD STIPULATIONS FOR BURIED PIPELINE STIPULATIONS**

A copy of the application (Grant, APD, or Sundry Notice) and attachments, including conditions of approval, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.

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

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

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

102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.

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

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

5. All construction and maintenance activity will be confined to the authorized right-of-way.

6. The pipeline will be buried with a minimum cover of 36 inches between the top of the pipe and ground level.

7. The maximum allowable disturbance for construction in this right-of-way will be 30 feet:

- Blading of vegetation within the right-of-way will be allowed: maximum width of blading operations will not exceed 20 feet. The trench is included in this area. (*Blading is defined as the complete removal of brush and ground vegetation.*)
- Clearing of brush species within the right-of-way will be allowed: maximum width of clearing operations will not exceed 30 feet. The trench and bladed area are included in this area. (*Clearing is defined as the removal of brush while leaving*

*ground vegetation (grasses, weeds, etc.) intact. Clearing is best accomplished by holding the blade 4 to 6 inches above the ground surface.)*

- The remaining area of the right-of-way (if any) shall only be disturbed by compressing the vegetation. (*Compressing can be caused by vehicle tires, placement of equipment, etc.*)

8. The holder shall stockpile an adequate amount of topsoil where blading is allowed. The topsoil to be stripped is approximately 6 inches in depth. The topsoil will be segregated from other spoil piles from trench construction. The topsoil will be evenly distributed over the bladed area for the preparation of seeding.

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

10. Vegetation, soil, and rocks left as a result of construction or maintenance activity will be randomly scattered on this right-of-way and will not be left in rows, piles, or berms, unless otherwise approved by the Authorized Officer. The entire right-of-way shall be recontoured to match the surrounding landscape. The backfilled soil shall be compacted and a 6 inch berm will be left over the ditch line to allow for settling back to grade.

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

12. The holder will reseed all disturbed areas. Seeding will be done according to the attached seeding requirements, using the following seed mix.

- |                        |                             |
|------------------------|-----------------------------|
| (X) seed mixture 1     | ( ) seed mixture 3          |
| ( ) seed mixture 2     | ( ) seed mixture 4          |
| ( ) seed mixture 2/LPC | ( ) Aplomado Falcon Mixture |

13. All above-ground structures not subject to safety requirements shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be color which simulates "Standard Environmental Colors" – **Shale Green**, Munsell Soil Color No. 5Y 4/2.

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

15. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder before maintenance begins. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway. As determined necessary during the life of the pipeline, the Authorized Officer may ask the holder to construct temporary deterrence structures.

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

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

18. Escape Ramps - The operator will construct and maintain pipeline/utility trenches [that are not otherwise fenced, screened, or netted] to prevent livestock, wildlife, and humans from becoming entrapped. At a minimum, the operator will construct and maintain escape ramps, ladders, or other methods of avian and terrestrial wildlife escape in the trenches according to the following criteria:

- a. Any trench left open for eight (8) hours or less is not required to have escape ramps; however, before the trench is backfilled, the contractor/operator shall inspect the trench for wildlife, remove all trapped wildlife, and release them at least 100 yards from the trench.
- b. For trenches left open for eight (8) hours or more, earthen escape ramps (built at no more than a 30 degree slope and spaced no more than 500 feet apart) shall be placed in the trench.

## **VIII. INTERIM RECLAMATION**

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to

minimize the environmental impacts of development on other resources and uses.

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

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

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

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

## **IX. FINAL ABANDONMENT & RECLAMATION**

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

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

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

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



### **Seed Mixture 1 for Loamy Sites**

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

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

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

<u>Species</u>	<u>lb/acre</u>
Plains lovegrass ( <i>Eragrostis intermedia</i> )	0.5
Sand dropseed ( <i>Sporobolus cryptandrus</i> )	1.0
Sideoats grama ( <i>Bouteloua curtipendula</i> )	5.0
Plains bristlegrass ( <i>Setaria macrostachya</i> )	2.0

\*Pounds of pure live seed:

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

# Delaware Basin

## Changes to APD for Federal Well



### CHEVRON CONTACT:

JUSTIN BLACKBURN  
DRILLING ENGINEER  
1400 SMITH ST.  
HOUSTON, TX 77002

DESK: HOU140/43<sup>RD</sup> FLOOR  
CELL: 832-390-8976  
EMAIL: JUSTIN.BLACKBURN@CHEVRON.COM

### Summary of Changes to MPD Submission

BOP Equipment – CoFlex Hose (Section 3 of 9 Point Drilling Plan in MPD)

### BOP Equipment – CoFlex Hose

**Summary:** Variance to use a CoFlex hose between BOP and choke manifold not requested in original submittal.

As Defined in MPD:	As Planned on Well:
Variance to use CoFlex hose not requested.	Chevron requests a variance to use a CoFlex hose with a <u>metal protective covering</u> that will be utilized between the BOP and Choke manifold. Please refer to the attached testing and specification documents.



CONTITECH RUBBER  
Industrial Kft.

No. QC-DB-617/2015

Page: 8/71

ContiTech

## Hose Data Sheet

CRI Order No.	541802
Customer	ContiTech Oil & Marine Corp.
Customer Order No.	4500606483 COM757207
Item No.	1
Hose Type	Flexible Hose
Standard	API SPEC 16 C → TSL2
Inside dia in inches	3
Length	45 ft
Type of coupling one end	FLANGE 4.1/16" 10KPSI API SPEC 17D SV SWIVEL FLANGE C/W BX155ST/ST INLAID R.GR. SOUR
Type of coupling other end	FLANGE 4.1/16" 10KPSI API SPEC 17D SV SWIVEL FLANGE C/W BX155 ST/ST INLAID R.GR. SOUR
H2S service NACE MR0175	Yes
Working Pressure	10 000 psi
Design Pressure	10 000 psi
Test Pressure	15 000 psi
Safety Factor	2,25
Marking	USUAL PHOENIX
Cover	NOT FIRE RESISTANT
Outside protection	St steel outer wrap
Internal stripwound tube	No
Lining	OIL + GAS RESISTANT SOUR
Safety clamp	Yes
Lifting collar	Yes
Element C	Yes
Safety chain	No
Safety wire rope	Yes
Max design temperature [°C]	100
Min design temperature [°C]	-20
Min. Bend Radius operating (m)	0,90
Min. Bend Radius storage (m)	0,90
Electrical continuity	The Hose is electrically continuous
Type of packing	WOODEN CRATE ISPM-15

ATTACHMENT OF QUALITY CONTROL  
INSPECTION AND TEST CERTIFICATE  
No: 1609, 1610

CONTITECH RUBBER  
Industrial Krl.

No: QG-DB- 617 / 2015

Page: 7/71

1/2

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201500000 14.20:25.000

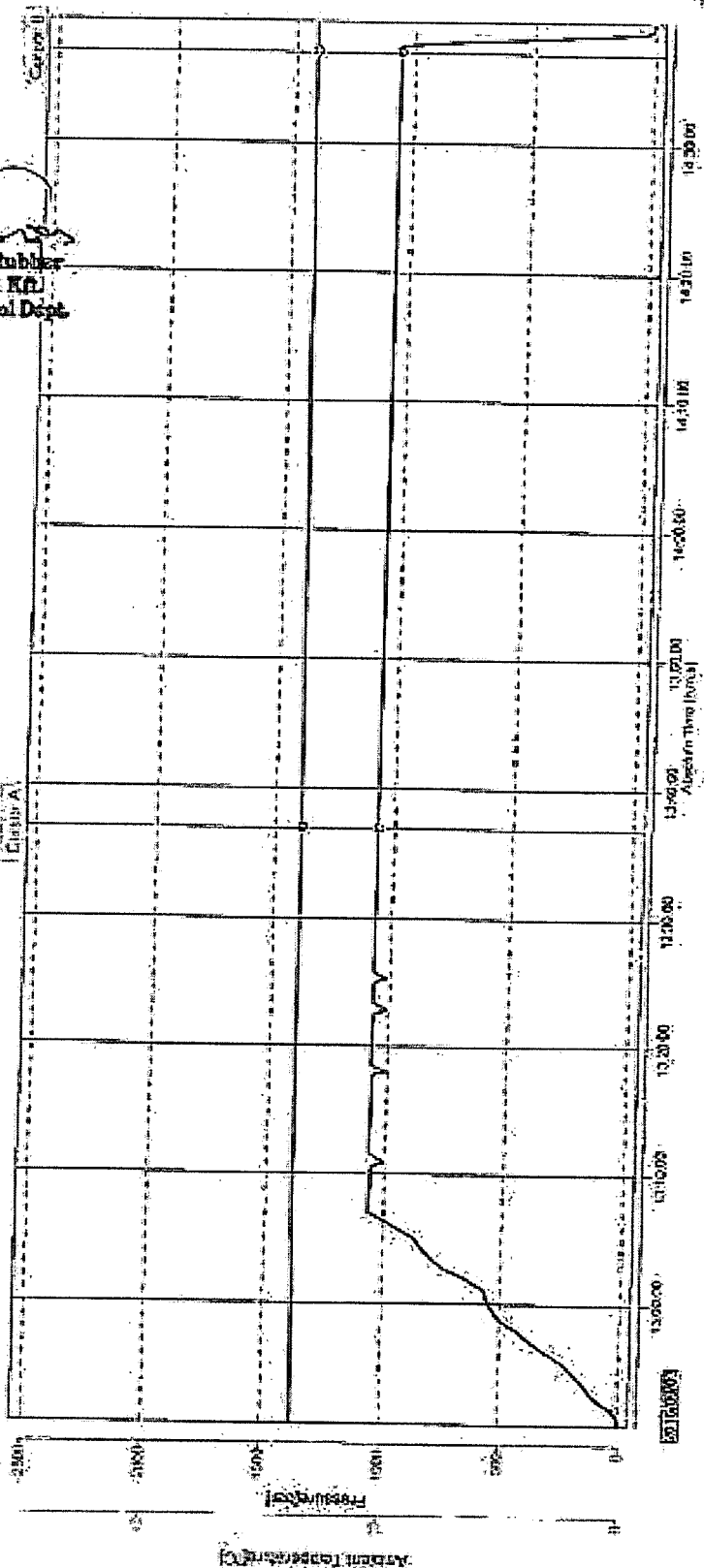
Sampling Int.  
Start Time  
Stop Time

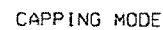
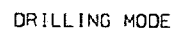
ContiTech Rubber  
Industrial Krl.  
Quality Control Dept.

File Name  
File Message  
Device Type  
Serial No.  
Data Count  
Print Group  
Print Range  
Comment

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71303\_71304  
GX10  
55P000000  
1304  
Presso-Tama  
2015/09/03 12:50:00.000 - 2015/09/03 14:20:25.000

Data No.	Curve A	Curve B	Difference
730	591	1376	730
Model Time	20150903 13:57:00.000	20150903 14:20:00.000	01:03:00.000
Test Condition	Water A	Water B	Water B-A
Pressure [Pa]	1007.00	1020.38	-0.31
Ambient Temperature [°C]	-27.00	-28.27	0.47





6650 PSI UH-S  
CHEVRON  
20 X 13 3/8 X 9 5/8 X 5 1/2

<b>PRIVATE AND CONFIDENTIAL</b> THIS DOCUMENT CONTAINS NEITHER RECOMMENDATIONS NOR CONCLUSIONS OF THE NATIONAL SECURITY AGENCY. IT IS THE PROPERTY OF THE NATIONAL SECURITY AGENCY AND IS LOANED TO YOUR AGENCY; IT AND ITS CONTENTS ARE NOT TO BE DISTRIBUTED OUTSIDE YOUR AGENCY. IT IS TO BE RETURNED TO THE NATIONAL SECURITY AGENCY WHEN REQUESTED. EXCEPT WHERE SHOWN OTHERWISE, THIS DOCUMENT CONTAINS NEITHER RECOMMENDATIONS NOR CONCLUSIONS OF THE NATIONAL SECURITY AGENCY. IT IS THE PROPERTY OF THE NATIONAL SECURITY AGENCY AND IS LOANED TO YOUR AGENCY; IT AND ITS CONTENTS ARE NOT TO BE DISTRIBUTED OUTSIDE YOUR AGENCY. IT IS TO BE RETURNED TO THE NATIONAL SECURITY AGENCY WHEN REQUESTED.		<b>RECEIVED</b> SURFACE RE-HEAD LAYOUT, 1 INCH PD 13 JUL 68 9 58 AM CAC 13 JUL 68 11 12 AM DIVISION, OCSA		DATE IN: 1, 1968 CONTROL CENTER: 2, 1000000000 REAR DESK: 3, 1000000000 REAR DESK: 4, 1000000000 REAR DESK: 5, 1000000000 REAR DESK: 6, 1000000000 REAR DESK: 7, 1000000000 REAR DESK: 8, 1000000000 REAR DESK: 9, 1000000000 REAR DESK: 10, 1000000000 REAR DESK: 11, 1000000000 REAR DESK: 12, 1000000000 REAR DESK: 13, 1000000000 REAR DESK: 14, 1000000000 REAR DESK: 15, 1000000000 REAR DESK: 16, 1000000000 REAR DESK: 17, 1000000000 REAR DESK: 18, 1000000000 REAR DESK: 19, 1000000000 REAR DESK: 20, 1000000000 REAR DESK: 21, 1000000000 REAR DESK: 22, 1000000000 REAR DESK: 23, 1000000000 REAR DESK: 24, 1000000000 REAR DESK: 25, 1000000000 REAR DESK: 26, 1000000000 REAR DESK: 27, 1000000000 REAR DESK: 28, 1000000000 REAR DESK: 29, 1000000000 REAR DESK: 30, 1000000000 REAR DESK: 31, 1000000000 REAR DESK: 32, 1000000000 REAR DESK: 33, 1000000000 REAR DESK: 34, 1000000000 REAR DESK: 35, 1000000000 REAR DESK: 36, 1000000000 REAR DESK: 37, 1000000000 REAR DESK: 38, 1000000000 REAR DESK: 39, 1000000000 REAR DESK: 40, 1000000000 REAR DESK: 41, 1000000000 REAR DESK: 42, 1000000000 REAR DESK: 43, 1000000000 REAR DESK: 44, 1000000000 REAR DESK: 45, 1000000000 REAR DESK: 46, 1000000000 REAR DESK: 47, 1000000000 REAR DESK: 48, 1000000000 REAR DESK: 49, 1000000000 REAR DESK: 50, 1000000000 REAR DESK: 51, 1000000000 REAR DESK: 52, 1000000000 REAR DESK: 53, 1000000000 REAR DESK: 54, 1000000000 REAR DESK: 55, 1000000000 REAR DESK: 56, 1000000000 REAR DESK: 57, 1000000000 REAR DESK: 58, 1000000000 REAR DESK: 59, 1000000000 REAR DESK: 60, 1000000000 REAR DESK: 61, 1000000000 REAR DESK: 62, 1000000000 REAR DESK: 63, 1000000000 REAR DESK: 64, 1000000000 REAR DESK: 65, 1000000000 REAR DESK: 66, 1000000000 REAR DESK: 67, 1000000000 REAR DESK: 68, 1000000000 REAR DESK: 69, 1000000000 REAR DESK: 70, 1000000000 REAR DESK: 71, 1000000000 REAR DESK: 72, 1000000000 REAR DESK: 73, 1000000000 REAR DESK: 74, 1000000000 REAR DESK: 75, 1000000000 REAR DESK: 76, 1000000000 REAR DESK: 77, 1000000000 REAR DESK: 78, 1000000000 REAR DESK: 79, 1000000000 REAR DESK: 80, 1000000000 REAR DESK: 81, 1000000000 REAR DESK: 82, 1000000000 REAR DESK: 83, 1000000000 REAR DESK: 84, 1000000000 REAR DESK: 85, 1000000000 REAR DESK: 86, 1000000000 REAR DESK: 87, 1000000000 REAR DESK: 88, 1000000000 REAR DESK: 89, 1000000000 REAR DESK: 90, 1000000000 REAR DESK: 91, 1000000000 REAR DESK: 92, 1000000000 REAR DESK: 93, 1000000000 REAR DESK: 94, 1000000000 REAR DESK: 95, 1000000000 REAR DESK: 96, 1000000000 REAR DESK: 97, 1000000000 REAR DESK: 98, 1000000000 REAR DESK: 99, 1000000000 REAR DESK: 100, 1000000000 REAR DESK: 101, 1000000000 REAR DESK: 102, 1000000000 REAR DESK: 103, 1000000000 REAR DESK: 104, 1000000000 REAR DESK: 105, 1000000000 REAR DESK: 106, 1000000000 REAR DESK: 107, 1000000000 REAR DESK: 108, 1000000000 REAR DESK: 109, 1000000000 REAR DESK: 110, 1000000000 REAR DESK: 111, 1000000000 REAR DESK: 112, 1000000000 REAR DESK: 113, 1000000000 REAR DESK: 114, 1000000000 REAR DESK: 115, 1000000000 REAR DESK: 116, 1000000000 REAR DESK: 117, 1000000000 REAR DESK: 118, 1000000000 REAR DESK: 119, 1000000000 REAR DESK: 120, 1000000000 REAR DESK: 121, 1000000000 REAR DESK: 122, 1000000000 REAR DESK: 123, 1000000000 REAR DESK: 124, 1000000000 REAR DESK: 125, 1000000000 REAR DESK: 126, 1000000000 REAR DESK: 127, 1000000000 REAR DESK: 128, 1000000000 REAR DESK: 129, 1000000000 REAR DESK: 130, 1000000000 REAR DESK: 131, 1000000000 REAR DESK: 132, 1000000000 REAR DESK: 133, 1000000000 REAR DESK: 134, 1000000000 REAR DESK: 135, 1000000000 REAR DESK: 136, 1000000000 REAR DESK: 137, 1000000000 REAR DESK: 138, 1000000000 REAR DESK: 139, 1000000000 REAR DESK: 140, 1000000000 REAR DESK: 141, 1000000000 REAR DESK: 142, 1000000000 REAR DESK: 143, 1000000000 REAR DESK: 144, 1000000000 REAR DESK: 145, 1000000000 REAR DESK: 146, 1000000000 REAR DESK: 147, 1000000000 REAR DESK: 148, 1000000000 REAR DESK: 149, 1000000000 REAR DESK: 150, 1000000000 REAR DESK: 151, 1000000000 REAR DESK: 152, 1000000000 REAR DESK: 153, 1000000000 REAR DESK: 154, 10	
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# BLOWOUT PREVENTER SCHEMATIC

Operation:

Intermediate & Production

Minimum System operation pressure

5,000 psi

## BOP Stack

Part	Size	Pressure Rating	Description
A	13-5/8"	N/A	Rotating Head/Bell nipple
B	13-5/8"	5,000	Annular
C	13-5/8"	5,000	Blind Ram
D	13-5/8"	5,000	Pipe Ram
E	13-5/8"	5,000	Mud Cross
F	13-5/8"	5,000	Pipe Ram

## Kill Line

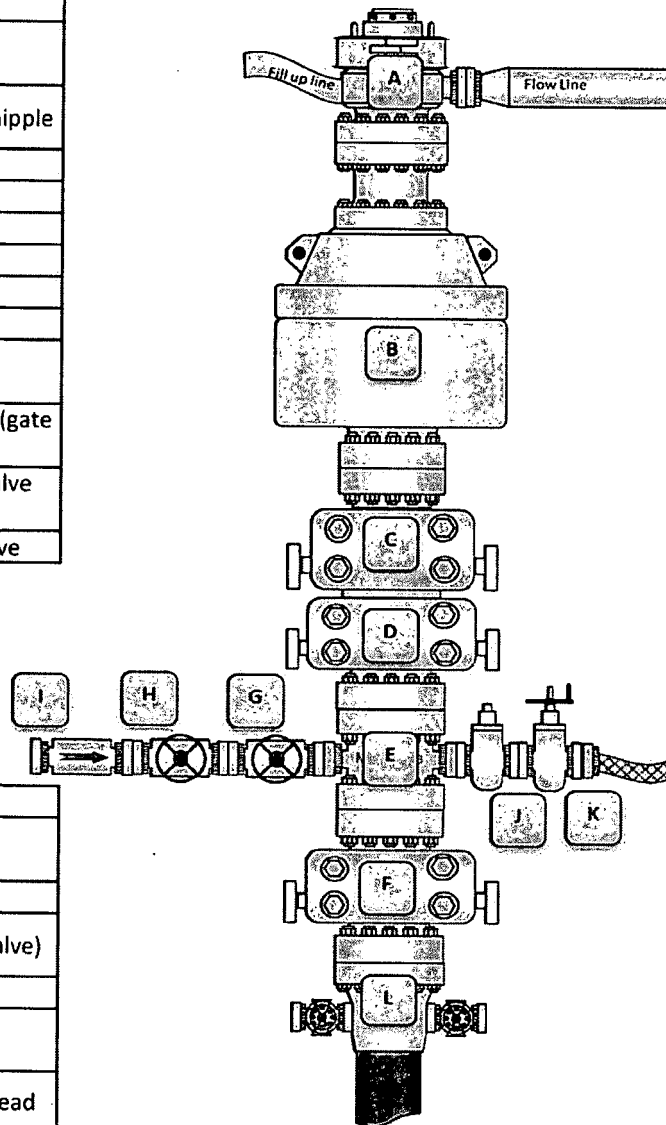
Part	Size	Pressure Rating	Description
G	2"	5,000	Inside Kill Line Valve (gate valve)
H	2"	5,000	Outside Kill Line Valve (gate valve)
I	2"	5,000	Kill Line Check valve

## Choke line

Part	Size	Pressure Rating	Description
J	3"	5,000	HCR (gate valve)
K	3"	5,000	Manual HCR (gate valve)

## Wellhead

Part	Size	Pressure Rating	Description
L	13-5/8"	5,000	FMC 5M/10M 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.

The kill line and choke line will be straight unless turns use tee blocks or are targeted with running tees, and will be anchored to prevent whip and reduce vibration.

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 kill line.

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.

# CHOKE MANIFOLD SCHEMATIC

Operation:

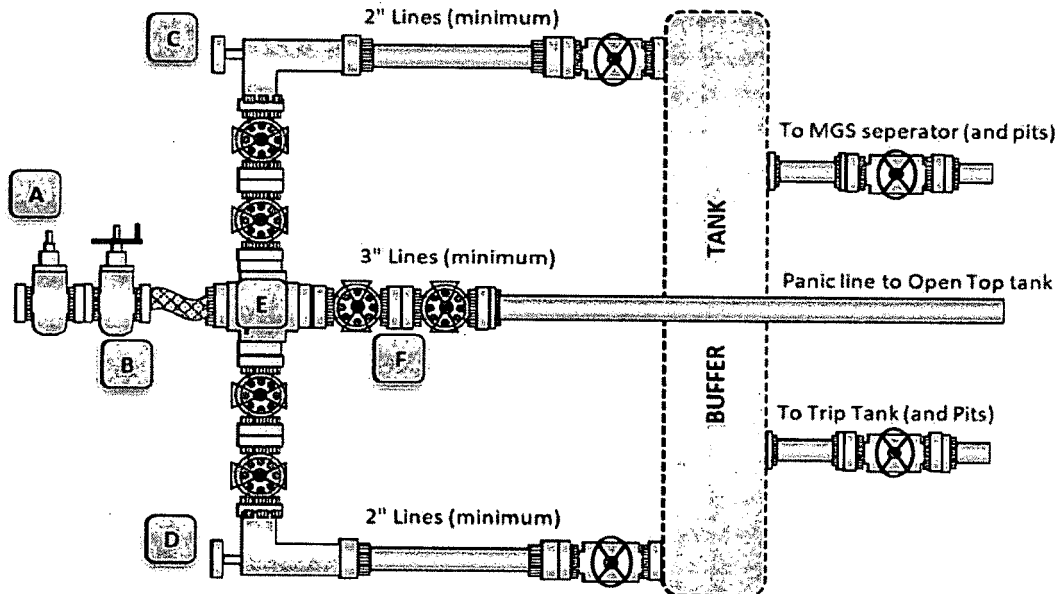
Intermediate & Production

Minimum System operation pressure

5,000 psi

## Choke Manifold

Part	Size	Pressure Rating	Description
A	3"	5,000	HCR (remotely operated)
B	3"	5,000	HCR (manually operated)
C	2"	5,000	Remotely operated choke
D	2"	5,000	Adjustable choke
E	3"	5,000	Crown valve with pressure gage
F	3"	5,000	Panic line valves



### Choke Manifold 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.

Adjustable chokes may be remotely operated but will have backup hand pump for hydraulic actuation in case of loss of rig air or power.

Flare and panic lines will terminate a minimum of 150' from the wellhead. These lines will terminate at a location as per approved APD.

The choke line, kill line and choke manifold lines will be straight unless turns use tee blocks or targeted with running tees, and will be anchored to prevent whip and reduce vibrations. A variance will be submitted if a flexible choke line will be used.

All valves (except chokes) on choke line, kill line and choke manifold will be full opening and will allow straight through flow. This excludes any valves between the mud gas separator and shale shakers.

All manual valves will have hand wheels installed.

Flare systems will have an effective method for ignition.

All connections will be flanged, welded or clamped

If buffer tank is used, a valve will be used on all lines at any entry or exit point to or from the buffer tank.

January 08 2015



**Connection:** TenarisXP™ BTC  
**Casing/Tubing:** CAS  
**Coupling Option:** REGULAR API

**Size:** 5.500 in.  
**Wall:** 0.304 in.  
**Weight:** 17.00 lbs/ft  
**Grade:** P110-IC  
**Min. Wall Thickness:** 87.5 %



## PIPE BODY DATA

## GEOMETRY

Nominal OD	<b>5.500</b> in.	Nominal Weight	<b>17.00</b> lbs/ft	Standard Drift Diameter	<b>4.767</b> in.
Nominal ID	<b>4.892</b> in.	Wall Thickness	<b>0.304</b> in.	Special Drift Diameter	<b>N/A</b>
Plain End Weight	<b>16.89</b> lbs/ft				

## PERFORMANCE

Body Yield Strength	<b>546</b> x 1000 lbs	Internal Yield	<b>10640</b> psi	SMYS	<b>110000</b> psi
Collapse	<b>8610</b> psi				

## TENARISXP™ BTC CONNECTION DATA

## GEOMETRY

Connection OD	<b>6.300</b> in.	Coupling Length	<b>9.450</b> in.	Connection ID	<b>4.880</b> in.
Critical Section Area	<b>4.962</b> sq. in.	Threads per in.	<b>5.00</b>	Make-Up Loss	<b>4.204</b> in.

## PERFORMANCE

Tension Efficiency	<b>100</b> %	Joint Yield Strength	<b>546</b> x 1000 lbs	Internal Pressure Capacity <sup>(1)</sup>	<b>10640</b> psi
Structural Compression Efficiency	<b>100</b> %	Structural Compression Strength	<b>546</b> x 1000 lbs	Structural Bending <sup>(2)</sup>	<b>92</b> °/100 ft
External Pressure Capacity	<b>8610</b> psi				

ESTIMATED MAKE-UP TORQUES<sup>(3)</sup>

Minimum	<b>9740</b> ft-lbs	Target	<b>10820</b> ft-lbs	Maximum	<b>11900</b> ft-lbs
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## OPERATIONAL LIMIT TORQUES

Operating Torque	<b>11900</b> ft-lbs	Yield Torque	<b>12900</b> ft-lbs		
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## BLANKING DIMENSIONS

## Blanking Dimensions



## Casing and Tubing Performance Data

### PIPE BODY DATA

#### GEOMETRY

Outside Diameter	<b>13.375 in</b>	Wall Thickness	<b>0.380 in</b>	API Drift Diameter	<b>12.459 in</b>
Nominal Weight	<b>54.50 lbs/ft</b>	Nominal ID	<b>12.615 in</b>	Alternative Drift Diameter	n.a.
Plain End Weight	<b>52.79 lbs/ft</b>	Nominal cross section	<b>15.513 in</b>		

#### PERFORMANCE

Steel Grade	<b>J55</b>	Minimum Yield	<b>55,000 psi</b>	Minimum Ultimate	<b>75,000 psi</b>
Tension Yield	<b>853,000 in</b>	Internal Pressure Yield	<b>2,730 psi</b>	Collapse Pressure	<b>1,130 psi</b>
Available Seamless	<b>Yes</b>	Available Welded	<b>Yes</b>		

### CONNECTION DATA

#### TYPE: STC

#### GEOMETRY

Coupling Reg OD	<b>14.375 in</b>	Threads per in	<b>8</b>	Thread turns make up	<b>3.5</b>
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#### PERFORMANCE

Steel Grade	<b>J55</b>	Coupling Min Yield	<b>55,000 psi</b>	Coupling Min Ultimate	<b>75,000 psi</b>
Joint Strength	<b>514,000 lbs</b>			Internal Pressure Resistance	<b>2,730 psi</b>

**9 5/8" 43.50 ppf L80 IC - LTC**
**(USC Units)**

PIPE BODY DATA					
GEOMETRY					
Nominal OD	9.625 in.	Nomlnal Weight	43.50 lbs/ft	Standard Drift Diameter	8.599 in.
Nominal ID	8.755 in.	Wall Thickness	0.435 in.	Special Drift Diameter	8.625 in.
Plain End Weight	42.73 lbs/ft				
PERFORMANCE					
Body Yield Strength	1005 x 1000 lbs	Internal Yield	6330 psi	Collapse	4830 psi
CONNECTION DATA					
GEOMETRY					
Coupling Regular OD	10.625 in.	Threads per inch	8	Hand-Tight Standoff Thread Turns	3.5
PERFORMANCE <sup>(1)</sup>					
Joint Strength	813 x 1000 lbs.	Internal Pressure Resistance	6330 psi		

(1) Non API size/grade combination for LTC.

Performance calculated according to API Standards 5CT and 5B and API Technical Report 5C3.

Joint Strength as per API TR 5C3 1st Edition/ISO 10400:2007 - Section 9

Internal Pressure Resistance as per API TR 5C3 1st Edition/ISO 10400:2007 - Section 10

### 1. FORMATION TOPS

The estimated tops of important geologic markers are as follows:

FORMATION	SUB-SEA TVD	KBTVD	MD
Lamar		2100	
Bell Canyon		2337	
Cherry Canyon		3182	
Brushy Canyon		4331	
Bone Spring Limestone		5973	
Avalon		6083	
First Bone Spring		6836	
Second Bone Spring		7469	
SBSG 3rd Carb		8239	
Third Bone Spring		8690	
Wolfcamp A		9036	19,460

### 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 Expected Base of Fresh Water		450
Water	Lamar	2100
Water	Bell Canyon	2337
Water	Cherry Canyon	3182
Oil/Gas	Brushy Canyon	4331
Oil/Gas	Bone Spring Limestone	5973
Oil/Gas	Avalon	6083
Oil/Gas	First Bone Spring	6836
Oil/Gas	Second Bone Spring	7469
Oil/Gas	SBSG 3rd Carb	8239
Oil/Gas	Third Bone Spring	8690
Oil/Gas	Wolfcamp A	9036

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

### 3. BOP EQUIPMENT

Will have a minimum of a **5,000** psi rig stack (see proposed schematic) for drill out below intermediate casing (Wolfcamp is not exposed until drillout of the intermediate casing). Stack will be tested as specified in the attached testing requirements. Batch drilling of the surface, intermediate, and production will take place. A full BOP test will be performed unless approval from BLM is received otherwise.

Chevron requests a variance to use a FMC UH2 Multibowl wellhead, which will be run through the rig floor on surface casing. BOPE will be nipped up and tested after cementing surface casing. Subsequent tests will be performed as needed, not to exceed 30 days. The field report from FMC 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.

#### 4. CASING PROGRAM

a. The proposed casing program will be as follows:

Purpose	From	To	Hole Size	Csg Size	Weight	Grade	Thread	Condition
Surface	0'	450'	17-1/2"	13-3/8"	55 #	J55	STC	New
Intermediate	0'	8,310'	12-1/4"	9-5/8"	43.5#	L80	LTC	New
Production	0'	19,460'	8-1/2"	5-1/2"	20.0 #	P-110-IC	TXP BTC	New

b. Casing design subject to revision based on geologic conditions encountered.

c. \*\*\*A "Worst Case" casing design for wells in a particular area is used below to calculate the Casing Safety Factors. If for any reason the casing design for a particular well requires setting casing deeper than the following "worst case" design, then the Casing Safety Factors will be recalculated & sent to the BLM prior to drilling.

d. Chevron will fill casing at a minimum of every 20 jts (840') while running for intermediate and production casing in order to maintain collapse SF.

#### SF Calculations based on the following "Worst Case" casing design:

Surface Casing: 450'

Intermediate Casing: 8,240' TVD

Production Casing: 19,460' MD/9,026' TVD (11,148' VS @ 90 deg inc)

Casing String	Min SF Burst	Min SF Collapse	Min SF Tension	Min SF Tri-Axial
Surface	1.41	5.09	3.56	1.54
Intermediate	1.20	1.74	1.81	1.29
Production	1.11	1.56	2.38	1.21

Min SF is the smallest of a group of safety factors that include the following considerations:

	Surf	Int	Prod
<b>Burst Design</b>			
Pressure Test- Surface, Int, Prod Csg P external: Water P internal: Test psi + next section heaviest mud in csg	X	X	X
Displace to Gas- Surf Csg P external: Water P internal: Dry Gas from Next Csg Point	X		
Frac at Shoe, Gas to Surf- Int Csg P external: Water P internal: Dry Gas, 16 ppg Frac Gradient		X	
Stimulation (Frac) Pressures- Prod Csg P external: Water P internal: Max inj pressure w/ heaviest injected fluid			X
Tubing leak- Prod Csg (packer at KOP) P external: Water P internal: Leak just below surf, 8.7 ppg packer fluid			X
<b>Collapse Design</b>			
Full Evacuation P external: Water gradient in cement, mud above TOC P internal: none	X	X	X
Cementing- Surf, Int, Prod Csg P external: Wet cement P internal: water	X	X	X
<b>Tension Design</b>			
100k lb overpull	X	X	X

5. **CEMENTING PROGRAM**

Slurry	Type	Top	Bottom	Weight	Yield	%Excess	Sacks	Water
Surface				(ppg)	(sx/cu ft)	Open Hole		gal/sk
Tail	Class C	0'	450'	14.8	1.33	50	410	6.38
Intermediate								
Stage 2 Lead	50:50 Poz Class C	0'	1815	11.9	2.56	50	314	14.66
Stage 2 Tail	Class C	1815	2115	14.8	1.33	0	71	6.38
Stage 1 Lead	50:50 Poz Class C	2,115'	7,810'	11.9	2.56	10	766	14.66
Stage 1 Tail	Class C	7,810'	8,310'	14.8	1.33	10	158	6.38
Production								
Lead	Class C	8,010'	18,460'	14.5	1.4	10	1881	6.77
Tail	Class H Acid Soluble	18,460'	19,460'	15	2.19	10	115	7.44

1. Final cement volumes will be determined by caliper.
2. Surface casing shall have at least one centralizer installed on each of the bottom three joints starting with the shoe joint.
3. Production casing will have one horizontal type centralizer on every joint for the first 1000' from TD, then every other joint to EOB, and then every third joint to KOP. Bowspring type centralizers will be run from KOP to intermediate casing.

## 6. MUD PROGRAM

From	To	Type	Weight	F. Vis	Filtrate	Notes
0'	450'	Spud Mud	8.3 - 8.7	32 - 34	NC - NC	
450'	8,310'	Oil Based Mud	8.8 - 9.6	50 -70	5.0 - 10	
8,310'	19,460'	Oil Based Mud	9 - 10	50 -70	5.0 - 10	Due to wellbore stability, the mud program may exceed the MW weight window needed to maintain overburden of pore pressure.

A closed system will be utilized consisting of above ground steel tanks. All wastes accumulated during drilling operations will be contained in a portable trash cage and removed from location and deposited in an approved sanitary landfill. Sanitary wastes will be contained in a chemical porta-toilet and then hauled to an approved sanitary landfill.

All fluids and cuttings will be disposed of in accordance with New Mexico Oil Conservation Division rules and regulations.

A mud test shall be performed every 24 hours after mudding up to determine, as applicable: density, viscosity, gel strength, filtration, and pH.

Visual mud monitoring equipment shall be in place to detect volume changes indicating loss or gain of circulating fluid volume. When abnormal pressures are anticipated -- a pit volume totalizer (PVT), stroke counter, and flow sensor will be used to detect volume changes indicating loss or gain of circulating fluid volume.

A weighting agent and lost circulating material (LCM) will be onsite to mitigate pressure or lost circulation as hole conditions dictate.

## 7. TESTING, LOGGING, AND CORING

The anticipated type and amount of testing, logging, and coring are as follows:

- Drill stem tests are not planned.
- The logging program will be as follows:

TYPE	Logs	Interval	Timing	Vendor
Mudlogs	2 Man mudlog	Int Csg to TD	Drillout of Csg	TBD
LWD	MWD Gamma	Int and Prod Hole	While Drilling	TBD

- Conventional whole core samples are not planned.
- A Directional Survey will be run.

## 8. ABNORMAL PRESSURES AND HYDROGEN SULFIDE

- No abnormal pressures or temperatures are expected. Estimated BHP is: **4694** psi
- Hydrogen sulfide gas is not anticipated. An H2S Contingency plan is attached with this APD in the event that H2S is encountered



# H<sub>2</sub>S Preparedness and Contingency Plan Summary

HH SO 8 5 FED 004 1, 2, 3, 4, 5, 6H

## Training

MCBU Drilling and Completions H<sub>2</sub>S training requirements are intended to define the minimum level of training required for employees, contractors and visitors to enter or perform work at MCBU Drilling and Completions locations that have known concentrations of H<sub>2</sub>S.

### Awareness Level

Employees and visitors to MCBU Drilling and Completions locations that have known concentrations of H<sub>2</sub>S, who are not required to perform work in H<sub>2</sub>S areas, will be provided with an awareness level of H<sub>2</sub>S training prior to entering any H<sub>2</sub>S areas. At a minimum, awareness level training will include:

1. Physical and chemical properties of H<sub>2</sub>S
2. Health hazards of H<sub>2</sub>S
3. Personal protective equipment
4. Information regarding potential sources of H<sub>2</sub>S
5. Alarms and emergency evacuation procedures

Awareness level training will be developed and conducted by personnel who are qualified either by specific training, educational experience and/or work-related background.

### Advanced Level H<sub>2</sub>S Training

Employees and contractors required to work in areas that may contain H<sub>2</sub>S will be provided with Advanced Level H<sub>2</sub>S training prior to initial assignment. In addition to the Awareness Level requirements, Advanced Level H<sub>2</sub>S training will include:

1. H<sub>2</sub>S safe work practice procedures;
2. Emergency contingency plan procedures;
3. Methods to detect the presence or release of H<sub>2</sub>S (e.g., alarms, monitoring equipment), including hands-on training with direct reading and personal monitoring H<sub>2</sub>S equipment.
4. Basic overview of respiratory protective equipment suitable for use in H<sub>2</sub>S environments. Note: Employees who work at sites that participate in the Chevron Respirator User program will require separate respirator training as required by the MCBU Respiratory Protection Program;
5. Basic overview of emergency rescue techniques, first aid, CPR and medical evaluation procedures. Employees who may be required to perform "standby" duties are required to receive additional first aid and CPR training, which is not covered in the Advanced Level H<sub>2</sub>S training;
6. Proficiency examination covering all course material.

Advanced H<sub>2</sub>S training courses will be instructed by personnel who have successfully completed an appropriate H<sub>2</sub>S train-the-trainer development course (ANSI/ASSE Z390.1-2006) or who possess significant past experience through educational or work-related background.



# **H<sub>2</sub>S Preparedness and Contingency Plan Summary**

## **H<sub>2</sub>S Training Certification**

All employees and visitors will be issued an H<sub>2</sub>S training certification card (or certificate) upon successful completion of the appropriate H<sub>2</sub>S training course. Personnel working in an H<sub>2</sub>S environment will carry a current H<sub>2</sub>S training certification card as proof of having received the proper training on their person at all times.

## **Briefing Area**

A minimum of two briefing areas will be established in locations that at least one area will be upwind from the well at all times. Upon recognition of an emergency situation, all personnel should assemble at the designated upwind briefing areas for instructions.

## **H<sub>2</sub>S Equipment**

### **Respiratory Protection**

- a) Six 30 minute SCBAs – 2 at each briefing area and 2 in the Safety Trailer.
- b) Eight 5 minute EBAs – 5 in the dog house at the rig floor, 1 at the accumulator, 1 at the shale shakers and 1 at the mud pits.

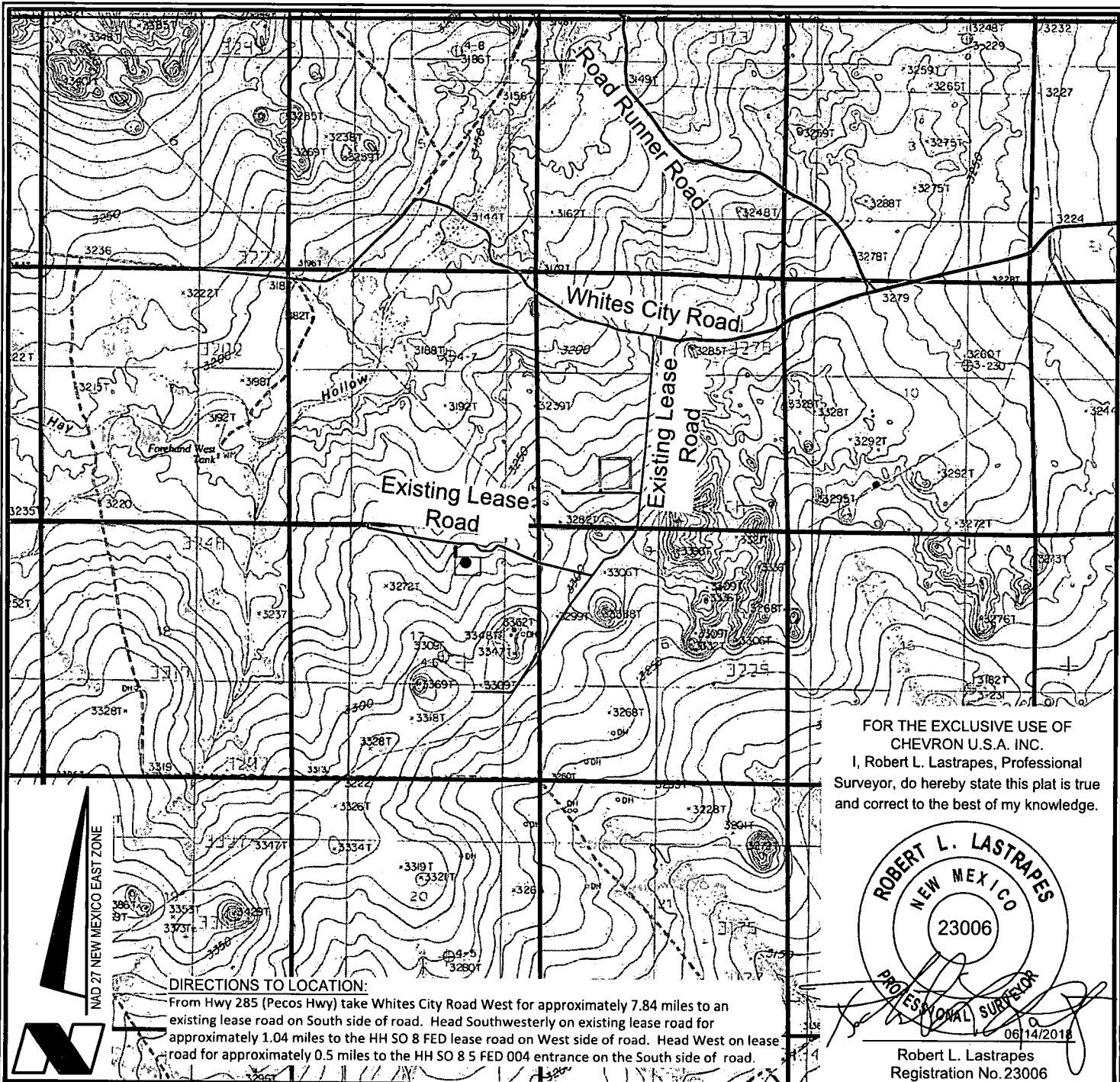
### **Visual Warning System**

- a) One color code sign, displaying all possible conditions, will be placed at the entrance to the location with a flag displaying the current condition.
- b) Two windsocks will be on location, one on the dog house and one on the Drill Site Manager's Trailer.

## **H<sub>2</sub>S Detection and Monitoring System**

- a) H<sub>2</sub>S monitoring system (sensor head, warning light and siren) placed throughout rig.
  - Drilling Rig Locations: at a minimum, in the area of the Shale shaker, rig floor, and bell nipple.
  - Workover Rig Locations: at a minimum, in the area of the Cellar, rig floor and circulating tanks or shale shaker.





#### DIRECTIONS TO LOCATION:

From Hwy 285 (Pecos Hwy) take Whites City Road West for approximately 7.84 miles to an existing lease road on South side of road. Head Southwesterly on existing lease road for approximately 1.04 miles to the HH SO 8 FED lease road on West side of road. Head West on lease road for approximately 0.5 miles to the HH SO 8 5 FED 004 entrance on the South side of road.

#### ROAD PLAT

Scale: 1" = 3000'

3000' 0 1500' 3000'

#### LEGEND

- Proposed Well
- Proposed Access Road
- Proposed Drillsite
- Existing Road
- Section Line
- Proposed Frac Pond

**CHEVRON U.S.A. INC.**  
HH SO 8 5 FED 004 NO. 2H WELL  
LOCATED 783' FNL AND 1559' FEL  
SECTION 17, T26S-R27E  
EDDY COUNTY, NEW MEXICO



C. H. Fenstermaker & Associates, L.L.C.  
135 Regency Sq. Lafayette, LA 70508  
Ph. 337-237-2200 Fax. 337-232-3299  
[www.fenstermaker.com](http://www.fenstermaker.com)

#### REVISIONS

DRAWN BY:	#	BY:	DATE:	DESCRIPTION:
PROJ. MGR.:	GDG	1	AMT	12/04/2017
DATE:	08/10/2017			
FILENAME:	T:\2017\2176071\DWG\HH SO 8 5 FED 004 No. 2H_RoadPlat.dwg			

R 27 E

Point of  
Commencement/  
Fnd. 2" Iron Pipe @ NE  
Corner of Section 17

Existing  
Archaeological  
Area

T  
26  
S

Edge of As-Staked 80' ROW  
As-Staked Lease Road  
Edge of As-Staked 80' ROW

CENTERLINE  
PROPOSED  
ACCESS ROAD  
24' x ±1211.98'  
±12.85 Rods  
±0.12 Acres

PROPOSED PAD  
±4.75 Acres

5

545'

235'

310'

HH SO 8 5  
FED 004  
No. 2H Well  
783' FNL  
1559' FEL

380'

380'

545'

Sec. 17

Bureau of Land Management

HH SO 8 5 FED 004 NO. 2H WELL	
X=	538,752 NAD 27
Y=	381,020
LAT.	32.047476
LONG.	104.208259
X=	579,936 NAD83
Y=	381,077
LAT.	32.047598
LONG.	104.208753
ELEVATION +3268' NAVD 88	

NW PAD CORNER		NE PAD CORNER	
X=	538,518 NAD 27	X=	539,063 NAD 27
Y=	381,141	Y=	381,138
ELEVATION +3258' NAVD 88		ELEVATION +3265' NAVD 88	
SW PAD CORNER		SE PAD CORNER	
X=	538,516 NAD 27	X=	539,061 NAD 27
Y=	380,761	Y=	380,758
ELEVATION +3265' NAVD 88		ELEVATION +3278' NAVD 88	

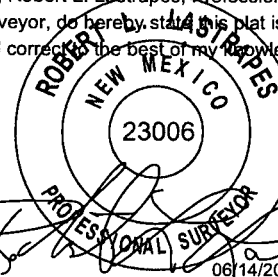
LEGEND	
As-Staked ROW	
Lease Road	
Section Line	
Centerline Access	
Fnd. Monument	
Archaeological Find	

Scale: 1" = 200'

200' 0 100' 200'

FOR THE EXCLUSIVE USE OF  
CHEVRON U.S.A. INC.

I, Robert L. Lastrapes, Professional  
Surveyor, do hereby state this plat is true  
and correct to the best of my knowledge.



Robert L. Lastrapes  
Registration No. 23006

WELL PLAT

Page 1 of 2

**CHEVRON U.S.A. INC.**  
PROPOSED PAD & ACCESS ROAD  
HH SO 8 5 FED 004 NO. 2H WELL  
SECTION 17, T26S-R27E  
EDDY COUNTY, NEW MEXICO

REVISIONS

DRAWN BY:	GDG	#	BY:	DATE:	DESCRIPTION:
PROJ. MGR.:	GDG	1	AMT	11/07/2017	Pad Shift
DATE:	08/10/2017	2	AMT	12/04/2017	Add Access Road
FILENAME: T:\2017\2176071\DWG\HH SO 8 5 FED 004 No. 2H_WellPlat.dwg					



C. H. Fenstermaker & Associates, L.L.C.  
135 Regency Sq. Lafayette, LA 70508  
Ph. 337-237-2200 Fax. 337-232-3299  
www.fenstermaker.com

**DISCLAIMER:** At this time, C. H. Fenstermaker & Associates, L.L.C. has not performed nor was asked to perform any type of engineering, hydrological modeling, flood plain, or "No Rise" certification analyses, including but not limited to determining whether the project will impact flood hazards in connection with federal/FEMA, state, and/or local laws, ordinances and regulations. Accordingly, Fenstermaker makes no warranty or representation of any kind as to the foregoing issues, and persons or entities using this information shall do so at their own risk.

**NOTE:**

Please be advised, that while reasonable efforts are made to locate and verify pipelines and anomalies using our standard pipeline locating equipment, it is impossible to be 100 % effective. As such, we advise using caution when performing work as there is a possibility that pipelines and other hazards, such as fiber optic cables, PVC pipelines, etc. may exist undetected on site.

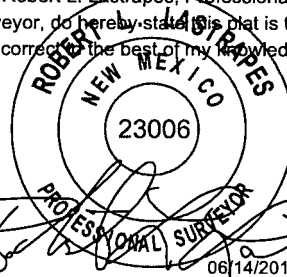
**NOTE:**

Many states maintain information centers that establish links between those who dig (excavators) and those who own and operate underground facilities (operators). It is advisable and in most states, law, for the contractor to contact the center for assistance in locating and marking underground utilities. For guidance: New Mexico One Call - [www.nmonecall.org](http://www.nmonecall.org).

PROPOSED PAD		
COURSE	BEARING	DISTANCE
1	S 00° 24' 17" W	380.00'
2	N 89° 35' 43" W	545.00'
3	N 00° 24' 17" E	380.00'
4	S 89° 35' 43" E	545.00'

CENTERLINE PROPOSED ACCESS ROAD		
COURSE	BEARING	DISTANCE
5	N 00° 00' 07" W	211.98'

FOR THE EXCLUSIVE USE OF  
CHEVRON U.S.A. INC.  
I, Robert L. Lastrapes, Professional  
Surveyor, do hereby state this Plat is true  
and correct to the best of my knowledge.



Robert L. Lastrapes  
Registration No. 23006

**WELL PLAT**

Page 2 of 2

**CHEVRON U.S.A. INC.**  
PROPOSED PAD & ACCESS ROAD  
HH SO 8 5 FED 004 NO. 2H WELL  
SECTION 17, T26S-R27E  
EDDY COUNTY, NEW MEXICO

**REVISIONS**

DRAWN BY:	GDG	#	BY:	DATE:	DESCRIPTION:
PROJ. MGR.:	GDG	1	AMT	11/07/2017	Pad Shift
DATE:	08/10/2017	2	AMT	12/04/2017	Add Access Road

FILENAME: T:\2017\2176071\DWG\HH SO 8 5 FED 004 No. 2H\_WellPlat.dwg



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CHEVRON U.S.A. INC  
 HH SO 8 5 FED 004 2H  
 SECTION 17, T26S-R27E  
 SHL 783' FNL & 1559' FEL  
 EDDY COUNTY, NM



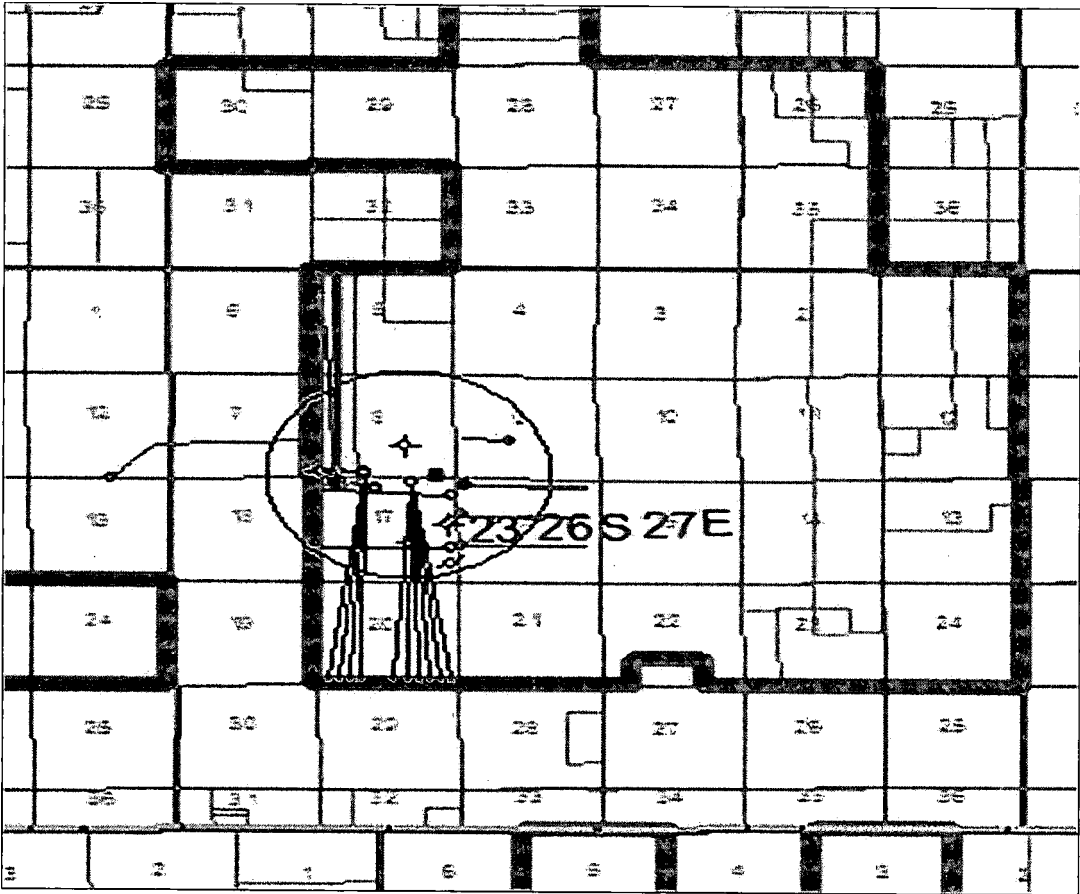
### 1 MILE RADIUS MAP WELL DATA

API	Well Name	Well Number	Operator	Final Status	TD	TVD	SHL to SHL Distance
30015451090000	HH SO 17 20 002 FEDERAL	006H	CHEVRON U S A INCORPORATED	WELL PERMIT			575
30015451070000	HH SO 17 20 002 FEDERAL	004H	CHEVRON U S A INCORPORATED	WELL PERMIT			580
30015451080000	HH SO 17 20 002 FEDERAL	005H	CHEVRON U S A INCORPORATED	WELL PERMIT			575
30015451060000	HH SO 17 20 002 FEDERAL	003H	CHEVRON U S A INCORPORATED	WELL PERMIT			585
30015451050000	HH SO 17 20 002 FEDERAL	002H	CHEVRON U S A INCORPORATED	WELL PERMIT			590
30015451040000	HH SO 17 20 002 FED	001H	CHEVRON U S A INCORPORATED	WELL PERMIT			595
30015439760000	BLAST 'BLA' FEDERAL	010H	YATES PETROLEUM CORPORATION	WELL PERMIT			1360
30015451150000	HH SO 8 5 FED 003	001H	CHEVRON U S A INCORPORATED	WELL PERMIT			1445
30015451160000	HH SO 8 5 FED 003	002H	CHEVRON U S A INCORPORATED	WELL PERMIT			1445
30015451170000	HH SO 8 5 FED 003	003H	CHEVRON U S A INCORPORATED	WELL PERMIT			1450
30015451180000	HH SO 8 5 FED 003	004H	CHEVRON U S A INCORPORATED	WELL PERMIT			1455
30015451190000	HH SO 8 5 FED 003	005H	CHEVRON U S A INCORPORATED	WELL PERMIT			1460
30015451200000	HH SO 8 5 FED 003	006H	CHEVRON U S A INCORPORATED	WELL PERMIT			1465
30015404000000	CLUSTER STATE COM	2H	COG OPERATING LIMITED LIABILITY CORP	OIL PRODUCER	12097	7637	1780
30015375470000	CLUSTER STATE COM	001H	COG OPERATING LIMITED LIABILITY CORP	OIL PRODUCER	10570	6240	1915
30015375477000	CLUSTER STATE COM	001H	COG OPERATING LIMITED LIABILITY CORP	PILOT HOLE	9200		1915
30015432210000	BLAST BLA FEDERAL COM	11H	YATES PETROLEUM CORPORATION	ABANDON LOCATION			2005
30015403740000	CLUSTER STATE COM	3H	COG OPERATING LIMITED LIABILITY CORP	OIL PRODUCER	12100	7646	2050
30015011510000	WELCH UNIT	6	EL PASO NATURAL GAS COMPANY	DRY & ABANDONED	2300		2060
30015451030000	HH SO 17 20 001 FED	006H	CHEVRON U S A INCORPORATED	WELL PERMIT			2140
30015451020000	HH SO 17 20 001 FED	005H	CHEVRON U S A INCORPORATED	WELL PERMIT			2150
30015451010000	HH SO 17 20 001 FED	002H	CHEVRON U S A INCORPORATED	WELL PERMIT			2185
30015451000000	HH SO 17 20 001 FED	001H	CHEVRON U S A INCORPORATED	WELL PERMIT			2200
30015243270000	FEDERAL 'X' COM	1	CITIES SERVICE OIL & GAS CORPORATION	DRY & ABANDONED	12900		2490
30015361360000	BLAST BLA FEDERAL	1	YATES PETROLEUM CORPORATION	ABD-GW	12850		2565
30015361360001	BLAST BLA FEDERAL	1	YATES PETROLEUM CORPORATION	ABD-GW	12850		2565
30015361360002	BLAST BLA FEDERAL	1	YATES PETROLEUM CORPORATION	ABD-GW	12851		2565
30015439310000	HH SO 8 P2	014H	CHEVRON U S A INCORPORATED	TREATD	10250	10229	2835
30015439310100	HH SO 8 P2	014H	CHEVRON U S A INCORPORATED	TREATD	20474		2835
30015439330000	HH SO 8 P2	013H	CHEVRON U S A INCORPORATED	TREATD	20507		2840
30015439340000	HH SO 8 P2	006H	CHEVRON U S A INCORPORATED	TREATD	20207		2845
30015439350000	HH SO 8 P2	005H	CHEVRON U S A INCORPORATED	TREATD	20020		2850
30015439270000	HH SO 8 P2	021H	CHEVRON U S A INCORPORATED	TREATD	19502		2860
30015439280000	HH SO 8 P2	022H	CHEVRON U S A INCORPORATED	TREATD	19642		3015
30015439450000	BLAST BLA FEDERAL	12H	YATES PETROLEUM CORPORATION	WELL PERMIT			3095
30015404810000	CLUSTER STATE COM	4H	COG OPERATING LIMITED LIABILITY CORP	OIL PRODUCER	11956	7689	3195
30015436400000	BLAST BLA FEDERAL COM	013H	EOG Y RESOURCES INC	ABANDON LOCATION			3925
30015239350000	HAY 'B' FEDERAL	1	QUANAH PETROLEUM INCORPORATED	ABD-OW	9238		4440
30015239350001	HAY 'B' FEDERAL	1	CIRCLE DIAMOND DRILLING LLC	OIL-WO	9238		4440
30015011520000	WELCH UNIT	9	RITCHIE J M C	D&A-O	2230		4460
30015407400000	CLUSTER STATE COM	5H	COG OPERATING LIMITED LIABILITY CORP	OIL PRODUCER	12010	7561	4535
30015011500000	WELCH UNIT	8	EL PASO NATURAL GAS COMPANY	DRY & ABANDONED	2226		4935
30015011490000	WELCH UNIT	3	RITCHIE J M C	ABD-OW	2236		5000
30015383410000	OWL 20504 JV-P	3	BTA OIL PRODUCERS	ABANDON LOCATION			5565
30015233180000	YATES FEDERAL	1	DYAD ASSOCIATES	ABD-OW	2500		5580
30015238840000	CHAPARRAL STATE	1	COLLIER ENERGY INCORPORATED	DRY & ABANDONED	2175		5585
30015011590000	WELCH UNIT	1-X	EL PASO NATURAL GAS COMPANY	ABD-GW	12620		5720
30015011590001	WELCH UNIT	1-X	EL PASO NATURAL GAS COMPANY	ABD-GW	13848		5720
30015011590002	WELCH 'ABV' FEDERAL	1	YATES PETROLEUM CORPORATION	ABD-OW	13848		5720
30015011580000	WELCH UNIT	1	STANOLIND OIL	D&A-OG	12547		5740
30015011580001	WELCH UNIT	1	EL PASO NATURAL GAS COMPANY	D&AW	12853		5740
30015061760000	WELCH UNIT	2	EL PASO NATURAL GAS COMPANY	ABD-OW	2115		5740
30015421460000	BLAST 'BLA' FEDERAL	2H	YATES PETROLEUM CORPORATION	OIL PRODUCER	12350	7491	5795
30015011560000	WELCH UNIT	5	RITCHIE J M C	ABD-OW	2175		5920
30015428280000	SCREECH OWL FEDERAL	4H	COG OPERATING LIMITED LIABILITY CORP	OIL PRODUCER	17323	7438	6205
30015354350000	OWL 20504 JV-P	5	BTA OIL PRODUCERS LLC	ABD-SWO	3800		6260
30015424720000	BARN OWL FEDERAL	2H	COG OPERATING LIMITED LIABILITY CORP	OIL PRODUCER	14118	8750	7205
30015430730000	MARSH OWL FEDERAL COM	1H	COG OPERATING LIMITED LIABILITY CORP	PILOT HOLE	9975	9974	11280
30015430730100	MARSH OWL FEDERAL COM	1H	COG OPERATING LIMITED LIABILITY CORP	OIL-WO	14313	7523	11280
30015417440000	SKEEN 2 SWD	1	CHEVRON U S A INCORPORATED	SWDOP	5600		14685
30015438920000	GRAVITAS 2 STATE SWD	2	CHEVRON U S A INCORPORATED	SWDOP	14960	14952	15015
30015295600001	COTTONWOOD 36 STATE SWD	1	COG OPERATING LIMITED LIABILITY CORP	SWD-WO	5852		18290

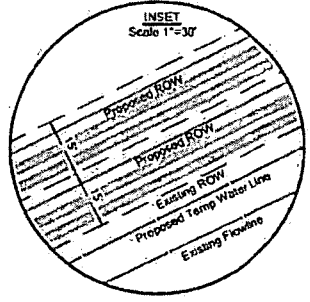
CHEVRON U.S.A. INC  
HH SO 8 5 FED 004 2H  
SECTION 17, T26S-R27E  
SHL 783' FNL & 1559' FEL  
EDDY COUNTY, NM



1 MILE RADIUS MAP



**TOTAL ROW PACKAGE 8:**  
(ALL SECTIONS)  
±4,483.46', ±271.72 Rods, ±1.54 Acres  
**TOTAL ROW PACKAGE 7:**  
(ALL SECTIONS)  
±2,653.86', ±150.85 Rods, ±0.91 Acres  
**TOTAL ROW PACKAGE 5:**  
(ALL SECTIONS)  
±1,458.64', ±100.52 Rods, ±0.57 Acres  
**TOTAL PROPOSED GAS LIFT LINE**  
(ALL SECTIONS)  
±8,858', ±537.43 Rods  
**TOTAL PROPOSED FLOWLINE CLUSTER**  
(ALL SECTIONS)  
±13,333', ±808.07 Rods  
**TOTAL TEMPORARY WATER LINE**  
(ALL SECTIONS)  
±3,749.83', ±227.26 Rods



### Section 8

**BUREAU OF LAND MANAGEMENT**  
Proposed Gas Lift Line Package 8: ±2,289.78', ±138.77 Rods  
Proposed Flowline Cluster Package 8: ±2,761.90', ±138.30 Rods  
Proposed Flowline Cluster Package 7: ±1,597.49', ±96.82 Rods  
Proposed Gas Lift Line Package 6: ±59.97', ±3.63 Rods  
Proposed Flowline Cluster Package 6: ±1,870.39', ±101.24 Rods  
Proposed Gas Lift Line Package 5: ±1,816.23', ±97.95 Rods  
Proposed Flowline Cluster Package 5: ±1,608.35', ±97.48 Rods  
Total Proposed Temporary Water Line: ±997.96', ±60.48 Rods

### Section 9

**BUREAU OF LAND MANAGEMENT**  
Proposed Gas Lift Line Package 8: ±381.98', ±23.15 Rods  
Proposed Flowline Cluster Package 8: ±382.10', ±23.16 Rods  
Proposed Flowline Cluster Package 7: ±382.69', ±23.19 Rods  
Proposed Flowline Cluster Package 6: ±382.24', ±23.17 Rods  
Proposed Gas Lift Line Package 5: ±382.42', ±23.18 Rods  
Proposed Flowline Cluster Package 5: ±382.55', ±23.18 Rods  
Total Proposed Temporary Water Line: ±93.38 Rods

### Section 16 State of New Mexico

### Section 17

**BUREAU OF LAND MANAGEMENT**  
Proposed Gas Lift Line Package 8: ±1,811.73', ±109.80 Rods  
Proposed Flowline Cluster Package 8: ±1,827.22', ±110.74 Rods  
Proposed Gas Lift Line Package 7: ±172.55', ±10.46 Rods  
Proposed Flowline Cluster Package 7: ±664.03', ±40.24 Rods  
Proposed Gas Lift Line Package 5: ±2,153.05', ±130.49 Rods  
Proposed Flowline Cluster Package 5: ±2,154.19', ±130.58 Rods  
Total Proposed Temporary Water Line: ±1,211.12', ±73.40 Rods

FOR THE EXCLUSIVE USE OF  
CHEVRON U.S.A. INC.  
I, Robert L. Lastrapes, Professional  
Surveyor, do hereby state this plat is true  
and correct to the best of my knowledge

Not to be used for construction,  
grading, reclamation, conveyance  
state or engineering design.  
**PRELIMINARY**

Robert L. Lastrapes  
Registration No 23006

Scale: 1" = 400'  
400' 0 200 400'

LEGEND	
	Proposed Right of Way
	Existing Flowline
	Flowline Cluster
	Gas Lift Flowlines
	Temp Water Line
	Section Line
	Existing Road/ Pads/Facilities
	As-Staked Pads/Access
	Archaeological Site

SEE INSET

30' ROW

Existing Arch. Site

Surface Temp  
Frac Water  
Flowline

Existing Arch. Site

Existing Access Road

### DETAIL

**CHEVRON U.S.A. INC.**  
HAYHURST FLOWLINE DETAIL FOR  
PACKAGES 2, 5, 6, 7 & 8  
SECTIONS 8, 9, 16 & 17, T26S-R27E  
EDDY COUNTY, NEW MEXICO



C. H. Fenstermaker & Associates, L.L.C.  
135 Regency Sq. Lafayette, LA 70508  
Ph. 337-237-2200 Fax. 337-233-3299  
www.fenstermaker.com

REVISIONS			
DRAWN BY:	BY:	DATE:	DESCRIPTION
PROJ. MGR.: GDG	DMB	10/16/2018	Add temp water line
DATE: 10/12/2018			
FILENAME: T201512153297DWGHAYHURST FLOWLINE DETAIL.dwg			

R 27 E

Point of  
Commencement/  
Fnd. 2" Iron Pipe @ NE  
Corner of Section 17

Existing  
Archaeological  
Area

S 61° 55' 43" W 1,406.15'

Edge of As-Staked 80' ROW

As-Staked Lease Road

Edge of As-Staked 80' ROW

T  
26  
S

Sec. 17

Bureau of Land Management

CENTERLINE  
PROPOSED  
ACCESS ROAD  
24' x ±211.98'  
±12.85 Rods  
±0.12 Acres

545'

380'

380'

PROPOSED  
TEMPORARY  
PAD AREA  
±2.45 Acres

HH SO 8 5 FED 004  
No. 1H Well

HH SO 8 5 FED 004  
No. 2H Well

HH SO 8 5 FED 004  
No. 3H Well

HH SO 8 5 FED 004  
No. 4H Well

HH SO 8 5 FED 004  
No. 5H Well

HH SO 8 5 FED 004  
No. 6H Well

545'

PROPOSED  
PERMANENT  
PAD AREA  
±2.30 Acres

HH SO 8 5 FED 004 NO. 1H WELL	
X=	538,727 NAD 27
Y=	381,020
LAT.	32.047477
LONG.	104.208340
X=	579,911 NAD83
Y=	381,077
LAT.	32.047599
LONG.	104.208833
ELEVATION +3267' NAVD 88	

NW PAD CORNER		NE PAD CORNER	
X=	538,518 NAD 27	X=	539,063 NAD 27
Y=	381,141	Y=	381,138
ELEVATION +3258' NAVD 88		ELEVATION +3265' NAVD 88	
SW PAD CORNER		SE PAD CORNER	
X=	538,516 NAD 27	X=	539,061 NAD 27
Y=	380,761	Y=	380,758
ELEVATION +3265' NAVD 88		ELEVATION +3278' NAVD 88	

LEGEND	
	As-Staked ROW
	Centerline Access
	Lease Road
	Section Line
	Fnd. Monument
	Archaeological Find

FOR THE EXCLUSIVE USE OF  
CHEVRON U.S.A. INC.  
I, Robert L. Lastrapes, Professional  
Surveyor, do hereby state this plat is true  
and correct to the best of my knowledge.

Not to be used for construction,  
bidding, recordation, conveyance,  
sales, or engineering design.

**PRELIMINARY**

Robert L. Lastrapes  
Registration No. 23006

WELL PLAT

Page 1 of 2

**CHEVRON U.S.A. INC.**  
INTERIM RECLAMATION  
HH SO 8 5 FED 004 NO. 1H-6H WELLS  
SECTION 17, T26S-R27E  
EDDY COUNTY, NEW MEXICO

REVISIONS

DRAWN BY:	DMB	#	BY:	DATE:	DESCRIPTION:
PROJ. MGR.:	GDG	1	RMB	10/17/2018	Pad Shift
DATE:	08/22/2017				
FILENAME: T:\2017\2176071\DWG\HH SO 8 5 FED 004 INTERIM RECLAMATION PLAT.dwg					

C. H. Fenstermaker & Associates, L.L.C.  
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Scale: 1" = 200'  
200' 0 100' 200'

NAD 27 NEW MEXICO EAST ZONE

**DISCLAIMER:** At this time, C. H. Fenstermaker & Associates, L.L.C. has not performed nor was asked to perform any type of engineering, hydrological modeling, flood plain, or "No Rise" certification analyses, including but not limited to determining whether the project will impact flood hazards in connection with federal/FEMA, state, and/or local laws, ordinances and regulations. Accordingly, Fenstermaker makes no warranty or representation of any kind as to the foregoing issues, and persons or entities using this information shall do so at their own risk.

**NOTE:**

Please be advised, that while reasonable efforts are made to locate and verify pipelines and anomalies using our standard pipeline locating equipment, it is impossible to be 100 % effective. As such, we advise using caution when performing work as there is a possibility that pipelines and other hazards, such as fiber optic cables, PVC pipelines, etc. may exist undetected on site.

**NOTE:**

Many states maintain information centers that establish links between those who dig (excavators) and those who own and operate underground facilities (operators). It is advisable and in most states, law, for the contractor to contact the center for assistance in locating and marking underground utilities. For guidance: New Mexico One Call - [www.nmonecall.org](http://www.nmonecall.org).

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**PRELIMINARY**

Robert L. Lastrapes  
Registration No. 23006

WELL PLAT

Page 2 of 2

**CHEVRON U.S.A. INC.**

INTERIM RECLAMATION  
HH SO 8 5 FED 004 NO. 1H-6H WELLS  
SECTION 17, T26S-R27E  
EDDY COUNTY, NEW MEXICO

REVISIONS

DRAWN BY:	DMB	#	BY:	DATE:	DESCRIPTION:
PROJ. MGR.:	GDG	1	RMB	10/17/2018	Pad Shift
DATE:	08/22/2017				
FILENAME: T:\2017\2176071\DWG\HH SO 8 5 FED 004 INTERIM RECLAMATION PLAT.dwg					



Scale: 1" = 200'

200' 0 100' 200'



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NW PAD CORNER		NE PAD CORNER	
X=	538,518 NAD 27	X=	539,063 NAD 27
Y=	381,141	Y=	381,138
ELEVATION +3258' NAVD 88		ELEVATION +3265' NAVD 88	
SW PAD CORNER		SE PAD CORNER	
X=	538,516 NAD 27	X=	539,061 NAD 27
Y=	380,761	Y=	380,758
ELEVATION +3265' NAVD 88		ELEVATION +3278' NAVD 88	

R 27 E

Sec. 8

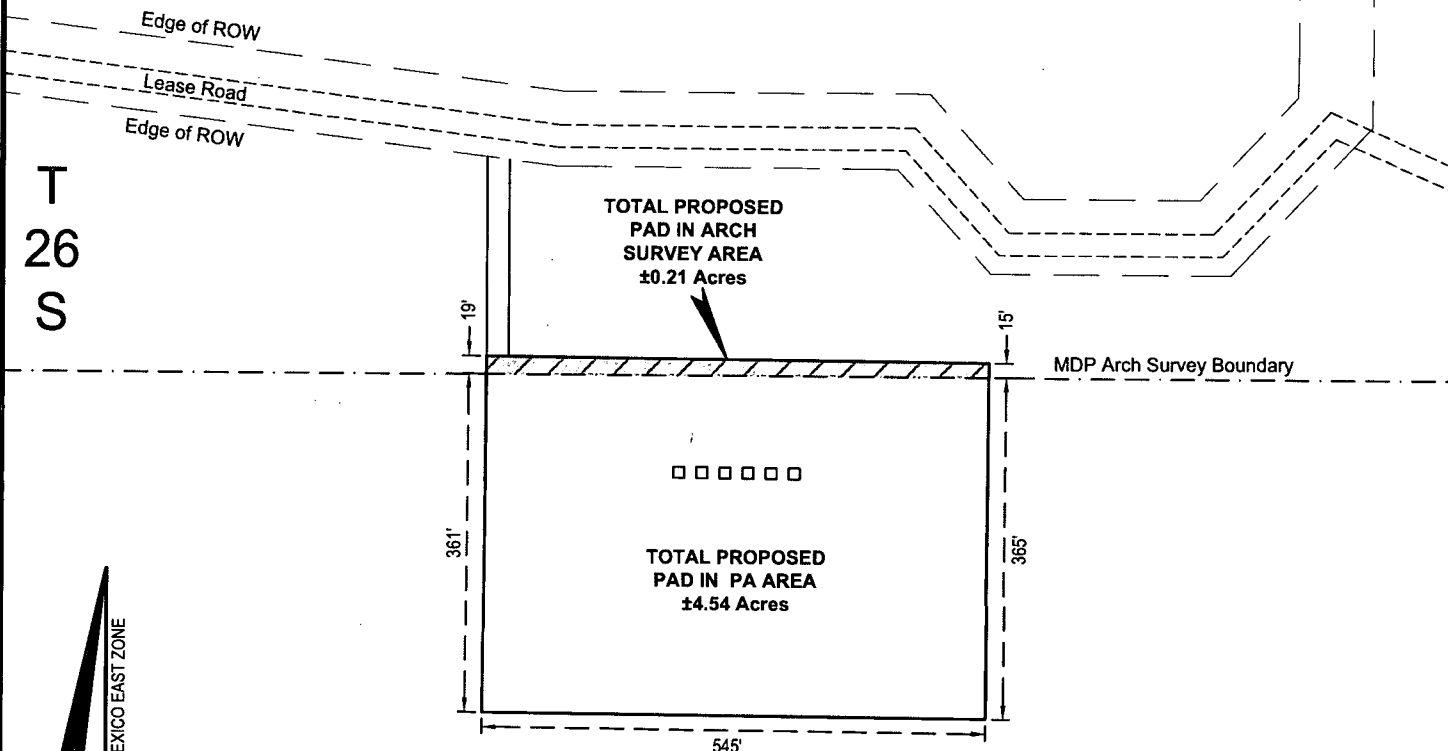
FOR THE EXCLUSIVE USE OF  
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and correct to the best of my knowledge.



Robert L. Lastrapes  
Registration No. 23006

Sec. 17

Bureau of Land Management  
Proposed Pad- ±4.75 Acres



NAD 27 NEW MEXICO EAST ZONE

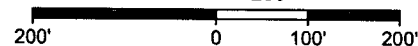


Note: MDP Arch Survey Boundary provided by ARCADIS.

LEGEND	
	Proposed Pad
	Arch Survey Boundary
	Section Line
	Existing Road
	Existing ROW
	Proposed Pad Outside of Boundary

DETAIL

Scale: 1" = 200'



CHEVRON U.S.A. INC.  
MDP ARCH SURVEY BOUNDARY  
HH SO 8 5 FED 004 PAD  
SECTION 17, T26S-R27E  
EDDY COUNTY, NEW MEXICO



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DRAWN BY: GDG		REVISIONS	
PROJ. MGR.: GDG	No.	DATE:	REVISED BY:
DATE: 05/31/2018	No.	DATE:	REVISED BY:
FILENAME: T:\2017\2176071\DWG\HH SO 8 5 FED 004 PA ACREAGE.dwg			

# APD Surface Use Plan of Operations

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**This Surface Use Plan of Operations has been designed to be reviewed in conjunction with Hayhurst Development Area (HDA) Master Development Plan**

HDA Master Development Plan Reference Table

The contents referenced below apply to all HDA APD's

Existing Roads	Exhibit 1, MDP SUPO Page 1
Construction Materials	MDP SUPO Page 6
Methods for Handling Waste	MDP SUPO Page 6
Reclamation Objectives	MDP SUPO Page 6-8
Final Surface Reclamation	MDP SUPO Page 6-8

## Driving Directions

- Driving Directions – From Malaga, New Mexico. The location is approximately 11.5 miles from the nearest town, which is Malaga, New Mexico. From Malaga, proceed South on Highway 285 approximately 11.5 miles and turn right (West) onto White City Rd and go approximately 7.5 miles on White City Road until the road reaches an intersection with a permanent sign reading “Chevron Access”. Turn left onto this and travel 1 mile, then right and travel for another .5 miles to the well location.

## New or Reconstructed Access Roads – (MDP SUPO Pg. 1)

- There will be 211.98' (12.85 rods) of new road construction for this proposal.
- Ditches: See Exhibit 2 (To be submitted at later date)
- Culverts: See Exhibit 2 (To be submitted at later date)
- Road Cuts: See Exhibit 2 (To be submitted at later date)

## Location of Existing Wells

- 1-Mile radius map is attached

**Location of Existing and/or Proposed Production Facilities (MDP SUP Pg. 2)**

- Facilities: Existing production facilities located in the SW corner of Sec. 9, T26S-R27E where oil and gas sales will take place.
  - The facility and frac pond are in Sec. 9, T26S-R27E
  - Gas purchaser pipeline is in place at the tank battery.
  - Open top tanks or open containments will be netted.
  - Open vent exhaust stacks will be modified to prevent birds or bats from entering, discourage perching, roosting, and nesting.
  - Facilities will have a secondary containment 1.5 times the holding capacity of largest storage tank.
  - All above ground structures will be painted non-reflective shale green for blending with surrounding environment.
  - Water disposal will be sent from facility to Gravitas disposal well on State Lands in Section 2, T26S R27E to be disposed of in the well, in a 3<sup>rd</sup> party system, or processed in the adjacent SWD facility and recycled.
- Pipelines: See Detail
  - Pipelines Include:
    - 2,644' (160.24 rods) of Flowlines (4" Flexpipe) carrying production (buried)
    - 172.55' (10.46 Rods) Gas Lift Line carrying pressurized gas (buried)
    - 2,653.96' (160.85 Rods) Temporary Water line carrying fresh water (surface laid)
  - Rights-of-Way will be applied for where necessary
  - All construction activity will be confined to the approved ROW (where applicable).

**Location and Types of Water Supply (MDP SUP Pg. 5)**

- Proposed pond in Section 9, T26S-R27E will be utilized for frac water (fresh/recycled).
- Fresh/Recycled water may also be pulled from ponds in Section 2 (State Lands); ROW Acquired.

CHEVRON U.S.A. Inc  
HH SO 8 P2 1H  
NMNM 100549 & 118108  
SECTION 17, T26S-R27E (Off Lease SHL) SECTION 5, T26S, R27E  
1H: SHL 783' FNL & 1584' FEL BHL 280' FNL & 1590' FEL

### **Construction Materials (MDP SUPO Pg. 6)**

- Caliche will be used from Chevron-owned pit in Section 16, T26S R27E.

### **Well Site Layout (Well Plat)**

- Surveyor Plat
  - Exterior well pad dimensions are 545' x 380'
  - Interior well pad dimensions from point of entry (well head) of the well are N-120', S-260', E-210 to 385', W-150 to 335'. Total disturbance area needed for construction of well pad will be approximately 4.75 acres
  - Topsoil placement is on the west where interim reclamation is planned to be completed upon completion of well and evaluation of best management practices.
  - Cut and fill: will be minimal.
- Rig Layout (Exhibit 6b)

### **Plans for Surface Reclamation (MDP SUPA Pg. 8)**

#### **Interim Reclamation Procedures**

- Reclaimed pad size: 400' x 250' (approximately 2.45 acres)
- See Exhibit for reclaimed pad layout, topsoil location & erosion control features

### **Surface Ownership**

- BLM Surface
  - Surface Tenant – Phillip Stell
- **Nearest Post Office:** Malaga Post Office; 11.4 Miles north

### **Other Information**

- On-site performed by BLM NRS: Paul Murphy 5/16/2017
- Cultural report attached: **MDP** Participating Agreement attached: N/A

### **Chevron Representatives**

Primary point of contact:  
Kevin Dickerson

CHEVRON U.S.A. Inc

HH SO 8 P2 1H

NMNM 100549 & 118108

SECTION 17, T26S-R27E (Off Lease SHL)    SECTION 5, T26S, R27E  
1H: SHL 783' FNL & 1584' FEL    BHL 280' FNL & 1590' FEL

Kevin.dickerson@chevron.com

O- 432-687-7104



1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100.

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